ANALYTICAL HIERARCHY PROCESS APPROACH ON CONSUMER PREFERENCE OF TOYOTA AGYA, DAIHATSU AYLA, HONDA BRIO IN MANADO

PENDEKATAN PROSES HIRARKI ANALITIK TERHADAP PREFERENSI KONSUMEN PADA MOBIL TOYOTA AGYA, DAIHATSU AYLA, HONDA BRIO DI MANADO

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Abstract: The automobile industry in Manado has grown rapidly. So many type of car launched to fulfill the customer need for their daily mobility. Follow the current situation, where price of fuel increasing continously, and pollution level has increase day by day, the car producer react by launched a several type of small car. The purpose of this research are to determine which criteria in the small car is mostly selected by customers and to define which small car that customers like the most. This research used Analytical Hierarchy Process (AHP) to compare each small car. The respondent is 40 people and this research using purposive sampling.The respondent of this research is the people that has an experience ride or drive this three small cars. The result shows that Toyota Agya become the most preferred small car by the consumer, followed by Daihatsu Ayla and Honda Brio in the last place. Thus, recommendation for Daihatsu Ayla and Honda Brio management as the competitors of Toyota Agya, have to improve their vehicle performance,in order to attract more customer, especially for some criteria that make customer tend to choose Toyota Agya.

Keywords: consumer preference, small car, analytical hierarchy process.

Abstrak: Industri automobil di Manado berkembang dengan pesat. Banyak tipe mobil yang diproduksi untuk memenuhi kebutuhan konsumen dalam melakukan mobilisasi. Mengikuti situasi terkini, di mana harga bahan bakar minyak terus naik, dan tingkat polusi yang meningkat hari demi hari, produsen mobil bereaksi dengan cara memproduksi beberapa tipe mobil kecil. Tujuan penelitian ini untuk menentukan kriteria apa di dalam mobil murah dam ramah lingkungan yang paling diminati oleh konsumen, dan juga untuk menetapkan mobil kecil mana yang paling diminati konsumen. Penelitian ini menggunakan metode AHP untuk membandingkan setiap mobil kecil. Jumlah responden sebanyak 40 orang dan penelitian ini menggunakan *purposive sample*. Responden dari penelitian adalah orang-orang yang mempunyai pengalaman mengendarai atau menumpangi ketiga mobil tersebut. Hasil dari penelitian ini adalah Toyota Agya menjadi mobil kecil yang paling diminati oleh konsumen, diikuti Daihasu Ayla, kemudian Honda Brio. Saran buat manajemen Daihatsu Ayla dan Honda Brio sebagai *competitor* dari Toyota Agya agar lebih meningkatkan performa kendaraan mereka, sehingga dapat menarik lebih banyak konsumen, lebih khusus untuk beberapa kriteria yang membuat konsumen cenderung memilih Toyota Agya.

Kata kunci: preferensi konsumen, mobil kecil, proses hirarki analitik

INTRODUCTION

Research Background

Transportation plays a vital role in people life nowadays. Every people depends on transportation regarding thier daily activities, and without transportation it is going to be unimaginable. There are various types of transportation facility available, one of those are vehicle,which generated by machine and has been evolved year by year followed the current development. There are many types of transportation, a two-wheel vehicle (motorcycle), four-wheel vehicle (car), bus, and train. Every vehicle has its own functions and utility. There are many factors effect demand on cars, like the purchasing power of the middle class, higher middleclass and of course, the rich, which are being considered as a need for doing activity, or a luxury in many places especially among corporate executives, professionals and small scale businessmen as well.

Small car is exist in Indonesia nowadays. To qualify as a small car, the car's engine must be between 900 – 1200cc for spark ignition engine which is use gasoline and not exceed 1500cc for compression ignition machine or usually called diesel. On September 2013, the Ministry of Industry issued a regulation about production development of small car. The regulation was made to control the production and marketing of small caras the solution to reduce energy usage and pollution, also to maximize local component usage. Target market of small car are middle income consumer. Most of the small cars component is made in Indonesia and it is expected to increase the jobs field significantly. There are currently brands that participate on government's small car program they are Honda Brio, Daihatsu Ayla, and Toyota Agya. These three brands are come from the largest Japanese car producer in Indonesia .

Small Car was launched as a government program, produced in Indonesia that will get privilege on tax cutting, so it can be sold to the market with lower price than other type of car. Target market of small car are middle income consumer. Most of the small cars component is made in Indonesia and it is expected to increase the jobs field significantly. There are currently brands that participate on government's small car program they are Honda Brio, Daihatsu Ayla, and Toyota Agya. These three brands are come from the largest Japanese car producer in Indonesia .

Factors influencing customer for purchasing Small car are low selling price, good mileage and pick-up, low cost of maintenance, good performance and convenience. Another reason also nowadayscost of the fuel is going up constantly so people moves to fuel efficient consumption car that is small cars. In this context, it could be worth to study the consumer preference towards various small cars. Manado as a developing city that always follow the current trend,has began to use the small car. In other side, Manado people usually have intention to buy something not just based on their needs but also something that become trend and easy to being influenced by their friends,or suggestion from family.

Research Objectives

The objectives of this research are to identify :

1.Which criteria is the most important for customer in selecting a small car.
2.Which small car is the most preferable for people.

THEORITICAL FRAMEWORK

Marketing

Kotler & Keller (2008:27) defines marketing is about to identifying and meeting human and social needs. One of the shortest good definition of marketing is meeting needs profitably. In the other theories Beckman& Davidson (1962:42) says marketing is essentially a process like farming, manufacturing, mining or construction. As such basically functional in character and may, therefore, be defined as the performance of all activities necessary ability, effecting transfer of ownership of products, providing for their physical distribution, and facilitating the entire marketing process. Researcher defined marketing is getting the right procuct or service in the right quantity, to the right place, at the right time and making a profit in the process, understanding customer and giving them what they want.

Consumer Behavior

Kotler & Keller (2008:172) considered that consumer behavior is the study of how individuals, groups, and organizations select, buy, use and dispose of goods, services, ideas, or experiences to satisfy their needs and wants. Consumer behavior involves the use and disposal of products as well as the study of how they are purchased. Consumer behavior involves services and ideas as well as tangible products. In this process the consumer evaluates a purchase depicted by the need recognition- realization of the difference between desired situation that serves as a trigger for the entire consumption process (Engel et al. 1995:55). The researcher defined consumer behavior is the study of individuals, groups, or organizations and the processes they use to select, secure, use, dispose of products, services, experience, or ideas to satisfy need and the impacts that these processes have on the consumer and society.

Consumer Preferences

Preference and acceptance can in certain circumstances mean the same thing but it is useful to keep the distinction in mind with preference tending to indicate choice among neutral or more valued options with acceptance indicating a willingness to tolerate the status quo or some less desirable option (Fife et al. 2007).Researcher defined consumer preferences as the subjective (individual) tastes, as measured utility, of various bundles of goods.

Price

Price is that which is given up in an exchange to acquire a goods or service. Price plays two roles in the evolution of product alternatives : as a measure of sacrifice and as an information cue (McDaniel, Lamb, Hair. 2011:629).The researcher found that price is a value that will purchase a finite quantity, weight, or other measure of a good or service.

Product Quality

Kotler and Armstrong (2004:283), product quality is the ability to demonstrate a product in its function, it includes the overall durability, reliability, accuracy, ease of operation and repair products are also other product attributes. Research defined that quality as the totality of features and characteristics of a product or service that bears its ability to satisfy stated or implied needs.

Safety

Safety is relative freedom from danger, risk, or threat of harm, injury, or loss to personnel and/or property, whether caused deliberately or by accident (BusinessDictionary, 2015).The researcher found that the safety is relative freedom from danger, risk, or threat of harm, injury, or loss to personnel and/or property, whether caused deliberately or by accident.

Interior

Interior vehicle is an important factors for customers' satisfaction. To achieve an optimized product subjective evaluation methods as well as analysis and prediction tools have to be combined to provide reliable information relevant for the judgement of product quality and comfort situation (Krebber et al 2000). Researcher defined interior as the inner or indoor part of something, such as building or vehicle.

Comfortable

Comfort is influenced by a combination of physical, physiological and psychological factors. Some factors include solar radiation and glazing, inside and outside colours, the size of the vehicle, the clothing type of the passengers and passenger capacity of the vehicle cabin (Parson, 2002). It can be defined that the one of the definition of comfortable is the condition of mind that expresses satisfaction with the thermal environment.

Advertisement

Advertising is a primary tool for firms to affect the performance of their products, specially in markets for consumer goods such as cars, computers, cell phones, and digital cameras. Such markets are characterized by the continuous turnover of multiple relatively close substitute products. Therefore, advertising becomes crucial in making consumers aware of the existence and characteristics of new products (Llobet, 2011).It can be

defined that advertising is used for communicating business information to the present and prospective customers.

Multi –Criteria Decision Making

Most decision making involves complicated procedures in which decision makers rank the alternatives of a choice according to multiple criteria. There have been many studies that have provided solutions for complicated decision making including multiple criteria. MCDM consists of three components: goal, criteria and alternatives. In making a decision, ranked alternatives are generated by evaluating criteria or subcriteria if there are any. Alternatives will be ranked regarding to the weights of criteria and subcriteria. The rank order can be applied for selecting the best alternative (Saaty, 1990).

Analytical Hierarchy Process

The Analytic Hierarchy Process (AHP) is due to Saaty (1990) and is often referred to, eponymously, as the Saaty method. It allows users to assess the relative weight of multiple criteria or multiple options against given criteria in an intuitive manner. In case quantitative ratings are not available, policy makers or assessors can still recognize whether one criterion is more important than another. Therefore, pairwise comparisons are appealing to users. Saaty established a consistent way of converting such pairwise comparisons (X is more important than Y) into a set of numbers representing therelative priority of each of the criteria.

Previous Research

Joshi (2013), objective of this study is to identify the factors influencing the selection and purchase of small car, to study the factors affecting's consumer's pre-purchase and post purchase behavior, to find out the attitude of consumer towards various brand of small cars,and to find out the brand preferences of the consumers. This study reveals that purchasing of car is strongly influenced by the advertisement and secondly by family and friend's reccomendations. Vidhyakala (2014), this study is to find out the customer satisfaction level on service provided by the dealers and also towards their product, to understand the buying behavior of consumer related to i10 cars, and to understand the customer, requirement from the Hyundai i10 cars. In order to find out the satifaction of Hyundai i10 cars about the service,the hypothesis framed is that there is no significant relationship between the personal variables of the respondents such as Gender,Marital Status, and level of satisfaction.
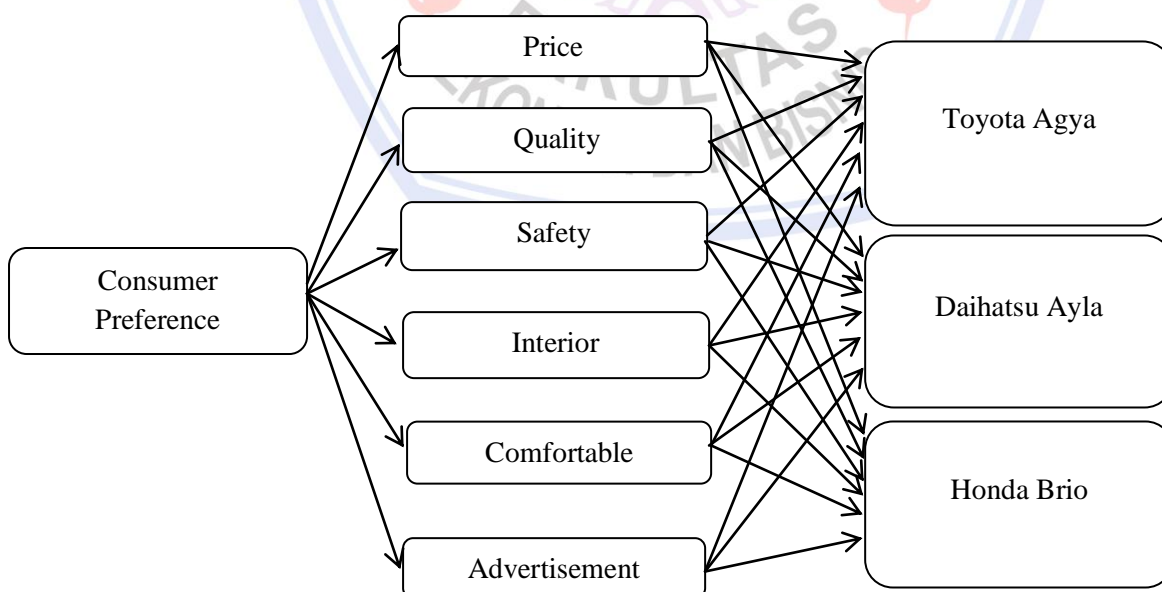
Conceptual Framework

Figure 1. Conceptual Framework
Source: data processed, 2015.

RESEARCH METHOD

Type of Research

This research used quantitative method. Quantitative research seeks to quantify the data. It seeks conclusive evidence based on large, representative samples and typically involving some form of statistical analysis (Maholtra, 2009:180).The method used in this research is Analytical Hierarchy Process (AHP).

Place and Time of Research

This research is conducted in Manado city. This research was conducted from May to June 2015.This research use costumer that have experience riding or driving this three cars as the respondent.

Population and Sample

Sekaran and Bouggie (2010:262) defined population is the entire group of people, events, of things of interest that the researcher wishes to investigate. The population that is mainly observed in this current research is all people that have experience ride or drive the car (Toyota Agya, Daihatsu Ayla, Honda Brio) the sampling design is purposive sampling to 40 respondents that is the way researcher do the observation and the way of getting the information in effective and efficient way.

Data Collecting Method

Data of this research consist of primary and secondary data. Primary data has been obtained by spreading questionnaire to the respondents and the secondary data has been collected from books and all relevant articles from the library and internet.

Operational Definition and Measurement of Research Variables

This research defines the variables into:
1. Consumer preference (Y) are defined how a consumer ranks a various small car or prefer one collection over another
2. Small Car selection criteria (X) means factors of small car that influencing people or reason why people wantto buy a small car.
3. Alternative : Toyota Agya, Daihatsu Ayla, Honda Brio

Data Analysis Method

Analytical Hierarchy Process

The Analytical Hierarchy Process (AHP) is a mathematical technique for multi-criteria decision making. Saaty (2008:117).It enables people to make decisions involving many kinds of concerns including planning, setting priorities, selecting the best among a number of alternatives, and allocating resources. The Analytical Hierarchy Process (AHP) is a powerful and flexible decision making process to help people set priorities and make the best decision when both qualitative and quantitative aspects of a decision need to be considered. By reducing complex decisions to a series of one-on-one comparisons, then synthesizing the results, AHP not only helps desicion makers arrive at the best decision, but also provides a clear rationale that is is the best. We conduct AHP in three steps :

1. Perform pairwise comparisons
2. Compute the relative weights
3. Assess consistency of pairwise judgements

Operational Definition and Measurement of Research

Table 1. Pair-Wise scale

Preference Level	Numerical Value
Equally preferred	1
Equally to moderately preferred	2
Moderately referred	3
Moderately to strongly referred	4
Strongly preferred	5
Strongly to very strongly preferred	6
Very strongly preferred	7
Very strongly to extremely preferred	8
Extremely preferred	9

Source: Processed Data, 2015

1. Synthesization
   The next step in AHP is to prioritize the decision alternatives within each criterion. Steps in synthesization are:
   1. Sum the values in each column of the pairwise comparison matrices.
   2. Divide each value in each column of the pairwise comparison matrices by the corresponding column sum-these are normalized matrices.
   3. Average the values in each row of the normalized matrices-these are the preference vectors.
   4. Combine the vectors of preference for each criterion into one preference matrix that show the preference for each criterion.
2. Develop a pairwise comparison matrix for the criteria.
3. Compute the normalized matrix by dividing each value in each column of the matrix by the correspondingcolumn sum
4. Develop the preference vector by computing the row averages for the normalized matrix.
5. Compute an overall score for each decision alternative by multiplying the criteria preference vector by the criteria matrix
6. Rank the decision alternatives, based on the magnitude of their scores computed in step 6.

RESULT AND DISCUSSION

Result

Table 2. Result of The Overall Criteria of Small Car Criteria

Price	Quality	Safety	Interior	Comfortable	Advertising
0,256434	0,25131	0,250769	0,094585	0,117477	0,029398

Source: Processed Data, 2015

In this result shows the highest score is price (0.256434), it means price is the factor that have influence the most people to choose a car among the others criteria. The second is quality (0.25131), safety is in third position with score (0,250796), followed by comfortable (0.117477). The rest filled by interior (0,094585), and advertising as the lowest score (0,029398). As the overall inconsistency = (0.057),it mean the data comparison in this result is valid and consistent.

Table 3. Result of Analytical Hierarchy Process of Consumer Preference
of Small Car in terms of small car criteria

Toyota Agya	Daihatsu Ayla	Honda Brio
0,424	0,351	0,224

Source : Processed Data, 2015

The observation of this research shows that people choose Agya as the most preferred small car for them to shop among the other alternatives. Agya have the highest score with (0.424), in the second position is Ayla with score (0.351), and followed by Brio in the last position with score (0.224). In this result the overall inconsistency indicated = (0.04), it shows that the comparison of data in this research is valid and consistent.

Discussion
Pairwise Comparison for the Main Criteria Analysis

AHP determines the relative importance or weight of the criteria, to rank the criteria from most important to least important. A criterion with the highest average weight indicates the priority criteria among others. Firstly, for the overall of main criteria (price, quality, safety , interior, comfortable, advertising), the most important criteria that influence customer is price. When buy something, people will look on the price first. People always want a product with a cheap price. Have low price does not mean that the cheap one do not have good quality, so people nowadays look goods with low price and have good quality. The respondents are those who already have an experience on each alternative provided which are the three small car based on the requirement of using AHP method. Second is quality. Every people want a product with a good quality. Before they buy something, they will make sure that the product have a good quality, so it can durable for a long time. Consumer will choose a product with affordable price and good quality as well.

In third position, followed by safety.When choose a car, people must give an attention about the safety,because it concern with the people life.People will choose the car that have a safety assurance, and also already pass a safety test. Actually, based on result of overall criteria shows that safety and quality has no significant result. Next position is comfortable. People not only want a cheap and good quality product. In selecting a car, people also tend to choose a car with comfortable seat. It will make them enjoy the trip.Usuallywhen launch new car, company will held test drive and let the people try to drive the car, to see the interior inside, feel the comfortable seat, and make sure a quality of the machine. It can convenience customer to buy a car. In fifth placeis interior. Every type of car has a different interior design. There are standard and luxurious interior,but in this case because small car is a part of low cost green car, so small car just has a standard interior. Interior mostly being concerned by young people. They tend to choose a car with good interior.

Next is caradvertising.The primary function of advertising is to persuade people to buy something.Advertising also is a media to introduction a new product to a consumer. Car advertising was made as attractive as possible to attract consumer attention, and to reassure consumer that the product is goodand there are some people buy a product just only an attractive advertising. Some customer will remember the brand and their advertising in TV or other social media.

From the result of the analysis, there are top three that have the most influence on customer preference on small car. Price is the most preferred criteria for customer when selecting a small car, followed by quality and safety. This result different with previous research by Vidhyaka(2014), Vidhyaka research is tofind out the customer satisfaction level on service provided by the dealers and also towards their product, to understand the buying behavior of consumer related to i10 cars, and to understand the customer, requirement from the Hyundai i10 cars, while this research is to find the most preferred small car and the most criteria that influence customer preference on small car.

Result of Analytical Hierarchy Process of Consumer Preferred Small Car.

Theoverall data, customer will choose Toyota Agya as the preferred small car in Manado compares to the rest of alternatives. These three small car produced from different brand,that is Toyota,Daihatsu,and Honda.Although Agya more expensive than Ayla , but in this case brand image can effect customer in buying something. Agya is a product from Toyota. From the data, Toyota become the most favorite brand in Indonesia. For a cheap car, Agya quite reliable with features offered such as airbags, power windows, electric mirrors, power steering, central lock . Toyota could also add more features in Agya, but could have an impact on the price offered and the price could exceed the limits car price and features are qualified, this car has been able to enter the list of customers with limited pockets and who want to switch from riding a motorcycle to a car. In this result the overall inconsistency indicated less than ten percent, it shows that the comparison of data in this research is valid and consistent.

CONCLUSION AND RECCOMENDATION

Conclusion

The result of this research shows the conclusion stated below, which are :

1. From six criteria (price, quality, safety, interior, comfortable, advertising), there are top three criteria that has the most influence for consumer to choose small car in Manado city. In the first place goes to price. According to the data comparison that developed in pairwise comparison of Analytical Hierarchy Process (AHP), price become the most preferred criteria for consumer when choose small car in Manado city. Second position of the highest score goes to quality.Third position is for a safety criteria. The data show that price, quality, and safety are the most important thing that influence consumer to choose a small car. The rest criteria there are comfortable, interior, and advertising is the main thing that influence the consumer.

2. The overall result that developed using Analytical Hierarchy Process (AHP), shows that Toyota Agya become the most preferred small car by the consumer, followed by Daihatsu Ayla and Honda Brio in the last place.

Recommendation

There are two recommendation base on the conclusion above, which are :

1. Price,quality, and safety are the most important things that influence consumer in selecting a small car particulary in Manado. Therefore, every car company in Manado have to pay attention seriously toward this factor. Consumer will seek an affordable price with a good quality and best safety for the product. Actually, Agya and Ayla has the same specification, the different is Agya launched by Toyota and Agya launched by Daihatsu. From the data,Toyota is the mostpreffered brand for consumer. That is why Agya more preffered than Ayla and Brio in this research.

2. Daihatsu Ayla and Honda Brio as the competitors of Toyota Agya, have to improve their performance,that can attract more customer, especially for some criteria that make customer tend to choose Toyota Agya.

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