

THE EFFECT OF ENVIRONMENTAL CONCERNS AND GOVERNMENT POLICIES ON THE INTENTION TO BUY ELECTRIC CAR

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Abstract: The electric car market in Indonesia is still relatively weak, even though electric cars have a positive impact on the environment. The Indonesian government supports the growth and development of electric vehicles by issuing several policies to attract people's purchasing intentions in Indonesia. This study analyzes environmental concern and government policy that influence the purchase intention of electric car in Indonesia through extended theory of planned behavior concept and understands the characteristics of respondents and formulates managerial implications to increase the purchase intention of electric cars in Indonesia. The analysis in this study uses Partial Least Square Structural Equation Modeling (PLS-SEM) with 100 respondents. The results obtained in terms of public perception of people's purchase intention to support the sale of electric cars, where the variables of attitude, behavior control, environmental concern, and government policies have a good perception of the intention to buy electric cars, and neutral perception for the subjective norm variable. Environmental concern and government policies have a positive and significant effect on the intention to buy an electric car. Increase environmental awareness, control behavior, attitudes, subjective norms, and government policies as the main strategy in increasing the intention to buy electric cars

Keywords: environmental concern, government policy, theory of planned behavior, purchased intention, electric car

Abstrak: Pasar mobil listrik di Indonesia masih tergolong rendah, padahal mobil listrik memiliki dampak positif terhadap lingkungan. Pemerintah Indonesia mendukung pertumbuhan dan perkembangan kendaraan listrik dengan mengeluarkan beberapa kebijakan untuk menarik niat beli masyarakat di Indonesia. Penelitian ini menganalisis kepedulian lingkungan dan kebijakan pemerintah yang mempengaruhi niat beli mobil listrik di Indonesia melalui perluasan konsep teori perilaku terencana dan memahami karakteristik responden serta merumuskan implikasi manajerial untuk meningkatkan niat beli mobil listrik di Indonesia. Analisis dalam penelitian ini menggunakan Partial Least Square Structural Equation Modeling (PLS-SEM) dengan melibatkan 100 responden. Hasil yang diperoleh dalam hal persepsi masyarakat terhadap niat beli masyarakat untuk mendukung penjualan mobil listrik, dimana variabel sikap, kontrol perilaku, kepedulian lingkungan, dan kebijakan pemerintah memiliki persepsi yang baik terhadap niat beli mobil listrik, dan persepsi netral untuk variabel norma subjektif. Kepedulian lingkungan dan kebijakan pemerintah berpengaruh positif dan signifikan terhadap niat beli mobil listrik. Meningkatkan kepedulian lingkungan, kontrol perilaku, sikap, norma subjektif, dan kebijakan pemerintah sebagai strategi utama dalam meningkatkan niat beli mobil listrik.

Kata kunci: kepedulian lingkungan, kebijakan pemerintah, theory of planned behavior, niat beli, mobil listrik

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INTRODUCTION

Judging from the results of electric car sales from the last 3 years have increased, but the market penetration of electric cars in Indonesia is still relatively weak, not reaching 2% (GAIKINDO, 2022). The government has an optimistic target to increase the purchase intention of electric cars in Indonesia. In 2019, Indonesia sold 25 units of plug-in hybrid electric vehicles (PHEVs) and 787 units of hybrid electric vehicles (HEVs). Sales of new battery electric vehicles (BEVs) were recorded in 2020, totaling 125 units. Then, PHEVs sold 8 units and HEVs 1,191 units in the same year. In 2021, BEV sales increased to 687 units, PHEV 46 units, and HEV 2,472 units. Until November 2022, BEV sales were recorded at 7871 units, PHEV 10 units, and HEV 2808 units.

Electric cars have a positive impact on the environment. The decline in oil production in Indonesia in recent years is due to the main oil production wells that are generally old, while the production of new wells is relatively limited and will have an impact on the environmental ecosystem in the surrounding area. One of them is soil pollution by petroleum causing the soil as a planting medium to not function optimally (Ervayenri, 2007). Electric cars are also an alternative solution to replace oil-fueled cars as the main energy that causes air pollution and global warming (International Energy Agency, 2010). Pollution from the electric vehicle industry is more environmentally friendly than conventional vehicles (Peng Xiao, 2019), pollution emissions derived from CO₂ decreased by 50.6% according to the urban driver cycle due to the implementation of electrification strategies for hybrid electric vehicles (Mourad and Mahmoud, 2019). With the positive influence on the environment, it is hoped that it can increase the intention to buy electric cars in the community, such as the results of research in Turkey, namely concern for the environment has a positive relationship with a significant effect on the intention to buy an electric car (Yegin and Ikram, 2022).

The Indonesian government supports the growth and development of electric vehicles by producing several policies to attract the purchasing intention of the people in Indonesia. In 2019, Perpres No. 55/2019 was issued which guarantees the availability of SPKLU (Public Electric Vehicle Charging Stations) in several places such as SPBU (Public Fuel Filling Station), SPBG (Gas Fuel Filling Station), Central Government and Regional Government offices, shopping places, and public parking lots on the side of the highway.

The amount of electric car tax has been stated in the Minister of Home Affairs Regulation No. 1 of 2021. The regulation regulates the basic calculation of motor vehicle tax (PKB) and name transfer fee (BBN) for electric motorized vehicles. The regulation also regulates the amount of electric vehicle tax in articles 10 and 11, namely the imposition of PKB and BBN at a maximum of 10% of the basic imposition of PKB or BBN.

Especially for the DKI Jakarta area, Pergub No. 3/2020 related to BBN tax incentives for electric cars is 0% valid until December 31, 2024, and Pergub No. 88/2019 which contains traffic restrictions with an even odd system that is not applied to electric cars. With this convenience, the government hopes to foster public purchasing intention for electric cars.

In 2020 research (Frost and Sullivan, 2020) found 50% of conventional vehicle owners in Indonesia said they would consider an electric vehicle as their next car purchase. The study also revealed a growing environmental consciousness across Southeast Asia, with respondents in the region believing that owning an electric vehicle would undoubtedly contribute to environmental protection in addition to the influence of government policies that could encourage the intention to buy an electric car. And the study also shows that tax benefits (80%), installation of charging stations in residential areas (80%) and priority lanes for electric vehicles (55%) are the top 3 factors for Indonesian respondents to switch to electric vehicles. This proves that Indonesians' perception of government policies can drive the purchase intention of electric cars in Indonesia.

Environmental concern has long been accepted as an important predictor of ecological behavioral intentions, including individuals' emotional responses to ecological issues (Chen and Hung, 2016). There is research on green product adoption, which argues that individuals' feelings of being more environmentally responsible and doing their part in protecting the environment are related to increased individual environmental concern, and furthermore, that individuals adopt green products when they feel concern for the environment (Verma et al. 2019). The environmental concern variable is a major predictor of increasing consumer attitudes towards green products (Sulis, 2022). Concern for the environment influences green purchases (Asadi et al. 2021). Individuals with high concern for the

environment show a clear intention to protect the environment, making it easier for individuals to adopt environmentally friendly products (Lee et al. 2021). However, this relationship is discussed in a limited article on the adoption of electric vehicles as green products (Wang et al. 2017). Evidence shows that consumers' concern for the environment is positively related to their purchase intention for electric vehicles (Ozaki and Sevastyanova, 2011). For example, a comprehensive study in Germany has found that individuals who act with a sense of responsibility towards the environment are more willing to pay for electric vehicles or hybrid vehicles (Achtnicht, 2012).

Government policy can be defined as a set of deliberate actions followed by an agency or government official to solve a problem of public concern (Cochran et al. 2009). Oil scarcity and environmental friendliness are among the issues of growing concern in Indonesia. Therefore, the Indonesian government encourages the growth of the electric vehicle ecosystem to become an alternative solution to these problems through policies. The Indonesian government hopes that with the incentives and subsidies given to electric car enthusiasts, and support for the availability of electric charging stations, this will certainly increase people's purchase intentions as the results of previous research (Sierzchula et al. 2013).

Based on the above background, it is deemed necessary to conduct this research, the purpose of this research; 1) Identifying public perceptions of the intention to buy an electric car; 2) Analyze how much influence environmental awareness and government policies have on the intention to buy an electric car; 3) Formulate a strategy to increase the intention to buy an electric car.

METHODS

This research had conducted in the DKI Jakarta area in February 2023. The data collection needed in this study was carried out using an online questionnaire to respondents. According to Suharjo and Suwarno, the number of samples between 100-200 is quite stable in estimation (Hair et al. 2014). The amount of data to be taken is 100 respondents according to theory (Lemeshow and David, 1997).

Description: n (Number of samples); z (Standard value = 1.96); p (Maximum estimate = 50% = 0.5); d (alpha

$$n = \frac{Z^2 p(1-p)}{d^2}$$

(0.10) or sampling error = 10%).

The sample size is calculated from 96 respondents which will be rounded up by researchers to 100 respondents.

This research uses nonprobability sampling techniques which does not provide equal opportunities or opportunities for each element or member of the population to be selected as a sample. The type of nonprobability sampling technique used is convenience sampling, which is a sampling procedure that selects samples from people or units that are easiest to find or access (Sugiyono, 2019). The population of this study is unknown, the sample is a respondent who volunteers to fill out a questionnaire, and based on certain criteria so that he can answer the questions asked. The criteria for respondents are JABODETABEK people who work using cars in Jakarta who are aware of the existence of electric cars in Indonesia. Convenience sampling is carried out with the aim of making it easier to collect data. The variables used in this study consist of latent variables and indicator variables with the following explanation in Table 1.

The research variables were measured using a five-level Likert scale with details of (1) strongly disagree, (2) disagree, (3) moderately agree, (4) agree, (5) strongly agree. Data processing and analysis techniques using 4 approaches: 1) Median analysis. 2) Partial Least Square-Structural Equation Modeling (PLS-SEM) analysis (Ghozali, 2014). 3) Analysis of strategies to increase people's purchase intention.

The data obtained are then grouped based on the same answers in tabular form, then the answers are presented based on the number of respondents. The largest percentage indicates that this answer is the most dominant answer of each variable studied. The type of data in this study uses component or Variance Based Structural Equation Modeling where the data processing uses the Partial Least Square (Smart-PLS) version 4.0 program. According to (Ghozali, 2014), PLS is an alternative model of covariance-based SEM. PLS is intended for causal-predictive analysis in situations of high complexity and low theory support. The goal of PLS is to find the optimal predictive linear relationship that exists in the data. PLS can be used to confirm theory, but can also be used for exploratory research.

Table 1. Research Variables

Latent Variable	Symbol	Indicator	Source
Attitude (AT) (Ajzen, 1991)	AT01	Buying an electric car is a good thing	Hamzah and Tanwir (2021)
	AT02	Purchasing an electric car is satisfying	Hamzah and Tanwir (2021)
	AT03	Using an electric car is important	Huang and Ge (2019); Gunawan, et al. (2022)
	AT04	Using an electric car is a good thing	Huang and Ge (2019); Gunawan, et al. (2022)
	AT05	Happy if you have an electric car	Gunawan et al. (2022)
Subjective Norm (SN) (Ajzen, 1991)	SN01	If my family and relatives have bought and used an electric car, maybe I will too	Huang and Ge (2019); Gunawan, et al. (2022)
	SN02	Maybe I will be interested in using an electric car if my close friends recommend it.	Huang and Ge (2019); Gunawan, et al. (2022)
	SN03	Advertisements about electric cars in various media may encourage me to buy and use electric cars.	Huang and Ge (2019); Gunawan, et al. (2022)
Perceived behavioral control (PBC) (Ajzen, 1991)	PBC01	I believe I have the ability to buy an electric car	Hamzah and Tanwir (2021)
	PBC02	I have full control to buy an electric car	Hamzah and Tanwir (2021)
	PBC03	I see myself being able to afford an electric car in the future	Hamzah and Tanwir (2021)
	PBC04	I can find where to buy an electric car when I decide to have one	Shalender and Sharma (2019)
	PBC05	The price of an electric car is important when I decide to have one	Shalender and Sharma (2019)
	PBC06	Repair and maintenance of electric cars are important when I decide to have one	Shalender and Sharma (2019)
Environment Concern (EC)	EC01	I am willing to make sacrifices to protect the environment	Yegin and Ikram (2022); Hamzah and Tanwir (2021)
	EC02	I think individuals have a responsibility to protect the environment.	Yegin and Ikram (2022); Hamzah and Tanwir (2021)
	EC03	I care about the environment	Yegin and Ikram (2022); Hamzah and Tanwir (2021)
	EC04	Environmental conditions affect the quality of my health	Yegin and Ikram (2022); Hamzah and Tanwir (2021)
Government Policy (GP)	GP01	I know about government policies for electric cars	Zhang et al. (2013)
	GP02	I am aware of government policies for electric cars through various means including mass media	Zhang et al. (2013)
	GP03	Government policies are necessary to encourage the purchase of electric cars	Zhang et al. (2013)
	GP04	Government policies strongly encourage the purchase of electric cars	Zhang et al. (2013)
	GP05	Government policies are efficient to encourage the purchase of electric cars	Zhang et al. (2013)
	GP06	Government policies are generous	Zhang et al. (2013)
Purchase Intention (PI)	PI01	I intend to buy an electric car	Shalender and Sharma (2019)
	PI02	I predict I will buy an electric car	Shalender and Sharma (2019)

The research framework was created to be able to see the influence of factors and government policies that can directly influence consumer purchase intentions for electric cars. The theoretical basis for this research uses

the Theory of Planned Behavior (Ajzen, 1991) and adds two other constructs, namely environmental concerns and government policies according to the background and previous research as Figure 1.

In this study, the hypothesis and model used were developed from the Theory of Planned Behavior (TPB) by Ajzen (1991). This theory explains that a person's intention or intention will be influenced by three main factors, namely attitude towards behavior, subjective norms, and behavioral control. In addition, a hypothesis is also proposed to determine whether environmental concerns and government policies will affect the intention to buy an electric car. The hypotheses proposed in this study are as follows:

- H1: Attitude affects the intention to buy an electric car
- H2: Subjective norms affect the intention to buy an electric car
- H3: Behavior control affects the intention to buy an electric car
- H4: Environmental concern affects the purchase intention of an electric car
- H5: Government policy affects the purchase intention of electric cars

RESULTS

Validity and Reliability Test of Questionnaire

The validity test carried out regarding indicators uses the Pearson Product Moment formula. by using IBM SPSS statistics software, all 26 indicators are declared valid. This is based on the significance value of each indicator is smaller than <0.05. The Cronbach's Alpha value = 0.930 (> 0.6) indicates that the questionnaire is reliable.

Table 2. Respondent profile

Characteristics	Category	Quantity	%
Gender	Male	73	73%
	Female	27	27%
Age	21–30 years	44	44%
	31–40 years	33	33%
	41–50 years	21	21%
	>51 years	2	2%
	Domicile	Bekasi	22
	Bogor	11	11%
	Depok	6	6%
	Jakarta	45	45%
	Tangerang	16	16%
Latest education	SMA/Sederajat	2	2%
	Diploma	4	4%
	S1	82	82%
	S2	12	12%

Characteristics of Respondents

The characteristics of respondents presented include gender, occupation, age, domicile, latest education, and monthly income explanation in Table 2. Of the 100 respondents, 73% were male and 27% were female. The largest age proportion is in the 21-30 years age range (44%) followed by the 31-40 years age range (33%). In terms of domicile, the largest proportion lies in Jakarta (45%) followed by Bekasi (22%). The largest proportion of the latest education is S1 (82%), followed by S2 (12%). The largest proportion of occupations are private employees (77%), followed by BUMN

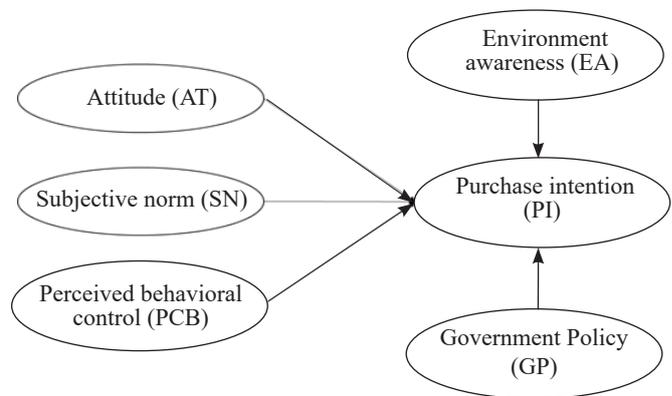


Figure 1. Frame research

Characteristics	Category	Quantity	%
Occupation	State Civil Apparatus/Police/TNI	3	3%
	BUMN Employee	14	14%
	Private Employee	77	77%
Monthly income	Entrepreneur	6	6%
	Rp 5 – Rp 10 million	43	43%
	Rp 10 – Rp 15 million	29	29%
	Rp 15 – Rp 20 million	18	18%
	> Rp 20 million	10	10%

Public perception of intention to buy an electric car

The median value (middle value) is used to see respondents' perceptions of the indicators. The median value of 1 - 1.8 is in the "Very Poor" category, >1.8 - 2.6 is in the "Poor" category, >2.6 - 3.4 is in the "Moderate" category, >3.4 - 4.2 is in the "Good" category, and >4.2 - 5 is in the "Excellent" category. Based on the variables measured, the respondents' perceptions can be seen as in Table 3. In attitude variables, behavioral control, environmental concerns, and government policies have a good perception of the intention to buy an electric car. Meanwhile, the subjective norm variable has a moderate/ neutral perception.

Table 3. Median value and perception category

Variable	Median Value	Perception category
Attitude	4	Good
Subjective Norms	3	Neutral
Behavioral Control	4	Good
Environmental Concern	4	Good
Government Policy	4	Good
Purchase Intention	4	Good

Factors affecting purchase intention of electric cars

Using SmartPLS 4.0 software, out of 26, 24 indicators have a convergent validity value above 0.6 so they are declared valid. Meanwhile, the indicators "The

purchase of an electric car is satisfying" and "I see myself being able to buy an electric car in the future" were excluded from the model because the convergent validity value was below 0.6 described Figure 2

There are 4 variables, namely attitudes, subjective norms, behavioral control, and government policies that have Cronbach's Alpha and Composite Reliability values > 0.7. and Average Variance Extracted (AVE) value > 0.5. The environmental concern variable has a Cronbach's Alpha value <0.7. However, the environmental concern variable was not removed from the model, because the Cronbach's Alpha value is not the only parameter for maintaining or removing a variable from the model. The environmental concern variable has a Composite Reliability and Average Variance Extracted (AVE) value above the minimum recommended value limit.

Using SmartPLS 4.0 software, based on Appendix 4, it was found that out of 26, 24 indicators had a convergent validity value above 0.6 so they were declared valid. Meanwhile, the indicators "The purchase of an electric car is satisfying" and "I see myself being able to buy an electric car in the future" were excluded from the model because the convergent validity value was below 0.6. Of the 24 indicators spread across 6 variables, 1 indicator each was found from each variable that best describes the variable described in Table 4.

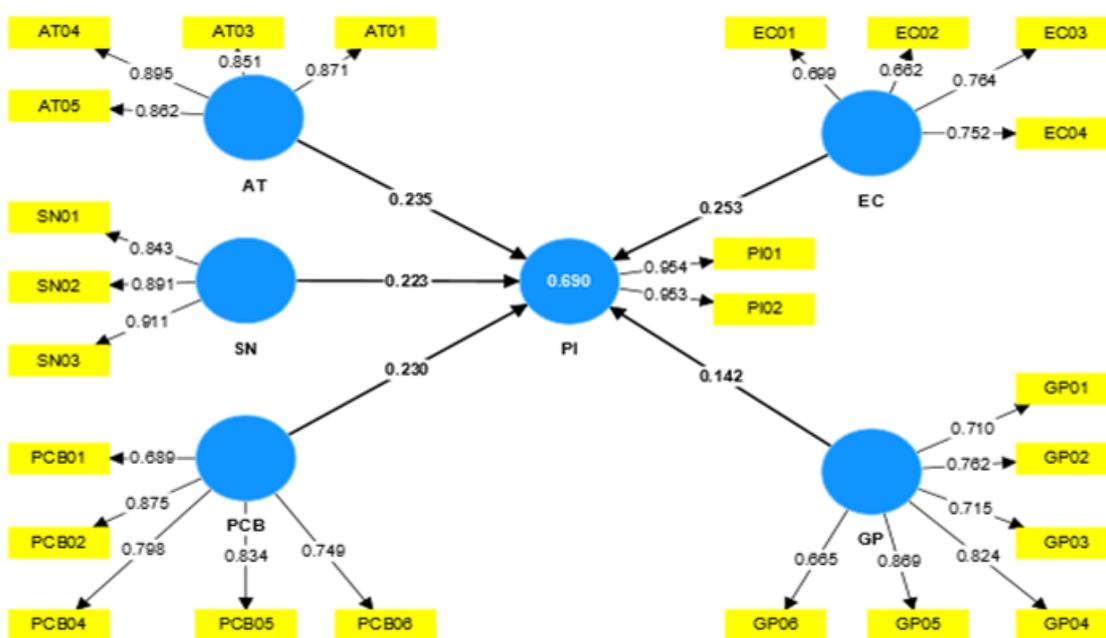


Figure 2. Results of the PLS-SEM operational model

The indicator “I care about the environment” is the indicator that best describes the environmental concern variable. The indicator “I have full control to buy an electric car” is an indicator that describes the behavior control variable. The indicator “Using an electric car is a good thing” is the indicator that best describes the attitude variable. The indicator “Advertising about electric cars in various media encourages me to buy and use electric cars” is the indicator that best describes the subjective norm variable. The indicator “Government policy is efficient to encourage the purchase of electric cars” is the indicator that best describes the government policy variable.

In terms of discriminate validity in the context of variables, it can be seen by looking at the Average Variance Extracted (AVE) value. If the AVE value is > 0.5 then the variable has a good discriminate validity value, it can be seen in Table 4.

Based on Table 5, it is found that all variables have an AVE value > 0.5. This means that all variables have good discriminant validity values. As for Discriminant validity in the context of indicators, it is known that judging from the value of Discriminant validity cross

loadings, all indicators have a higher value on their own variables than the value of these indicators on other variables. This indicates that the indicators are valid. And there are 4 variables: attitudes, subjective norms, behavioral control, and government policies that have Cronbach’s Alpha and Composite Reliability values > 0.7. The environmental concern variable has a Cronbach’s Alpha value < 0.7. Nevertheless, the environmental concern variable was not removed from the model, because the Cronbach’s Alpha value is not the only parameter to maintain or remove a variable from the model. The environmental concern variable has a Composite Reliability value > 0.7.

Structural Model Testing/Hypothesis Testing (Inner Model)

Base on Table 6, it was found that the R Square was 0.690. This shows that variable Y (endogen) can be explained by variable X by 0.690 or 69%, which also means that there are 31.3% of other factors that are not studied. The R Square value of 0.690 also indicates that the model is in the “moderate” category close to “good”.

Table 4. Indicators that best describe variables

Variables	Indicators that Best Describe the Variable	Loding Factor
Attitude	Using an electric car is a good thing	0.895
Subjective Norms	Advertisements about electric cars in various media encourage me to buy and use an electric car	0.911
Behavioral Control	I have full control to buy an electric car	0.875
Environmental Concern	I care about the environment	0.764
Government Policy	Government policies are efficient to encourage the purchase of electric cars	0.869
Purchase Intention	I intend to buy an electric car	0.954

Table 5. Variable reliability and discriminant validity test results

	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Attitude	0.893	0.926	0.757
Subjective Norms	0.857	0.913	0.778
Behavioral Control	0.852	0.893	0.627
Environmental Concern	0.692	0.811	0.519
Government Policy	0.852	0.891	0.579
Purchase Intention	0.900	0.952	0.909

Table 6. R Square

	R Square	R Square Adjusted
Y	0.690	0.673

The variables of environmental concern, behavioral control, attitude, subjective norms, and government policy have a positive and significant effect on the variable intention to buy an electric car. This is based on the Original Sample value > 0, t-statistics value > 1.96 and P Values < 0.05 described in Table 7

In terms of the effect of environmental concern on purchase intention, the Original Sample value is 0.230 (> 0), the T Statistics value is 3.351 (> 1.96) or the P Values are 0.001 (< 0.05). This indicates that H4 is accepted. This means that environmental concern has a positive and significant effect on purchase intention. These results are in line with research (Moyo, 2018) and (Salsabila and Salehudin, 2023) which show that environmental concerns have a positive and significant effect on the purchase intention of electric cars.

In terms of the effect of government policies on purchase intention, the Original Sample value is 0.223 (> 0), the T Statistics value is 2.662 (> 1.96) or the P Values are 0.009 (< 0.05). This indicates that H5 is accepted. This means that government policy has a positive and significant effect on purchase intention. These results are in line with research (Wang et al, 2019) which shows that government policies have a positive and significant effect on the purchase intention of electric cars.

Strategies to Increase Electric Car Purchase Intention

Strategies to increase the purchase intention of electric cars in supporting electric car sales are carried out with consideration combining the suitability of the influence of exogenous latent variables with the condition of the indicators of these variables according to respondents. In this case, by looking at the exogenous latent variables that have a positive and significant effect on the endogenous latent variables, it is adjusted to the perception of the indicators.

The strategy that needs to be done to increase the purchase intention of electric cars to support the sale of electric cars is to prioritize the subjective norm factor. In terms of subjective norms, all indicators that need to be improved are "if my family and relatives have bought and used electric cars, maybe I will too", "maybe I will be interested in using an electric car if my close friends recommend it", and "advertisements about electric cars in various media encourage buying and using electric cars".

The second priority that needs attention is the environmental awareness as the first factor that needs attention. In terms of environmental awareness, the indicator that needs to be improved is "care about the environment".

The third priority that needs attention is the attitude factor. In terms of attitude, the indicators that need to be improved are "buying an electric car is a good thing", "using an electric car is important", "using an electric car is a good thing", and "happy if you have an electric car".

The fourth priority that needs attention is the government policy factor. In terms of government policies, the indicators that need to be improved are the indicators "I know about government policies for electric cars", "I am aware of government policies for electric cars through various means including mass media", "government policies are needed to encourage the purchase of electric cars", "government policies strongly encourage the purchase of electric cars", "government policies are efficient to encourage the purchase of electric cars", and "government policies are generous".

Table 7. Hypothesis test results

	Original Sample (O)	T Statistics	P Values
Attitude → Purchase intention	0.235	2.933	0.004
Subjective Norm → Purchase intention	0.253	3.415	0.001
Behavioral Control → Purchase intention	0.142	2.002	0.048
Environmental concern → Purchase intention	0.230	3.351	0.001
Government policy → Purchase intention	0.223	2.662	0.009

The fifth priority that needs attention is the behavioral control factor. In terms of behavioral control, the indicators that need to be improved are "I believe I have the ability to buy an electric car", "I have full control to buy an electric car", "I can find where to buy an electric car when I decide to have one", "the price of an electric car is important when I decide to adopt it", and "the repair and maintenance of an electric car is important when I decide to have one"

Managerial Implications

It can be explained that these strategies have priority based on the magnitude of the influence of the variables found. However, in practice, the strategies can be implemented simultaneously. In this regard, there are technical steps that can be taken by the Government and electric car manufacturers: 1) Cooperate with automotive associations to hold electric car exhibitions while conducting electric car socialization and electric car test drives, so that people know the benefits and satisfaction of driving an electric car and increase their purchase intention towards electric cars. 2) Increase the attitude of environmental care by building the character of environmental care from an early age. 3) Provide programs to adjust the price of electric cars to the purchasing power of the community such as discounts and good installment schemes, so as to make people confident in buying electric cars. 4) The government further improves the socialization of policies related to electric cars by utilizing social media and influencers to inform the public about readiness and benefits. 5) Electric car manufacturers review the manufacture of electric cars in Indonesia and the components of electric cars used by using domestic components, in the hope that material costs for production can be lower so that it has an impact on the price of electric cars.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

In terms of public perceptions of public purchasing intentions to support the sale of electric cars, where attitude variables, behavioral control, environmental concerns, and government policies have a good perception of the intention to buy an electric car. Meanwhile, the subjective norm variable has a moderate perception. Environmental concerns, behavioral control, attitudes, subjective norms, and government

policies have a positive and significant effect on the purchase intention of electric cars. Increasing environmental awareness, behavioral control, attitudes, subjective norms, and government policies as the main strategy in increasing the purchase intention of electric cars.

Recommendations

The suggestions that can be given are divided into several things. In terms of environmental awareness, the indicators that need to be improved are "Making sacrifices to protect the environment" and "Having a sense of responsibility to protect the environment". In terms of government policy, what needs to be improved is the indicator "Government policy is generous". In terms of behavioral control, what needs to be improved is the indicator "Having the ability to buy an electric car".

REFERENCES

- Achtnicht M. 2012. German car buyers' willingness to pay to reduce CO₂ emissions. *Climatic Change* 113: 679–697. <https://doi.org/10.1007/s10584-011-0362-8>
- Ajzen I. 1991. The theory of planned behavior. *Organizational Behavior and Human Decision Processes* 50(2): 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Asadi S et al. 2021. Factors impacting consumers' intention toward adoption of electric vehicles in Malaysia. *Journal of Cleaner Production* 282: 124474.
- Chen SC, Hung CW. 2016. Elucidating the factors influencing the acceptance of green products: an extension of theory of planned behavior. *Technological Forecasting and Social Change* 112: 155–163. <https://doi.org/10.1016/j.techfore.2016.08.022>
- Cochran CE, Mayer LC, Carr T, Cayer NJ. 2009. *American Public Policy: An Introduction, Ninth Edition* (9 ed.). Michael Rosenberg.
- Ervayenri. 2007. Dampak pencemaran minyak bumi terhadap tanaman kelapa sawit. *Jurnal Ilmiah Pertanian* 4(1):19-25. <https://doi.org/10.31849/jip.v4i1.1330>
- Frost, Sullivan. 2020. *The Future of Electrified Vehicles in Southeast Asia* "dirilis hari ini selama "Nissan FUTURES - Electrification and

Beyond.

- GAIKINDO. 2022. Indonesian Automobile Industry Data. <https://www.gaikindo.or.id/indonesian-automobile-industry-data> [8 Dec 2022].
- Ghozali I. 2014. *Structural Equation Modeling, Metode Alternatif Dengan Partial Least Square (PLS)* (4 ed.). Semarang: Badan Penerbit Universitas Diponegoro.
- International Energy Agency. 2010. *Energy Technology Perspective 2010 Scenarios*. Paris: IEA.
- Gunawan I et al. 2022. Determinants of customer intentions to use electric vehicle in indonesia: an integrated model analysis. *Sustainability* 14(4):1–22. <https://doi.org/10.3390/su14041972>
- Hair J, Hult T, Ringle C, Sarstedt M. 2014. *A Primer on Partial Least Squares Structural Equation Modeling (PLSSEM)*. Los Angeles: Sage
- Hamzah M, Tanwir N. 2021. Do pro-environmental factors lead to purchase intention of hybrid vehicles? the moderating effects of environmental knowledge. *Journal of Cleaner Production* 279: 123643. <https://doi.org/10.1016/j.jclepro.2020.123643>
- Huang X, Ge J. 2019. Electric vehicle development in Beijing: An analysis of consumer purchase intention. *Journal of Cleaner Production* 216(10): 361-372.
- Lee J, Baig F, Talpur M, Shaikh S. 2021. Public intentions to purchase electric vehicles in Pakistan. *Sustainability* 13: 1–18. <https://doi.org/10.3390/su13105523>
- Lemeshow S, David J. 1997. *Besar Sampel dalam Penelitian Kesehatan (terjemahan)*. Yogyakarta: Gadjah Mada University Press.
- Mourad M, Mahmoud K. 2019. Electrification strategy of hybrid electric vehicle as a solution to decrease co2 emission in cities. *International Journal of Electrical, Electronic and Communication Sciences* 13(7): 558–564.
- Moyo N. 2018. Environmental concern and purchase intention of electric vehicles in the eastern part of China. *Archives of Business Research* 6(8): 297-309.
- Ozaki R, Sevastyanova K. 2011. Going hybrid: An analysis of consumer purchase motivations. *Energy Policy* 39(5): 2217–2227. <https://doi.org/10.1016/j.enpol.2010.04.024>
- Peng XQW. 2019. Environmental impact analysis of the whole life cycle of pure electric vehicles. *IOP Conf. Series: Earth and Environmental Science*.
- Salsabila H, Salehudin I. 2023. Plugged in and charging: environmentalism factors does affect behavioral intention to purchase electric cars in indonesia, but non-environmental factors are important too. *SSRN* 2023:1–18. <http://dx.doi.org/10.2139/ssrn.4323150>
- Shalender K, Sharma N. 2019. Using extended theory of planned behaviour (TPB) to predict adoption intention of electric vehicles in India. *Environment, Development and Sustainability* 23: 665–681. <https://doi.org/10.1007/s10668-020-00602-7>
- Sierzchula W, Bakker S, Maat K, Wee B. 2013. The influence of financial incentives and other socio-economic factors on electric vehicle adoption. *Energy Policy* 68: 183-194. <https://doi.org/10.1016/j.enpol.2014.01.043>
- Sugiyono. 2019. *Metode Penelitian Kuantitatif*. Bandung: CV. Alfabeta.
- Sulis P. 2022. The Effects of consumption value, environmental concerns, and consumer attitudes towards consumer purchase intention of electric cars. *Jurnal Aplikasi Bisnis dan Manajemen (JABM)* 8(1): 23–32.
- Verma V, Chandra B, Kumar SV. 2019. Values and ascribed responsibility to predict consumers' attitude and concern towards green hotel visit intention. *Journal of Business Research* 96:206–216. <https://doi.org/10.1016/j.jbusres.2018.11.021>
- Wang S, Kao GY, Ngamsiriudom W. 2017. Consumers' attitude of endorser credibility, brand and intention with respect to celebrity endorsement of the airline sector. *Journal of Air Transport Management* 60: 10-17. <https://doi.org/10.1016/j.jairtraman.2016.12.007>
- Yegin T, Ikram M. 2022. Analysis of consumers' electric vehicle purchase intentions: an expansion of the theory of planned behavior. *sustainability* 14(19): 1–27. <https://doi.org/10.3390/su141912091>
- Zhang X, KeWang, YuHao, Jing-LiFan, Yi-MingWei. 2013. The impact of government policy on preference for NEVs: The evidence from China. *Energy Policy* 61:382-393. <https://doi.org/10.1016/j.enpol.2013.06.114>