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Impact of perceived risks and perceived value on Chinese consumers' purchase intention of NEVs

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Napawan Kananurak[1], Sun Min[2] and Nalinee Wechwiriyakul[3]
[1]School of Business, University of the Thai Chamber of Commerce
[2]International School of Management, University of the Thai Chamber of Commerce
[3]School of Science and Technology, University of the Thai Chamber of Commerce
126/1 Vibhavadi Ransit Rd., Dindang, Bangkok 10400, Thailand
[1]napawan_kan@utcc.ac.th, [2]2210132241928@live4.utcc.ac.th,
[3]nalinee_wec@utcc.ac.th

Abstract

The objective of this research is to examine the impacts of perceived risks and perceived values on Chinese consumers' purchase intention of NEVs. Unlike previous studies, this research examines both risk and value factors simultaneously using recent data from a large Chinese sample. This research utilized a quantitative survey research methodology administered through an online questionnaire. The population is consumers who intend to purchase a car within the next 2-3 years. The sample size of this research is 387. Multiple regression analysis was used to explore the impact of perceived risks (physical risk, financial risk, functional risk, social risk, and time risk) and perceived values (functional value, economic value, environmental value, social value, emotional value, and convenience value) on Chinese consumers' purchase intention of NEVs. The results show that physical risk and time risk negatively affect Chinese consumers' purchase intention of NEVs. Conversely, financial risk and functional risk positively affect Chinese consumers' purchase intention of NEVs. In addition, functional value, economic value, environmental value, social value, emotional value, and convenience value positively affect Chinese consumers' purchase intention of NEVs.

Keywords: NEVs, perceived risk, perceived value, purchase intentions

Introduction

In the past few decades, China's economy has experienced rapid growth. This leads to a surge in the number of fuel and private cars, which has resulted in severe environmental pollution, particularly in urban air quality. Approximately 40% of Chinese cities are facing serious air pollution issues (Zhang et al., 2020). During this period, the concept of green consumption has gained prominence, influenced by global trends, and Chinese consumers have become increasingly enthusiastic about green, natural, and environmentally friendly products, with a growing focus on sustainable development (Xie et al., 2021). At the national level, Chinese government begins to pay a lot of attention to environmental protection, and gradually shift towards sustainable development (Wang et al., 2022). The vigorous promotion of new energy vehicles (NEVs) can be served as evidence that Chinese government made a significant effort in this aspect. In 2022, the sales of domestic brand NEVs accounted for 79.9% in China's market. BYD surpasses Tesla to become the global leader in NEVs sales (Zhang, 2024).

NEVs have developed rapidly, and the sales of NEVs reached 9.495 million units for the entire year in 2023 and the sales of fuel vehicles were 13.95 million units in the same year (Zhang, 2024). Almajali (2020) mentioned that physical risk (health hazard to consumers due to performance of NEVs), financial risk (e.g. uncertainty about resale value, or high initial cost), functional risk (e.g. battery life or driving range), social risk (e.g. perceived image associated with driving an NEV), and time risk (e.g. consumers' concerns about taking much more time to deal with the new innovation) would negatively affect consumers' purchase of NEVs after investigation in Jordan. For those people who perceive higher risks than perceived value, they will certainly buy the fuel vehicles. Regarding perceived value, economic value (e.g. cost savings on fuel and maintenance), functional value (e.g. good and reliable performance), emotional value (e.g. environmental friendliness), and social value (e.g. alignment with social acceptance) would positively affect consumers' purchase intention of NEVs (Higueras-Castillo et al., 2019). For those consumers who perceive higher value on buying NEVs, they will certainly purchase NEVs. However, NEVs have undergone several generations of technological advancements since their inception (Hu et al., 2021). For example, the newly developing battery currently is solid-state batteries, and the charging stations nowadays have increased much in number and efficiency (Hu et al., 2021). Also, the NEVs have enhanced regenerative braking systems (Liu et al., 2023). These developments make NEVs more attractive and practical for consumers to adopt. Anyway, NEVs have been in a mature development stage, but it is unknown how consumers' perceptions of risk and value have changed, and the extent of these changes. Therefore, this research aims to explore the impact of perceived risk and perceived value on Chinese consumers' purchase intention of NEVs.

Unlike previous studies, this research examines both risk and value factors together using recent data from a large Chinese sample. The research objective is to examine the impact of consumers'

perceived risks (physical risk, financial risk, functional risk, social risk, and time risk) and perceived values (functional value, economic value, environmental value, social value, emotional value, and convenience value) on Chinese consumers' purchase intention of NEVs. Previous research has not yet explored perceived risk and perceived value on purchase intention, especially in the context of a mature NEV market. The research findings can help NEV companies better understand consumer perceptions related to perceived risk and perceived value. Understanding which perceived risks and values most significantly affect purchase intentions can guide the development of more effective marketing campaigns and communication strategies. Also, it could guide the companies to develop cars that better meet consumer needs and preferences, then increasing their market shares and becoming a competitive company in the rapidly growing NEV market in China. The research questions are: 1) What is the impact of perceived risks on Chinese consumers' purchase intention of NEVs? and 2) What is the impact of perceived values on Chinese consumers' purchase intention of NEVs?

Literature review and hypothesis development

Purchase intention

Peña-García et al. (2020) describe purchase intention as a process where consumers gather information about a product, analyze it, and then decide whether to buy it. Stronger purchase intention indicates a higher likelihood of purchasing a particular product. Tu and Yang (2019) further defines consumers' purchase intention of electric vehicles as an individual's inclination to take specific buying actions toward NEVs, and it could be measured by the individual's likelihood to take the buying actions. Dam (2020) categorized purchase intention into five levels ranging from no intention to purchase to definite intention to purchase, assigning scores from 1 to 5, respectively. Purchase intention was measured by calculating the average score among the research participants emphasized that perceived risk and perceived value significantly affect consumers' intentions to buy environmentally friendly products.

Perceived risk

Perceived risk, as discussed by Rosillo-Díaz et al. (2020), is commonly understood as a combination of two elements: the likelihood of an unfavorable outcome and the severity of its impact. Almajali (2020) divided perceived risks into physical risk, financial risk, functional risk, social risk, and time risk to investigate their impact on consumers' attitudes toward buying EVs and showed that perceived risks had negative and significant effects on consumers' attitude toward buying EVs.

Physical risk

Physical risk means the possible physical and health harm caused by use of some new product or service (Almajali, 2020). In the field of NEVs industry, physical risk refers to consumers' anticipation related to physical and health risk that may be resulted from the use of NEVs (Featherman et al., 2021). NEVs operate at high voltages, which can pose risks of

electric shock to consumers and maintenance personnel in the event of an accident or malfunction (Featherman et al., 2021). It may have electric shock or short circuits, as well as fire hazards if charging equipment malfunctions (Xu et al., 2020). All of these will cause physical and health harm to consumers and further negatively affect the consumers' purchase intention of NEVs (Featherman et al., 2021) Xu et al., 2020). The first hypothesis is:

H1: Physical risk negatively affects Chinese consumers' purchase intention of NEVs.

Financial risk

Financial risk refers to the potential negative financial outcomes that consumers may face as the result of their financial decisions or actions (Almajali, 2020). Regarding NEVs, the consumers have concerns about resale value and depreciation rate of NEVs due to evolving technology and battery degradation etc. (Ivanova & Moreira, 2023). The anticipation of replacing battery cost may negatively impact the consumers' purchase intention of NEVs (Ivanova and Moreira, 2023). It is known that the NEVs have experienced several upgradations and the current NEVs are characterized as intelligence, and hence the consumers have concerns of high maintenance or repair cost (Almajali, 2020). The second hypothesis is:

H2: Financial risk negatively affects Chinese consumers' purchase intention of NEVs.

Functional risk

Functional risks for consumers refer to the potential negative consequences or concerns related to the performance, reliability, or usability of a product or service (Ivanova & Moreira, 2023). In the field of NEVs, the functional risks are related to the performance capabilities of NEVs, such as acceleration, range, and overall driving experience, and battery life and durability, etc. (Almajali, 2020). The third hypothesis is:

H3: Functional risk negatively affects Chinese consumers' purchase intention of NEVs.

Social risk

Social risk indicates that purchasing or use of a product or service negatively influences the consumers' relationship with his/her friends, family, colleagues and so on (Lou et al., 2017). In the context of purchasing NEVs, Consumers may be concerned about the social acceptance of NEVs and how they are perceived by others within their social circles or communities, hence their purchase intentions are negatively influenced (Almajali, 2020). The fourth hypothesis is:

H4: Social risk negatively affects Chinese consumers' purchase intention of NEVs.

Time risk

Time risk refers to potential loss of time related to making a bad decision by purchasing a product, or the product does not reach consumers' expectations (Almajali, 2020). NEVs are characterized as high technology and intelligence, hence the consumers will have concerns that they must spend much more energy and time to know them before purchase and repair or do maintenance job if the cars are malfunctioning after purchase, which also negatively impacts consumers' purchase decisions (Dong, 2021). The fifth hypothesis is:

H5: Time risk negatively affects Chinese consumers' purchase intention of NEVs.

Perceived value

Watanabe et al. (2020) highlighted that perceived value is a construct comprising two elements: the benefits received (economic, social, relational) and the sacrifices made (price, time, effort, risk, and convenience) by the consumer. Kim et al. (2018) measurement perceived value scale included functional value, economic value, environmental value, social value, emotional value, and convenience value, all of which could contribute to the overall satisfaction and value perception of the consumer, and further influence consumers' purchase behavior. Additionally, functional value, environmental value, emotional value, and convenience value were also proved that they would positively improve consumers' purchase intention of NEVs (Dong, 2021; Jiaxin, 2023; Kim et al. 2018; Salehzadeh & Pool, 2017).

Functional value

Functional value is associated with the practical benefits that consumers achieve when using a product (Salehzadeh & Pool, 2017). Functional value focuses on the basic performance of the NEVs such as acceleration, handling, range and driving experience and quality (Lou et al., 2017). If consumers perceived positive functional value, they would have recommendation intention or purchase intention. Dong (2021) The sixth hypothesis is:

H6: Functional value positively affects Chinese consumers' purchase intention of NEVs.

Economic value

Economic value refers to consumers' satisfaction degree after purchasing a product based either on monetary cost and time or effort invested in getting the product. Applied in NEVs, economic value considers the cost effectiveness of purchasing a NEV such as price, maintenance costs, and savings compared with that spent in fuel cars (Salehzadeh & Pool, 2017). Jiaxin (2023) mentioned that NEVs would save lots of money on fuel because of its battery-driven attributes. Ivanova and Moreira (2023) find similar positive relationships between economic value and purchase intention of NEVs. The seventh hypothesis is:

H7: Economic value positively affects Chinese consumers' purchase intention of NEVs.

Environmental value

With the increasing awareness of environmental issues, consumers increasingly consider the environmental impact of their vehicle choices. NEVs are perceived as more environmentally friendly due to the reduced emissions and reliance on renewable energy sources. Additionally, low engine noise levels are also a positive factor that influences consumers' purchase intention of NEVs (Kim et al., 2018). The eighth hypothesis is:

H8: Environmental value positively affects Chinese consumers' purchase intention of NEVs.

Social value

Social value is related to social image and status while consumers own a NEV (Higueras-Castillo et al., 2019). Wang et al. (2024) pointed out that social value contains the symbolic meanings and

social identity embedded in purchasing a car and adding that social acceptance has a significant positive impact on consumers' purchase intention of NEVs. The ninth hypothesis is:

H9: Social value positively affects Chinese consumers' purchase intention of NEVs.

Emotional value

The feeling of pride or guilt towards the environment would motivate consumers to purchase the environment friendly NEVs (He & Hu, 2022). The tenth hypothesis is:

H10: Emotional value positively affects Chinese consumers' purchase intention of NEVs.

Convenience value

Convenience value considers the ease and convenience associated with using a NEV (Higueras-Castillo et al., 2019). This includes factors like availability of charging infrastructure, ease of maintenance, and any additional services or support provided by the manufacturer or dealership (He & Hu, 2022). The eleventh hypothesis is:

H11: Convenience value positively affects Chinese consumers' purchase intention of NEVs.

Conceptual framework

Based on literature review, the conceptual framework of this research presented in the following model:

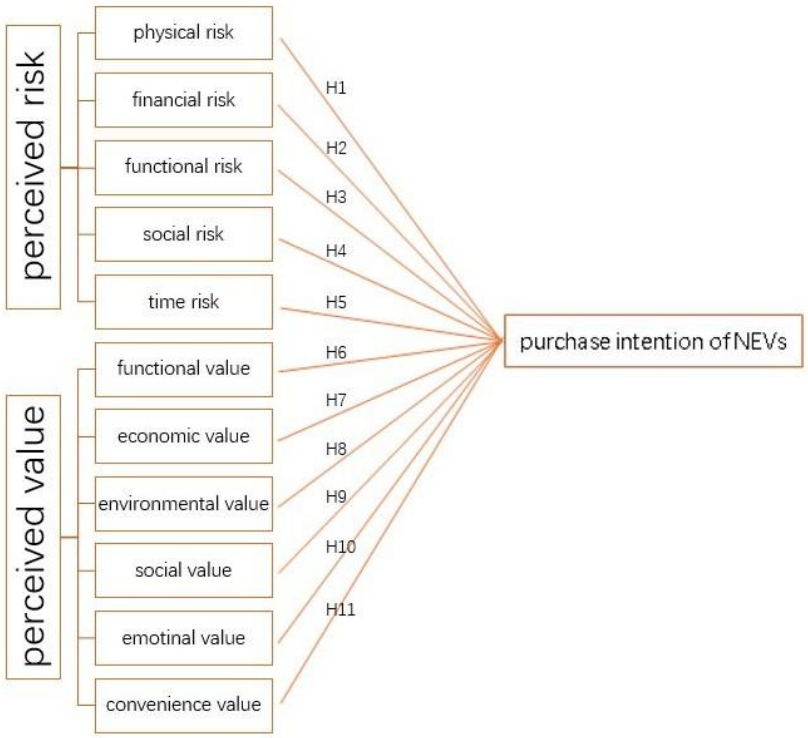

Figure 1 Conceptual framework

Research methodology

This research is quantitative research. The quantitative research was conducted by using questionnaire and online questionnaire survey methodology. The population is the respondents who intend to purchase cars within the next 2-3 years. The researcher collected 265 valid questionnaires in the Auto Expo held in Beijing from April 25th to May 4th and 122 valid questionnaires in the online questionnaire survey platform, wjx.cn., 387 in total. The sample calculated according to formula by Yamane (1973) is 400. The response rate was appropriate as it was in accord with Grover and Vriens (2006) who suggested that the optimum population probability sample proportion should be a bit over 60.0%. The 387 sample of this research is an appropriate size because the overall usable response rate is 96.75%.

The questionnaire design is related to the conceptual framework. The questionnaire consists of six sections. The first section is screen question. The second section is socio-demographic information. The third section is consumer behavior of using cars. The fourth section is purchase intention. The fifth section is perceived risks. The sixth section is perceived values. The first, second, and third sections are multiple-choice questions. The fourth, fifth, and sixth sections are used 5-point Likert scale to assess participants' agreement or disagreement degree (1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly agree).

The data was analyzed through descriptive statistics and inferential statistics. Descriptive statistics (frequency and percentage) used for analysis of the social-demographic information and consumer behavior of using cars. This research used inferential statistics (multiple regression analysis) to examine the hypothesis.

About reliability analysis, Cronbach's alpha is a measure of internal consistency, indicating how well the items within a scale are correlated with each other. A higher Cronbach's alpha value suggests better reliability. Alpha values above 0.7 are considered acceptable, values above 0.8 will be considered good, and values above 0.9 will be considered excellent (Thanasegaran, 2009). Cronbach's alpha coefficients are calculated for purchase intention, perceived risks, and perceived values. Cronbach's alpha of purchase intention is 0.714, Cronbach’s alpha of perceived risks is 0.820 and Cronbach’s Alpha of perceived value is 0.908. These results indicate a satisfactory level of confidence in the questionnaire’s reliability.

Analysis and result

Descriptive statistical analysis

The social-demographic information of the respondents was summarized in Table 1 as follows:

Table 1 Frequency and percent of social-demographic information

Social-demographic Information	Frequency	Percent
Gender		
Male	243	62.8
Female	144	37.2
Age		
25-35	63	16.3
36-45	188	48.6
46-55	99	25.6
56 and above	37	9.6
Education level		
High school or below	68	17.6
College	120	31.0
University	104	26.9
Postgraduate or above	95	24.5
Yearly income (RMB)		
50,000 or below	19	4.9
50,001-100,000	130	33.6
100,001-300,000	106	27.4
300,001-1,000,000	79	20.4
1,000,001 and above	53	13.7
Living location		
First tier cities	134	34.6
Second tier and Third tier cities	113	29.2
Fourth tier and below cities	77	19.9
Undeveloped areas	35	9.0
Rural areas	28	7.2

The respondents were 243 males (62.8%) and 144 females (37.2%). The age of respondents was 36-45 years (48.6%). The education level of the respondents from college was the largest at 120 (31.0%). There were 130 respondents who were the biggest group (33.6%) getting the yearly income of 50,001-100,000 (RMB) and 134 respondents of living location (34.6%) who were first tier cities.

Consumer behavior of the respondents using cars was summarized in the Table 2 as follows:

Table 2 Frequency and percent of consumer behavior of using cars

Consumer behavior of using cars	Frequency	Percent
Driving experience		
≤1 year	74	19.1
2-4 years	70	18.1
5-7 years	74	19.1
8-10 years	104	26.9
11 years and above	65	16.8
Driving distance per year (km.)		
5,000 or below	81	20.9
5,001-10,000	89	23.0
10,001-15,000	132	34.1
15,001-20,000	46	11.9
20,001 and above	39	10.1
Purposes of using a car (multiple choices)		
Commuting to work/school or grocery shopping, etc.	356	38.7
Leisure or recreational	247	26.8
Business purposes	214	23.2
Personal hobbies or interests	48	5.2
Others	56	6.1
Where the consumers usually use their cars		
Urban areas/cities	220	56.8
Suburban areas	96	24.8
Rural areas	14	3.6
Highways	21	5.4
Rugged terrain	18	4.7
Others	18	4.7

There were 104 (26.9%) respondents with 8-10 years of driving experience and 132 (34.1%) respondents with a driving distance between 10,001-15,000 km. per year is the highest. For the survey on the purposes of using a car, which was a multiple-choice question, commuting to work/school or grocery shopping, etc. has the highest proportion, 356 (38.7%) of the respondents. The highest proportion is 220 (56.8%) of the respondents who usually use their cars in urban areas/cities.

Multiple regression analysis and hypothesis testing

The researcher conducted multiple regression analysis to illustrate the relationship between the perceived risk, perceived value, and purchase intention.

Table 3 Coefficient[s] table between perceived risk and value variables and purchase intention

Variables	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	P	Tolerance	VIF
(Constant)	-2.118	0.767		-2.763	0.006		
Physical risk	-0.108	0.054	-0.120	-1.998	0.046*	0.300	3.337
Financial risk	0.298	0.065	0.284	4.580	0.000*	0.280	3.570
Functional risk	0.149	0.048	0.160	3.063	0.002*	0.395	2.534
Social risk	0.024	0.054	0.041	0.445	0.656	0.130	7.688
Time risk	-0.059	0.021	-0.095	-2.860	0.004*	0.978	1.023
Functional value	0.197	0.056	0.196	3.524	0.000*	0.350	2.853
Economic value	0.402	0.072	0.313	5.563	0.000*	0.340	2.943
Environmental value	0.208	0.086	0.239	2.415	0.016*	0.110	9.071
Social value	0.304	0.069	0.289	4.431	0.000*	0.254	3.941
Emotional value	0.188	0.068	0.112	2.743	0.006*	0.649	1.541
Convenience value	0.128	0.041	0.130	3.081	0.002*	0.604	1.656

a. Dependent Variable: purchase intention
*b. * Significant*

The multiple regression analysis of the relationship between independent variables and purchase intention is presented in Table 3. The tolerance of the perceived risks (physical risk, financial risk, functional risk, social risk, and time risk) and the perceived value (functional value, economic value, environmental value, social value, emotional value, and convenience value) are all greater than 0.01, VIF less than 10 according to coefficient table. Therefore, all the perceived risk and value variables have no multicollinearity problems. The multiple regression model is supported. Typically, a variable is considered statistically significant if its P value is less than 0.05 (Cohen et al., 2013). The hypothesis testing results show that physical risk and time risk negatively affect Chinese consumers' purchase intention of NEVs. H1 and H5 are accepted. Financial risk and functional risk positively affect Chinese consumers' purchase intention of NEVs. H2 and H3 are rejected. Social risk is not statistically significant and positively affects Chinese consumers' purchase intention of NEVs. H4 is rejected. Functional value, economic value, environmental value, social value, emotional value, and convenience value positively affect Chinese consumers' purchase intention of NEVs. Therefore, H6, H7, H8, H9, H10 and H11 are accepted.

Discussion and conclusion

To understand the findings better, we should understand relationship between risk and premium price. We refer to risk as the degree to which one perceives the likelihood of experiencing an unfavorable

outcome of a decision or an action (Yi et al., 2013). Willingness-to-pay premium price (WTP) defined as being prepared to pay more for a particular service brand than for comparable alternative brands (Netemeyer et al., 2004). WTP has apparent importance for any business organization as customers' willingness to pay premium prices could lead to higher profitability and sustainable competitive advantage for the organization. WTP is a function of one's perception of the value and quality of the brand because higher prices reflect higher value and better quality (Davcik & Sharma, 2015). As risk decreases, customers' perception of the value increases, thus strengthening the effect of satisfaction and loyalty on WTP. This part will discuss the results from the hypothesis test with literature review to expand our understanding of perceived risk and perceived value on Chinese consumers' purchase intention of NEVs.

Physical risk

The data analysis result shows a significant negative impact of physical risk on purchase intention. This is in line with the research results of Xu et al. (2020) and Featherman et al. (2021). This may be attributed to negative media reports, which amplify consumers' concerns about the safety and health implications of NEVs. Whenever an accident involving a NEV occurs such as battery fire or collision resulting in casualties, the media extensively reports these incidents. This leads consumers to perceive that the physical risk associated with NEVs remains high, reinforcing the belief that NEV technology is still not very mature, thus making them hesitant to purchase NEVs.

Financial risk

Financial risk shows a positive effect on purchase intention. This result is inconsistent with earlier research that highlighted financial concerns as a barrier of NEV purchase as NEV technology evolving (Ivanova & Moreira, 2023). Due to consumer awareness, NEVs, despite a potentially high depreciation rate, offer long-term financial benefits. These benefits can include lower fuel costs and government incentives. Although maintenance and repair costs for NEVs might be perceived as high due to specialized components, the overall lower operational costs and fewer moving parts compared to traditional vehicles can offset this perception.

Functional risk

Functional risk has a positive effect on purchase intention. This result is contrary to the previous research found by (Ivanova & Moreira, 2023). Risk compensation plays a role in decision-making because of the direct relationship between feeling safe and taking risks. Humans tend to take greater risks when their perception of safety increases. Feeling safe or safer than usual can make us take more risks than usual. It could be possible that consumers are aware of the potential issues of NEVS. However, they may not be as strongly concerned about functional risk as before given that NEV technology has developed rapidly over time. Consumers may feel they could control the potential functional risk (e.g., planning trips to avoid extreme weather or scheduling regular maintenance to maintain battery health).

Social risk

Social risk has positive impacts on consumers' purchase intention of NEVs. This could be due to increasing social acceptance and normalization of NEVs. In the past, consumers were concerned about the social acceptance of NEVs and how they were perceived by others within their social circles or communities. However, consumers are now purchasing NEVs more widely, so the finding of the positive association between social risk and purchase intention in this research is different from previous research by Almajali (2020) and Lou et al. (2017).

Time risk

Regarding time risk, it has negative impacts on consumers' purchase intention of NEVs. Consumers still think charging a NEV is a waste of time, especially if fast charging options are not available or convenient. Additionally, NEVs rely on electricity to operate, if to do the repair and maintenance, which requires specialized service center or personnel. Therefore, consumers may perceive that repair and maintenance work for NEVs is much more complex and time-consuming than expected. This aligns with the past research by Almajali (2020) and Dong (2021).

Functional value

Regarding functional value, this research result is in line with the research findings by Dong (2021) and Lou et al. (2017). They also think functional value would positively influence consumers' purchase intention of NEVs. The practical benefits and superior performance of NEVs, including rapid acceleration and autonomous driving capabilities, play a crucial role in shaping consumer purchase intentions, which positively impact purchase intentions.

Economic value

The economic benefits are found to be big drivers for consumers to adopt the NEVs as its impacts are the biggest. With the rising costs of gasoline, the cost savings from using electricity as a fuel source are significant. NEVs typically have fewer moving parts than conventional vehicles, leading to lower maintenance and repair costs over time. This long-term economic benefit can be a decisive factor for consumers considering the total cost of ownership. This is consistent with findings from other studies that emphasize the cost advantages of NEVs over traditional fuel vehicles (Ivanova & Moreira, 2023; Jiaxin, 2023; Salehzadeh & Pool, 2017).

Environmental value

Environmental value has a positive effect on purchase intention of NEVs. This indicates that consumers are motivated by the desire to reduce their environmental impact. This highlights a growing awareness and concern for sustainability, driving consumers to choose NEVs to contribute to environmental protection. This result is in line with the previous research found by Kim et al. (2018)

Social value

Social value is found positively related to consumers' purchase intention of NEVs. This suggests that social factors such as status, image, and social approval play a

crucial role in the decision-making process. This result aligns with the previous research by Higueras-Castillo et al. (2019) and Wang et al. (2024).

Emotional value

Emotional value positively impacts consumers' purchase intention of NEVs. This suggests that feelings such as joy, pride, or excitement about owning a NEV do influence decisions. This result is consistent with research found by He and Hu (2022).

Convenience value

Convenience value positively impacts on consumers' purchase intention of NEVs. This suggests that factors such as ease of use, charging infrastructure, and driving range are considered. Even though these factors have improved much than before, consumers still think these have space to be improved, like home charging and fewer maintenance needs, etc. This research is consistent with the previous studies by He and Hu (2022) and Higueras-Castillo et al. (2019).

Management implications

From the analysis results of this research, NEV enterprises could improve public relations by providing accurate and positive information about the safety and reliability of NEVs by media such as posting technological advancements that enhance vehicle safety in media. NEV enterprises could obtain and display safety certifications from reputable organizations. About time risk, NEV enterprises must continually develop battery technology to shorten charging time and streamline repair and maintenance process by training more specialized technicians and ensuring the availability of necessary parts to reduce repair times. Moreover, NEV enterprises should highlight the functional value, economic value, environmental value, social value, emotional value, and convenience value, especially the biggest influential factor, economic value. NEVs enterprises could provide detailed cost comparison tools on their website to clearly tell the consumers' economic value in the perspective of economic benefits. Additionally, NEV enterprises could emphasize the environmental benefits of NEVs in marketing campaigns to appeal to consumers' desire to be seen as environmentally conscious and responsible. In short, NEVs enterprises could use media to reduce fear about NEV safety and highlight the economic and environmental benefits in marketing. For functional value, NEVs enterprises and manufacturers need to continually invest in research and development on enhancing battery life and range, improving energy efficiency, and increasing the reliability of NEV components of battery, motor, and even AI driving technology, etc. In the aspect of social value, NEV enterprises could position NEVs as a symbol of social status and tech-savvy, telling consumers how owning a NEV aligns them with trends in social standing and innovative technology during marketing. Also, NEV enterprises should leverage emotional appeals. NEVs enterprises could continually enhance emotions and consumers' satisfaction by creating marketing campaigns that emphasize the joy and pride of owning a NEV. In the convenience value perspective, NEV enterprises should offer

customer support services, including roadside assistance and increase maintenance centers, and develop mobile apps that provide real-time information on charging station availability and remote diagnostics.

Limitation and future research

Limitation

There are many NEV enterprises in China, with varying levels of development. The quality of NEVs supplied in the market is quite different, leading to significant differences in perceived risk and value among consumers. The results are not providing information for specific brand NEVs to improve consumers' purchase intention. Also, the results may not apply to all groups in China due to the non-random sample.

Future research

For Future research, the researchers could focus on in-depth studies of NEVs. Future studies could focus on NEV buyers only. The researchers could try stratified or random sampling to reduce bias. They might compare demographics of urban vs. rural areas to see if differences exist. Moreover, they could explore the impact of perceived risk and perceived value on consumers' purchase intention of specific brands of NEVs and could do a similar study in other countries to understand the impact of perceived risks and perceived value on consumers' purchase intention of NEVs or specific brands of NEVs. Also, using qualitative interviews to understand why consumers feel economic value is the biggest impact. This level of detail helps guide future work more effectively.

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