

Analysis Of The Effects Of Attitude, Subjective Norms, and Perceived Behavioral Control On Consumer Purchase Intention Of Natural Gas For Vehicle With The Moderating Role Of Price Sensitivity

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Abstract: This research aims to determine consumers purchase intention in using natural gas for vehicle with the moderating role of price sensitivity. This study used a quantitative approach in the form of a survey method. The population in this study consists of car users with fuel-powered vehicles located in the JABODETABEK area who have never owned a natural gas for vehicle before. The sample in this study consists of 122 car users with fuel-powered vehicles. Data processing is performed using the Partial Least Square (PLS) method. The results of this study indicate that attitude, perceived behavioural control, and price sensitivity have a significant influence on consumer purchase intention, while subjective norms do not have a significant influence. Price sensitivity also affects the relationship between subjective norms but does not affect the relationship between attitude and perceived behavioural control with consumer purchase intention. This study explores the impact of behaviour on purchase intention, emphasizing the management perspective. It reveals that positive attitudes towards environmentally friendly gas as an alternative fuel can be enhanced. The findings suggest that exogenous constructs moderately affect consumer purchase intention. Further research is needed to strengthen the influence of the dependent variable using additional variables.

Keywords: attitude, Subjective norms, perceive behavioural control, price sensitivity, consumer purchase intention, natural gas for vehicle.

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Introduction

Climate change is a global threat with economic and social consequences. If not properly mitigated, the impact of climate change on the economy can be even worse than the impact of a pandemic. The increase in global warming, natural disasters, and the extinction of certain plant and animal species in recent decades indicates a rise in these phenomena. The connection between these phenomena and human behavior has drawn global attention to reevaluate human behaviour towards nature. ([Siyavooshi, Foroozanfar, & Sharifi, 2018](#))

One of the causes of global warming is attributed to the transportation sector. The global transportation sector is a major contributor to pollution, generating approximately 7.3 billion metric tons of carbon dioxide (CO₂) emissions in the year 2020. Passenger cars accounted for the largest share of emissions that year, amounting to 41% of global transportation emissions. ([statista.com, 2022](#))

Empirical evidence shows significant results between the variables of attitude, subjective norms, and behavioural control on the purchase intention of hybrid vehicles. Both moderating effects of price sensitivity on attitude and subjective norms have a substantial influence, but they do not affect behavioural control. ([Bhutto et al., 2022](#)) The results show that attitude, health awareness, and environmental concern all have a positive and significant impact on the intention to purchase organic food in Jakarta. ([Jonathan et al., 2022](#)). The moderating role of price sensitivity was found to be negative but significant. These results indicate that when consumers are highly sensitive to the price of organic food, the relationship between attitude and behaviour weakens. ([Zinoubi, 2020](#)) Most of the constructs in the Theory of Planned Behaviour framework have a positive and significant relationship with consumer purchase intention. ([Sutikno, V. et al., 2020](#))

The demand for fossil fuels responds to price changes, with price changes being less responsive than income changes, as fuel prices are inelastic while income is elastic. In this regard, the impact of price changes decreases continuously with the increase in energy prices, followed by subsidy reforms. ([Taghvaei et al., 2022](#)). For example, in the research that has been done, HVs are divided into several systems, namely those that simultaneously use fuel oil and use batteries, such as full HVs mild-HVs which can fully use fuel but in the process of traveling mild-HVs cannot simultaneously use both power sources. While plug-in HVs use a system that the engine is driven by electricity but to charge the electricity using a motor that is driven by fuel. ([Dennis, 2019](#)).

Product quality has a positive and significant influence on purchase decisions, while price perception does not have a significant impact on purchase decisions. Service quality has a positive and significant influence on purchase decisions, and location has a positive and significant influence on purchase decisions. ([Yuliana et al., 2022](#)). customers' level of

environmental knowledge, it surfaced that customers in developing countries have lower knowledge compared to customers in developed countries. ([Ali et al., 2021](#))

Awareness of the many problems caused using fuel therefore the author wants to conduct research on consumer intention to convert BBM vehicles to BBG vehicles, the theory of planned behaviour is based on the assumption that humans are rational beings and use information that is possible for them, systematically. People think about the implications of their actions before they decide to perform or not perform certain behaviours. The theory of planned behaviour is a theory that analyzes consumer attitudes, subjective norms, and consumer perceived behavioural control.

Research Method

This research utilizes a descriptive approach to identify the extent to which the independent variables, consisting of attitude (X1), perceived behavioral control (X2), and subjective norms (X3), interact with the moderating variable of price sensitivity. The objective is to describe the research object or the research outcomes, specifically the purchase intention towards natural gas for vehicles. The research method used in this study is a quantitative research method with a descriptive approach. Based on ([Sekaran and Bougie 2016](#)), Quantitative descriptive study is designed to collect data that describes individuals, events, or situations. The descriptive method serves to provide an overview of the researched object through collected data or samples in their existing state, without conducting analysis or making general conclusions. Therefore, this study employs an explanatory survey method with an online-distributed questionnaire. The population in this study consists of users and owners of oil-fuelled vehicles who have never used gas-fuelled vehicles in the JABODETABEK area.

The sample size was determined using the Hair formula. According to ([Hair et al. 2017](#)), the determination of the sample size is based on the number of items used in the questionnaire, assuming a range of $n \times 5$ to $n \times 10$ observations. Based on the calculation, the minimum sample size that the researcher will use is 119 respondents. Thus, the conceptual framework in this research can be made as follows:

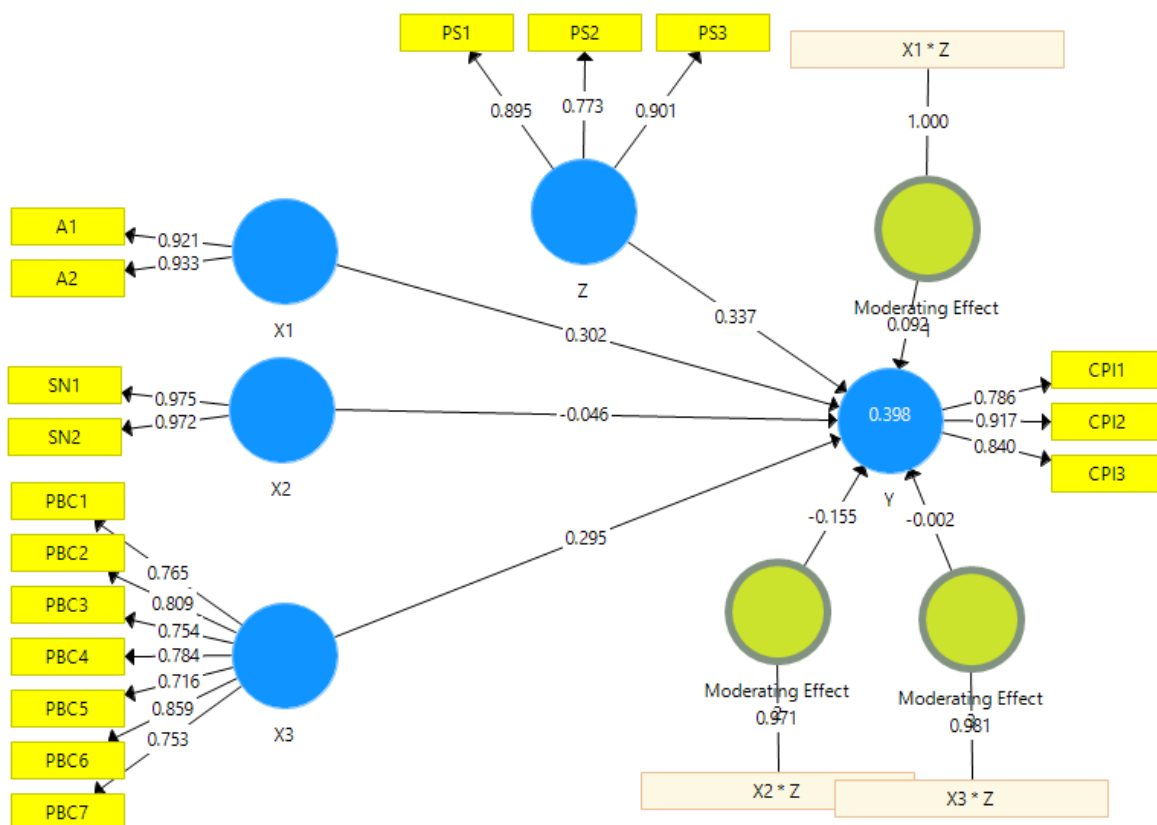


Figure 1 Loading factor design of each variable using SmartPLS

Convergent Validity

In the field of behavioural sciences, the term "convergent validity" is employed to describe the extent to which two assessments of conceptually equivalent constructs align with each other. Convergent validity, a type of construct validity, is akin to discriminant validity, which allows for distinguishing between dissimilar constructs. To assess convergent validity, correlation coefficients can be utilized. When a concept test exhibits a strong correlation with other tests that evaluate potentially similar concepts, it suggests convergent validity. For instance, the results of a particular assessment can be compared to those of another assessment designed to gauge fundamental math abilities, thereby establishing the concurrent validity of the test. The correlation observed between the test outcomes serves as an indicator of convergent validity.

Convergent validity can be assessed by comparing the factor loading values of each indicator to their respective constructs. In confirmatory research, a factor loading of 0.7 or higher is considered significant. The obtained results from the PLS-SEM algorithm, indicating convergent validity, are presented in Figure 1. The model estimation findings demonstrate that all indicators exhibit factor loadings exceeding 0.7. Consequently, all measures are deemed

suitable for research purposes and are valid for assessing their respective constructs. The table below provides a summary of the loading factor values for each indicator of the constructs.

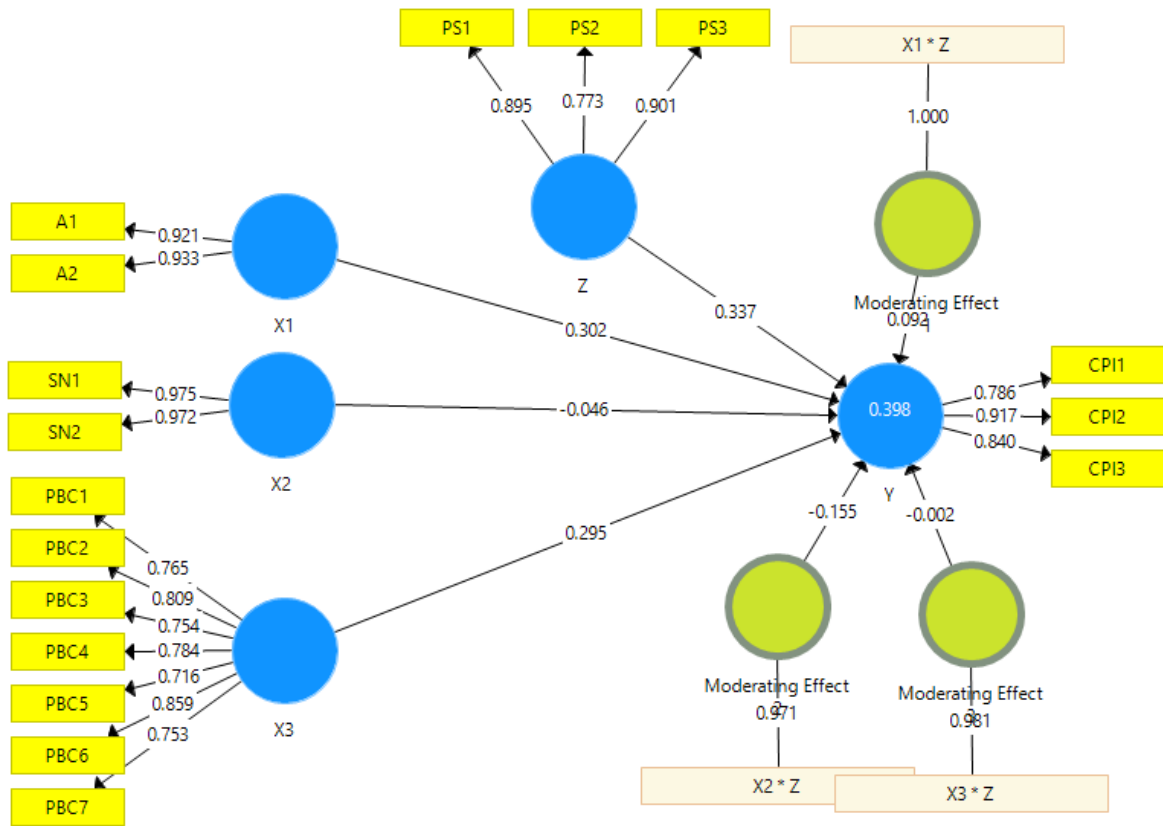


Figure 2 Bootstrapping test running results

Summary Test the Hypothesis

In proving this hypothesis, the test is based on the values in the path coefficient table as shown in the table below.

Table 1 Hypothesis Testing Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Attitude - Price Sensitivity -> Consumer Purchase Intention	0,092	0,083	0,102	0,901	0,368
Subjective Norms - Price Sensitivity -> Consumer Purchase Intention	-0,155	-0,153	0,078	2,001	0,046
Perceive Behavioral Control -> Price Sensitivity - Consumer Purchase Intention	-0,002	0,008	0,112	0,020	0,984

Attitude ->Consumer Purchase Intention	0,302	0,300	0,085	3,541	0,000
Subjective Norms -> Consumer Purchase Intention	-0,046	-0,050	0,095	0,481	0,631
Perceive Behavioral Control -> Consumer Purchase Intention	0,295	0,296	0,088	3,346	0,001
Price Sensitivity -> Consumer Purchase Intention	0,337	0,349	0,102	3,321	0,001

The process of hypothesis testing relies on the outcomes of testing the internal model (structural model), which involves assessing the R-squared output, parameter coefficients, and t-statistics. The significance value between constructs, t-statistics, and p-values are considered to determine whether a hypothesis can be accepted or rejected. The research hypothesis was evaluated using SmartPLS (Partial Least Squares) 3.2.9 software, and the corresponding values can be observed in the bootstrapping results. The rule of thumb used in this study is $t\text{-statistic} > 1.96$ with a significance level of the p-value of 0.05 (5%), and the beta coefficient is positive. Based on Table 1, it was found that there are findings indicating that the moderating effect of price sensitivity does not universally strengthen the relationship between variable X and Y, specifically attitude and perceived behavioural control towards consumer purchase intention. However, the moderating effect of price sensitivity can enhance the relationship between subjective norms and consumer purchase intention. As for the direct effects of each variable, all are accepted except for the impact of subjective norms on consumer purchase intention, which is rejected.

Result and Discussion

Based on the results of hypothesis testing, it states that hypothesis H1 is accepted. The results of this hypothesis test are in line with research conducted by (Tjokrosaputro et al., 2022), and (Raza CH et al., 2021) which shows that there is a positive and significant relationship between attitude towards and consumer purchase intention. The behaviour of using environmentally friendly fuels for the sustainability of good natural conditions and also the use of environmentally friendly fuels is felt to affect the fuel consumption that will be used (Bhutto et al., 2022). Thus, it can be concluded with the A1 and A2 loading values of 0.912 and 0.933, respectively, stating that using gas fuel which is an alternative fuel is one way to remain environmentally friendly and is considered after using gas fuel as an alternative to fuel oil will save fuel usage.

Based on the results of hypothesis testing, the original sample value is -0.046 and the value states that subjective norms have a negative influence and hypothesis H2 is rejected. In line

with research conducted by ([Widyarini et al., 2018](#)) who conducted research on consumer purchase intention at retail stores. In his research, Widyarini found that subjective norms do not affect consumer purchase intention for fashion products. This means that individual external factors do not influence internet users to buy.

with the result of a T-Statistic value of 3.346, then a P-Value of 0.001 and an original sample value of 0.295. The T-Statistic value exceeds the T-Table value of 1.69, then the P-Value value is in accordance with the recommended value of less than 0.05 and the Original Sample value shows a positive value, indicating that perceive behavioral control in this study has a positive and significant effect, namely the purchase of a car with gas fuel. In line with research conducted by ([Bhutto et al., 2022](#)) which shows that personal control factors on the purchase of alternative fuels have a big influence, on the other hand ([Widyarini et al., 2018](#)) suggest that the desire to make purchases at online retail stores is strongly influenced by the personality of each person.

In this study price sensitivity with the results of the T-Statistic value of 3.321, then the P-Value value of 0.001 and the original sample value of 0.337. The T-Statistic value exceeds the T-Table value of 1.69, then the P-Value value is in accordance with the recommended value of less than 0.05 and the Original Sample value shows a positive value which means that price sensitivity for the use of gas fuel as an alternative to fuel oil that is more environmentally friendly can be accepted by respondents and has a significant effect on interest in purchasing car products that use gas fuel. In line with research conducted by ([Bhutto et al., 2022](#)) which shows that several price sensitivity indicators have a positive and significant influence on the interest in purchasing an electric car rather than a car with conventional fuel oil. Other research conducted by ([Zinoubi et al., 2021](#)) shows that respondents are basically consumers who have high price sensitivity to organic food prices due to their limited purchasing power. Furthermore, other research conducted by ([Siregar and Nurmahdi 2021](#)) shows that price perception has a positive and significant influence on purchasing decisions.

In this study, it was found that the moderating effect of price sensitivity only had an impact on subjective norm, namely after the moderating role of subjective norm price sensitivity can have a positive and significant effect on attitude variables and perceived behavioral control does not have a moderating effect, ([Bhutto et al., 2022](#)) suggested between subjective norms and consumer purchase intentions. However, empirical findings do not support the moderating impact of price sensitivity as a moderating factor for the relationship between subjective norms and consumer purchase intentions. In another study ([Hartono et al., 2020](#)) emphasized that we prove that price sensitivity has a negative moderating effect on the relationship between emotional value and consumer purchase intention for organic food products.

Conclusions

The aim of this study is to examine the relationship between attitude, subjective norms, and perceived behavioural control on consumer purchase intention of natural gas for vehicles, considering the moderating effect of price sensitivity. Each variable was tested, and the resulting values were analyzed. Moreover, this conclusion responds to the cases found during this investigation. H1: Attitude has a significant influence on consumer purchase intention the behaviour of people who are aware of the environment will use natural gas for vehicle as an alternative to fuel oil can increase consumer interest in buying car products using gas fuel.. H2: Subjective norms do not have an influence on consumer purchase intention External factors have no influence on consumer decisions in using gas fuel as an environmentally friendly alternative to fuel oil. H3: Perceived behavioural control has a significant influence on consumer purchase intention individual personal control plays an important role in consumers' decision to use gas fuel as an alternative. H4: Price sensitivity has a significant influence on consumer purchase intention price sensitivity affects consumer interest in buying environmentally friendly alternative fuel products. H5: Price sensitivity does not moderate the relationship between attitude and consumer purchase intention price sensitivity does not strengthen the relationship between attitude and consumer purchase intention. H6: Price sensitivity moderates the relationship between subjective norms and consumer purchase intention which means that price sensitivity can have an influence between suggestions or influences from the surrounding environment on the interest in using a car with gas fuel.. H7: Price sensitivity does not moderate the relationship between perceived behavioural control and consumer purchase intention price sensitivity cannot strengthen each person's personal control on the purchase intention of a car that uses gas fuel. The limitations of this study only focus on variables that arise from the theory of planned behavior by not considering several other variables that are considered to have an influence on consumer purchase intention. Researchers suggest that service providers or companies that sell gas fuel products need to understand that external factors, such as the influence of people closest to them, are not significant in influencing consumer decisions to use gas fuel, and companies can focus on building individual awareness and understanding of the benefits of using gas fuel through marketing campaigns and publishing positive testimonials from gas fuel users. In this study, it can be explained that all exogenous constructs (Attitude, Subjective Norms and Perceive Behavioural Control) simultaneously influence Consumer Purchase Intention by 0.361 or 36.1%. Because Adjusted R Square is in the range of 33% to 67%, the influence of all exogenous constructs (Attitude, Subjective Norms and Perceive Behavioural Control) on Consumer Purchase Intention is moderate. For further research, it is hoped that it can complement the

lack of influence of the dependent variable which only has a moderate influence, namely by using other independent variables so that the results of the study can show a strong influence.

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