



## The Intention to Purchase Safer Car in Singapore: An Application of Theory of Planned Behaviour

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### ABSTRACT

Vehicles with safety and crash-avoidance features are believed to reduce crashes and are saving lives. This study aims to identify the factors that influence safer car purchasing. It is proposed in this paper that consumers' purchase intention can be explained by three factors which are attitude, subjective norms, and perceived behavioral control by using the Theory of Planned Behavior. A sample of 81 respondents in Singapore were selected to participate in this study. Analyses of data include Pearson Product-Moment Correlation Coefficient and Multiple Linear Regression. Findings showed that there is a significant relationship between attitude and perceived behavioral control towards the safer car purchase intention.

#### Keywords:

ASEAN NCAP; Vehicle Safety; Road Safety;  
Purchase Intention; Road Traffic Accident;  
Theory of Planned Behavior

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## 1. Introduction

Singapore is one of the world's most expensive places to own a vehicle. This country that is located at the southern tip of the Malayan Peninsula between Malaysia and Indonesia is well-known with their law-abiding citizens and high safety standards. However, fatal road accidents still occur across Singapore. Singapore's drivers may actually be more dangerous than other high-wealth countries' drivers such as the United States, Japan, the United Kingdom and Canada [13]. According to The Straits Times [16], Insurer AXA polled 485 motorists and nearly two-thirds of them said they feel less safe now due to the drivers who are aggressive, texting while driving hence making Singapore's roads increasingly dangerous.

Road accidents are one of the most dangerous health hazards and accident occurs is often due to the negligence of a driver or another party. In Singapore, injuries were ranked as the fifth commonest cause of death after cancer, heart disease, cerebrovascular disease and pneumonia [12]. Indeed, it has been predicted by the World Health Organization that traffic fatalities will be the sixth

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leading cause of death worldwide and the second leading cause of disability-adjusted life-years lost in developing countries by the year 2020.

On 9th December 2009, the Ministry of Home Affairs (MHA) set up the Singapore Road Safety Council (SRSC) to continually improve safety on our roads by inculcating good safety practices among all road users. This council is also working towards safer roads in Singapore by fostering closer cooperation among local authorities and agencies for a holistic approach in all road accident prevention activities, particularly through campaigns, training and public education. The SRSC were also supported by the Ministry of Transport (MOT), Land Transport Authority (LTA) and other road safety-related stakeholders [15]. In accordance to this, the overall road traffic situation in Singapore showed an improvement since the number of fatal accidents drop from 140 cases in 2016 to 118 in 2017 [5].

## 2. Study Objective

This research aims to analyze customer's intention to purchase safer car in Singapore by using the Theory of Planned Behavior, Pearson Product-Moment Correlation Coefficient, and Multiple Linear Regression.

The objectives of this research are:

- i. To evaluate the effect of attitude, subjective norm, and perceived behavioral control towards consumer's behavioral intention to purchase a safer car.
- ii. To examine the relationship between attitude, subjective norm, and perceived behavioral control towards consumer's behavioral intention to purchase a safer car.

## 3. Methodology

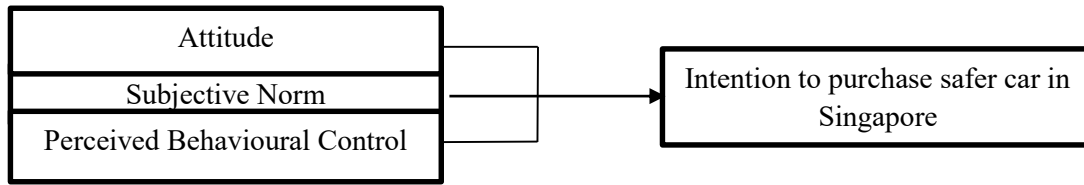
### 3.1 Data Acquisition

A primary data has been used in this research. A self-administered questionnaire has been distributed to selected sample. Sample consisted of engineers, scientists, government officers, lecturers, and self-employed person. A self-administered questionnaire is convenient because no bias can be introduced from the way questions are asked since there is no presence of interviewer to inject bias toward respondents.

The questionnaires contained a few demographic questions such as gender, age, marital status, and several other questions to create a profile for each respondent in this research. There were also several Likert-type scales of questions about respondent's experience in road traffic accidents and their intentions to purchase safer cars. Respondents were asked to range themselves such as from strongly disagree (1) to strongly agree (5), very unimportant to most important, very impossible to very possible and other ranges.

### 3.2 Theory of Planned Behavior

In 1985, the Theory of Planned Behavior (TPB) is proposed by Icek Ajzen that is developed from the theory of reasoned action [1]. TPB is implemented when a researcher aims to understand consumer's intention or decision making. Human behavior is difficult and complex to be understand but it can be interpretable with an extreme concern on biological and environmental factors on behavior. Therefore, social attitude and personality trait played a big part in explaining human behavior. Figure 2 depicts the conceptual framework of theory of planned behavior for this research.



**Fig. 2.** Conceptual Framework of Theory of Planned Behaviour

The first predictor variable is Attitude. Attitude is when a person evaluates their behavior of interest favorably or unfavorably [11]. Secondly, Subjective Norm is a belief for a person to perform a given behavior as expected by significant others [2]. Significant others refer to the group of people that can influence one’s intention in making decision. Other than that, subjective norm and attitude is independent. People can favor a given behavior but perceive social pressure not to perform it. Lastly, Perceived Behavioral Control is the perception of the ease or difficulty of a person to perform the behavior of interest. LaMorte adds that a person usually results having varying perceptions of behavioral control depending on the situation.

To apply the TPB, construct domain and measurement items are adapted from several researchers [6,8,9,10,14] is shown in Table 1.

**Table 1**  
 Adapted Construct Domain and Measurement Items

Construct	Literature Source
Attitude (ATT) [4 items]	ATT1 [9] ATT2 [14] ATT3 [9,14] ATT4 [9,14]
Subjective Norms (SN) [6 items]	SN1 [9,14] SN2 [9,14] SN3 (Explanatory study) SN4 [14] SN5(Explanatory study) SN6 (Explanatory study)
Perceived Behavioral Control (PBC) [5 items]	PBC1 [14] PBC2 [3] PBC3 [8] PBC4 [8] PBC5 (Explanatory study)
Purchased Intention (PI) [3 items]	PI1 [6] PI2 [6] PI3 [6]

Khairil Anwar et al. [10] also stated in their research that the hypothesis for this construct is proposed as follows:

H<sub>1</sub>: There is a positive correlation between attitude and intention to purchase safer car.

H<sub>2</sub>: There is a positive correlation between subjective norm and intention to purchase safer car.

H<sub>3</sub>: There is a positive correlation between perceived behavioral control and intention to purchase safer car.

### 3.3 Pearson's Product-Moment Correlation Coefficient

Also known as Pearson's  $r$ , Pearson Product-Moment (PPMCC) analysis was developed by Karl Pearson in 1948. It is the most commonly used measure of association. Through this analysis, the strength and direction of variables can also be measured [4]. In this research, PPMCC is used to determine the relationship independent variables and the intention in buying safer car among respondents in Singapore.

### 3.4 Multiple Linear Regression

Multiple regression analysis is one the most widely used of all statistical methods. A multiple regression model is a regression model with a single dependent variable and more than one independent variable (Tranmer & Elliot, n.d.). As for this research, Attitude (ATT), Subjective Norms (SN), and Perceived Behavioral Control (PBC) are the independent variables that is used to predict Purchase Intention (PI) which is the dependent variable.

## 4. Results and Discussion

Table 2 shows that the mean score for attitude is 17.73 with a standard deviation of 2.520. This means that a consumer with a positive attitude is more likely to have an intention in purchasing a safer car. Perceived behavioral control also have a high mean score ( $M=20.98$ ,  $SD=3.256$ ) indicating that most of the respondents believed that they can afford to buy safer cars.

**Table 2**

Result of descriptive analysis

Variable	M	SD
Attitude	17.73	2.520
Subjective Norms	21.20	4.715
Perceived Behavioral Control	20.98	3.256
Purchase Intention	13.25	1.907

However, the mean score for purchase intention is slightly lower ( $M=13.25$ ,  $SD=1.907$ ) indicating that the respondents may be hesitant about purchasing safer cars, but this may be overcome after they gain an extensive knowledge on the importance of having one.

As indicated in Table 3, the findings from the PPMCC analysis shows that there is a significant relationship between attitude, subjective norms and perceived behavioral control towards the safer car purchase intention.

**Table 3**

Relationship between independent variables and dependent variable

Independent Variable	Safer Car Purchase Intention	
	$r$	$p$
Attitude	0.784	0.000*
Subjective Norms	0.421	0.000*
Perceived Behavioral Control	0.683	0.000*

\* $p < 0.05$

With  $r=0.784$  and  $p\text{-value}<0.05$ , the findings indicate that attitude has the strongest positive relationship towards purchase intention followed by perceived behavioral control and subjective norms. Multiple linear regression analysis is then performed to determine the extent of TPB determinants in predicting the purchase intention among respondents in Singapore.

**Table 4**  
 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.818 <sup>a</sup>	0.669	0.656	1.119

- a. Predictors: (Constant), ATT, SN, PBC  
 b. Dependent Variable: PI

From Table 4, the determinants of TPB which consist of attitude, subjective norms, and perceived behavioral control explain about 66.9% of the total variance in the score of purchase intention.

**Table 5**  
 Result of multiple linear regression analysis

Variables	$\beta$	t	Sig
Attitude	0.449*	6.800	0.000
Subjective Norms	-0.012	-.0371	0.712
Perceived Behavioral Control	0.185*	3.405	0.001

\* $p<0.05$

From table 5, it is shown that attitude ( $\beta=0.449$ ,  $p<0.05$ ) and perceived behavioral control ( $\beta=0.185$ ,  $p<0.05$ ) are significant in predicting consumers' purchase intention. From the  $\beta$  values, it shows that as attitude increases by 1, the purchase intention will be increased by 0.449 while other variables are held constant. Similarly, as perceived behavioral control increases by 1, the purchase intention will be increased by 0.203 while other variables are held constant. On the other hand, subjective norms is not significant in predicting consumers' purchase intention. Table 6 shows the findings for each alternative hypothesis.

**Table 6**  
 Conclusion of hypothesis testing

Alternative Hypothesis	Conclusion
H <sub>1</sub> : Attitude positively influences consumer's intention in safer car purchasing	Accepted
H <sub>2</sub> : Subjective norm positively influences consumer's intention in safer car purchasing	Rejected
H <sub>3</sub> : Perceived behavioral control positively influences consumer's intention in safer car purchasing	Accepted

## 5. Conclusions

The findings of this study suggest the usefulness of the Theory of Planned Behavior model in predicting consumers' intention in purchasing safer car in Singapore. It is found that the factors of attitudes and perceived behavioral control are important in the prediction of purchase intention, whereas, subjective norms are not significant in predicting safer car purchase intention. By

acknowledging the factors of safer car purchase intention, consumers can be encouraged to own a safer car and promotes a healthier and safer traffic environment.

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