



The Role of Green Trust and Price Sensitivity on Purchase Intention of Electric Vehicles: A Study on Indonesian Society

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Article Info

ABSTRACT

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This study analyzes the factors that influence Indonesian consumers' intention to purchase electric vehicles (EVs) using the Extended Theory of Planned Behavior (TPB). The variables studied include Attitudes, Subjective Norms, Perceived Behavioral Control, and additional factors such as Moral Norm, Environmental Concern, and Green Trust. Based on data from 242 respondents collected through an online survey and analyzed using PLS-SEM, the results show that Indonesians have a positive and significant on purchase intention because of Attitude, Subjective Norm, Moral Norm, and Green Trust variable. Meanwhile, Perceived Behavior Control and Environmental concern didn't directly influence the EV purchase intention, but Environment Concern being indirectly influenced through the Attitude, Subjective Norm, Moral Norm, and Green Trust variables. Price sensitivity being insignificant in moderating the other variables in effecting the purchase intention. These results shows that certain stakeholders in Indonesia needs to raise the knowledge and infrastructure support of the EV to help the Indonesian society to raising their intention for buying the EV

INTRODUCTION

The essence of sustainability is the ability to maintain something over time or, more broadly, the effort to meet current needs without compromising the ability of future generations to meet theirs (Heinberg & Lerch, 2010). In the business sector, sustainability is often associated with three pillars: social, economic, and environmental (Purvis et al., 2019). For companies, sustainable development involves integrating economic value with environmental considerations and social aspects like community empowerment (Achmad, 2023). In the social sector, a prominent sustainability activity tied to businesses is Corporate Social Responsibility (CSR). CSR requires companies to take responsibility for stakeholders, including employees, suppliers, consumers, local communities, broader society, governments, and other groups (Achmad, 2023). CSR programs are part of institutional or corporate efforts to reduce poverty, preserve the environment, and promote sustainable economic development (Achmad, 2023).

For the economic sector itself, economic sustainability means that the development carried out must be able to generate economic growth, capital maintenance and efficient use of resources and investment (Rivai & Anugrah, 2011). In the environmental sector, environmental development is highly dependent on the individual himself. In Indonesia, the air quality is very poor. In 2016, Indonesia experienced an increase in PM2.5 air pollution concentration of 171 percent from 1998, which caused the average life expectancy of Indonesians to fall by 1.2 years, and the highest decline achieved by Jakarta was 2.3 years (Greenstone & Fan, 2019).

Electric vehicles (EVs) offer a solution to reduce pollution, particularly air pollution from land transport. Research in the U.S. shows that EVs produce lower emissions not only during use but also throughout their lifecycle, including production and battery charging, compared to fossil fuel vehicles. This is especially evident in regions using renewable energy sources like solar and wind power (Reichmuth et al., 2022). In Indonesia, the EV market is growing, with 25 brands offering 60 EV models as of August 1, 2024 (Oto.com, 2024). The Indonesian government has also issued Minister of Finance Regulation Number 8 of 2024 which regulates the Government Borne Value Added Tax (PPN DTP) incentive for certain electric vehicles. This subsidy is in the form of a 10% VAT reduction, so that consumers only pay 1% of the selling price (Kemenkeu, 2024). This policy aims to encourage the use of electric vehicles in Indonesia. Economically, EVs currently hold a market share of 2.92% in Indonesia, with 11,940 units sold between January and June 2024 (Ramadan, 2024). This low market share highlights the need to increase public interest and intention to adopt EVs to achieve emission reduction targets. This requires changes in consumer behavior toward adopting EVs.

Consumer preferences are influenced by various factors, including social, economic, and environmental aspects (Buhmann et al., 2024). The sustainability trend has gained attention in consumer and marketing fields. The Theory of Planned Behavior (TPB) provides a framework for studying consumer behavior based on attitudes, subjective norms, and perceived behavioral control in choosing environmentally friendly products. Additional factors like moral norms, environmental concerns, and green concerns further explore consumer views on sustainability.

Previous studies such as Buhmann et al. (2024) in Spain and Yegin & Ikram (2022) in Turkey, examined TPB and its extensions, including moral norms and environmental concerns, to predict EV adoption intentions. However, these studies did not comprehensively examine TPB, moral norms, environmental concerns, and green trust together, this highlights the need for research in Indonesia to understand whether consumer behavior aligns with that in other countries. Based on this, the objectives of this research are to determine the influence of factors from the Extended TPB and to identify the impact of price sensitivity and society's profile on the purchase intention of EVs, especially for Indonesian society.

LITERATURE REVIEW

Theoretical and Conceptual Background

1. Theory of Planned Behaviour

The Theory of Planned Behavior was first proposed by Ajzen in 1991 (Buhmann, et al. 2024). This theory is a social-psychological theory that determines the factors that influence individuals when they make decisions to direct their behavior (Yegin, & Ikram, 2022). This theory argues that an individual has control over their own behavior, namely before the individual takes an action, they calculate the benefits and disadvantages that will be caused by the action for themselves (Yegin & Ikram, 2022). According to this theory, consumer behavior in purchasing EV can be interpreted by measuring consumer intentions, so that certain conclusions can be drawn from this. This theory argues that the Attitude, Subjective Norm, and Perceived Behavior Control are effective in individual behavioral decisions, so that consumer purchasing intentions can be predicted using TPB (Yegin & Ikram, 2022). In addition to these 3 constructs, this TPB can also be added to other factors related to consumer behavior, such as those used in this study, namely the Moral Norm, Environmental Concern and Green Trust factors (Buhmann, et al. 2024; Yegin & Ikram, 2022).

1.1 Attitude

Attitude in this case is an attitude towards behavior and refers to the degree to which a person has a good or bad evaluation or assessment of the behavior in question (Buhmann, et al. 2024), and in the context of this study is behavior in the intention to buy EVs. In short, Attitude is a positive or negative evaluation of the behavior of repurchase intention (Wang, et al. 2016). Ajzen (1991) in (Buhmann, et al. 2024) said that Attitude and Perception have a significant influence on individual purchasing behavior, where in this case a specific Attitude is a strong predictor of certain behaviors, such as purchasing environmentally friendly products, and General Attitude describes a broad tendency towards behavior (Buhmann, et al. 2024).

1.2 Subjective Norm

Subjective Norm is a concept of perception or view of an individual (Ramadhan, 2023). According to Ajzen (1991), Subjective Norm is the social pressure felt to do or not do a behavior, and its existence is a function of the existence of a person's expectations or hopes. In the context of electric vehicles, it is necessary to optimize social media platforms as a means of sharing information and in-depth knowledge about electric vehicles. This effort aims to clarify

misconceptions and increase public understanding through the delivery of relevant and interactive information (Moon, 2020), which will have an impact on an individual's Subjective Norm towards electric vehicles.

1.3 Perceived Behavior Control

Perceived Behavior Control is a person's perception of the ease or difficulty of performing a desired behavior (Ajzen, 1991). Ajzen also said that perceived behavior control is related to the assessment of how well a person can carry out the actions needed to deal with prospective or possible situations. Perceived behavior control can also indicate that a person's behavior is greatly influenced by his or her belief in his or her ability to do so (Ajzen, 1991).

2. Moral Norm

Moral norms are the obligations felt by a person to perform a certain action, and which influence them when they are in certain decision-making conditions (Buhmann, et al. 2024). Moral norms are an expression of a person's identity, because Moral norms refer to a person's personal standards of behavior (Godin et al. 2005). NAT Schwartz (1977) in Godin et al (2005) also states that many individuals may adopt certain behaviors because of beliefs, namely because they feel they have a moral obligation to adopt them.

3. Green Trust

Trust according to Ganesan (1994) is divided into two approaches, namely through credibility, which is based on the extent to which consumers believe that a seller, brand or other related party has the expertise needed to carry out work effectively and reliably and also based on virtue, which is based on the extent to which consumers believe that the seller, brand or other related party has intentions and motives that are beneficial to consumers when in conditions that do not require commitment. Green Trust in this case is the willingness to rely on a product, service, or brand based on beliefs or expectations arising from its credibility, goodness, and ability in terms of environmental performance (Chen, 2010).

4. Environmental Concern

Environmental Concern is the overall perception, emotion, knowledge, attitude, attitude, value, and behavior related to the environment (Bamberg, 2003). Bamberg (2003) also said that Environmental Concern influences specific behavior indirectly through its impact on the formation and evaluation of specific beliefs in the decision to obtain information about green products and providers of these products. Many other researchers have studied Environmental Concern integrated with TPB to examine its relationship with the development of EV lately, which among these studies shows the position of Environmental Concern which is equal to other TPB variables so that this variable is also an important part to be included in this study to show the results when compared to conditions in Indonesia.

5. Purchase Intention

Purchase intention is a consumer's preference to buy a product or service. The consumer evaluates the product or service (Younus et al. 2015). Marketing managers routinely use Purchase intention data to make strategic decisions about new and existing products, as well as the marketing programs that support them (Morwitz, et al. 2007). This intention is considered quite important because it is one of the important predictors of actual consumer behavior (Peña-García, et al., 2020). In the TPB model, a person's intention is caused by three factors, namely their attitude toward the behavior, the social pressure they feel to do it, and their belief in their ability to do it (Buhmann, et al. 2024).

Empirical Review and Hypothesis Previous Literature

Table 1 shows that some of previous literatures that also studies about the Theory Planned Behaviour on EV. This table's purposes are for insights into the range of existing literatures about TPB and also for initial learning about the previous researcher's results on their research.

Table 1. Previous Literature

Author & Year	Context	Relevant Variable	Findings
Buhmann, K. M., et al. 2024	Analyzing the factors that influence consumer intention to adopt BEV in Spain based on the Extended TPB theory.	Attitude, Subjective Norm, Perceived Behavior Control, Moral Norm, Price Sensitivity	Attitude, Subjective Norm, Perceived Behavior Control, Moral Norm have a significant impact on consumer adoption intentions, and pricing strategies and incentives can significantly influence BEV adoption decisions.
Yegin, T., Ikram, M., (2022),	Analyzing the behavioral factors that influence the electric vehicle purchase intention (EVPI) of consumers domiciled in Turkey, with the addition of Green Trust and Environmental Concern factors to the Theory of Planned Behavior.	Attitude, Perceived Behavioral Control, Green Trust, Environmental Concern	The variables used in this study are positively correlated with EV purchase intention, and this extended TPB model is suitable for predicting EV purchase intention by consumers.

Sultana et al, (2022)	To examine the influence of customers' green consideration in the form of perceived green knowledge and environmental concern on their intention to stay at a green hotel and to explain the mediating role of Green Trust between the variables considered.	Environmental Concern, Green Trust	The significant positive influence of perceived green knowledge and Green Trust on customer intention to visit green hotels. In addition, Green Trust mediates the relationship between green visit intention with green knowledge and customer environmental concern.
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Source: Author (2024)

Hypothesis

This study is based on previous research that explores consumer intentions regarding environmentally friendly choices. The primary references include Buhmann et al. (2024), Yegin & Ikram (2022), and Sultana et al. (2022). The first two studies expand the Theory of Planned Behavior (TPB) to analyze factors influencing battery electric vehicle (BEV) adoption in Spain and Turkey. Buhmann et al. (2024) found that Attitude, Perceived Behavioral Control, Subjective Norm, and Moral Norm significantly influence BEV adoption, with price sensitivity playing a moderating role, emphasizing the importance of pricing strategies and incentives. Yegin & Ikram (2022) also support an extended TPB model, showing a positive correlation between key behavioral factors and EV purchase intention.

Meanwhile, Sultana et al. (2022) focused on green consumer behavior in the hospitality industry, examining how perceived green knowledge and environmental concern influence customers' intention to visit green hotels. Their findings highlight the mediating role of Green Trust, which strengthens the relationship between environmental concern and eco-friendly decision-making. The insights from these studies provide a foundation for analyzing the role of environmental concern, trust, and behavioral factors in EV adoption, emphasizing the influence of attitudes, norms, and pricing considerations.

From the three studies, the researcher decided to conduct a study based on the same theories and combine the variables of the three journals. In addition, the author also added limitations to the research location in Indonesia, because the previous journals were not set in Indonesia.

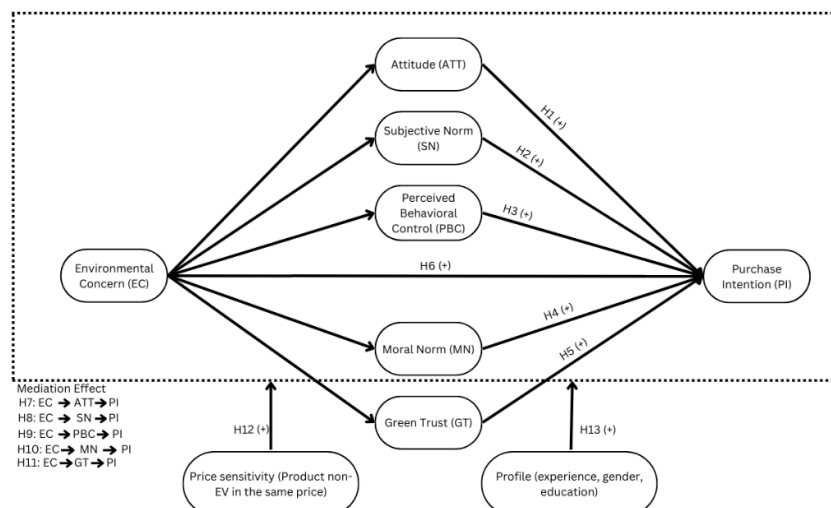


Figure 1. Overview of the research model
Source: Author (2024)

Individual attitudes towards EV product purchase intentions

Attitude is one of the independent determinants of TPB, which has a definition of attitude towards behavior and refers to the degree to which a person has a good or bad evaluation or assessment of the behavior in question (Buhmann, et al. 2024). A specific attitude can be a potential predictor of some of a person's behaviors (Ajzen & Fishbein, 1980). In (Buhmann, et al. 2024) it is shown that Attitude has a significant influence on a person's decision to buy BEV. In (Yegin & Ikram, 2022) and (Pena-Garcia, et al. 2020) it is shown that Attitude is the variable that has the most impact on a person's Purchase intention. Based on previous studies, and the significant results of this Attitude variable, this study examines Attitude as follows:

H1: Individual attitudes towards EVs have a significant direct and positive impact on purchase intentions for EV products.

Individual Subjective Norm towards Purchase Intention of EV Products

Subjective norm means the social pressure felt to do or not do a behavior, and its existence is a function of the existence of a person's expectations or hopes (Ajzen, 1991). Subjective Norm has also been shown to have a high impact on a person's purchase intention (Moon, 2020) (Buhmann, et al. 2024). Bockarjova and Steg (2014) said that high social pressure from those who expect someone to do a certain behavior increases an individual's intention to do so. Thus, the hypothesis created to analyze the impact of subjective norms in this study is

H2: Individual Subjective Norm towards EV has a direct and significant positive impact on purchase intention of EV products.

Individual Perceived Behavioral Control towards Purchase Intention of EV Products

Perceived behavioral control is the third determinant in TPB. PBC assesses that if an individual assesses that he or she has sufficient resources or competence to perform a certain behavior, then the individual feels it is easier to perform a certain behavior (Moon, 2020). Like other TPB determinants, PBC has also been shown to have a positive influence on a person's intention (Moon, 2020) (Buhmann, et al. 2024), thus making the hypothesis on this variable become

H3: Individual Perceived Behavioral Control towards EV has a significant direct and positive impact on the purchase intention of EV products.

Individual Moral Norms Towards EV Product Purchase Intention

Moral norm is an additional determinant in the Extended TPB. Moral norm is an expression of one's identity, because it refers to one's personal behavioral standards (Godin, et al. 2005). In (Buhmann, et al. 2024), Moral norm shows results with the same positive significance as Subjective Norm and makes Moral norm at the same level as other TPB determinants, thus making the hypothesis:

H4: Individual moral norms towards EVs have a direct and significant positive impact on the intention to purchase EV products.

Individual Green Trust Towards Purchase Intention of EV Products

Green Trust is another additional determinant in the Extended TPB, which in this case has the definition of an individual's willingness to rely on a product, service, or brand based on beliefs or

expectations arising from its credibility, goodness, and ability in terms of environmental performance

(Chen, 2010). Green Trust is often associated with customer intentions towards environmentally friendly products, and in Yegin and Ikram, (2022) it shows that Green Trust has a positive impact on customer intentions in the research they conducted, thus making the Green Trust hypothesis in this study become

H5: Individual green trust towards EVs have a direct and significant positive impact on the intention to purchase EV products

Environmental Concern on Purchase Intention of EV Products

Environmental Concern is the overall perception, emotion, knowledge, attitude, value, and behavior related to the environment (Bamberg, 2003). Environmental Concern is one of the determinants of psychological factors in the Extended TPB (Buhmann, et al. 2024). In Yegin and Ikram, (2022) and several other studies showed that Environmental Concern has a positive effect on a person's Purchase intention, thus making the hypothesis in this study regarding this variable become

H6: Environmental Concern has a significant direct and positive impact on purchase intention of EV products.

In addition to having a direct impact, in several studies such as (Buhmann, et al. 2024), and (Mohamed, et al. 2018), Environmental Concern was also studied as one of the indirect mediation determinants of Purchase Intention, with positive results on the factors in the Extended TPB, namely Attitude, Subjective Norm, Perceived Behavioral Control and Moral Norm. So that in this study the same treatment was also given to the mediation variables, and the mediation hypothesis became as stated below.

H7: Consumer's attitude positively mediates the relationship between environmental concern and purchase intention of EV products.

H8: Consumer's subjective norm positively mediates the relationship between environmental concern and purchase intention of EV products.

H9: Consumer's perceived behavior control positively mediates the relationship between environmental concern and purchase intention of EV products.

H10: Consumer's moral norm positively mediates the relationship between environmental concern and purchase intention of EV products.

Environmental Concern on Purchase Intention of EV Products through Green Trust

In (Chairy, 2019) it is also stated that individuals who have high Environmental Concern will also have high Green Trust and also have a significant positive impact on the individual's Purchase intention. Research (Sultana, et all, 2022) also shows positive results on the role of Green Trust as a mediator between Environmental Concern and a customer's Intetion, so in this study the researcher proposes the following hypothesis:

H11: Consumer's green trust positively mediates the relationship between environmental concern and purchase intention of EV products.

The Moderating Effect of Price Sensitivity on The Relationship Between Factors From The Extended TPB, on Purchase Intention of EV Products

The high price of electric vehicles (EVs), including battery costs, remains a significant barrier

to adoption, making price a key factor in purchase decisions (Xu et al., 2019). Bhutto et al. (2020) further

highlighted that price sensitivity strongly influences the Theory of Planned Behavior (TPB) factor, the Attitude, Subjective Norm, and Perceived Behavioral Control, as well as Purchase Intention. To explore consumer attitudes toward EVs, this study incorporates a hypothetical scenario where EVs are priced similarly to conventional vehicles, introducing "Price Sensitivity" as a moderating variable in consumer preference analysis.

H12: *An individual's price sensitivity will moderate the influence between Environmental Concern and all TPB variables, including the intention to purchase an EV.*

The Moderating Effect of respondents' profile on The Relationship Between Factors From The Extended TPB, on Purchase Intention of EV Products

This study considers profile variables such as experience with EVs, education level, and gender, based on previous research. Jayasingh et al. (2021) noted that while gender has been widely studied in relation to EV purchase intention, findings remain inconsistent. Some studies, such as Habich-Sobiegalla et al. (2018) in Russia and She et al. (2017) in China, found that women are more likely to buy EVs, whereas Chen et al. (2020) in Jayasingh et al. (2021) reported a higher tendency among men. Jayasingh et al. (2021) also found that female respondents in India were more inclined to purchase electric two-wheelers, while Buhmann et al. (2024) concluded that overall profile variables were not significant moderators.

Education has also been identified as an influencing factor in EV adoption (Hidrue et al., 2011; Sanitthangkul et al., 2012). Additionally, the "Experience" variable is included to examine how previous EV driving experience impacts Purchase Intention. Ajzen and Fishbein (2005) in Schmalfuß et al. (2017) argued that experience plays a role in the Theory of Planned Behavior (TPB), as learning from past experiences shapes beliefs and behavioral performance. Studies by Schmalfuß et al. (2017) and Jensen et al. (2013) further support that experience before and after using an EV significantly influences an individual's intention to purchase one. Based on these findings, this study incorporates the following moderation variables.

H13: *An individual's profile, that considering gender, background and experience with EVs, will moderate the influence between Environmental Concern and all TPB variables, including intention to purchase an EV.*

RESEARCH AND METHODOLOGY

1. Survey Design and Data Collection

This research will be conducted using a quantitative and descriptive approach. The quantitative approach focuses on measuring a set of variables to answer research questions and hypotheses guided by theory (Creswell and Creswell, 2018). Meanwhile, the descriptive approach was chosen because this study aims to describe and explain a phenomenon or existing condition accurately by testing hypotheses and the relationship between dependent and independent variables (Malhotra, 2020). The data was collected using an online survey administered via Google Form platform. The questionnaire was disseminated through various social media platforms, including WhatsApp, Instagram, and Telegram.

According to (Bhandari, 2023), population is the whole of a group that we want to know from our research. The population in this study is the Indonesian people who have never owned an electric car. From this population, a sample of 160 respondents will be taken. The number of samples is based on a comparison of the number of questionnaire questions which is 32 questions, so that the minimum criteria for the respondent sample is 160 people. The criteria for this sample are domiciled in Indonesia, and aged 28-65 years. For the research variables, this research will use 7- point Likert Scale from “S angat Tidak Setuju” or Strongly Disagree to “S angat Setuju” or Strongly Agree.

2. Data Analysis

The data analysis method used in this study is the PLS-SEM (Partial Least Square - Structural Equation Modeling) method using the SmartPLS application. This method is commonly used, especially to identify key success factors related to factors such as customer satisfaction, loyalty, behavioral intentions, and consumer behavior, and is also very useful when dealing with models that contain many constructs and variables, as it facilitates model simplification.

RESULT AND DISCUSSION

Result

1. Respondent Profile

Table 2 presents the profiles of respondents who participated in this research. A total of 242 respondents met the research criteria, all of whom reside in Indonesia and have never owned an electric vehicle.

Table 2. Respondent Profile

Variable	Classification	Quantity	Respondent Total
Gender	Male	104	242
	Female	138	
Generation	Baby Boomer (1959 - 1964)	7	
	X (1965 - 1980)	53	
	Millenial (1981-1996)	182	
Recent Education	SMA/SMK	90	
	D1/D2/D3	25	
	S1/D4	98	
	S2	28	
	S3	1	
	Civil Servants	14	
	Private Employees	74	
	State-owned Company Employees	11	
	Professionals (Architects, Lecturers, etc.)	5	
	Self-Employed	62	
	Students/College Students	6	
	Housewives	52	

Jobs	Unemployed	6
	Others	12
Monthly Average	< Rp. 3.000.000	37
	Rp. 3.000.001 - Rp. 6.000.000	65
	Rp.6.000.001 - Rp. 9.000.000	50
	Rp. 9.000.001 - Rp. 12.000.000	26
	Rp. 12.000.001 - Rp. 15.000.000	19
	> Rp. 15.000.000	45
Monthly Average Expenses	A1 >= IDR 7.500.000	51
	A2 IDR 5.000.001 - IDR 7.500.000	32
	B IDR 3.000.000 - IDR 5.000.000	72
	C1 IDR 2.000.001- IDR 3.000.000	35
	C2 IDR 1.500.001 - IDR 2.000.000	25
	D IDR 1.000.001 - IDR 1.500.000	19
	E <= IDR 1.000.000	8

Source: Research result by Author (2024)

In addition to basic demographic data, the researcher also collected information on respondents' experiences with electric vehicles and their preferences compared to conventional vehicles or those with internal combustion engines. These data are presented in Table 3.

Table 3. Respondent's Experience

Variable	Response	Respondent Quantity	Respondent Total
Had or currently have a conventional (Internal Combustion Engine) four-wheeled vehicle	Yes	169	242
	No	73	
Experience using an EV such as through vehicle rental, borrowing someone else's, or taking a test drive.	Yes	84	
	No	158	
Price Sensitivity (Preference if both types of vehicles are in the same price)	EV Vehicle	149	
	Conventional (ICE) Vehicle	93	

Source: Research result by Author (2024)

Table 3 reveals that, although most respondents have greater experience with conventional vehicles, they tend to prefer electric vehicles when both options are offered at the same price point. Further analysis will be conducted in this study to examine this phenomenon in greater detail.

2. Measurement Model Analysis

Validity Test

For the validity methods, this research used are convergent validity, which can be formed when there is a high level of correlation between two different sources that respond to the same measurement (Sekaran and Bougie, 2016), and discriminant validity, which can be formed when two very different concepts are not correlated with each other (Sekaran and Bougie, 2016). Both validities are then tested using Confirmatory Factor Analysis (CFA). This CFA allows researchers

to test the hypothesis that there is a relationship between the observed variables and the underlying constructs (Suhr, 2006).

- Convergent Validity

Tabel 4. Outer Loading

<i>Variabel</i>	<i>Item Code</i>	<i>Outer Loading</i>	<i>Notes</i>
<i>Attitude</i>	ATT1	0.842	Valid
	ATT2	0.919	Valid
	ATT3	0.865	Valid
	ATT4	0.803	Valid
<i>Perceived Behavioral Control</i>	PBC1	0.678	Invalid
	PBC2	0.753	Valid
	PBC3	0.782	Valid
	PBC4	0.629	Invalid
<i>Subjective Norm</i>	SN1	0.817	Valid
	SN2	0.880	Valid
	SN3	0.903	Valid
	SN4	0.496	Invalid
	SN5	0.804	Valid
<i>Moral Norm</i>	MN1	0.802	Valid
	MN2	0.803	Valid
	MN3	0.839	Valid
	MN4	0.877	Valid
<i>Green Trust</i>	GT1	0.960	Valid
	GT2	0.970	Valid
	GT3	0.964	Valid
	GT4	0.962	Valid
<i>Environmental Concern</i>	EC1	0.801	Valid
	EC2	0.817	Valid
	EC3	0.798	Valid
	EC4	0.767	Valid
	EC5	0.793	Valid
<i>Purchase Intention</i>	PI1	0.909	Valid
	PI2	0.915	Valid
	PI3	0.919	Valid

Source: Researcher's Data (2024)

Based on Table 4, most variables already have valid Outer Loading values because they meet the value >0.7 (Hamid, et al. 2017), except for the PBC1 variable which has a value of 0.678, PBC4 which has a value of 0.629, and SN4 which has a value of 0.496. So, for this variable, an AVE or Average Variance Extracted test will be carried out first to see whether the expected value still meets the AVE value limit of >0.5 (Wong, 2013). The AVE values of these variables are as follows.

Table 5. Average Variance Extracted Test

Variabel	AVE	Notes
<i>Attitude</i>	0.74	Valid
<i>Perceived Behavioral Control</i>	0.51	Valid
<i>Subjective Norm</i>	0.63	Valid
<i>Moral Norm</i>	0.69	Valid
<i>Green Trust</i>	0.93	Valid
<i>Environmental Concern</i>	0.63	Valid
<i>Purchase Intention</i>	0.84	Valid

Source: Researcher's Data (2024)

Table 5 shows that the AVE value for all variables used in this study can meet the requirements with a number above 0.5 (Wong, 2013). Then the lowest AVE value occurs in the Perceived Behavioral Control variable with a value of 0.51, so the data from this study can be considered to meet the requirements for the convergent validity test.

- Divergent Test

Table 6. Discriminant Validity Using Cross Loading

	ATT	EC	GT	MN	PBC	PI	PS_	SN
ATT1	0.842	0.187	0.447	0.406	0.259	0.528	0.414	0.553
ATT2	0.919	0.259	0.580	0.546	0.270	0.674	0.490	0.518
ATT3	0.865	0.260	0.512	0.514	0.179	0.640	0.477	0.547
ATT4	0.803	0.291	0.735	0.624	0.251	0.683	0.563	0.536
EC1	0.224	0.801	0.272	0.445	0.157	0.292	0.288	0.166
EC2	0.203	0.817	0.264	0.445	0.150	0.305	0.279	0.187
EC3	0.217	0.798	0.246	0.387	0.050	0.268	0.249	0.166
EC4	0.170	0.767	0.221	0.372	0.117	0.250	0.244	0.151
EC5	0.304	0.793	0.475	0.663	0.176	0.477	0.322	0.439
GT1	0.672	0.378	0.960	0.665	0.203	0.695	0.571	0.618
GT2	0.659	0.423	0.970	0.685	0.200	0.720	0.590	0.616
GT3	0.632	0.391	0.964	0.670	0.182	0.737	0.544	0.617
GT4	0.634	0.356	0.962	0.624	0.208	0.699	0.519	0.605
MN1	0.565	0.439	0.578	0.802	0.262	0.600	0.458	0.394
MN2	0.726	0.363	0.769	0.803	0.255	0.816	0.558	0.707
MN3	0.380	0.603	0.425	0.839	0.274	0.457	0.291	0.375
MN4	0.365	0.650	0.487	0.877	0.285	0.533	0.332	0.408
PBC1	0.093	0.093	0.156	0.206	0.678	0.230	0.043	0.191
PBC2	0.353	0.068	0.260	0.308	0.753	0.325	0.239	0.276
PBC3	0.191	0.155	0.106	0.214	0.782	0.190	0.083	0.114
PBC4	0.101	0.213	0.010	0.166	0.629	0.113	-0.021	0.144
PI1	0.690	0.310	0.620	0.598	0.296	0.909	0.472	0.605
PI2	0.653	0.387	0.618	0.621	0.293	0.915	0.526	0.608
PI3	0.696	0.466	0.778	0.774	0.281	0.919	0.583	0.644

SN1	0.496	0.207	0.432	0.402	0.188	0.501	0.323	0.817
SN2	0.539	0.409	0.636	0.563	0.215	0.598	0.413	0.880
SN3	0.585	0.233	0.582	0.505	0.265	0.667	0.415	0.903
SN4	0.301	0.072	0.247	0.222	0.008	0.268	0.162	0.496
SN5	0.514	0.241	0.526	0.503	0.287	0.558	0.304	0.804
PS	0.572	0.356	0.577	0.497	0.142	0.579	1.000	0.425

Source: Researcher's Data (2024)

In the Cross-loading results, where to state its validity is when the value produced by one construct is higher compared to other different constructs (Gefen & Straub, 2005 in Henseler, J., et al. 2015). In Table 6 can be seen that all variables have met the criteria. So, this discriminant validity can be used in further testing.

Reliability Test

Reliability is a measure that is determined by testing the consistency and stability of the data. Consistency indicates how well the items that measure a concept are related to each other as a set. (Sekaran and Bougie, 2016). Cronbach's Alpha is a reliability testing method used in this study, with a reliability value coefficient ≥ 0.60 (Sekaran and Bougie, 2016). This value indicates that if Cronbach's Alpha ≥ 0.60 then the variable is declared reliable (acceptable/reliable), and if below that value then the variable is declared unreliable (unacceptable/unreliable).

Table 7. Reliability Test

	Cronbach's Alpha	Composite Reliability
ATT	0.881	0.918
EC	0.860	0.896
GT	0.975	0.981
MN	0.850	0.899
PBC	0.680	0.804
PI	0.903	0.939
SN	0.846	0.892

Source: Researcher's Data (2024)

All variables have Cronbach Alpha and Composite Reliability coefficient values greater than 0.6, so that each variable in this test can be categorized as reliable for further testing.

3. Structural Model Analysis

The tests carried out are R Squared measurements for dependent constructs, F Square to determine the proportion of variance of exogenous variables to endogenous variables, and Stone- Geisser or Q2 testing to see predictive relevance and the path coefficient testing process.

- **R Square**

The R Square value can be used to show how much variation in the response is explained by the model. The higher the R^2 value, the better the model's fit with the data (Akossou & Palm, 2013). R^2 also has a value level of 0.75, 0.50 and 0.25 which indicates whether a model is substantial, moderate or weak (Henseler, et all. 2012).

Table 8. R Squared

	R Square	R Square Adjusted
ATT	0.087	0.083
PBC	0.03	0.026
SN	0.099	0.095
MN	0.38	0.377
GT	0.162	0.158
PI	0.726	0.719

Source: Researcher's Data (2024)

Table 8 presents the Adjusted R-Squared values for various variables influenced by Environmental Concern. Attitude (8.3%), Perceived Behavioral Control (2.6%), Subjective Norm (9.5%), Moral Norm (37.7%), and Green Trust (15.8%) are partially explained by Environmental Concern, with the remaining variance attributed to other factors. Purchase Intention, influenced by Attitude, Perceived Behavioral Control, Subjective Norm, Moral Norm, Green Trust, and Environmental Concern, has an R-Squared value of 0.719 (71.9%), indicating a moderate explanatory power.

4. Research Hypothesis Testing

- **Direct Effect Testing**

In this test, the researcher conducted a research hypothesis test to see the direct effect based on the path coefficient value by using the bootstrapping technique. The hypothesis that will be accepted in this test is when the hypothesis being tested gets a t-value > 1.64, and with p-values alpha < 0.5 (Sihombing, et al. 2024). The results of the test are as follows in Table 9.

Table 9. Direct Effect Testing

Hipotesis	Path Coefficient	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O/STDEV))	P Values	Research result	Result from Buhmann, et al. (2024)	Result from Yegin & Ikram, (2022)
H1	ATT - PI	0.298	0.296	0.054	5.519	0.000	Supported	Supported	Supported
H2	SN-PI	0.175	0.177	0.053	3.281	0.001	Supported	Supported	Unsupported
H3	PBC-PI	0.052	0.053	0.042	1.254	0.105	Unsupported	Supported	Supported
H4	MN-PI	0.256	0.246	0.077	3.303	0.000	Supported	Supported	Supported
H5	GT-PI	0.231	0.235	0.068	3.406	0.000	Supported	-	Supported
H6	EC-PI	0.025	0.030	0.050	0.496	0.310	Unsupported	Unsupported	Supported

Source: Researcher's Data (2024)

The study results indicate that most direct relationships between variables are mutually supportive. The relationship between Attitude and Purchase Intention has a strong positive

effect with the value of original sample 0.298, T-value 5.519, and P-value at 0, aligning with previous studies. Similarly, Subjective Norm and Purchase Intention show a significant positive relationship with the value of original sample: 0.175, T-value: 3.281, and P-value: 0.001, consistent with some referenced studies but differing from others. Additionally, Moral Norm and Purchase Intention that have value of original sample: 0.256, T-value: 3.303, and P-value: 0, and Green Trust and Purchase Intention that have value of original sample: 0.231, T-value: 3.406, P-value: 0 also exhibit supportive relationships, reinforcing findings from prior research.

However, two relationships are not mutually supportive. Perceived Behavioral Control and Purchase Intention with value of original sample: 0.052, T-value: 1.254, P-value: 0.105 show no significant relationship, contradicting two reference studies. Similarly, Environmental Concern and Purchase Intention that have value of original sample: 0.025, T-value: 0.496, P-value: 0.310 lacks significant support, aligning with the primary reference but differing from additional sources. Overall, most direct relationships in this study are mutually supportive, except for Perceived Behavioral Control and Environmental Concern in relation to Purchase Intention.

5. Mediation Effect

The hypothesis test analyzed the mediating effects using specific indirect effects with a 95% confidence interval, providing the upper and lower limits of values based on sample data. This interval represents the potential range of the mean, as per O'Brien and Yi (2016). The results of this test in Table 10 were obtained using SmartPLS 3.

Table 10. Mediation Effect

Hipotesis	Path Coefficient	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Result	Result from Buhmann,	Result from Sultana,
H7	EC -> ATT -> PI	0.088	0.089	0.022	3.979	0.000	Supported	Supported	-
H8	EC -> SN -> PI	0.055	0.057	0.020	2.689	0.004	Supported	Supported	-
H9	EC -> PBC -> PI	0.009	0.010	0.009	0.971	0.166	Unsupported	Supported	-
H10	EC -> MN -> PI	0.158	0.152	0.048	3.310	0.000	Supported	Supported	-
H11	EC -> GT -> PI	0.093	0.095	0.030	3.061	0.001	Supported	-	Supported

Source: Researcher's Data (2024)

The study shows that most mediation relationships are mutually supportive, aligning with previous research. Environmental Concern and Purchase Intention are positively mediated by

Attitude with value of path coefficient: 0.088, T-value: 3.979, and P-value: 0. Next is by Subjective

Norm with value of path coefficient: 0.055, T-value: 2.689, and P-value: 0.004. The other is Moral Norm with value of path coefficient: 0.158, T-value: 3.310, and P-value: 0. Lastly, is Green Trust with value of path coefficient: 0.093, T-value: 3.061, and P-value: 0.001.

These findings reinforce previous studies that demonstrated similar supportive relationships. However, the mediation relationship that is not mutually supportive, which is Environmental Concern and Purchase Intention through Perceived Behavioral Control with path coefficient: 0.009, T-value: 0.971, and P-value: 0.166, which differs from prior research results.

6. Moderation Effect

This study also used two moderation variables, Price Sensitivity and Profile variables with TPB and other additional variables. The method tested in this study uses the Multi-Group Analysis method and bootstrapping on smartPLS 3. In the price sensitivity variable, respondents' purchasing behavior factors are faced with a situation to choose between EVs or conventional gasoline or diesel vehicles that have the same price range. The profile variables tested in this moderation are indicators of gender, educational background, and respondents' experience with EVs.

The price sensitivity moderation test is based on the respondents' purchasing behavior factors when faced with a situation to choose between EV vehicles or conventional gasoline or diesel vehicles that have the same price range. At this stage, respondents are divided into two groups, those who choose to buy conventional gasoline or diesel vehicles and those who choose EV vehicles. The results of the test are listed in Table 11 below.

Table 11. Price Sensitivity Moderation Test

Moderating Variable	Path Coefficients Original (PS_EV)	p-Value (PS_EV)	Path Coefficients Original (PS_ICE)	p-Value (PS_ICE)	Difference (ICE-EV)	p-Value 1-tailed (PS_EV vs PS_ICE)
ATT -> PI	0.087	0.105	0.431	0.000	0.344	0.002
EC -> ATT	0.406	0.000	-0.071	0.279	-0.478	0.000
EC -> MN	0.645	0.000	0.477	0.001	-0.169	0.093
EC -> PBC	0.178	0.095	0.219	0.062	0.040	0.417
EC -> PI	0.155	0.030	-0.006	0.468	-0.161	0.074
EC -> SN	0.307	0.000	0.107	0.241	-0.200	0.096
MN -> PI	0.386	0.000	0.275	0.001	-0.112	0.210
PBC -> PI	0.026	0.387	0.074	0.140	0.048	0.340
SN -> PI	0.246	0.001	0.268	0.001	0.022	0.419

Source: Researcher's Data (2024)

The test results indicate a significant difference in the ATT → PI relationship between two respondent groups. The impact of Attitude on Purchase Intention is stronger among those who prefer conventional vehicles at the same price range. Meanwhile, for EC → ATT, EC → MN, EC → PI, EC → SN, and MN → PI, the impact is higher among respondents who choose electric

vehicles (EVs). This suggests that environmental awareness plays a greater role in shaping Attitude, Moral Norm, Purchase Intention, and Subjective Norm for those inclined toward EVs. Similarly,

the influence of Moral Norm on Purchase Intention is more significant for this group. Additionally, for respondents who prefer EVs, Price Sensitivity has a more significant moderating effect on EC

→ ATT, EC → SN, MN → PI, and SN → PI. However, in EC → MN, MN → PI, and SN → PI, Price Sensitivity significantly affects both groups and aligns with the findings of Buhmann et al. (2024).

The second moderation test, the Profile Moderation Test, is based on the profile variable factor which consists of indicators of gender, educational background, and respondents' experience with EVs. At this stage, respondents are divided into two groups, namely in group 1 which contains Male, has had experience with EV and has an educational background of S1 / D4 and S2. S3 education for this test is ignored because there is only 1 respondent who represents it and does not qualify for this MGA test. Group 2 consists of females, who have never had experience with EVs and have a high school / vocational high school and D1 / D2 / D3 educational background. This grouping is based on the reference journal (Buhmann et al., 2024) and the MCA plot results attached in Figure 2. The results of the test are listed in Table 12 below.

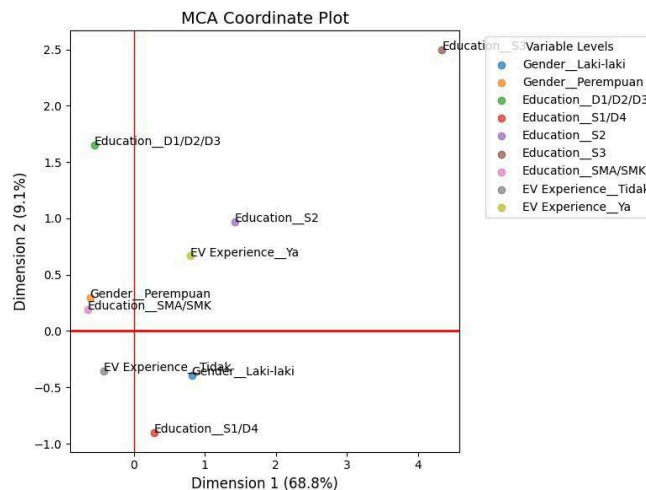


Figure 2. MCA Plot

Source: Researcher's Data (2024)

Table 12. Profile Moderation Test

Moderating Variable	Path Coefficients Original	p-Value (Group_Prof1)	Path Coefficients Original (Group_Prof2)	p-Value (Group_Prof2)	Difference (Group_Prof1 - Group_Prof2)	p-Value (Group_Prof1 vs Group_Prof2)
ATT -> PI	0.431	0.000	0.359	0.000	0.073	0.220
EC -> ATT	0.244	0.000	0.281	0.000	-0.036	0.352
EC -> MN	0.626	0.000	0.588	0.000	0.039	0.304
EC -> PBC	0.220	0.006	0.171	0.019	0.049	0.343
EC -> PI	0.076	0.087	0.030	0.272	0.046	0.267
EC -> SN	0.293	0.000	0.308	0.000	-0.014	0.426
MN -> PI	0.242	0.001	0.320	0.000	-0.078	0.224
PBC -> PI	0.031	0.273	0.038	0.211	-0.007	0.462
SN -> PI	0.241	0.000	0.253	0.000	-0.012	0.446

Source: Researcher's Data (2024)

Based on the tests carried out, this test was carried out on 2 groups in the Respondent Profile variable. The results show that there is no significant difference between the two groups tested for moderation with the existing model variables, so it can be stated that the Profile variable consisting of Gender, Experience and Last Education does not moderate the relationship between Environmental Concern and the existing TPB variables or the Purchase Intention variable. When viewed from the p-values, the variables EC -> PI and PBC -> PI do not have a significant impact in both groups. The results of the two moderations that do not support this are in accordance with the test results conducted by Buhmann et al. (2024).

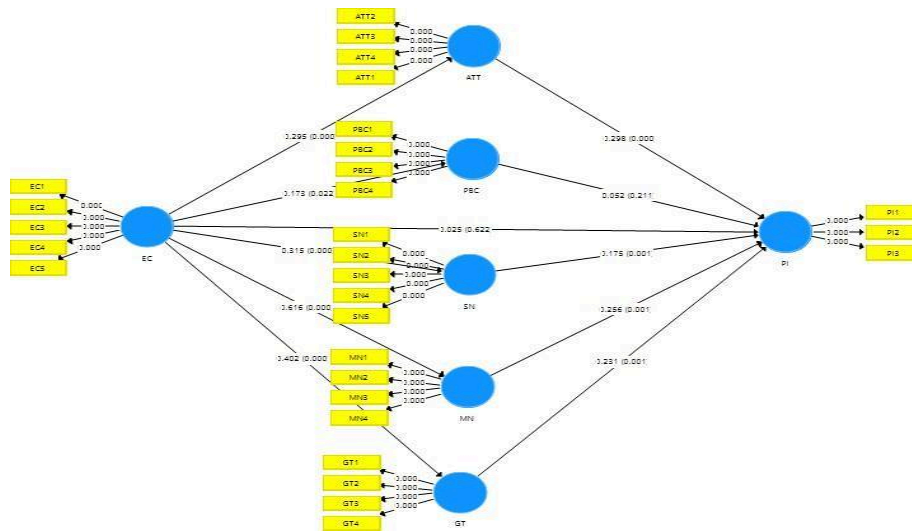


Figure 3. Research Model

Source: Researcher's Data (2024)

Discussion

Direct Effect

The hypothesis testing revealed several key findings regarding EV purchase intention. H1 confirmed a significant positive relationship between attitude and EV purchase intention, indicating that a favorable perception of EVs enhances purchase intention. This aligns with studies by Buhmann et al. (2024) and Yegin & Ikram (2022) in different cultural contexts. H2 showed that subjective norms significantly impact EV purchase intention, consistent with Buhmann et al. (2024) but contradicting Yegin & Ikram (2022), likely due to cultural differences and limited EV-related information in Turkey. H3 was not supported, as perceived behavioral control (PBC) did not significantly influence EV purchase intention, differing from previous studies. This may be due to Indonesia's limited EV infrastructure, reducing consumer confidence in EV usability (Gondoiswanto, 2023).

Meanwhile, H4 confirmed that moral norms positively impact EV purchase intention, reinforcing findings by Buhmann et al. (2024) that moral responsibility influences EV adoption. H5 demonstrated that green trust significantly affects EV purchase intention, aligning with Yegin & Ikram (2022), which emphasized the importance of credible EV information. H6 found no significant relationship between environmental concern and EV purchase intention, similar to Buhmann et al. (2024), suggesting that Indonesian consumers hesitate to act without strong infrastructure or financial

incentives.

Mediation Effects

The study examines the mediation effects of Environmental Concern on Purchase Intention for electric vehicles (EVs) through various intermediary variables. The findings confirm that Attitude significantly mediates this relationship (H7), aligning with Buhmann et al. (2024), who emphasize that heightened environmental awareness fosters a positive attitude toward EVs, strengthening purchase intention. Similarly, Subjective Norms serve as a significant mediator (H8), where social influence from family, peers, or colleagues reinforces the intention to adopt EVs, consistent with Buhmann et al. (2024). The study also supports the mediation effects of Moral Norms (H10) and Green Trust (H11). Individuals with a strong moral responsibility for environmental conservation perceive EV adoption as a moral obligation (Buhmann et al., 2024). Furthermore, trust in EVs' environmental benefits enhances purchase intention, in line with Sultana et al. (2022), who highlight the role of environmental knowledge in fostering trust in eco-friendly solutions.

However, the mediation effect of Perceived Behavioral Control (H9) is insignificant, suggesting that despite environmental awareness, infrastructure limitations and societal skepticism in Indonesia hinder perceived control over EV adoption. This contrasts with Buhmann et al. (2024), where better EV infrastructure contributed to a significant mediation effect of perceived behavioral control.

Moderating Effects

The price sensitivity moderation test revealed that its impact varies across respondent groups. Attitude's influence on Purchase Intention was stronger for those preferring conventional vehicles, while Environmental Concern's influence on Attitude, Moral Norms, Purchase Intention, and Subjective Norms was more pronounced for EV adopters when prices were equal. This suggests that environmental awareness is a stronger driver of EV adoption, while conventional vehicle buyers are more influenced by attitudes alone.

Among EV adopters, price sensitivity more strongly moderated $EC \rightarrow ATT$ and $EC \rightarrow SN$, whereas $EC \rightarrow MN$, $MN \rightarrow PI$, and $SN \rightarrow PI$ were significant for both groups, reinforcing Buhmann, et al. (2024) findings that price plays a key role in moderating environmental concern's impact on behavioral factors. Overall, price is a more dominant factor than environmental awareness in shaping attitudes and subjective norms for EV adopters.

Additionally, profile variables that consist of Gender, Experience, and Education, did not significantly moderate any relationships, as the differences in values between groups were minimal. This suggests that psychological factors such as attitude, norms, and trust are more critical than demographics in influencing EV purchase intention.

CONCLUSION

The analysis highlights that in the Extended Theory of Planned Behaviour (ETPB), factors such as Attitude, Subjective Norm, Moral Norm, and Green Trust significantly influence purchase intention for four-wheeled electric vehicles (EVs) in Indonesia. Individuals are more likely to intend to purchase

EVs when they have a positive perception of EV benefits, social support, a sense of moral responsibility for the environment, and trust in EVs as a credible environmental solution. However, Perceived Behavioral Control (PBC) and Environmental Concern do not directly impact purchase intention, suggesting that infrastructure limitations and economic factors, such as price, remain key concerns for consumers.

Despite this, Environmental Concern still indirectly affects purchase intention through other ETPB variables, including Attitude, Subjective Norm, Moral Norm, and Green Trust. This implies that environmental awareness can enhance EV purchase intention when accompanied by positive attitudes, strong social norms, and trust in EV environmental claims. On the other hand, PBC remains insignificant, reinforcing that limited infrastructure is a major barrier to EV adoption in Indonesia. Additionally, price sensitivity has a stronger influence on purchase intention than psychological factors, indicating that economic considerations play a dominant role in consumer decision-making.

Furthermore, demographic factors such as gender, experience with EVs, and education level do not significantly impact purchase intention. This suggests that psychological and social influences, including attitudes, norms, and trust, outweigh individual demographic characteristics in shaping EV purchase decisions. Consequently, EV marketing strategies and policies should focus on strengthening positive attitudes, building consumer trust, and promoting social norms that support EV adoption, while also addressing price concerns through incentives to encourage a wider adoption of EVs.

Acknowledgements

This study acknowledges several limitations that may have affected the results. The broad distribution of online questionnaires could lead to discrepancies in respondent characteristics. Additionally, factors outside the study's scope may influence individuals' decisions to purchase electric vehicles (EVs), resulting in differing opinions or perceptions. Lastly, the study focuses solely on purchase intention, which may not fully align with actual purchasing behavior.

For future research, it is recommended to:

1. Use alternative methods, such as offline interviews or qualitative approaches, to capture more accurate and contextual responses.
2. Narrow the target respondents to those with foundational knowledge of EVs to yield deeper insights.
3. Explore additional factors not covered in this study, such as supporting infrastructure, vehicle features, and other relevant considerations, to provide more comprehensive solutions for advancing the EV industry.

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