Factors Impacting New Energy Vehicles' Purchase Intention in Chengdu, China

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Abstract

Sales of new energy vehicles in China are expanding swiftly, establishing the country as the largest market globally, with 55.5% of the worldwide share with 7.6 million vehicles sold. The sales of new energy vehicles in China will significantly impact the advancement of associated markets globally, including those in ASEAN and other nations. In 2023, Chengdu attained the highest ranking for vehicle ownership among Chinese cities. This research seeks to examine the factors impacting the purchase intention of new energy vehicles in Chengdu, China. This study employs a quantitative methodology, utilizing questionnaires as a data collection instrument, analyzing the data with SPSS software, and applying multiple linear regression techniques to assess a total of 500 valid surveys. Research indicates that customers innovativeness has both direct and indirect impacts on their intentions for purchasing new energy vehicles, with the effect being most pronounced. Simultaneously, perceived quality, attitude, and subjective norms have a positive correlation with purchase intention. It suggests that both the government and companies should prioritize the establishment of an innovation-driven consumer environment, since consumer innovativeness is the most significant component. Enterprises need to promote the research and development of fundamental technologies, effectively convey the safety attributes of new electric vehicles, and elevate the public's perceived quality, attitudes, and subjective norms. The concepts and findings of this research are applicable to extensive social science energy research and behavioral economics analysis.

Keywords: New Energy Vehicle, Impact Factors, Purchase Intention, China.

1. Introduction

In 2023, the global electric vehicle market experienced rapid expansion, with total sales reaching approximately 13.7 million units, reflecting a year-on-year growth of about 29%. China remains the largest market, accounting for 55.5% of the global share with 7.6 million units sold, including both fully electric vehicles and plug-in hybrids (Canalys, 2023; Fortune Business Insights, 2023). Europe followed as the second-largest market with 3.2 million units sold, representing 24% of global sales, while the United States, although a smaller market, recorded 1.4 million units with a growth rate exceeding 40% (IEA, 2023). The automotive market in the ASEAN region has experienced notable growth, especially in the new energy vehicle (NEV) sector. Total light-vehicle sales in the region reached about 1.85 million units

by mid-2023, with Thailand playing a leading role in NEV sales. In fact, Thailand alone accounted for 79% of the ASEAN electric vehicle (EV) sales, driven by government incentives and investments from Chinese automakers like BYD and Great Wall Motors (Bangkok Post, 2023; Counterpoint Research, 2023). Therefore, the development of China's automobile market will have a certain impact on ASEAN's automobile market. At the end of September 2023, Chengdu ranked first in terms of car ownership in China, with about 6.395 million vehicles. Beijing followed closely behind with 6.384 million vehicles. As the capital, Beijing's car ownership growth rate has slowed down due to traffic restrictions and license plate restrictions. Chongqing ranked third with a car ownership of over 6 million vehicles. Shanghai and Suzhou ranked fourth and fifth, with 5.273 million and 5.212 million vehicles respectively (Dongchedi, 2023).

NEVs market in Chengdu can effectively respond to the situation in China's new energy car market. The development of NEVs in China has entered an accelerating track, with nearly 200 automobile companies participating in it, with sales covering all major, medium and small cities. Besides, energy storage technology, battery technology, charging pile services, intelligent driving, etc. are all constantly updated, which will be helpful to the vigorous development of NEVs. The development of NEVs with pure electric drive as the national strategic orientation has become a top priority in this field, which can be seen from the performance of various car companies and the market. The sales of NEVs are mainly reflected in first- and second-tier cities, and their marketing performance mainly relies on technological innovation capabilities, regional government policies and support, high levels of concept introduction, and consumers' consumption ability (Zhang, 2022). Due to the increasing maturity of NEV technology and the support of national policies, the NEV industry has developed rapidly in recent years. According to the "China Mobile Environmental Management Annual Report (2022)" released by the Ministry of Ecology and Environment, China achieved a production of 3.545 million NEVs, a sales volume of 3.521 million, of which the production and sales of battery electric vehicles were 2.942 million and 2.916 million respectively in 2021. The number of existing NEVs in China reached 7.84 million, accounting 2.6% of the total number of vehicles, an increase of 2.92 million vehicles compared with 2020. It includes 6.4 million battery electric vehicles, accounting for 81.6% of all NEVs (Ministry of Ecology and Environment, 2022).

For the existing NEV market, despite a series of policy promotions, the adoption rate of NEVs in many countries has not reached the original goal (Coffman et al., 2017; Karakitsiou et al., 2018). In many countries that promoted electric vehicles early, such as Belgium and Denmark, although strong promotion policies have been implemented, the market penetration rate of NEVs was also relatively low (Xue et al., 2021). Similarly, China's original plan to produce and sell NEVs to reach 2 million units by 2020 has not been completed as scheduled. The sales of NEVs still account for a low proportion of the new car sales market, with the current market share of only 5.4%. With the substantial reduction of NEV subsidy policies, China's NEVs have transformed from policy-driven to market-driven. Therefore, it has become extremely urgent to speed up the marketization process of NEVs. In addition, NEVs are still in the "early adoption stage" of market diffusion (Liu et al., 2018).

At this stage, consumer acceptance is crucial to the success of NEVs (Ozaki & Sevastyanova, 2011), because the success of an emerging technology product depends on customer acceptance. The current low market share of NEVs in China is related to personal low purchase intention (W. Li et al., 2020). In summary, some residents do not know much about NEVs (She et al., 2017), and some members of the public are interested in but skeptical of NEVs (Wang et al., 2018). Especially in the private purchase field, the acceptance level is still relatively low (Pielecha & Pielecha, 2020), making consumers less willing to buy NEVs (Chen et al., 2019), which has greatly affected the early diffusion speed of NEVs in the market. It is urgent to find new ways to increase public awareness of NEVs and improve their purchase intentions.

Previous research on the propensity to purchase NEVs has predominantly employed the Theory of Planned Behavior (TPB) model in isolation, with limited investigations that holistically assess the impact of consumer innovativeness, price sensitivity, perceived quality, environmental concern, and the TPB framework on consumers' purchasing decisions (Alphonsa & Sia, 2022; Ha & Janda, 2012; Hollebeek et al., 2022; Patwary et al., 2022). To address this research gap, this paper aims to identify the factors impacting consumer purchases of NEVs and to analyze the effects of consumer reactions and behaviors on these variables. A conceptual framework is constructed, and employed a multi-stage sampling technique to gather pertinent data, which is subsequently analyzed for validity, reliability, and relevance using Jamovi and SPSS AMOS 28 tools.

The objectives were to explain causal relationship between consumer innovativeness, attitude, price sensitivity, subjective norm, environmental concern, perceived quality and purchase intention of NEV for permanent residents in Chengdu, China. Based on previous research results and theories, this study explores the impacting factors of NEV purchase as comprehensively as possible, empirically analyzes the path relationship of the hypothesized model, and analyzes the impact of independent variables on NEV purchase intention, enriching the relevant research, thus leading the discussion of this issue to a deeper level. This study elucidates the principal factors impacting consumer behavior and offers empirical data to assist policymakers and businesses in comprehending and anticipating consumer decision-making processes, thereby facilitating the formulation of more targeted marketing strategies and environmental protection policies, and further advancing the proliferation and sustainable development of NEVs.

2. Theoretical Model and Literature Review

These research models studied vehicle purchase intention; the most used research models were the Theory of planned behavior (TPB) and the Theory of Reasoned Action (TRA). To advance the Theory of individual behaviors that are significant to the environment, the value-belief-norm (VBN) Theory was developed. In this particular investigation, (TPB) was chosen as one of the fundamental theoretical frameworks to be utilized (Ajzen & Fishbein, 1977). It is composed of the following components: *attitude*, *subjective norm*, and perceived behavioral control, which serve as the fundamental factors that determine customers' *purchase intentions*. A general rule—"the stronger the intention to engage in a behavior, the more likely it is to perform that behavior" (Ajzen, 2002). Bhutto et al. (2022) employed the TPB to examine the influence of *price sensitivity* on the propensity to acquire NEVs, revealing

a positive correlation. Fishbein and Ajzen (1975) initially proposed the TRA, believing that an individual's willingness to perform a certain behavior might vary with various contextual factors, such as personal values, personality, religion, culture, race, knowledge, and the media. *Consumer innovativeness* is one of the personality that will impact the attitude and purchase intention of NEVs (Tunçel, 2022). Xu et al. (2019) used TPB to study the purchase intention of environmentally friendly cars and found that *perceived quality* reflects hedonic and instrumental value, and it significantly affects the purchase intention. According to VBN (Stern, 2000), people who value other species or altruists worry that environmental conditions will harm the health of other species or humans. Klabi and Binzafrah (2023) employed VBN theory to find that *environmental concern* will affect the willingness to purchase NEVs to a certain extent.

- Consumer innovativeness and Attitude

Manning et al. (1995) believe that consumer innovativeness is the tendency of consumers to make independent decisions and search for novelty. Gatignon and Robertson (1985) studied innovation diffusion and pointed out that consumer innovativeness will affect attitudes. Many scholars have confirmed this view in the fields of e-commerce and Internet research. When Limayem et al. (2000) studied the influencing factors of consumers' Internet shopping, they showed that general innovativeness has a significant impact on consumers' attitudes towards online shopping. Goldsmith and Lafferty (2001) also found in their studies that consumers' innovativeness in the Internet field has an important impact on their attitudes. Lashari et al. (2021) measured consumer innovativeness as an important variable and demonstrated that consumer innovativeness is positively associated with their attitudes to buy NEVs. Tunçel (2022) found that consumer innovativeness, seeking uniqueness and driving experience leading to positive attitudes towards NEVs. The following hypothesis can therefore be developed:

H1: *Consumer innovativeness has a significant impact on the attitude.*

- Consumer innovativeness and Purchase intention

The research of Adjei and Clark (2010) pointed out that consumer innovativeness has a significant impact on new product purchasing behavior, while Im et al. (2003) pointed out in an empirical study that consumer innovativeness does not directly affect consumers' new product purchasing behavior. Chen et al. (2010) selected electronic products as test products and found through empirical research that consumer innovativeness can significantly affect consumers' willingness to purchase new electronic products. Chen (2018) believes that consumer innovativeness has a positive impact on consumer behavior, that is, the higher the innovativeness, the greater the impact on consumer behavior. Zhang (2020) showed that consumer innovativeness is positively related to new product purchase intention. When consumers have a high level of innovation, they experience novel experiences and sensory pleasure when exposed to new products, which in turn generates purchase intention. Thus, the following hypothesis can be articulated:

H2: *Consumer innovativeness has a significant impact on purchase intention.*

- Attitude and Purchase intention

Those who view NEVs positively and show a positive attitude toward NEVs have stronger purchase intentions than other consumers (Bühler et al., 2014). Attitudes are

evaluations of expected behaviors based on personal beliefs and evaluations (Fishbein & Ajzen, 1977). Attitudes toward a behavior reflect the degree to which the behavior is evaluated favorably or unfavorably (Ingrid & Patrick, 2015). For example, individuals who have a positive attitude towards innovation are likely to adopt new technologies (Rogers et al., 2014). The more positive a consumer's attitude towards owning NEVs is, the more likely they are to show their willingness to purchase NEVs (Elena et al., 2019). The following hypothesis can thus be proposed:

H3: *Attitudes have significant impacts on purchase Intention.*

- *Price sensitivity and Purchase intention*

Price plays a crucial role in consumers' purchasing intentions (Goldsmith et al., 2005). When different products have similar functionalities but different prices, consumers' price sensitivity will have a great impact on purchase intentions (Masiero & Nicolau, 2012). Li (2006) showed that short-term price promotions will increase sales, but frequent price promotions will affect consumers' price sensitivity, which will lead to customers thinking about buying only when the price drops to a low level. Zhang (2015) pointed out that price sensitivity will affect their judgment of product image, and thus affect purchase intention. Dong et al. (2020) found that in the context of government subsidies, price factors have no significant impact on the purchase intention of Chinese urban residents to electric vehicles. Thus, the hypothesis can be formulated:

H4: *Price sensitivity has a significant impact on purchase intention.*

- *Subjective norm and Purchase intention*

Afroz et al. (2015) revealed that individuals' purchase intention for NEVs is affected by social pressure from social networks (such as relatives and friends). Wang et al. (2016) also emphasized that social pressure affects consumer behavior. It plays an important role and even dominate their personal ethics. Subjective norm is one of the main factor influencing Chinese consumers' choice of NEVs (Zhang et al., 2020). Hu (2014) verified through empirical research that subjective norm has a significant impact on rural residents' purchase intentions. Guo et al. (2010) proposed that subjective norm has a significant impact on consumers' purchasing attitudes and purchase intentions. Thus, the hypothesis can be formulated:

H5: *Subjective norms have significant impacts on purchase intention.*

- *Environmental concern and Purchase intention*

Consumers who are concerned about the environment may be concerned about the impact of their consumption behavior on the environment, thereby guiding them to adopt environmentally friendly behaviors (Pagiaslis & Krontalis, 2014). Consumers with higher environmental concern are more likely to choose to purchase NEVs (Degirmenci & Breitner, 2017). Consumers who are more concerned about the environment are willing to pay a premium for environmentally friendly products and increase their willingness to purchase NEVs (Simsekoglu & Nayum, 2019). The stronger the environmental concern, the greater the perception of personal behavioral control, which greatly encourages them to purchase NEVs (Lou et al., 2017). Environmental concern can effectively predict consumers' purchase intentions of new energy cars (Li et al., 2021). Thus, the hypothesis can be formulated:

H6: *Environmental concern has a significant impact on purchase intention.*

- Perceived quality and Purchase intention

In the automotive industry, perceived product quality is considered an important factor in consumer purchasing (Xu et al., 2017). Wells et al. (2011) found that perceived quality has a direct impact on purchase intention. Xu et al. (2019) conducted a survey on the use of freight electric vehicles in Vietnam and found that perceived quality has a certain impact on purchase intention and that the high risk of freight electric vehicles is a major obstacle to carriers' acceptance of electric vehicles. Jaiswal et al. (2022) investigated the relationship between perceived quality and purchase intention of remanufactured goods and found that perceived quality has an important impact on consumers' purchase intention. In Indian NEV market, there is a positive relationship between perceived quality and purchase intention, and the more people know about NEVs, the easier it is to buy NEVs (Ngoc et al., 2023). Thus, the hypothesis can be formulated:

H7: *Perceived quality has a significant impact on purchase intention.*

Based on the all the concepts discussed above, the following conceptual framework was developed:
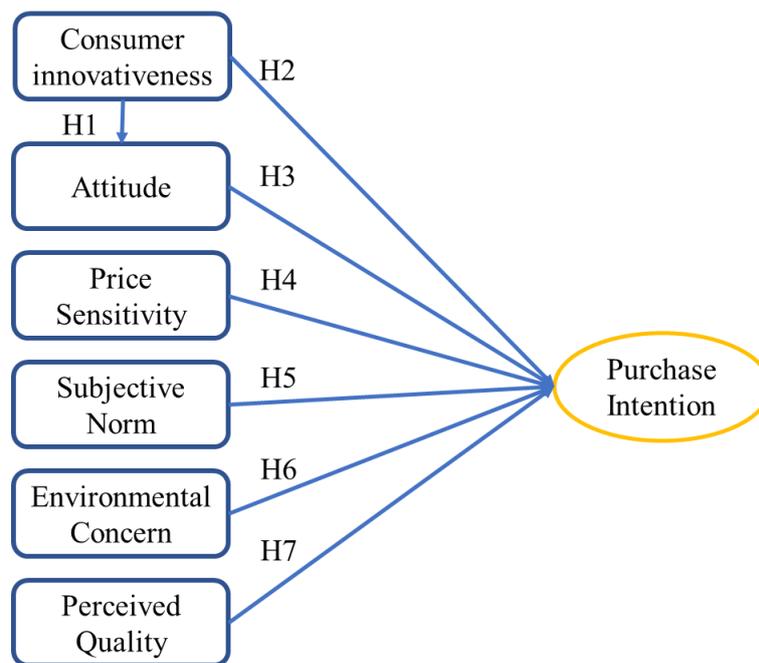

Figure 1: The Conceptual Framework of "Factors Impacting Purchase New Energy Vehicles' Intention in Chengdu, China"
Source: Author

3. Methodology

Sample and Data Collection Procedure

This article aims to examine the purchase intentions for NEVs in Chengdu. The target demographic was permanent residents of Chengdu, as they are more likely to purchase vehicles in the city. The article selected 12 main urban districts of Chengdu as target areas because they have the most population and are the main areas of the city. Soper (n.d.) provides a sample size

calculator for Structural Equation Models. As a result, a minimum sample size of 425 is advised for this investigation. Nonetheless, the researcher thought it reasonable to gather 500 valid questionnaires. The specific resident population and stratified sampling of the 12 districts are shown in Table 1 (Chengdu Government, 2023). This research employed a multi-stage sampling technique. Initially, adult permanent residents from 12 districts of Chengdu were chosen utilizing the judgment sampling technique. The stratified sampling approach was employed to ascertain the requisite number of valid questionnaires for each district. Ultimately, samples were obtained through the distribution of online and offline questionnaires.

Table 1: Population size and Proportional sample size in Chendu.

Distracts Name	Population Size (unit: thousand)	Proportional Sample Size
Pidu District	1659	60
Xindu District	1572	57
Shuangliu District	1500	55
Chenghua District	1397	51
Longquanyi District	1356	49
Jinniu District	1265	46
Wuhou District	1220	44
Wenjiang District	990	36
Qingyang District	1075	39
Jinjiang District	910	33
Qingbaijiang District	501	18
Xinjin District	330	12
Total	13775	500

Data in this study were gathered from both primary and secondary sources. Secondary data is utilized by reviewing core ideas and past research to provide logical and reputable sources for constructing the study's concept and assumptions. The questionnaire data was collected using a quantitative methodology through the dissemination of surveys to the target population. A total of 626 individuals were surveyed, of which 500 were valid, using a five-point Likert scale rating system to gather primary data. The participants' demographics is summarized in Table 2.

Table 2: Descriptive Characteristics of Participants

Gender	Male: 231 (46.2%)
	Female: 269 (53.8%)
Age	Less than 20 years old: 135 (27.0%)
	20-25 years old: 210 (42.0%)
	26-30 years old: 11 (2.2%)
	31-35 years old: 72 (14.4%)
	36-40 years old: 16 (3.2%)
	More than 40 years old: 56 (11.2%)
Driving frequency	Once a day or more: 114 (22.8%)
	Once a week or more: 36 (7.2%)
	Once a month or more: 33 (6.6%)
	Others: 317 (63.4%)

Note: Created by the Author

Measurement

A five-point Likert scale was designed to assess participants' attitudes and behavioral intentions regarding NEV purchases. The questionnaire comprises 23 items across six constructs: Consumer Innovativeness (CI), Attitude (ATT), Price Sensitivity (PS), Subjective Norms (SN), Environmental Concern (EC), and Perceived Quality (PQ). Each item was specifically tailored based on relevant literature, while ensuring the clarity and applicability for the Chengdu population. For example:

Consumer Innovativeness (CI) was measured using four items, such as "I love to use innovations that impress others," which was adapted from Tunçel (2022) to capture the individual's openness to new products.

Attitude (ATT) included four items like "In my opinion, purchasing a new energy vehicle is a good attitude," reflecting the individual's overall evaluation of NEV purchases (de Oliveira et al., 2022).

Price Sensitivity (PS) consisted of three items, for instance, "I am willing to pay 30% more for a new energy vehicle," representing the participant's financial considerations related to NEVs (Bhutto et al., 2022).

Subjective Norms (SN) had three items such as "Those who are important to me support me purchasing a new energy vehicle," to measure the social influence on NEV purchase intentions (Wang et al., 2013).

Environmental Concern (EC) included three items like "I am concerned about the effects of polluted air on my family," assessing the individual's environmental awareness (Onurlubaş, 2018).

Perceived Quality (PQ) was measured through three items such as "Overall appearance is better for new energy vehicles than non-green vehicles," indicating perceptions of NEV quality (Khalid & Helander, 2004).

Purchase Intention (PI) used three items, including "I plan to switch my conventional automobile with a new energy vehicle in the future," reflecting the participant's likelihood of purchasing an NEV (Bhutto et al., 2022).

Each of these constructs was developed to ensure both the validity and reliability of the data, grounded in the context of the local population of Chengdu and their attitudes towards NEVs. The detailed item-level development process ensures transparency and enhances the questionnaire's rigor.

Data Analysis

This research applied Jamovi and IBM SPSS Amos 28 to conduct the data analysis.

Table 3: Correlations among Variables, Internal Consistency, Convergent Validity and Factors Loading.

Variables	Cronbach's Alpha	Composite reliability coefficient	Factors Loading	CI	ATT	PS	SN	EC	PQ	PI
CI	0.890	0.891	0.768-0.888	**0.821**						
ATT	0.928	0.928	0.808-0.907	0.194	**0.874**					
PS	0.889	0.891	0.797-0.901	0.161	0.369	**0.855**				
SN	0.923	0.924	0.843-0.942	0.212	0.369	0.478	**0.895**			
EC	0.801	0.804	0.697-0.842	0.230	0.259	0.129	0.206	**0.761**		
PQ	0.972	0.973	0.936-0.984	0.356	0.363	0.364	0.33	0.302	**0.961**	
PI	0.965	0.965	0.944-0.958	0.509	0.472	0.364	0.412	0.233	0.552	**0.95**

Note: Created by the Author

As shown in Table 3, the Cronbach's Alpha coefficients of three latent variables exceed 0.80, four latent variables exceed 0.90, all factor loadings exceed 0.50, and the composite reliability (CR) exceeds 0.70. The number shown by the diagonal represents the square root of the average variance extracted (AVE) of the variable, and all coefficients linking any two different latent variables are below 0.80. The discriminant validity of this article is assessed using quantitative techniques.

Structural Equation Model (SEM)

The structural equation model (SEM) confirmation was performed in this study. SEM is employed to assess a particular set of linear equations in order to ascertain the degree to the proposed model is a good fit. Furthermore, SEM examines the cause-and-effect connection between variables and finds the potential errors or inaccuracies in the coefficient estimations (Thanatchaporn, 2021). According to the results presented in Table 4, after being adjusted using SPSS AMOS version 28, all the values for CMIN/DF, GFI, AGFI, CFI, NFI, TLI, and RMSEA were found to be within acceptable ranges.

Table 4: Goodness of Fit for Measurement Model.

Index	Criterion	Source	Statistical Values
CMIN/DF	< 5.00	(Al-Mamary & Shamsuddin, 2015)	3.994
GFI	≥ 0.85	(Sica & Ghisi, 2007)	0.858
AGFI	≥ 0.80	(Sica & Ghisi, 2007)	0.810
NFI	≥ 0.80	(Wu & Wang, 2006)	0.922
CFI	≥ 0.80	(Bentler, 1990)	0.940
TLI	≥ 0.80	(Sharma et al., 2005)	0.926
RMSEA	< 0.08	(Pedroso et al., 2016)	0.077

Note: Created by the Author

4. Results and Discussion

Hypothesis Testing Results

According to the results in Table 5, consumer innovativeness has the greatest direct impact on the purchase intention of new energy vehicles, with a standardized path coefficient (β) of 0.374 (t value is 9.215***); followed by a significant impact of perceived quality on purchase intention, β of 0.340 (t value is 9.144***); followed by attitude and subjective norms, β of 0.263 (t value is 6.763***) and 0.186 (t value is 4.949***). In addition, for the interaction effect, consumer innovativeness has a great impact on attitude, β of 0.201 (t value is 4.176***). The p values of environmental concern and price sensitivity are greater than 0.05, so their impact is not significant, and the H4 and H6 hypotheses are not supported. In addition, the corrected R square value is 0.405, indicating that the independent variables could be responsible for 40.5% of the variation in the dependent variable. The remaining 59.5% is influenced by additional variables that are not addressed in this research. This suggests that future research should explore additional variables, such as brand perception or government policies, to further understand the determinants of NEV purchase intention.

Table 5: Hypothesis Result of the Structural Equation Modeling.

Hypothesis	Paths		Standardized Path Coefficient(β)	T-Value P-Value	Test Result
H1	ATT	← CI	0.201	4.176***	Accept
H2	PI	← CI	0.374	9.215***	Accept
H3	PI	← ATT	0.263	6.763***	Accept
H4	PI	← PS	0.066	1.733	Reject
H5	PI	← SN	0.186	4.949***	Accept
H6	PI	← EC	-0.048	-1.221	Reject
H7	PI	← PQ	0.340	9.144***	Accept

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$
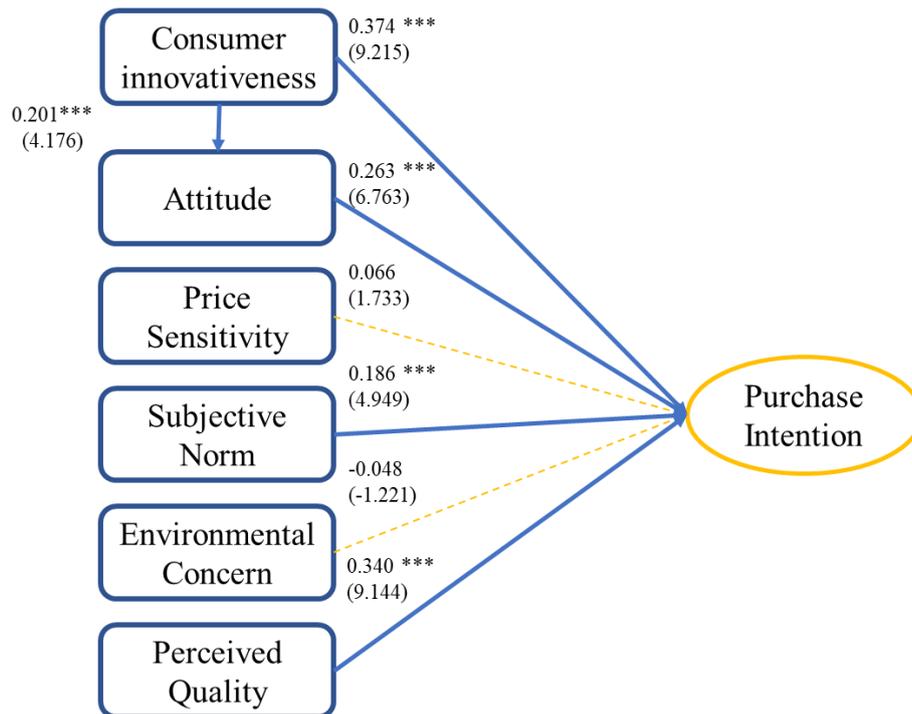
Note: Created by the Author

Figure 2: Result of the Structural Model

Note: Solid line reports the Standardized Coefficient with *** as p<0.001,
and t-value in Parentheses; Dash line reports Not Significant

Source: Author

The results of this study show that consumer innovativeness (CI) has the most significant positive impact on the purchase intention of NEVs, with a standardized path coefficient of 0.374 (p < 0.001). This finding is consistent with previous research that suggests innovative consumers are more likely to adopt new technologies (Tunçel, 2022). Additionally, perceived quality (PQ) also has a significant influence on purchase intention ($\beta = 0.340$, p < 0.001), indicating that consumers' perceptions of product quality play a crucial role in their decision to purchase NEVs (Khalid & Helander, 2004). Meanwhile, both attitude (ATT) and subjective norms (SN) positively impact purchase intention, with $\beta = 0.263$ and $\beta = 0.186$, respectively (both p < 0.001). These findings suggest that consumers' personal attitudes towards NEVs, as well as social influences, are key factors in shaping purchase behavior. This is consistent with previous studies highlighting the importance of attitudes and social norms in influencing consumer behavior (de Oliveira et al., 2022; Wang et al., 2013).

Interestingly, price sensitivity (PS) and environmental concern (EC) did not significantly affect purchase intention (p > 0.05). This result suggests that although consumers may express concern for environmental issues, this concern does not necessarily translate into a higher likelihood of purchasing NEVs. It aligns with existing research conducted in Japan. Studies have indicated that Japanese consumers, despite their awareness of environmental issues, do not strongly correlate this concern with NEV purchase intentions. Instead, factors such as government incentives, technological features, and perceived product benefits play a more pivotal role in driving adoption (Li et al., 2020; Zhao et al., 2022). This similarity between the Chinese and Japanese contexts highlights the importance of addressing practical benefits

and external incentives when promoting NEVs, rather than solely focusing on environmental messaging. Similarly, the lack of significance for price sensitivity implies that financial considerations, such as willingness to pay a premium for NEVs, may not be as crucial as expected in the context of this study. Nevertheless, this discovery aligns with the findings of Dong et al. (2020), indicating that price factors do not exert a statistically significant impact on the PI of electric vehicles among urban residents in China. Individuals exhibit a heightened level of concern regarding the duration of battery life and the accessibility of charging amenities. Frequent price promotions, another factor contributing to the ineffectiveness of price sensitivity, will impact consumers' price sensitivity (Li, 2006). In recent years, consecutive pricing wars have transpired in China's car industry. The average terminal transaction price of vehicles in the market was decreased by around 15% in 2023 relative to the prior year (China Economic Net, 2024). This will result in Chinese consumers exhibiting insensitivity to marketing strategies, including price reductions and discounts, when purchasing NEVs.

5. Conclusion and Recommendations

This research aims to explore the factors that impact the purchase intention of new energy vehicles in Chengdu, China. A conceptual framework was used to generate seven hypotheses to verify the reaction mechanism between consumer innovativeness, attitude, price sensitivity, subjective norm, environmental concern, perceived quality, and purchase intention of new energy vehicles. This paper uses confirmatory factor analysis for scientific calculation to verify the validity and reliability of the conceptual framework. In addition, the structural equation model (SEM) was used to verify the main factors impacting purchase intention. The results of this survey show that consumer innovativeness has the greatest impact on the purchase intention of new energy vehicles, and has direct and indirect effects; perceived quality follows closely, and has the second highest impact on purchase intention; attitude and subjective norm have the third and fourth impacts on purchase intention. The impact of environmental concern and price sensitivity on purchase intention was not verified in this survey.

This paper studies the factors that impact the purchase intention of new energy vehicles in Chengdu, China. Based on the data of this quantitative survey, the researchers suggest that both the government and enterprises should focus on building an innovation-driven consumer environment, as consumer innovativeness is the most effective factor. Perceived quality ranks as the second most significant factor; therefore, companies must prioritize research and development in essential NEV technologies, including battery performance, durability, and energy efficiency. Technological advancements must be effectively conveyed to consumers via product marketing that highlights practical benefits. In terms of subjective norms and attitudes, Chinese consumers place a high value on social norms and the opinions of peers (Yang, 1981), marketing strategies should focus on leveraging influencers and peer endorsements. Collaborations with celebrities, influencers, and opinion leaders in the environmental or technology sectors can help shape public perceptions of NEVs and increase social acceptance. Safety remains a top priority for consumers. Companies should ensure that the safety features of NEVs are clearly communicated, especially in areas like collision avoidance systems, battery safety, and vehicle stability, to improve the attitude of NEVs.

Despite these results and implications, limitations persist. This study is confined to the Chengdu area, and the findings may not be relevant to other countries. The factors inadequately elucidate the impact of customers purchasing NEVs. Future research may broaden the study's scope and add more contributing variables.

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