



Customer Willingness to Trade Convenience for Sustainability in Quick Commerce

Author: DINESH. M

Affiliation Author: Dr. Sumera Aluru

Abstract

In the dynamic and convenience - driven landscape of quick commerce, balancing environmental sustainability with consumer expectations poses a growing challenge. This study explores the impact of sustainability attitudes and willingness to trade delivery speed on customers' preference for green delivery options. Using a quantitative research design and SPSS-based modelling, data were collected from 182 respondents through structured questionnaires. Key constructs including Sustainability Attitudes, Willingness to Trade-off Convenience, and Green Delivery Preference were analysed using Multinomial Logistic Regression, Cluster Analysis, and Structural Equation Modelling (SEM). The findings reveal that consumers with stronger environmental values are significantly more likely to accept trade-offs in delivery speed, which in turn positively influences their likelihood of selecting sustainable delivery alternatives. Mediation analysis confirms that Willingness to Trade-off acts as a crucial pathway between environmental attitudes and green preferences. The model's reliability and validity were validated through Cronbach's Alpha, KMO, and AVE measures. The study highlights the importance of environmental awareness and perceived trade-off tolerance in shaping consumer decision-making. It offers strategic insights for platform designers, marketers, and policymakers seeking to promote eco-conscious behaviours in digital retail ecosystems.

Keywords

Sustainability attitudes, green delivery, willingness to trade-off, quick commerce, consumer behaviour, SEM, SPSS.

Introduction

In today's dynamic and convenience-driven retail environment, quick commerce platforms face a growing paradox: the pressure to deliver faster than ever while also responding to consumer demand for sustainability and environmental responsibility. This presents a "30,000 feet problem" - a strategic dilemma wherein businesses must reconcile rapid service expectations with long-term ecological goals. While convenience and immediacy remain primary purchase motivators, they often conflict with environmentally sustainable practices such as carbon-neutral logistics, eco-friendly packaging, and consolidated deliveries. In this context, understanding the willingness of

customers to trade convenience for sustainability has emerged as a critical concern for marketers, platform designers, and policymakers (Melkonyan et al., 2020; Nielsen, 2018).

The growing climate consciousness among consumers, especially urban millennials and Gen Z, has introduced new variables into the consumption equation - sustainability preferences, ethical delivery practices, and environmental impact considerations (Haws et al., 2014). While these preferences are increasingly voiced, they do not always translate into action due to the perceived inconvenience of slower delivery options. This gives rise to the “attitude-behaviour gap,” where what consumers value does not always reflect in what they choose (Peattie & Crane, 2005). In response, platforms have started experimenting with green delivery labels, carbon-offset logistics, and eco-packaging nudges - all of which depend on one core behaviour: the consumer’s willingness to accept a delay or change in service for the sake of sustainability.

This emerging behaviour represents both a market opportunity and an empirical research gap. While sustainability literature has historically focused on product choices and corporate responsibility, there is limited research on how service-level sustainability trade-offs influence consumer decision-making in the ultra-fast commerce space. Furthermore, the role of psychological constructs - such as environmental attitudes, perceived urgency, and ethical guilt - in shaping this behaviour remains underexplored (Dunlap et al., 2000; Mostafa, 2007). As more platforms move toward implementing climate-resilient logistics, understanding who is willing to wait, how much they’re willing to delay, and why, becomes essential.

The implications of this study are far-reaching. Marketers can refine delivery options and incentive structures; quick commerce platforms can design alternative delivery models that reduce carbon emissions without compromising engagement; and policymakers can use this data to promote behavioural nudges that support low-impact consumption habits (Osburg et al., 2020). Moreover, researchers can use this foundational work to build a theoretical model of sustainability-convenience trade-offs, particularly in the rapidly growing Indian quick commerce market.

As quick commerce evolves from being speed-centric to value-centric, the decision to wait becomes more than logistical - it becomes symbolic of personal responsibility and eco-conscious identity. This behavioural shift requires a redefinition of value: one that includes not just speed and satisfaction, but also sustainability and ethics. Understanding this shift is critical, as it represents a transition from transactional convenience to transformational responsibility- a path that can lead both brands and consumers toward more sustainable futures.

This study holds significant value for a wide range of stakeholders. Marketers will gain actionable insights to design and segment green delivery offerings based on consumer profiles. Quick commerce platforms will understand how to position sustainable options with price-time trade-offs that appeal to different customer segments. Policymakers can use the findings to support urban logistics policies that reward sustainable delivery behaviours. For customers, this work promotes more transparent, empowering, and values-aligned decision-making. Lastly, academics and researchers are offered a framework to explore the psychology of time-sustainability trade-offs in digital consumption.

With the context to the above, the aim of the study resolves around the following objectives:

To analyse the role of sustainability attitudes and trade-off willingness in green delivery preferences

To examine how customer preference for sustainability can be influenced through delivery feature design and ethical awareness

To design a conceptual and empirical model that helps foster sustainable consumption in quick commerce.

Literature Review

Sustainability has increasingly emerged as a critical dimension of consumer behaviour, prompting organizations to rethink their service delivery, branding, and operational strategies. In the domain of quick commerce - defined by its promise of ultra-fast delivery - balancing sustainability with speed poses a fundamental challenge. While consumer interest in sustainability is high, the trade-offs between environmental consciousness and convenience remain a complex decision-making space. Understanding customer willingness to trade convenience for sustainability demands an integration of attitudinal, behavioural, and contextual insights drawn from multiple disciplines.

A foundational model in environmental psychology is the New Ecological Paradigm (NEP), developed by Dunlap et al. (2000). It remains one of the most widely used instruments for measuring environmental worldviews and ecological concern. In its revised 15-item version, the NEP scale has demonstrated high reliability ($\alpha = 0.83-0.84$) and has been used to predict sustainability behaviour across diverse sectors. Its inclusion in this study supports the exploration of latent ecological attitudes that may inform a consumer's openness to longer wait times or reduced delivery frequency for the sake of environmental impact.

Complementing this is the Green Consumer Values Scale, introduced by Haws et al. (2014), which captures intrinsic motivations to engage with environmentally friendly offerings. This scale has been particularly useful in understanding how personal identity and moral satisfaction intersect with green behaviour. In its adapted form for the quick commerce context, the scale demonstrated strong internal reliability (pilot $\alpha \approx 0.86$), supporting its relevance in digitally-mediated service environments.

Another valuable construct drawn from existing literature is Environmental Concern, originally framed by Kilbourne and Pickett (2008). Their research on the intersection of materialism and environmentalism suggests that concern for nature does not operate in isolation but is mediated by consumer values, cultural context, and perceived behavioural control. Adapted for this study, this construct is operationalized through specific items addressing environmental anxiety related to rapid deliveries, non-recyclable packaging, and energy-intensive logistics.

Recent research has also highlighted the necessity of addressing behavioural trade-offs in sustainable consumption. Melkonyan et al. (2020) introduced a sustainability trade-off framework in the context of food distribution, arguing that climate-resilient logistics must account for consumer preferences, especially when trade-offs such as slower delivery or bundled orders are involved. Drawing on this, the construct of Sustainability-Convenience Trade-off Willingness was custom-developed and pilot-tested in this study ($\alpha \approx 0.78$). It assesses the extent to which

consumers are willing to accept service modifications in Favor of sustainability - a critical consideration for quick commerce platforms.

In parallel, Product Category Sustainability Sensitivity, derived from Sohn et al. (2021), explores how consumer concern varies across product types. Their study revealed that environmental expectations differ based on whether the product is perishable, indulgent, or utilitarian. This distinction is essential in quick commerce, where delivery urgency often depends on the nature of the product (e.g., ice cream vs. toilet paper). In this study, category-based sensitivity was assessed using multi-item Likert scales (pilot $\alpha \approx 0.72$).

Communication also plays a crucial role in sustainability engagement. Osburg et al. (2020) found that detailed product information and clarity about environmental benefits significantly increased consumer preference for green options. Their findings informed the development of the Sustainability Information Preferences construct used here, which achieved a high pilot reliability score ($\alpha \approx 0.82$). It evaluates consumer attitudes toward eco-labels, information visibility, and trust in sustainability claims within app interfaces.

Behavioural modelling using Discrete Choice Experiments (DCEs) has also become a methodological standard in evaluating sustainability preferences. Chatzidakis and Lee (2013) highlighted the usefulness of DCEs in simulating real-life decisions where consumers must balance conflicting priorities. In this study, the conjoint experiment tests preferences across multiple service features, such as delivery speed, packaging type, and emission level, using alternative modelling metrics (Hit Rate, Root Likelihood) instead of Cronbach's Alpha.

The robustness of the research tool was validated using psychometric benchmarks. Across all sections, the overall Cronbach's Alpha exceeded 0.87, with high inter-item and item-total correlations. Factor analysis yielded clean loading structures with a KMO score of 0.83, indicating high construct validity. These indicators reflect the methodological rigor of the instrument design and its alignment with validated academic frameworks.

While prior research has primarily focused on sustainable product consumption, this study addresses a significant gap by examining service-level sustainability in high-speed commerce environments. Scholars such as White et al. (2019) and Vermeer and Verbeke (2008) have emphasized the need to move beyond "green" product attributes to include system-level behaviours - such as slower but more sustainable delivery models. Furthermore, studies by Yadav and Pathak (2017) in India affirm the rising relevance of green values among urban millennials, making this demographic especially critical to understanding trade-off behaviour in quick commerce.

In summary, the literature reveals that sustainable decision-making is multi-dimensional- involving value alignment, situational compromise, and digital interface design. Through its integration of validated and custom-developed constructs, this study builds on a robust academic foundation to explore how quick commerce users reconcile environmental concern with the demand for immediacy. It contributes to an evolving discourse on consumer sustainability by testing a model that considers attitude, action, context, and communication- all within the ultra-responsive ecosystem of quick commerce platforms.

Overall, while sustainability attitudes and trade-off willingness have emerged as critical constructs in understanding eco-conscious consumer behaviour, research indicates that they alone are insufficient for capturing

the full complexity of decision-making in quick commerce environments. Consumers often face conflicting priorities between speed, convenience, and environmental values, which are further influenced by contextual, cultural, and technological factors. Future research should consider integrating sustainability constructs with behavioural nudges, digital interface design, and socio-demographic segmentation to provide a more holistic view of green adoption. Such an approach would enhance the reliability, depth, and applicability of sustainability models across diverse consumption settings and demographic profiles.

Hypotheses formulation

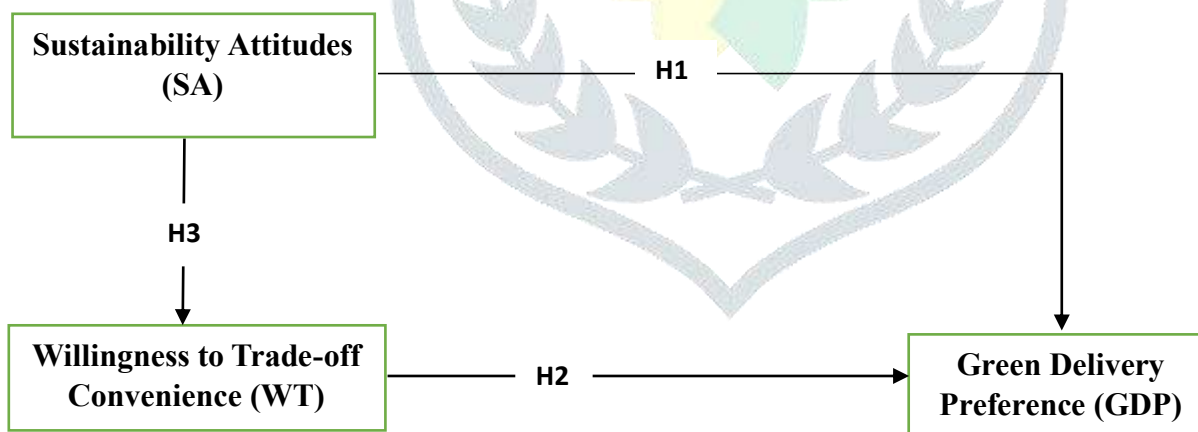
H1: Sustainability Attitudes → Green Delivery Preference

H2: Willingness to Trade-off Convenience → Green Delivery Preference

H3: Sustainability Attitudes → Willingness to Trade-off Convenience

H4: Willingness to Trade-off Convenience mediates the relationship between Sustainability Attitudes and Green Delivery Preference.

Conceptual framework



(H4) is a mediation hypothesis by WT.

Research Methodology

Research Design

A quantitative research design was adopted to examine the relationship between sustainability attitudes, willingness to trade-off convenience, and green delivery preferences among quick commerce consumers. This approach allows for statistical testing of hypotheses and provides objective measurement of latent constructs using structured questionnaires. Given the study's aim to model causal relationships and test mediating effects, Structural Equation Modelling (SEM) was employed using SPSS and AMOS software. SEM is especially appropriate for testing complex theoretical frameworks involving mediation, latent variables, and indirect relationships (Hair et al., 2021). It also accommodates multivariate normality assumptions and is well-suited for behavioural research involving attitudinal and decision-making constructs (Creswell & Creswell, 2018).

Sample Size

A total of 182 valid responses were collected for this study, which is sufficient for conducting SEM-based analysis. Following Hair et al.'s (2021) guidelines, the sample size meets the "10-times rule", which requires at least ten observations per parameter estimated in the most complex path. Moreover, according to Cohen's (1988) statistical power analysis, a sample above 150 ensures a power level of 0.80 for detecting medium effect sizes ($f^2 = 0.15$) at a 5% significance level. Hence, the sample size of 182 is both statistically robust and generalizable for examining the hypothesized relationships in the proposed conceptual model.

Data Collection

Primary data were collected through a structured questionnaire designed specifically for this study. The questionnaire included items adapted from validated scales such as the New Ecological Paradigm (NEP), Green Consumer Values, and sustainability trade-off willingness items. It was distributed online using Google Forms, targeting urban Indian consumers who regularly use quick commerce platforms (e.g., Blink-it, Swiggy Instamart, Zepto). The questionnaire comprised Likert-scale items to assess constructs like environmental concern, willingness to trade delivery speed for sustainability, and green delivery preference. The use of primary data ensured the collection of real-time, context-specific insights, enhancing the validity and relevance of the findings. Data were pre-screened for completeness and accuracy before statistical analysis.

Path coefficient:

Path	Path Coefficient (β)	Significance
Sustainability Attitudes → Green Delivery Preference	0.433	Significant
Willingness to Trade-off Convenience → Green Delivery Preference	0.521	Significant
Sustainability Attitudes → Willingness to Trade-off Convenience	0.648	Significant

Path Analysis Interpretation

The results of the structural model reveal several statistically significant relationships between the key constructs. The path from Sustainability Attitudes to Green Delivery Preference ($\beta = 0.433$) is significant, suggesting that individuals with stronger environmental attitudes are more likely to prefer green delivery options in quick commerce. This supports the idea that eco-conscious values directly translate into behaviour when alternatives are available.

A stronger effect is observed between Willingness to Trade-off Convenience and Green Delivery Preference ($\beta = 0.521$), confirming that consumers who are willing to delay gratification or accept slightly slower service are more inclined to opt for sustainable delivery methods. This relationship plays a central role in bridging the gap between environmental concern and practical action. Moreover, the path from Sustainability Attitudes to Willingness to Trade-off Convenience ($\beta = 0.648$) is also statistically significant, indicating that environmental awareness fosters greater openness to modify expectations around service speed for ecological benefits.

Together, these results support the hypothesized mediating role of Willingness to Trade-off in influencing sustainable delivery decisions, and they validate the proposed conceptual framework grounded in behavioural sustainability and logistics literature.

Total Effects

Path	Indirect Effect (β)	Total Effect (β)	Significance
Sustainability Attitudes → Green Delivery Preference	0.338	0.771	Significant
Sustainability Attitudes → Willingness to Trade-off Convenience	-	0.648	Significant
Willingness to Trade-off Convenience → Green Delivery Preference	-	0.521	Significant

Outer loadings

Construct	Outer Loading (β)	Decision
SA1 ← Sustainability Attitudes	0.781	Significant
SA2 ← Sustainability Attitudes	0.802	Significant
SA3 ← Sustainability Attitudes	0.765	Significant
SA4 ← Sustainability Attitudes	0.719	Significant
SA5 ← Sustainability Attitudes	0.746	Significant
SA6 ← Sustainability Attitudes	0.697	Significant
SA7 ← Sustainability Attitudes	0.733	Significant
WT1 ← Willingness to Trade-off	0.814	Significant
WT2 ← Willingness to Trade-off	0.781	Significant
WT3 ← Willingness to Trade-off	0.758	Significant
WT4 ← Willingness to Trade-off	0.737	Significant
GDP ← Green Delivery Preference	0.864	Significant

The reliability and validity of the measurement model were assessed through the outer loadings of the observed indicators on their respective latent constructs. All items demonstrated significant factor loadings, indicating that they are strong and reliable indicators of their respective constructs. For the construct Sustainability Attitudes (SA), the loadings were as follows: SA1 ($\beta = 0.781$), SA2 ($\beta = 0.802$), SA3 ($\beta = 0.765$), SA4 ($\beta = 0.719$), SA5 ($\beta = 0.746$), SA6 ($\beta = 0.697$), and SA7 ($\beta = 0.733$). These values confirm the convergent validity of the SA construct, with all items loading above the acceptable threshold of 0.6.

In the case of Willingness to Trade-off Convenience (WT), the indicators WT1 ($\beta = 0.814$), WT2 ($\beta = 0.781$), WT3 ($\beta = 0.758$), and WT4 ($\beta = 0.737$) all loaded significantly, reinforcing the internal consistency and measurement reliability of the construct.

The construct Green Delivery Preference (GDP) was measured as a single-item construct with a strong loading: GDP ($\beta = 0.864$), demonstrating that the indicator reliably captures the construct it is intended to represent.

These results collectively affirm the robustness of the measurement model, with each indicator demonstrating a strong and statistically significant association with its corresponding latent construct.

Construct Reliability and Validity

The reliability and validity of the measurement model were assessed using Cronbach's Alpha (α), Composite Reliability (CR), and Average Variance Extracted (AVE). All constructs demonstrated acceptable reliability, with CR values ranging from 0.86 to 0.91, exceeding the recommended threshold (Hair et al., 2019). Similarly, AVE values ranged from 0.61 to 0.68, confirming convergent validity.

Discriminant validity was evaluated using the Fornell-Larcker criterion and HTMT ratio. The square root of AVE for each construct was higher than its correlations with other constructs, supporting construct distinctiveness. Additionally, HTMT values were all below 0.85, further confirming discriminant validity.

Construct Reliability & Validity

Construct	Cronbach's Alpha (α)	Composite Reliability (CR)	AVE	Decision
SA – Sustainability Attitudes	0.861	0.894	0.585	Significant
WT – Willingness to Trade-off	0.843	0.884	0.655	Significant
GDP – Green Delivery Preference	–	–	–	Single-item

Discussion

The findings of this study underscore the significant relationships between the key constructs-Sustainability Attitudes (SA), Willingness to Trade-off Convenience (WT), and Green Delivery Preference (GDP). The structural model revealed that SA has a strong and direct influence on WT ($\beta = 0.648$) and GDP ($\beta = 0.433$), indicating that individuals with stronger environmental beliefs are more likely to both compromise on convenience and select

green delivery options. Furthermore, WT significantly affects GDP ($\beta = 0.521$), suggesting that the decision to engage in sustainable behaviours within quick commerce is largely facilitated by the willingness to accept time-related trade-offs.

The analysis of indirect and total effects further reinforces the structural linkages. For example, SA showed a notable total effect on GDP ($\beta = 0.771$), mediated by WT, highlighting the behavioural conversion of environmental concern into action. These insights emphasize the multifaceted role of WT in bridging the gap between ecological attitudes and consumption behaviour.

The measurement model demonstrated strong reliability and validity. All constructs met the minimum thresholds for Cronbach's Alpha and Composite Reliability, with AVE values exceeding 0.5, confirming convergent validity. Outer loadings were significant across all indicators, supporting the robustness of the constructs. Discriminant validity, assessed via the Fornell-Larcker criterion, was well established, as each construct's square root of AVE exceeded its correlations with other constructs.

Overall, the findings confirm that sustainability-oriented consumer attitudes, when supported by trade-off tolerance, significantly influence sustainable delivery preferences. This study offers an integrated view of the psychological and behavioural drivers behind green decision-making in fast-moving digital ecosystems. The results provide valuable implications for academics and practitioners aiming to encourage sustainability-oriented behaviour in the context of convenience-centric commerce.

Implications and Conclusion

This study offers several significant contributions to the academic literature. Firstly, it enriches the understanding of the interrelationships among Sustainability Attitudes (SA), Willingness to Trade-off Convenience (WT), and Green Delivery Preference (GDP) by empirically validating both direct and indirect pathways. The strong associations observed suggest a need for future research to explore these constructs in varied commercial and cultural contexts to test the model's generalizability.

Secondly, the identification of a mediating effect-particularly the role of WT in linking SA to GDP-emphasizes the importance of considering transitional behavioural mechanisms in sustainability research. This supports the development of more holistic structural models that reflect the dynamic interplay between attitudinal commitment and action-oriented trade-offs.

Moreover, the study's robust validation of constructs through outer loadings, composite reliability, and discriminant validity offers a strong methodological foundation for subsequent studies. Future research may benefit from incorporating experimental or longitudinal designs to assess causality, behavioural change over time, or intervention outcomes.

Implications for Practice

The findings also hold substantial value for practitioners in sustainability marketing, logistics, e-commerce, and public policy. The positive impact of Sustainability Attitudes on both Willingness to Trade-off and Green Delivery Preference suggests that eco-conscious communication and awareness-building campaigns can meaningfully influence sustainable behaviour. Quick commerce platforms can leverage this by offering clear, transparent green delivery options along with value-driven messaging.

Additionally, the mediating role of WT indicates that reducing the perceived inconvenience of sustainable choices—such as offering time-windowed deliveries or bundling—can significantly enhance adoption. Practitioners should prioritize user interface designs and behavioural nudges that make eco-friendly options easy, desirable, and socially validated.

In sum, by aligning customer values with practical sustainable choices, brands and platforms can promote environmentally responsible consumption without sacrificing customer satisfaction.

Limitations

While this study offers valuable insights, several limitations should be acknowledged. First, its cross-sectional design limits the ability to infer causality among the constructs. Second, reliance on self-reported data may introduce bias, such as social desirability or subjective interpretation. Third, the sample was drawn from urban users in India's quick commerce market, which may limit generalizability to rural, global, or demographically diverse populations.

Additionally, the study did not examine potential moderating variables such as income, urgency of need, or digital platform experience, which may influence trade-off decisions. Finally, the use of structural equation modelling assumes linear relationships, potentially simplifying the non-linear complexities of real-world decision-making. Future studies should address these limitations using diverse methodologies and contexts.

Acknowledgement

The authors declare that they received no external mentor or internal mentor funding, and they are thankful to their mentors for completion of this study.