
Journal of Sustainable Economic and Business (JOSEB)

Vol. 3 No. 1 January 2026: 14-25

ISSN (Online): 3063-0207

<https://journal.arepublisher.com/index.php/joseb>

Analysis of Consumer Intention to Resist Electric Motorcycles Product Purchase: An Innovation Resistance Theory Approach

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ABSTRACT

Objectives: Electric motorcycles have been promoted as a sustainable transportation solution; however, consumer adoption in Indonesia remains relatively limited, indicating the existence of resistance toward this innovation. This study aims to analyze the factors influencing consumers' intention to resist electric motorcycle product purchase using the Innovation Resistance Theory (IRT) approach.

Methodology: This research adopts a quantitative research approach using a survey method. Data were collected through an online questionnaire from 221 respondents selected using purposive sampling, consisting of individuals aged 18–56 years who reside or work in Jabodetabek and Yogyakarta and are familiar with electric motorcycles. The collected data were analyzed using PLS-SEM with SmartPLS 4.1.1.4 software to examine the relationships among the innovation resistance variables.

Finding: The results reveal that usage barrier, value barrier, tradition barrier, and image barrier have a positive and significant effect on consumers' intention to resist electric motorcycle product purchase, while risk barrier does not show a significant effect. Among all barriers, tradition barrier is identified as the most dominant factor contributing to consumer resistance.

Conclusion: This study concludes that consumer resistance toward electric motorcycle product purchase in Indonesia is significantly influenced by usage barrier, value barrier, tradition barrier, and image barrier, whereas risk barrier does not have a significant effect. Among all barriers, the tradition barrier is the most dominant factor, indicating that established habits and reliance on conventional motorcycles remain the primary obstacles to adoption. Therefore, efforts to reduce resistance should focus on minimizing usage difficulties, strengthening perceived value, addressing habitual/traditional preferences, and improving product image.

Keywords: Innovation Resistance Theory; electric motorcycles; consumer resistance; purchase intention; PLS-SEM.

Article Doi: <https://doi.org/10.70550/joseb.v3i1.316>

How to Cite: Damayanti, N., & Nurmahdi, A. (2026). Analysis of Consumer Intention to Resist Electric Motorcycles Product Purchase : an Innovation Resistance Theory Approach. *Journal of Sustainable Economic and Business*, 3(1), 14-25. <https://doi.org/10.70550/joseb.v3i1.316>

Submitted: 23-12-2025

Revised: 27-01-2026

Accepted: 27-01-2026

INTRODUCTION

Growing global concern over environmental issues has accelerated the transition toward sustainable mobility, as reflected in the rapid increase in electric vehicle adoption worldwide (IEA, 2024). Although electric vehicles play a critical role in reducing transportation-related emissions, their adoption remains hindered by economic,

infrastructural, and behavioral barriers (Timilsina et al., 2025; IEA, 2024; Patil et al., 2024). Electric vehicle adoption is strongly driven by supportive policies in developed countries, while developing countries continue to face economic and infrastructural barriers (Patil et al., 2024; Udendhran et al., 2025). Indonesia faces unique challenges in achieving sustainable mobility, as motorcycles dominate the transport sector and contribute significantly to national CO₂ emissions, creating both challenges and opportunities for electric motorcycle adoption (KLHK, 2021; BPS, 2023).

The adoption of electric motorcycles directly supports multiple Sustainable Development Goals, particularly SDG 7 through cleaner and more efficient energy use, SDG 11 by promoting low-emission urban mobility, and SDG 13 by contributing to greenhouse gas emission reduction and climate change mitigation. Despite a more than fiftyfold increase in electric motorcycle ownership in Indonesia from 2020 to August 2024 driven by government incentives, electric motorcycles still account for only about 0.1% of total two-wheeled vehicles, indicating the presence of substantial barriers to adoption (Katadata Insight Center; PLN RUPTL 2025–2034). Despite ambitious government regulations and incentives, electric motorcycle adoption in Indonesia remains low, reflecting strong consumer resistance driven by price sensitivity, infrastructure limitations, technological concerns, and low trust, as evidenced by national surveys showing limited purchase interest (Kompas Research, 2024).

From a theoretical perspective, consumer resistance to electric motorcycles can be explained by Innovation Resistance Theory, which posits that functional barriers (usage, value, and risk) and psychological barriers (tradition and image) lead consumers to delay or reject adoption due to usability constraints, perceived risks, habitual dependence on conventional motorcycles, and unfavorable product perceptions. This study empirically addresses the problem of low electric motorcycle adoption in Indonesia by applying Innovation Resistance Theory to examine how usage, value, risk, tradition, and image barriers influence consumers' intention to resist purchase.

Academic studies on electric motorcycle adoption in Indonesia remain limited and largely rely on the Theory of Planned Behavior with inconsistent findings, suggesting the need to incorporate consumer resistance perspectives such as Innovation Resistance Theory to better explain delayed or rejected adoption despite government incentives (Aqmarina et al., 2024; PwC, 2025). Prior studies applying Innovation Resistance Theory consistently indicate that value, tradition, and image barriers play dominant roles in shaping consumer resistance toward green products, although the effects of usage and risk barriers vary across contexts (Puspitasari & Alversia, 2023; Hendiawan & Wibowo, 2025). International evidence further confirms that the influence of IRT barriers is highly context-specific across technologies and cultures, highlighting the need for empirical investigation of electric motorcycle resistance within the Indonesian market (Xue et al., 2024; Leong et al., 2021).

The objectives of this study are to examine the effects of usage, value, risk, tradition, and image barriers on consumers' intention to resist electric motorcycle product purchase in Jabodetabek & Yogyakarta using the Innovation Resistance Theory framework. Accordingly, this study seeks to answer how each of these innovation resistance barriers influences consumer resistance toward electric motorcycles. By addressing these objectives, the study aims to provide empirical insights into the key factors driving resistance behavior and to offer practical implications for policymakers and industry stakeholders in designing effective strategies to reduce resistance and accelerate the adoption of electric motorcycles.

LITERATURE REVIEW

Literature Review

Sustainability

Sustainability has become a fundamental paradigm in modern development, defined as the ability to meet present needs without compromising future generations by balancing economic growth, social well-being, and environmental limits. Sustainability is operationalized through the triple bottom line of people, planet, and profit, which has evolved into approaches such as the green economy defined as enhancing human well-being while reducing environmental risks and the circular economy, which emphasizes resource efficiency through reduce, reuse, and recycle principles. The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015 as a global framework toward 2030, aim to integrate economic, social, and environmental objectives, and this study directly contributes to SDG 7 through cleaner energy use, SDG 11 by promoting low-emission urban transportation, and SDG 13 by supporting climate change mitigation.

Innovation Resistance Theory

Innovation Resistance Theory (IRT) developed by explains consumer resistance as an active response to innovation manifested through postponement, rejection, or opposition arising from functional barriers (usage, value, and risk) and psychological barriers (tradition and image) that conflict with consumers' established habits, beliefs, and perceived value of change.

Usage Barrier

Usage barrier, as a functional dimension of Innovation Resistance Theory, refers to the perceived incompatibility between an innovation and consumers' existing habits or routines, and empirical studies show that higher perceived usage difficulty such as long charging time, limited infrastructure, and unfamiliar technology significantly increases consumer resistance and reduces purchase intention toward electric vehicles (Sadiq et al., 2021; Xue et al., 2024).

Value Barrier

Value barrier in Innovation Resistance Theory refers to consumers' perception that the benefits of an innovation do not outweigh the economic, functional, or symbolic costs of switching from existing alternatives, and empirical evidence shows that higher perceived value inadequacy significantly increases resistance and reduces purchase intention toward electric vehicles (Sadiq et al., 2021; Xue et al., 2024).

Risk Barrier

Risk barrier in Innovation Resistance Theory refers to consumers' perceived uncertainty regarding the negative consequences of adopting an innovation, including functional, financial, and safety risks, and empirical studies show that higher perceived risk significantly increases resistance and reduces purchase intention toward electric vehicles (Sadiq et al., 2021; Xue et al., 2024).

Tradition Barrier

Tradition barrier, as a psychological dimension of Innovation Resistance Theory, refers to consumers' attachment to established habits and cultural norms, which leads them to resist

innovations such as electric motorcycles when these are perceived as deviating from familiar practices and identities associated with conventional vehicles (Xue et al., 2024).

Image Barrier

Image barrier in Innovation Resistance Theory refers to consumers' negative perceptions of the social and symbolic image associated with an innovation and its users, and empirical evidence shows that unfavorable product image and status perceptions significantly strengthen consumer resistance toward sustainable innovations, including electric vehicles (Sadiq et al., 2021; Bhutto & Rütelioné, 2024; Xue et al., 2024; Hendiawan & Wibowo, 2025). In addition, prior evidence suggests that skepticism toward greenwashing can diminish brand credibility, thereby reinforcing unfavorable brand perceptions and increasing the likelihood of resistance toward green innovations ((Nurmahdi et al., n.d.)

Hypotheses Development

Theoretical Framework and Conceptual Model

Usage barrier refers to the perceived incompatibility between an innovation and consumers' existing habits or routines. In the context of electric motorcycles, this barrier arises when consumers perceive difficulties related to daily usage, such as charging procedures, limited charging infrastructure, longer adaptation time, and reduced practicality compared to conventional motorcycles. Empirical studies indicate that perceived usage complexity significantly increases resistance and delays the adoption of electric vehicles (Sadiq et al., 2021; Xue et al., 2024).

H1: Usage barrier has a positive and significant effect on the intention to resist electric motorcycle product purchase.

Value barrier occurs when consumers perceive that the benefits of an innovation do not justify its economic or functional costs. For electric motorcycles, this barrier is reflected in perceptions of high purchase prices, uncertain long-term savings, lower performance, and high battery replacement costs. Prior studies confirm that value barrier is a dominant factor increasing resistance toward electric vehicles, particularly in emerging markets where price sensitivity is high (Sadiq et al., 2021; Xue et al., 2024, Sang et al., 2022).

H2: Value barrier has a positive and significant effect on the intention to resist electric motorcycle product purchase.

Risk barrier involves consumers' concerns regarding potential negative consequences associated with adopting an innovation, including functional, financial, and safety risks. In the electric motorcycle context, these concerns include battery safety, durability, maintenance costs, availability of service centers, and resale value uncertainty. Several studies show that higher perceived risk significantly increases resistance and reduces consumers' willingness to adopt electric vehicles (Sadiq et al., 2021; Xue et al., 2024).

H3: Risk barrier has a positive and significant effect on the intention to resist electric motorcycle product purchase.

Tradition barrier reflects consumers' attachment to existing habits, cultural norms, and long-established consumption patterns. Consumers who are accustomed to conventional motorcycles often perceive electric motorcycles as incompatible with their lifestyle, riding identity, and perceived reliability. Empirical evidence indicates that habitual dependence on

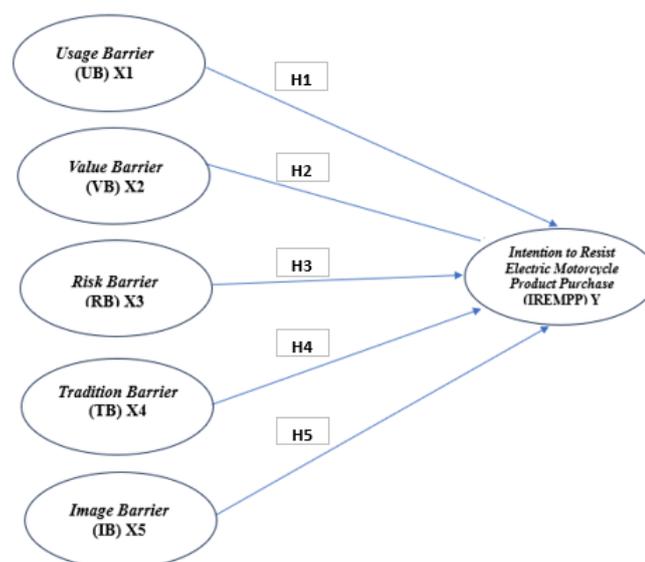
conventional vehicles significantly strengthens resistance toward electric motorcycle adoption (Sadiq et al., 2021; Xue et al., 2024).

H4: Tradition barrier has a positive and significant effect on the intention to resist electric motorcycle product purchase.

Image barrier concerns negative perceptions related to the social image, status, and credibility of an innovation and its users. In electric motorcycles, this barrier emerges when consumers doubt product quality, technological maturity, brand reputation, or social prestige associated with usage. Previous studies confirm that unfavorable image perceptions significantly increase resistance toward electric vehicles and sustainable innovations (Sadiq et al., 2021; Bhutto & Rūtelionė, 2024; Hendiawan & Wibowo, 2025). Consistently, evidence from an Indonesian green consumption context shows that a positive brand image facilitates consumers' purchase decisions, implying that when an innovation fails to build a credible and desirable image, consumers are more likely to resist adoption (Nabila & Permana, 2025)

H5: Image barrier has a positive and significant effect on the intention to resist electric motorcycle product purchase.

Figure 1. Conceptual Framework



METHOD

This quantitative cross-sectional survey examined the effects of usage, value, risk, tradition, and image barriers on consumers' intention to resist electric motorcycle product purchase. The study targeted Indonesian consumers aged 18–56 years who reside or work in Jabodetabek and Yogyakarta and are familiar with electric motorcycles, selected through non-probability purposive sampling, with a minimum sample size of 178 determined using G*Power. Data were collected through an online questionnaire distributed via Google Forms and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4.1.1.4 software.

RESULTS AND DISCUSSION

Results

Electric motorcycles are two-wheeled vehicles powered by electric energy that are promoted as a low-emission and environmentally friendly alternative to conventional gasoline motorcycles, contributing to sustainable transportation and reduced carbon emissions. This study focuses on Indonesian consumers aged 18–56 years who are familiar with electric motorcycles and reside or work in Jabodetabek and Yogyakarta. Data were collected through an online questionnaire from Nov 26 to Dec 11 2025, resulting in 221 valid responses after data screening. Respondents were drawn from Jabodetabek and Yogyakarta and represented potential consumers who are familiar with electric motorcycles, and the data were analyzed using PLS-SEM to examine the relationships among the research variables.

Table 1. Result Characteristics

| No | Respondent Profiles | Category | N = 221 | Proportion |
|----|---------------------|--|---------|------------|
| 1 | Gender | a. Man | 121 | 55% |
| | | b. Women | 100 | 45% |
| 2 | Age | 30 - 35 Years Old | 68 | 31% |
| | | 24 - 29 Years Old | 54 | 24% |
| | | 36 - 39 Years Old | 47 | 21% |
| | | > 40 Years Old | 35 | 16% |
| | | 18 - 23 Years Old | 17 | 8% |
| 3 | Domicile | Jakarta | 83 | 38% |
| | | Bekasi | 69 | 31% |
| | | Bogor | 25 | 11% |
| | | Tangerang | 18 | 8% |
| | | Yogyakarta | 17 | 8% |
| | | Depok | 9 | 4% |
| 4 | Occupation | Private Employee | 168 | 76% |
| | | Civil Servant | 24 | 11% |
| | | Self Employed | 17 | 8% |
| | | Housewife | 11 | 5% |
| | | Student | 1 | 0% |
| 5 | Education | Bachelor Degree (S1) | 160 | 72% |
| | | Basic Education (Elementary, Middle, High School, or equivalent) | 19 | 9% |
| | | Master Degree (S2) | 15 | 7% |
| | | Diploma (D1, D2, D3, or D4) | 14 | 6% |
| | | Doctoral (S3) | 13 | 6% |
| 6 | Income | Rp. 9.000.000 - Rp. 19.000.000 | 73 | 33% |
| | | Rp. 4.000.000 - Rp. 8.000.000 | 73 | 33% |
| | | Rp. 20.000.000 - Rp. 29.000.000 | 32 | 14% |
| | | Less than Rp. 4.000.000 | 27 | 12% |
| | | More than Rp. 30.000.000 | 16 | 7% |

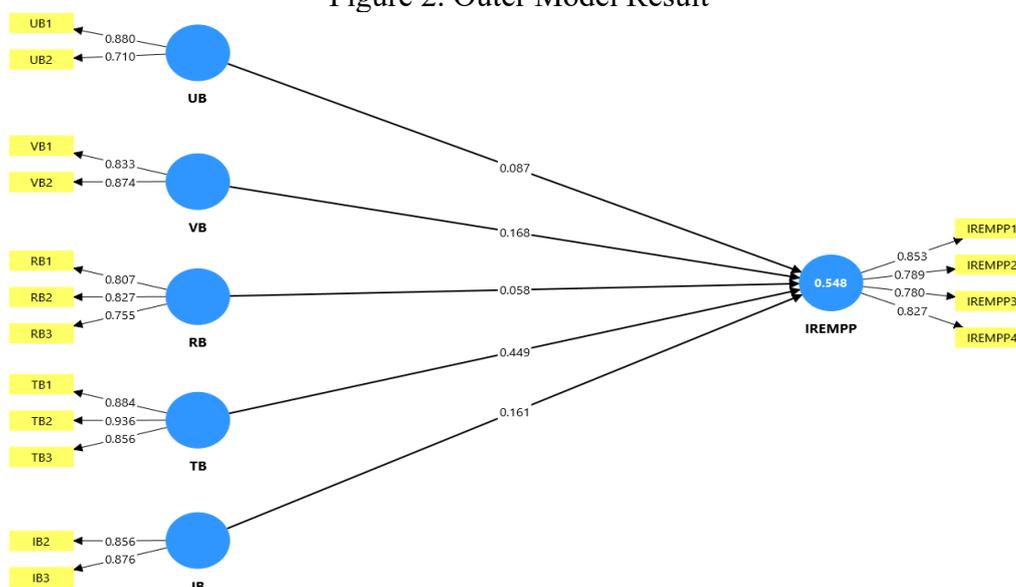
Source: Primary Data Processed by the Researcher Using SmartPLS 4.1.14, 2025

The study involved 221 respondents, with a relatively balanced gender composition consisting of 55% men and 45% women. The majority of respondents were aged between 30–35 years (31%), followed by those aged 24–29 years (24%) and 36–39 years (21%), indicating a strong

representation of economically active consumers. Most respondents were domiciled in Jabodetabek, particularly Jakarta (38%) and Bekasi (31%), while Yogyakarta accounted for 8% of the sample. In terms of occupation, private employees dominated the sample (76%), followed by civil servants (11%) and self-employed individuals (8%). Regarding educational background, the majority held a bachelor’s degree (72%), while the remaining respondents had completed basic education (9%), master’s degree (7%), diploma (6%), and doctoral degree (6%). Monthly income levels were relatively diverse, with the largest proportions earning between Rp. 4,000,000–Rp. 8,000,000 and Rp. 9,000,000–Rp. 19,000,000 (each 33%), indicating a predominantly middle-income consumer segment.

Outer Model

Figure 2. Outer Model Result



The results show that all indicator outer loading values exceed the recommended threshold of 0.70, indicating a strong association between each indicator and its corresponding latent construct. This confirms that the measurement items adequately capture and consistently represent the underlying constructs, thereby satisfying the requirement for convergent validity in the PLS-SEM framework (Hair Jr et al., 2022)

Composite Reliability and AVE

Table 2. Composite Reliability

| Variabel | Composite Reliability (Rho_c) | Average Variance Extracted (AVE) |
|--|-------------------------------|----------------------------------|
| Usage Barrier (X1) | 0.778 | 0.639 |
| Value Barrier (X2) | 0.843 | 0.729 |
| Risk Barrier (X3) | 0.839 | 0.635 |
| Traditional Barrier (X4) | 0.921 | 0.796 |
| Image Barrier (X5) | 0.857 | 0.749 |
| Intention to resist electric motorcycle product purchase (Y) | 0.886 | 0.660 |

Source: Primary Data Processed by the Researcher Using SmartPLS 4.1.14, 2025

Table 2 reports the results of the construct reliability and convergent validity assessment using Composite Reliability (ρ_c) and Average Variance Extracted (AVE). The composite reliability values for all constructs exceed the recommended threshold of 0.70, indicating satisfactory internal consistency and reliability of the measurement items. In addition, all AVE values are greater than 0.50, demonstrating that each construct explains more than 50% of the variance of its indicators. These results confirm that the measurement model meets the criteria for reliability and convergent validity, indicating that the indicators are appropriate and consistently represent their respective latent constructs in the PLS-SEM model.

Inner Model

Hypothesis Test

In this research, hypothesis testing within the PLS-SEM framework was conducted to assess whether the proposed relationships among variables were empirically supported. The evaluation was based on t-statistic values generated through the bootstrapping procedure in SmartPLS 4.1.1.4. At a significance level of 0.05 with a one-tailed test (critical t-value = 1.650), a hypothesis was considered supported when the p-value was below 0.05 or the t-statistic exceeded 1.650, and rejected otherwise. The findings, as summarized in Figure 1 and Table 2, provide empirical evidence to determine the extent to which the structural model is consistent with the observed data.

Figure 3. Testing Path Coeficence & P-value

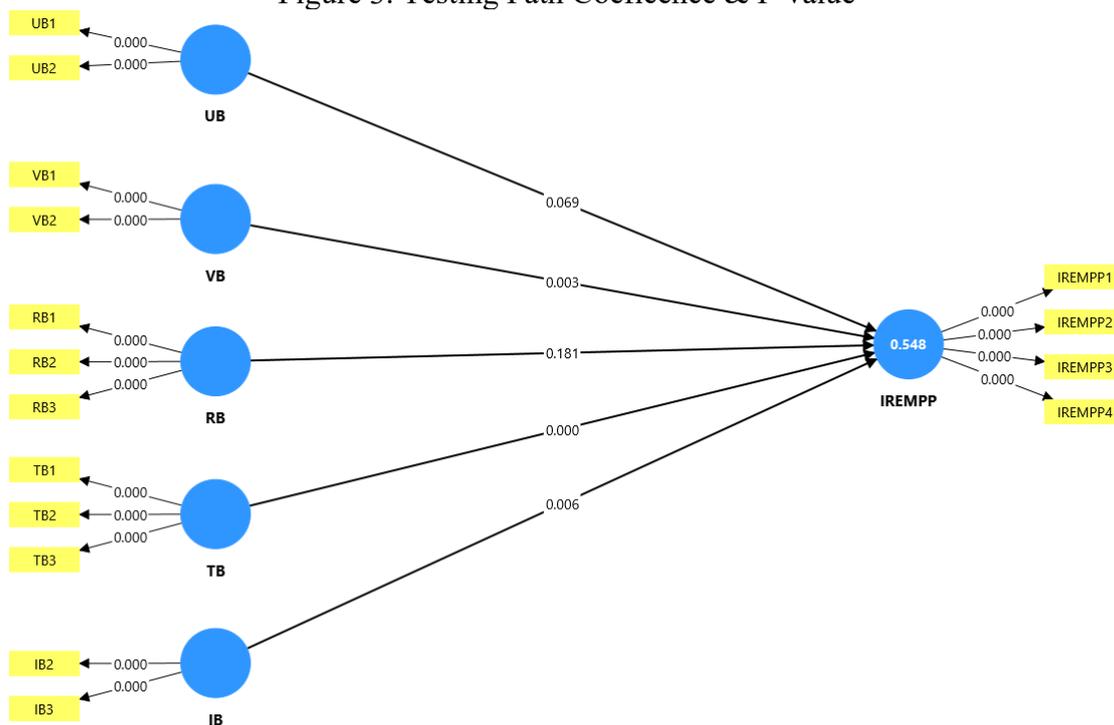


Table 3. Direct Influence of Independent Variables on Dependents

| The Influence of Direct Relationships | | | | |
|---------------------------------------|-------------|--------------|---------|----------|
| Hipotesis | Coefficient | T. Statistic | P Value | Result |
| H1 : UB → IREMPP | 0.102 | 1.690 | 0.046 | Accepted |
| H2 : VB → IREMPP | 0.158 | 2.424 | 0.008 | Accepted |
| H3 : RB → IREMPP | 0.058 | 0.897 | 0.185 | Rejected |
| H4 : TB → IREMPP | 0.461 | 5.663 | 0.000 | Accepted |
| H5 : IB → IREMPP | 0.123 | 1.860 | 0.031 | Accepted |

Source: Primary Data Processed by the Researcher Using SmartPLS 4.1.14, 2025

Table 3 reports the bootstrapping results of the direct effects between the independent variables and the dependent variable, namely intention to resist electric motorcycle product purchase. The findings indicate that usage barrier has a positive and statistically significant effect on resistance intention ($\beta = 0.102$; $t = 1.690$; $p = 0.046$), leading to the acceptance of H1. Value barrier also shows a positive and significant influence on resistance intention ($\beta = 0.158$; $t = 2.424$; $p = 0.008$), supporting H2. In contrast, risk barrier does not demonstrate a significant effect on resistance intention ($\beta = 0.058$; $t = 0.897$; $p = 0.185$), resulting in the rejection of H3. Furthermore, tradition barrier exhibits the strongest positive and significant effect on resistance intention ($\beta = 0.461$; $t = 5.663$; $p < 0.001$), thereby confirming H4. Finally, image barrier has a positive and significant effect on resistance intention ($\beta = 0.123$; $t = 1.860$; $p = 0.031$), which supports the acceptance of H5.

Discussion

The Effect of Usage Barrier on Intention to Resist Electric Motorcycle Product Purchase

The empirical results demonstrate that usage barrier has a positive and statistically significant effect on consumers' intention to resist electric motorcycle product purchase ($\beta = 0.102$; $t = 1.690$; $p = 0.046$), thus supporting H1. The moderate level of agreement on usage barrier indicators (UB1 = 31%, UB2 = 57%) indicates that perceived limitations related to information availability, infrastructure readiness, and ease of use remain salient deterrents. This finding is closely associated with the respondent profile, which is dominated by individuals aged 24–39 years, employed in the private sector, and residing in urban areas. For this segment, operational efficiency and convenience are critical, making any perceived incompatibility with daily routines a source of resistance. This result aligns with Innovation Resistance Theory and prior empirical findings by Puspitasari & Alversia, (2023).

The Effect of Value Barrier on Intention to Resist Electric Motorcycle Product Purchase

The analysis reveals that value barrier exerts a positive and significant influence on resistance intention ($\beta = 0.158$; $t = 2.424$; $p = 0.008$), thereby confirming H2. A considerable proportion of respondents perceive electric motorcycles as not offering benefits commensurate with their price (VB1 = 28%, VB2 = 27%). This perception is consistent with the dominant respondent characteristics, namely middle-income earners (IDR 4–19 million per month) with undergraduate-level education, who tend to evaluate innovations based on rational cost–benefit considerations. As a result, concerns related to economic efficiency, long-term value, and performance adequacy strengthen resistance toward adoption. This finding supports previous studies by Sadiq et al., (2021) and Sajid et al., (2024).

The Effect of Risk Barrier on Intention to Resist Electric Motorcycle Product Purchase

In contrast, risk barrier does not exhibit a statistically significant effect on resistance intention ($\beta = 0.058$; $t = 0.897$; $p = 0.185$), leading to the rejection of H3. Although respondents report relatively high levels of perceived risk (RB1 = 83%, RB2 = 62%, RB3 = 49%), these concerns do not translate into a decisive driver of resistance. This suggests that for respondents who are predominantly urban-based and well-educated, perceived risks related to battery safety, maintenance costs, and technological reliability are already well understood and normalized. Consequently, risk perception alone is insufficient to directly intensify resistance. Similar patterns have been observed in studies by Hendiawan & Wibowo, (2025).

The Effect of Tradition Barrier on Intention to Resist Electric Motorcycle Product Purchase

he findings further indicate that tradition barrier is the most dominant determinant of resistance toward electric motorcycles, showing a strong positive and significant effect ($\beta = 0.461$; $t = 5.663$; $p = 0.000$), thus supporting H4. High levels of agreement with indicators related to habitual use of conventional motorcycles (TB1 = 61%, TB2 = 71%, TB3 = 58%) highlight the strength of established consumption patterns. Given that most respondents are economically active individuals with high mobility demands, familiarity, perceived reliability, and comfort associated with conventional motorcycles reinforce resistance toward electric alternatives. This result strongly corroborates Innovation Resistance Theory and is consistent with empirical evidence from Sang et al., (2022) and Xue et al., (2024).

The Effect of Image Barrier on Intention to Resist Electric Motorcycle Product Purchase

Finally, image barrier is found to have a positive and significant effect on resistance intention ($\beta = 0.123$; $t = 1.860$; $p = 0.031$), thereby supporting H5. Although the proportion of agreement on image-related indicators is relatively lower (IB1 = 14%, IB2 = 39%), negative perceptions concerning product credibility, technological maturity, and the authenticity of environmental claims still contribute to resistance. Among respondents with higher educational attainment and information literacy, skepticism toward product image does not need to be widespread to exert a meaningful impact. This finding reinforces previous studies emphasizing the role of image-related perceptions in shaping resistance to sustainable innovations (Sadiq et al., 2021; (Busalim et al., 2025).

CONCLUSION

This study addresses the persistent research gap concerning the low adoption of electric motorcycles in Indonesia despite strong governmental support and growing environmental awareness. Previous studies have predominantly emphasized adoption drivers using intention-based frameworks, while limited attention has been given to consumer resistance as a critical barrier to sustainable mobility transition. By applying Innovation Resistance Theory (IRT), this research provides a resistance-oriented perspective to explain why consumers continue to delay or reject electric motorcycle adoption.

The empirical findings demonstrate that usage barrier, value barrier, tradition barrier, and image barrier significantly increase consumers' intention to resist electric motorcycle product purchase, whereas risk barrier does not exert a significant influence. Among all resistance factors, tradition barrier emerges as the most dominant determinant, indicating that entrenched habits, familiarity with conventional motorcycles, and reliance on established

mobility routines play a central role in sustaining resistance. These results suggest that consumer resistance in Indonesia is driven more by behavioral and psychological inertia than by technical or safety-related concerns.

The findings carry important theoretical and practical implications. Theoretically, this study extends the application of Innovation Resistance Theory to the context of electric motorcycles in a developing market, confirming that resistance barriers operate differently depending on product type and socio-cultural setting. Practically, the results imply that policy makers and industry players should move beyond purely economic incentives and infrastructure development by focusing on behavioral change strategies, value communication, and image-building initiatives.

Managerial Implications

The findings indicate that tradition barrier is the most dominant driver of consumer resistance, suggesting that electric motorcycle adoption strategies should prioritize gradual habit transformation rather than purely technological promotion. Manufacturers and policymakers should implement long-term test ride programs, trade-in schemes for conventional motorcycles, and community-based campaigns involving early adopters to reduce psychological inertia. The significant effects of value and usage barriers further highlight the need to strengthen the value-for-money proposition through clear communication of total cost of ownership, battery warranties, and operational savings, alongside improving charging infrastructure and daily usability.

Although image barrier shows lower agreement levels, its significant influence underscores the importance of enhancing brand credibility, certification transparency, and after-sales service to build consumer trust and reduce skepticism toward electric motorcycles.

Limitations and Future Research

This study is limited by its cross-sectional quantitative design and geographic focus on Jabodetabek and Yogyakarta, which may restrict generalizability to other regions with different mobility needs and infrastructure conditions. Future research is encouraged to employ qualitative methods to explore deeper psychological and emotional dimensions of resistance, particularly related to habit, identity, and attachment to conventional motorcycles. In addition, subsequent studies may expand regional coverage, apply multi-group analysis to compare consumer segments, or integrate Innovation Resistance Theory with complementary adoption frameworks and additional constructs such as range anxiety, charging convenience, or brand credibility to enrich understanding of resistance toward electric motorcycles.

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