

Original Research Paper

## An Extended Theory of Planned Behaviour for Explaining Chinese Domestic Electric Vehicle Purchasing Behaviour

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**Abstract:** Compared to traditional fuel-powered cars, electric vehicles (EVs) are widely acknowledged as a viable form of transportation and an effective way to address the issues of energy scarcity and air pollution. However, the majority of countries, including China, have recently lowered their preferential treatment and will instead adopt a market-driven strategy to promote EVs. Thus, it is critical to identify the particular elements that support and undermine consumer decisions to choose EVs. This study investigates the impact of perceived value (PV) and consumer ethnocentrism (CE), along with components of TPB, on consumers' intentions towards the adoption of domestic EVs by using a convenience sample method to collect data. The results showed that attitude, subjective norm (SN), and perceived behavioural control (PBC) positively influence intention. SN positively influences attitude, and attitude plays a mediational role between SN and intention. In addition, PV and CE positively influence attitude towards purchasing domestic EVs. Last, the theoretical and practical implications and limitations are discussed accordingly.

**Keywords:** Chinese Domestic Electric Vehicle, Consumer Ethnocentrism, Perceived Value, Theory of Planned Behaviour.



## 1. Introduction

Resource maintenance is the preservation or improvement of resources that contribute to well-being, especially physical resources [1]. However, the over-consumption of natural resources is inevitable and is accompanied by environmental issues with rapid economic growth [2]. The transport sector accounts for more than half of the world's oil consumption and 25% of the world's CO<sub>2</sub> emissions. The road transport sector accounts for around 80% of total consumption and 10% of greenhouse gas emissions from the transport sector as a whole [2]. As the world's largest country in terms of car ownership, more than 20 million cars have been sold in China each year from 2013 to 2019, with the resulting huge consumption of fossil fuels and excessive air pollution emissions. In China, the transport sector consumes 49.9% of oil and emits 8.4% of CO<sub>2</sub> [3].

Electric vehicles (EVs) are widely recognised as a potential means of transportation and an efficient solution to address the challenges of energy scarcity and air pollution, in contrast to conventional fuel-powered cars [4]. Among the increasing green investments by global EVs manufacturers, China has declared its commitment to achieving carbon neutrality and promoting the adoption of ecologically sustainable technology [5]. To enhance the adoption of EVs, the Chinese government has implemented several policies aimed at providing financial assistance to both EVs manufacturers and consumers [6]. Nevertheless, in recent years, with the growing use of EVs, the Chinese government has gradually reduced its preferential treatment and will now shift towards a market-driven approach to promoting EVs [6]. The adoption of EVs is primarily related to consumers' personal decisions [4]. Hence, it is crucial to figure out the factors that facilitate and inhibit their choice of EVs at the individual level.

The most popular and effective theory for analysing consumer EVs purchasing behaviour is the theory of planned behaviour (TPB) [2, 5, 7]. This theory is thought to encompass a logical evaluation of the advantages and disadvantages of many options (such as time, opportunity, money, and peer influence) for consumers, taking into account their self-interests and individual interpretations of these options [8]. However, researchers have raised some criticisms because the essence of the theory is to explain a person's behaviour as a causal model [9] by focusing on rational reasoning as the primary motivational predictor of an individual's behaviour, excluding some personal feelings, private criteria, and decision-making criteria [10].

Previous studies have demonstrated that EVs need to be considered not only as a purchase of new technology products but also as green consumption, taking into account consumers' consumption and pro-environmental values [2]. Values are considered to be a cross-situational item, a guiding principle in one's life [11], and relatively stable over time [12]. It has been acknowledged as a significant driver for assessing consumer products and making future purchasing decisions [12], and typically, perceived value (PV) is identified as a major barrier to EV diffusion [13, 14]. In addition, some scholars have suggested that the role of subjective norm (SN) in TPB is controversial [15], especially in highly collectivist Eastern countries [16]. In the field of green marketing, it was found that SN indirectly influences green purchase intentions through the mediating effects of attitude [17, 18]. Therefore, this study will further discuss the relationship between SN and intention in TPB.

Furthermore, domestic EVs in China have broken through the technological blockade imposed by Western countries and are developing at a rapid pace [14]. However, limited research is done on domestic EVs brands [17]. Especially in the occurrence of the trade war between China and the Western countries led by the United States, which inspired people's nationalism and patriotism emotions [19]. When foreign products or services can be substituted by domestic brands, the tendency of consumer ethnocentrism (CE) may be strengthened [20].

Several research investigations have demonstrated that consumer attitudes and intentions towards domestic items can be impacted by CE [17, 20, 21]. Furthermore, individuals with strong ethnocentric beliefs may experience moral dilemmas when considering the acceptance of foreign goods. However, some studies have shown that CE does not affect consumer attitudes and intentions towards purchasing domestic products [17]. The research may indicate that the role of CE depends on different product categories, cultures, demographics, and geographies [22]. Considering that the majority of previous research in this area has been conducted with Western consumers, this study will evaluate the effects of CE and PV on consumers' attitudes and intentions to purchase domestic EVs based on TPB. In addition, this study aims to determine the interrelationship between SN, attitude, and intention.

## 2. Literature Review

### 2.1. Theoretical Background and Hypothesis Development

The most popular theories in the marketing literature are the theory of reasoned action (TRA) [23] and the TPB [9], which aim to examine the variables that influence consumers' purchase intentions and behaviours and to identify the consumer's decision-making process. The TPB is an expansion of the TRA that integrates PBC into the framework to elucidate the fact that individual behaviour cannot be completely determined by volitional factors [10]. The TPB paradigm has four constructs: attitudes, SN, perceived behavioural control (PBC), and intention, which ultimately lead to behaviours. As the variable that best predicts actual behaviour, intention refers to an individual's cognitive motivation, i.e., the effort to achieve a particular behaviour, and can be predicted from attitude (behavioural belief), SN (normative belief), and PBC (controlling belief) [10]. The intensity of an individual's inclination to engage in a behaviour is mostly determined by the favourability of their attitudes and SNs, as well as the degree of their PBC [24]. This theory has been widely used to predict consumer behaviour in purchasing EVs, which is largely influenced by self-interest motives such as price, battery capacity, driving range, and safety of EVs [4, 25].

Attitude is the primary determinant of TPB that impacts consumer purchasing behaviour [9]. It is characterised by its steadfastness and uniformity and represents an individual's positive or negative assessment of particular conduct [2]. Attitude refers to the evaluation of whether a particular conduct is favourable, unfavourable, or neutral, regardless of the consumer's desire to embrace novel technologies and concern for the environment [2]. However, individuals may recognise that purchasing a novel technology product such as EVs is acceptable and ecologically sound [4]. Previous research has demonstrated positive attitudes influence intention towards the adoption of EVs [17]. Therefore, hypothesis H1 was proposed:

H1. *There is a positive impact of consumer's attitude on intention regarding the adoption of domestic EVs.*

SN refers to the perceived societal constraints that influence individuals to either engage in or refrain from specified activities [17] and influential individuals in an individual's social circle, such as family members, close friends, business associates, or colleagues, who have a substantial impact on their decision-making processes [17]. Certain researchers have emphasised the important positive relationship between SN and intention [17]. Thus, hypothesis H2 was proposed:

H2. *There is a positive impact of SN on intention regarding the adoption of domestic EVs.*

In addition, the SN as an antecedent variable to purchase behaviour has always been controversial. Han and Stoel [26] found that, according to prior studies, the SN appears to be the weakest component of TPB, and some studies even found that the SN cannot directly influence purchase behaviour [2]. Furthermore, past research has revealed a positive relationship between SN, attitude, and intention in marketing [18]. Especially in strongly collectivist countries such as China, Korea, and Japan, positive or negative attitudes towards EVs are likely influenced by significant others' favourable or unfavourable perspectives [2]. For example, Teng, et al. [27] proposed that SN is positively connected with individual attitudes towards certain types of behaviour, which was also in line with the research of Wang, et al. [2]. Thus, hypotheses for H3 and H4 were proposed:

H3. *There is a positive impact of SN on attitude regarding the adoption of domestic EVs.*

H4. *Attitude mediates the relationships between SN and intention regarding the adoption of domestic EVs.*

PBC pertains to the perceived level of difficulty or challenge associated with carrying out a specific behaviour [28]. The outcome is contingent upon both the individual's drive and aptitude, which encompass their prior experience and predicted challenges [28]. It also encompasses an individual's ability to regulate the influence of irrational circumstances that may promote or reinforce a specific behaviour [29]. Hence, it is crucial to regard PBC as a significant predictor within the TPB model. Previous studies have demonstrated that PBC positively influences intention [30]. Thus, hypothesis H5 was proposed:

H5. *There is a positive impact of PBC on intention regarding the adoption of domestic EVs.*

## 2.2. Perceived Value

Assessments of occurrences are mostly determined by an individual’s set of values. PV is a key determinant of consumer buying behaviour. This concept pertains to the comprehensive evaluation of consumer contentment with products and services [30]. Scholars believe that perceived value is a multi-dimensional concept that includes social, functional, emotional, cognitive, and conditional values [31]. However, most of the chosen research scenarios do not include all dimensions [32]. In terms of conditional value, Caber, et al. [32] contend that it does not possess inherent value but rather demonstrates the influence of a product’s utilisation within a particular gratification and context. On the other hand, regarding cognitive value, Rasoolimanesh, et al. [33] highlight that it can be assimilated into affective value, as it is connected to the pleasure derived from goods or services, as well as the interest and cognition associated with them. Furthermore, scholars commonly see conditioned and cognitive values as ephemeral. Thus, an overall and concise evaluation of a product or service should rely on the functional aspects of its anticipated performance, the emotional value obtained from satisfaction, and the societal influence of interactions with various customers [32].

Therefore, this study regarded social value, functional value, and emotional value as multi-dimensional constructs that reflect the perceived worth of the customer. Previous research on consumer behaviour regarding the utilisation of emerging technologies has recognised attitudes as a key mediator between PV and intentions to adopt. The study conducted by Zhuge, et al. [34] examined the determinants of electric car adoption in China and revealed that reduced vehicle costs, increased vehicle usage, societal influences, and transit limitations positively influence the decision to purchase electric vehicles. Other researchers have demonstrated that some factors related to PV, such as efficient charging time, high-speed capabilities of EVs, the presence of charging infrastructure, and vehicle safety, have a significant role in motivating consumers to embrace EVs [2, 4]. Thus, hypothesis H6 was proposed:

H6. *There is a positive impact of PV on attitude regarding the adoption of domestic EVs.*

## 2.3. Consumer Ethnocentrism

CE refers to the beliefs that customers have about the suitability and ethicality of adopting products from other countries [35] and typically refers to the cognitive, emotional, and normative views that individuals hold towards home products or services [36]. Consumers who have a strong ethnocentric mindset feel that buying products from other countries will negatively impact the local economy and result in job losses [37]. Therefore, consumers who have a strong inclination towards consumer ethnocentrism will have negative views towards imported products and services [37].

Wang, et al. [17] showed that CE positively influenced SN, attitude, and intention, and attitude mediated the relationship between attitude and intention towards the adoption of domestic EVs. The study conducted by Thomas, et al. [38] found that CE has an important impact on the views of Indian customers, therefore impacting their choices when it comes to purchasing cars. However, certain studies have rejected the importance of CE on purchase attitudes and intentions [39], which may be influenced by other factors such as product category, product quality, and country of origin [22]. Thus, the hypothesis H7 was proposed:

H7. *There is a positive impact of CE on attitude regarding the adoption of domestic EVs.*

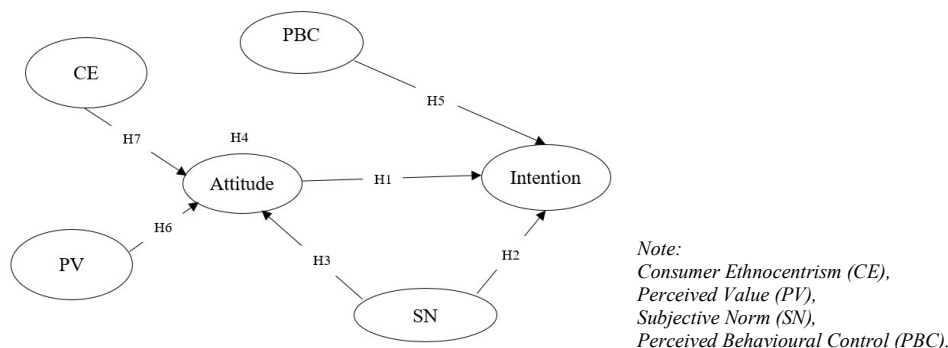


Figure 1. Conceptual Research Model

### **3. Methodology**

#### **3.1. Sample and Data Collection**

This study is a descriptive effort to investigate and explain the relationship between PV, CE, and variables of the TPB model towards the selection of domestic EVs. Due to the saturation of EVs in first-tier cities such as Beijing, Shanghai, and Shenzhen, this study was conducted in Xuzhou, Jiangsu Province, China, a fast-growing second-tier city. The research employed a convenience sample method for data collection, which has been demonstrated to be effective in prior publication [2]. Considering that car fairs were held once a month during the questionnaire collection period, questionnaires were distributed to potential customers who entered to visit the automotive exhibition centre from September to December 2023. Overall, 380 questionnaires were distributed and collected in three separate sessions for this study. The study conducted by Hair, et al. [40] indicates that a sample size beyond 200 is considered to yield a satisfactory margin of error. Additionally, this aligns with the suggestion of Kline [41] that a minimum sample size of 200 participants and 10 to 20 instances per parameter are necessary for structural equation modelling. In addition to the Cochran formula, which calculates a minimum sample size of 384 and is advised for target populations with uncertain characteristics.

#### **3.2. Measurement and Survey Questionnaire Development**

This questionnaire was designed to be well-established, self-administered, and closed-ended. The survey questionnaire was structured into three sections to gather empirical data and items were measured on a five-point Likert scale, which is a structured evaluation system [42]. The first section focused on the additional TPB variables: CE and PV. The 17-items CETSCALE was developed by Shimp and Sharma [35] to measure CE, but the study employed a modified 6-item scale that was adapted from Abdul-Latif, et al. [21] according to the suggestions of Sharma [43] and Akbarov [22]. Four items of PV are measured in the study of Wang, et al. [2]. The second section focused on the components of TPB: attitude, SN, PBC, and intention. Four items belonging to attitude were adapted from Wang, et al. [2] and Shalender and Sharma [44]; four items belonging to SN were adapted from Shalender and Sharma [44]; four items belonging to PBC were adapted from Wang, et al. [2]; and four items belonging to intention were adapted from Shalender and Sharma [44] and Wang, et al. [17]. The last section elicits demographic information such as gender, age, income level, and educational level.

To ensure the validity of the conceptual framework and mitigate any possible confusion or inaccuracy, a pilot test was carried out on a sample of 30 respondents to validate the conceptual framework and to avoid any potential confusion and inaccuracies [1]. The reverse translation method is widely employed in research [45]. To guarantee the quality of the questionnaire translation, it is recommended to involve a minimum of three multilingual specialists in the back-to-back translation procedure [45]. Hence, the questionnaire was initially rendered into Chinese by the initial two translators and subsequently retranslated into English by the second group of translators. Following this, the researcher convened with the translation team to deliberate on the inconsistencies identified in the back-translation.

### **4. Finding and Discussion**

The research employed the software of Statistic Package for Social Science (SPSS) 22 version for conducting descriptive statistics and the confirmatory factor analysis (CFA) and structural equations modelling (SEM) test were conducted using AMOS to validate the association between the variables.

#### **4.1. Descriptive Statistical Analysis**

There were a total of 380 questionnaires that were suitable for examination and Table 1 displays the comprehensive demographic data of respondents' profiles.

#### **4.2. Confirmatory Factor Analysis**

When conducting measurement modeling, researchers should only include items that have loadings over 0.5, as recommended by Hair, et al. [40]. Consequently, factor loadings that were less than 0.5 (i.e., CE5 and CE6) were eliminated to ensure the validity and reliability of the remaining items. To assess the convergent validity of the model, the composite reliability (CR) of each variable exceeded the threshold of 0.7, and the average variance extracted (AVE) surpassed the minimal condition of 0.5 as suggested by Hair, et al. [40] (See Table 2).

Table 1. Sample Characteristics (N = 380)

| Items           | Characteristic    | Frequency | Percentage (%) |
|-----------------|-------------------|-----------|----------------|
| Gender          | Male              | 241       | 63.4           |
|                 | Female            | 139       | 36.6           |
| Age             | Below 18          | 17        | 4.5            |
|                 | 18-30             | 152       | 40             |
|                 | 31-45             | 144       | 37.9           |
|                 | 46-60             | 63        | 16.6           |
|                 | Above 61          | 4         | 1              |
| Income level    | Below 300         | 54        | 14.2           |
|                 | 3001-4500         | 99        | 26.1           |
|                 | 4501-6000         | 118       | 31             |
|                 | Above 6001        | 109       | 28.7           |
| Education level | High School       | 79        | 20.8           |
|                 | Diploma           | 92        | 24.2           |
|                 | Bachelor          | 153       | 40.3           |
|                 | Masters and above | 56        | 14.7           |

Table 2. Construct Validity for The Measurement Model

| Construct (Cronbach's Alpha)                      | Item  | Factor loading | CR    | AVE   |
|---|---|----------------|-------|-------|
| Consumer ethnocentrism ( $\alpha = 0.897$ )       | CE1. Chinese products are first, last and foremost  | 0.855          | 0.900 | 0.694 |
|   | CE2. Chinese should always purchase Chinese products instead of imports   | 0.842          |       |       |
|   | CE3. It is always best to purchase Chinese products   | 0.884          |       |       |
|   | CE4. There should be very little trading or purchasing of products from other countries unless out of necessity | 0.744          |       |       |
| Perceived Value ( $\alpha = 0.969$ )              | PV1. Domestic EVs have good range and retain some traditional aspects   | 0.864          | 0.969 | 0.888 |
|   | PV2. The domestic EV staff were all very welcoming, patient and able to communicate well                        | 0.862          |       |       |
|   | PV3. Driving a domestic EV is exciting and enjoyable for me   | 0.805          |       |       |
|   | PV4. Purchasing a domestic EV will allow me to be recognised by others  | 0.770          |       |       |
| Attitude ( $\alpha = 0.934$ )                     | ATT1. Buying domestic EV is a pleasure for me   | 0.850          | 0.934 | 0.779 |
|   | ATT2. Buying domestic EV evokes positive emotions in me   | 0.899          |       |       |
|   | ATT3. Buying domestic EV is a complete ritual for me  | 0.923          |       |       |
|   | ATT4. Buying domestic EV is funny   | 0.855          |       |       |
| Subjective norm ( $\alpha = 0.953$ )              | SN1. My friends approve my purchase of a domestic EV  | 0.930          | 0.953 | 0.835 |
|   | SN2. My colleagues approve my purchase of a domestic EV   | 0.923          |       |       |
|   | SN3. My friends buy domestic EV   | 0.913          |       |       |
|   | SN4. My colleagues buy domestic EV  | 0.889          |       |       |
| Perceived Behavioral Control ( $\alpha = 0.890$ ) | PBC1. Whether or not I buy domestic EV is completely up to me   | 0.864          | 0.896 | 0.683 |
|   | PBC2. I expect I will be able to buy domestic EV  | 0.862          |       |       |
|   | PBC3. For me purchasing domestic EV is simple.  | 0.805          |       |       |
|   | PBC4. If I want it, I believe I can purchase domestic EV  | 0.770          |       |       |
| Intention ( $\alpha = 0.832$ )                    | Inten1. I intend to buy a domestic EV   | 0.755          | 0.836 | 0.563 |
|   | Inten2. I am planning to buy a domestic EV  | 0.635          |       |       |
|   | Inten3. I will probably buy a domestic EV   | 0.811          |       |       |
|   | Inten4. I will make an effort to purchase an EV in the future.  | 0.788          |       |       |

This study conducted a discriminant validity test, which revealed that both the maximum shared variance (MSV) and the average shared variance (ASV) were lower than the AVE. This suggests that the study indicated good discriminant validity [40] (See Table 3).

Table 3. Discriminate Validity for The Proposed Model

| Research construct            | CR    | AVE   | MSV   | ASV   | 1     | 2     | 3     | 4     | 5     | 6    |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Consumer Ethnocentrism        | 0.9   | 0.694 | 0.384 | 0.275 | 0.833 |       |       |       |       |      |
| Perceived Value               | 0.969 | 0.888 | 0.586 | 0.366 | 0.462 | 0.942 |       |       |       |      |
| Attitude                      | 0.934 | 0.779 | 0.586 | 0.462 | 0.581 | 0.765 | 0.882 |       |       |      |
| Subjective Norm               | 0.953 | 0.835 | 0.459 | 0.349 | 0.48  | 0.549 | 0.63  | 0.914 |       |      |
| Perceived Behavioural Control | 0.896 | 0.683 | 0.451 | 0.392 | 0.62  | 0.553 | 0.672 | 0.598 | 0.826 |      |
| Intention                     | 0.836 | 0.563 | 0.541 | 0.408 | 0.458 | 0.65  | 0.735 | 0.678 | 0.641 | 0.75 |

Next, the following alternative measures were used to evaluate the model fit. The findings indicated that AGFI=0.861, IFI=0.968, CFI=0.968, PNFI=0.808, and RMSEA=0.035. Consequently, the model’s fit values are all at the threshold of being acceptable.

4.3. Structural Equation Modeling

The research hypotheses were tested using Structural Equation Modeling (SEM). For the mediation test, we utilised the bias-corrected percentile (BC) approach, which is the most precise way available in the software program. The overall goodness-of-fit indices of the structural model were: CMIN/DF = 2.158, AGFI = 0.855, PGFI = 0.707, CFI = 0.966, GFI = 0.884, IFI = 0.966, NFI = 0.938, PNFI = 0.816, PCFI = 0.840, RMSEA = 0.057. The data shows a good fit of the structural model. The standardised regression weights for testing the hypotheses are presented in Table 4 and Figure 2.

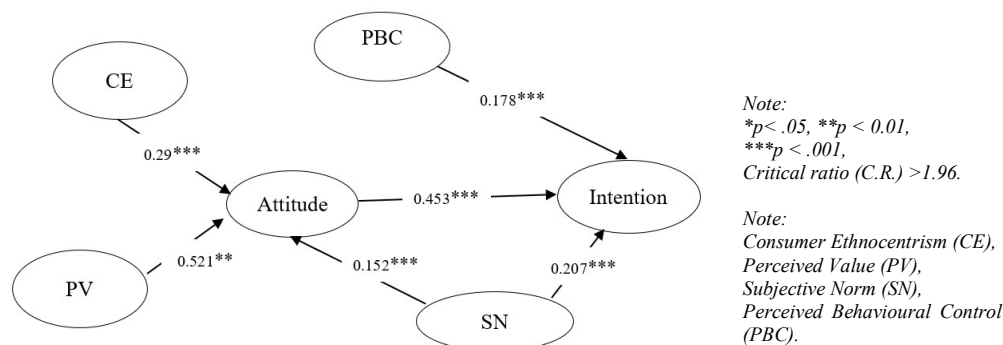


Figure 2. Structural Model Outcomes

Table 4. Structural Relationships and Hypotheses Testing for The Proposed Model

| Hypothesis | Parameter                                    | β     | CR    | Sig.                                     | Decision  |
|------------|--|-------|-------|--|-----------|
| H1         | Attitude ----- > Intention                   | 0.453 | 6.563 | ***                                      | Supported |
| H2         | Subject norm --- > Intention                 | 0.207 | 4.920 | ***                                      | Supported |
| H3         | Subject norm --- > Attitude                  | 0.152 | 5.086 | ***                                      | Supported |
| H4         | Subject norm --- > Attitude----- > Intention |       |       | 0.001 <sup>a</sup><br>0.001 <sup>b</sup> | Supported |
| H5         | Perceived behaviour control --- > Intention  | 0.178 | 2.755 | ***                                      | Supported |
| H6         | Perceived value--- > Attitude                | 0.521 | 9.289 | 0.006                                    | Supported |
| H7         | Consumer ethnocentrism ----- > Attitude      | 0.29  | 5.170 | ***                                      | Supported |

Note:

\*\*\* denotes  $p < 0.001$ ,

*a* denotes standardised direct effect with bootstrapping method (two-tailed significance),

*b* denotes standardised indirect effect with bootstrapping method (two-tailed significance).

The results indicate that all the assumptions of the expanded TPB model were supported. The results of this study show that there is a positive significant relationship between attitude and intention ( $\beta = 0.453$ ,  $p < 0.001$ ). Subjective norm positively influenced intention ( $\beta = 0.207$ ,  $p < 0.001$ ) and attitude ( $\beta = 0.152$ ,  $p < 0.001$ ). Perceived behaviour control positively influenced intention ( $\beta = 0.178$ ,  $p < 0.001$ ). PV positively influenced intention ( $\beta = 0.521$ ,  $p < 0.01$ ). CE was found to have a positive and significant impact on attitude ( $\beta = 0.290$ ,  $p < 0.001$ ). Therefore, H1, H2, H3, H5, H6 and H7 were confirmed.

Meanwhile, the results of the present study showed that the direct relationship between SN and intention ( $p < 0.05$ ) and the indirect relationship between SN and intention via attitude ( $p < 0.05$ ) were found to be statistically significant. This reflected previous findings that the relationship between SN and intention is significant. Therefore, attitude partially mediated the relationship between SN and intention and H4 is supported.

#### 4.4. Discussion

This study focused on the extended framework of the TPB model which added the CE and PV as the antecedents. In addition, this study tested the relationship between SN and intention through the mediating role of attitude. Wang and Wong [46] stated that the strength and direction of the calculated parameter magnitude can reflect the relationship between structural relationships. A throughput coefficient below 0.1 suggests a minor influence, whereas values around 0.3 indicate a moderate impact, and values of 0.5 or more indicate a significant impact [47].

According to the results, the classical TPB model was confirmed (i.e., H1, H2 and H5). Attitude has a major influence on intention (i.e., H1). This is consistent with the results of the researchers that attitude is the most important variable that influences consumers' intention and behaviour [48]. This implies that consumers with more positive attitudes towards domestic EVs are more likely to purchase domestic EVs as their mode of transportation. Although some studies have shown that SN had a positive effect on intention, some scholars improved that SN was an unstable predictor variable and that the relationship with intention was not significant [2, 49]. The results of this study showed that SN has a moderately significant influence on intention (i.e., H2). This suggests that when consumers receive significant opinions about domestic EVs from significant others, it positively influences their intention to purchase domestic EVs. PBC can be the primary factor in influencing purchase intention within the TPB framework. Moreover, many researchers have demonstrated that PBC had a favourable influence on their intention in the purchase decision process [50, 51], which means that consumers who have a higher level of confidence in their ability to overcome difficulties such as limited resources, financial constraints, and time constraints are more inclined to engage in the habit of acquiring domestic EVs. This study confirmed that PBC has a moderately significant influence on intention toward the adoption of domestic EVs (i.e., H5).

This study confirmed that both the direct and indirect relationships between SN and purchase intention were statistically significant (i.e., H3 and H4), indicating that attitude played a partial mediating role in the relationship between SN and purchase intention. Wang, et al. [2] pointed out that in Eastern cultures, where collectivist values are dominant, the perceptions of significant others in purchasing behaviours affect consumers' attitudes, which in turn affect purchase intentions. Researchers need to identify alternative causal paths from SN to purchase intention in Eastern countries.

Furthermore, the results of this study showed that PV had a major impact on attitude towards adoption of domestic EVs since  $\beta = 0.521$ ,  $p < 0.01$ , which means that consumers who received domestic EVs' functional, emotional, and social value are more willing to express their positive evaluation of domestic EVs' attributes. Those findings are corresponding to Wang, et al. [2] demonstrated that PV positively influenced consumers' attitudes towards purchasing domestic EVs. In addition, current study showed that CE had a moderate impact on attitudes towards the adoption of domestic EVs ( $\beta = 0.29$ ,  $p < 0.001$ ). This means that consumers who perceive Chinese domestic EVs are first, and foremost, and should purchase domestic EVs instead of imported EVs brands are more willing to express positive attitudes towards domestic EVs. Those findings in line with previous

researchers indicated that CE positively influenced consumers' attitudes towards purchasing domestic EVs [17].

## 5. Conclusion

The TPB is believed to encompass a logical evaluation of consumers' weighted anticipated costs and benefits, taking into account their self-interest [8]. Nevertheless, the TPB has faced criticism due to the lack of analysis of irrational factors. The study added the variables of CE and PV as cognitive and emotional motivation which confirmed to strengthen the attitude toward the adoption of domestic EVs. In addition, few studies have been conducted on consumers' purchase behaviour towards the adoption of domestic EVs [17]. The findings of this study demonstrated that the components of the TPB (i.e., attitude, SN, and PBC) played an important role in the purchase behaviour of domestic EVs. Meanwhile, some studies have suggested that SN in the TPB model may be affected by the mediating role [52], which was also confirmed in this study.

This study examined the impact of CE on consumer purchases of domestic EVs based on the TPB model. The literature studying domestic EVs is limited, especially using CE, a central variable in the study of domestic attributes. Moreover, the effect of CE on purchasing behaviour can be influenced by factors such as country of origin, product categories, and cultural and demographic characteristics. Thus, this study filled the research gap.

The findings of this study have several practical consequences for operators of domestic EVs. The findings of this study suggested that attitude has a substantial impact on individuals' intention to purchase EVs. Chinese consumers who possess more favourable attitudes are more inclined to select domestic EVs. Consequently, EVs firms distribute EV information and viewpoints using both traditional and digital platforms, to establish and uphold a favourable perception of EVs among prospective consumers.

The results demonstrated that SN positively influences purchase intention and also indirectly through the mediating variable attitude. EVs sellers should focus more on social influence through traditional communication channels and electronic word-of-mouth. This also requires domestic EVs to provide the best quality service to all consumers, both in the sale of the vehicle and in the later maintenance and service. These consumers not only act as potential consumers but also may influence people around them.

In addition, the study highlighted the substantial and robust impact of CE on the attitude to purchase domestic EVs. Thus, in the face of competition from international firms, marketers should pay more attention to their product advertising. This would encourage consumers to support domestic goods, thereby enhancing their market competitiveness.

For this study, consumer attitudes in purchasing domestic EVs were significantly influenced by PV. EVs marketers should eliminate certain obstacles to purchasing domestic EVs by communicating the idea that purchasing EVs can contribute to environmental preservation for both individuals and society. Additionally, they should emphasise the convenience of EVs, such as their ability to save money in the long term through reduced fuel expenses and easy recharging.

The limitations and future recommendations are: firstly, it was not possible to establish definitive causal relationships due to the cross-sectional design of this investigation. Secondly, although the mediational role of SN was confirmed in the current study, its role is still controversial and future studies need to further confirm it. Lastly, the level of consumer ethnocentrism varies across different areas in China, mostly influenced by variations in cultural demography and degrees of regional development. Future research could explore the relationship between CE and the purchase intention of domestic EVs for different study populations in different regions to expand the applicability of the purchase intention effect of CE.

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