Consumer Preferences for Internal Combustion Subcompact Sedan Cars in General Santos City, Philippines

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Abstract
The purpose of this research was to examine the preferences of consumers for subcompact sedan cars in General Santos City, Philippines. This research may provide the car industry significant information as to how consumers process their car buying decisions that will in turn help car manufacturers and car dealerships develop market-driven marketing and sales strategies and tactics. Conjoint experimental research design was used in this study. Primary data were gathered through the use of a survey essentially structured using the orthogonally designed subcompact sedan car profiles that were rated by a total of 455 valid respondents based on their level of preference. Conjoint analysis revealed that consumers in General Santos City most prefer a subcompact sedan car which Price is USD. 16,044.00 (β=0.037), which Engine is 1.5 Liter - 4 Cylinder - 106 HP (β=0.092), which Safety feature is 6-7 SRS Airbags+Speed Sensing Doorlocks (β=0.019), which Fuel Efficiency is More than 12 Kilometers/Liter - City Driving (β=0.145) and which Brand is Honda - City (β=0.400). In addition, consumers place Brand as the most important attribute of a subcompact sedan car with overall relative importance of 43.065%, followed by Engine (18.898%), Price (17.088%), Fuel Efficiency (15.603%) and Safety (5.345%). Overall, majority of the consumers in General Santos City may choose Toyota - Vios as their Subcompact Sedan Car. This study recommends for car manufacturers to further nurture their car brands through advertising and other forms of promotion as consumers have the propensity to choose and purchase a subcompact sedan car primarily because of its brand.

Keywords: Subcompact sedan cars, preferences, conjoint analysis, simulated market shares.

JEL classification: M31.

Introduction

A developing country with an increasing population produces an increasing demand for mobility. The Philippines, as a developing country ranked 9th among the countries across the Asia Pacific Region with the highest passenger cars sold in the year 2020, with approximately 153,830 units, according to data from Statista (2021). In addition, on the same year nearly half of the Filipino households in the Philippines owned a motorcycle or tricycle, while about 10 percent owned either a car, jeep or van. Indeed, an automobile has increasingly become necessary for transportation and people wish to have at least one car to assist them in their daily activities such as shopping, going to work, and vacation travels (Hondori, Javanshir and Rabani, 2013). Moreover, there is an increasing number of cars plying on the roads due to the ease of availability of automobile loans, rise in salary and buying capacity among middle-income class (Mathur et. al., 2018).

Automobile products are considered to be the second most discretionary purchase of consumers next to purchasing a house, according to Vadivel and Jayaprakasam (2018). The purchase of automobiles involves a complex decision making considering many comparisons

and trade-offs among various attributes of different car models (Wu, Liao and Chatwuthikrai, 2014) with the increasing industry competition and given the evolving consumer behavior such as the consumers' considerations in choosing a car that suites their changing lifestyles (Priya and AnanthaLaxmi, 2017). In fact, the year 2018 has exhibited the progressive shift of preferences and attitudes of Filipino car buyers amidst tax reforms, price hikes, car model launches and other relevant developments such that car buyers seem to make more careful decisions as to which cars to purchase (Conoza, 2018).

With the intricacies of the behavioral characteristics of millennials, it is seemingly difficult to identify the preferences of the present generation towards cars (de Sa, Mainardes and Andrade, 2019). Manufacturers find it complicated to ascertain consumer preferences for cars as customers have extra demands in terms of evaluating the quality standards of a particular product (Jayaraman et. al., 2018). Nevertheless, car manufacturers need to understand why and how consumers buy in order to strategically introduce innovative and technological advancements on the cars they produce for them to remain competitive in the dynamic car industry (Lee and Govindan, 2014).

In the General Santos City market, dealerships of different car brands operate such as Honda, Toyota, Mitsubishi, Suzuki, Isuzu, Nissan, Mazda, Hyundai, Kia, Ford, Foton, Subaru and Chevrolet, with the entry of Morris Garages, Geely, Chery, Jetour and GAC in the recent years. The prevalent competition in General Santos consequently posts a lot more car brand alternatives for consumers to choose from. Indeed, competition is very high and dynamic in the automotive market as it is getting saturated with various car models competing with each other (Anandh and Sundar, 2014). Hence, the rationale of this study.

An article by Co (2023) from Autoindustria featured that the top selling car in the Philippines was a brand of subcompact sedan car for the year 2022. Thus, this study aimed to analyze the preferences of consumers for subcompact sedan cars in General Santos City. The result of this study would give car manufacturers and their local dealerships significant information for their perusal regarding the purchasing behavior among car buyers as to how different factors form the preferences of consumers for subcompact sedan cars. This study would serve as a basis for the improvement of their marketing and sales strategies and how else they can provide car owners and potential car buyers the superior customer value.

2. Aims of research

This study aimed to analyze the preferences of consumers for subcompact sedan cars in General Santos City. Specifically, this study sought to (1) Develop an aggregate model of consumers' overall preference for a subcompact sedan car; (2) Ascertain the relative importance of Price, Engine, Fuel Efficiency, Safety and Brand that form the preference structure of consumers in General Santos City; and (3) Simulate possible market shares among subcompact sedan car brands in General Santos City based on consumers' preference structures.

3. Literature review
3.1 Consumer preferences in the automobile industry

Automobiles play a critical role in people's daily life, which make them subject of interest in many academic fields. Consumers in their car buying decisions make their choices and other judgments based on their own preferences and personal requirements. This raises questions from manufactures and dealers with regards to the factors influencing the preferences of consumers towards their selection of car models (Lee and Govindan, 2014). Sharp (2012) recognized in his study that majority of consumers compare different brands and make their buying decisions by considering product quality and the benefits. Sharp further concluded that

products' benefits play significant role in constructing consumers' perceived value. In addition, Hondori, Javanshir and Rabani (2013) mentioned that one of the primary concerns in product development is to meet customers' wishes, which could be accomplished by detecting the most salient characteristics of products. Understanding the influence of product attributes to consumer preferences and shaping market offerings is important for marketing decisions about product development, brand extension and product positioning (Viswanathan and Childers, 1999).

Nevertheless, when asked about the relative importance of a number of key attributes of cars, consumers tend to simply respond that they are all important, thus a simple survey may not be that effective with regards to identifying the relative significance of car attributes (Wu, Liao and Chatwuthikrai, 2014). Moreover, consumers tend to evaluate the key attributes as a whole, rather than independently. Hence, studies on consumer preferences including that of Wu, Liao and Chatwuthikrai (2014) used conjoint analysis in order to carefully examine the individual and joint effect of attributes on consumers' preferences towards cars.

3.2 Conjoint analysis

Conjoint Analysis is a multivariate technique that can be used to analyze how consumers' preferences are formed towards a particular product or service. The analysis is premised that consumers judge the value of a product or service by combining the separate amounts of values provided by its attributes. Also, conjoint analysis assumes that estimates of consumers' preferences can be best measured using the attributes that form the product or service (Hair et. al, 2014). Further, Conjoint methodology includes the identification of the respondent's level of utility towards an array of stimuli or factors measurable by using part-worths (Green and Srinivasan, 1978).

One of the advantages of conjoint analysis as an analytical tool used in marketing lies in its ability to measure consumers' preferences at the individual level and reveal hidden motivations that may not even be known by the respondents themselves. The analysis gives a psychological profile of respondents' preferences and corresponding decision-making processes as it utilizes algebraic theory to study cognitive processes and to generate statistical estimations (Wu, Liao and Chatwuthikrai, 2014). Nevertheless, conjoint analysis also aggregates consumer preferences using all preferences from all respondent preference structures at the individual level.

Another advantage of using conjoint analysis as a multivariate technique in marketing is its ability to simulate preference shares or possible market shares among product or service alternatives with the use of different choice simulators (Hair et. al., 2014). Conjoint simulations can be performed in an attempt to understand how respondents choose among specified product or service alternatives. This process requires the use of part-worth utilities of the different levels of the attributes that form hypothetical profiles. Market shares may be estimated among a set of competing hypothetical product profiles based on the assumption that consumers would choose the product alternative with the highest overall utility for them. Furthermore, market shares are computed by counting the number of subjects for whom a particular hypothetical product or service profile offers the greatest utility and dividing the count by the total number of valid respondents in the study. (Dean, 2004).

4. Research methods

The current study primarily used the conjoint experimental research design. Conjoint experiment was performed in order to create the stimuli for modelling the preferences of consumers (Hair et. al., 2014) for subcompact sedan cars in General Santos City, Philippines. The use of the conjoint experiment method allowed the generation of the different profiles of

a subcompact sedan car with different levels of the salient car attributes that were ascertained in focus group discussions conducted among existing car owners and users in General Santos City.

The study was conducted in General Santos City, Philippines. General Santos City is a home to representatives of various car brands trying to sell to existing car owners, users and potential car buyers. Hence, General Santos City is a conducive locale where this study on consumer preferences for subcompact sedan cars was conducted.

The study involved existing car owners and users in General Santos City. They belong to the working class, either employed or self-employed. According to Orme (2010), the sample sizes of conjoint studies generally range from 150 to 1,200 respondents. Nevertheless, this study employed sample size formula using proportion (Cochran, 1954) in determining the right sample size, as this study dealt with a large population.

The researcher set out to collect responses from a target of 428 respondents. The actual number of responses collected reached up to 496. After cleaning the data base of incomplete and erroneous responses, a total of 455 valid responses were left for further analysis. Moreover, snowball sampling method, also called chain-referral sampling method was further used to reach out the respondents of this study. Those that did not quality according to the specified respondent criteria were excluded from this study. In addition, the respondents' involvement were completely voluntary and respondents could withdraw their involvement anytime without any fear of repercussions.

The study initially conducted a focus group discussion (FGD) involving 9 existing car owners and users in order to reduce the number of possible attributes of a subcompact sedan car into 5 salient attributes. After having identified, each salient attribute was given attribute levels based on how each car attribute behaves in the market, specifically based on the specifications of subcompact sedan cars available in General Santos City. The top 5 subcompact sedan car brands involved in this study were also determined by the FGD respondents.

The attributes and respective levels were then used to create different profiles of a subcompact sedan car, presented using the full-profile method which is a method of gathering ratings from respondents by presenting product profiles that are formed using the different combinations of the levels of each of the attributes. In addition, a fractional factorial design was also be used in order to reduce the number of product profiles into an optimal number, enough to estimate the consumers' preferences for subcompact sedan cars, while still meeting the statistical efficiency criteria given that the use of more attributes, attribute levels and product profiles in the conjoint experiment would render the analysis less accurate (Hair et al., 2014).

The final survey questionnaire of this study initially ascertained the profiles of the 455 respondents. Most essentially, the questionnaire was structured using the 29 profiles or designs of a subcompact sedan car with different combinations of the levels of the 5 salient attributes. Out of these product designs, 25 were actual profiles rated by respondents and were used to estimate the consumers' preferences while the remaining 4 were hold-out cases. These holdout cases were still rated by the respondents but were not used in the estimation of preferences. Instead, these cases were rather used to check the internal validity of the preference structure of consumers that were be modelled by this study (Umesh & Mishra, 1990). Moreover, this study employed a conjoint scale of 1 to 7, where 1 is "least preferable" and 7 being "most preferable", used by the final respondents of this study to rate the 29 profiles of a subcompact sedan car according to their own judgments of preferability. After the gathering of the data, the responses from the respondents were tabulated, processed and interpreted using the conjoint analysis in SPSS. Furthermore, the consumers' preference structure which was modelled by

the analysis was further used in conjoint simulations to simulate possible market shares of subcompact sedan car brands in General Santos City.

4. Results and discussion

4.1 Aggregate model of consumers' overall preference for subcompact sedan cars

Table 1 Displays the overall utilities of the attribute levels forming the preference structure of consumers for subcompact sedan cars in General Santos City. The utility values were estimated using the respondents' ratings to the different profiles of a subcompact sedan car. An aggregated model of consumers' overall preference for a subcompact sedan car was then developed using the utility estimates and the additive model. The total value that consumers place on a subcompact sedan car was derived by adding the highest utility values of the levels of each of the attributes and the value of the constant.

Conjoint analysis reveals that consumers in General Santos City most prefer a subcompact sedan car which Price is USD. 16,044.00 (β=0.037), which Engine is 1.5 Liter - 4 Cylinder - 106 HP (β=0.092), which Safety feature is 6-7 SRS Airbags+Speed Sensing Door Locks (β=0.019), which Fuel Efficiency is More than 12 Kilometers/Liter - City Driving (β=0.145) and which Brand is Honda - City (β=0.400). The aggregate model of consumers' overall preference for subcompact sedan car is developed using the additive model:

Consumers' Overall Preference for Subcompact Sedan Car (Total Utility) = Utility(USD. 16,044.00) + Utility(1.5 Liter - 4 Cylinder - 106 HP) + Utility(6-7 SRS Airbags+Speed Sensing Door Locks) + Utility(More than 12 Kilometers/Liter - City Driving) + Utility(Honda - City) + Constant
= 0.037 + 0.092 + 0.019 + 0.145 + 0.400 + 4.656
= 5.349

Table 1. *Overall Utilities of the Attribute Levels Forming the Preference Structure of Consumers for Subcompact Sedan Cars in General Santos City*

Attributes	Attribute Levels	Utility Est.	Std. Error
Price	**USD. 16,044.00**	**0.037**	0.032
	USD. 17,936.00	0.026	0.032
	USD. 18,525.00	-0.057	0.032
	USD. 18,721.00	-0.032	0.032
	USD. 19,506.00	0.026	0.032
Engine	1.0 Liter Turbo - 3 Cylinder - 99 HP	-0.083	0.032
	1.2 Liter - 3 Cylinder - 78 HP	-0.123	0.032
	1.5 Liter - 4 Cylinder - 106 HP	**0.092**	0.032
	1.5 Liter - 4 Cylinder - 119 HP	0.085	0.032
	1.6 Liter - 4 Cylinder - 126 HP	0.028	0.032
Safety	6-7 SRS Airbags	-0.019	0.016
	6-7 SRS Airbags+Speed Sensing Door Locks	**0.019**	0.016
Fuel Efficiency	Below 10 Kilometers/Liter - City Driving	-0.161	0.022
	10-12 Kilometers/Liter - City Driving	0.016	0.022
	More than 12 Kilometers/Liter - City Driving	**0.145**	0.027
Brand	Nissan – Almera	-0.217	0.032
	Toyota – Vios	0.366	0.032
	Honda – City	**0.400**	0.032
	Hyundai – Accent	-0.251	0.032

Mitsubishi - Mirage G4	-0.297	0.032
Constant	4.656	0.017

4.2 Relative importance of the attributes forming the preference structure of consumers

Table 2 shows the overall relative importance of the attributes forming the preference structure of consumers for subcompact sedan cars in General Santos City. The relative importance of the attributes were derived by calculating the range between the highest and the lowest utility values of each attribute divided by the sum of all the ranges. The calculations were done for each respondent and were averaged to aggregate the relative importance of each attribute of subcompact sedan car. The overall relative importance of each of the attributes is relative only to this study, as the ranges of utility values may vary across different conjoint experiments.

Conjoint analysis reveals that consumers in General Santos City consider Brand as the first and most important attribute of a subcompact sedan car with overall relative importance of 43.065%. Thus, brand is indeed an important car attribute that influences the buying decisions of consumers. This supports the result of the study of Amron (2018) which revealed the significant influence of brand to the buying decision of consumers in terms of brand image and brand trust. The result of this study also suggests that consumers may choose a subcompact sedan car primarily because of its brand. This is consistent to the result of the study of Alamgir et. al. (2011) which revealed that brand names influence the choice of consumers in purchasing cars. Alamgir et. al. (2011) furthered that consumers prefer to purchase a well-known branded car. Moreover, the result of this study also affirms the postulation of Tekin et. al. (2016) that brand is a powerful tool that can be used to attract more customers to buy and has become important in the luxury market.

Table 2. *Overall Relative Importance of the Attributes Forming the Preference Structure of Consumers for Subcompact Sedan Cars in General Santos City*

Attributes	Relative Importance	Rank
Price	17.088%	3rd
Engine	18.898%	2nd
Safety	5.345%	5th
Fuel Efficiency	15.603%	4th
Brand	43.065%	1st

Consumers in General Santos City also place Engine as the second important attribute of a subcompact sedan car with overall relative importance of 18.898%. This suggests that consumers also look into the engine specifications of cars as one of the considerations in buying a car. The result of the conjoint experiment aligns with the conjoint study of Chowdhury, Salam and Tay (2016) which revealed engine power as an important car attribute to the preferences of car consumers. Chowdhury, Salam and Tay (2016) further mentioned that the horse power or engine size is an important car attribute as it determines performance that includes acceleration and speed.

Price is the third most important attribute of a subcompact sedan car for consumers in General Santos City, with overall relative importance of 17.088%. This suggests that consumers look into the prices of cars along with the set of car features and benefits in their buying decisions. This result is supported by the study of Amron (2018) which revealed price as a significant influencing factor of the buying decisions of consumers for cars. The study of Brucks, Zeithaml and Naylor (2000) revealed that consumers use price along with brand in order to evaluate the prestige among other quality dimensions of products. Further, price is also

known to be associated with the value perceptions of consumers. Kotler and Keller (2014) mentioned that value perceptions increase with quality and service but decrease with price. Fuel Efficiency is the fourth important attribute of a subcompact sedan car for General Santos City consumers, with overall relative importance of 15.603%. Peters, Gutscher and Scholz (2011) argue that fuel consumption is of lesser importance to most car buyers, amidst the ongoing trends of increasing car size and power. This suggests that there are other car attributes that consumers value more importantly than car fuel efficiency. However, the rising fuel prices may also affect the buying decisions of consumers and choose more fuel efficient cars. In fact, the findings of the study of Sallee, West and Fan (2016) suggest that consumers value fuel economy. Furthermore, Allcott and Knittel (2019) mentioned the argument that consumers are poorly informed and cognitively constrained in the evaluation of fuel economy.

Moreover, Safety is the attribute of a subcompact sedan car that consumers in General Santos City consider least, with overall relative importance of 5.345%. The conjoint study of Wu, Liao and Chatwuthikrai. (2014) revealed safety as one the car attributes that consumers consider important. Be that as it may, the result of this study suggests that at present, there are other car attributes that consumers consider more important in their car buying decisions other than car safety. This may be due that car safety is a standard feature of modern cars, such as the standardization of airbags as a car safety feature. As such, consumers may focus on other car features that will give value for their money. Nevertheless, car manufacturers strive to develop safety cars. In fact, Joerger and Spenko (2017) mentioned that promising new technologies emerge to increase the level of safety and autonomy in car driving, including lane and distance keeping assist systems, automatic braking systems and even highway auto-drive systems.

Table 3 displays the overall conjoint correlations between observed and estimated preferences of consumers for subcompact sedan cars in General Santos City. Pearson's R and Kendall's Tau goodness of fit measures were utilized in order to validate the estimated utility values, to ensure that the preferences of consumers are validly represented by the estimated preferences. Kendall's Tau for holdouts was also used to further validate the conjoint model by correlating the observed and estimated preferences of consumers in the case of the holdout profiles.

Table 3. *Overall Conjoint Correlations between Observed and Estimated Preferences of Consumers for Subcompact Sedan Cars in General Santos City*

Statistics	Value	Sig.
Pearson's R	0.991	0.001
Kendall's Tau	0.941	0.001
Kendall's Tau for Holdouts	1.000	0.021

The value of Pearson's R is 0.991, which is significant at 0.01 level of significance and the value of Kendall's Tau is 0.941, also significant at 0.01 level of significance, indicating that the observed and estimated preferences are highly associated, validating the utility estimates. On the other hand, the conjoint model of consumers' overall preference for subcompact sedan car is further validated by the Kendall's Tau for holdouts with a value of 1.000, which is significant at 0.05 level of significance.

4.3 Simulated market shares among subcompact sedan car brands

Table 4 illustrates the simulation profiles of subcompact sedan cars in General Santos City. The levels of the attributes of the different subcompact sedan cars available in General Santos City were based on how the attributes actually behave as observed in the market. The

Price, Engine, Safety and Brand attribute levels were based from the brochures posted on the Philippine websites of the car makers involved. Specifically, the prices of the subcompact sedan cars were converted from Philippine Peso to US Dollar currency for common international perspective, based on the Reference Exchange Rate Bulletin of the Bangko Sentral ng Pilipinas (2024). On the other hand, the Fuel Efficiency levels of the different car brands involved in the simulation were assumed to be More than 12 Kilometers/Liter - City Driving, as car fuel consumption may vary depending on the driving styles or habits of consumers (Meseguer et. al, 2017).

Table 4 *Simulation Profiles of Subcompact Sedan Cars in General Santos City as Observed in the Market*

Car Maker	Price	Engine	Safety	Fuel Efficiency	Brand
Nissan	USD. 18,721.00	1.0 Liter Turbo - 3 Cylinder - 99 HP	6-7 SRS Airbags+Speed Sensing Door Locks	More than 12 Kilometers/Liter - City Driving	Nissan - Almera
Toyota	USD. 17,936.00	1.5 Liter - 4 Cylinder - 106 HP	6-7 SRS Airbags+Speed Sensing Door Locks	More than 12 Kilometers/Liter - City Driving	Toyota - Vios
Honda	USD. 19,506.00	1.5 Liter - 4 Cylinder - 119 HP	6-7 SRS Airbags+Speed Sensing Door Locks	More than 12 Kilometers/Liter - City Driving	Honda - City
Hyundai	USD. 18,525.00	1.6 Liter - 4 Cylinder - 126 HP	6-7 SRS Airbags+Speed Sensing Door Locks	More than 12 Kilometers/Liter - City Driving	Hyundai - Accent
Mitsubishi	USD. 16,044.00	1.2 Liter - 3 Cylinder - 78 HP	6-7 SRS Airbags+Speed Sensing Door Locks	More than 12 Kilometers/Liter - City Driving	Mitsubishi - Mirage G4

Table 5 displays the simulated market shares among subcompact sedan car brands in General Santos City. The simulation of market shares was performed by employing choice simulators in order to determine the share of the preference of consumers on the different subcompact sedan car brand alternatives, given the simulation profiles in Table 4. There were two main types of choice simulators used in this study: the Maximum Utility or First Choice Model and the Preference Probability Model.

The Maximum Utility or First Choice Model of choice simulation assumes that consumers choose the subcompact sedan car brand alternative with the highest total utility score. Thus, the market share is simulated by counting the number of consumers giving the highest total utility scores on the simulation profiles of the subcompact sedan car brand alternatives. Moreover, this choice simulator is best applied on non-habitual or non-routine buying conditions.

Table 5 *Simulated Market Shares among Subcompact Sedan Car Brands in General Santos City*

Subcompact Sedan Car Brand	Simulated Market Share		
	Max. Utility	B.T.L.	Logit
Nissan - Almera	10.8%	18.4%	14.3%
Toyota - Vios	31.4%	22.2%	26.8%
Honda - City	28.7%	22.3%	27.1%

Hyundai - Accent	12.3%	18.8%	16.4%
Mitsubishi - Mirage G4	16.8%	18.3%	15.4%

The Preference choice Probability Model of choice simulation deals with the prediction of choice probability summing up to 100% across the simulation profiles of subcompact sedan cars. In this case, each consumer has some percentage of probability in choosing each of the subcompact sedan car brand alternatives. Thus, the market share is simulated by calculating the sum of the preference probabilities of consumers to the different subcompact sedan car brand alternatives. This type of choice simulator is best suited for repetitive or habitual buying situations. Furthermore, the Bradford, Terry and Luce (BTL) and Logit Models are variations of the Preference Probability Model.

Overall (n=455), the Maximum Utility Model calculates 31.4% market share for Toyota - Vios, followed by Honda - City with 28.7% market share. In addition, Mitsubishi - Mirage G4 has 16.8% market share, 12.3% for Hyundai - Accent and 10.8% market share for Nissan - Almera. The Bradford, Terry and Luce (BTL) and Logit models calculate 22.3 - 27.1% probability that consumers may choose Honda - City as their subcompact sedan car, while there is 22.2 - 26.8% probability that consumers may choose Toyota - Vios. Furthermore, Hyundai - Accent has 16.4 - 18.8% choice probability, 15.4 - 18.3% for Mitsubishi - Mirage G4 and 14.3 - 18.4% choice probability for Nissan - Almera.

Thus, majority of the consumers may choose Toyota - Vios with 31.4% simulated market share, immediately followed by Honda - City with simulated market share of 28.7%. The large overall simulated market shares calculated for Toyota - Vios and Honda - City can be attributed to the overall characteristic of the consumers in General Santos City as *"Brand Conscious"* consumers, given the highest relative importance they place on Brand. The Brands Toyota - Vios and Honda - City are the Brands of a subcompact sedan car with high utility values given by consumers. Nevertheless, Toyota - Vios having a relatively larger simulated market share compared to Honda - City can be attributed to the specific preference of consumers for the 1.5 Liter - 4 Cylinder - 106 HP Engine of Toyota - Vios, the most preferred Engine for a subcompact sedan with the highest utility value given by consumers among the Engine attribute levels.

Conclusions, limitations and future directions of research

Based on the results of the research, it is advisable for car manufacturers to consider the overall preference structure of consumers in designing subcompact sedan cars. Car manufacturers may consider offering a subcompact sedan car which engine specification is right around 106 horse power at 1.5 liters of engine displacement. It is also recommended for car manufacturers to improve the fuel efficiency ratings of the subcompact sedan cars they are offering and also assign the optimal safety features in order to target the optimal price point and possibly increase the perceived value of consumers. Car manufacturers as well as their respective car dealerships are also recommended to nurture their car brands in the aspect of brand image and brand trust through advertising and other forms of promotion. This is since that according to the overall preference structure consumers, they can be regarded as "brand conscious" consumers and have the propensity to choose and purchase a subcompact sedan car primarily because of its brand.

Furthermore, an important limitation of this research lies in its focus on subcompact sedan cars, specifically with internal combustion engines. Future researchers may explore on other car segments such as the pick-up truck and the SUV car segments. Cars with engine alternatives such electric cars may also be explored for future investigation.

Acknowledgements

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