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Attitude's Mediating Role in Electric Motorcycle Purchase: Perceptions, Environment, and Incentives

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ABSTRACT

Purpose – This study analyzes electric motorcycle purchase intention, focusing on consumer attitude's mediating role. It investigates the influence of Perceived Usefulness, Perceived Ease of Use, Environmental Concern, and Government Incentives on Purchase Intention. **Methodology** – Employing a quantitative approach, data were collected from 176 Jakarta-based respondents via online questionnaires. Data analysis utilized Partial Least Squares-Structural Equation Modeling (PLS-SEM) with SmartPLS 4.0. **Findings** – Results show Perceived Usefulness, Perceived Ease of Use, and Environmental Concern significantly influence Attitude. Attitude strongly influences Purchase Intention. Directly, Perceived Usefulness and Government Incentives affect Purchase Intention, while Perceived Ease of Use and Environmental Concern do not. For mediation, Attitude partially mediates Perceived Usefulness to Purchase Intention, but fully mediates both Perceived Ease of Use and Environmental Concern to Purchase Intention. Importantly, Attitude does not mediate Government Incentives' effect on Purchase Intention, indicating incentives act as direct drivers. **Novelty** – This research confirms Attitude's central role in eco-friendly technology adoption behavior and offers practical strategies for policymakers and manufacturers to boost electric motorcycle adoption. **Keywords** Electric Motorcycle, Purchase Intention, Perceived Usefulness, Perceived Ease of Use, Environmental Concern, Government Incentives, Attitude, PLS-SEM.

INTRODUCTION

Global efforts to mitigate climate change and combat urban air pollution underscore the critical demand for sustainable transportation solutions. Indonesia, particularly its capital Jakarta, faces an acute air quality crisis; in 2024, concentrations reached an alarming 40.3 µg/m³, significantly exceeding WHO guidelines (IQAir, 2024) predominantly attributed to conventional motor vehicle emissions (Pemerintah Provinsi DKI Jakarta, 2023)This issue is exacerbated by a consistent surge in motor vehicle ownership from 2018 to 2023 (BPS, 2023). In response, the Indonesian government has vigorously promoted the adoption of electric vehicles (EVs), including electric motorcycles, through various initiatives and financial incentives aimed at fostering cleaner energy use and emission reduction. Evidencing initial success, AISMOLI (2024)reported a notable increase in electric motorcycle sales. Building on this

momentum, the government has set an ambitious target of 13 million electric motorcycle units by 2030, necessitating an extraordinary annual growth rate of 58.8%. However, current projections indicate a significant shortfall, suggesting Indonesia may only reach approximately 990,000 units by 2030. This glaring disparity highlights a persistent gap between policy initiatives and actual consumer acceptance, posing a critical practical challenge to achieving national sustainability goals.

Theoretically, while established models like the Technology Acceptance Model (TAM) elucidate the role of perceived usefulness and perceived ease of use in shaping technology adoption intentions, and environmental concern is widely recognized as a driver for green product interest, existing literature presents limitations. Many prior studies primarily focus on four-wheeled EVs or are conducted in developed markets with distinct consumer behaviors and incentive landscapes. Crucially, there remains a lack of comprehensive examination into the specific mediating role of consumer attitude among the combined variables of Perceived Usefulness, Perceived Ease of Use, Environmental Concern, and Government Incentives on electric motorcycle purchase intention within a dynamic developing market context like Indonesia. This gap restricts a nuanced understanding of consumer psychology under extensive policy support.

Therefore, this study aims to fill this critical gap by meticulously analyzing the mediating role of consumer attitude in shaping electric motorcycle purchase intention in Jakarta. This research offers scientific novelty by explicitly testing a comprehensive mediation model that integrates Perceived Usefulness, Perceived Ease of Use, Environmental Concern, and Government Incentives as determinants of electric motorcycle purchase intention, with consumer attitude acting as a mediating variable. By doing so, it provides a more nuanced and context-specific understanding of the psychological mechanisms influencing EV adoption, offering valuable insights for both academic discourse and policy formulation.

LITERATURE REVIEW

This research is built upon an established theoretical framework for understanding consumer purchase intention towards electric motorcycles. Specifically, this study draws insights from the Technology Acceptance Model (TAM), a widely recognized framework for explaining user acceptance of information technology (Davis, 1989). TAM posits that Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are fundamental determinants of Attitude (ATT) towards using a technology, which in turn influences Behavioral Intention. Furthermore, this framework is enriched by incorporating external factors such as Environmental Concern and Government Incentives, which are highly relevant in the context of sustainable technology adoption.

Perceived Usefulness (PU)

According to Davis (1989), as cited by Nguyen-Phuoc et al. (2024), perceived usefulness refers to an individual's belief that using a specific technology will enhance their performance or effectiveness. Davis (1989) further elaborated that Perceived Usefulness is the extent to which users believe that employing a technology or system will improve their work performance. This definition aligns with the term "useful," meaning "capable of being used advantageously." In the context of electric motorcycles, this encompasses consumer beliefs regarding cost efficiency, convenience, and environmental advantages.

Recent studies, including Permana et al. (2023) and Maso & Balqiah (2022) consistently demonstrate that perceived usefulness is positively correlated with consumer attitudes toward electric motorcycle purchases. Furthermore, research by Yuen et al. (2021) Ha et al. (2023) explicitly states that perceived usefulness directly and positively influences electric motorcycle purchase intention. Jaiswal et al. (2021) also found that perceived usefulness positively affects both consumer attitude in purchase intention and directly impacts purchase intention.

In this study, perceived usefulness will be measured through indicators such as: Faster work, Work Performance, Effectiveness, and Making Work Easier. Based on the foregoing explanation, the researchers propose the following hypotheses:

H1: Perceived Usefulness Positively and Significantly Influences Attitude

H2: Perceived Usefulness Positively and Significantly Influences Purchase Intention

Perceived Ease of Use (PEOU)

Perceived Ease of Use, as defined by Davis (1989) and cited in Nguyen-Phuoc et al. (2024), gauges the degree to which an individual believes that a technology or information system can be effortlessly understood and utilized, signifying freedom from difficulty or significant effort. Applied to electric motorcycles, this construct reflects consumers' conviction that operating and riding these vehicles is straightforward and uncomplicated, thereby fostering their adoption. This belief critically influences the decision-making process: a perception of ease promotes usage, whereas perceived difficulty deters it.

Extensive prior research consistently affirms PEOU as a crucial determinant of adoption interest and purchase behavior, particularly for electric motorcycles. Jaiswal et al. (2021) highlight its role in not only cultivating positive attitudes but also directly driving purchase intention. Permana et al. (2023) further illustrate that PEOU, in conjunction with perceived usefulness and financial incentives, significantly boosts consumer intention to adopt electric vehicles. The positive influence of ease of use on consumer attitudes, as observed by Maso & Balqiah (2022), consequently impacts electric motorcycle purchase intention (Yuen et al., 2021; Ha et al., 2023).

For this study, perceived ease of use will be assessed using indicators such as: Easy to Learn, Controllable, Flexible, and Easy to Use. Based on the preceding discussion, the following hypotheses are proposed:

H3: Perceived Ease of Use Positively and Significantly Influences Attitude
H4: Perceived Ease of Use Positively and Significantly Influences Purchase Intention

Environmental Concern (EC)

Environmental concern, as defined by Daud et al. (2022) encompasses behaviors and actions geared towards environmental preservation and remediation. It reflects an individual's conscious response to their surroundings, manifested through actions that safeguard the environment and prevent further degradation, ensuring long-term ecological well-being. Individuals with higher environmental concern actively prioritize environmental conservation and its impact when making decisions, including product purchases (Tymoshchuk et al., 2024) Numerous studies confirm that elevated environmental concern correlates strongly with a propensity to acquire eco-friendly products, such as electric two-wheelers (Jayasingh et al., 2021)

Within the context of electric motorcycles, environmental concern specifically refers to an individual's awareness of, and aversion to, air pollution caused by conventional motor vehicles, coupled with a commitment to adopt electric motorcycles as an environmentally benign alternative. The adoption of electric motorcycles is thus viewed as a tangible manifestation of concern for environmental preservation and public health, actively contributing to reduced emissions.

Research consistently demonstrates that environmental concern significantly shapes consumer attitudes, subsequently impacting electric motorcycle purchase intention (Lashari et al., 2021). Studies by Dutta & Hwang (2021) Lashari et al. (2021), and Vo et al. (2024) further support this positive influence on consumers' intent to purchase electric vehicles. Additionally, Laheri et al. (2024) highlight environmental concern's positive and significant effect on attitude. For electric motorcycle customers, the act of purchasing is often perceived as a virtuous deed reflecting their commitment to environmental stewardship, thereby acting as a key determinant for adoption.

In this study, environmental concern will be measured through Egoistic (Personal Health Protection, Personal Quality of Life), Altruistic (Welfare of Future Generations, Social Responsibility), and Biospheric (Biodiversity Protection, Valuing Nature's Intrinsic Worth) indicators. Based on these explanations, the following hypotheses are proposed:

H5: Environmental Concern Positively and Significantly Influences Attitude
H6: Environmental Concern Positively and Significantly Influences Purchase Intention

Government Incentives (GI)

Government incentives refer to various monetary or fiscal measures implemented by authorities to stimulate specific economic activities, encourage investment, or achieve particular policy objectives. These incentives can manifest as tax relief, subsidies, grants, preferential loans, or other financial

assistance programs (Piriyapada & Wasawong, 2024). In the context of electric vehicles, government incentives represent tangible benefits provided to consumers, capable of stimulating rational perceptions regarding the attitude towards and purchase intention of the vehicles themselves (Rachmawati & Rahardi, 2023). Financial incentives are primarily proposed to mitigate the high initial purchase price of electric motorcycles, which often acts as a significant barrier for consumers. However, despite intensive government promotion, the market adoption of electric motorcycles remains relatively low. This subdued consumer interest highlights the necessity for a deeper investigation into how financial incentives genuinely influence consumer attitudes and intentions to purchase electric motorcycles. Therefore, government incentives in this study will specifically focus on financial incentives, namely government subsidies and tax reductions, in relation to electric motorcycle purchase intention.

Previous studies consistently demonstrate that government financial incentives play a crucial role in fostering positive attitudes and purchase intentions towards electric motorcycles. Research by Wang et al. (2021)and Ansab & Kumar (2022) found a positive and significant influence of these incentives on consumer attitudes. Furthermore, Setiawan et al. (2022) explain that financial incentives not only reduce costs but also build trust and positive perceived behavioral control (PBC), thereby increasing adoption intention. This is supported by Piriyapada & Wasawong (2024), who also highlight the significant impact of government incentives on both attitude and purchase intention for electric vehicles. Consequently, an increase in government financial incentives directly enhances positive attitudes and adoption intentions for electric vehicles among the public.

In this study, Government Incentives will be measured through Subsidy Provision (Subsidy Awareness and Impact on Selling Price) and Tax Reduction (Tax Reduction Awareness, Annual Tax Benefits, and Impact on Total Cost of Ownership). Based on the preceding explanations, the researchers propose the following hypotheses:

H7: Government Incentives Positively and Significantly Influence Attitude

H8: Government Incentives Positively and Significantly Influence Purchase Intention

Attitude (ATT)

Davis (1989), as cited by Ngoc et al. (2023), conceptualizes attitude towards using technology or attitude towards behavior as a form of acceptance or rejection resulting from an individual's engagement with a technology in their work. Similarly, Jogiyanto (2018) states that attitude towards using technology or attitude towards behavior represents an evaluative belief or the positive or negative feelings an individual holds about performing a particular behavior.

In the context of electric motorcycle or electric vehicle (EV) purchase intention, attitude towards EV purchase is defined as an individual's positive or negative evaluation of acquiring such a vehicle. This attitude reflects the extent to which an individual possesses favorable or unfavorable feelings concerning the decision to purchase an electric vehicle. Such positive or negative evaluations can significantly influence consumer purchase decisions.

Based on the Technology Acceptance Model (TAM), attitude plays a dual role: it directly influences purchase intention and also acts as a mediator between external factors and purchase intention. For electric vehicles, attitude is influenced by perceived usefulness, ease of use, and financial incentives (Ansab & Kumar, 2022; Huang et al., 2021; Jaiswal et al., 2021; Piriyapada & Wasawong, 2024). Moreover, environmental concern is also crucial; a higher level of environmental concern tends to foster a more positive attitude towards electric vehicles due to the belief that their use contributes to environmental sustainability, ultimately driving adoption or purchase intention (Jayasingh et al., 2021).

Various studies demonstrate that attitude is a crucial factor in driving electric vehicle purchase intention, even serving as an important mediator. Jaiswal et al. (2021) found that attitude positively influences purchase intention and mediates the relationship between perceived usefulness and ease of use. Consistently, Nguyen-Phuoc et al. (2024) identified attitude as the most dominant variable affecting electric motorcycle use intention, also highlighting its mediating role on the indirect effects of perceived usefulness and ease of use.

In this study, Attitude will be measured through cognitive attitude (Belief in Functional Benefits, Belief in Performance, and Belief in Environmental Impact) and affective attitude (Overall Positive Feeling, Feeling Satisfied/Happy, and Feeling Proud) indicators. Based on the preceding explanations, the researchers propose the following hypothesis:

H9: Attitude Positively and Significantly Influences Purchase Intention

Purchase Intention (PI)

Purchase intention is defined as an individual's desire, inclination, or plan to acquire a product or service in the future (Tafiprios & Ampriyadi, 2025). This concept encapsulates a consumer's willingness to make a purchase within a specific timeframe, often tied to the quantity of units required (Ong & Firdausy, 2021). According to Kotler as cited in Fitriasti et al. (2023), consumer purchase intention emerges from product stimuli, which spark interest, leading to a desire to try and eventually own the product. This intention frequently arises after consumers engage in an alternative evaluation process, wherein choices are made based on brand preference or personal interest in the product (Purbohastuti & Hidayah, 2021).

Jogiyanto (2018) posits that behavioral intention, in this context synonymous with purchase intention, represents an individual's desire or inclination to perform a specific behavior. Individuals are likely to manifest a behavior if they possess the intention or interest to do so. In the realm of technology adoption, this is often termed *behavioral intention to use*. Consequently, if an individual exhibits a desire or interest in utilizing a technology, such as the purchase intention for an electric motorcycle, they are highly likely to acquire or use it.

Furthermore, Lashari et al. (2021) reveal that consumer interest in electric motorcycles is profoundly shaped by their attitudes and overall perceptions of electric vehicles. Their study underscores that positive perceptions regarding the environmental and economic benefits of electric vehicles are the strongest drivers of purchase intention, whereas technological concerns inversely affect purchase propensity.

In this study, electric motorcycle purchase intention will be measured using indicators such as: Transactional Intention, Preferential Intention, Referential Intention, and Exploratory Intention (Fauzi et al., 2023; Marliyani & Utama, 2025)

Mediating Role of Attitude

Attitude frequently serves as a crucial mediator in consumer behavior models, particularly within the Technology Acceptance Model (TAM), linking various external factors to behavioral intentions or actual behavior. In this context, attitude towards using electric motorcycles is hypothesized to mediate the relationships between Perceived Usefulness, Perceived Ease of Use, Environmental Concern, and Government Incentives on Purchase Intention.

Specifically, higher Perceived Usefulness and Perceived Ease of Use are expected to cultivate a more positive attitude towards electric motorcycles, and this positive attitude, in turn, indirectly drives purchase intention. Numerous studies have found that attitude successfully mediates the relationship between perceived usefulness and ease of use with technology use/purchase intention (Jaiswal et al., 2021; Nguyen-Phuoc et al., 2024; Salim, 2024)

Similarly, Environmental Concern can influence purchase intention through attitude. When individuals exhibit environmental concern, it fosters a positive attitude towards electric motorcycles as an eco-friendly solution, and this attitude then propels purchase intention. Studies have demonstrated that attitude mediates the relationship between environmental concern and the purchase intention of green products (Buhmann et al., 2024; Jayasingh et al., 2021)

Lastly, government incentives, while potentially having direct effects, can also influence purchase intention through attitude formation. Financial incentives are anticipated to enhance a positive attitude towards electric motorcycles, with this positive attitude subsequently driving purchase intention. Research indicates that attitude often mediates the link between government incentives and electric vehicle purchase intention (Ansab & Kumar, 2022; Haposan Pangaribuan, 2024)

Based on these arguments, the following mediation hypotheses are proposed:

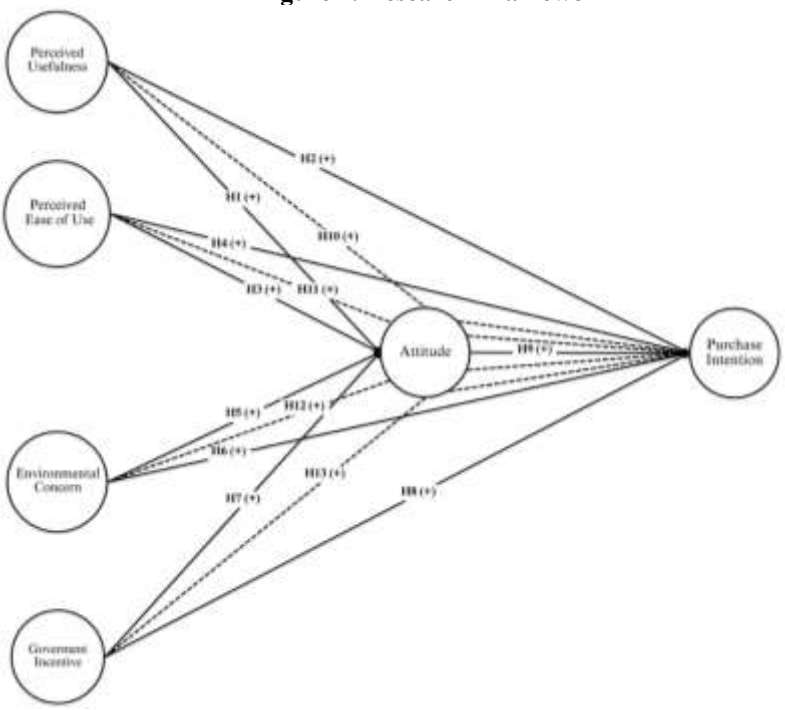
- **H10: Attitude Mediates the Relationship Between Perceived Usefulness and Electric Motorcycle Purchase Intention.**

- **H11: Attitude Mediates the Relationship Between Perceived Ease of Use and Electric Motorcycle Purchase Intention.**
- **H12: Attitude Mediates the Relationship Between Environmental Concern and Electric Motorcycle Purchase Intention.**
- **H13: Attitude Mediates the Relationship Between Government Incentives and Electric Motorcycle Purchase Intention.**

Research Framework

Based on the literature review and the identified relationships among variables outlined previously, this study's research framework was developed to illustrate the conceptual linkages among the variables to be tested. This framework is presented in Figure 1 below.

Figure 1. Research Framework



METHOD

This quantitative study employs a descriptive research design to objectively measure and test the relationships among variables. The variables under investigation include Electric Motorcycle Purchase Intention (PI) as the dependent variable; Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Environmental Concern (EC), and Government Incentives (GI) as independent variables; and Attitude (ATT) as the mediating variable. All variables were measured using a structured questionnaire instrument with a 5-point Likert scale (1=Strongly Disagree, 5=Strongly Agree). The target population for this study comprises individuals who perform daily transportation using motorcycles and reside in Jakarta City. Sampling was conducted using a non-probability purposive sampling technique to ensure the selection of respondents highly relevant to the study's objective. Inclusion criteria mandated respondents to be regular motorcycle users in Jakarta, have used a motorcycle at least once, be a minimum of 25 years old, and not currently own an electric motorcycle. These criteria ensure the sample is representative of the specific consumer segment most likely to consider electric motorcycle adoption in Jakarta, thus enhancing the generalizability of findings to this target group. Based on G*Power calculations, a minimum sample size of 138 respondents was required; the study collected a total of 210

respondents, though only 176 respondents met the specified criteria and were deemed valid for analysis via an online questionnaire. All collected data were complete and without missing values. Data analysis was performed using Structural Equation Modeling-Partial Least Squares (SEM-PLS) with SmartPLS 4 software, complemented by descriptive statistics. Descriptive analysis provided insights into respondent characteristics and questionnaire response distribution. SEM-PLS, a variance-based statistical method, was utilized to test predictive relationships among constructs. The analysis involved two primary steps. First, the measurement model (outer model) was rigorously tested for validity and reliability through assessments of factor loading, composite reliability, Cronbach's Alpha, convergent validity (AVE), and discriminant validity, along with multicollinearity checks. Indicators were initially selected based on established literature and theoretical relevance; however, any indicators failing to meet empirical validity criteria (e.g., factor loadings below 0.70) were subsequently excluded from the model to ensure construct purity and measurement accuracy. Second, the structural model (inner model) was evaluated to test the proposed hypotheses based on R2 values (coefficient of determination) and f2 (effect size). Hypothesis testing relied on bootstrapping analysis to determine T-statistics and p-values. A one-tailed test with a 5% significance level ($\alpha = 0.05$) was applied, where hypotheses were accepted if the T-statistic exceeded the critical value of 1.65 (Hair et al., 2022). Mediation effects, where Attitude acts as an intermediary, were analyzed by examining both direct and indirect effects to determine the type of mediation (full or partial).

RESULT AND DISCUSSION

Respondent Description

This study involved a total of 176 valid respondents, successfully recruited through an online questionnaire, exceeding the minimum required sample size of 138. Eligible respondents were those residing in Jakarta (South Jakarta, West Jakarta, Central Jakarta, North Jakarta, and East Jakarta), aged at least 25 years, not yet owning an electric motorcycle, regularly using motorcycles for daily transportation, and having used an electric motorcycle at least once.

The majority of respondents were male, accounting for 51% (89 respondents), though the proportion of females was also significant at 49% (87 respondents). In terms of age, the distribution indicates a dominance of the productive age group, with 80% (141 respondents) falling within the 25-30 year range and 11% (20 respondents) within 31-35 years, collectively representing approximately 91% of respondents in their young to early adult stages. Regarding educational background, most respondents possessed a higher education, with 70% (124 respondents) being Bachelor's (S1) graduates, followed by high school/vocational graduates (12%) and diploma holders (8%). Professionally, the majority of respondents were Private Employees/Professionals, at 58% (99 respondents), followed by Freelance/Contractors (15%). Respondent income levels were predominantly in the middle-income category, ranging from IDR5,000,000 to IDR10,000,000, encompassing 51% (90 respondents) of the total sample. Lastly, the domicile distribution shows that most respondents (50% or 88 individuals) were from South Jakarta. This overall demographic composition reflects a profile of active, educated, and middle-income consumers in the Jakarta area, which is highly relevant for research concerning purchase intention towards product innovations such as electric motorcycles.

DATA ANALYSIS

Measurement Model Evaluation

This section presents the results of the measurement model (outer model) evaluation through several indicators, including factor loading (outer loading), reliability, convergent validity, discriminant validity, multicollinearity, and model fit. The results of these tests are presented below.

Factor Loading & Convergent Validity

The evaluation of the measurement model (outer model) primarily involves assessing factor loadings and Average Variance Extracted (AVE) values to establish validity. For factor loadings, a value greater than 0.7 is typically required, signifying a strong relationship between the indicator and its corresponding construct. Concurrently, convergent validity, which assesses how well a construct is measured by its indicators, is established if the AVE value for each construct exceeds 0.5, indicating that the construct explains more than half of the variance of its indicators.

Table 1. Result of Factor Loading & Convergent Validity Testing

Variable	Indicator	Factor Loading	Requirement	AVE	Notes
Perceived Usefulness	PU1	0,820	> 0,7	0,638	Valid
	PU2	0,766	> 0,7		
	PU3	0,815	> 0,7		
	PU4	0,815	> 0,7		
	PU5	0,717	> 0,7		
	PU6	0,851	> 0,7		
	PU7	0,802	> 0,7		
Perceived Ease of Use	PEOU1	0,818	> 0,7	0,625	Valid
	PEOU2	0,727	> 0,7		
	PEOU3	0,816	> 0,7		
	PEOU4	0,798	> 0,7		
Environmental Concern	EC1	0,816	> 0,7	0,639	Valid
	EC2	0,818	> 0,7		
	EC3	0,804	> 0,7		
	EC4	0,809	> 0,7		
	EC5	0,749	> 0,7		
Government Incentive	GI1	0,774	> 0,7	0,635	Valid
	GI2	0,847	> 0,7		
	GI3	0,815	> 0,7		
	GI4	0,749	> 0,7		
Attitude	ATT1	0,812	> 0,7	0,672	Valid
	ATT2	0,780	> 0,7		
	ATT3	0,870	> 0,7		
	ATT4	0,815	> 0,7		
Purchase Intention	PI1	0,865	> 0,7	0,696	Valid
	PI2	0,856	> 0,7		
	PI3	0,840	> 0,7		
	PI4	0,876	> 0,7		
	PI5	0,816	> 0,7		
	PI6	0,756	> 0,7		
	PI7	0,829	> 0,7		

Based on Table 1, all indicators across the research variables consistently exhibit factor loading values above 0.70, thereby confirming their individual validity. Furthermore, all latent variables in this study demonstrate good convergent validity, with all Average Variance Extracted (AVE) values exceeding 0.50. For instance, AVE values range from 0.625 (Perceived Ease of Use) to 0.696 (Purchase Intention), confirming that each construct internally explains more than half of the variance of its indicators. Consequently, the measurement model of this study has successfully met both the factor loading and convergent validity criteria, ensuring the robust representation of its latent constructs.

Reliability

Following the assessment of indicator loadings, reliability testing was conducted to ascertain the internal consistency of indicators within each construct. This reliability analysis was performed using both Cronbach's Alpha and Composite Reliability. A common threshold of 0.70 is employed, whereby values exceeding this indicate good construct reliability and confirm the internal consistency of the research instrument. The results of the reliability analysis are presented in the following table:

Table 2. Result of Reliability Testing

Variable	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Notes
Perceived Usefulness	0,905	0,909	0,925	Reliabel
Perceived Ease of Use	0,803	0,819	0,869	Reliabel
Environmental Concern	0,859	0,865	0,899	Reliabel
Government Incentive	0,808	0,814	0,874	Reliabel
Attitude	0,837	0,841	0,891	Reliabel
Purchase Intention	0,927	0,933	0,941	Reliabel

Based on Table 2, all latent variables in this study exhibit excellent reliability. All Cronbach's Alpha values (ranging from 0.803 to 0.927) and Composite Reliability (rho_c) values (ranging from 0.869 to 0.941) surpass the 0.70 threshold. The Composite Reliability (rho_a) values are also consistently above 0.70. These figures indicate that the indicators utilized for each variable possess high internal consistency and stability. Consequently, the research instrument is deemed reliable and consistent in data collection, thus ensuring the trustworthiness of its measurements.

Discriminant Validity

The measurement model will be evaluated for **discriminant validity** to ensure that each construct is empirically distinct from others. This assessment will employ two methods: **cross-loadings** and the **Fornell-Larcker Criterion**.

For the cross-loadings analysis, an indicator is deemed to satisfy discriminant validity if its loading on its own construct is higher than its loadings on any other constructs. Meanwhile, the Fornell-Larcker Criterion compares the square root of a construct's Average Variance Extracted (AVE) value with its highest correlation with any other construct.

Table 3. Cross Loading Values

	Government Incentive	Environmental Concern	Purchase Intention	Perceived Ease of Use	Perceived Usefulness	Attitude
GI1	0,774	0,376	0,409	0,561	0,342	0,322
GI2	0,847	0,438	0,476	0,615	0,447	0,412

	Government Incentive	Environmental Concern	Purchase Intention	Perceived Ease of Use	Perceived Usefulness	Attitude
GI3	0,815	0,557	0,479	0,666	0,522	0,418
GI4	0,749	0,318	0,363	0,525	0,318	0,447
EC1	0,469	0,816	0,421	0,460	0,531	0,501
EC2	0,453	0,818	0,429	0,501	0,557	0,497
EC3	0,362	0,804	0,430	0,387	0,452	0,458
EC4	0,467	0,809	0,387	0,401	0,508	0,436
EC5	0,386	0,749	0,272	0,410	0,429	0,413
PI1	0,491	0,442	0,865	0,585	0,608	0,621
PI2	0,458	0,461	0,856	0,540	0,580	0,595
PI3	0,515	0,509	0,840	0,585	0,587	0,590
PI4	0,492	0,464	0,876	0,523	0,609	0,660
PI5	0,442	0,364	0,814	0,480	0,495	0,528
PI6	0,348	0,225	0,755	0,392	0,453	0,382
PI7	0,404	0,343	0,828	0,413	0,512	0,516
PEOU1	0,600	0,449	0,448	0,818	0,537	0,492
PEOU2	0,534	0,376	0,258	0,727	0,359	0,490
PEOU3	0,635	0,321	0,505	0,816	0,460	0,509
PEOU4	0,584	0,540	0,632	0,797	0,691	0,589
PU1	0,368	0,492	0,674	0,532	0,820	0,554
PU2	0,449	0,451	0,470	0,492	0,766	0,496
PU3	0,389	0,475	0,560	0,506	0,815	0,541
PU4	0,437	0,496	0,492	0,517	0,815	0,566
PU5	0,513	0,574	0,441	0,604	0,717	0,527
PU6	0,373	0,497	0,554	0,568	0,851	0,525
PU7	0,384	0,505	0,487	0,528	0,802	0,547
ATT1	0,525	0,572	0,593	0,623	0,708	0,812
ATT2	0,423	0,382	0,461	0,510	0,482	0,780
ATT3	0,377	0,474	0,492	0,527	0,482	0,870
ATT4	0,310	0,442	0,642	0,495	0,492	0,815

Based on Table 3 (Cross-Loadings), all indicators demonstrate higher outer loadings on their own constructs (highlighted diagonally in green) compared to other constructs. This confirms that discriminant validity is established, meaning each indicator predominantly measures its intended construct, and each construct within the model is unique. Discriminant validity can also be confirmed if the square root of each construct's AVE is greater than its highest correlation with any other construct.

Table 4. Nilai Fornell-Locker

	Government Incentive	Environmental Concern	Purchase Intention	Perceived Ease of Use	Perceived Usefulness	Attitude
Government Incentive	0,797					
Environmental Concern	0,536	0,800				
Purchase Intention	0,544	0,491	0,834			
Perceived Ease of Use	0,745	0,542	0,609	0,790		
Perceived Usefulness	0,517	0,623	0,664	0,669	0,799	
Attitude	0,504	0,579	0,676	0,663	0,672	0,819

Based on Table 4, the square root of the AVE value for each latent variable exceeds its highest correlation with any other latent variable. This confirms that all variables satisfy the requirements for **discriminant validity**

Multicollinearity

Multicollinearity refers to an undesirable correlation among independent variables, which can lead to redundancy or overlapping meaning. To detect multicollinearity, the **Variance Inflation Factor (VIF)** parameter is employed. VIF measures the extent to which the standard error increases due to multicollinearity. In the context of Partial Least Squares (PLS), VIF values should ideally be below 3.3, with a tolerance threshold typically set at 5.0. VIF values exceeding these limits indicate a multicollinearity issue that requires attention.

Table 5. VIF Value

Relationship Direction	VIF
Government Incentive -> Purchase Intention	2,397
Government Incentive -> Attitude	2,391
Environmental Concern -> Purchase Intention	1,912
Environmental Concern -> Attitude	1,912
Perceived Ease of Use -> Purchase Intention	3,306
Perceived Ease of Use -> Attitude	2,985
Perceived Usefulness -> Purchase Intention	2,428
Perceived Usefulness -> Attitude	2,428
Attitude -> Purchase Intention	2,428

Based on Table 5 (Collinearity Statistics), all VIF values within the research model are below 5.0, ranging from 1.912 (Environmental Concern -> Attitude and Purchase Intention) to 3.306 (Perceived Ease of Use -> Purchase Intention). These VIF values, being significantly below the typical threshold, indicate the absence of serious multicollinearity issues among the independent latent variables. This ensures that the structural model can be reliably estimated and that path coefficients will not be biased by collinearity.

Inner Model

This section presents the evaluation results of the structural model (inner model) using several indicators, including the coefficient of determination (R^2) and effect size (f^2). The results of the structural model (inner model) test for this study are detailed below.

Coefficient of Determination (R2) Test

The structural model is evaluated by examining the R^2 value to determine the predictive power of the latent variables within the model. Table 4.15 displays the calculated R^2 values for the dependent variable.

Table 6. Coefficient of Determination or R-Square Values

	R Square	R Square Adjusted
Purchase Intention	0,565	0,552
Attitude	0,556	0,546

Based on Table 6, the structural model analysis reveals the following:

- **Attitude (ATT):** The adjusted R2 is 0.546, indicating that 54.6% of the variance in Attitude is explained by Perceived Usefulness, Perceived Ease of Use, Environmental Concern, and Government Incentives. The remaining 45.4% is influenced by external factors not included in this model.
- **Purchase Intention (PI):** The adjusted R2 is 0.552, demonstrating that 55.2% of the variance in Purchase Intention is accounted for by Perceived Usefulness, Perceived Ease of Use, Environmental Concern, Government Incentives, and Attitude. The remaining 44.8% is attributable to other unobserved factors.

Overall, the adjusted R2 values for both Attitude and Purchase Intention suggest a **moderate to strong predictive power** of the model, signifying that the independent variables in this study substantially explain the variation in the dependent variables.

Effect Size (f^2) Test

The f^2 (effect size) test is employed to ascertain the magnitude of the influence of exogenous latent variables on endogenous latent variables. The interpretation of f^2values is as follows: 0.02 indicates a small effect; 0.15 a medium effect; and 0.35 a large effect. The results of the f2 test are presented in Table 9 below:

Table 7. Effect Size atau f-Square Values

	Effect Size Value	Effect Size
Government Incentive > Purchase Intention	0,036	Small Effect
Environmental Concern > Purchase Intention	0,002	No Effect (Negligible)
Perceived Ease of Use > Purchase Intention	0,001	No Effect (Negligible)
Perceived Usefulness > Purchase Intention	0,100	Small Effect
Attitude > Purchase Intention	0,136	Small Effect
Government Incentive > Attitude	0,002	No Effect (Negligible)
Environmental Concern > Attitude	0,051	Small Effect
Perceived Ease of Use > Attitude	0,108	Small Effect
Perceived Usefulness > Attitude	0,105	Small Effect

The f^2analysis reveals that most relationships between variables exhibit a small effect size. For instance, the path from Government Incentives to Purchase Intention (f^2= 0.036) and from Attitude to Purchase Intention (f^2= 0.136) indicate a limited, albeit potentially statistically significant, substantive contribution. Furthermore, some relationships, namely Perceived Ease of Use → Purchase Intention, Environmental Concern → Purchase Intention, and Government Incentives → Attitude, show virtually no effect (f^2≤0.002). Thus, the f^2analysis complements the R^2 findings by providing insights into the individual importance of each path within the model.

Hypothesis Testing

Hypothesis testing was conducted to evaluate the significance of the independent variables' influence on the dependent variables within the structural model. The **bootstrapping method** was employed to determine significance through path coefficients and T-statistics. For a one-tailed test with a significance level (α) of 0.05, the **critical T-value (T-table)** is 1.65. An influence is considered statistically significant if its **T-statistic (T-hitung)** is greater than 1.65. This testing was performed using SmartPLS version 4.2.9. The results are presented below:

Figure 2. Result of Hypothesis Testing

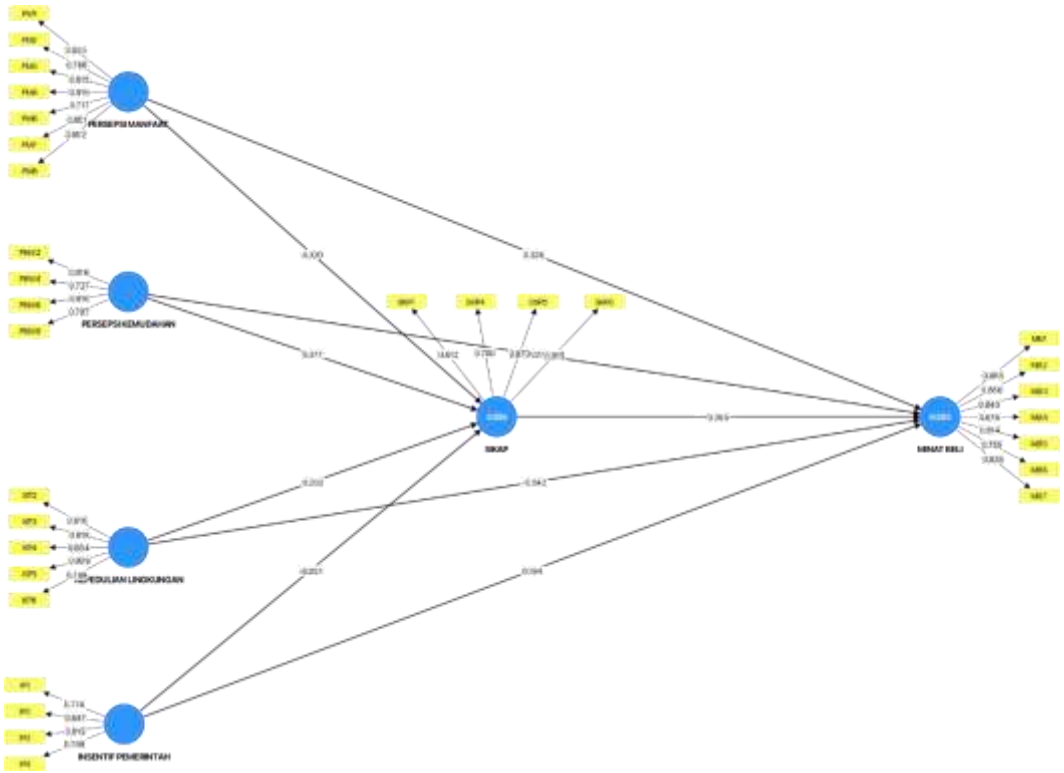


Table 8. Result of Hypothesis Testing – Direct Effect & Indirect Effect

Hypothesis	Relationship Direction	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	
H1	Perceived Usefulness -> Attitude	0,320	0.075	4,275	0.000	Accepted
H2	Persepsi Manfaat -> Purchase Intention	0,326	0.097	3,365	0.000	Accepted
H3	Perceived Ease of Use -> Attitude	0,377	0.086	4,382	0.000	Accepted
H4	Perceived Ease of Use -> Purchase Intention	0.027	0.087	0,314	0,377	Rejected
H5	Environmental Concern -> Attitude	0,203	0.078	2,609	0.005	Accepted
H6	Environmental Concern -> Purchase Intention	-0.042	0.060	0,694	0,244	Rejected

Hypothesis	Relationship Direction	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	
H7	Government Incentive -> Attitude	-0.051	0.089	0,579	0,281	Rejected
H8	Government Incentive -> Purchase Intention	0,194	0.077	2,520	0.006	Accepted
H9	Attitude -> Purchase Intention	0,365	0.111	3,293	0.000	Accepted
H10	Perceived Usefulness -> Attitude -> Purchase Intention	0,117	0.055	2,123	0.017	Partial Mediation
H11	Perceived Ease of Use -> Attitude -> Purchase Intention	0,138	0.047	2,915	0.002	Full Mediation
H12	Environmental Concern -> Attitude -> Purchase Intention	0,074	0.037	1,983	0,024	Full Mediation
H13	Government Incentive -> Attitude -> Purchase Intention	-0,019	0.033	0,575	0,283	No Mediation

DISCUSSION

This section interprets the statistical analysis results from both the measurement and structural models. The discussion focuses on testing each research hypothesis to elucidate the direct and indirect influences among variables, supported by theoretical foundations and previous research findings. Furthermore, this section will also outline the practical implications of the research findings and identify the study's limitations.

H1: Perceived Usefulness Positively and Significantly Influences Attitude Towards Electric Motorcycle Use. (Accepted) This finding aligns with the principles of the Technology Acceptance Model (TAM), which posits that beliefs about the functional benefits of electric motorcycles—such as operational cost efficiency, convenience of use, and potential positive environmental impact—significantly shape consumers' positive attitudes towards these vehicles (Davis, 1989). Various studies also confirm that high perceived usefulness fosters positive attitudes toward new technologies (Jaiswal et al., 2021; Ngoc et al., 2023; Rani et al., 2024; Salim, 2024). Practically, this result indicates that marketing campaigns should emphasize real and measurable benefits for consumers, such as fuel savings and ease of maintenance, to build an initial positive attitude.

H2: Perceived Usefulness Positively and Significantly Influences Electric Motorcycle Purchase Intention. (Accepted) This result indicates that consumers who perceive significant benefits from electric motorcycles, both in terms of operational efficiency and environmental contribution, are more motivated to develop a purchase intention. This finding is consistent with prior research showing that perceived usefulness directly enhances the purchase intention for innovative products (Chen et al., 2025; Huang et al., 2021; Nguyen-Phuoc et al., 2024; Shaikh et al., 2023). The implication is that manufacturers and marketers need to explicitly communicate these benefit values—both economic and ecological—to directly encourage purchase intention among potential consumers.

H3: Perceived Ease of Use Positively and Significantly Influences Attitude Towards Electric Motorcycle Use. (Accepted) In line with TAM, the perception that electric motorcycles are easy to operate and understand (e.g., ease of charging, simple maintenance) significantly influences consumers' positive attitude evaluations toward these vehicles. When consumers perceive no significant barriers to adopting a technology, their attitudes tend to be more favorable (Boubker et al., 2024; Butt & Singh, 2023; Jaiswal et al., 2021; Nguyen-Phuoc et al., 2024). This means that

education emphasizing user-friendly operational aspects and the availability of supporting infrastructure (e.g., charging stations) is crucial for forming positive perceptions.

H4: Perceived Ease of Use Positively and Significantly Influences Electric Motorcycle Purchase Intention. (Rejected) The test results clearly indicate that Perceived Ease of Use does not have a significant influence or substantial direct contribution to driving Purchase Intention. This implies that while electric motorcycles might be considered easy to use, the perception of ease itself does not directly and substantially translate into a desire to purchase them. This finding can be explained through Herzberg's Two-Factor Theory's concept of hygiene factors (Herzberg, 1968; Mitsakis & Galanakis, 2022; Rahim & Amri, 2023). According to this theory, ease of use tends to function as a basic prerequisite that must be met to prevent dissatisfaction, but it does not automatically trigger higher purchase motivation. In other words, if an electric motorcycle were difficult to use, it would be a barrier; however, once it is easy to use, this ease merely meets basic expectations and does not directly increase purchase intention. Furthermore, this lack of direct influence is reinforced by the presence of Full Mediation (as evidenced in H11), where the effect of Perceived Ease of Use on Purchase Intention is entirely mediated by Attitude. This suggests that perceived ease must first form a positive attitude, and it is this attitude that then becomes the primary bridge driving purchase intention. While this finding might contradict some previous studies (Butt & Singh, 2023; Chen et al., 2025; Nguyen-Phuoc et al., 2024; Rani et al., 2024), it is consistent with and supported by other research (Astuti & Susanto, 2024; Boubker et al., 2024; Fajar Gandajati & Putu Mahyuni, 2022; Kamajaya & Fachrodji, 2023) which state that perceived ease primarily serves as an antecedent to Attitude, which then triggers purchase intention, rather than as a direct driver. Practically, promotion efforts should not only highlight ease of use; instead, marketers must focus on how this ease positively shapes consumer attitudes, which in turn will drive purchase. Training or test drives that allow consumers to experience an overall positive experience can be more effective than merely narrating ease.

H5: Environmental Concern Positively and Significantly Influences Attitude Towards Electric Motorcycle Use. (Accepted) This result indicates that individuals with high awareness and commitment to environmental issues tend to develop a more positive attitude toward adopting electric motorcycles as a more eco-friendly transportation solution. This is consistent with studies identifying environmental concern as a key driver of pro-environmental attitudes and sustainable behavior (Boubker et al., 2024; Dutta & Hwang, 2021; Jayasingh et al., 2021; Piriyapada & Wasawong, 2024). This finding emphasizes the importance of integrating sustainability messages and environmental impact into marketing communications to attract environmentally conscious consumer segments.

H6: Environmental Concern Positively and Significantly Influences Electric Motorcycle Purchase Intention. (Rejected) The test results clearly indicate that Environmental Concern does not have a significant direct influence on electric motorcycle Purchase Intention. This implies that, although consumers may possess a high level of environmental concern, this factor alone is insufficient to directly trigger an intention to purchase an electric motorcycle. Environmental concern may be a prerequisite or an initial shaper of perceptions, but its direct path to purchase intention is not as strong as anticipated. This is consistent with the Full Mediation finding revealed in H12, where Environmental Concern positively and significantly influences Purchase Intention through the full mediation of Attitude. This indicates that Environmental Concern indeed affects Purchase Intention, but not directly; rather, it must first foster a positive Attitude towards electric motorcycles, and it is this attitude that subsequently drives purchase intention. While this finding differs from some previous studies (Butt & Singh, 2023; Dutta & Hwang, 2021; Piriyapada & Wasawong, 2024; Solekah et al., 2023; Yeğin & Ikram, 2022) that show a significant direct relationship, this result aligns with other studies (Alberto & Riza, 2023; Haposan Pangaribuan, 2024; Muflikhati et al., 2025; Setiawan Ruslim, 2024). One possible explanation is that, despite public awareness of environmental issues, the relatively high price of electric vehicles remains a major barrier (Adelia & Tungjungsari, 2023; Purwanto & Rini, 2022), meaning environmental

awareness alone is insufficient without economic viability or practical and cost considerations (Adelia & Tungjungsari, 2023). This finding also underscores that a positive Attitude is an essential prerequisite for environmental concern to materialize into concrete purchase intention. Managerially, marketing messages about sustainability need to be combined with competitive pricing strategies or attractive financial solutions. Manufacturers and governments must ensure that environmental values are not isolated, but integrated with a comprehensive value proposition that also addresses economic and practical barriers.

H7: Government Incentives Positively and Significantly Influence Attitude Towards Electric Motorcycle Use. (Rejected) The test results indicate that Government Incentives do not have a significant direct influence on consumers' positive attitudes towards electric motorcycles. This suggests that government efforts in the form of incentives, such as subsidies or tax reductions, do not directly or significantly alter consumers' fundamental perceptions or evaluations of electric motorcycles. Although descriptive data show respondents generally have a reasonably good perception of Government Incentives, this does not automatically translate into a more positive overall attitude towards electric motorcycles. There are several possible reasons why this direct relationship is not significant. First, incentives are more likely to directly impact behavioral intention, as shown in the H8 test results where Government Incentives positively and significantly directly influence Purchase Intention. This indicates that government incentives are more effective as a direct driver of purchase intention rather than as an initial attitude shaper. That is, for consumers who already hold a certain attitude, incentives can be a catalyst for realizing purchase intention, but they do not fundamentally change their attitude. Second, the effect size analysis shows that the influence of incentives on attitude formation is very minimal, especially when compared to other variables such as Perceived Usefulness, Perceived Ease of Use, and Environmental Concern, which have a more significant influence on Attitude. This suggests that consumers tend to prioritize intrinsic factors of electric motorcycles or personal values like environmental concern in forming their initial attitudes. Concerns about battery range, charging time, or long-term maintenance costs may be more dominant in shaping attitudes than the financial benefits of incentives. This finding differs from some previous studies (Ansab & Kumar, 2022; Haposan Pangaribuan, 2024; Saputra et al., 2024) that report a positive and significant influence of Government Incentives on Attitude. However, this result aligns with another study by Wang et al. (2021), which states that government incentives, particularly financial ones, do not significantly influence attitudes towards electric motorcycles, reinforcing the argument that incentives primarily serve as a direct driver of purchase intention rather than an attitude shaper. The implication for policymakers is that financial incentives may not be the primary tool to change consumers' *deep-seated perceptions* of electric motorcycles. Instead, governments and stakeholders should supplement incentives with broader educational campaigns focusing on long-term and sustainability benefits that can fundamentally shape positive attitudes, not just drive short-term purchases.

H8: Government Incentives Positively and Significantly Influence Electric Motorcycle Purchase Intention. (Accepted) Financial incentives from the government directly lower cost barriers, making electric motorcycles more affordable and substantially increasing consumer interest in purchasing them. Various studies confirm the positive impact of government incentives on electric vehicle purchase intention (Ansab & Kumar, 2022; Dutta & Hwang, 2021; Haposan Pangaribuan, 2024; Piriyapada & Wasawong, 2024). This confirms that financial incentives are a highly effective strategy for directly triggering purchase intention, especially for price-sensitive consumer segments. Policies for subsidies or tax reductions should be maintained and potentially expanded to accelerate adoption.

H9: Attitude Towards Electric Motorcycle Use Positively and Significantly Influences Electric Motorcycle Purchase Intention. (Accepted) This result confirms that a positive attitude formed

towards electric motorcycles is a strong and direct predictor of consumer purchase intention. Consumers with a positive evaluation of electric motorcycles tend to have a strong intention to buy them, consistent with much research in the context of technology adoption and purchase behavior (Boubker et al., 2024; Chanda et al., 2024; Salim, 2024; Sukma et al., 2023; Yeğin & Ikram, 2022). The main implication is that any effort to build a positive attitude—through education about benefits, ease, and sustainability—will directly contribute to increased purchase intention. This is at the core of adoption strategies.

H10: Attitude Towards Electric Motorcycle Use Mediates the Relationship Between Perceived Usefulness and Electric Motorcycle Purchase Intention. (Accepted - Partial Mediation) This indicates that Perceived Usefulness not only directly influences purchase intention but also operates through the formation of a positive attitude, which then strengthens purchase intention. Attitude functions as a crucial bridge that transmits part of the benefits' influence to purchase intention, demonstrating both significant direct and indirect paths (Chanda et al., 2024; Jaiswal et al., 2021). The implication is that communication about benefits should be designed not only to convey facts but also to foster a deeper *positive sentiment*, as this attitude will reinforce the purchase drive from perceived usefulness.

H11: Attitude Towards Electric Motorcycle Use Mediates the Relationship Between Perceived Ease of Use and Electric Motorcycle Purchase Intention. (Accepted - Full Mediation) This result indicates that the ease of using electric motorcycles does not have a significant direct influence on purchase intention, but its effect occurs entirely through the formation of a positive attitude, which then drives purchase intention. Attitude serves as a key intermediary that transforms the perception of ease into a purchase impetus. This means that perceived ease must first form a positive attitude, and it is this attitude that then becomes the primary driver of purchase intention (Jaiswal et al., 2021; Permana et al., 2023). Managerially, this confirms that the primary focus should not merely be on communicating product ease, but rather on how that ease creates a *positive experience* that shapes favorable attitudes. Marketing strategies must be oriented towards forming a comprehensive positive attitude from perceived ease, as this attitude will effectively trigger purchase intention.

H12: Attitude Towards Electric Motorcycle Use Mediates the Relationship Between Environmental Concern and Electric Motorcycle Purchase Intention. (Accepted - Full Mediation) This is a significant finding because it implies that environmental concern does not directly drive electric motorcycle purchase intention but operates entirely through the formation of a positive attitude towards the vehicle. Environmentally conscious consumers will develop a favorable attitude, and it is this attitude that then motivates their intention to purchase sustainable products (Jayasingh et al., 2021; Wu et al., 2021). The implication is very clear: environmental messages must aim to form *pro-environmental attitudes towards electric vehicles themselves* (not just general environmental concern). Governments and manufacturers must facilitate how environmental concern can be translated into a positive evaluation of electric motorcycles as a tangible solution.

H13: Attitude Towards Electric Motorcycle Use Mediates the Relationship Between Government Incentives and Electric Motorcycle Purchase Intention. (Rejected - No Mediation) This occurs because Government Incentives do not significantly form Attitude (consistent with H7), thus Attitude cannot mediate the influence of Government Incentives on Purchase Intention. Nevertheless, Government Incentives were found to have a direct and significant influence on Purchase Intention (as seen in H8). This indicates that incentives function more as a pragmatic and direct behavioral driver for consumers, especially for respondents who are rational and cost-sensitive. In other words, financial incentives directly trigger purchase intention without requiring a profound change in attitude. While this finding differs from some studies showing mediation (Haposan Pangaribuan, 2024; Jayasingh et al., 2021), it also aligns with the argument that incentives in Indonesia have a more direct instrumental impact. Therefore, for the

government and policymakers, although incentives are effective for driving short-term purchase intention, efforts to build positive attitudes through education about non-financial benefits remain crucial for fostering a sustainable electric motorcycle market. Strategically, the government needs to understand that incentives are a short-term tactical tool for purchase, but for long-term adoption and sustainable behavioral change, investment in education and awareness campaigns that form fundamental positive attitudes remains essential. This requires a multi-strategy approach that is not only *pull* with incentives but also *push* with attitude formation

CONSLUSION

This study aimed to analyze the determinants of electric motorcycle purchase intention, with a focus on the mediating role of consumer attitude. The research findings indicate that Perceived Usefulness, Perceived Ease of Use, and Environmental Concern all positively and significantly influence Attitude Towards Electric Motorcycle Use. Furthermore, Perceived Usefulness, Government Incentives, and Attitude Towards Electric Motorcycle Use were found to positively and significantly influence Electric Motorcycle Purchase Intention directly. Conversely, the study found that Perceived Ease of Use and Environmental Concern do not directly influence Electric Motorcycle Purchase Intention. Similarly, Government Incentives do not directly influence Attitude Towards Electric Motorcycle Use. A key finding of this research is the crucial mediating role of attitude. Attitude was proven to partially mediate the relationship between Perceived Usefulness and Purchase Intention. More significantly, Attitude served as a full mediator for the relationships of Perceived Ease of Use and Environmental Concern on Purchase Intention, meaning their influence on purchase intention is entirely channeled through the formation of a positive attitude towards electric motorcycles. However, Attitude was not found to mediate the relationship between Government Incentives and Purchase Intention, as Government Incentives directly influence purchase behavior without necessarily reshaping core attitudes. The implication is that to promote electric motorcycle adoption, strategies should not only focus on direct benefits and incentives but also holistically on building and strengthening positive consumer attitudes, recognizing their pivotal role in translating other factors into purchase intent.

Practical Implications

Based on the research findings, there are several significant practical implications for stakeholders involved in promoting electric motorcycle adoption in Indonesia, particularly in Jakarta:

1. **Focus on Benefits and Ease that Build Attitude:** While ease of use may not directly trigger purchase intention, this study confirms that Perceived Usefulness and Perceived Ease of Use are strong drivers of positive attitudes. Therefore, marketing campaigns should emphasize operational cost savings, ease of maintenance, and availability of charging infrastructure. Manufacturers and distributors must ensure a seamless customer journey, from initial information to post-purchase experience, to form favorable attitudes.
2. **Integrate Environmental Messages with Comprehensive Value Propositions:** Environmental concern, while important, does not directly drive purchase intention, but rather through attitude mediation. This means "green" messages need to be combined with narratives that address practical and economic barriers, such as price and range. The government can consider linking incentives to broader environmental values through comprehensive educational programs.
3. **Incentives as a Direct Purchase Catalyst, Not an Attitude Shaper:** Government incentives proved highly effective in directly driving purchase intention but less effective in changing fundamental attitudes. This suggests that incentives function as a "door opener" for purchases, but do not fundamentally alter consumer views. The government needs to maintain and potentially expand incentive schemes to encourage initial adoption, while also investing in long-term education that shapes attitudes.

4. **Attitude as the Primary Bridge:** Consumer attitude towards electric motorcycles is the strongest predictor of purchase intention and a key mediator for most factors. Any strategy aimed at increasing adoption must center on building and maintaining positive attitudes. This can be achieved through test drives, immersive educational programs, and positive word-of-mouth.

Limitations and Future Research

While this study provides important insights into the determinants of electric motorcycle purchase intention in Jakarta, several limitations need to be acknowledged, which also open avenues for future research:

1. **Geographical and Demographic Focus:** This research is limited to respondents in Jakarta, with a minimum age criterion of 25 years. This may limit the generalizability of findings to other regions in Indonesia with different socio-economic and infrastructural contexts, or to younger age groups. Future research could expand the geographical scope to other cities or rural areas, and include a wider demographic range.
2. **Limited Variables:** Although this model is comprehensive, other factors may influence electric motorcycle purchase intention that were not included in this model. These could include brand awareness, social norms, or the broader ecosystem of public charging infrastructure. Future research could integrate these additional variables for a more holistic model and richer explanation. Specifically, future studies could analyze the impact of non-financial incentives (e.g., dedicated lane access, preferential parking, specific licensing benefits) on purchase intention, as these may play a distinct role in consumer decision-making.

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