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Determinasi Minat Pembelian Mobil Listrik Pasca Insentif Pajak di Indonesia: Integrasi Customer-Based Brand Equity dan Theory of Planned Behavior

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Abstract

The termination of several electric vehicle (EV) fiscal incentives in Indonesia in 2026, may dampen consumer purchase intention, as evidenced by market shocks in Denmark and China. This study analyzes the determinants of EV purchase intention in Indonesia by integrating Customer-Based Brand Equity (CBBE) and Theory of Planned Behavior (TPB) frameworks, while examining the moderating roles of perceived price and tax incentives. Using a quantitative explanatory approach with purposive sampling, data were collected from 430 respondents in Greater Jakarta who are existing EV owners. Data analysis employed Partial Least Squares Structural Equation Modeling (PLS-SEM). Of nineteen hypotheses tested, eighteen were supported, with an R-square of 0.830 for purchase intention. The three TPB determinants and four CBBE dimensions significantly influence purchase intention, with brand loyalty emerging as the strongest predictor. Perceived price moderates the attitude and purchase intention pathway, while tax incentives only moderate the subjective norms and perceived behavioral control pathways.

INTRODUCTION

Air pollution produced by the transportation sector is becoming an increasingly serious global challenge and has a direct impact on environmental sustainability as well as public health (Zheng et al., 2025). Motor vehicle emissions, especially fine particulate matter (PM2.5) can cause disease and reduce quality of life. Only seven countries meet the World Health Organization (WHO) PM2.5 limit of 5 μg/m³ by 2024 (Reuters, 2025).

CO2 gas globally is always increasing every year. Total energy-related CO_2 emissions increased by 0.8% in 2024, reaching an all-time high of 37.8 Gt CO_2. This increase contributes to atmospheric CO_2 concentrations which also set a record of 422.5 ppm in 2024, about 3 ppm higher than in 2023 and 50% higher than pre-industrial levels (International Energy Agency, 2025).

One of the economic sectors that contributes to the increase in air pollution is the transportation sector (Castillo et al., 2019). Vehicles on the road are the largest source of emissions among the transport sub-sector, contributing 74% to the total CO_2 emissions of the global transport sector. Sea transportation occupies the second position as the subsector with the highest carbon intensity, accounting for 11% of the world's transportation sector's CO_2

emissions, followed by the aviation sector at 10%. Meanwhile, rail and pipeline transportation is the lowest-carbon intensity subsector, contributing only 1% and 4% to the transportation sector's total CO_2 emissions in 2022, respectively. Until now, the sector is still heavily dependent on high-carbon fuels, with around 95% of its energy needs still sourced from petroleum (United Nations Environment Programme, 2024).

As the adverse effects of climate change gain more public attention and carbon pricing mechanisms drive up the cost of conventional fuels, many consumers are starting to value climate-friendly travel alternatives more than traditional carbon-dense options (Wu et al., 2022). According to the Mobility Consumer Index survey, more than 50% of respondents in 18 countries who plan to buy a car will opt for a fully electric, plug-in hybrid, or hybrid vehicle (EY, 2022). This change in consumer preferences is partly the reason for increased spending on electric vehicle purchases (International Energy Agency, 2022).

This condition has made many countries accelerate the adoption of electric vehicles (EVs) around the world. In the Electric Vehicles Initiative, countries that are active in supporting the adoption of electric vehicles in the 2024–2025 period are Canada, Chile, China, Finland, France, Germany, India, Japan, the Netherlands, New Zealand, Norway, Poland, Portugal, Sweden, the United Kingdom, and the United States. This can be seen in global electric car sales reaching more than 17 million units in 2024, an increase of about 25% from 2023. An additional 3.5 million units sold in 2024 exceeded the total sales of electric cars in 2025 (Global EV Outlook, 2025).

The World Air Quality Report 2024 from IQAir confirms that the level of air pollution in Indonesia is relatively high and places it at 15th internationally (CNN Indonesia, 2025). The transportation sector, especially fuel-fueled motor vehicles, is the highest contributor to air pollution in Indonesia (Gunawan et al., 2022). Motor vehicles in Indonesia are 166,465,914 and have an annual vehicle growth of 5.16% in 2024 (Central Statistics Agency, 2024) which is dominated by motorcycles by 83.7% (Channel NewsAsia, 2025). Based on the Indonesia Environment & Energy Center (2025), the land transportation sector has proven to be the most significant contributor to PM2.5, reaching 32–57% of the total emission burden. With these conditions, the transition to sustainable transportation solutions is important, in accordance with Sustainable Development Goal #7 (SDG 7) which emphasizes the importance of cleaner energy (Zheng et al., 2025).

The use of technological innovations, especially electric vehicles, is seen as one of the strategic solutions to overcome various social and transportation problems while reducing air pollution levels (Nie et al., 2025). In the Indonesian context, the government has a central role to accelerate the use of electric vehicles through various forms of policy support (Agustina et al., 2025). In general, the implementation of electric vehicles in many developing countries depends on the existence of regulations that facilitate the use of alternative energy that is more environmentally friendly (Castillo, 2019). This commitment is contained in Presidential Regulation Number 55 of 2019 which emphasizes energy efficiency and conservation in the transportation sector through accelerating the implementation of electric motor vehicles. The presence of electric vehicles opens up opportunities for the government to not depend on and import fossil fuels. Based on the Indonesia Electric Vehicle Outlook (IEVO) 2023, relying on fossil energy imports will cause inflation in Indonesia in 2022 due to rising fuel prices. Fuel

use also increased by around 1.2 million kiloliters from 2015 to 2020 (Institute Essential Services Reform, 2023).

The success of the opportunities and benefits of the use of electric vehicles can be seen in the increasing adoption of this technology in Indonesia. The development of the market in recent periods shows a much different dynamic than at the beginning of this decade. In 2020, the number of electric vehicles sold is still very limited, not even reaching 150 units. However, in the next few years, there was a fairly sharp spike in demand, especially entering 2025. In the second quarter of the year, the sales volume has reached around 22,000 units (The International Council on Clean Transportation, 2025).

EV market penetration in the second quarter of 2025, which includes battery electric vehicles (BEVs) and plug-in hybrid vehicles (PHEVs), jumped to 15.2% of total passenger car sales, up from 10.1% in the first quarter of 2025. After very small EV sales in 2020 and 2021, the market began to accelerate in 2022 driven by government policies such as the implementation of purchase incentives/subsidies in 2023 and the increasing choice of models and brands. Quarterly sales volume increased significantly starting in 2024 and reached around 18,000 units in the first quarter of 2025 and nearly 22,000 units in the second quarter of 2025 with a growth rate of 40% compared to the previous quarter. In the second quarter of 2025, the total EV population in Indonesia has exceeded 100,000 units (The International Council on Clean Transportation, 2025).

In Indonesia there are more than 20 Original Equipment Manufacturer electric vehicles operating in the Indonesian market. Seven of them are specialized manufacturers of electric vehicles, with the order of largest market share, namely BYD Auto, VinFast, Guangzhou Automobile Group, Geely Automobile, Hozon, Chongqing Sokon Industry Group, and Tesla. From Figure 1.6, it can be seen that electric vehicle manufacturers from China dominate the Indonesian EV market, with the two companies controlling more than 60% of total BEV sales from Q1 of 2020 to the second quarter of 2025. Market share 31.6% (Internal combustion engine and electric vehicles) is controlled by Shanghai Automotive Industry Corporation (SAIC), followed by BYD Auto at 29.7% (electric vehicles only). The rest of the market shows a fairly high level of fragmentation. Hyundai-KIA Automotive holds a market share of 11.8%, while Vietnamese manufacturer VinFast controls 8.8%. Other Chinese brands competing in the EV market include Chery Automotive with a share of 8.1% and GAC with 3.3%. The remaining share is spread among various smaller players (The International Council on Clean Transportation, 2025).

Gaikindo data (2025) also supports the growth and competition of electric vehicle brands, especially electric cars. Electric car sales in Indonesia in 2025 will be dominated by Chinese brands. The BYD brand became the brand with the highest sales during 2025 with a total of 40,151 units, Wuling took second place with 10,526 units, Denza (BYD's premium sub-brand) took third place with 7,176 units, while Chery and AION ranked fourth and fifth with sales of 7,065 units and 5,165 units.

Indonesia targets an electric car population of 600,000 units and electric motorcycles of 9,000,000 units by 2030 (Permenperin No. 6 of 2022). However, until June 2025, the Ministry of Transportation recorded that the number of new electric motorized vehicles reached 207,748 units, consisting of motorcycles with a total of 196,051 units, electric cars as many as 77,227 units, electric buses as many as 638 units, electric three-wheeled vehicles as many as

617 units, and electric goods cars as many as 266 units in (Tempo, 2025). From this data, it can be seen that there is still a large gap between the target population of electric vehicles by the Government of Indonesia and the adoption or purchase of electric vehicles by the Indonesian people. Therefore, future projections show that the EV industry in Indonesia has promising expansion potential, both in terms of increasing production, sales, industrial investment, and accelerating the shift in consumer behavior towards sustainable mobility.

On the other hand, the exponential growth in electric vehicle adoption until 2025 will face a big challenge from the regulatory and policy aspects of the Government of Indonesia in 2026. In accordance with Permenperin No. 6 of 2023, the Government of Indonesia will officially not extend fiscal incentives (import duty exemption) for Completely Knock Down (CKD) and Completely Built Up (CBU) products. Another policy that will end in 2026 is the Government-Borne Value Added Tax (VAT DTP). The cessation of several incentive policies of the Government of Indonesia has the potential to have an impact on slowing down the adoption of electric vehicles in Indonesia, both for electric vehicle companies and the people of Indonesia. This policy can change the competitive pattern of electric vehicle sales, which has been relying on competitive prices because incentives to follow normal tax provisions if they do not meet the local production requirements and the Domestic Component Level (TKDN) set by the Government of Indonesia. Vehicle prices that do not meet the Government's criteria have the potential to be corrected upwards, so that it has the potential to reduce sales of electric vehicles in Indonesia.

There is strong evidence of market turmoil due to reduced government support incentives for electric vehicles (Wang et al., 2019). For example, sales of electric vehicles in Denmark decreased by 68% in 2016 as a result of the revocation of the registration tax exemption policy (Zheng et al., 2025). In China, the trend of electric vehicles shows a slowdown in market growth as well as a wave of bankruptcies among EV brands, triggered by economic uncertainty, the revocation of government subsidies, and the escalating price war (Zheng et al., 2025).The Government of Indonesia has revoked the purchase tax subsidy policy for electric motorcycles that has been discontinued in 2024 (Permenperin Number 21 of 2023) which has an impact on declining sales. The subsidy introduced by the Government of Indonesia in the first quarter of 2023 helped boost electric motorcycle sales to a peak in the second quarter of 2024, which was around 1.4% of total motorcycle sales. The termination of the electric motorcycle subsidy program in December 2024 will affect the decline in the penetration rate of electric motorcycles in Indonesia.

The dynamics of the electric vehicle industry emphasize the importance of understanding the decision-making process of consumers in adopting electric vehicles, especially in the context of the competitive and growing electric vehicle market in Indonesia. Although many previous studies have focused on policies related to electric vehicles (Zheng et al., 2025), few studies have examined the purchase intentions of electric vehicles after the reduction of subsidies (Wang et al., 2019). This condition challenges the traditional theory of Customer-Based Brand Equity (CBBE) which has been applied more to established automotive brands with consumer relationships that have been built over a long period of time. In addition to factors such as the availability of charging infrastructure and brands have long been recognized as one of the main determinants of consumer confidence levels as well as their willingness to pay a premium. However, the role of brands in shaping consumer attitudes and

behavioral intentions in emerging new technologies has not been extensively studied in depth (Zheng et al., 2025).

The research conducted by Zheng et al (2025) proposes a research framework that integrates two main approaches, namely Customer-Based Brand Equity (CBBE) and Theory of Planned Behavior (TPB) to explain the determinants of electric vehicle adoption. Perceived price is a moderation variable that affects the strength or weakens the interaction of consumer attitudes and purchase intentions. The findings of the study confirm that price remains a crucial factor, the perception of less affordable prices can weaken purchase intentions even though consumers have a positive assessment of electric vehicles. The application of this theory in various studies is driven by certain theoretical and practical considerations. Basically, purchase intention is a relatively complex human social activity (Nie et al., 2025). Unlike conventional vehicles that are supported by strong consumer loyalty and customary decision-making, the new mobility solution, namely electric vehicles, requires consumers to face uncertainty, low levels of trust, and changes in social norms. Various studies show that consumer adoption of innovative technologies is often influenced by psychological barriers, such as perception of control, risk aversion, and the influence of social norms (Zheng et al., 2025). In addition, price perception, which is defined as the consumer's subjective price perception at a given point in time (Kim et al., 2012), has consistently been shown to have an important influence on the consumer's decision-making process (El-said, 2020, Kim et al., 2012). However, how brand-related factors interact with these psychological constructs in shaping adoption intention and the role of price perception moderation in moderating attitudes towards purchase intention has not been adequately studied (Zheng et al., 2025).

Kresnanto and Putri (2024) research raises important issues related to efforts to accelerate the adoption of electric vehicles as part of green transportation in Indonesia, especially through subsidy or tax incentive policies. This research offers a conceptual model that utilizes the Theory of Planned Behavior (TPB) so that it is able to explain the psychological determinants that shape people's intentions in buying electric vehicles, including attitudes, subjective norms, and behavioral control. In addition, Kresnanto and Putri (2024) placed tax incentives as a policy variable that was tested for their role in encouraging the intention to purchase electric vehicles, so this study provides an empirical picture of the extent to which a combination of behavioral factors and government support can influence consumer decisions in switching to electric vehicles in Indonesia. However, the research conducted by Kresnanto and Putri (2024) was conducted while tax incentives were still in effect, so further study is needed on how the research framework is applied in the post-tax subsidy era in Indonesia.

The electric vehicle market in Indonesia is an ideal context to study this phenomenon because many electric vehicle brands have managed to gain attention and popularity quickly even though they do not have long-term brand equity or deep-rooted consumer loyalty. Unlike old automotive brands that rely on historical brand strength, these new brands must build trust and credibility quickly (real-time), often by leveraging technological innovations and sustainability narratives as tools of psychological persuasion. In addition, post-subsidy conditions, adoption rate gaps between regions, and changes in consumer risk perception are increasingly contributing to the dynamics of electric vehicle branding (Zheng et.al, 2025). Therefore, understanding the cognitive and affective mechanisms that drive consumer trust such as brand strength, social environmental support, and consumer perception are increasingly

crucial to explain the purchase intention of electric vehicles, especially in the post-tax subsidy era in Indonesia.

The novelty of this research lies in three main aspects. First, the integration of CBBE and TPB into a single comprehensive model that simultaneously tests the mediating role of attitudes and the moderating role of price perceptions and tax incentives. Second, the unique research context: the Indonesian EV market after the tax incentives are withdrawn in 2026, a situation that has not been previously studied because this policy is only just about to expire.

This study develops a conceptual framework that refers to the model of consumer behavior towards electric vehicles as proposed by Zheng et al. (2025) and Kresnanto and Putri (2024). This study seeks to enrich academic studies on the consumer decision-making process by expanding the application of Customer-Based Brand Equity (CBBE) theory. In the context of a technology-based market full of uncertainty, brands are seen as serving as psychological heuristics that help consumers make decisions when information about products is not fully understood. The research model integrates the dimensions of CBBE and the Theory of Planned Behavior (TPB). The conceptual framework of this study integrates the dimensions of Customer-Based Brand Equity (CBBE) and Theory of Planned Behavior (TPB) where brand awareness, brand association, perceived quality, and brand loyalty are the initial factors that shape consumer attitudes, which in turn affect purchase intention) electric vehicles. Other variables in the TPB are subjective norms and perceived behavioral control as well as direct predictors of the intention to purchase electric vehicles. In addition, perceived price and tax incentives are also important factors that moderate the purchase intention of electric vehicles. Through the integration of these variables, this study is expected to contribute to filling the gap in the literature on the role of brand equity in the adoption of electric vehicles after the tax incentive policy in Indonesia. The findings of the research are also expected to offer practical implications for governments and industry players in formulating more sustainable strategies to maintain public buying interest despite reduced tax incentive support.

RESEARCH METHOD

Research Model

This study will use a conceptual framework that is an adaptation of the model of consumer behavior analysis towards electric vehicles developed by Zheng et al (2025). The purpose of this study is to identify the factors that influence consumers in purchasing electric vehicles through the integration of Theory of Planned Behavior (TPB) and Customer-Based Brand Equity (CBBE) with perceived price moderation where the adoption rate of electric vehicles in China faces various obstacles such as slowing market growth, reduced government subsidies, price wars between brands, as well as the failures of many new electric vehicle brands show that the adoption of electric vehicles is influenced not only by technological and policy factors, but also by psychological factors and consumer perception.

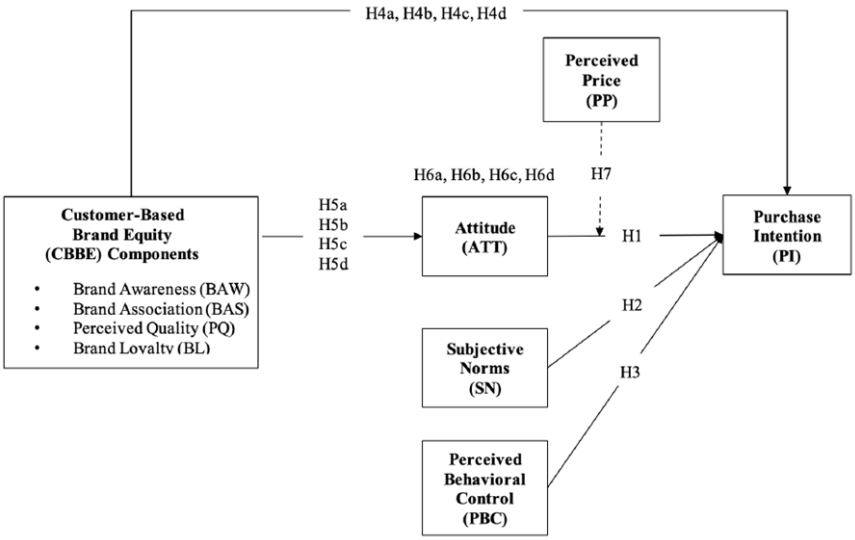

Image 1. Research Model by Zheng et al (2025)

Research conducted by Zheng et al. (2025) found that the Customer-Based Brand Equity dimension has a different influence on the purchase intention of electric vehicles. Brand awareness has not been proven to be enough to encourage purchase intent, while brand association, perceived quality, and brand loyalty actually play a significant role. These findings confirm that in high-engagement and high-risk products, consumers rely more on rational evaluation and emotional attachment than just brand familiarity. In addition, the integration of CBBE and the Theory of Planned Behavior enriches TPB by showing that attitudes act as a partial mediator between brand perception and purchase intent. This confirms that the influence of branding on behavioral intentions works through the cognitive and affective processes of consumers. Furthermore, the insignificance of the influence of subjective norms suggests that social pressures are less relevant in the adoption decisions of high-value technologies such as electric vehicles. These findings challenge the universal assumptions of the SDGs and emphasize the importance of considering market context and product characteristics in explaining consumer behavior.

Although the journal Zheng et al., (2025) have provided a strong understanding of the role of psychological factors and brand perception in shaping the intention to adopt electric vehicles, the findings also indicate that there are limitations, where it is necessary to explore the psychological mechanisms and contextual factors that underlie the insignificance of the direct influence of brand awareness and subjective norms on the purchase intention of electric vehicles. In the next research suggestion, Zheng et al., (2025) said that efforts to improve the model can be done by testing mediation variables or other additional moderation to delve deeper into the consumer decision-making process. Therefore, the conceptual model from Zheng et al (2025) needs to be refined in the context of the electric vehicle market in Indonesia.

To test the conceptual model and complement the research gap of Zheng et al., (2025), this study added tax incentives as a moderator variable from the (Kresnanto & Putri, 2024) research which uses the framework of the Theory of Planned Behavior and considers the role of the Government of Indonesia policy in the form of tax incentives to explain the purchase intention of electric vehicles in Indonesia.

How Data Is Collected

Primary data was obtained directly from individuals or respondents through distributed questionnaires. This study utilizes primary data obtained directly from individuals or respondents and collected through field surveys using structured questionnaires. The research instrument was prepared in the form of structured questions and filled out independently by respondents (self-administered questionnaire) to identify factors that affect the intention to purchase post-subsidized electric cars in Indonesia. The distribution of questionnaires was carried out by researchers online through social media (Instagram, Whatsapp, Facebook, Tiktok and X) by utilizing Google Forms so as to achieve a wider and more effective coverage of respondents.

Before the implementation of the main test, this study first conducted a pre-test through the distribution of a self-administered questionnaire to 30 respondents. This stage aims to test the level of validity and reliability of each variable indicator to be used. Furthermore, primary data collection at the main test stage uses question indicators in the questionnaire that have met the eligibility criteria based on the results of the validity and reliability test at the pre-test stage.

RESULTS AND DISCUSSION

Analysis of Hypothesis Test Results

Based on the analysis of direct and indirect influences that have been described earlier, the empirical findings of each hypothesis formulated in this study can be examined in depth. Of the total nineteen hypotheses proposed, eighteen of them obtained empirical support, while one hypothesis obtained no statistical confirmation. The R-square value for construct attitude reaches 0.625 and for purchase intention reaches 0.830, which based on the guidelines of (Hair et al., 2021) is classified as a clearly strong power category. This value is also higher than the initial model built by (Zheng et al., 2025) of 0.656, so that the model in this study can be seen as more representative to explain the dynamics of electric car purchase intentions after tax incentives in Indonesia. A detailed presentation of each hypothesis is presented as follows:

The Influence of Attitude on Purchase Intention

The H1 test produced a path coefficient value of 0.164 with a t-statistic of 4.308 and a p-value of 0.000. Based on the criteria set, H1 which states that attitude has a positive and significant effect on the purchase intention of electric cars is declared accepted. A simple interpretation of these results is that consumers who have a more favorable evaluative assessment of electric cars will show a higher tendency toward purchase intent.

This finding corroborates the postulate of Ajzen's Theory of Planned Behavior (1991), which places attitude as the accumulation of consumers' behavioral beliefs about the consequences of an action. In electric car products, the positive evaluation is formed from various attributes that are perceived to be beneficial, including energy consumption efficiency, contribution to emission reduction, technology-based modern image, and low operational costs in the long term. These results also reinforce the findings of (Zheng et al., 2025) who identified attitude as the dominant predictor of electric vehicle adoption in China, and is in line with the study of (Kresnanto & Putri, 2024) in Indonesia which reported a significant contribution of attitude to intention to use ($\beta = 0.301$). However, it should be noted that the strength of attitude in this study was relatively moderate when compared to brand loyalty (0.229) and perceived price (0.233). This pattern indicates that attitude is important, but it does not work

independently where Indonesian consumers also consider the brand dimension and the financial dimension when forming an intention to buy an electric car.

The Influence of Subjective Norms on Purchase Intention

H2 obtained a path coefficient value of 0.117, t-statistic of 3.827, and a p-value of 0.000. Based on the significance criteria, the hypothesis that subjective norms have a positive effect on purchase intention is accepted. This means that the existence of pressure and encouragement from parties who are considered important—such as spouses, family members, colleagues, and reference communities—also form the strength of Greater Jakarta's consumers' intention to buy electric cars.Conceptually, these results corroborate the Theory of Planned Behavior (Ajzen, 1991) which positions normative beliefs as one of the main predictors of intention. Indonesia's collectivist socio-cultural context also explains this dynamic: the decision to purchase high-value goods such as electric cars is not purely a personal decision, but is closely intertwined with the perception and approval of the reference group.

Interestingly, these findings are in contrast to the results of Zheng et al., (2025) in China who reported that subjective norms do not contribute significantly. This difference can be explained through two points of view. First, the electric vehicle market in China has entered a mature phase, where consumers tend to be more independent and rational in making purchases. Second, the Indonesian market is still in the early-mass market stage, so consumers need social validation to reduce perceived risk in adopting relatively new products.Consistency was found with the study of (Kresnanto & Putri, 2024) which reported the significant contribution of subjective norms to the intention to use electric vehicles in Yogyakarta ($\beta = 0.165$). Similarly, (Dong et al., 2020) underlined the role of social recommendations and environmental campaigns as drivers of adoption intentions. The practical implication is that advocacy-based marketing strategies from existing user communities, collaboration with public opinion figures, and socialization targeting consumers' social circles are potential instruments to strengthen the intention to buy electric cars in Indonesia.

Pengaruh Perceived Behavioral Control Purchase Intention

H3 testing yielded a path coefficient of 0.116, a t-statistic of 3.007, and a p-value of 0.001. Thus, the hypothesis that the perceived behavioral control (PBC) has a positive effect on the purchase intention of electric cars is accepted. Consumers who feel they have adequate capabilities, resources, and autonomy are likely to have the intention of buying a more powerful electric car.Theoretically, this finding is relevant to the framework of the Theory of Planned Behavior (Ajzen, 1991) which formulates PBC as a reflection of consumers' control beliefs, namely the extent to which they feel able to overcome obstacles and take advantage of the ease of carrying out certain behaviors. In the context of buying electric cars in Indonesia, PBC summarizes a number of aspects such as purchasing power, access to financing, availability of SPKLU, technical understanding related to electric vehicles, and confidence in responding to potential post-purchase obstacles.

The moderate strength of the path coefficient (0.116) with an f-square of 0.023 (small effect) implies that the contribution of PBC to buying intentions, although significant, is still smaller than other determinants. One plausible explanation is that the ecosystem supporting electric vehicles in Indonesia is uneven, especially the distribution of SPKLU which is still concentrated in metropolitan areas, so consumers still have doubts about the extent to which they are able to control purchasing and ownership behavior.These results go hand in hand with

the research of Kresnanto and Putri (2024) which established PBC as a significant determinant of intention to use electric motorcycles in Yogyakarta (β = 0.351), as well as the study of (Zheng et al., 2025) in the Chinese electric car market. It is necessary to accelerate development for enabling infrastructure, ease of financing schemes, technical education through digital and conventional channels, and guarantee of after-sales service to strengthen consumer perception of consumer control over the electric car ownership process.

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The Influence of Brand Association on Purchase Intention

H4b obtained the result of a path coefficient of 0.072, t-statistic of 2.507, and a p-value of 0.006. Thus, the hypothesis that brand associations have a positive effect on purchase intention is accepted, even though the intensity of the influence is relatively small. This means that consumers who have a richer positive association with the attributes, benefits, and brand image of electric cars will show higher purchase intent towards the brand.Theoretical support for these findings stems from Aaker's (1991) conceptualization, which views brand associations as a multidimensional memory network built through diverse experiences and exposure to brands. From the point of view of Social Identity Theory, brand associations that are aligned with consumers' self-concept will strengthen their social identity, thereby encouraging the formation of behavioral intentions (Petty et al., 1986). In the context of electric cars, associations such as cutting-edge technological innovation, environmental friendliness, modern prestige, and forward-looking lifestyle representation are central elements inherent in major brands.

Although the direct influence of brand associations on purchase intent is relatively small (f-square 0.014), its role becomes much more substantive when mediated by attitude, as will be shown in the H6b test. This pattern suggests that in high-engagement products such as electric cars, brand associations work more effectively through the formation of positive evaluative attitudes first, before converting into purchase intent.These results are in line with the study of Zheng et al. (2025) which reported the positive contribution of brand associations to behavioral intentions in various contexts. Electric car industry players need to consistently build differentiated brand associations through an emphasis on technological attributes (battery range, autonomous features, futuristic design), emotional attributes (eco-friendly image, prestige), and experiential attributes (ease of ownership, quality of service), so that the associative memory of the brand is built firmly in the minds of consumers.

The Effect of Perceived Quality on Purchase Intention

H4c testing yielded a path coefficient of 0.073, a t-statistic of 2.171, and a p-value of 0.015. The hypothesis that perceived quality has a positive effect on purchase intent is therefore declared accepted, with relatively small strength. The better the consumer's subjective assessment of the advantages of electric cars, the stronger the purchase intention, although this influence is not as large as other CBBE dimensions.

Conceptually, these results are in line with Zeithaml's (1988) definition of perceived quality as a consumer's holistic assessment of product superiority, which is conceptually different from objective quality measures. In the context of electric cars, the perception of quality is composed of various dimensions such as battery capability, mileage, reliability of the electrification system, material quality, driving comfort, and the manufacturer's reputation. The Social Identity Theory lens also enriches understanding, because brands with perceived high quality also strengthen consumer self-image (Aaker, 2009) (Cronin & Taylor, 1992).An f-square value of 0.013 indicates that the direct influence of perceived quality on buying intent is relatively small. However, it should be noted that the influence of quality perception will be much stronger when mediated by attitude, as confirmed in H6c. This pattern indicates that Indonesian consumers first translate quality perception into a positive evaluative attitude, and then this attitude encourages purchase intention.

Consistency can be traced to studies by Olbrich et al., (2017), Horng et al., (2012), and Zheng et al. (2025) that found a positive association between quality perception and behavioral intentions. Electric car industry players to communicate product quality persuasively while proving it concretely. Some of the steps that can be taken include providing long-term battery warranty, safety certification, third-party testing, test drive programs, and experiential showrooms that allow consumers to directly evaluate product quality.

The Influence of Brand Loyalty on Purchase Intention

The H4d test results showed a path coefficient of 0.229, t-statistic 5.190, p-value 0.000, and f-square 0.105 (medium effect category). The hypothesis that brand loyalty has a positive effect on purchase intention is accepted with the strongest intensity of force among all dimensions of Customer-Based Brand Equity. Consumers who are loyal to certain electric car brands show stronger purchase intent than consumers with low loyalty levels.These results are consistent with Oliver's, (1999) review which places affective loyalty as a form of emotional attachment that results in consistent preferences despite external pressures such as promotion from competitors. From the point of view of Social Identity Theory, loyal consumers

assimilate brands as part of their self-construction, so the tendency to continue to choose the brand becomes very strong (Jacoby and Kyner, 1973; Tucker, 1964; Tingchi et al., 2012).

The dominant amount of influence, which is almost double the dimensions of other CBBEs, indicates that in the category of high-cost products and high psychological risks such as electric cars, emotional attachment and commitment to the brand are the main drivers of purchase intent. This understanding makes perfect sense given that the decision to buy an electric car involves complex long-term considerations, so consumers tend to rely on brands that have been proven competent to minimize uncertainty.These results are in line with the findings of Zheng et al. (2025), Dick and Basu (1994), and Tingchi et al. (2012) who consistently highlight the role of brand loyalty as a strong predictor of purchase intention. Electric car manufacturers need to place loyalty development as a long-term strategy axis, through value-based loyalty programs, customer experience management, brand community development, premium after-sales service, and sustainable post-purchase engagement. Investing in customer loyalty will produce multiple impacts in the form of repeat purchases, advocacy behavior, and resilience to competitive attacks.

The Influence of Brand Awareness on Attitude

H5a obtained a path coefficient of 0.207, t-statistic 4.653, and a p-value of 0.000. The hypothesis that brand awareness has a positive effect on attitudes is therefore declared accepted. Consumers with a higher level of awareness of certain electric car brands tend to have a more positive evaluative attitude towards the brand.Theoretically, these findings are in line with the arguments of Buchanan et al. (1999) and Simonin et al. (1998) that brand familiarity increases the accessibility of information in consumers' memory, which in turn facilitates the evaluation of brands to be more favorable. The Social Identity Theory approach enriches this explanation—high familiarity allows consumers to identify more strongly with a particular brand, thus making an evaluative attitude towards the brand more positive (Zheng et al., 2025).

The substantive significance (0.207) is interesting to observe because the value is much greater than the direct influence of brand awareness on purchase intent (0.124). This pattern implies that the contribution of brand awareness is more optimal when it is directed to shape consumer attitudes first, rather than directly influencing purchasing decisions. This is also the empirical basis for the attitude mediation mechanism that will be tested in H6a.These results are consistent with the findings of Reza et al. (2014), Razak et al. (2019), and Lin et al. (2014) who consistently report the important role of brand awareness in shaping evaluative, emotional, and behavioral responses of consumers. This is also in line with the study by Zheng et al. (2025) who found brand awareness as a significant predictor of attitude. Electric car industry players need to view investment in increasing brand awareness not as a short-term expense, but as a strategic instrument to shape sustainable consumer attitudes, through integrated communication campaigns, consistent brand storytelling, and an equitable brand presence across various consumer touchpoints.

The Influence of Brand Association on Attitude

The results of the H5b test showed that brand associations had a positive and significant effect on attitudes, with a path coefficient of 0.158, t-statistic of 3.265, and a p-value of 0.001, so the hypothesis was accepted. This means that the stronger the positive association of consumers with the electric car brand, the more positive their attitude towards the brand will

be. These findings are in line with the theories of Fishbein and Middlestadt (1995), Petty et al. (1986), as well as Social Identity Theory, which assert that brand associations can shape consumer evaluations, social identities, and attitudes. The value of a coefficient greater than the direct influence on purchase intent shows that attitudes play an important role as a mediator. Therefore, the electric car industry needs to build brand associations that are consistent, different, and relevant to Indonesian consumer values such as sustainability, technology, and social prestige.

The Effect of Perceived Quality on Attitude

The H5c test shows that perceived quality has a positive and significant effect on attitude, with a path coefficient of 0.227, a t-statistic of 4.923, and a p-value of 0.000, so the hypothesis is accepted. This finding indicates that perceived quality is the second strongest CBBE dimension in shaping consumer attitudes after brand loyalty. The result is consistent with Quintal and Phau (2013), Social Identity Theory, Aaker and Jacobson (2001), and Cronin and Taylor (1992), which explain that perceived quality strengthens consumer evaluation, self-image, and social identity toward a brand. The coefficient is much stronger than the direct effect of perceived quality on purchase intention, suggesting that attitude plays an important mediating role. Therefore, electric car companies should make quality a core value proposition through technical demonstrations, independent certifications, technical content marketing, test drives, and experiential programs.

The Influence of Brand Loyalty on Attitude

The H5d test shows that brand loyalty has a positive and significant effect on attitude, with a path coefficient of 0.366, t-statistic of 8.131, p-value of 0.000, and f-square of 0.208, indicating a medium-to-large effect. This makes brand loyalty the strongest factor in the research model for shaping consumer attitudes toward electric car brands. The finding supports Oliver's (1999) view that affective loyalty creates strong emotional bonds and favorable brand attitudes, while Social Identity Theory explains that loyal consumers integrate the brand into their self-identity. The dominant effect of brand loyalty indicates that loyal consumers form a strong positive reinforcement loop, making their attitudes difficult for competitors to weaken. Therefore, electric car companies in Indonesia should prioritize loyalty-building strategies through consistent customer experiences, strong after-sales service, retention programs, active brand communities, and a consistent brand promise across all customer touchpoints.

Attitude Mediates the Influence of Brand Awareness on Purchase Intention

The H6a test shows that attitude significantly mediates the effect of brand awareness on purchase intention, with an indirect effect of 0.034, a t-statistic of 3.166, and a p-value of 0.001. This means that brand awareness does not only influence purchase intention directly, but also works through the formation of positive consumer attitudes. The result supports the Theory of Planned Behavior and the CBBE framework, which position brand awareness as an initial cognitive factor that shapes attitudes before influencing behavioral intention. Since both the direct and indirect effects are positive and significant, this relationship is categorized as complementary mediation. This finding also differs from Zheng et al. (2025) in China, suggesting that in Indonesia's developing electric car market, brand awareness remains an important gateway for building favorable attitudes and purchase intention.

Attitude Mediates the Influence of Brand Association on Purchase Intention

The H6b test shows that attitude significantly mediates the effect of brand associations on purchase intention, with an indirect effect of 0.026, a t-statistic of 2.495, and a p-value of 0.006. This indicates that brand associations influence purchase intention not only directly, but also indirectly through the formation of positive consumer attitudes. The finding supports Chang and Liu (2009), Fishbein and Middlestadt (1995), and the Theory of Planned Behavior, which explain that attitude functions as a cognitive-affective mechanism linking brand-related perceptions to behavioral intention. Since both the direct effect and indirect effect are positive and significant, this relationship is classified as complementary mediation. Although this mediation effect is the weakest among the four mediation paths, it remains statistically meaningful. Therefore, electric car companies in Indonesia should build brand associations with strong emotional and symbolic value through storytelling, influential collaborations, environmental programs, and brand activation strategies.

Attitude Mediates the Influence of Perceived Quality on Purchase Intention

H6c testing resulted in an indirect influence of 0.037, t-statistic 3.228, and p-value 0.001. The hypothesis that attitude mediates the influence of perceived quality on purchase intention is accepted. Quality perception not only drives purchase intent directly, but also works through the formation of positive evaluative attitudes as a transmission mechanism.This result is very much in line with the formulation of Quintal and Phau (2013) who view perceived quality as an attitude construct formed through a process of comparison between expectations and actual product performance. Since the perception of quality inherently has an attitude dimension, the mediation pathway through attitude becomes very theoretically consistent. Research by Olbrich et al. (2017) and Horng et al. (2012) also underlines that the perception of quality forms a positive attitude towards the brand first, before encouraging behavioral intentions.

When the direct influence of 0.073 (significant) is combined with the indirect influence of 0.037 (significant), both have the same direction (positive), so that the result of multiplication a × b × c is positive (+0.0027). Based on the classification of Zhao et al. (2010) and Hair et al. (2021), this pathway includes complementary mediation that provides strong empirical support for the role of attitude mediation. Interestingly, the indirect influence strength (0.037) on this pathway was relatively greater than the direct effect (0.073) when measured in proportion to the total effect, suggesting that quality perception mainly works through strengthening consumer attitudes.

Attitude Mediates the Influence of Brand Loyalty on Purchase Intention

H6d testing yielded an indirect effect of 0.060, t-statistic 3.707, and a p-value of 0.000. The hypothesis that attitude mediates the influence of brand loyalty on purchase intent is accepted, with the greatest mediating power among the four dimensions of CBBE. Brand loyalty thus works most effectively when transmitted through the formation of favorable consumer attitudes.These results are in line with Oliver's (1999) thinking that puts affective loyalty as a mechanism that fosters emotional bonding as well as a positive attitude towards the brand—a combination that results in accurate behavioral predictions. Consumers who are loyal to a particular brand of electric car consistently develop stable attitude evaluations, which in turn stimulates repurchase intent and advocacy behavior (Dick and Basu, 1994; Tingchi et al., 2012). Social Identity Theory also enriches the explanation, because brand loyalty

strengthens the construction of consumers' self-identity, which then strengthens positive attitudes towards brands.

When combined with a direct influence of 0.229 (significant), both have the same direction (positive), so that the result of multiplication of a × b × c with a positive value (+0.0137) is the highest value among the four mediating pathways in this study. Based on the classification of Zhao et al. (2010) and Hair et al. (2021), this pathway includes complementary mediation with the strongest absolute magnitude. The power of large direct and indirect influences simultaneously places brand loyalty as the main axis in the overall causal framework of electric cars in Indonesia, especially in the existing owners segment that is the focus of this research. As emphasized by Hair et al. (2021), the absolute magnitude of the indirect influence coefficient is the main indicator of the power of mediation. Thus, brand loyalty can be stated as the strongest mediation pathway in this study.These findings are very consistent with Zheng et al. (2025) and the framework of the Theory of Planned Behavior (Ajzen, 2011) which places attitude as a universal mediator. Brand loyalty development strategies need to be combined with sustainable consumer attitude strengthening strategies. Relevant approaches include developing value-based loyalty programs, improving the quality of the electric car ownership experience, activating brand advocacy, empowering the user community, and strengthening emotional bonding through campaigns that touch on consumer values and aspirations. Thus, loyalty is not only a retention asset, but also an attitudinal amplifier that drives purchase intent in a sustainable manner.

Perceived Price Moderates the Influence of Attitude on Purchase Intention

H7 testing produced a path coefficient interaction (PP × ATT → PI) of 0.141, t-statistic 4.139, and p-value of 0.000. The hypothesis that perceived price moderates the influence of attitude on purchase intention, where the lower the price perception will strengthen the positive influence of attitude on purchase intention, is accepted.Conceptually, these results are relevant to the view of Wakefield and Inman (2003) about the difference in attitude responses between price-sensitive consumers and price-sensitive consumers, so that price perceptions modulate how effectively positive attitudes are converted into buying intentions. In the context of electric cars in Indonesia, the still relatively high unit prices—especially after the end of tax incentives—make price perception an important filter that determines whether consumers' positive attitudes can stimulate purchasing decisions.

The results of the simple slope analysis on SmartPLS output showed that in low perceived price conditions (PP -1 SD with TI at the mean), the influence of attitude on buying intention was 0.224. Meanwhile, in the condition of high perceived price (PP +1 SD with TI at the mean), the influence of attitude is actually 0.305. This pattern provides an important interpretive nuance, namely the effect of moderation of perceived price strengthens the relationship between attitude and purchase intention with different strengths between conditions. The conceptualization of Liu et al. (2021) who understand perceived price in the context of electric cars as consumers' subjective perception of prices relative to conventional vehicles becomes a relevant context.

Tax Incentives Moderate the Influence of Attitude on Purchase Intention

H8 testing yielded a path coefficient of interaction (TI × ATT → PI) of -0.060, t-statistic of 1.408 (< 1.65), and p-value of 0.080 (> 0.05). The hypothesis that tax incentives moderate the influence of attitude on purchase intention is thus rejected. In addition to being not

statistically significant, a negative coefficient implies the direction of the relationship that is the opposite of the hypothetical expectation, namely tax incentives tend to weaken (not strengthen) the influence of attitude on purchase intention.

Although rejected, these findings actually enrich the theoretical understanding of the mechanism of fiscal incentives in the electric vehicle market. There are at least two explanations that can be put forward. First, consumers with a positive attitude towards electric cars are generally driven by strong intrinsic motivations such as environmental concerns, interest in technological innovation, or pro-environmental identities. Within the framework of Self-Determination Theory (Deci and Ryan, 1985), the addition of extrinsic incentives in the form of low taxes can cause a crowding-out effect on the intrinsic motivation, so that the effectiveness of strengthening does not occur. Second, the research was conducted in the period after the revocation of electric car tax incentives in Indonesia, so that respondents evaluated the construct tax incentives as something more hypothetical and conditional, rather than the reality of the current market.

Tax Incentives Moderate the Influence of Subjective Norms on Purchase Intention

H9 testing produced a path coefficient interaction (TI × SN → PI) of 0.059, t-statistic of 2.901, and p-value of 0.002. The hypothesis that tax incentives moderate the influence of subjective norms on purchase intention is accepted. This implies that the presence of tax incentives strengthens the effectiveness of social pressure in driving the intention to buy electric cars among Indonesian consumers.

These results are relevant to the findings of Sierzchula et al. (2014) and Zhang et al. (2017) who stated that financial incentives are effective in reducing the intention-behavior gap by lowering economic barriers that are often an obstacle to the adoption of electric vehicles. When tax incentives are available, the social incentives from the referral group become more credible and actionable so that consumers not only receive social pressure to buy, but also have enabling resources in the form of financial relief to realize the incentive. Thus, the transmission path from subjective norms to buying intent becomes more effective.

Mechanisically, subjective norms reflect perceptions of social pressure to engage in or avoid certain behaviors (Ajzen, 1991). In the context of electric cars in Indonesia, government campaigns, energy transition policies, and recommendations from reference groups will be more resonant when accompanied by concrete governmental endorsements through tax incentives. These findings are also in line with a study by Dong et al. (2020) which showed that the combination of government subsidies and environmental campaigns synergistically affects the purchase intention of electric vehicles.

Tax Incentives Moderate the Influence of Perceived Behavioral Control on Purchase Intention

H10 testing resulted in a path coefficient interaction (TI × PBC → PI) of 0.065, t-statistic of 1.660 (≥ 1.65), and p-value of 0.049 (< 0.05). The hypothesis that tax incentives moderate the influence of perceived behavioral control on purchase intention is thus declared acceptable. The presence of tax incentives strengthens the relationship between the perception of behavioral control and the intention to buy electric cars, albeit with relatively small moderation power.

This result is very much in line with the framework of the Theory of Planned Behavior (Ajzen, 1991) which formulates PBC as the perception of ease or obstacles in performing a

behavior. Tax incentives directly reduce one of the main components of financial barriers in the adoption of electric cars, so that consumers feel more capable and in control to realize their purchase intentions. This mechanism is coherent with the review of Axsen and Kurani (2013) which shows that the availability of economic resources is one of the forms of consumer PBC in the context of electric vehicle adoption.

These findings are very consistent with the study of Kresnanto and Putri (2024) which also proves the role of tax incentives moderation in the relationship between PBC and intention to use electric vehicles in Indonesia ($\beta = 0.122$, significant). This consistency between independent studies in the Indonesian market signals strongly that among the three Theory of Planned Behavior pathways, PBC is the most responsive to tax incentive interventions. This is logical because PBC conceptually includes the availability of resources, so tax breaks that increase consumers' financial capacity directly reinforce behavioral control beliefs.

The small magnitude of moderation (0.065) and f-square of 0.008 indicate that the effect of this interaction, although statistically significant, is marginal. This understanding is natural because tax incentives are only one of the many components that form PBC, in addition to SPKLU infrastructure, ease of access to financing, quality of after-sales services, and consumer technical literacy. Tax incentives need to be positioned as part of an integrated policy package that includes accelerating the development of SPKLU, facilitating KKB with low interest, technical education for potential consumers, and guaranteeing cross-regional after-sales service. This integrative approach will maximize the effectiveness of tax incentives in strengthening the perception of behavioral control and, ultimately, accelerate the adoption of electric cars in Indonesia.

CONCLUSION

This study concludes that electric car purchase intention in Indonesia is shaped by the interaction of TPB factors, CBBE dimensions, perceived price, and tax incentives. From 19 tested hypotheses, 18 were accepted and one was rejected, with a strong model fit and high explanatory power for purchase intention. The TPB variables—attitude, subjective norms, and perceived behavioral control—significantly influence purchase intention, with attitude as the strongest predictor. Meanwhile, all CBBE dimensions significantly affect purchase intention both directly and indirectly through attitude, with brand loyalty emerging as the most dominant factor.

The findings also show that perceived price strengthens the relationship between attitude and purchase intention, meaning that positive attitudes are more likely to become purchase intentions when electric car prices are perceived as competitive. Tax incentives, however, have a more limited role, moderating only the effects of subjective norms and perceived behavioral control, but not attitude. Overall, the adoption of electric cars in Indonesia cannot rely solely on fiscal incentives; it requires an integrated strategy involving strong brand building, competitive pricing, customer experience, ecosystem development, and social community engagement.

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