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CONSUMERS WHITE COLOR AUTOMOBILE PURCHASE BEHAVIOR: TURKEY AUTOMOBILE MARKET APPLICATION WITH SWARA METHOD

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ABSTRACT

The automobile industry is one of the leading commercial markets all around the world. In this enormous market, countries, companies, and manufacturers compete boldly to increase their international market shares. In this great competition, there are centuries old giant companies such as Mercedes, BMW, Volkswagen, Opel, as well as new automobile brands such as Tesla, Renovo, Tritonev. Turkey is one of the significant markets where these brands are competing fiercely. When this market is analyzed, one preference of Turkish consumers draws much attention. This is the color preferences of automobile purchasers. Considering the sales figures of the previous years in our country, white automobile sales are above 50% rate regardless of brand and model. The objective of this study investigated why Turkish automobile consumers prefer white automobile color. In this study, the SWARA method, one of the MCDM methods is used to analyze consumers white automobile preferences. The findings of the study show that aesthetic perceptions are significant in purchasing white automobiles. The results of the study allow us to draw implications for the white automobile purchasing behavior for the global automobile market in the concept of international marketing.

Keywords: SWARA, Consumer Behavior, Automobile Industry, International Marketing.

Jel Kodları: M3, M30, M31

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TÜKETİCİLERİN BEYAZ RENK OTOMOBİL SATIN ALMA DAVRANIŞI: SWARA YÖNTEMİ İLE TÜRKİYE OTOMOBİL PAZARI UYGULAMASI

ÖZ

Otomobil endüstrisi, dünyanın önde gelen ticari pazarlarından biridir. Bu devasa pazarda ülkeler, şirketler ve üreticiler uluslararası pazar paylarını artırmak için cesurca rekabet etmektedirler. Bu büyük rekabette Mercedes, BMW, Volkswagen, Opel gibi asırlık dev firmaların yanı sıra Tesla, Renovo, Tritonev gibi yeni otomobil markaları da yer almaktadır. Türkiye, bu markaların kıyasıya rekabet ettiği önemli pazarlardan biridir. Bu pazar incelendiğinde Türk tüketicisinin bir tercihi çok dikkat çekmektedir. Bu, otomobil satın alan kişilerin renk tercihleridir. Geçmiş yılların satış rakamlarına bakıldığında ülkemizde beyaz otomobil satışlarının marka ve model fark etmeksizin % 50'nin üzerinde olduğu görülmektedir. Bu çalışmanın amacı, Türk otomobil tüketicilerinin neden beyaz otomobil rengini tercih ettiklerinin analizini yapmaktır. Bu çalışmada tüketicilerin beyaz otomobil tercihlerini analiz etmek için ÇKKV yöntemlerinden biri olan SWARA yöntemi kullanılmıştır. Araştırmanın bulguları, beyaz renk otomobil satın alırken estetik algıların ön plana çıktığını göstermiştir. Çalışmanın sonuçları, uluslararası pazarlama konseptinde küresel otomobil pazarı için beyaz otomobil satın alma davranışına ilişkin çıkarımlar yapılmasını sağlamaktadır.

Anahtar Kelimeler: SWARA, Tüketici Davranışı, Otomobil Endüstrisi, Uluslararası Pazarlama

Jel Codes: M3, M30, M31

INTRODUCTION

Aesthetics, appearance, and packaging are among the important factors that guide the purchase of a product. These factors enable companies to give importance to the appearance and packaging of their products. For this reason, companies design their product packaging and appearance in a way that triggers consumers' purchase intention. Companies take advantage of the charm of colors to trigger the sense of purchasing and to fashion their products attractiveness. Marketing and branding experts suggest that the allurement of colors is one of the most important factors driving a product to purchase (Babolhavaeji et al., 2015). There are also studies showing that colors affect the purchasing decision of consumers (Bellizzi and Hite, 1992).

Experts working in this sector state that the effect of colors on purchasing psychology is an important issue for automobile companies. The automobile industry is one of the leading markets in the world. In this enormous market, countries, companies, and manufacturers compete fiercely

to increase their market shares. In particular, bigger brands offer great payment facilities and innovations to customers in order to increase their market share. The literature on studies in the automobile industry has been reviewed and studies such as brand selection, automobile selection and segment selection are determined. However, when looking at the automobile industry, it is noteworthy that regardless of brands and prices, no study has been conducted on the color preference of consumers. Color preferences in automobile purchasing vary greatly depending on the country and location of the consumers. Although color preferences depend on geographical, cultural and environmental factors, they also alter according to specific consumer preference behaviors and psychological factors (Salter and Salter, 1982). When we observe the production of automobile companies, they introduce models that have the best marketable color for the automobile. Automobile brands introduce that automobile model with the colors that will be most in demand. However, when we analyze leading automobile companies such as Toyota, BMW, Mercedes, Opel, Honda, they generally do not prefer white as a launching color. However, after these companies advertise their models and put their automobile models on the market, a single-color rank first in sales. This color is the white color that is accepted by all purchasers considering the sales rates of white color automobiles in the industry (Axalta Coating Systems, 2019a). In the world, white color automobile sales rank first with 39%. When analyzed other leading markets in the automotive industry, white color ranks first with 25% in Europe, 42% in South America, 29% in North America, 32% in the Indian market and 58% in the Chinese market (Axalta Coating Systems, 2019a).

In this study, we evaluated Turkish consumers color of preference when purchasing an automobile. The reason this study applied in the turkey automobile market is that; in 2015, 2016, 2017, 2018, 2019, 2020, more than 55% of white automobiles have been preferred by consumers. (TUIK, 2020). The data is obtained from TUIK (Turkish Statistical Institute) which is the most reliable statistical agency in the nation. In addition, the Turkish automotive market is a world integrated market where all automobile producers can easily enter, World-renowned automobile companies in this market such as Toyota, BMW, Tesla, Mercedes, Opel, Honda reach billions of dollars of sales annually. In fact, companies such as Opel, Volkswagen, Mercedes, Hyundai and Renault have production facilities in Turkey. because of these reasons, conducting the research in Turkey, will lead the world in making inferences about other massive markets. The feature that makes this study unique is that there has not been a significant study on automobile color selection that evaluates consumer preferences in automobile purchasing.

The objective of this study is to investigate the Reason for the tendency of consumers who purchase zero-kilometer automobiles to prefer

white automobile. In the methodology part of this research, the MCDM (Multi Criteria Decision Making) method is implemented. The reason for using MCDM methods is because of their functionality in converting qualitative expressions into quantitative data in research applications. In addition, 5 decision makers with at least 15 years of experience in the sector are included in the application part of the MCDM method. This decision-makers as sales representatives of French, German, Japanese, Italian, British, South Korean automobile companies have been working in the position of director of sales dealers in Turkey in the range of 15-22 years. First, the academic qualifications of the sales representatives are investigated. Then it is enquired about why consumers prefer to select white automobiles and received opinions from brand and color experts. After that, the application criteria are determined. Finally, a hierarchical structure of consumers' white color selection consisting of 10 criteria is formed. The weight of the criteria is found with the Step-Wise Weight Assessment Ratio Analysis (SWARA) method by interviewing the decision makers working in 5 major automobile brands. The SWARA method allows to rank the criteria from the first to the last. In this way, according to the weight of the criteria, the customer reasons of purchasing white automobiles are analyzed.

This study determines why automobile purchasers prefer white colors. If this orientation is detected, the consumer behavior that triggers the white color automobile purchase will be brought to the literature. This will provide professional information to purchasing specialists in consumer color preference in the automobile industry.

The article is categorized into four sections. In the next section, a literature review is created. The second part includes the methodology of the study. In the third part, consumer behavior application is carried out for the selection of white color automobiles. In the conclusion part includes conclusions and evaluations part for this study.

I. LITERATURE

There is a wide literature review about the investigation of automobile purchasing behavior. Salter and Salter (1982) conducted a psychological study of color selection. Their research has shown that highly motivated people prefer cool or somber colors like blue and tend to be in a hurry, while less motivated people tend to choose warm or bright colors like red and are less time conscious. Zhang et al., (2020) investigated how colors, one of the visual properties of products, stimulate the emotional demands of consumers. Combined with Kansei engineering, the Gray theory has been applied to the

color designs of mid-range sedan automobile. Sambandam and Lord (1995) study demonstrate that the automobile users decide on automobile to be purchased, based on the current and past decisions and previous automobile experiences. An empirical model is created in the study and analysis is implemented. The studies conducted with MCDM methods in this area are as follows. Byun (2001) determined 3 automobile models in his study and analyzed their properties with AHP method. These features are criteria such as appearance, security and warranty. He compared these criteria with each other and found their weight and rank. Gungor and Isler (2005) in their study, evaluated the reason for preference of A and B automobile category segment to decision makers by taking into account fuzzy subjective criteria as well as objective criteria with AHP method. Raut et al., (2011) by adding the quality function diffusion model to the AHP method, determined the criteria according to which users purchase automobile in the Indian automotive market. Vidyavathi, (2012) in the Indian town of Chennai, one-to-one interviews were conducted with 350 people. In these interviews, the purchasing behavior and purchasing conditions is examined. Apak et al., (2012) used the AHP method to implement an application about how luxury automobile features affect consumers' preferences. As a result of this application, it was observed that flexibility and brand image are the most important criteria for luxury automobile customers in their automobile selection. Patil et al., (2017) is one of the important sources used in automobile selection. In this study, decision makers found the best among five automobile models available in the market uttering the AHP approach integrated with gray relationship analysis.

Roy et al., (2018) created a hybrid model by uttering Fuzzy AHP and Promethee II methods from MCDM methods. They have built a hybrid model to enable these customers to choose the best automobile when purchasing an automobile. Automobile alternatives include Ford, Tesla and Toyota. Some of the criteria are price, safety, and appearance. In his study as an automobile selection Hackbarth and Madlener (2013) apply selection analyzes of automobile purchaser according to their fuel options. Brand name and fuel efficiency factors took the first place in the study, which examines the purchasing behavior of consumers in the Indian automobile market (Chand and Avikal, 2015). Kabadayi et al., (2013) practice a study for the selection of Turkish automobile users for the automobile. Application is conducted on 206 people and conjoint analysis is applied. Some of the evaluation factors are price, type of fuel, and safety. Ulkhaq et al., (2018) wield criteria such as performance, safety, spare part guarantee, price in automobile selection and determined the criteria weights with AHP method. Then, implementing the TOPSIS method, two automobile types (Avanza 1.3 E and Xenia 1.3 R) with similar engine capacity and price range is evaluated with three decision

makers. Rohit Singh and Avikal (2019) conducted a study with the AHP-TOPSIS integrated method to minimize consumer efforts in automobile selection in the Indian automobile market. In this study, it is presented to decision makers' preferences which of the 6 luxury automobile models they will select. Hamurcu and Eren (2018) implementing the AHP-TOPSIS integrated methods, they evaluated the criteria that the users care about when purchasing an electric automobile and ranked the alternatives. In addition to this integrated method, they combined the goal programming model into this method Jamil and Aminuddin (2019) they identified automobiles that are environmentally friendly in the Malaysian automobile market implementing the AHP method. Some of the criteria are fuel economy, emissions and design, and affordability. Some of the alternative automobiles are *2016 model Nissan Leaf, 2017 model Hyundai Ionic HEV, 2016 model Mercedes C350,* and *2017 model Perodua Myvi 1.3 Ezi*. Considering the literature, the SWARA method has never been used in studies on automobiles, so its use in other areas has been examined. Yıldız and Ergul (2014), performed a study of selecting the best automobile model. In this study, 3 automobile models is selected according to 7 criteria. Some of the criteria are sales price, aesthetics, and comfort. Stanujkic et al., (2015) a research has been made on how the design of a package in packaging production is designed in a way that customers perceive it best. In this study, criteria are determined, and questions are asked to decision makers. This evaluation is applied to decision makers with the SWARA method. The most recent study conducted with the SWARA method is (Ulutaş et al., 2020). In this study, this method is used as a solution to the logistics center selection problem in order to increase the logistics performance for a company that carries out logistics activities. Yücenur and İpekçi (2021) applied the SWARA method to weight the criteria in a site selection problem for the first offshore power generation facility planned to be established in Turkey. In the study of Sivageerthi et al., (2021) for the coal supply chain of the South Indian Thermal Power Plant, the SWARA method is applied for the criterion weight calculation. In the study, the method is implemented to determine the most effective risk. Cui et all., (2021) aims to identify the important obstacles to the adoption of the Internet of Things in the manufacturing sector. In this study, the SWARA model is practiced in integration with other methods to estimate the severity of obstacles in the use of the Internet of Things. Mishra and Satapathy (2021) rank the risks in the agricultural supply chain of Odisha in India using the weight assessment ratio analysis (SWARA) method based on four main bases.

II. METHODOLOGY

When we investigated the studies such as automobile model selection and electric automobile selection, it is obtained that applications are predominantly performed by MCDM methods. MCDM methods provide great convenience in revealing the problem clearly and solving the problem (Saaty, 1980). For this reason, SWARA method is implemented in the study. The SWARA method is an expert-oriented method that gives the decision maker the chance to selection their priorities. The most basic feature of this method is the ability to estimate the expert opinions on the importance ratios of the criteria at the stage of determining the criteria weights. In the SWARA method, the criteria are scored by expert decision makers, and each criterion is given a degree of importance. In this method, each decision maker lists the criteria individually. Then, after the calculations with the SWARA method, the final weights average of the criteria is obtained.

There is an important reason for using the SWARA method to find the weights of the criteria in this study, this is because each criterion can be ranked from 1 to 10 which allow to analyze and interpret each criterion in order. The data is collected from senior managers who worked in the automobile industry with the experience of between 15 to 22 years. Data is obtained by experts filled out evaluation forms via e-mail and collected in December 2020.

A. SWARA METHOD

The SWARA method is frequently used in MCDM studies. Because MCDM methods are used to support the decision-making process and to select one or more alternatives from a set of alternatives with different characteristics according to conflicting criteria or to rank these alternatives. However, SWARA is used for the first time in this study in consumer behavior analysis. This method is one of the more up-to-date approaches to finding criterion weight compared to other MCDM methods. The name of this method is "Step-Wise Weight Assessment Ratio Analysis". The SWARA method is first used in the literature by Keršuliene et al., (2010). The steps of the SWARA method are as follows;

Ranking of criteria: Criteria are ranked from the most important criterion to the least criterion according to the decision maker.

Determining the importance level: The second criterion is taken as the starting point and the relative importance levels are obtained for all criteria. In order to do this, the j. criteria and the preceding (j-1) criterion are compared.

This ratio obtained Keršuliene et al., (2010) named as "the comparative importance of the mean value". This ratio is indicated by the symbol s_j.

Finding the coefficient: k_j the coefficient is obtained as in the following equation.

$$k_j = \begin{Bmatrix} 1 & j = 1 \\ s_j + 1 & j > 1 \end{Bmatrix} \quad (1)$$

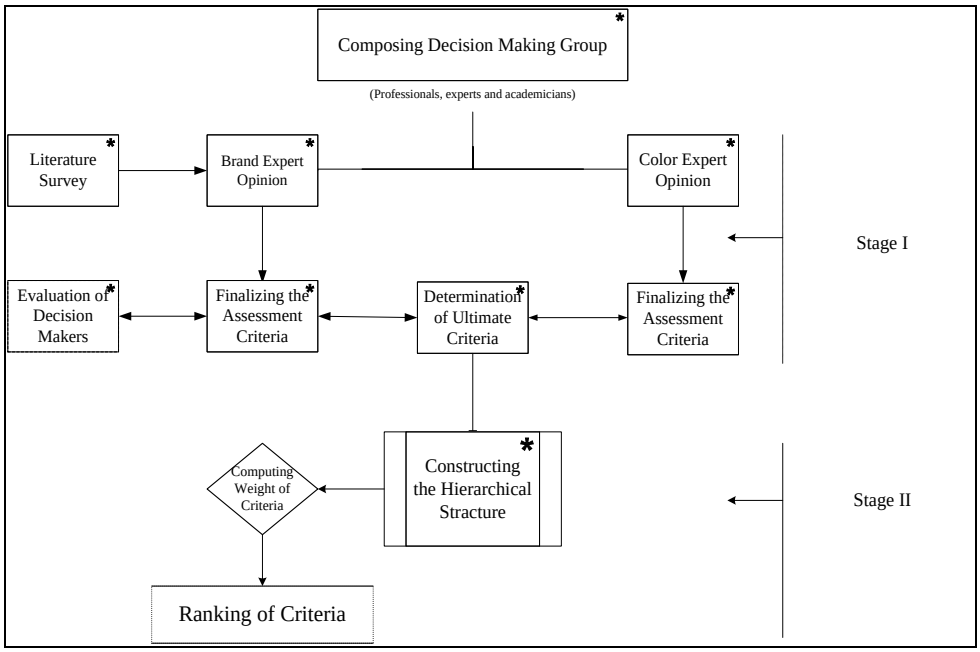
Determination of the significance vector: The significance vector, the variable q_j is calculated with the following equation.

$$q_j = \begin{pmatrix} 1 & j = 1 \\ \frac{q_j - 1}{k_j} & j > 1 \end{pmatrix} \quad (2)$$

Calculation of criterion weights: The relative weight ratios of the evaluation criteria are obtained as in the following equation.

$$w_j = \frac{q_j}{\sum_{k=1}^{n} q_k} \quad (3)$$

Figure 1. Stages of Proposed Solution Methodology



The first step in applying the SWARA method is the determination of the criteria. At this stage, the opinions of color experts, who provide consultancy to brands and have a specific expertise, are received. Color experts have made recommendations regarding the selection of consumers who purchase white automobiles. Then, criteria suggestions are received from brand experts. The criteria recommendations of the brand experts have been supported by a literature search (Roy et al., 2018). Final criteria are established with the suggestions from 5 decision makers. In the second stage, a hierarchical structure including 10 criteria is created. Subsequently the SWARA method is applied. Criteria weights are calculated according to the evaluations of the decision makers. After the criteria weights are determined, they are ranked between 1 and 10.

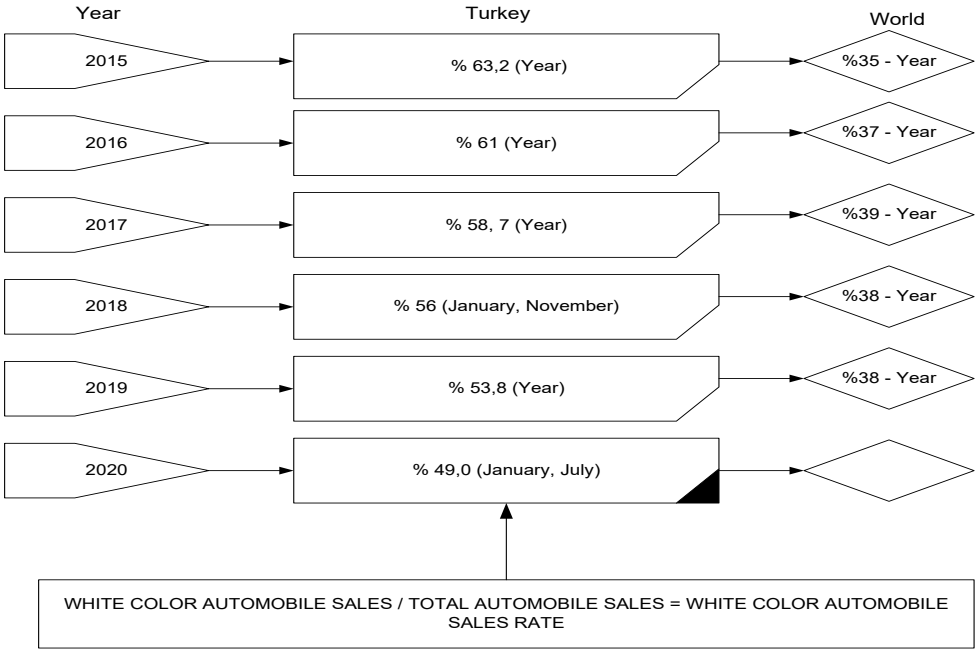
III. APPLICATION OF PROPOSED FRAMEWORK FOR WHITE COLOR AUTOMOBILE PURCHASING BEHAVIOR

The application part of the study is carried out in the Turkish automobile market where almost all automobile companies operate. The implementation

conducted of this study in the Turkish auto industry is due to the very competitive nature of this automotive market. In addition to this competition, every automobile company easily demonstrates advertising and marketing activities in the market. Available data on the number of vehicles in the Turkish market revealed a figure of 298,241 registered automobile in traffic in the first six months of January to July 2020 (TUIK, 2020b). According to these data, 49% of the vehicles is reported to be white, 25.8% gray, 6.6% red, 7.4% black and 7% blue.

Automobile sales data for the years 2017 and 2018 are examined in detail. According to TUIK (2017) data, 58.7% are white color of 741 thousand 902 automobiles registered to traffic. Other colors are 18.4% gray, 7.6% black and 5.7% red, 9.5% other ratios. According to TUIK (2018) data, 56% of registered automobiles are white color. Other colors are gray (21.5%), black (7.3%), red (5.6%) and others (9.7%). The white automobile sales rates in Turkey and in the world are shown in Figure 2.

Figure 2. Zero-kilometer White Color Automobile Sales Rates of The Last 5 Years



Source: (TUIK, 2016, 2017, 2018a, 2018b, 2020b, 2020a), (Axalta Coating Systems, 2015, 2016, 2017, 2018, 2019b)

Exhibit at of the data in Figure 2, revealed that white color sales ranks first place in the world automobile markets. (Axalta Coating Systems, 2019a). These indicators are derived from data from a global paint company. According to these data, it is seen that white color automobile sales take the first place with a rate of 35% -39%. According to Axalta data, sales of white automobiles are in the first place in all continents. White colored automobile sales ranked first with 49% in Asia, 46% in Africa and 42% in South America. As seen in Figure 2, sales of white automobiles in Turkey and the World market (Axalta Coating Systems, 2015, 2016, 2017, 2018, 2019b).

Based on the Figure 2, an application is implemented in the Turkey automobile market, based on the consumers' tendency to purchase white automobile. The criteria determine in practice is presented to the decision-makers for their evaluation. Decision makers filled out evaluation forms base on their professional experience and the relationships they establish with customers who have purchased white automobile.

Decision Maker 1: He has been working as a sales manager in a French automobile company for 17 years. He has sold 1,048 automobiles in his career. 492 of them were white.

Decision Maker 2: She has been working as a sales manager in a German automobile company for 19 years. She has sold 1,123 automobiles in her career. 582 of them were white.

Decision Maker 3: He has been working as a sales representative for Japanese and South Korean automobile companies for 16 years. He has sold 997 automobiles in his career. 401 of them were white.

Decision Maker 4: He has been working as a sales manager in a British automobile company for 20 years. He has sold 1,201 automobiles in his career. 601 of them were white.

Decision Maker 5: He has been working as a sales manager in an Italian automobile company for 21 years. He has sold 1,291 automobiles in his career. 651 of them were white.

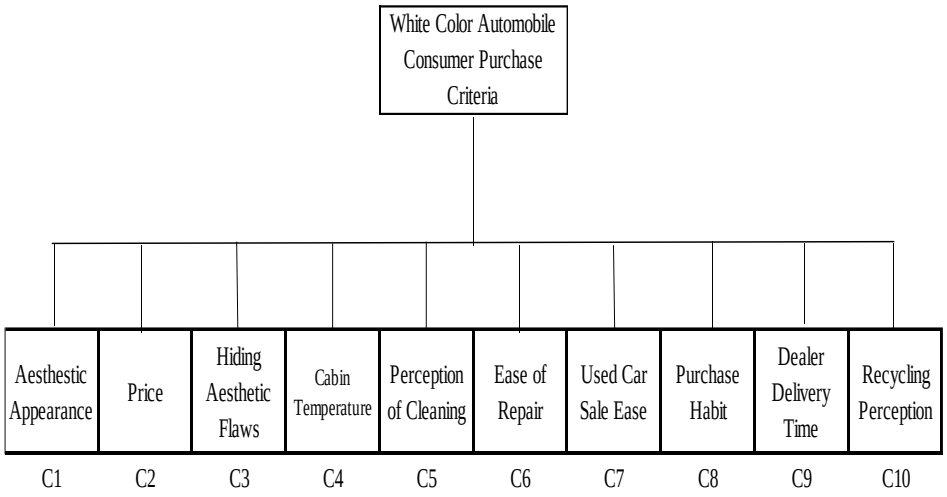
Decision makers have been selected from sales representatives who have worked in the same automobile company for many years. The reason is that they could close the multiple sales to the same customers and has a large customer base. The decision makers have been selected from sales representatives and managers with at least 16 years of experience. Four of the decision makers are sales managers, while other decision maker works as a sales representative in the industry. Four decision makers started their careers from the position of sales representatives and were promoted to managerial positions.

According to the sales figures of from the sales representatives, five decision makers sold 3,323 white automobiles in their careers. Therefore, they interviewed the person who bought 3,323 white automobiles purchasers. This reveals that the indirect study includes data from 3,323 white automobiles purchaser.

A. WHITE COLOR AUTOMOBILE SELECTION HIERARCHICAL STRUCTURE

The hierarchical structure of the application part is formed in Figure 3 when the views of the sales experts are combined with the literature research and the criterion recommendations of the decision makers.

Figure 3. White Color Automobile Selection Hierarchical Structure



The hierarchical structure of the study in Figure 3. According to this hierarchical structure, the selection of consumers who purchase white automobile consist of 10 criteria. These criteria are as follows;

Aesthetic Appearance (C1): Research enquiries from the sales representatives revealed that the automobile in white color showed the vehicles's aesthetic better than the other colors of automobiles. In addition, the aesthetic sports lines in the automobiles are emphasized by the white color. In addition, the importance of aesthetic features on purchasing is obtained from a study showing the importance of aesthetic features in modest fashion

purchasing. (Jannah and Kodrat, 2021).

Price (C2): An investigation of sales prices of all brands in the Turkey automobile market, it is observed that the white color automobiles are favorable in terms of price compared to the metallic color automobiles, regardless of their segment and luxury equipment. This is because the white paint is estimated to be cheaper. While this naturally makes white automobiles cheaper, metallic color automobiles of the same model with the same equipment are executed more expensive (Verboven, 1999).

Hiding Aesthetic Flaws (C3): As a result of negotiations with consumers, minor damages occur in the automobile body for various reasons after the automobile is purchased. One some of these damages is small and minor scratches and stains on the bodywork. Consumers have stated that automobiles with white colors do not show these minor defects and aesthetic damages in compared to metallic colors.

Cabin Temperature (C4): Enquiries made from automobile users revealed that metallic and dark colors complain about the high cabin temperature in summer. Especially thus, automobile users who live in hot and sun-exposed areas prefer white colors that reflect sunlight the most.

Perception of Cleaning (C5): In the research, it is learned that white colored automobile users clean their vehicles less than other color automobile users. Because vehicles show less dirt. This reduces the need for washing.

Ease of Repair (C6): In the interviews made conducted with the repair service personnel, they stated that the repaired parts should be repainted after the damaged vehicles are repaired. It has been observed as a result of the price studied that automobile color paint is cheaper than metallic paints. This shows that white automobile are repaired at a cheaper price.

Used Car Sale Ease (C7): Used (2^{nd} hand vehicles) white automobile vehicles are easier and quicker to sell in Turkish market. This is determined after the market survey. Users who purchase second-hand automobiles prefer white, which is easy to sell, as they will sell their automobiles after a sort time (Berkovec, 1985).

Purchase Habit (C8): In Turkish automobile market; It has been observed that white colored automobile users tend to prefer white colored automobiles when purchasing again. This information was obtained from decision makers and consumers who purchase white automobiles (Arslan, 2003).

Dealer Delivery Time (C9): The Turkish automobile market consists of 85% imported automobile vehicles. For this reason, automobile pricing is generally based on the exchange rate. The exchange rate varies across the

countries. This causes companies to work with orders according to demand. Brand representatives also cause them to keep the best selling colors in stock (Doğan et al., 2003). Therefore, the white colored vehicles are the first in stock, according to the consumer preferences, the dealer delivery times are shorter than the metallic colors in the purchase of white automobile.

Recycling Perception (C10): In interviews with white colored automobile users and color experts, it was observed that white automobiles are thought to be easy to recycle and more environmentally friendly than metallic color automobile. However, as a result of scientific studies and interviews with chemical engineers, it was concluded that this is not scientifically valid. However, it has been observed that this perception is widely held among consumers in the market and that it is determined to be one of the 10 most important selection criteria.

B. APPLICATION OF SWARA METHOD IN WHITE COLOR AUTOMOBILE PURCHASING BEHAVIOR

While applying the SWARA method, results are obtained based on the evaluations of 5 sales expert decision makers. First of all, in this method, criteria rankings are obtained by evaluating each decision maker. Then, the relative importance levels of each criterion according to the decision makers are determined. After these relative importance levels are obtained, the criteria weights of each decision maker are found. Finally, by taking the averages of these weights, the ranking of the criteria according to the consumers from the most important to the least important is obtained.

Table 1. Names of Criteria

C_1	C_2	C_3	C_4	C_5	C_6	C_7	C_8	C_9	C_{10}
Aesthetic Appearance	Price	Hiding Aesthetic Flaws	Cabin Temperature	Perception of Cleaning	Ease of Repair	Used Car Sale Ease	Purchase Habit	Dealer Delivery Time	Recycling Perception

The criteria in Table 1 were evaluated by decision makers who are experts in the profession. Then, each decision maker evaluated the criteria according to the importance level between 1-10.

Table 2. Importance Levels for Each Decision Maker

	DM1	**DM 2**	**DM 3**	**DM 4**	**DM 5**
C_1	1	1	4	1	4
C_2	3	2	3	2	5

C_3	2	3	2	3	6
C_4	4	6	1	10	7
C_5	10	5	10	8	8
C_6	5	4	9	4	9
C_7	9	7	8	5	1
C_8	8	8	7	6	2
C_9	6	9	6	7	3
C_{10}	7	10	5	9	10

Table 2 indicates criterias importance according to the decision makers ranks.

Table 3. Criteria Weights According to Decision Makers

DM1		**DM 2**		**DM 3**		**DM 4**		**DM 5**	
C_1		C_1		C_1		C_2		C_1	
C_2	0,10	C_4	0,05	C_2	0,05	C_4	0,05	C_4	0,20
C_4	0,10	C_2	0,10	C_7	0,10	C_1	0,15	C_2	0,20
C_5	0,10	C_6	0,20	C_6	0,15	C_6	0,25	C_6	0,20
C_3	0,05	C_3	0,05	C_3	0,25	C_5	0,15	C_3	0,10
C_6	0,10	C_5	0,10	C_5	0,10	C_3	0,10	C_5	0,10
C_8	0,05	C_8	0,05	C_8	0,10	C_8	0,05	C_8	0,05
C_{10}	0,05	C_9	0,05	C_9	0,10	C_9	0,05	C_{10}	0,05
C_7	0,10	C_7	0,35	C_4	0,10	C_{10}	0,15	C_7	0,10
C_9	0,10	C_{10}	0,10	C_{10}	0,25	C_7	0,10	C_9	0,10

In the SWARA method, the importance levels of each decision maker are determined according to the criteria. Then, operating Equation 3, the weights of criteria for each decision maker and the averages of these criteria is calculated and the final criteria weights and rankings **is** determined.

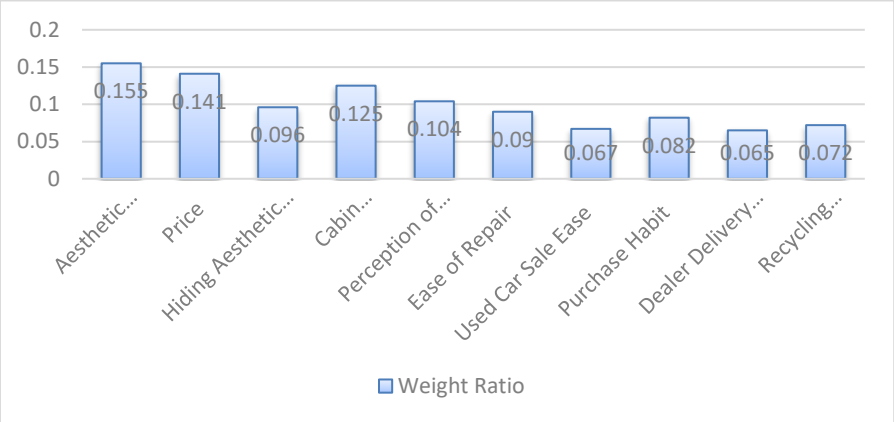
Table 4. Final Criteria Weights Based on Averages

	DM1	**DM 2**	**DM 3**	**DM 4**	**DM 5**	**AVERAGE**	**RANK**
w_1	**0,141**	**0,147**	**0,156**	**0,159**	**0,174**	**0,155**	***1***
w_2	**0,128**	**0,127**	**0,149**	**0,151**	**0,145**	**0,140**	***2***
w_3	0,101	0,101	0,094	0,091	0,091	0,096	*5*
w_4	**0,117**	**0,140**	**0,135**	**0,131**	**0,101**	**0,125**	***3***

w_5	0,106	0,092	0,117	0,105	0,101	0,104	*4*
w_6	0,092	0,106	0,085	0,083	0,083	0,090	*6*
w_7	0,076	0,062	0,064	0,066	0,069	0,067	*9*
w_8	0,087	0,087	0,078	0,079	0,079	0,082	*7*
w_9	0,069	0,083	0,051	0,060	0,062	0,065	*10*
w_{10}	0,083	0,056	0,071	0,075	0,075	0,072	*8*

In Table 4 , the most important criteria for consumers while purchasing white automobiles and the rankings of these criteria. Evaluated Figure 4, it is aimed to interpret and understand the results by converting to the chart in order to better understand the table.

Figure 4. White Automobile Preference Weight Ratios



In the application part, the results were obtained by using the SWARA method. Figure 4 demonstrates the results of the application according to decision makers. According to the results, the most important reason for purchasing white automobile is aesthetic appearance. The second and third criteria are the price and the cabin temperature. Aesthetic appearance and price are two of the three most important criteria in automobile purchase study in the Indian market (Chand and Avikal, 2015). It is necessary to interpret the results in the application part according to the research proposal in the introduction given the "Reason for the tendency of consumers who purchase zero-kilometer automobiles to prefer white auto". Based on the study of

consumers who purchased automobiles in Turkey, it is discovered that they preferred white colored automobile mainly because of aesthetic perception. In addition, when brand experts and market research were conducted before the study was carried out, it was predicted that the price would come first, but it took the second rank. This information shows that while users prefer white automobile, they care about aesthetic appearance before the price. The most surprising result is the third ranked cabin temperature criterion. Consumers complain that the cabin is hot when they first get in automobile, especially in summer. For this reason, automobiles users have shown that they tend to prefer white color because it makes the warmth less felt.

CONCLUSION

In the application part, the more up to date SWARA method is implemented compared to classical methods such as AHP (Analytic Hierarchy Process). According to SWARA method results in Turkey's auto market, the consumers when purchasing white automobile, the most important factor effecting consumers (C_1) aesthetic appearance with (0.155) percentage. This finding is supported by the study in the literature section. Aesthetic appearance is among the one of most important criteria in the selection of automobiles by consumers (Raut et al., 2011; Yildiz and Ergul, 2014). The second and third important criteria are (C_2) Price (0,141) and (C_4) Cabin Temperature (0.125). According to research findings, it is obtained that the aesthetics and price perceptions of consumers trigger their purchasing behavior while making decision to purchase white color automobiles. Aesthetic is more important than the price according to the consumers. The most surprising result of the study is the (C_4) Cabin Temperature. The hot cabin temperature is particularly felt in the summer months. However, it is seen that the warmth is less felt when the automobile is white color. Due to a warmer climate in Turkey, it is likely to increase in the purchasing behavior of the white automobile in similar climates. Perception of Cleanliness (C_5) white automobiles appear to show less pollution, and this criterion ranked fourth. This result shows that consumers' perception of cleanliness is at the top point. Hiding aesthetic flaws (C_3) and Ease of repair (C_6) are equally important. According to the results, it is seen that the least important criterion is the Dealer Delivery Time (C_9). It is due to the availability of imported vehicles in the country's automobile market and the calculation of automobile prices in foreign currency. Therefore, automobiles are not kept in stock. Therefore, it has been concluded that consumers who purchase automobiles are accustomed to late delivery of vehicles.

According to the findings of the research, it is observed that the

aesthetic perception of consumers in the Turkish automobile market stands out in the selection of white automobiles. Subsequently, the price criterion of consumers reveal that they are sensitive to automobile prices since there is a great competition with the import rate of 85% in the automobile market in Turkey. It has been revealed that automobile brands that want to take a place in the market should pay attention to aesthetics and price mix. According to the results of the study, automobile brands that attach importance to this mix will provide an advantage over other companies in sales. In this study, the results obtained according to the SWARA method are great importance. Turkey is an import-oriented market for the industry. There are 25 global automobile brands are situated in the country. Therefore, the results of this study can be interpreted according to global markets. This study is valid globally as it is stated in the application part that white is the best-selling color for automobiles on all continents and this is proven by the data. The study is detected in Turkey for consumers in this market; it has been revealed that consumers prefer according to aesthetics, price and cabin temperature. *In future studies*, the selection of white automobiles can be analyzed by grouping the preferences of consumers as automobile segment (a, b, c, d, e segments). In this way, it can be analyzed in which segments the consumer has preferred white color automobile according to which criteria. Moreover, in future studies the selection of automobile color studies can be applied in another country or global automobile market.

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