The Comparison Between Structural Equation Modeling and Multiple Linear Regression Analysis to Predict the Parents' Intention of Using Child Car Restraint in Bangkok

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Abstract

This research aims to study the causal variables influencing on the intention of parents in Bangkok to use child car restraint. The questionnaire is developed based on the Theory of Planned Behavior, Government Influence, Price Fairness, and Safety Awareness. The data are collected from 316 parents in Bangkok who have children' age under seven years old. The Structural Equation Modelling (SEM) is used to test the causal variables relationship. The results show that the causal variable that most influence on intention to use CCR is safety awareness (SA), since the value of direct effect coefficient (β) is 0.526. The next casual variable influencing on intention to use is perceived behavior control with the value of effect coefficient (β) of 0.273, and the third influent casual variable is attitude with β value of 0.179. In addition, by applying the Multiple Linear Regression (MLR) with stepwise regression analysis results in the appropriate predictive equation of the parents' intention to use child car restraint. The coefficients of the MLR model of factor attitudes, perceived behavioral control, and safety awareness are 0.260, 0.212, and 0.530, respectively. The results from the SEM and MLR are the same direction. With the integration method of SEM and MLR, the predictive equation from MLR is well reliable with corresponding to the results from SEM method.

***Keywords*:** Child car restraint, Direct effect coefficient, Multiple linear regression, Structural Equation Modelling (SEM), Theory of planned behavior

I. INTRODUCTION

Nowadays, the private automobiles have been usable and instead of public transportation as for the convenience of children. Many countries give significance on the children' s safety in a moving vehicle. Child restraint system should be used as normal in the developing country with the effective compulsory. In Thailand, there are 554 (3.93%) children age between 1–14 years old are death from the road accident in 2022 and increase to 586 (4.17%) children in 2023 [1]. Recently, Thailand finally has a law that children under six must be placed in a car seat or a special seat for safety while sitting in a moving vehicle. The violations could mean a fine of up to 2,000 baht. Even though the compulsory use of CCR start on September 5, 2022, the effect and results should be followed up and evaluated. However, the compulsory use of child car restraint in Thailand is not effective. Recent research in Thailand aims to study the parent's awareness, the car seat law, and the car seat safety standards and some research in Asia study the parents' perception of using CCR while travelling with their children. The theory of planned behavior (TPB) is the effective tool in predicting intentions and behavior of customers in many researches. The basic theory can explain the principles of consumer choice. In addition, this study is based on clarity about the context of social and individual processes those aid consumer decision-making. The Theory of Planned Behavior (TPB) model with Government Influence, Safety Awareness, and Price Fairness are considered to develop the questionnaire to study the parents' awareness of using child car restraint or CCR in Thailand [2]. Moreover, the analysis of factors influencing the usage of child restraint system by parents is studied widely [2]–[7].

The objective of this research is to study the relationship of the causal variables influencing to parents' intention of using CCR in Bangkok by applying the Strucrural Equation Modeling. The Strucral Equation Modeling or SEM is the second-generation technique for modelling casual networks of effects simultaneously. SEM offers extensive and flexible casual-modeling capabilities rather than the first-generation techniques like ANOVA or regression analysis. However, the Multiple Linear Regression or MLR analysis provides the predictive eqaution of the parents' intention to use child car restraint. Since the advantage of SEM and MLR analysis techniques are different, SEM benefits on dealing with complex structure of casual variables, while MLR analysis result is the predictive equation of casual variables. This research aims to compare the results from two methods and to get better understand and well evaluate the adequacy, reliability, and validity of each casual variables by applying SEM. Finally, the predictive equation of the parents' intention to use is developed by applying MLR analysis.

II. LITERATURE REVIEWS

The study of parents' perception of using child car restraint to their children has been studied widely. Many research study the parents' perception and the influence factors to parents' intention of using CCR. The research of [3] conclude that even though parents' knowledge on child car restraint for discharged newborns from the hospital is high, parents did not intend to use a child car restraint for their newborn for travelling back from hospital except owning one. Form the focus group discussion conducted in Singapore, the main factors contributing to non-compliance to child car restraints in Singapore and China was a lack of parental knowledge in terms of road safety awareness and perception of risk and aggravated by child behavior and lack of cultural norms [3]. The research of [4] proposes the information, motivation, and behavioral skills model based to develop the questionnaire and perform in-depth interview in parents of children aged 0–6. [4] proposed logistic regression analysis and concludes that the successive

factors of promoting the usage of CCR are parents' education, family economic status, being trained on children's unintentional injuries, the high scores on CCR riding mode cognition, CCR type cognition, CCR use motivation, and CCR installation skills. The Theory of Planned Behavior (TPB) is implemented to develop the questionnaire to study awareness and parents' intention to use child car restraint [2]. The awareness and the parents' intention to use CCR in in Bangkok is studied by develop the questionaries based on attitude, subjective norm, perceived behavioral control, government influence, safety awareness and the price fairness and resulting in the regression analysis model representing the intention to use CCR [4]. However, the analysis technique used in research of [3] based on the analysis of variance of multiple linear regression which suitable for the experiment with controlling condition. The first-generation technique like regression analysis is particularly well suited to simple models in which few independent variables and dependent variables are involved, and the data is highly normalized. Regression analysis is suitable for highly simple model and ideal for repeated measures. The advantage of regression analysis is for prediction the dependent variables with the model of independent variables such as the logistic regression analysis applied in [5]. The Structural Equation Modeling (SEM) is the second-generation technique which offers extensive, scalable, and flexible causal-modeling capabilities beyond the first-generation techniques such as ANOVA and regression analysis [6]. The key advantage of SEM to this research is that it enables estimating complete causal networks simultaneously and be able to include latent variables in causal model. Since this research involves many observed variables, SEM enables the researcher to estimate the effect of latent variables and the effect of one factor to other factors. Thus, the hypotheses testing of the direct effect on parents' intention to use CCR is suitably performed by SEM technique. The Structural Equation Modeling is advantage for complex model or hierarchical component models. [7] presents the methodology of reporting the results of the reflective-formative type and a two-stage approach. The parents' attitude is important for the decision of CCR usage to their children. [8] studied the parents' attitude toward CCR usage based on the health belief model (HBM) theory. This study aimed to understand parents' attitudes toward CCR usage in developing country without enforcing law of CCR usage to compare the non-users and user parents. The SEM is applied to assess the model's factors that impact the CCR usage for nursery school travel [9]. The considered factors in [9] are socioeconomic status, family travel pattern, traffic safety climate, family structure, child demographics, and road network infrastructure. For Theory Planned behaviors in the research of [10], the purpose of this study is to analyze the psychological characteristics underlying Chinese parents' behaviors in using CCR. The theory of planned behavior (TPB) is extended to perceived accident severity, perceived benefits, and perceived barrier. From the perspective of social psychology, the psychological factors that influence parents' use of child car seats and their interrelationships are explored. Thus, this research focusing on developing the model based on Theory Planned Behaviors, Government Influence, Price Fairness, and Safety Awareness to analyze the casual variables influencing on parents' intention to use CCR.

According to the research survey, most researchers apply SEM and Multiple Regression. The comparison between these two methods has been studied in some research [11]–[13]. The hierarchical multiple regression analysis is implemented to test the relationships of dependent and independent variables of the complicated management model [11], [12]. The comparison between the SEM and MLR is applied in the construction industry research and presents the benefits of each method [13].

Therefore, this research aims to compare SEM and MLR to the casual variables of parents' intention of CCR usage and to obtain the significant results from both methods.

III. RESEARCH METHODOLOGY

The theory of planned behavior (TPB) is the basic theory explaining the principle of consumer choice. TPB is effective in predicting intention and behavior of consumers. There are two fundamental theories relevance to this research: consumer decision patterns and behavior, and theory of planned behavior. The questionare composes of seven parts. The first part involves respondants' agreement to join the research and filtering questions for only parents whose children's age is under seven years old. The second, third, and forth part are the 12 questions based on TPB and composing of 5 questions of attitude (Att), 4 questions of subjective norms (SN) and 3 question of percieved behavioral control (PBC). The fifth part is the government influence issues to evaluate the perception of government policy about the CCR law enforcement, car seat' s price and consumer tax benefit, and the car seat supply by the government. The sixth part is about safety concern. Lastly, the seventh part is about the car seat's price perception of parents. The Research Methodology in figure 1 is the causal network of variables related to parents' intention to use CCR. The Structural Equation Modelling (SEM) enhanced in studying the postulated structuring which is represented by using diagrams containing arrow as shown in figure 1.

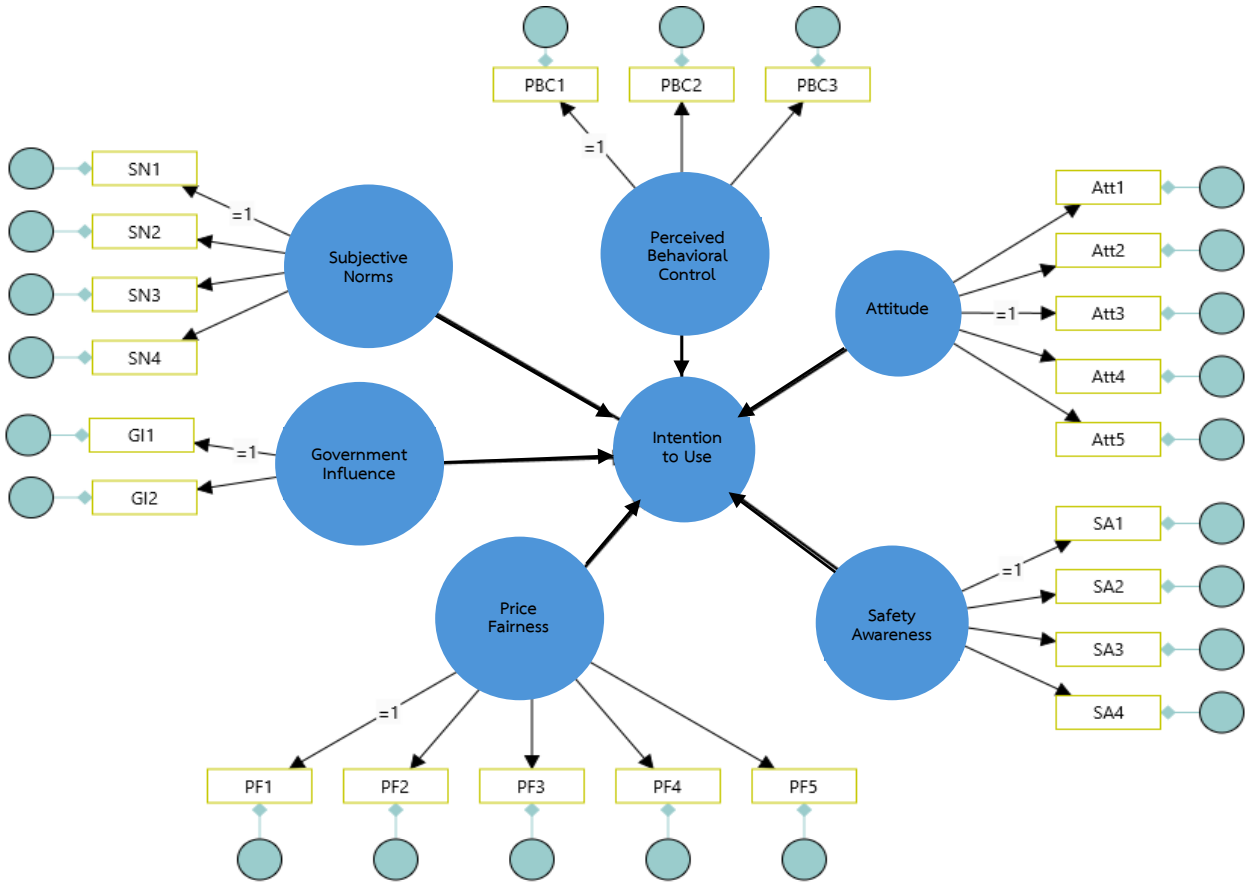

Figure 1: Causal network of variables related to parents' intention to use CCR.

The related hypotheses are as follow:

H1 is attitude influencing on the intention to use CCR.

H2 is subjective norm influencing on the intention to use CCR.

H3 is perceived behavior control influencing on intention to use CCR.

H4 is government influencing on intention to use CCR.

H5 is safety awareness influencing on the intention to use CCR.

H6 is price fairness influencing on the intention to use CCR.

The covariance based structural equation modeling (CB-SEM) is applied to demonstrate that the null hypothesis is insignificant. The data collection tools compose of two sections. The first part is demographic data on parents' gender, age, level of education, salary, income level, address city, acceptable car seat price, number of children, and vehicle type for installation car seat. The second part is the questionnaire adopts Likert's 5-point scoring, with 1–5 representing from "Strongly disagree" to "Completely agree". The survey research questionnaire is conducted according to the Theory of Plan Behavior (TPB), Government Influence, Price Fairness and Safety Awareness to evaluate the parents' intention of buying car seat for their children. The TPB composing of Attitude, Subjective Norms, and Perceived Behavioral Control, is applied to develop the survey questionnaire. The questionnaire composes of seven parts. The first part involves respondents' agreement to join the research and filtering questions for only parents whose children' age is under seven years old. Parents who pass the filtering questions will proceed to the rest of the questionnaire. The analysis method follows the process in figure 2. First, the SEM analysis is conducted to evaluate the relationship of casual variables. Then, the MLR is applied to compare the results to the SEM's results and to obtain well fit predictive equation.

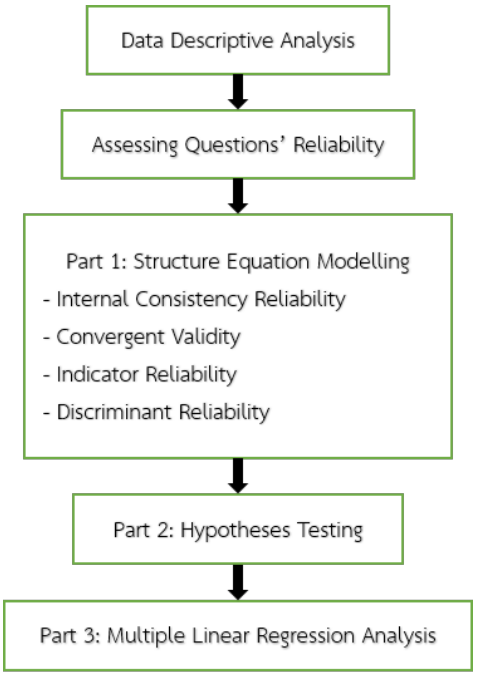

Figure 2: Research methodology.

IV. RESULTS AND DISCUSSION

The samples of parents in Bangkok are randomly selected to answer the research questionnaires during July, 2023. The research questionaries is approved by three experts to check for the content validity using Item Objective Congruence or IOC. The pilot test of questionnaire is performed with 30 samples and the data is analyzed using Cronbach's alpha with the acceptable level of 0.7 of adequate confidence level [6]. The results as shown in table 1 indicate that all questions are reliable and adequate to study the latent variables because the value of Cronbach's Alpha is between 0.73 to 0.93. The data analysis is divided into 3 parts: the descriptive analysis of sample population, the structural equation modeling with covariance and the hypothesis testing, and the multiple regression analysis to retrieve the prediction model.

Table 1: Cronbach's alpha analysis

Latent Variables	Observed Variables	code	Cronbach's Alpha
Attitude (Att):	1. I think car seat is necessary for safety of children.	Att1	0.89
	2. I think car seat is a valuable product	Att2	
	3. I am interested in searching car seat information	Att3	
	4. Using car seat for child is normal and must strictly compliance	Att4	
	5. I am agreeing with the concept of car seat design for child's safety	Att5	
Subjective Norms (SN):	6. Important person to you also recommend me to use car seat for your children	SN1	0.86
	7. Important person to you also realize the usefulness of using car seat	SN2	
	8. Important person to you also realize that car seat is safety equipment for children	SN3	
	9. Important person to you also realized that car seat can relieve injuries for children.	SN4	
Perceived Behavioral Control (PBC):	10. I have enough budget to buy car seat for my children	PBC1	0.82
	11. I am ready if I must buy car seat for my children to install to my vehicle	PBC2	
	12. I believe that car seat can protect my children	PBC3	
Government Influence (GI):	13. The government explicitly complies the child car restraints	GI1	0.73
	14. Car seat pricing policy supported by the government and the related organization	GI2	
Safety Awareness (SA):	15. I think car accident results in serious injury and death will explicitly relieve if parent use car seat with their child.	SA1	0.85
	16. I realized that car seat is importance for travelling with children	SA2	
	17. My children always ride with car seat	SA3	
	18. I insist my children to use car seat even though they refuse	SA4	
Price Fairness (PF):	19. I think the car seat price is appropriate especially comparing to safety concerning.	PF1	0.86
	20. I agree and trust with the material and design of car seat in the market	PF2	
	21. The car seat price is reasonable for me to buy	PF3	
	22. The car seat price is affordable for other parents	PF4	
	23. The car seat models and price are variety and valid for buying justification of parents.	PF5	
Intention to Use (IU):	24. I plan to buy car seat once I have a child.	IU1	0.93
	25. I plan and ready to buy car seat for my child.	IU2	
	26. Car seat is the important appliance which I certainly supply for my child	IU3	
	27. Even though car seat' price is high but I will certainly purchase for my child.	IU4	
	28. Car seat is the best solution for my child when travelling.	IU5	

A. The Descriptive Analysis of the Participants

The respondents are 316 parents in Bangkok. There are 239 female parents about 75.6 percentage. There are 173 parents (54.7%) with education level of bachelor's degree and higher. The number of participants of 137 have occupation as an employee in private company. Most respondents around 236 people (74.7%) have one child with the age less than 5-year-old. The first objective is to study the significance level of the latent variables according to the results shown in table 2 and table 3.

The interpretation of the mean analysis result is as follow:

1.0 to 1.80 is least significance,

1.81 to 2.60 is less significance,

2.61 to 3.40 is moderate significance,

3.41 to 4.20 is high significance, and

4.21 to 5.00 is highest significance

From table 2, the result shows that latent variable with the highest significance level to intention to use CCR is Safety Awareness with the average of 4.55. The Theory of Planned Behavioral is the second significance level variable with the average value of 4.42. The results in table 3 indicate that the parents in Bangkok of 316 people intend to use CCR with the highest significance level with mean value of 4.54. The most significant observed variable that effect the intention to use CCR is the "Car seat is the best solution for my child when travelling." with the mean value of 4.63. The second order is "Car seat is the important appliance which I certainly supply for my child." with the mean value of 4.61

Table 2: The significance level of latent variables to parents' intention of using CCR, Bangkok

Latent variables	Mean	SD	Level
Theory Plan Behavior (TPB)	4.42	0.55	highest
Government Influence (GI)	4.08	0.73	high
Safety Awareness (SA)	4.55	0.63	highest
Price Fairness (PF)	3.97	0.78	high

Table 3: The significance level of intention to use CCR of parents in Bangkok

Latent variables	Mean	SD	Level
Intention to Use (IU):	4.54	0.71	highest
1. I plan to buy car seat once I have a child. (IU1)	4.52	0.82	highest
2. I plan and ready to buy car seat for my child. (IU2)	4.41	0.91	highest
3. Car seat is the important appliance which I certainly supply for my child (IU3)	4.61	0.75	highest
4. Even though car seat' price is high but I will certainly purchase for my child. (IU4)	4.53	0.82	highest
5. Car seat is the best solution for my child when travelling. (IU5)	4.63	0.69	highest

B. The Structural Equation Modeling with Covariance (CB – SEM) Analysis

The covariance based structural equation modeling is applied to evaluate the assumed research model (the null hypothesis) whether it is insignificant, meaning that the complete set of paths, as specified in the model that is being analyzed, is plausible. The analysis of Measurement Model is conducted. The construct validity is analyzed, and the results are shown in table 4 and figure 3.

Table 4: The construct validity analysis's results

Latent Variables	Observed variables	Factor Loading	CR	AVE
Attitude (Att):	Att1	0.84	0.90	0.65
	Att2	0.81		
	Att3	0.75		
	Att4	0.82		
	Att5	0.79		
Subjective Norms (SN):	SN1	0.76	0.86	0.61
	SN2	0.86		
	SN3	0.76		
	SN4	0.72		

Table 4: The construct validity analysis's results (Cont.)

Latent Variables	Observed variables	Factor Loading	CR	AVE
Perceived Behavioral Control (PBC):	PBC1	0.84	0.86	0.65
	PBC2	0.94		
	PBC3	0.6		
Government Influence (GI):	GI1	0.85	0.73	0.6
	GI2	0.68		
Safety Awareness (SA):	SA1	0.75	0.85	0.59
	SA2	0.76		
	SA3	0.81		
	SA4	0.74		
Price Fairness (PF):	PF1	0.66	0.87	0.57
	PF2	0.71		
	PF3	0.87		
	PF4	0.79		
	PF5	0.72		
Intention to Use (IU):	IU1	0.88	0.93	0.74
	IU2	0.81		
	IU3	0.88		
	IU4	0.82		
	IU5	0.77		

The values of Average Variance Extracted (AVE) in table 4 are between 0.67 to 0.74 and the loading values are greater than 0.5 which indicates that the constructed model is capturing a significant amount of variance and is a reliable measure of the parents' intention to use CCR. In figure 3, the AVE values are as shown in the nodes and the loading values are shown on the arcs. For the discriminant validity, the Heterotrait-monotrait (HTMT) ratio of correlations analysis, are analyzed as shown in table 5.

Table 5: The discriminant validity analysis results

Heterotrait-monotrait (HTMT) ratio of correlations							
	Att	GI	IU	PBC	PF	SA	SN
Att	-	-	-	-	-	-	-
GI	0.09	-	-	-	-	-	-
IU	0.74	0.12	-	-	-	-	-
PBC	0.61	0.11	0.81	-	-	-	-
PF	0.37	0.38	0.59	0.55	-	-	-
SA	0.74	0.20	0.86	0.67	0.57	-	-
SN	0.57	0.21	0.43	0.42	0.37	0.47	-

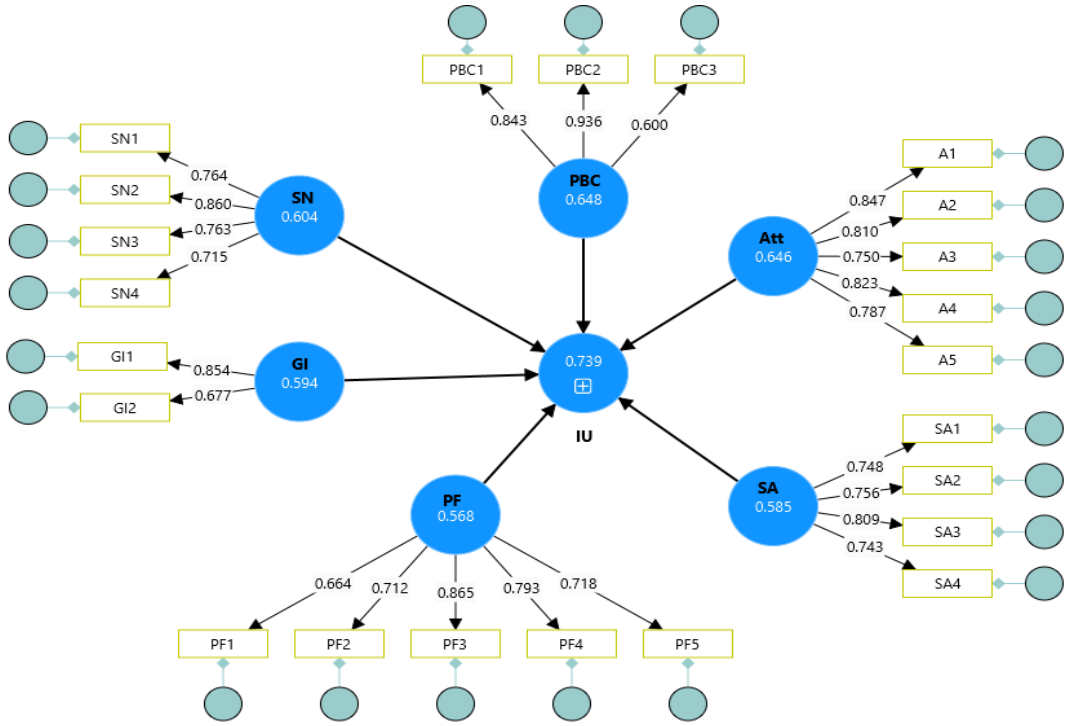

Figure 3: The construct validity analysis showing the loading values on arcs and AVE on nodes.

C. The Hypotheses Analysis

The hypotheses testing results are shown in table 6.

Table 6: The hypotheses analysis results

Direct Effect Testing	Path Coefficient		P-value
	Unstandardized	Standardized	
	b	β	
H1: ATT ⟶ IU	0.32	0.179**	0.009
H2: SN ⟶ IU	-0.06	-0.068	0.131
H3: PBC ⟶ IU	0.22	0.273***	< .001
H4: GI ⟶ IU	-0.03	-0.044	0.331
H5: SA ⟶ IU	0.81	0.526***	< .001
H4: PF ⟶ IU	0.13	0.113*	0.024
R^2= 0.798			

*Noted: *p-value < 0.05, ** p-value < 0.01, ***p-value < 0.001.*

The direct effect testing according to the null hypotheses are analyzed and presented as the path coefficient or β values in table 6 and figure 4. Firstly, the path coefficients' results show the positive direct relation of two paths at the significance level of 0.001 which are Perceived Behavior Control (PBC) and Safety Awareness (SA), one path at the significance level of 0.01 which is Attention (ATT), and one path at the significance level of 0.05 which is Price Fairness (PF). While the Subjective Norm (SN) and the Government Influence (GI) are negative path coefficient values.

Secondly, according to the direct effect testing, the results are as follow. Attitude influences on intention to use CCR (H1), since p-value is less that 0.01. Subjective norm does not influence on intention to use CCR (H2) (p-value =0.131). Perceived behavior control influences on intention to use CCR (H3), since p-value is less that 0.001. The government influence does not influence on intention to use CCR (H4) (p-value =0.331). Safety awareness influences on intention to use CCR (H5), since p-value is less that 0.001. Price fairness influences on intention to use CCR (H6), since p-value is less than 0.05.

The third objective is to study the causal variables which influence on the intention of parents in Bangkok on using CCR. From the results in table 6, the causal variable that most influence on intention to use CCR is Safety Awareness (SA), since the value of β is 0.526.

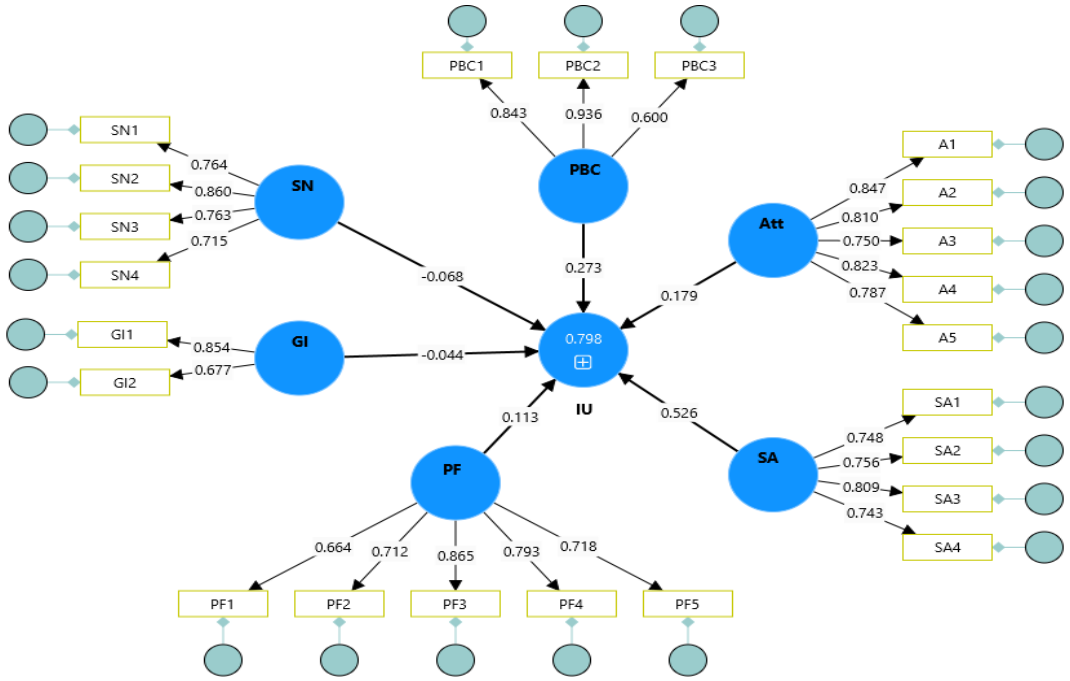

Figure 4: The hypotheses analysis results showing the path coefficients on the arcs.

Table 7: Analysis of variance of the multiple linear regression model

Model	Unstandardized Coefficients		Std. Coefficients	t	Significance P-value
	Beta	Std. Error	Beta		
Constant	0.426	0.159		-2.684	0.008
X_1: Attitude	0.195	0.047	0.154	4.123	0.000
X_2: Subjective Norm	0.047	0.032	0.047	-1.481	0.139
X_3: Perceived Behavioral Control	0.264	0.040	0.254	6.625	0.000
X_4: Government Influence	0.026	0.029	0.025	0.896	0.371
X_5: Safety Awareness	0.565	0.043	0.504	13.111	0.000
X_6: Price Fairness	0.110	0.029	0.116	3.773	0.000

The next casual variable influencing on intention to use is Perceived Behavior Control with β value of 0.273. The path coefficients (β) are presented in figure 4. The higher value represents more direct effect to intention to use.

D. The Results Comparison between SEM and Multiple Linear Regression Analysis

According to the research results of [2], the regression analysis performed on the data of this research is shown in table 7. The analysis of variance indicates that X_1 (Attitude), X_3 (Perceived Behavioral Control), X_5 (Safety Awareness), X_6 (Price Fairness) are significant to the dependent variable which is parent's intention to use CCR.

Table 8: The regression model summary

Model	R	R-square	Adjusted R-Square	Std. Error of the Estimate
1	0.873[a]	0.762	0.759	0.35950

From table 8, R-square and adjusted R-square measures the goodness of fit of a regression model. The higher R-square which close to 1.0 indicate the model is a good fit. The different between these two terms is R-squared tends to increase as more variables are added to the model even if they don't improve the model significantly, while adjusted R-square penalizes the addition of unnecessary variables. The results in table 8 indicate that the regression model in table 7 is well fit. The fitting model which represents the data, has the p-value less than 0.05 (testing value of 95% of confident level) as shown in equation (1).

$$Y = -0.426 + 0.195X_1 + 0.264X_3 + 0.565X_5 + 0.110X_6 \quad (1)$$

Even though the results are resemblance to the results of Structural Equation Modeling, the reliability of regression analysis is only the correlation coefficient value (R) in table 8, which represent the adequacy of the model. On the other hand, systematic analysis of SEM technique gives better understand and well evaluates the adequacy, reliability, and validity of each casual variable.

The SEM is more efficient to analyze effect of the latent variable and the complicate relationship of casual variables according to developing path network. However, the response variable consists of five latent variables (IU1 to IU5) according to table 9. The individual latent variable of intention to use is interesting to perform the regression analysis.

E. The Multiple Regression Analysis Results of Latent Variables of the Intention to Use

The regression analysis is performed on five latent variables of the intention to use. Each question represents Y_i as follow:

Y_1 is "I plan to buy car seat once I have a child."

Y_2 is "I plan and ready to buy car seat for my child."

Y_3 is "Car seat is the important appliance which I certainly supply for my child."

Y_4 is "Even though car seat' price is high, but I will certainly purchase for my child."

Y_5 is "Car seat is the best solution for my child when travelling."

The objective is to examine the relationship between the response variables (Y_i) and the predictor variables which are Attitude (Att), Planned Behavioral Control (PBC), Safety Awareness (SA), and Price Fairness (PF). The normality assumption checking is performed by normality test (Shapiro-Wilk), and the p-value is less than 0.001 for all multiple dependent variables. Thus, the normality assumption is valid. The analysis of variance results are shown in table 9. The correlation coefficients (R and R-sq, and R-sq adj) of every model of Y_1 to Y_5 are high. The linear regression model of Y_1, Y_2, Y_3, Y_4, and Y_5 are presented as equation 2, 3, 4, and 5, respectively. According to the analysis of variance in table 9, the Price Fairness (PF) has the p-value greater than 0.05 significant level, therefore, the PF variable is not significant to the predictor model. The Y_1, Y_2, Y_3, and Y_4 prediction equations are following.

1) I plan to buy car seat once I have a child.
2) I plan and ready to buy car seat for my child.
3) Car seat is the important appliance which I certainly supply for my child.
4) Even though car seat' price is high, but I will certainly purchase for my child.

Table 9: The results of multiple linear regression analysis

			Model Coefficients					Model fit Measures		
			Intercept	Att	PBC	SA	PF	R	R-sq	R-sq (adj)
1. I plan to buy car seat once I have a child. (IU1)	Y_1	Estimate	0.0444	0.2117	0.1988	0.6007	-0.0055	0.829	0.688	0.684
		SE	0.1915	0.0577	0.0508	0.0539	0.0339			
		Lower	-0.3326	0.0981	0.0989	0.4947	-0.0722			
		Upper	0.4214	0.3252	0.2987	0.7067	0.0612			
		t-value	0.23	3.67	3.92	11.15	-0.16			
		p-value	0.817	< .001	< .001	< .001	0.871			
2. I plan and ready to buy car seat for my child. (IU2)	Y_2	Estimate	-0.5566	1.4970	0.3668	0.5679	0.0434	0.816	0.666	0.661
		SE	0.2254	0.0716	0.0565	0.0641	0.0392			
		Lower	-1.0003	0.0089	0.2555	0.4417	-0.0337			
		Upper	-0.113	0.291	0.478	0.694	0.120			
		t-value	-2.47	2.09	6.49	8.86	1.11			
		p-value	0.014	0.037	< .001	< .001	0.268			
3. Car seat is the important appliance which I certainly supply for my child (IU3)	Y_3	Estimate	0.2136	0.2245	0.1121	0.5987	0.0499	0.845	0.714	0.711
		SE	0.1731	0.0519	0.0427	0.0492	0.0304			
		Lower	-0.1271	0.1224	0.0281	0.5018	-0.0100			
		Upper	0.554	0.327	0.196	0.696	0.110			
		t-value	1.23	4.33	2.62	12.16	1.64			
		p-value	0.218	< .001	0.009	< .001	0.102			

Table 9: The results of multiple linear regression analysis (Cont.)

			Model Coefficients					Model fit Measures		
			Intercept	Att	PBC	SA	PF	R	R-sq	R-sq (adj)
4. Even though car seat' price is high but I will certainly purchase for my child. (IU4)	Y_4	Estimate	-0.1901	0.2965	0.2179	0.4893	0.0630	0.855	0.731	0.727
		SE	0.1769	0.0530	0.0441	0.0488	0.0303			
		Lower	-0.53813	0.19217	0.13108	0.39324	0.00338			
		Upper	0.158	0.401	0.305	0.585	0.123			
		t-value	-1.07	5.59	4.94	10.02	2.08			
		p-value	0.283	< .001	< .001	< .001	0.058			
5. Car seat is the best solution for my child when travelling. (IU5)	Y_5	Estimate	0.0200	0.3465	0.0971	0.4946	0.0921	0.856	0.733	0.729
		SE	0.1668	0.0498	0.0428	0.0468	0.0294			
		Lower	-0.095	0.285	0.089	0.397	-0.015			
		Upper	0.368	0.423	0.213	0.526	0.064			
		t-value	0.12	6.96	2.27	10.56	3.13			
		p-value	0.905	< .001	0.024	< .001	0.002			

$$Y_1 = 0.21169X_1 + 0.19883X_3 + 0.60069X_5 \quad (2)$$

$$Y_2 = -0.5566 + 0.1497X_1 + 0.3668X_3 + 0.5679X_5 \quad (3)$$

$$Y_3 = 0.2245X_1 + 0.1121X_3 + 0.5987X_5 \quad (4)$$

$$Y_4 = 0.2965X_1 + 0.2179X_3 + 0.4893X_5 \quad (5)$$

However, for question 5) which is "Car seat is the best solution for my child when travelling.", the p-value is 0.002, which indicate the significance of price fairness to this question. Parents' decision about the best car seat depends on not only the product performance and quality but also the price as well. The prediction equation of the intention to use along this question presented by equation (6).

$$Y_5 = 0.3465X_1 + 0.0971X_3 + 0.4946X_5 + 0.0921X_6 \quad (6)$$

In summarized, the parents' decision basically bases on the safety awareness, their attitude, and the perceived behavioral control. The Price of car seat is not much significant influence on parents' decision. In addition, the parent' intention of using car seat can be predicted by the proposed equation from the multiple linear regression analysis.

The stepwise regression method is applied to the results from the analysis of variance of the multiple linear regression model as shown in table 7 to finalize the predictive equation.

F. The Stepwise Regression Analysis

The terms in the full linear equation (1) are reduced by cutting the independent variable that has the highest p-value one by one. Therefore, the model's variables are reduced as the results shown in table 10. The final model is presented as equation (7). The dependent variable (*Y)* representing parents' intention of car seat usage can be predicted from the score of parents' attitudes (X_1), Perceived Behavioral Control (X_3), and Safety Awareness (X_5). The coefficient of each independent variable represents the weight of each factor.

$$Y = 0.260X_1 + 0.212X_3 + 0.530X_5 \quad (7)$$

Table 10: The results of stepwise regression analysis

Model	Unstandardized Coefficients		Std. Coefficients	t	P-value
	Beta	Std. Error	Beta		
Constant	-0.083	0.136	-	-0.609	0.543
X_1: Attitude	0.285	0.042	0.260	6.771	0.000
X_3: Perceived Behavioral Control	0.203	0.036	0.212	5.638	0.000
X_5: Safety Awareness	0.543	0.038	0.530	14.114	0.000

V. CONCLUSION

The systematic analysis of Structural Equation Modelling can test the plausibility of the entire causal relationship of parents' intention to use child car restraint. The effect of latent variables is presented with the factor loading values. The safety awareness, perceived behavioral control, attitude, and price fairness are the factors influencing on the parents' intention to use child car restraint. However, the effect of price fairness is less significant than the safety awareness, attitudes, and perceived behavioral control. The regression analysis gives the same results as the SEM's results. Parents' intention of CCR usage can be predicted by the developed model of stepwise regression analysis. The proposed equation in (7) represents the linear relationship of three factors which are attitudes, perceived behavioral control, and safety awareness. Therefore, we can predict the parents' intention of CCR usage according to the equation.

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