

# Integrating circular economy principles into a modified theory of Planned Behaviour: Exploring customer intentions and experiences with collaborative consumption on Airbnb

Umair Tanveer<sup>a</sup>, Shara Nica Agung Sahara<sup>b</sup>, Marios Kremantzis<sup>c,\*</sup>, Shamaila Ishaq<sup>d</sup>

<sup>a</sup> University of Exeter, UK

<sup>b</sup> University of Warwick, UK

<sup>c</sup> University of Bristol Business School, University of Bristol, UK

<sup>d</sup> Derby Business School, University of Derby, UK

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## ABSTRACT

The sharing economy, exemplified by platforms like Airbnb, has significantly disrupted traditional business models through peer-to-peer sharing of underutilized assets. This study investigates the influence of circular economy (CE) principles and customers' past experiences on their intention to participate in collaborative consumption (CC), focusing on Airbnb. Despite economic, social, and environmental benefits, such as resource efficiency and community connections, concerns about affordable housing and community disruption persist. This research integrates CE principles into the Theory of Planned Behaviour (TPB), examining attitudes, subjective norms, and perceived behavioural control as predictors of CC intention. Using a quantitative research design, data were collected from an online survey of 449 Airbnb users. The study found that economic benefits substantially affected customer attitudes towards CC, while perceived behavioural control and subjective norms significantly influenced CC intentions. Interestingly, past experience negatively moderated the relationship between attitude and CC intention, indicating that frequent users prioritize cost savings over positive product assessments. These findings highlight the importance of emphasizing economic advantages in marketing and suggest the need for educational initiatives to reshape frequent users' perceptions. This research provides practical insights for Airbnb and other CC providers to develop targeted strategies promoting customer adoption. It also offers policymakers guidance for supporting CC growth and sustainability, enhancing the TPB framework by incorporating CE principles and past experience to offer a comprehensive understanding of factors influencing CC intentions.

## 1. Introduction

The sharing economy has disrupted traditional business models by facilitating peer-to-peer sharing of underutilized assets, contributing to the rapid growth of platforms like Airbnb, which now has over 4 million listings across 220 countries [1–3]. This shift challenges the hotel industry and influences travel behaviour [2,4]. Collaborative consumption (CC) offers benefits, including resource efficiency and community connections [5,6]. However, critics highlight concerns over reduced housing affordability and community disruption from short-term rentals [7,8], while supporters note income opportunities and stronger social bonds [5,9].

The COVID-19 pandemic intensified safety concerns, reducing demand for shared services, which threatens CC business sustainability and underscores the need to understand customer intentions post-pandemic [10]. Although much CC research uses models like the Theory of Planned Behaviour (TPB) [1,11–13], these often overlook the Circular Economy (CE) principles embedded in CC. CE principles, emphasizing reuse and waste reduction, deliver social, environmental, and economic benefits [6,9,14]. This study addresses a research gap by exploring how CE factors like environmental concern, economic benefits, and social connections influence participation intentions in home-sharing platforms.

This study explores the influence of CE principles and past customer

\* Corresponding author.

E-mail addresses: [u.tanveer@exeter.ac.uk](mailto:u.tanveer@exeter.ac.uk) (U. Tanveer), [sharanica.agung@gmail.com](mailto:sharanica.agung@gmail.com) (S.N. Agung Sahara), [marios.kremantzis@bristol.ac.uk](mailto:marios.kremantzis@bristol.ac.uk) (M. Kremantzis), [ishaq@derby.ac.uk](mailto:ishaq@derby.ac.uk) (S. Ishaq).

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experiences on intentions to participate in CC, focusing on Airbnb. While prior CC research has emphasized individual factors like attitudes and social norms, it often overlooks the social, environmental, and economic benefits emphasized by CE principles. This study addresses this gap by integrating CE principles into the Theory of Planned Behaviour (TPB) framework, which posits that intentions are shaped by attitudes, subjective norms (perceived social pressure), and perceived behavioural control (belief in one's ability to perform the behaviour).

The study examines how customer attitudes toward social, environmental, and economic benefits of CC via Airbnb impact participation intentions, the effect of subjective norms on CC engagement, and the role of perceived behavioural control in shaping intentions. It also investigates the moderating effect of past experiences (positive or negative Airbnb interactions) on the attitude-intention link. Data were collected from 449 Airbnb users through an online survey during peak travel season, targeting diverse respondents. Analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM) revealed insights into the relationship between CE principles, customer attitudes, norms, control perceptions, and past experiences on CC intentions.

The study provides practical contributions for Airbnb and other CC providers, offering insights into promoting customer adoption based on social, environmental, economic benefits, and past experiences. For policymakers, it suggests strategies to support sustainable CC growth. The research fills a gap by integrating CE principles into CC intentions, enhancing the TPB framework with a comprehensive view that includes CE's social, environmental, and economic dimensions. It also expands TPB's applicability by adding past experience as a moderator, creating a robust framework for examining CC intention and behaviour.

The paper includes a literature review of CC, CE, and TPB, a detailed methodology section, results on CE principles and past experiences influencing CC intentions, and a discussion of theoretical and practical implications. Recommendations for Airbnb and similar platforms and suggestions for future research are presented.

## 2. Literature review

### 2.1. Collaborative consumption

Collaborative Consumption (CC), also known as the "sharing economy," provides temporary access to underutilized assets through online platforms, including peer-to-peer (P2P), business-to-customer (B2C), and business-to-business (B2B) interactions [6,15–17]. Platforms like Airbnb exemplify CC's efficiency by promoting Circular Economy goals—reducing waste and maximizing asset use [6,18,19]. Prosumers, who both consume and offer services, are central to CC growth, driven by economic incentives and prior engagement [20]. However, challenges persist, such as platform bypassing, where users avoid fees to enhance enjoyment and economic benefits [21]. Trust remains essential, with varying trust-building factors influencing user loyalty [22]. Some CC models also harness social media to foster collaborative networks, enabling relational trust and shared resources beyond conventional consumer-provider roles [23]. Despite promoting access over ownership and aiming for sustainable consumption, CC still grapples with issues of equitable benefit distribution and environmental impact [24,25].

### 2.2. Circular economy

CC has expanded through platforms such as Airbnb, allowing individuals to share underutilized resources while accessing a range of services [19]. This study examines how CE principles—including social, environmental, and economic benefits—influence customer attitudes toward CC. Emerging in the 1990s as a sustainable alternative to the traditional linear economy, CE focuses on renewable resource use and extending product lifecycles through reuse and recycling [26–28]. The Ellen MacArthur Foundation's butterfly diagram illustrates CE through two cycles: the biological, which manages renewable resources, and the

technical, which retains non-renewables through repair and recycling [27].

In tourism, CE principles align with tourists' roles as co-producers and co-creators, generating social, environmental, and economic benefits for local communities [9,29,30]. Airbnb exemplifies CE in tourism by reducing waste via optimal use of private properties, fostering social connections, and delivering economic benefits to local hosts [19,31]. This synergy between CE principles and tourism practices promotes sustainable tourism development by maximizing environmental and economic efficiencies and strengthening community bonds [9].

Regional variations also influence sustainable tourism, as seen in a recent study across EU-27 countries that examined post-pandemic decision-making factors driving tourists toward circular destinations. This research revealed a shift toward sustainable travel choices, shaped by regional social and cultural dynamics [32].

Overall, consumers often show positive attitudes toward sustainable products and CE, valuing social benefits such as job creation, education, and community building [26]. CC platforms like Airbnb contribute to social sustainability by fostering connections between suppliers and customers, building a sense of community [33,34]. Social inclusivity is further promoted as travelers engage within residential neighborhoods, encouraging cultural exchange and generating local employment [35,36]. Therefore, it is hypothesized that.

**H1.** Social benefits, as a component of CE principles, positively influence customer attitudes toward CC.

Environmental benefits within CE focus on minimizing environmental impacts through recycling, reuse, and remanufacturing, which, in turn, fosters sustainable consumer choices [26,37,38]. By promoting closed-loop systems and reuse, CE reduces resource consumption, waste, and emissions, with platforms like Airbnb exemplifying this by optimizing existing resources and reducing demand for new goods [39,40]. Consequently, it is hypothesized that.

**H2.** Environmental benefits, as a component of CE principles, positively influence customer attitudes toward CC.

Finally, the economic benefits of CE maximize value while minimizing waste and resource use, providing tangible advantages for businesses, communities, and consumers alike [41]. Airbnb, for instance, allows increased asset utilization by renting out underused properties, offering hosts supplemental income and guests affordable accommodations [18,42]. The resulting local economic boost through increased tourism spending further underlines the financial advantages of CC [33]. Therefore, it is hypothesized that.

**H3.** Economic benefits, as a component of CE principles, positively influence customer attitudes toward CC.

### 2.3. Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) is a widely recognized model for explaining human behaviour, especially in CC [1,11,13]. TPB posits that individuals are more likely to perform a behaviour if they have a positive attitude toward it, believe significant others approve (subjective norm), and perceive they have sufficient control to do so (perceived behavioural control) [43]. These factors collectively shape behavioural intention, which predicts actual behaviour [43,44]. TPB has been widely applied in tourism and hospitality to study behavioural intentions, including on CC platforms [12,45–47].

Within TPB, attitude represents an individual's positive or negative evaluation of a behaviour [43]. In CC, consumers' attitudes toward a service are influenced by their expectations of its features, potential for unique experiences, perceived cost-benefit, and overall impressions [11,48,49]. Here, attitudes reflect customer perceptions of Airbnb's social, environmental, and economic benefits aligned with CE principles [9]. Therefore, it is hypothesized that.

**H4.** In collaborative consumption, attitude positively influences intention to participate.

Subjective norm refers to the perceived social pressure to engage or abstain from a behaviour [43]. In CC, subjective norms are shaped by the opinions and recommendations of key groups, such as family and friends, and broader societal expectations [50,51]. These norms highlight the importance of social approval, connection, and adherence to group standards, significantly predicting CC intentions [11,51]. Thus, it is hypothesized that.

**H5.** In collaborative consumption, subjective norms positively influence intention to participate.

Perceived behavioural control refers to an individual's perceived ability to perform a behaviour, given internal and external factors. Greater perceived control often leads to stronger behavioural intentions [43]. Studies indicate that perceived behavioural control is a key predictor of CC intentions, such as ridesharing and carsharing, reflecting consumers' confidence in accessing and using CC services [52,53]. Therefore, it is hypothesized that.

**H6.** In collaborative consumption, perceived behavioural control positively influences intention to participate.

#### 2.4. Frequency of past behaviour

Frequency of past behaviour refers to how often an individual has previously performed a specific action [54]. In the TPB framework, past behaviour can moderate the relationship between TPB variables—such as attitudes, subjective norms, and perceived behavioural control—and behavioural intentions. Studies suggest that adding past behaviour as a predictor can improve the model's predictive accuracy by capturing accumulated experience and familiarity with the behaviour [54,55].

The influence of attitudes on intentions may vary based on prior experience. Triandis [56] proposed that when a behaviour is new or infrequent, intentions are shaped by deliberative processes like attitudes. However, with more frequent engagement, intentions increasingly rely on habit and past experience rather than conscious evaluations. Empirical evidence supports this moderating role of past behaviour. For example, Ouellette and Wood [57] found that frequent past behaviour reinforces habits, making deliberative processes like attitudes less impactful on intentions. Similarly, Mishra et al. [58] found that in the sharing economy, past behaviour in the fashion-sharing sector strengthened the link between attitudes and intentions for shared luxury consumption.

In summary, both theory and evidence indicate that past behaviour moderates TPB predictions, affecting the strength of attitudes' effects on intentions based on previous experience. Therefore, it is hypothesized

that.

**H7.** The positive relationship between attitudes and collaboration consumption intention will be stronger for individuals with higher levels of past collaboration consumption behaviour.

#### 2.5. Research conceptual framework

This study employs the Theory of Planned Behaviour (TPB) to examine factors shaping consumers' intentions to engage in collaborative consumption (CC), focusing on circular economy (CE) principles like resource efficiency, waste reduction, and sustainable consumption [37]. Fig. 1 illustrates this framework, where the perceived social, environmental, and economic benefits associated with CE principles are expected to positively impact consumers' attitudes toward CC (H1-H3). According to TPB, consumers' intentions are influenced by attitudes, subjective norms, and perceived behavioural control (H4-H6).

Additionally, past behaviour is considered a moderator, as previous engagement with CC is anticipated to strengthen the attitude-intention relationship (H7), building on evidence that repeated behaviors reinforce behavioural intentions [57]. Recognizing demographic factors that may influence CC participation, age and country development are incorporated as control variables; younger consumers, for example, often show a stronger preference for sharing platforms [2].

By integrating CE goals within the TPB framework, this study provides a comprehensive analysis of consumer motivations for CC. Investigating the role of perceived benefits and prior experience within TPB contributes to understanding how to foster sustainable behaviors. The inclusion of control variables enhances the model's explanatory power, addressing demographic differences in CC intentions. This approach offers valuable insights for developing theoretical knowledge and practical interventions to support sustainable tourism, encouraging responsible consumption on platforms like Airbnb.

### 3. Methods

#### 3.1. Research design & sample

This study employs a quantitative research design to assess customer perceptions of Circular Economy (CE) principles, past experiences, and Collaborative Consumption (CC) intentions. A survey method is chosen to gather numerical data, providing measurable insights into the relationships between variables grounded in the Theory of Planned Behaviour (TPB).

To mitigate common method bias (CMB), both ex-ante and ex-post procedures were implemented. Ex ante, the survey was carefully designed to minimize CMB by ensuring the anonymity of respondents and varying the wording and format of questions to reduce the

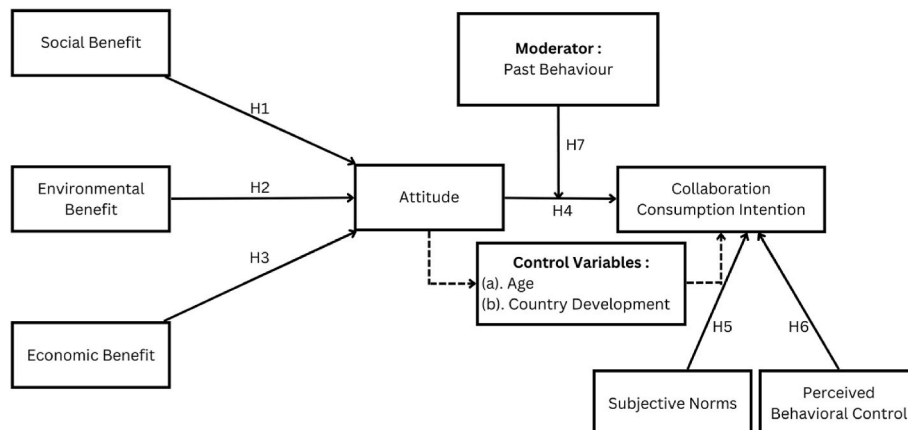


Fig. 1. Proposed modified TPB model for collaborative consumption intention.

likelihood of respondents providing socially desirable or biased responses (Podsakoff et al., 2003). Additionally, procedural remedies like separating the independent and dependent variables in the survey layout were employed to lessen the cognitive load on respondents.

For ex-post treatment, statistical methods were used to detect the presence of CMB. Harman's single-factor test was conducted to determine whether a single factor accounted for most variance, indicating potential bias. Furthermore, a common latent factor approach was employed to test for shared variance across items in the survey [59,60]. The results from these tests indicated no significant bias in the data.

A sample size of 400 participants was targeted. Based on the calculation for a 95 % confidence level, a 5 % margin of error, and a population of approximately 60 million Airbnb users worldwide, the recommended sample size is 384 participants. Thus, targeting 400 respondents accounts for potential incomplete or unusable responses. Comparable studies on CC and sharing economy platforms have used sample sizes between 300 and 500 respondents [9,31].

### 3.2. Data collection

Data were collected from June to July 2023, Airbnb's peak travel season, through an online survey targeting a geographically diverse sample of global Airbnb users. Recruitment occurred via social media channels like LinkedIn, Facebook, Instagram, and WhatsApp, with screening criteria to ensure participants had prior Airbnb experience. The survey examined hypotheses related to the perceived benefits of using Airbnb (social, environmental, and economic) and their impact on attitudes, subjective norms, and perceived behavioural control regarding Collaborative Consumption (CC) intentions. Most questions utilized a 5-point Likert scale, chosen over a 7-point scale to reduce cognitive load, thereby simplifying responses without compromising reliability [61]. This scale is also known to enhance response rates in lengthy surveys due to its ease of use [62].

A pilot study with 50 participants was conducted to refine question clarity, construct accuracy, and data usability. The pilot results were analysed for question quality, distribution of responses, reliability, and preliminary factor structure, ensuring the survey's readiness for the main study.

Participants included Airbnb users aged 18 or older with previous CC experience. Given the lack of a fixed user population, a purposive non-probability sampling approach was employed, focusing on readily accessible Airbnb users. The survey aimed to uncover the factors driving CC intentions and their connections to sustainability and Circular Economy (CE) principles, with findings expected to highlight significant behavioural influences on CC engagement.

### 3.3. Data analysis

The pilot survey's reliability was assessed using Cronbach's alpha, targeting a value of 0.7, with 0.6 acceptable for exploratory research. Validity was confirmed through KMO factor analysis and additional checks. Data analysis was performed with IBM SPSS and SmartPLS, using descriptive statistics, confirmatory factor analysis (CFA), and Partial Least Squares Structural Equation Modeling (PLS-SEM) for measurement and structural model assessment, chosen for its predictive capabilities and data flexibility.

The measurement model's reliability and validity were evaluated through indicator and composite reliability, convergent validity (CV), and discriminant validity, with indicators removed if their deletion improved results. CV was confirmed with AVE values exceeding 0.50, and discriminant validity by comparing AVE square roots with inter-construct correlations. The structural model's path coefficients, significance levels, and  $R^2$  values were examined to gauge relationships and variance explained in the constructs.

The model included social (SOC), environmental (ENV), and economic (ECO) benefits, attitude (ATT), subjective norms (SN), perceived

behavioural control (PBC) as predictors, with frequency of past behaviour (FPB) moderating CC intention. Findings supported the theoretical model and the relationships among constructs.

## 4. Results and discussion

### 4.1. Pilot study result

A pilot study with 50 participants was conducted to test survey procedures and materials before the main study. SPSS 28.0.1.1 evaluated survey reliability and validity, leading to refinements in the survey design.

#### 4.1.1. Reliability test

Cronbach's alpha was used to assess internal consistency, with 0.6 or higher considered acceptable [63,64]. As shown in Table 1, all variables exceeded the 0.6 threshold, confirming reliability. Social Norms scored highest (0.928), indicating strong reliability, while Environmental Benefit (ENV) had the lowest score (0.678) but remained within acceptable limits. These findings confirm the reliability of all questionnaire variables.

#### 4.1.2. Validity test

The validity of questionnaire indicators was assessed using the KMO measure, Anti-Image Matrices, and Component Matrix [65]. A KMO value between 0.5 and 1 indicates sampling adequacy, while Bartlett's test value should be below 0.05. Anti-Image Matrices require diagonal values above 0.5 for adequacy, and Component Matrices indicate representativeness with loadings above 0.5.

According to the results (Table 2), all variables except ENV1 met these criteria, affirming each question's validity. ENV1 was revised from "Staying at Airbnb when travelling would enable me to stay in a healthy environment" to include details like "fresh air, natural odor, living plants, green atmospherics." Following these adjustments, the questionnaire demonstrated satisfactory validity and reliability in the pilot stage. The finalized survey will now be used in the main study for data collection.

### 4.2. Sample characteristic

The survey required respondents to provide demographic information, including age and domicile, along with behavioural data on Airbnb usage and past experiences. Out of 470 responses, 21 were removed for not meeting screening criteria, leaving 449 valid responses for analysis. Table 3 presents a breakdown of demographic characteristics. The majority of respondents (37 %) were aged 25–34, with other age groups distributed as follows: 18–24 (11 %), 35–44 (18 %), 45–54 (9 %), 55–64 (12 %), and 65 or older (13 %).

Most respondents (85 %) were from the United Kingdom, followed by Indonesia (11 %), with other countries each representing less than 1 % of the sample. In terms of purpose, 97 % used Airbnb for vacation or leisure, with small percentages using it for business (0.7 %), family visits (0.4 %), events (1.3 %), relocation (0.2 %), and education (0.2 %). Past Airbnb usage showed that 55 % had used it 2–5 times, 22 % had used it 6–9 times, and 23 % had used it 10 or more times. Overall, the typical

**Table 1**  
Reliability test result of pilot study.

Variable	Cronbach Alpha	Conclusion
Social Benefit (SOC)	0.820	Reliable
Environmental Benefit (ENV)	0.678	Reliable
Economic Benefit (ECO)	0.847	Reliable
Attitude (ATT)	0.872	Reliable
Social Norms (SN)	0.928	Reliable
Perceived Behavioural Control (PBC)	0.776	Reliable
Collaborative Consumption Intention (CCI)	0.869	Reliable

**Table 2**  
Validity test result of pilot study.

Variable	Items	KMO	Bartlett's Test	Anti Image	Component Matrix	Conclusion
Social Benefit (SOC)	SOC1	0.728	0.000	0.725	0.715	Valid
	SOC2			0.707	0.883	Valid
	SOC3			0.783	0.797	Valid
	SOC4			0.712	0.852	Valid
Environmental Benefit (ENV)	ENV1	0.674	0.000	0.722	0.225	Not Valid
	ENV2			0.647	0.857	Valid
	ENV3			0.802	0.769	Valid
	ENV4			0.631	0.885	Valid
Economic Benefit (ECO)	ECO1	0.795	0.000	0.760	0.881	Valid
	ECO2			0.888	0.675	Valid
	ECO3			0.785	0.883	Valid
	ECO4			0.802	0.859	Valid
Attitude (ATT)	ATT1	0.811	0.000	0.813	0.847	Valid
	ATT2			0.770	0.895	Valid
	ATT3			0.821	0.825	Valid
	ATT4			0.850	0.842	Valid
Social Norms (SN)	SN1	0.724	0.000	0.752	0.928	Valid
	SN2			0.657	0.962	Valid
	SN3			0.787	0.918	Valid
Perceived Behavioural Control (PBC)	PBC1	0.659	0.000	0.650	0.841	Valid
	PBC2			0.614	0.886	Valid
	PBC3			0.757	0.766	Valid
Collaborative Consumption Intention (CCI)	CCI1	0.663	0.000	0.760	0.847	Valid
	CCI2			0.667	0.895	Valid
	CCI3			0.606	0.947	Valid

**Table 3**  
Socio-demographic profile.

Socio-demographic profile		Total	Percentage
Age	18–24	49	11 %
	25–34	167	37 %
	35–44	79	18 %
	45–54	41	9 %
	55–64	53	12 %
	65 and above	60	13 %
<b>Total</b>		<b>449</b>	<b>100 %</b>
Country	United Kingdom	383	85 %
	Indonesia	49	11 %
	Albania	2	0.4 %
	Japan	2	0.4 %
	United States	2	0.4 %
	Afghanistan	1	0.2 %
	China	1	0.2 %
	Colombia	1	0.2 %
	India	1	0.2 %
	Ireland	1	0.2 %
	Malaysia	1	0.2 %
	Mexico	1	0.2 %
	Netherlands	1	0.2 %
	Switzerland	1	0.2 %
	Thailand	1	0.2 %
	Vietnam	1	0.2 %
<b>Total</b>		<b>449</b>	<b>100 %</b>
Purpose of Stay	Vacation or leisure	436	97 %
	Business or work-related	3	0.7 %
	Visiting friends or family	2	0.4 %
	Attending an event (e.g., conference, wedding, concert)	6	1.3 %
	Relocation or temporary housing	1	0.2 %
	Educational purposes (e.g., study abroad, research)	1	0.2 %
<b>Total</b>		<b>449</b>	<b>100 %</b>
Frequency of Past Behaviour	2-5 times	246	55 %
	6-9 times	101	22 %
	10 times and above	102	23 %
<b>Total</b>		<b>449</b>	<b>100 %</b>

respondent was a 25-34-year-old from the UK who used Airbnb for leisure and had moderate experience with the platform.

#### 4.3. Main test data analysis

A normality test, following Hair et al. [66], was conducted before analysing the measurement model. Using the WebPower tool, multivariate skewness (16.27199,  $p < 0.01$ ) and kurtosis (144.66435,  $p < 0.01$ ) values (Table 4) indicated slight non-normality. Consequently, SmartPLS was used for SEM analysis due to its robustness against normality deviations [67].

##### 4.3.1. Assessment of the measurement model

Internal consistency testing, using composite reliability and Cronbach's alpha, confirms measurement model reliability, with all constructs exceeding the 0.7 threshold [68], as shown in Table 5. Most values are above 0.8, supporting the model's reliability for further research.

Validity testing assessed convergent validity through Average Variance Extracted (AVE) and outer loadings, requiring AVE values above 0.5 and loadings  $\geq 0.70$  [68]. Table 6 shows all variables meet the AVE threshold, with Perceived Behavioural Control at 0.812, Social Benefit at

**Table 4**  
Multivariate Skewness and Kurtosis result.

Variable	Skewness	SE Skew	Z Skew	Kurtosis	SE Kurt	Z Kurt
X	0.000	0.115	0.000	-1.200	0.23	-5.219
ATT	-0.720	0.115	-6.248	0.770	0.23	3.379
CCI	-0.737	0.115	-6.393	0.729	0.23	3.172
ECO	-0.962	0.115	-8.353	1.733	0.23	7.536
ENV	-0.579	0.115	-5.024	0.466	0.23	2.025
FPB	0.654	0.115	5.673	-1.207	0.23	-5.249
PBC	-0.926	0.115	-8.039	1.468	0.23	6.385
SN	-0.374	0.115	-3.246	0.583	0.23	2.534
SOC	-0.654	0.115	-5.678	0.698	0.23	3.034
FPB.x.ATT	0.129	0.115	1.124	1.276	0.23	5.551
Mardia's Multivariate Skewness and Kurtosis			b	z	p-value	
Skewness			16.27199	1217.68745	0	
Kurtosis			144.66435	16.86775	0	



**Table 5**  
Internal consistency test result.

Measurement	Cronbach Alpha	Composite Reliability	Conclusion
SOC	0.889	0.889	Reliable
ENV	0.710	0.752	Reliable
ECO	0.772	0.778	Reliable
ATT	0.828	0.837	Reliable
SN	0.769	0.822	Reliable
PBC	0.884	0.889	Reliable
CCI	0.781	0.797	Reliable

**Table 6**  
Convergent Validity and Discriminant Validity tests results.

Measurement	Items	Outer Loading	Average variance extracted (AVE)
SOC	SOC1	0.738	0.749
	SOC2	0.807	
	SOC3	0.731	
	SOC4	0.822	
ENV	ENV1	0.771	0.634
	ENV2	0.845	
	ENV3	0.824	
	ENV4	0.799	
ECO	ECO1	0.758	0.592
	ECO2	0.739	
	ECO3	0.798	
	ECO4	0.781	
ATT	ATT1	0.870	0.656
	ATT2	0.865	
	ATT3	0.852	
	ATT4	0.875	
SN	SN1	0.916	0.682
	SN2	0.919	
	SN3	0.866	
PBC	PBC1	0.698	0.812
	PBC2	0.899	
	PBC3	0.866	
CCI	CCI1	0.656	0.602
	CCI2	0.869	
	CCI3	0.847	

0.749, and Economic Benefits at 0.592, confirming model validity. Indicators with loadings slightly below 0.7, like PBC1 (0.698) and CCI1 (0.656), were retained as they are within the acceptable 0.4–0.7 range, maintaining research validity.

To evaluate discriminant validity, the Heterotrait-Monotrait Ratio (HTMT) was primarily employed, given its conservative nature and superior ability to ensure that constructs measure unique, distinct concepts [69]. The model is considered valid if no HTMT values equal or exceed one, indicating sufficient discriminant validity. As shown in Table 7, all HTMT values meet this requirement, confirming the model's validity.

Additionally, the Fornell-Larcker criterion was used as a supplementary check, requiring that the square root of the Average Variance Extracted (AVE) for each construct be greater than its correlation with other constructs [70]. Table 8 demonstrates that this requirement is also met, with Subjective Norms having the highest AVE value (0.901).

#### 4.3.2. Assessment of the structural model

This section assesses the structural model's validity and its ability to

**Table 7**  
HTMT (discriminant validity) result.

	ATT	CCI	ECO	ENV	PBC	SN
CCI	0.71					
ECO	0.73	0.757				
ENV	0.493	0.615	0.482			
PBC	0.643	0.706	0.554	0.296		
SN	0.531	0.632	0.559	0.53	0.328	
SOC	0.575	0.655	0.704	0.751	0.328	0.643

**Table 8**  
Fornell-Larcker Criterion result.

	ATT	CCI	ECO	ENV	PBC	SN	SOC
ATT	0.866						
CCI	0.59	0.796					
ECO	0.617	0.579	0.769				
ENV	0.435	0.473	0.386	0.81			
PBC	0.559	0.551	0.446	0.254	0.826		
SN	0.469	0.499	0.461	0.451	0.289	0.901	
SOC	0.488	0.498	0.547	0.621	0.274	0.533	0.776

**Table 9**  
The results of Collinearity Testing with Inner VIF values.

	ATT	CCI	ECO	ENV	FPB	PBC	SN	SOC
ATT								
CCI		1.721						
ECO	1.434							
ENV	1.637							
FPB		1.028						
PBC		1.469						
SN		1.318						
SOC	1.988							

explain variable relationships. Multicollinearity was examined using Inner VIF values (see Table 9), all between 1.00 and 2.00, indicating no multicollinearity concerns [68]. R-squared values for Attitude (0.432) and CC Intention (0.498) suggest moderate explanatory power, while Q-squared values above zero (0.420 and 0.495) confirm predictive relevance (Tables 10 and 11).

Path coefficients and bootstrapping analysis (5000 subsamples) verify the significance of hypothesized relationships (see Table 12), with Economic Benefit exerting the strongest influence on Attitude towards CC Intention (path coefficient = 0.487), underscoring the role of financial incentives [68]. Perceived Behavioural Control (PBC) and Subjective Norms (SN) also impact CC Intention with path coefficients of 0.358 and 0.237, respectively, highlighting the importance of ease of participation and social influence.

The model shows that Social (SOC), Environmental (ENV), and Economic (ECO) factors collectively influence Attitude, with path coefficients of 0.082, 0.115, and 0.487, respectively. Economic factors are the primary motivator, while the non-significant effect of social motivation suggests a need for more precise social benefit measures (see Fig. 2).

#### 4.4. Discussion

The results of this study offer several key insights that build upon prior research on factors influencing CC intention. Firstly, the finding that economic benefit has the strongest influence on attitude towards CC is consistent with previous studies highlighting the importance of economic motivations. For instance, Lamberton and Rose [71] identified cost savings as a primary driver of participation in sharing platforms. However, the prominence of economic factors over social and environmental motivations contrasts with some studies suggesting that altruistic motivations are more influential [72]. This discrepancy may be due to this study's focus on actual usage behaviour rather than attitudes, as economic realities likely have a stronger impact on real actions.

Secondly, the significant positive relationships between social,

**Table 10**  
The results of the Coefficient of Determination (R2) Test.

	R-square	R-square adjusted
ATT	0.432	0.428
CCI	0.498	0.493

**Table 11**  
The results of Predictive of Relevance ( $Q^2$ ) test.

	$Q^2$
ATT	0.420
CCI	0.495

**Table 12**  
Direct path coefficient results with bootstrapping.

Path	Sample Mean	Standard Deviation	t-Value	p-Value	Conclusion
SOC -> ATT	0.111	0.054	2.044	0.041	Significant
ENV -> ATT	0.181	0.048	3.725	0	Significant
ECO -> ATT	0.487	0.049	9.913	0	Significant
ATT -> CCI	0.275	0.05	5.482	0	Significant
PBC -> CCI	0.298	0.046	6.533	0	Significant
SN -> CCI	0.275	0.037	7.372	0	Significant

environmental, and economic factors and attitude support the theoretically proposed antecedents of CC in the literature [73,74]. Additionally, the relatively weak effects of attitude on intention compared to perceived behavioural control and subjective norms align with previous findings that contextual factors are critical determinants of engagement in sharing platforms [75,76]. The strong influence of perceived behavioural control underscores the importance of ensuring easy access and convenience when promoting CC. Meanwhile, the effect of subjective norms highlights the power of social influence in driving adoption. When individuals feel a personal sense of duty or responsibility to act in a socially positive and ecologically friendly manner, it significantly

impacts their willingness to carry out intentions that align with sustainability goals [76].

An unexpected finding was the non-significant effect of social motivation on attitude, which contradicts previous studies that identified community belonging and social interaction as key factors in sharing economy participation [31,74]. A possible explanation is that the social motivation items in this study focused on general altruistic values rather than direct social benefits. Measuring perceived social benefits gained through CC could reveal a greater impact on attitude.

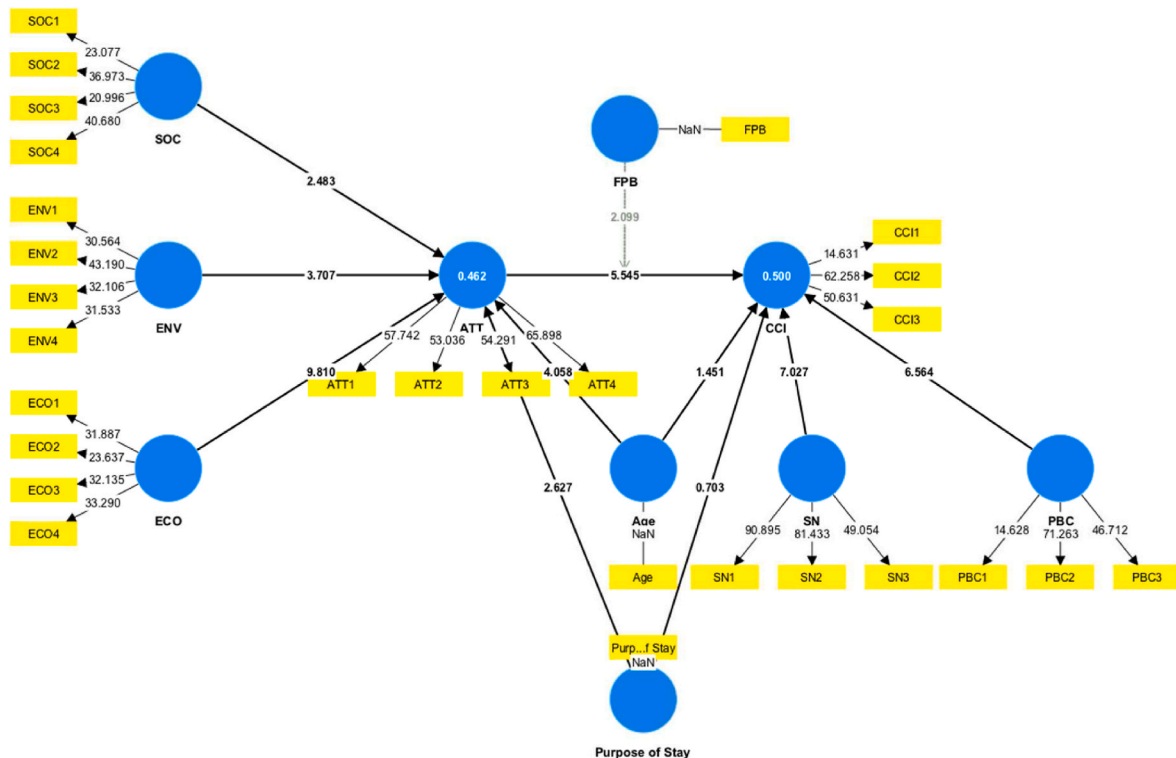
Overall, by empirically testing an integrated model of factors shaping CC intentions, this study provides robust evidence on the relative influence of economic, social, environmental, attitudinal, and contextual predictors. The findings largely corroborate previously fragmented insights into motivations and barriers, offering a more comprehensive understanding of their relationships in shaping decisions to participate in the sharing economy. Critical analysis of surprising or contradictory results also suggests directions for refining and extending the research model to deepen understanding of this complex phenomenon further. This can assist policymakers and platform providers in developing targeted strategies to address the most influential drivers and impediments of CC.

#### 4.4.1. Moderation analysis

Hypothesis 7 proposed that the Frequency of Past Behaviour would moderate the relationship between Attitude and CC Intention. The results confirmed this hypothesis (see Table 13), as the interaction term between Attitude and CC Intention was statistically significant ( $t =$

**Table 13**  
The results of the moderating effect of Frequency of Past Behaviour.

Path	Sample mean	Standard Deviation	t-Value	p-Value	Moderation
FPB x ATT -> CCI	-0.090	0.043	2.172	0.030	Yes



**Fig. 2.** Model research results with T-values.

2.172,  $p < 0.05$ ). This supports the idea that the Frequency of Past Behaviour moderates this relationship, consistent with the theories of Triandis [56] and findings from meta-analyses by Ouellette and Wood [57].

However, the sample mean of  $-0.090$  for the interaction term suggests that the moderating effect is negative. This implies that as the Frequency of Past Behaviour increases, it tends to weaken the positive association between Attitude and CC Intention. This finding contradicts previous research that typically indicates a strengthening effect of past behaviour [58].

The contrast may be due to contextual differences. Sharing economy behaviors increasingly reflect normative and financial considerations rather than positive attitudes [40]. Bardhi and Eckhardt [77] noted that attitudes toward access-based consumption evolve with the frequency of use. Frequent users become less motivated by positive product assessments and more by cost minimization and resource optimization.

#### 4.4.2. Control variable analysis

The path from Age to Attitude shows a statistically significant effect, with a  $t$ -value of 2.848 and a  $p$ -value of 0.004, indicating that age significantly impacts respondents' attitudes. Similarly, the relationship between Country Development and Attitude is highly significant, with a  $t$ -value of 5.214 and a  $p$ -value close to 0, demonstrating that the level of country development substantially influences respondents' attitudes (see Table 14). These findings align with previous research suggesting that socioeconomic factors shape consumer perspectives [11,78].

However, the paths from Age and Country Development to CC Intention are not significant, with  $p$ -values above 0.05. This suggests that age and country development do not meaningfully influence respondents' consumption intentions.

#### 4.5. Theoretical implications

This research aimed to bridge gaps in the literature by examining how CE principles and past experiences impact customers' intentions toward CC, specifically focusing on Airbnb. Prior studies have primarily emphasized economic and environmental motivations, often under-exploring the social dimension [1,12,13]. Additionally, the role of past experience in influencing CC intentions remains underexplored. This study integrated CE principles—social, environmental, and economic benefits—within the TPB framework, with past experience as a moderating factor.

Findings indicated that all three CE pillars significantly influenced customer attitudes toward CC, with economic benefits showing the strongest effect. This highlights the crucial role of economic motivations in CC, a factor that has often been understated in current literature. This comprehensive perspective, incorporating social, environmental, and economic drivers, not only enhances theoretical understanding of CC intentions but also extends CE research by highlighting the interplay of CE values and personal experience within TPB contexts.

Moreover, the study's discovery that past experience negatively moderates the relationship between attitude and CC intention

challenges earlier assumptions and suggests a more complex, context-dependent influence of prior interactions on CC intentions. This insight prompts future research to delve deeper into the conditions under which past experience may positively or negatively affect CC participation, as well as the extent to which these dynamics vary across cultural and economic contexts. By integrating these CE principles into the TPB, the research expands theoretical perspectives on CC, offering a foundational framework that future studies could leverage to examine CC intentions across various CE and sharing economy contexts.

#### 4.6. Managerial & societal implications

This study examined how CE principles and past experiences shape customer intentions toward CC on platforms like Airbnb. Findings underscore the influence of social, environmental, and economic benefits, as well as past experiences, on CC attitudes and intentions, which have been reshaped by the COVID-19 pandemic. Key recommendations for enhancing CC adoption emerge from this analysis, aiming to support sustainable and resilient growth in the sector.

The pandemic underscored the need for professionalization in short-term rentals, spotlighting the importance of quality standards and certifications to meet new health and safety demands. As Miguel et al. [79] indicate, stakeholder-driven standardization helps distinguish between private and professional hosts, creating a structured framework that aligns with national or EU regulations and fosters reliability and trust. Platforms like Airbnb can benefit from emphasizing these standards in their marketing, appealing to consumers seeking both safety and economic assurances in CC.

Economic benefits also emerged as a strong factor shaping customer attitudes toward CC, reinforcing the importance of affordability compared to traditional accommodations. This aligns with the TPB framework, where attitudes toward economic value drive adoption intentions. Collaborations with local tourism bodies, particularly in developing regions, can highlight the economic and experiential benefits of CC, thereby addressing diverse consumer preferences [11].

The pandemic further highlighted the need for robust crisis management in the short-term rental market. Platforms, property managers, and policymakers introduced flexible booking, cancellation, and enhanced health protocols to manage consumer uncertainties and maintain trust [80]. Strengthening these contingency practices could help Airbnb and others navigate future disruptions effectively.

An additional insight from this study is the negative moderating effect of past experience on attitudes toward CC. Frequent users, often driven by cost-saving priorities, pose a unique challenge for CC platforms. Bardhi and Eckhardt [77] recommend implementing educational initiatives to help these users balance cost-efficiency with service quality appreciation, thereby reinforcing positive attitudes among long-term users despite the initial investment needed.

Finally, post-pandemic consumer concerns over perceived risk have elevated trust, authenticity, and perceived value as essential drivers of repurchase intentions. Braje et al. [81] suggest that transparent health and safety practices can build consumer confidence, promoting sustainable and responsible consumption that aligns with CE principles.

### 5. Conclusions

This research explored how Circular Economy (CE) principles and customers' past experiences impact intentions toward Collaborative Consumption (CC), using Airbnb as a case study. The primary question was: How do CE principles and past experience influence CC intentions? To answer this, the study used the Theory of Planned Behaviour (TPB) framework to examine how the CE pillars—social, environmental, and economic benefits—shape attitudes toward CC, with past experience as a moderating factor.

Findings showed that positive attitudes significantly enhance CC intentions, aligning with the TPB model and highlighting the value of

**Table 14**  
The results of the moderating effect of Frequency of Past Behaviour.

Path	Sample mean	Standard Deviation	t-Value	p-Value	Conclusion
Age - > ATT	0.103	0.037	2.848	0.004	Significant
Age - > CCI	-0.037	0.033	1.113	0.266	Not Significant
Country Development - > ATT	0.502	0.097	5.214	0	Significant
Country Development - > CCI	-0.113	0.111	1.056	0.291	Not Significant



emphasizing CE benefits in marketing to foster favourable participation intentions. Subjective norms were also found to positively impact CC intentions, suggesting that awareness campaigns and influencer marketing could further encourage adoption. Additionally, perceived behavioural control positively influenced CC intentions, underscoring the need to reduce barriers to access and participation. However, past experience unexpectedly moderated the attitude-intention relationship negatively; frequent users were more influenced by cost savings and convenience, suggesting that educational initiatives could help reshape their perceptions and reinforce positive attitudes.

Based on these findings, recommendations for Airbnb and similar platforms include emphasizing economic benefits in marketing, offering educational programs for frequent users, and forming partnerships with tourism bodies. These strategies should, however, consider local market conditions and resources.

Given that 85 % of the sample is from the UK, the generalizability of these findings may be limited, as unique cultural and socio-economic factors within the UK could shape attitudes toward collaborative consumption (CC) in ways that might not apply globally. Future research should validate this model across diverse settings to account for cross-cultural variations. The study's finding that past experience negatively moderates the attitude-intention link also points to more complex dynamics in CC that merit further investigation. Interestingly, control variables such as age and country development did not significantly influence CC intentions, suggesting that other, unexplored factors could be at play.

Examining contrasting perspectives, such as leisure versus business travelers, could provide deeper insights into the varied motivations driving CC adoption. Additionally, experimental and qualitative approaches could help unravel the nuanced moderating effects of past experience. By employing mixed-methods research, future studies can develop a more comprehensive understanding of CC intentions across different demographics and settings, further enriching the field's understanding of collaborative consumption.

#### CRedit authorship contribution statement

**Umair Tanveer:** Writing – original draft, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Shara Nica Agung Sahara:** Writing – original draft, Resources, Methodology, Data curation. **Marios Kremantzis:** Writing – review & editing, Visualization, Validation, Supervision, Methodology. **Shamaila Ishaq:** Writing – review & editing, Validation, Supervision, Project administration.

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No potential competing interest was reported by the authors.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### Data availability

Data will be made available on request.

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Umair's interdisciplinary research interests span various facets of Operations and Supply Chain Management. He has published in many top journals e.g. IJOPM. His work primarily utilises both analytical and empirical approaches, contributing to a deeper understanding of complex systems and processes within this field.

Shara completed her MSc in Supply Chain management from the University of Warwick. Her research focuses on circular economy and consumer behaviour. Currently she is working in industry where she is providing sustainable solution for businesses.

Marios Kremantzis, Lecturer and Programme Director for MSc Business Analytics at the University of Bristol, holds a Ph.D. from the University of Southampton. Specializing in Network Data Envelopment Analysis (DEA), his research includes optimization, efficiency measurement, and multi-criteria decision analysis. He has published in numerous

esteemed journals and organized sessions for major conferences. Marios is the Founder and Chair of the "OR, Analytics & Education" SIG within the UK's OR Society and a Fellow of the Higher Education Academy. He has received multiple awards for innovative teaching and had served as a Guest Editor for Special Issues on AI in higher education.

Shamaila is Associate Professor in operations management. Her areas of interest include Efficiency measurement of operations, Optimization, Sustainable and Regenerative supply chains, Circular Economy and Eco Innovations.