

ORIGINAL

How corporate social responsibilities affect customer citizenship behavior in fueling station context: investigating the mediating role of brand loyalty and customer trust

Cómo las responsabilidades sociales corporativas afectan el comportamiento ciudadano del cliente en el contexto de estaciones de servicio: Investigando el papel mediador de la lealtad a la marca y la confianza del cliente

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ABSTRACT

Introduction: customer Citizenship Behavior and Corporate Social Responsibility became central themes in academic research over the past two decades. Researchers focused on how socially responsible business practices influence consumer behavior, particularly in service-oriented industries.

Objective: this study aimed to develop and validate a conceptual model grounded in Social Exchange Theory, examining the impact of CSR on CCB among petrol station consumers in Malaysia. The model incorporates brand loyalty and consumer trust as potential mediating variables.

Method: quantitative, observational, cross-sectional research design was employed. A structured questionnaire was developed and validated through expert review and a pilot study. Data were collected from 397 petrol station customers using an online survey distributed via digital platforms. 379 valid responses were analyzed using Structural Equation Modeling (SEM) via SmartPLS 4. The model and hypotheses were informed by a review of 45 scholarly sources.

Results: the findings revealed a significant positive relationship between CSR and CCB. Brand loyalty was found to be a significant mediator, indicating that customers who perceive a brand as socially responsible are more likely to exhibit citizenship behaviors when they are loyal to the brand. However, consumer trust did not significantly mediate the relationship, suggesting its limited role in this context.

Conclusion: the study underscores the strategic importance of CSR in fostering customer citizenship behavior in the fuel retail sector. It highlights the need for petrol stations to invest in CSR initiatives and cultivate brand loyalty to enhance customer engagement and long-term value creation.

Keywords: Brand Loyalty; Corporate Social Responsibility (CSR); Customer Citizenship Behavior (CCB); Customer Trust; Extra-Role Customer Behavior.

RESUMEN

Introducción: el comportamiento ciudadano del cliente y la responsabilidad social corporativa se han convertido en temas centrales de la investigación académica durante las últimas dos décadas. Los investigadores se centraron en cómo las prácticas empresariales socialmente responsables influyen en el comportamiento del consumidor, especialmente en los sectores de servicios.

Objetivo: este estudio buscó desarrollar y validar un modelo conceptual basado en la Teoría del Intercambio Social, examinando el impacto de la RSE en el comportamiento ciudadano del cliente (CCB) entre los consumidores de gasolineras en Malasia. El modelo incorpora la lealtad a la marca y la confianza del consumidor como posibles variables mediadoras.

Método: se empleó un diseño de investigación cuantitativo, observacional y transversal. Se desarrolló y validó un cuestionario estructurado mediante una revisión por expertos y un estudio piloto. Se recopilaron datos de 397 clientes de gasolineras mediante una encuesta en línea distribuida a través de plataformas digitales. Se analizaron 379 respuestas válidas mediante el Modelo de Ecuaciones Estructurales (SEM) a través de SmartPLS 4. El modelo y las hipótesis se basaron en una revisión de 45 fuentes académicas.

Resultados: los hallazgos revelaron una relación positiva significativa entre la RSE y el CCB. Se descubrió que la lealtad a la marca es un mediador significativo, lo que indica que los clientes que perciben una marca como socialmente responsable tienen mayor probabilidad de mostrar comportamientos cívicos cuando son leales a ella. Sin embargo, la confianza del consumidor no influyó significativamente en la relación, lo que sugiere su papel limitado en este contexto.

Conclusión: el estudio subraya la importancia estratégica de la RSE para fomentar la ciudadanía activa del cliente en el sector minorista de combustibles. Resalta la necesidad de que las gasolineras inviertan en iniciativas de RSE y cultiven la fidelidad a la marca para mejorar la interacción con el cliente y la creación de valor a largo plazo.

Palabras clave: Lealtad a la Marca; Responsabilidad Social Corporativa (CSR); Comportamiento Ciudadano del Cliente (CCB); Confianza del Cliente; Comportamiento Extra-Rol del Cliente.

INTRODUCTION

The fuel retail industry in Malaysia has experienced a notable transformation over the past two decades, driven by technological innovation, evolving consumer expectations, and increasing environmental awareness. Traditionally, fuel stations served as basic refueling points. Today, they are rapidly evolving into multi-energy and multi-service hubs, offering electricity, hydrogen, biofuels, and a variety of retail services to meet the diverse needs of modern consumers.⁽¹⁾ This shift reflects broader global trends in energy transition and consumer-centric service models.

Malaysia's fuel retail sector remains a vital contributor to the national economy, accounting for approximately 8,5 % of the country's GDP in 2024.⁽²⁾ However, the rise of electric vehicles (EVs)—with over 63 000 units projected to be sold by 2030—is reshaping the industry's landscape.⁽²⁾ Fuel retailers are under pressure to adapt their infrastructure and business models to remain relevant in a low-carbon future.⁽³⁾

In this competitive and environmentally conscious market, Corporate Social Responsibility (CSR) has emerged as a strategic imperative. CSR initiatives—such as environmental stewardship, ethical labor practices, and community engagement—are increasingly influencing consumer perceptions and brand loyalty.⁽⁴⁾ In sectors like healthcare, CSR has been shown to promote CCB and support broader social goals. To shape brand preferences and gain strategic advantage, companies must align CSR with customer values, fostering loyalty and organic word-of-mouth promotion.⁽⁵⁾ Despite its growing relevance, CSR's impact on consumer behavior in Malaysia's fuel retail sector remains underexplored, especially from the perspective of Customer Citizenship Behavior (CCB).

CCB refers to voluntary, extra-role behaviors by customers that benefit the brand and other consumers, such as providing feedback, helping other customers, and promoting the brand through word-of-mouth.⁽⁶⁾ These behaviors enhance service quality and brand reputation, making them valuable for businesses seeking sustainable growth.⁽⁷⁾ Recent studies in Malaysia have begun to explore CCB in online brand communities, revealing its strong connection to brand trust and identification.⁽⁸⁾

Trust is a key mediator in customer-brand relationships, signaling reliability and care.⁽⁹⁾ However, two research gaps persist: the need for more studies on CSR's impact on consumer behavior in the fuel industry, and the limited exploration of mediating factors like trust and loyalty in the CSR-CCB link.⁽¹⁰⁾ CCB enhances service and product marketing by encouraging informed, proactive consumer behavior. Studied for over two decades, CCB includes actions that go beyond expectations.⁽¹¹⁾ CSR, beyond legal obligations, reflects voluntary efforts to improve society, enhancing reputation and competitive edge.⁽¹²⁾

However, two key research gaps persist: (1) limited empirical evidence on how CSR influences CCB in the fuel retail context, and (2) insufficient analysis of mediating factors such as brand loyalty and consumer trust in this relationship. These gaps hinder the ability of fuel retailers to strategically leverage CSR for customer engagement and competitive advantage.

Justification and Objective

Given the strategic importance of CSR and the evolving nature of consumer-brand relationships in Malaysia's fuel retail sector, this study is both timely and necessary. It addresses the lack of empirical research on CSR's behavioral impact and explores the mediating roles of brand loyalty and trust—two critical components in fostering long-term customer engagement.

The general objective of this study is to examine the influence of CSR on Customer Citizenship Behavior (CCB) among fuel station customers in Malaysia. Specifically, it aims to (1) assess the direct relationship between CSR and CCB (2) Investigate the mediating effects of brand loyalty and consumer trust. (3) Provide actionable insights for fuel retailers to enhance customer engagement through socially responsible practices.

By focusing on the consumer perspective, this research contributes to the broader discourse on sustainable business practices and offers practical guidance for industry stakeholders navigating the energy transition.

Conceptual Framework

This study examines CSR from a consumer perspective, focusing on its value relevance to CCB. We claim that elevating ethical standards will enhance consumer views of CSR programs, therefore leading to an increase in CCB. Furthermore, this study investigates how customer trust and brand loyalty intercede in the link between CSR and CCB (figure 1).

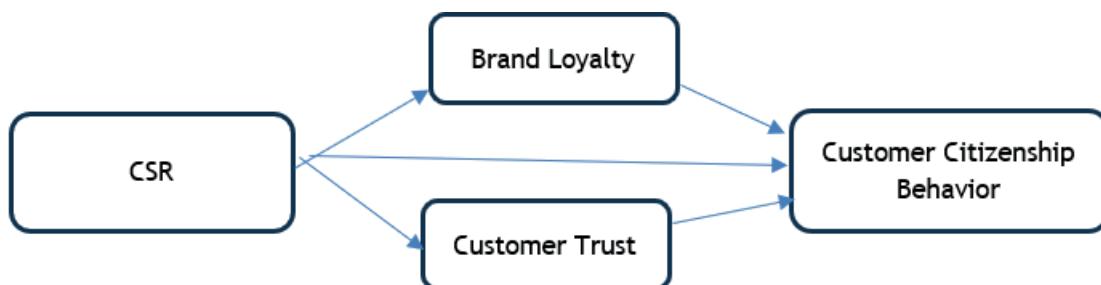


Figure 1. Proposed Research Model

METHOD

Type of Study

This research is a quantitative, non-experimental, cross-sectional, observational study with a focus on technological innovation. It investigates consumer behavior and preferences at fuel stations in Malaysia, particularly in the context of digital engagement and service delivery. The study utilizes online survey tools and digital communication platforms for data collection, aligning with the principles of technological innovation research, where digital methods are employed to enhance data accuracy, accessibility, and reach.

Universe and Sample

The study population comprises all fuel and gas station consumers in Malaysia. According to Timbuorg, Malaysia had approximately 6.6 million registered vehicle users in 2018, distributed across 14 states. For sampling purposes, the country was divided into five geographical zones: North, Middle, South, East, and West. The sample size was determined using the Krejcie et al.⁽¹³⁾ sample size determination table, resulting in a minimum required sample of 384 respondents. To account for potential non-responses, the survey was distributed to 985 individuals, anticipating an 80 % response rate, which would yield approximately 480 valid responses.

A stratified random sampling method was employed to ensure proportional representation from each of the five zones. This approach allows for the analysis of each stratum independently, enhancing the generalizability of the findings across the national population.

Variables and Questionnaire Development

The study focused on the following three key variables: (1) Demographic variables: Age, gender, location, and vehicle ownership. (2) Behavioral variables: Frequency of fuel station visits, fuel type used, and purchasing behavior. (3) Perceptual variables: Customer satisfaction, service quality, and brand preference. The questionnaire was developed based on an extensive review of existing literature related to consumer behavior, service quality, and fuel station usage in Malaysia. The items were designed to align with the study's objectives, focusing on demographic, behavioral, and perceptual variables relevant to fuel and gas station consumers. There is a total of 24 items in the questionnaires.

The questionnaire was first developed based on a comprehensive review of literature related to consumer behavior, service quality, and fuel station usage in Malaysia. To ensure content validity, the initial draft was

reviewed by a panel of subject matter experts in marketing, consumer behavior, and research methodology. These experts assessed the relevance, clarity, and comprehensiveness of the items. Based on their feedback, necessary revisions were made to improve the questionnaire's structure and alignment with the research objectives.

Data Collection and Processing

Following expert validation, a pilot study was conducted with a small group of participants who met the study's inclusion criteria. The pilot aimed to evaluate the clarity of the questions, the logical flow of the survey, and the reliability of the responses. Insights from the pilot study informed final adjustments to the questionnaire before full-scale deployment.

Data collection was carried out using a self-administered online survey developed via Google Forms. The survey was distributed electronically through SMS, email, WhatsApp, and Facebook Messenger to maximize reach and response rates. The data collection period spanned ten months, from July 2023 to April 2024. To ensure data quality during the main data collection phase instructional manipulation checks were embedded in the survey, response time monitoring was used to identify inattentive responses and straight-lining responses were identified and excluded.

Out of 985 distributed surveys, 397 responses were received, yielding a response rate of 40,31 %. After excluding 18 invalid responses, 379 valid responses (38,48 %) were retained for analysis. This response rate is considered acceptable, as Sekaran⁽¹⁴⁾ suggests that a 30 % response rate is sufficient for empirical survey research. Data analysis was conducted using SPSS version 29 for descriptive statistics and SmartPLS 4 for hypothesis testing and structural equation modeling.

Ethical Standards

This study adhered to ethical research standards. Participation was voluntary, and all respondents were informed of the study's purpose and their right to withdraw at any time. Only individuals aged 18 years and above, residing in Malaysia and using fuel or gas for their vehicles, were eligible to participate. Confidentiality and anonymity of all participants were strictly maintained throughout the study.

RESULTS

Common Method Bias

To assess the presence of common method bias (CMB), Harman's single-factor test was conducted.⁽¹⁵⁾ The analysis revealed that the total variance explained by a single factor was 47,149 %, which is below the 50 % threshold. This indicates that common method bias was not a concern in this study.

Measurement model

Convergent Validity

Convergent validity was evaluated using factor loadings and Average Variance Extracted (AVE). The initial AVE for the Customer Citizenship Behavior (CCB) construct was 0,412, below the recommended threshold of 0,50. To improve this, four items (CCB8, CCB9, CCB10, and CCB11) were removed. After deletion, the AVE increased to 0,524.

Composite reliability values for all constructs ranged from 0,884 to 0,946, exceeding the minimum acceptable value of 0,70,⁽¹⁶⁾ confirming the reliability of the measurement model. Measurement model for this research is presented in table 1.

Table 1. Measurement Model

Constructs	Items	SFL	VIF	CA	CR	AVE
Brand Loyalty	BL1	0,791	1,890	0,871	0,907	0,661
	BL2	0,833	2,542			
	BL3	0,736	1,701			
	BL4	0,877	2,581			
	BL5	0,820	2,636			
Corporate Social Responsibilities	CSR1	0,845	2,120	0,875	0,914	0,728
	CSR2	0,870	2,384			
	CSR3	0,827	2,126			
	CSR4	0,869	2,418			
Customer Citizenship Behavior	CCB1	0,751	2,874	0,856	0,884	0,412
	CCB2	0,769	3,530			
	CCB3	0,722	3,238			
	CCB4	0,602	1,842			

	CCB5	0,637	2,226			
	CCB6	0,577	1,898			
	CCB7	0,665	2,521			
	CCB8	0,639	2,434			
	CCB9	0,586	1,774			
	CCB10	0,575	1,857			
	CCB11	0,485	1,471			
Customer Trust	CT1	0,907	3,997	0,924	0,946	0,814
	CT2	0,906	4,021			
	CT3	0,891	3,049			
	CT4	0,904	3,248			

Structural Model Analysis

Direct Effects

The direct effect analysis showed that Brand Loyalty significantly mediates the relationship between Corporate Social Responsibility (CSR) and Customer Citizenship Behavior (CCB), with a t-value of 5,159 and a p-value less than 0,01. In contrast, Customer Trust does not significantly mediate the relationship, as indicated by a t-value of 0,611 and a p-value of 0,541.

Mediation Analysis

Table 2. Hypothesis Testing Direct Effects and Mediating Effect

Hypothesis	Relationship	T Values	P Values	Decision
H1	CSR -CCB	6,363	0	Supported
H2	CSR - BL	21,825	0	Supported
H3	CSR - CT	27,96	0	Supported
H4	BL - CCB	5,211	0	Supported
H6	CT -CCB	0,613	0,54	Not Supported
H6	CSR -BL-CCB	5,159	0	Supported
H7	CSR -CT-CCB	0,611	0,541	Not Supported

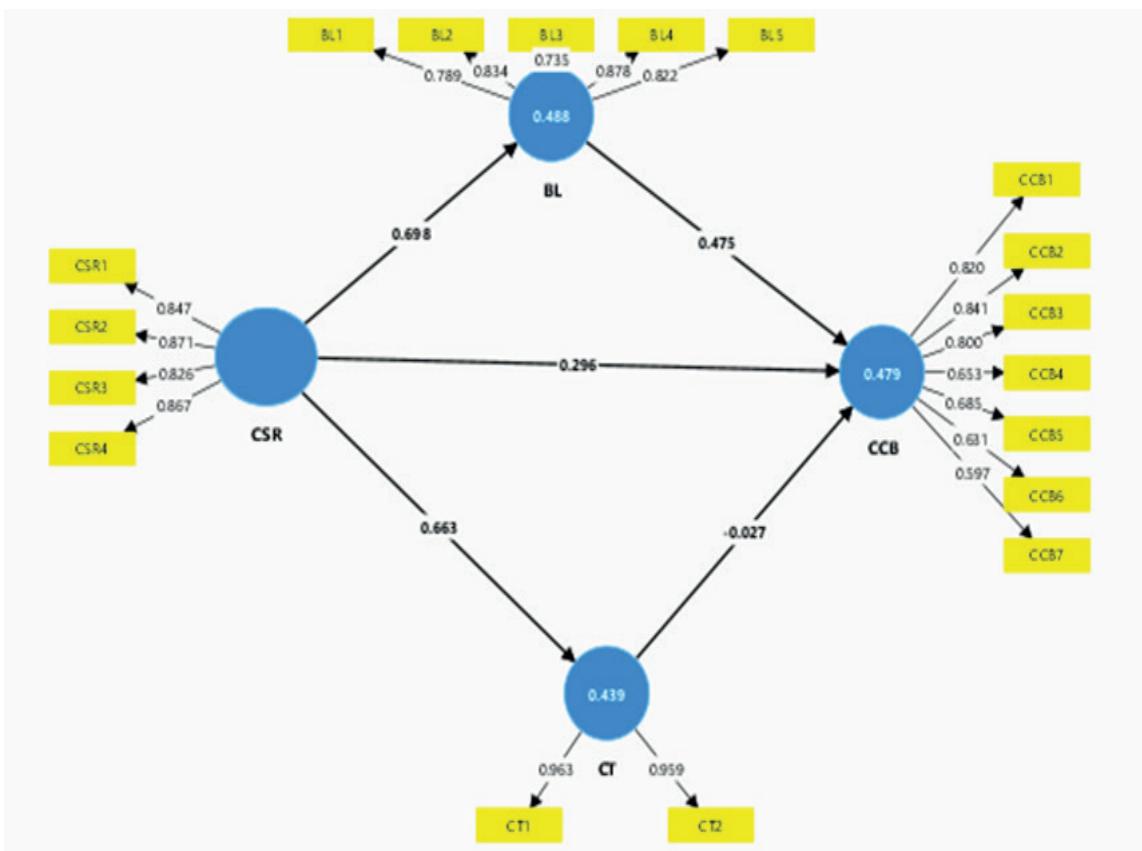


Figure 2. Structural model

Bootstrapping analysis confirmed that Brand Loyalty significantly mediates the relationship between Corporate Social Responsibility (CSR) and Customer Citizenship Behavior (CCB), while Customer Trust does not exhibit a significant mediating effect. Table 2 exhibits the outcome of this research and figure 2 illustrates the Structural Model.⁽¹⁷⁾

Discriminant Validity

Discriminant validity was assessed using the Heterotrait-Monotrait (HTMT) ratio and cross-loadings. The initial HTMT value between Customer Trust and Brand Loyalty was 0,901. To reduce this, two items (CT3 and CT4) were removed from the Customer Trust construct. After item removal, HTMT values met the acceptable threshold, confirming discriminant validity. Cross-loading analysis confirmed that all remaining items loaded higher on their respective constructs than on others.

CONCLUSIONS

This study set out to examine the influence of Corporate Social Responsibility (CSR) on Customer Citizenship Behavior (CCB) in the context of petrol station brands in Malaysia. Guided by Social Exchange Theory, the research introduced a conceptual model incorporating brand loyalty and customer trust as mediating variables.

The findings support the overall objective by confirming that CSR plays a meaningful role in shaping customer behavior. The study demonstrates that CSR initiatives can foster positive consumer responses, particularly by strengthening brand loyalty, which in turn contributes to voluntary, supportive customer actions. While customer trust was considered as a potential mediator, its role was found to be limited in this specific service context.

The research contributes to a better understanding of how CSR can be strategically leveraged to enhance customer engagement in low-interaction service environments. It highlights the importance of aligning CSR efforts with customer values to build stronger emotional connections and encourage behaviors that benefit both the brand and the broader community.

Based on these insights, companies in the fuel retail sector are encouraged to continue investing in CSR initiatives as a means of enhancing customer relationships and promoting long-term brand advocacy.

Implications

Theoretical Implication

This study contributes to the theoretical advancement of research on Customer Citizenship Behavior (CCB) by integrating Corporate Social Responsibility (CSR), brand loyalty, and customer trust into a unified conceptual framework. Drawing on Social Exchange Theory (SET), the research provides empirical support for the notion that customers are more likely to engage in voluntary, supportive behaviors when they perceive tangible or intangible benefits from a brand's socially responsible actions.

By applying this framework to the petrol station sector in Malaysia, the study extends the application of CCB theory to a low-engagement service environment, which has traditionally received limited scholarly attention. The inclusion of brand loyalty and customer trust as mediators offers a nuanced understanding of the mechanisms through which CSR influences customer behavior. This approach moves beyond traditional transactional metrics and highlights the importance of emotional and relational factors in shaping consumer outcomes.

Furthermore, the study reinforces the relevance of SET in explaining consumer-brand dynamics, particularly in contexts where direct interaction is minimal. It suggests that even in such environments, perceived organizational values and social contributions can foster meaningful customer responses. This theoretical insight opens new avenues for exploring extra-role behaviors in other under-researched service sectors.

Practical Implication

The findings of this study offer actionable insights for managers and decision-makers in the fuel retail industry, particularly in Malaysia. As fuel prices are regulated and product differentiation is limited, customer experience and brand perception become critical levers for competitive advantage. This research underscores the importance of CSR as a strategic tool for enhancing customer engagement and loyalty.

Organizations are encouraged to embed CSR into their core brand identity, ensuring that initiatives are not only visible but also aligned with customer values. Programs that support environmental sustainability, education, or community welfare can strengthen emotional bonds and foster a sense of shared purpose between the brand and its customers.

Given the limited role of customer trust in this context, companies should prioritize loyalty-building strategies, such as personalized services, consistent quality, and community involvement. These efforts can lead to increased customer advocacy, participation in brand-related activities, and long-term retention.

Additionally, the study highlights the value of digital platforms for communicating CSR efforts and engaging

customers. Leveraging social media, mobile apps, and online feedback tools can enhance transparency, build credibility, and encourage customer participation in CSR-related campaigns.

Limitation of the Study

While this study provides valuable insights, several limitations should be acknowledged. First, the research was confined to petrol station brands in Malaysia, which may limit the generalizability of the findings. Future studies should explore other service sectors such as healthcare, hospitality, education, and tourism to examine whether similar patterns hold in different contexts.

Second, the study adopted a uni-dimensional view of CCB. Future research could benefit from a multi-dimensional approach, examining specific forms of citizenship behavior such as helping other customers, providing feedback, or defending the brand. This would allow for a more granular understanding of how CSR influences various types of customer engagement.

Third, the use of a cross-sectional design limits the ability to assess changes in behavior over time. Longitudinal studies could provide deeper insights into how CSR perceptions and customer responses evolve, particularly in response to sustained or evolving CSR initiatives.

Fourth, the study relied on quantitative methods, which, while robust, may not fully capture the depth of customer motivations and perceptions. Qualitative research, such as interviews or focus groups, could complement these findings by exploring the emotional and cognitive processes behind customer responses to CSR.

Finally, future research could explore additional mediators and moderators, such as sustainability awareness, social influence, or demographic factors like age, education, and income. These variables may further clarify the conditions under which CSR leads to enhanced customer engagement and provides more targeted strategies for practitioners.

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CONFLICT OF INTEREST

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