



Analysis of factors that influence consumers' purchase intention of electric cars: Economic and business perspectives in emerging markets

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ABSTRACT

Background: This study aims to determine the factors influencing consumer purchase intention for electric cars in Jabodetabek. **Method:** This quantitative research analyzes data collected from 150 respondents through surveys. The respondents in this study are individuals with knowledge of electric car products and reside in Jabodetabek. The data in this study were analyzed using the Partial Least Squares Structural Equation Modelling (PLS-SEM) method. **Finding:** The results of this study indicate that attitude, perceived behavioral control, cognitive status, and monetary incentive policy significantly influence on purchase intention. However, subjective norm and product attributes do not show a significant influence. **Conclusion:** Additionally, the results of this study indicate that monetary incentive policy has the strongest influence on purchase intention. **Novelty/Originality of this article:** This study provides a novel insight into consumer purchase intention for electric cars in Jabodetabek by identifying monetary incentive policy as the most influential factor, while challenging the significance of subjective norms and product attributes.

KEYWORDS: electric cars; incentive policy; product attributes; purchase intention; theory of planned behavior.

1. Introduction

Currently, Indonesia ranks fourth in population size globally and is the 16th largest economy based on Gross Domestic Product, as recorded by the World Bank (2021). With rapid economic growth, the increasing number of motor vehicles has significantly increased fuel demand. However, despite its rich natural resources, Indonesia has experienced a significant decline in oil production, creating an imbalance between supply and demand. Since 2004, OPEC has recognized Indonesia as a net oil importer, marking a substantial challenge in meeting fuel demand (Ministry of Energy and Mineral Resources, 2012). This situation poses a challenge and opens opportunities for developing new vehicle technologies that can positively impact economic growth.

One of the primary causes of air pollution is emissions from the transportation sector, which contributes approximately 25% of global carbon emissions, as reported in a global study by Our World in Data (2020). The study also found that more than 70% of these emissions originate from motor vehicles, including cars, trucks, and buses. This long

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standing issue has contributed to global carbon emissions reaching a record high of 36.3 billion metric tons of carbon dioxide in 2021. The increasing number of motor vehicles in Indonesia heightens fuel demand and significantly impacts air quality. The Jabodetabek region, the largest urban concentration in Indonesia, encompasses several administrative areas across three significant provinces: DKI Jakarta, Banten, and West Java. This region is strategically important due to its high mobility, with many commuters working in Jakarta but residing in its suburbs. According to IQAir (2023), air pollution levels in DKI Jakarta are ranked the 5th worst in the world, with an AQI US of 163. This level indicates that the air in Jakarta is unhealthy for the public, suggesting the use of masks while traveling. This situation requires greater attention and solutions to improve air quality in Jakarta and move it away from the world's worst rankings.

Currently, numerous directives and government support are aimed at reducing carbon emissions in the transportation sector to address pollution in Jakarta. The transportation sector is considered one of the most significant contributors to carbon emissions. It requires transitioning from fossil fuel-based energy to more environmentally friendly alternatives such as electric energy (Hanun et al., 2023). Electric vehicles are categorized into three types. There are hybrid vehicles, where an internal combustion engine (ICE) works with a separate electric motor. Hybrid vehicles still rely on gasoline engines to charge the battery. There are also plug-in hybrids, similar to hybrids but with larger battery capacities and the ability to recharge at public electric vehicle charging stations (SPKLU). Finally, battery electric vehicles (BEVs) use only batteries as the power source. Electric vehicles offer several advantages over conventional cars, including minimal environmental impact, high energy efficiency, and better driving performance.

In recent years, the government's efforts to encourage the adoption of electric vehicles have intensified. The Indonesian government strongly promotes the adoption of electric vehicles, setting ambitious targets. By 2025, the government aims for 20% of all vehicles produced in Indonesia to be Low-Carbon Emission Vehicles (LCEVs), including electric cars. The slow growth in electric vehicle usage in Indonesia has led the government to issue regulations to increase electric vehicle adoption significantly. One such regulation is Presidential Regulation No. 55/2019, which targets 2.1 million electric motorcycles and 2,200 electric cars by 2025. The government also aims to produce 2,200 units of electric or hybrid vehicles locally, as outlined in Presidential Regulation No. 22/2017 on the National Energy Plan.

Presidential Regulation No. 55 of 2019 also accelerates the development of battery-powered electric vehicles. This regulation is expected to provide a solid legal foundation for developing electric vehicles in the country, stimulating a series of actions from various ministries and industries to support the broader adoption of electric vehicles in Indonesia. This initiative is a solution to declining fossil fuel reserves and air pollution. Electric vehicles will represent more than 50% of new vehicle sales globally by 2035.

To address air pollution and reduce carbon emissions caused by the transportation sector, particularly in Indonesia, the government has taken significant steps through the development and implementation of various monetary and non-monetary policies. These initiatives not only focus on increasing the use of electric public transportation but also extend to regulatory aspects that support the growth of private electric vehicles. The new policies are expected to create a conducive environment for energy transition in the transportation sector while offering practical solutions for the public to participate actively in carbon emission reduction efforts.

The government has introduced several supporting policies, particularly for electric vehicles, as outlined in the Minister of Finance Regulation (PMK) No. 38 of 2023. According to this regulation, battery-powered electric vehicles/*Kendaraan Bermotor Listrik Berbasis Baterai* (KBLBB) with a domestic component level/*Tingkat Komponen Dalam Negeri* (TKDN) of 40 percent or more ($TKDN \geq 40\%$) will receive a government subsidy for Value Added Tax (VAT) of 10 percent, reducing the payable VAT to just one percent. Additionally, for KBLBB with a TKDN between 20 percent and below 40 percent ($20\% \leq TKDN < 40\%$), a VAT subsidy of 5 percent will be provided, resulting in a payable VAT of six percent.

Furthermore, electric vehicles are exempt from the odd-even traffic regulation stipulated in DKI Jakarta Governor Regulation No. 88 of 2019, Article 4. These measures are expected to encourage the growth and development of electric vehicles in Indonesia.

The willingness of individuals to purchase electric vehicles can be examined using the Theory of Planned Behavior (TPB), which includes attitudes representing consumer desire, subjective norms representing external influences on consumers, and perceived behavioral control representing consumer perceptions (Ajzen, 1991), as well as Cognitive Status representing consumer feelings (Huang et al., 2021), Product Attributes representing evaluations of the product (Wang et al., 2022), and Incentive Policies representing government regulations. Increased consumer interest in electric vehicles is anticipated to help reduce pollution impacts in urban areas, particularly in the Jabodetabek region, which encompasses Jakarta and its surrounding areas. The main contribution of this research is to provide a better understanding of the factors influencing consumer purchase intentions for electric vehicles in Indonesia, especially in Jakarta and its vicinity.

1.1 Consumer behaviour

Solomon (2020) describes consumer behavior as the examination of the processes that individuals or groups undergo when they select, purchase, utilize, or discard products, services, ideas, or experiences to satisfy their needs and desires. For environmentally friendly products, the factors that influence consumer purchasing behavior are concern for the environment and the use of information that indicates social-environmental commitment (Rossi & Rivetti, 2022). Consumption has various socio-economic impacts, so efforts have emerged to direct consumption more sustainably. Sustainable consumption includes reducing consumption of natural resources, changing lifestyles, and using environmentally friendly products to meet the needs of today and future generations (Biswas & Roy, 2015).

1.2 Theory of planned behavior

The theory of planned behavior (TPB) is a theoretical framework in psychology that links beliefs with individual actions (Ajzen, 1991). TPB identifies three main factors that influence individual behavioral intentions, namely attitude, subjective norms (sn), and perceived behavioral control (PBC) (Ajzen, 1991; Zhao et al., 2019). Attitude refers to a personal evaluation of the desire or undesirability of a particular behavior (Ajzen, 1991). Subjective norms reflect the significant role of social influence and social pressure in our lives, particularly regarding performing or not performing a specific behavior (Ajzen, 1991). Meanwhile, perceived behavioral control indicates the perception of ease or difficulty in carrying out specific behaviors (Ajzen, 1991). The TPB also asserts that the more optimistic individuals are about their ability to perform a particular action, the more likely they will carry out that behavior (Collins et al., 2011).

1.2.1 Attitude

Attitude refers to a person's tendency to evaluate positively or negatively towards an object or product. The attitude formed towards products and services is often a determining factor in consumer purchasing decisions. Attitude is defined as a psychological process that shapes an individual's preference toward a specific object (Sreen et al., 2018). The functional theory of attitudes, introduced by psychologist Daniel Katz in 1960, provides insight into how attitudes can affect social behavior (Solomon, 1988). This practical perspective suggests that attitudes are present because they serve to meet the individual's needs or objectives. Individuals who may face a similar situation tend to form attitudes towards it (Solomon, 1998). Therefore, individuals who have a positive attitude towards purchasing an electric vehicle are more likely to take action in purchasing the vehicle.

1.2.2 Subjective norms

Subjective Norm (SN) is a term that refers to the social pressure felt to perform or not perform an action (Ajzen et al., 1991). The SN concept indicates that specific individuals or groups in a social environment support or encourage certain behaviors (Han et al., 2019). In other words, if the individual feels that many people important to them support pro-environmental actions, then it would be reasonable or natural for the individual to follow (Cialdini et al., 1990). SN represents normative beliefs that arise from the conformity of personal behavior with group norms in society (Mohamed et al., 2016).

1.2.3 Perceived behavioral control

Perceived Behavioral Control (PBC) is an individual's perception of the ease or difficulty of carrying out a certain behavior (Ajzen, 1991). PBC reflects a person's view of various obstacles that may be encountered while performing a certain behavior, including the individual's evaluation of difficulties based on past experiences or future expectations, such as time constraints, comfort, and economic situation (Collins et al., 2011). The level of PBC also depends on the extent to which the individual feels able to control the factors that limit the behavior (Ajzen, 1991). A person's PBC is significantly influenced by their belief in having sufficient resources and opportunities to carry out the behavior, which in turn increases the likelihood of engaging in the behavior (Semeijn et al., 2019).

1.2.4 Cognitive status

According to previously study, cognitive thinking is a thinking process that involves an individual's ability to relate, assess, and consider an incident or event. Also he explains that cognitive is one or more abilities to acquire and use knowledge to solve problems and adapt to the environment. Therefore, it can be concluded that cognitive status is an individual's ability to use knowledge to analyze an incident or incident and adapt to the environment. Consumer cognitive status is also an essential personal factor in Electric Car (EV) purchasing. Public skepticism about electric vehicles (EVs), often driven by a lack of sufficient knowledge about these vehicles, can hinder their market success (Kang & Park, 2011). Additionally, consumers' awareness of environmental issues, energy concerns, and low-carbon vehicle policies significantly impacts their intentions and behaviors regarding low-carbon vehicle purchases (Lane & Potter, 2007). Research by Zhang et al. (2013) also indicates that a deeper understanding of government policies increases the likelihood of consumers choosing to buy EVs.

1.2.5 Product attributes

Product attributes refer to the aspects of a product or service that define the benefits it offers to consumers (Kotler et al., 2012). These attributes play a crucial role in shaping consumer purchasing intentions. Consumers generally seek products that offer the highest value at the lowest possible cost while meeting their specific needs (Kotler and Armstrong, 2010). In a survey conducted by Ozaki & Sevastyanova (2011) involving 1,263 participants in the UK, it was identified that key factors influencing the adoption of hybrid vehicles included comfort, quiet operation, ease of driving, and the presence of automatic transmission. Similarly, Wang & Wang (2013) found that the quality and cost of electric vehicles (EVs) are pivotal in affecting consumer buying decisions. In another study focusing on the purchasing intentions of Chinese consumers towards EVs, Wang et al. (2017a) discovered that the availability of charging infrastructure had a significant positive impact. Key product attributes highlighted in their study included charging infrastructure, safety features, driving range, charging duration, and battery longevity.

1.3 Incentive policy measures

1.3.1 Non-monetary incentive policy measures

Non-monetary incentive Policy Measures are strategies that increase the convenience and practicality of owning and using EVs without directly benefiting consumers or producers (Li et al., 2016a). This policy focuses on benefits that are not directly related to the financial aspects of purchasing or using an EV. The separate allocation of EV number plates, for instance, provides convenience and exclusive identity for EV owners, increasing the visibility and social status of EVs in society (Schuitema et al., 2013). Odd-even free privileges for EVs not only reduce barriers to EV use in big cities but also confirm the government's commitment to supporting sustainable transportation (Egbue and Long, 2012). Additionally, the development of SPKLU offers critical infrastructure necessary for EV operation, making recharging easier and increasing the comfort of EV use (Coffman et al., 2017). These non-monetary incentive policies not only help overcome barriers to EV use and ownership but also play a crucial role in shaping positive perceptions of EVs, instilling a sense of optimism about the future of sustainable mobility.

1.3.2 Monetary incentive policy measures

Monetary Incentive Policy Measures include direct financial benefits designed to lower the initial cost of purchasing an EV and its operational costs. This policy is a strategy that provides direct financial benefits to EV consumers or manufacturers to reduce EV purchasing and operating costs (Li et al., 2016b). Purchase subsidies, for example, lower the purchase price of electric vehicles, making this technology more affordable for consumers and becoming an essential factor in purchasing decisions (Bjerkan et al., 2016). Tax breaks, such as exemption from motor vehicles or sales tax, reduce the cost of EV ownership and stimulate purchase interest (Li et al., 2016b). Discounts on electricity rates for EV use at home or SPKLU can reduce vehicle operational costs, making long-term use of EVs more economical compared to conventional vehicles (Hardman et al., 2018). These monetary incentive policies contribute directly to increasing the financial attractiveness of EVs for consumers, accelerating EV adoption, and supporting the achievement of environmental goals.

1.3.3 Purchase intention

Kotler and Keller (2016) explain that purchase intention is buying a particular brand from various existing brands. Santoso (2018) defines purchase intention as consumer actions that reflect their commitment to purchasing goods or services. Purchase intention refers to the extent to which consumers are likely to buy a particular product or service (Wu, 2015). Elseidi and Baz (2016) consider purchase intention to be one of the critical elements in consumer behavior that influences the decision to buy products from particular brands.

2. Methods

This research adopts a quantitative approach and is classified as conclusive descriptive research. It employs a single cross-sectional study design, where relationships between variables are measured using an instrument to collect data, which is then analyzed using statistical procedures to test objective theories. Data collection from the sample population is conducted only once, in line with the principles outlined by Malhotra (2020). The research design serves as a structured framework that guides the implementation of the marketing research project, outlining the detailed steps necessary to obtain the required data to address the research problem identified by the researcher.

This study examines the factors influencing purchase intention, including attitude, subjective norm, perceived behavioral control, and cognitive status, as well as product attributes and incentive policy measures in the Greater Jakarta area (JABODETABEK). The methodology involves data collection to assess whether attitude, subjective norm, perceived behavioral control, and cognitive status influence consumers' purchase intention for electric vehicles in the region. Furthermore, this research aims to determine whether incentive policy measures impact purchase intention and whether product attributes play a role in shaping consumers' willingness to purchase electric vehicles in Jabodetabek.

The data collection method in this study was conducted through a survey technique by distributing online questionnaires to respondents who reside in or frequently engage in activities within the Greater Jakarta area (*Jakarta, Bogor, Depok, Tangerang, Bekasi* (JABODETABEK)). The survey focused on their experiences and perceptions of electric vehicles. The sampling method employed in this research was purposive sampling, a technique used to select samples from the population based on specific characteristics until the desired quota is met. Referring to the table in Hair et al. (2017), where the maximum number of arrows directed toward a single variable is seven, the minimum required number of respondents for this study was determined to be 80. The collected data was analyzed using the Structural Equation Modeling (SEM) statistical method. The findings from this analysis are expected to provide new insights for policymakers and electric vehicle industry players in promoting battery electric vehicles (KBLBB) while also supporting consumers in making more informed purchasing decisions.

This study utilizes the same variable research model and replicates the study by Huang & Ge (2019), which involved 502 respondents from Beijing. Their research found that attitude, perceived behavioral control, cognitive status, product attributes, and monetary incentive policy significantly influenced Beijing residents' purchase intentions for electric vehicles, while subjective norms and non-monetary incentive policies did not. In this study, several modifications were made to align with the policies and regulations in Indonesia regarding electric vehicles and the research subjects.

This research adopts a quantitative approach. The data used are primary data collected through a survey technique by distributing an online questionnaire to respondents who live or frequently operate in the Jabodetabek area. The study is conducted as a single cross-sectional survey, with data collection from the sample population occurring only once. The sample size for this study consists of 150 respondents. Based on the research described, the hypotheses proposed in this study are:

- H1: attitude has a positive effect on purchase intention.*
- H2: subjective norms has a positive effect on purchase intention.*
- H3: perceived behavioral control has a positive effect on purchase intention.*
- H4: cognitive status has a positive effect on purchase intention.*
- H5: product attributes have a positive effect on purchase intention.*
- H6: non-monetary incentive policy has a positive effect on purchase intention.*
- H7: monetary incentive policy has a positive effect on purchase intention.*

The researcher will employ the robust Partial Least Squares Structural Equation Modelling (PLS-SEM) to analyze the sample data. This method is chosen as it allows for the examination of multiple relationships among the variables simultaneously and the conduct of structural and measurement model tests.

The research process is iterative, beginning with descriptive statistical tests to determine the mean, median, maximum, minimum, and standard deviation values. A wording test will then be conducted to gather feedback from respondents, which will be used to refine the research questionnaire before the primary test is carried out. This iterative process ensures that respondents understand all questionnaire items better, providing representative answers to the research items. The study will then proceed to the main testing phase.

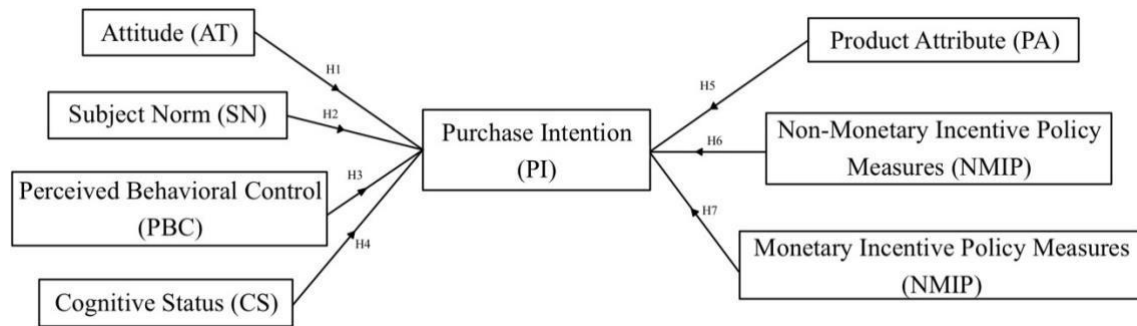


Fig. 1. Partial least squares structural equation modelling (PLS-SEM) analyze data

This model at the Fig. 1 illustrates the interplay of six interconnected variables influencing an individual's intention to purchase an electric vehicle (EV). Three key variables—attitude, subjective norm, and perceived behavioral control—are derived from the Theory of Planned Behavior (TPB) and are combined with cognitive status as internal factors that shape a person's decision to buy an EV. Meanwhile, external factors that contribute to purchase intention include product attributes, non-monetary incentive policy, and monetary incentive policy. This study aims to understand how the combination of internal and external factors affects the purchase intention of electric vehicles. By gaining insight into these influencing factors, both policymakers and industry players can design more effective strategies to encourage the adoption of electric vehicles within society.

3. Results and Discussion

Demographic and behavioral data were utilized by the researcher to deepen the analysis. The demographic profile of respondents includes information such as age, gender, education, occupation, domicile, and monthly expenses. Based on the demographic aspects, the majority of respondents in this study were: aged 18–24 years (43.5%), male (49.7%), residing in Jakarta (36%), private sector employees (46.6%), monthly expenses ranging from IDR 5,000,000–IDR 10,000,000 (46.6%), below is a detailed table of respondent profiles based on demographic and behavioral aspects (see Table 1).

Table 1. Partial least squares structural equation modeling (PLS-SEM) to analyze the sample data

Characteristics	Group	Amount	Presentation
Age	18-24	65	43.5%
	25-34	53	35.4%
	35-44	29	19.3%
	>45	3	1.9%
Gender	Male	76	50.3%
	Female	74	49.7%
Occupation	Private sector employee	70	46.6%
	Government employees	23	14.9%
	Profesional	19	12.4%
	Self-employed	32	20.5%
	Etc.	6	4.3%
Domicile	Jakarta	54	36%
	Bogor	27	18%
	Depok	34	22.4%
	Tangerang	21	14.3%
	Bekasi	14	9.3%
Expenses per month	<IDR 5,000,000	44	29.2%
	IDR 5,000,000 – IDR 10,000,000	70	46.6%
	IDR 10,000,000 – IDR 15,000,000	22	14.9%
	IDR 15,000,000 – IDR 20,000,000	7	4.3%
	>IDR 20,000,000	7	3.7%

Internal consistency testing was conducted to assess the reliability of the measurement model. In this test, two indicators were used to evaluate the consistency of the measurement model: Cronbach's alpha and composite reliability. Cronbach's alpha provides a reliability estimate based on the intercorrelation between the indicators of a variable, assuming that all indicators have the same outer loadings. Composite reliability, on the other hand, considers different outer loadings across the observed variable's indicators (Hair et al., 2019). A variable is considered reliable or has good internal consistency if: Cronbach's alpha ≥ 0.6 (Malhotra, 2020) and Composite reliability ≥ 0.7 (Hair et al., 2019).

Table 2. Internal consistency test results

Variable	Cronbach's Alpha	Composite Reliability	AVE
Attitude (AT)	0.875	0.923	0.799
Subjective Norm (SN)	0.900	0.937	0.833
Perceived Behavioral Control (PBC)	0.858	0.913	0.779
Cognitive Status (CS)	0.814	0.890	0.729
Product Attributes (PA)	0.917	0.935	0.706
Non-Monetary Incentive Policy (NMIP)	0.882	0.927	0.809
Monetary Incentive Policy (MIP)	0.873	0.922	0.797
Purchase Intention (PI)	0.890	0.932	0.820

To obtain the predictive relevance (Q^2) value, the blindfolding procedure was performed using a specified omission distance (D). In this study, the cross-validated redundancy approach, as recommended by Hair et al. (2019), was used to calculate the Q^2 value. The blindfolding technique removes data points at every D-th position and estimates parameters using the remaining data points. The recommended D-value range for PLS-SEM is between 5 and 12, with the default value in SmartPLS set at 7 (Hair et al., 2019). However, it is crucial to ensure that dividing the total number of data points by D does not result in a fraction. In the Q^2 calculations of this study, no variable obtained a Q^2 value of 1, indicating that the model and endogenous latent variables have predictive relevance.

Table 3. Results of fornell-larcker criterion testing

Variable	AT	SN	PBC	CS	PA	NMIP	MIP	PI
AT	0.894							
SN	0.665	0.913						
PBC	0.563	0.656	0.882					
CS	0.558	0.671	0.623	0.854				
PA	0.595	0.705	0.697	0.689	0.840			
NMIP	0.616	0.612	0.484	0.463	0.585	0.900		
MIP	0.705	0.761	0.756	0.729	0.774	0.584	0.893	
PI	0.552	0.579	0.563	0.499	0.580	0.643	0.591	0.905

The researcher conducted data processing after ensuring that both the measurement model and the structural model met feasibility requirements. Significance testing was performed using the bootstrapping method with 5.000 subsamples, following the recommendations of Hair et al. (2019). This study follows a one-tailed approach, where the direction of influence in each hypothesis is predetermined. In one-tailed hypothesis testing, an effect is considered significant if: T-value ≥ 1.645 for hypotheses with a positive influence and T-value ≤ -1.645 for hypotheses with a negative influence (Hair et al., 2019). The significance level used is 0.05, meaning that a hypothesis is considered significant if the P-value ≤ 0.05 . Below are the results of the path coefficients for variables with direct relationships.

Based on the analysis results, it was found that the strongest influence in the path coefficient was from monetary incentive policy to purchase intention, with a value of 0.250, followed by the influence of attitude on purchase intention. Additionally, out of the seven

proposed hypotheses, two hypotheses did not show significance: (1) the influence of subjective norm on purchase intention; (2) the influence of product attributes on purchase intention.

Table 4. Results of direct path coefficient testing with bootstrapping

<i>Path Coefficients</i>		(M)	Std. Dev	T- Value	P- Value	Conclusion
AT→ PI	0.206	0.205	0.068	3.011	0.001	Significant
SN→ PI	0.014	0.018	0.069	0.200	0.421	No Sig.
PBC→ PI	0.219	0.217	0.084	2.596	0.005	Significant
CS→ PI	0.167	0.162	0.063	2.674	0.004	Significant
PA→ PI	0.012	0.014	0.063	0.191	0.424	No Sig.
NMIP→ PI	0.182	0.179	0.084	2.163	0.015	Significant
MIP→ PI	0.250	0.252	0.078	3.209	0.001	Significant

4.1 Attitude has a positive effect on purchase intention

Based on hypothesis testing results, the effect of attitude on purchase intention was found to be positive and significant, with a t-value of 3.011 and a path coefficient of 0.206. In this hypothesis, the indicator AT1 showed the highest factor loading of 0.912, and the purchase intention indicator PI3 had the highest factor loading of 0.914. These results indicate that consumers with a positive attitude towards the use and purchase of electric vehicles are also more likely to purchase them.

These findings align with the Theory of Planned Behavior (TPB) proposed by Ajzen (1991), which highlights attitude as a crucial factor influencing purchase intention. Additionally, the results are consistent with the study by Yadav and Pathak (2016), which examined young consumers' intention to purchase eco-friendly products in developing countries. Similarly, Tan et al. (2017) found that attitude had a positive impact on consumers' purchase intention toward energy-efficient household appliances in Malaysia. Moreover, Taufique & Vaithianathan (2018) demonstrated that environmental attitude has a direct and significant positive effect on behavioral intention and ecologically conscious consumer behavior (ECCB). Based on the hypothesis testing results, it can be concluded that the more enthusiastic consumers' attitudes toward electric vehicles, the higher their purchase intention to buy them.

4.2 Subjective norm does not have a positive effect on purchase intention

Based on the hypothesis testing results, no significant effect was found between subjective norm and consumers' purchase intention for electric vehicles. This lack of significance is evident from the significance value, with a t-value of 0.200 and a path coefficient of 0.014, which does not meet the one-tailed hypothesis requirement for a significant effect (minimum value of 1.645).

In this hypothesis, the SN1 indicator had the highest factor loading value at 0.934, while purchase intention (PI3 indicator) recorded the highest factor loading value at 0.914. Similarly, Huang & Ge (2019) also found that subjective norm had no significant influence on purchase intention. However, based on descriptive analysis, SN1's highest factor loading suggests that this factor contributes the most to an individual's subjective norm when considering purchasing an electric vehicle. This is supported by the total mean value of the subjective norm variable, which is 3.98 out of a maximum score of 5.

Furthermore, previous studies by López-Mosquera et al. (2014) and Tan et al. (2017) also failed to confirm a significant positive impact of subjective norm on purchase intention. Similarly, Cialdini & Trost (1998) and Trafimow & Finlay (1996) observed that the effect of subjective norm on purchase intention or actual behavior tends to be relatively weak. Even Ajzen (1991) argued that, compared to the relationships between attitude and perceived behavioral control with intention, the connection between subjective norm and intention is relatively weaker.

Therefore, personal factors such as attitude and perceived behavioral control are the primary determinants influencing consumers' purchase intention. The findings of this study indicate that even if individuals receive encouragement from their surroundings, media promotions, family, or friends to purchase electric vehicles, these influences do not significantly impact their purchase intention.

4.3 Perceived behavioral control has a positive effect on purchase intention

Based on the hypothesis testing results, a positive and significant effect was found between Perceived Behavioral Control (PBC) and purchase intention. The t-value for the effect of PBC on purchase intention was 4.797, with a path coefficient of 0.219, indicating a significant relationship between these variables. In this hypothesis, the PBC3 indicator had the highest factor loading value at 0.908, while purchase intention (PI3 indicator) recorded the highest factor loading value at 0.914.

These findings align with Ajzen's (1991) Theory of Planned Behavior (TPB), which identifies perceived behavioral control as a key predictor of purchase intention. The results suggest that consumers are more willing to purchase electric vehicles when they feel capable and confident in their ability to do so. Additionally, the direct effect findings of this study are consistent with previous research on pro-environmental consumer behavior in different contexts, such as studies by Yadav & Pathak (2016) and Tan et al. (2017), further reinforcing that perceived behavioral control is a strong predictor of pro-environmental consumer purchase intention.

4.4 Cognitive status has a positive effect on purchase intention

The expansion of cognitive status in the TPB model within this study was found to have a positive and significant effect on purchase intention for electric vehicles. The t-value for the impact of cognitive status on purchase intention was 2.674, with a path coefficient of 0.167, indicating a significant relationship between these variables. In this hypothesis, the CS2 indicator recorded the highest factor loading value at 0.870, while purchase intention (PI3 indicator) had the highest factor loading value at 0.914.

These findings suggest that consumers with greater knowledge about electric vehicles and related incentive policies are more willing to purchase electric vehicles. In this regard, if government agencies and car retailers take steps to provide more information about electric vehicles and relevant incentive policies, consumers will become more familiar with electric vehicles and develop a stronger intention to purchase them.

A study by Coad et al. (2009) on Swiss consumers' motivation to purchase energy-efficient and environmentally friendly vehicles found that providing energy efficiency information (such as vehicle energy labels) enhanced consumer awareness of eco-friendly vehicles, ultimately increasing purchase intention. Similarly, Wang et al. (2017b) examined Chinese consumers' purchase intention toward energy-efficient appliances. However, in their study, cognitive status did not have a significant positive impact on purchase intention. In this study, cognitive status encompasses not only consumers' knowledge about electric vehicles but also their understanding of related incentive policies, reinforcing the idea that better-informed consumers are more inclined to purchase electric vehicles.

4.5 Product attributes do not have a positive effect on purchase intention

Based on the hypothesis testing results, product attributes were found to have no significant effect on consumers' purchase intention for electric vehicles. This conclusion is drawn from the collected data, which shows a t-value of 0.191 and a path coefficient of 0.012, both of which fail to meet the criteria for establishing a significant one-directional relationship. In this hypothesis, the PA4 indicator recorded the highest factor loading value at 0.866, while purchase intention (PI3 indicator) had the highest factor loading value at 0.914.

These findings align with the study conducted by Schmalfuß et al. (2017), which demonstrated that the influence of product attributes on battery electric vehicles (BEVs) remains relatively low in shaping consumers' purchase intention for electric cars. This outcome may be attributed to the perception that electric vehicle features do not yet fully meet consumer expectations and desires. Consumer preferences for electric vehicles are often tied to factors such as: more extensive charging infrastructure, unstable resale value of used electric vehicles, driving range limitations, charging time, and battery lifespan improvements. These limitations may reduce the significance of product attributes in influencing purchase intention, particularly among consumers in JABODETABEK.

4.6 Non-monetary incentive policy has a positive effect on purchase intention

Based on the hypothesis testing results, the influence of non-monetary incentive policies on purchase intention was found to be positive and significant, with a t-value of 2.163 and a path coefficient of 0.182. In this hypothesis, the NMIP3 indicator had the highest factor loading value at 0.920, while purchase intention (PI3 indicator) recorded the highest factor loading value at 0.914.

These findings are consistent with the study by Ma et al. (2017), which examined the impact of government incentive policies on new energy vehicle adoption in China, particularly regarding vehicle purchase restrictions. Similarly, Wang et al. (2021) found that various financial incentive policies positively influence consumers' purchase intention for electric vehicles. Furthermore, research by Shakeel (2022) also confirmed that non-monetary incentive policies have a significant impact on consumers' purchase intention for electric vehicles. The results of this hypothesis test suggest that the better the non-monetary incentive policies implemented in a country, the higher the likelihood that consumers will be motivated to purchase electric vehicles.

4.7 Monetary incentive policy has a positive effect on purchase intention

Based on the hypothesis testing results, the influence of monetary incentive policies on purchase intention was found to be positive and significant, with a t-value of 3.209. Among all variables, monetary incentive policy had the strongest effect on purchase intention, as indicated by its path coefficient of 0.250. In this hypothesis, the MIP1 indicator had the highest factor loading value at 0.904, while purchase intention (PI3 indicator) recorded the highest factor loading value at 0.914.

In this study, the monetary incentive policy items included in the questionnaire covered aspects such as: electric vehicle purchase subsidies, tax exemptions, reduced parking fees, and increased loan amounts for electric vehicle purchases. This conclusion aligns with common expectations, as electric vehicle purchases offer several financial advantages compared to conventional fuel-powered vehicles. Wang et al. (2017a) examined the factors influencing Chinese consumers' purchase intentions toward electric vehicles and found that policy incentives, such as purchase subsidies and exemption from vehicle purchase quotas, had a significant positive impact on purchase intention. This study further classifies electric vehicle policy incentives into monetary and non-monetary incentive measures, with the findings indicating that monetary incentive policies have a stronger and more significant positive effect on consumer purchase intention.

4. Conclusions

Based on the overall results and discussion conducted by the researcher, the following conclusions can be drawn: (1) regarding the first research question – the study finds that attitude, perceived behavioral control, and cognitive status significantly influence the intention to purchase electric vehicles in the jabodetabek area. consumers with a positive attitude, greater perceived control, and better cognitive understanding of electric vehicles are more likely to intend to purchase them-; (2) regarding the second research question:

the study indicates that incentive policy measures positively impact the intention to purchase electric vehicles in jabodetabek. both non-monetary and monetary incentive policies play a significant role in shaping consumer purchase intentions;- (3) regarding the third research question – the study finds that product attributes do not significantly influence the intention to purchase electric vehicles in JABODETABEK. This suggests that factors related to the characteristics of the electric vehicles themselves have less impact on consumer purchase intentions compared to other variables such as incentives and cognitive status.

Based on the limitations faced in this study, several recommendations for future research are as follows: (1) expand the study area – future research could broaden the scope from jabodetabek to other regions in indonesia, including major cities such as surabaya, bandung, and medan. this expansion would provide a more comprehensive understanding of perceptions and purchase intentions regarding electric vehicles across the country-; (2) incorporate new variables – subsequent studies could include new variables that reflect recent advancements in electric vehicle technology and government policies. for example, examining the impact of the latest incentive policies or changes in battery prices could provide insights into factors influencing purchase decisions-; (3) conduct detailed consumer segmentation analysis – future research should delve deeper into various consumer segments based on age, gender, income, and other demographic factors. this analysis could offer more detailed insights into preferences and barriers to electric vehicle adoption-; (4) investigate long-term ownership effects – researching the long-term impact of electric vehicle ownership on user perceptions and satisfaction could yield valuable data on factors affecting loyalty and word-of-mouth recommendations. these suggestions aim to address the study's limitations and enhance the understanding of factors influencing electric vehicle adoption.

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Author Contribution

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