

Factors Influencing Passenger Car Consumer Behavior and their Use in the Environmental Public Policy

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***Abstract.** This paper aims to make an analysis of passenger car customer behavior with an emphasis on the adoption of low-carbon and fuel efficient vehicles, based on the research existing on the subject. As literature shows, consumer behavior is influenced by instrumental factors as well as affective and symbolic ones. The affective and symbolic factors are not so large researched in the literature in the field. Moreover, the instrumental factors are easiest to tackle by the public authorities in their will to make consumer behavior more environmental responsible. But most of these policies fail to succeed in a large scale because the symbolic and affective factors are not took into account. In this paper we analyse the main ideas existing in the academic literature on the study of the consumer behavior for passenger cars and highlight the role of the car in the consumers' mind and what blocks adopting environmental friendly cars. This article is among the firsts to approach this important field of using the influence factors of passenger car consumer behavior in the environmental and public policies.*

***Keywords:** consumer behavior, passenger car, environment.*

1. Introduction

Knowing the consumers behavior is the key element for designing any marketing strategy. Many times the marketing decisions are took without a real research of the consumers behavior, just based on some assumptions and some economic or marketing ideas used previously, and the result can sometimes be good enough. The problem becomes important when old marketing practices don't function anymore and, there is a delay until marketers adapt to the new market situation. The current economic crisis has stopped the previous consumption mechanisms and now the market has to redefine where it's heading to and determine the emerging tendencies that will be profitable in the future.

Understanding consumer behavior is important for: (1) the marketing strategy of companies, their chances of success being bigger when decisions are well founded and aren't made just intuitively; (2) policy making from the legal authorities, aiming at diminishing or creating behaviors with a positive impact on individuals and the society in general; and (3) the information of the consumer, so that he/she can understand the strategies and tactics used to influence him/her and be able to set limits for these influences when necessary. [1, pp 9-11]

This paper aims at presenting the main ideas found in the academic literature on the study of the consumer behavior for passenger cars and to highlight the role of the car in the consumers' mind and what blocks adopting environmental friendly cars. The passenger cars with low-carbon emissions or using alternative fuels seem to be the new trend today. Reasons for these go from the public policies aiming to reduce the impact of cars on the environment, to the consumers' concern on the environment and to the current issues of the automobile market situated in the maturity phase of its life cycle. Producers feel the need for an

innovation that could restart the growth, and the growth mechanisms functioning before the crisis won't be easily restarted or maybe will never be restarted in that way.

2. Main ideas in consumer behavior research

When speaking of consumer behavior we refer to the processes used by individuals, groups or organizations in order to choose, get, use and dispose of products, services and experiences. [1, pp 7] This definition highlights the consumption activities that can be studied for understanding behavior. As well, seen from the individual influence factors, consumer behavior can be defined as the dynamic interaction between affect, cognitive, behavior and environment, through which people are undertaking their daily exchange activities. [8, p.7]

The behavior is the sum of all external reactions through which an individual answers to stimulus. In a psychological perspective, the term "behavior" designates what is objectively noticeable in the global reaction of an individual, independently of what he declares or his psychological attitudes and thoughts. As consumer behavior involves other persons as well, or depends on others' behavior, it must be treated as a complex social category, with two stages, relatively separated, but permanently interacting: the buying behavior and the usage behavior. Researching the consumer behavior involves a multidiscipline approach, where the behavioral sciences have an essential role, especially psychology and sociology, which gave marketing some fundamental concepts and ideas. Practically, the study of the consumer's behavior tries to explain the decisions took and the habitual behavior through its influence factors. Thus, it is an attempt to identify the causes that lead to the behavior, as an effect of them. [15, pp 1-10]

As Foxall [2, pp. 1-2] states, the analysis of the consumer behavior means using behavioral principles, usually discovered through experiments, in interpreting human economic consumption. From the academic perspective, it is situated at the intersection of economic psychology and the marketing science – the study of the consumers' and marketers' behavior and especially their interaction. Although the behavioral principles are the basis of the theory and the empirical research of the consumer behavior subfield, its mission of interpreting usual behaviors such as buying, saving, risk taking, brand choice, innovation adoption and services consumption raise philosophical and methodological problems that go beyond academic disciplines like "experimental behavior analysis" and "behavioral analysis".

The nature of the consumer behavior, centered on answering the questions when, why, how and where do people buy or not products, can be illustrated by the "black box" model presented below. "The black box model" shows the interaction between stimulus, consumer's characteristics, the decision making process and the consumers responses. The stimulus can be interpersonal (external) and intrapersonal (internal) [14, pp. 218]. The black box model is related to behaviorists' the black box theory (presented for the first time by B.F. Skinner in his book, *Science and Human Behavior*, in 1953) and their concern for the relation between stimulus and consumer behavior and not the processes inside consumers' mind.

Figure 1. "The black box" model

ENVIRONMENTAL FACTORS		BUYER'S BLACK BOX		BUYER'S RESPONSE
Marketing Stimuli	Environmental Stimuli	Buyer Characteristics	Decision Process	
Product	Economic	Attitudes	Problem recognition	Product choice
Price	Technological	Motivation	Information search	Brand choice

Place Promotion	Political Cultural Demographic Natural	Perceptions Personality Lifestyle Knowledge	Alternative evaluation Purchase decision Post-purchase behaviour	Dealer choice Purchase timing Purchase amount
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Source: Sandhusen, R.L., *Marketing, 2000, Hi Marketing, London.*

There are also some socio-psychological models used in understanding the importance of psychological factors on consumers' behavior like:

- The Planned Behavior Theory of Ajzen, which tries to explain the causal connections between values, beliefs, attitudes, intentions and behavior. In simple terms, the theory says that for a certain behavioral choice, the individual will take into account the options and will assess their consequences based on his beliefs on those actions and on their effects. These beliefs influence the individual attitude towards the possible actions, which, on their turn, influence the intention to act. The behavioral intention is a strong predictor for the behavior actually chosen. [5, pp 2]
- The Values-Beliefs-Norms Theory makes a causal connection between values and beliefs on one hand and personal norms on the other hand and the actual behavior. This theory implies that the social, selfish and biospherical values systems the most stable predictor of the action for a certain environment. [5, pp 3]

An important research direction is the study and the inter-cultural analysis of consumer's behavior, as it is presented in the paper Luna and Forquer Gupta [8, pp 2]. The researchers that follow an etical¹ approach in the intercultural study of the consumer are generally looking for universal theories and concepts. They study the variables and constructs common to all cultures that can be directly compared in order to discover the way they are alike or they differ from one another. This approach is typical to the inter-cultural psychology and to other social comparative sciences. An alternative approach is the emic methodology that focuses on the way problems are understood from the point of view of the studied subjects. The culture is defined in an emic way as the lenses through which all the phenomenon are seen, determining the coordinates of the social action and of the production activities, describing the behaviors and results that derive from them. The methods used in the emic research offer rich information about a certain culture.

3. The passenger car consumer behavior and its attitudes towards the ecological versions

Following the black box model concerning the levels of the consumption behavior we will present the existing studies on each of them, like the way the consumers search the information and use it, the buying decision process and the use of the car.

Satish and Bharadhwaj identify in their study on the information search behavior among new car buyers [6, pp 7] four types of behaviors, they group according to the number of information sources and to the search intensity within each source. For each consumer type, they identify the main characteristics, so that the research could be used in market

¹ **Emic** and **etic** are terms used by anthropologists and by others in the social and behavioral sciences to refer to two kinds of data concerning human behavior. An "emic" account is a description of behavior or a belief in terms meaningful (consciously or unconsciously) to the actor; that is, an emic account comes from a person within the culture. An "etic" account is a description of a behavior or belief by an observer, in terms that can be applied to other cultures; that is, an etic account attempts to be 'culturally neutral'. [16, pp 5-20]

segmentation process. These four types are: (1) Medium number of sources and low intensity, 44,7% of the population. This group has visited relatively many dealers, has discussed with many sales representatives and made several test-drives. They enjoyed the car buying process the most, they see themselves as having a low control level on resources and don't have a very optimistic attitude towards technology an innovation. (2) Large number of sources and moderate intensity, 25%. In making the final decision, these consumers used the most brochures, they consulted the most sales representatives and made the most test-drives. They are moderately optimistic and innovative when speaking of technology. (3) A large number of sources and low intensity, 25%. They gathered information from many sources but the number of searches within each source was the smallest, these consumers being reserved when it comes to new technologies (4) Medium number of information sources and high intensity, 5%. These consumers are very optimistic about technology and innovation.

Concerning the information before buying, Lane and Potter research [5, pp 5] discover that private car buyers get their information from the producers' brochures, internet, cars magazines, sales representatives, family and friends, TV shows and advertising. Among these, internet is perceived as a data source more and more useful. The individuals that would buy low-carbon emissions cars are those that usually buy new cars, have high levels of education and high revenues, live in cities and are interested in technology.

The choice of the car is influenced by three main factors: (1) instrumental – the basic need and the rational behind buying and owning a car; (2) economical – the car price, the depreciation cost, taxes, the cost of the fuel, insurance and other taxes; (3) emotional – expression factors, esthetics, the pride of owning a car, especially a certain car, being determined by the brand, design and horsepower. [9, pp 9] A fourth factor increasingly important seem to be the environment. All these factors interact between each other, for example the reduced fuel consumption can be determined by a concern towards the environment and the lowering usage costs. The lower cost is actually more important in the decision process but the consumer will consider more appropriate to state the environment criteria when asked, so we can conclude that the norms have an essential role in declaring important the ecology. [9, pp 9]

According to Lane and Potter [5, pp 5] the decision making process for car buying is driven mainly by financial and performance aspects such as the price, the cost of the fuel, the comfort, the size, the practical aspects and the trust. The decision making process takes place in two stages (1) the performance and the acquisition price of the available vehicles are analyzed and then (2) the consumer analyses in a more complex way aspects as usage costs, fuel economy, performance, safety, design, image, brand and trust. Although the fuel economy seems to influence the choice of the car, other issues not related to the environment (costs, performance, design, image, etc.) still play a more important role.

The same paper [5, pp 6] analyses the factors that determine the difference between attitude and action in the consumer behavior when it comes to adopting low-carbon cars. This difference is problematic since the concern about the environment is declared by most consumers but this doesn't translate into a certain buying behavior. The research has discovered that all consumers have a low knowledge base about the impact of the low-carbon and energy efficient vehicles on the environment, having as well a weak understanding of the technologies they are based on.

The intention, in an attitude-behavior relation is influenced of the necessary effort to exert that behavior. In some studies, the effort level, together with the convenience, cost, time and place are included in measuring the individual consequences from the attitudes perspective. There are moderate correlations between the measure from the general attitude perspective

and the behaviors with multiple actions, but the intensity increases for the general measures and the behaviors with a single action. The relation between attitude and behavior is tighter when attitude is materialized in a specific ecological behavior and not as a general attitude towards the environment. [13, pp 3]

According to the importance of the ecological criteria, consumers can be divided in (a) consumers that don't accept the tradeoff between performance and environment criteria – they hope that the technological development will deal with the problems associated to car usage. For their acquisition they take into account buying large cars from brands such as SAAB, Volvo, Audi or BMW. The power of the engine is the main choice criteria; (b) consumers that accept the tradeoff between performance and environment – they are willing to change their preconceived idea about the need for car and accept sacrifices such as a smaller trunk, more restraint interior space, and tend to buy smaller car in general from brand like Volkswagen and Toyota. These consumers think of the car as a necessary evil but are more emotionally attached to it and tend to buy accessories for its personalization. [9, pp 10-11]

The research of Welch and Kuhling asks the questions whether the ecological consumption behavior doesn't lead to suboptimal choices, for which the buying doesn't maximize utility. They ask this question because the behavioral economy theory has shown that people are intuiting many times wrongly what makes them happy and the consumption satisfaction proves to be smaller than expected. Their study investigates whether the ecological consumption corresponds to the rational choice of the consumer or if it is distorted by an affective anticipation or some related phenomenon. The results suggest that, according to the individual's nationality and socio-economical characteristics, a person feels better with him/herself when proving an ecological consumption behavior. In the same time, such results can show up because people with ecological attitudes are more satisfied with themselves in general. Using satisfaction of the lifestyle to proxy the perceived utility, the empirical analysis discovers a positive and significant association between life satisfaction and pro-environmental behavior. [12, pp 1-2]

Among the strategies suggestions for improving the low-carbon cars adoption there are: (1) Providing information that would increase the knowledge of the impact on the environment, increase the concern, reduce fatalism and enhance the consumer's intention to change his/her behavior. But, although educational instruments are needed as part of any promotional activity, there must be tackled also the attitudinal barriers, since the current attitudes and misconceptions affect the way the consumer interprets the information. (2) Increasing the effectiveness of current incentives. The barrier in using the existing economical incentives is the confusion already existing at consumer level on the costs of the non-environmental friendly cars. (3) The car as symbol of the status is a key factor in enhancing the anti-environmental usage behavior, so the status of the low-carbon cars must be improved, and the product should state its ecological features in order to become also a way of expression. (4) Orienting the marketing strategy towards early adopters. [5, pp 7]

The recommendations of the research of Tadajewski [4, pp 12-13] are the adoption of a communication strategy differentiated on the consumers' levels. By this he understands that the communication strategies on environmental issues need to aim eliminating the cognitive barriers that prevent consumers in evolving from the buying intention to actual buying of the ecological products. The communication mix should be easily accessible to target clients in a step-by-step way, and using varied channels for the marketing communication (leaflets, posters, TV advertizing and in-house presentations) that would make the ecological messages to follow one after another. The potential consumer doesn't have to be buried with information, but in same time, those willing additional information to be able to get them

whenever they want to. An educational method available for adoption by the communication managers is forming a community based on social marketing in which experienced consumers of ecological products can cooperate with early adopters.

The car usage was mainly explained through behavior model centered on instrumental factors, such as speed, flexibility and comfort. Besides these, there are some other factors playing an important role such as the experienced sensations, the power and the superiority. The way people talk about their cars and the way appear in commercials makes obvious that the car fulfills many symbolic and affective functions. For many people, the car seem to be a symbol of the status, an expression mean of the personality, and for them driving is adventurous, attractive and pleasant. This means that the utility of the car travel doesn't depend only of its instrumental value but also symbolic and affective factors. [3, pp 2] People don't drive cars just because they need them, but also because they like to drive. This could be one of the reasons why the attempts of influencing car usage weren't very successful and could explain the resistance met frequently towards the policies of reducing car usage. These finding don't mean that measures directed towards influencing instrumental aspects of the car usage (like costs and time) won't give results. But these measures can't be easily implemented since people resist them because they influence also the symbolic and affective functions of the car use. The public policies should target specific groups, since the symbolic and affective aspects are differently appreciated by them. [3, pp 14]

4. Conclusions and future research directions

According to the presented studies, it seems that the car has an important symbolist to the consumer and doesn't represent only a mean of satisfaction of the transportation need. The car is combined in the consumer's perception with his/her personality; it defines him/her compared to the others and states his/her belonging to certain consumer groups. This role of the car will not be easily changeable in the near future, so the actions aiming to influence the consumer behavior need to take this into account.

For the moment, the ecological car, besides solving the problem of the CO2 emissions and the energy efficiency, will have to respond to the symbolic and affective issues in order to be adopted on a large scale and to replace the usual car of today. Apart from the infrastructure problems, where the main role remains to the public authorities, the automotive producers will have to differentiate the ecological car through design, so that it could be identified as such on the street, but also build a new image for the owner of the ecological car, different from the current typical car owner, so that it creates desire among the consumers. In this way, would be possible the change of the powerful, large and sophisticatedly accessorized car stereotype with the new ecological car that should not be modest nor pretend to the consumer to make compromises.

In building an appropriate marketing strategy is essential to correctly segment the market in order to identify the early adopters, but there is a need for more research regarding the consumer in order to discover the behavioral model and values to be promoted in the marketing communication towards these early adopters. Concerning the Romanian consumer there need to be made studies that can identify his/her level of concern towards the environment, that can assess the acceptance level for the ecological innovation in the automobiles field on separate consumer segments and to identify the affective and symbolic factors important to the Romanian consumer when it comes to his/her car.

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