Modeling Consumer Behavior

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Abstract: The article focuses on the topical subject of modeling consumer behavior. The economic-mathematical modeling is currently at the stage of a qualitative leap forward. To date, the global scientific community has accumulated a vast variety of models. All of them, although being called the economic models, in fact, cover one of its areas, explaining one particular subject. The instability of a complex socio-psychological system increases in a market economy. Therefore, it is practically impossible to fully understand and examine consumer behavior. This paper examines the main types of consumer behavior patterns, the factors affecting them in the decision-making process, along with consumer preferences in the insurance industry. The authors present a comparative analysis of consumer behavior patterns. The methods used in this study were the methods of cognition, retrospective and documentary analysis, as well as the synthesis, generalization, and systematization.

Index Terms: model, consumer, consumer behavior, insurance, human condition, decision making.

I. INTRODUCTION

A model of consumer behavior is a formalized (in one way or an-other) description of the relationship between a person's actions, who is considered both as a consumer of goods and as a socio-psychological object, and the motives (needs and desires) covered by this activity. Besides, such a model often examines the personal characteristics of the consumer, along with the state of the external environment in which these actions are performed.

Consumer behavior is a branch of marketing that includes general patterns, trends in consumer behavior related to their reaction to advertising, their decision-making process for choosing a service or a product, for making a purchase and their response to the purchase. In other words, it answers to the question "why do people buy?" This is quite natural, since, of course, it is much easier for a seller to develop a strategy of influencing the buyer, when he understands why the latter buys his goods and services.

The consumer is considered a complex social psychological system, which is virtually impossible to fully understand and analyze. This is largely because people can be extremely unpredictable, which in general makes it difficult to model their preferences. However, de-spite this fact, it is essential to be able to predict and describe the behavior of different groups of people in pursuit of their needs. This is only possible by the creation of particular patterns of consumer behavior. Thus, there is a simplification of reality to a certain level, which with some degree of probability will allow predicting how the buyers choose products, the seller company and how they make their purchases.

II. CLASSIFICATION OF CONSUMER BEHAVIOR PATTERNS

The study of consumer behavior is essential for several important reasons underlying this need [1–3].

First, it is worth noticing that the study of the phenomenon allows analyzing the increasing influence of consumers on the life of any business, enterprise, etc. Furthermore, the company receives the necessary information on how to please its potential customers, thus affecting profitability and its continued success. Accordingly, those businesses that are not concerned with satisfying the desires of their customers will fail to increase their revenue and sales. In this respect, the most effective solution for an enterprise will be a creation of marketing programs specifically focused on customer satisfaction. Thus, customer behavior implies the study of consumers as the sources of influence on the essence of the organization.

Human behavior is often spontaneous in nature, due to a number of individual characteristics, preferences, psyche, and individual world perception. Even though today the science of consumer behavior has moved far ahead, it will never be able to achieve its ultimate goal. This means it will never provide specific and comprehensive answers explaining consumers' actions. Therefore, the authors offer to examine only a simplified description of consumer behavior through the creation of models.

The very concept of the model (from lat. Modulus – measure, sample) as such is a simplified graphical, logical or mathematical description of an object, reflecting its basic properties. In this case, the model can be presented in a form of a tangible or intangible object or phenomenon [4].

The model of consumer behavior is a conventional combination of several personality characteristics as a socio-psychological object and as a consumer of goods that he buys to meet his desires and needs [5]. Thus, the modeling of the phenomenon under consideration allows predicting and describing the actions of entire groups ("clusters") with approximately similar behaviors and needs. Accordingly, the accuracy of the selected behavior model depends on the accuracy of determining how a specific customer group would behave in various consumer situations.

Let us examine the most common groups of consumer behavior patterns [6–10].

III. GROUPS OF CONSUMER BEHAVIOR PATTERNS

The group of **simulation models of consumer behavior** is divided into two subgroups:

1) The physical model is applied to present an object in an enlarged or reduced form. This model is most commonly used when addressing the placement, construction and other issues related to the physical environment and perception.

2) The analog model is used to establish a similarity with the object. For example, the consumer's black box model (marketing incentives and other irritants –> consumer mind black box –> responses) is comparable to a computer's "processor". However, this model has a significant disadvantage since it does not reveal the mechanism of consumer awareness.

Experimental models of consumer behavior also include two subgroups.

The single-factor model is used when it is assumed that consumer behavior is determined by a single factor (e.g., the value of goods).

The multifactor model, in turn, involves the description of consumer behavior, based on multiple factors at the same time (e.g., price and quality), received through experimental studies. Consumer behavior corresponds to one or several dominants, acting as the use values to them. These models might use the following combinations: the "price-quality" ratio (rational model), novelty and fashion (innovator), "unknown" brands and quality (sophisticated consumer), price and sales (economical consumer), etc.

The next equally important group of **economic customer behavior models** also includes several subgroups.

The economic and mathematical model is created and applied, if necessary, to establish a correlation between the characteristics of consumer behavior and the factors affecting this particular behavior. For instance, this model is used to establish the dependence of sales on marketing costs.

Socio-economic model is used as a clear demonstration of the fact that consumer behavior depends on the separation of the social classes and the income level. In other words, people make certain decisions depending on their income level, social status, educational and cultural level. This model defines the following social groups: pensioners, workers, students, entrepreneurs, etc.

The organizational and economic model describes the distribution of income to expenses, that is, shows how decisions are made in specific groups, for example, among family members.

The next group – *psychological* – is considered one of the largest groups of models of consumer behavior and includes five subgroups.

– *The cognitive model*. This model establishes consumer behavior through deliberate and rational actions. The methodological basis of cognitive psychology is an experiment in which consumers are studied in terms of their attention, pattern recognition, personal perception, thinking, imagination, etc. Nevertheless, this model has a flaw: it underestimates the unconscious human factors.

– *The gestalt model*. Gestalt psychology applies a holistic approach to the analysis of mental phenomena and processes, that is, the principle of unity of the human psyche characteristics. Gestalt structures define the perception and other mental processes.

– *The behavioral model*. The basic theoretical concept of behaviorism is the phenomenon of reaction and stimulus. This model denies any form of consumer consciousness. Factors of interest include motivation, memory, choice, and others. Experiments and observations of consumers' reaction also play an important role in this model.

– *The economic-psychological model*. Economic psychology studies how psychological stereotypes and attitudes influence the behavior of groups of people – subjects of economic relations. This allows analyzing types of purchases made by different consumers: impulsive, rational, or those made by reflex.

– *The socio-psychological model*. This type of model considers the lifestyles of different sectors of society. Whereas, customer behavior depends largely on the person's worldview, on the values guiding him/her in his daily life.

In general, it can be noted that most models of consumer behavior are based on the study of lifestyles (a generalizing concept, considered as a person's way of life in general and how he spends his money and time) in different social segments. They consider three components of a person's lifestyle: his/her actions, interests (degree of excitement, accompanied by prolonged and particular attention) and opinions (reaction of a person to a certain situation). Managers are interested in predictions without bias **Error! Reference source not found.**, **Error! Reference source not found.**. When there is a prejudice, there is a probability of using the wrong model of functional prognosis. Theoretically, a system bias should be something that can be eliminated by introducing a certain factor into the model to make it unbiased. Thus, this simple measure of error can be one of the most important in determining whether the correct prediction model is used.

By way of example, one can examine the preferences of consumers of insurance company services based on the criteria of consent using the CHAID-analysis.

IV. STUDY OF CONSUMERS OF INSURANCE SERVICES

First, it is worth noticing that in Russia, insurance companies rarely specialize in a comprehensive assessment of the range of insurance services provided and their adaptation to the needs of existing consumer segments. As a rule, the range of insurance companies in the market is not very diverse: both small and large players provide life insurance, property insurance, auto insurance, etc., without paying particular attention to their customers' preferences, their purchasing behavior. Thus, the study of this issue is of particular interest and is carried out with the objective of more accurate customer segmentation and, therefore, it aims to increase the company's competitive-ness in the local market [13].

Typically, the study of the consumers' preference involves marketing research [14]. In the course of the study, the authors have analyzed clients of the regional insurance company with three offices located in different areas of the city of Novosibirsk. Although it does not act as a significant player in the market of insurance ser-vices in Novosibirsk, it already plans further market penetration and retention. In this regard, the creation of high-quality segmentation of consumers will act as an impulse to preserving old and attracting new customers through a better provision for their needs [15].

For the purpose of this study, the authors used such common meth-od as a written survey of existing customers. The authors sent questionnaires to all the 1,434 consumers registered in the database. As a result, 317 questionnaires were received back, of which 298 turned valid, which accounted for 20.8% of all the registered customers.

The questionnaire itself is a survey aimed at identifying consumer preferences regarding the types of insurance products, as well as including questions of an economic and socio-demographic nature.

The next stage was the analysis of the survey results. First, the authors conducted a statistical analysis of the mutual influence of different consumers' characteristics and their preferences regarding the insurance products provided. Those characteristics included:

1) marital status options;
2) presence/absence of children in the family;
3) income level (family income);
4) absence/presence of a car;
5) age group of the respondents.

The presented study examined the effect of the above characteristics on the purchase of OSAGO (Compulsory Motor TPL (CMTPL) insurance) and CASCO (Motor Own Damage (MOD) insurance) policies, insurance against tick-borne encephalitis, accident insurance, life insurance, and real estate insurance.

Table 1. Hypothesis test results using the Pearson criterion

Hypothesis	X^2	X^2_{cr}	Hypothesis test result	
H_1	33.59	3.84	Marital status	influences the choice of accident insurance
H_2	0.04	3.84		does NOT influence the choice of insurance against tick-borne encephalitis
H_3	0.38	3.84		does NOT influence the choice of life insurance
H_4	43.12	3.84		influences the choice of CASCO insurance
H_5	11.67	3.84		influences the choice of real estate insurance
H_6	22.54	3.84		influences the choice of OSAGO insurance
H_7	2.42	3.84	Presence of children	does NOT influence the choice of accident insurance
H_8	8.58	3.84		influences the choice of insurance against tick-borne encephalitis
H_9	26.66	3.84		influences the choice of life insurance
H_{10}	0.09	3.84		does NOT influence the choice of CASCO insurance
H_{11}	6.03	3.84		influences the choice of real estate insurance
H_{12}	2.41	3.84		does NOT influence the choice of OSAGO insurance
H_{13}	28.84	5.99	Income level	influences the choice of accident insurance
H_{14}	0.49	5.99		does NOT influence the choice of insurance against tick-borne encephalitis
H_{15}	4.92	5.99		does NOT influence the choice of life insurance
H_{16}	12.85	5.99		influences the choice of CASCO insurance
H_{17}	10.08	5.99		influences the choice of real estate insurance
H_{18}	5.62	5.99		does NOT influence the choice of OSAGO insurance
H_{19}	0.02	3.84	Presence of a car	does NOT influence the choice of accident insurance
H_{20}	0.03	3.84		does NOT influence the choice of insurance against tick-borne encephalitis
H_{21}	2.47	3.84		does NOT influence the choice of life insurance
H_{22}	2.16	3.84		does NOT influence the choice of CASCO insurance
H_{23}	1.14	3.84		does NOT influence the choice of real estate insurance
H_{24}	26.07	3.84		influences the choice of OSAGO insurance
H_{25}	9.05	7.82	Age	influences the choice of accident insurance
H_{26}	52.67	7.82		influences the choice of insurance against tick-borne encephalitis
H_{27}	69.61	7.82		influences the choice of life insurance
H_{28}	20.76	7.82		influences the choice of CASCO insurance

H_{29}	16.75	7.82		influences the choice of real estate insurance
H_{30}	8.68	7.82		influences the choice of OSAGO insurance

As a result of the fact that most indicators were measured as rankings, the authors chose the Pearson Chi-Square test as the criterion establishing the absence or presence of a statistically significant dependence. In fact, it is one of the most frequently used consent criteria in econometric and statistical studies. Statistical X2 values for the 30 formulated hypotheses and their corresponding critical values of Pearson distributions were calculated using the SPSS statistical analysis system. The results are graphically presented in Table 1. It is important to remember that the above hypothesis is rejected if the value of X2 statistics exceeds the corresponding critical value X2cr [16].

It is worth noticing that different critical values (X2cr) for the presented hypotheses are explained by differences in the number of degrees of freedom: a different number of homogeneity classes in contingency tables corresponding to hypotheses under consideration [16].

In the course of hypothesis test results' analysis, the authors defined several patterns of choice of insurance depending on specific characteristics of the company's customers. Thus, the choice of

a particular type of insurance depends on specific characteristics:

• age and presence of children – on the choice of tick-borne encephalitis insurance;

• age, income level, and marital status – on the choice of accident insurance;

• the choice of real estate insurance is influenced by all of the indicators presented (income level, marital status, the age of the buyers, the presence of children);

• age and presence of children – on the choice of life insurance;

• the choice of OSAGO insurance depends solely on the presence of a car;

• the choice of CASCO insurance depends on age, marital status and income level of consumers.

Summarizing some of the intermediate results, it should be noted that the choice of insurance products, on the one hand, can be described with a logical set of consumer characteristics – for example, the choice of OSAGO insurance depends on whether the client has a car. At the same time, the choice of voluntary CASCO insurance corresponds to several different characteristics: the consumer's level of income, his/her marital status, and age, which is directly interconnected with the client's resources, including financial resources. Moreover, when buying a car on credit, CASCO insurance is a prerequisite.

However, on the other hand, testing of statistical hypotheses also showed that the choice of similar insurance products, for example, tick bite insurance and life insurance corresponds to the same customer characteristics (age and presence of children). This fact is explained by the fact that children, adolescents, and young people are certainly more physically active, especially during the warm season, thus insurance against tick bites or accident insurance become especially relevant, during summer holidays, for example,

when children stay in summer camps. However, the obtained result provides information only about the presence of dependence between variables. It does not specify this dependence and the impact of the above demographic and socio-economic characteristics on the choice of insurance products. Thus, to assess the dependence, it is necessary to use more specialized data analysis methods.

V. STUDY OF THE INSURANCE PRODUCTS' CONSUMERS USING THE CHAID-ANALYSIS

Once the authors determined an interconnection between specific characteristics of the insurance company customers and their choice of the presented insurance products, it is quite natural to ask how to apply this information in the company's daily operation. Today there are a large number of different approaches to this issue, ranging from the heuristic approach, which arises from an intuitive synthesis of experience in the insurance industry, and ending with different econometric and statistical approaches, based on the construction of specific and adequate models of the studied. The 1990-s featured a special area of research – Data Mining – the intellectual analysis or "mining" of data (knowledge).

In the situation under study, it is extremely important for the insurance company to establish a combination of customer characteristics that will help them to choose an insurance service. This will allow identifying segments and developing targeted offers for each target group of customers, which will ultimately contribute to the company's competitiveness in the market. At the same time, it is necessary to realize that the use of standard approaches of statistical analysis, such as factorial, multiple regression analysis, cluster analysis, etc., makes it impossible to obtain accurate results due to specifics of the source data – when they are qualitative, not quantitative [17–19]. In the present study, most of the indicators were measured on ranked (ordinal) scales, which affects the ability to develop interpretative models, and can also lead to incorrect conclusions when using the above continuous processing methods. Consequently, the authors decided to adopt the approach that allows working with categorical data without losing its correctness.

In the last decade, CHAID-Analysis (Chi-Square Automatic Interaction Detection – the automatic dependency allocation based on chi-square test) has become one of the most rapidly developing and already popular methods for isolation of homogeneous groups of most profitable company customers in the processing of high-quality information. This type of analysis was first introduced in 1980 in the work of South African statistician Gordon Kass. This method is based on the idea of building classification trees (used as interpretations of customer segmentation), which are a subdivision of the entire analyzed database into groups that mostly differ in terms of the selected characteristics. The degree of difference between the groups is determined based on the value of Pearson statistics: the bigger

it is, the more different are the allocated groups. The company, for which the research is conducted, will be particularly interested in a group of customers with relative originality of their indicators, who will show the best probability values of acquisition of certain insurance products. This will allow developing effective offerings on the product range for such customer groups.

By analyzing the homogeneous groups of customers, defined using the CHAID analysis, it is possible to quickly determine under what conditions those consumers show a tendency to buy specific products, and under which conditions – reject them [20].

CHAID analysis has one extremely important advantage: in addition to a relatively simple computational scheme, it also facilitates the visualization of the connection between the target variable (the customer's propensity to purchase a certain product or service, in other words, the probability of making a purchase) and the consumers' characteristics. Now let us consider the general scheme for identifying homogeneous groups using the CHAID analysis. For the selected target variable, let us analyze a set of influencing characteristics and define the one which would best explain the differences between the values of the target variable. Then, for the groups built according to this principle, let us examine the set of characteristics and define the one that most contributes to division into subgroups. This process can be repeated until all characteristics will be depleted or further subdivision into subgroups loses the economic sense.

Furthermore, apart from the clients who constitute each of the subgroups, that is, its content, it is necessary to define its quality. Customer characteristics become streamlined by the degree of influence on their choice, which makes it possible to establish an assortment set that best suits the subject groups. It also helps to define the distinctive features of customers that need to be addressed first and foremost, secondly, etc.

In practice, CHAID-analysis is usually implemented using special software systems such as SPSS, SAS, Eviews, R, etc. This study was conducted using one of the most frequently used statistical information processing systems SPSS [21]. As part of the study, for each of the six types of insurance services, the authors constructed a classification tree, presented in Figs. 1-6.

It should be noted that graphically each node in the classification tree is divided into two parts with a rectangle, the right part of which is the percentage of the number of respondents buying the insurance product under study (from the total number of clients of this node) that satisfy the condition indicated above the figure. At the same time, conditions placed higher in the hierarchy (in the previous node of the tree) accumulate. In other words, if, for example, the current node is signed as "aged 18-35" and the previous one is "the marital status is single", then it implies a group of unmarried clients of the company aged 18 to 35. Now let us consecutively examine the obtained classification trees of customers and interpret the results.

Real estate insurance is a popular type of service among the clients of the presented company (the share of consumers who agree to buy it is 59%), which is shown in Fig. 1.
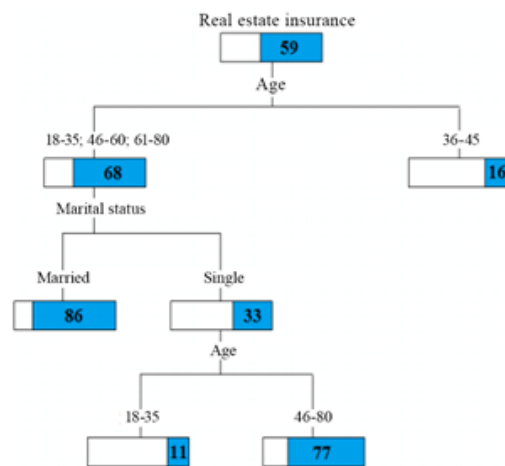

Fig. 1. Classification tree of the "real estate insurance" service customers

The initial stage of CHAID analysis entailed the division of all clients into two groups: the first group included 52 clients aged 36-45, among which only 16% intended to purchase a real estate insurance policy. The second group includes representatives of all other age segments, among which 68% have already expressed willingness for purchase. Therefore, in terms of the analysis of customers, who are likely to buy the "property insurance" service, it is necessary to focus on the study of this group of customers, the number of which amounted to 246 people.

In a subsequent step, the elements of the second group were divided into two groups in accordance with their "marital status". It turned out that a large proportion of clients (86%) tended to buy real estate insurance policies in the "married" clients' subgroup, in total 162 people. Young couples (aged 18-35) are mostly bound by loan commitments, for example, when they receive a secured mortgage loan, which implies mandatory real estate insurance. From another point of view, older married couples are mostly concerned with the safekeeping of the housing stock they own, and therefore they insure both their city apartments and country houses, summer cottages. The next subgroup of "single" (unmarried, divorced) consumers seems to be of little prospect for the company since only 33% of them consider the possibility of acquiring property insurance policies. At the same time, an attempt to perform another split using CHAID analysis leads to a curious result: It turned out that 77% of people aged 46-80 showed a tendency to acquire a real estate insurance policy, and therefore represented a small but quite promising group of consumers.

Fig. 2 shows the classification tree of buyers who purchase accident insurance policies, which account for 25% of the consumers surveyed.
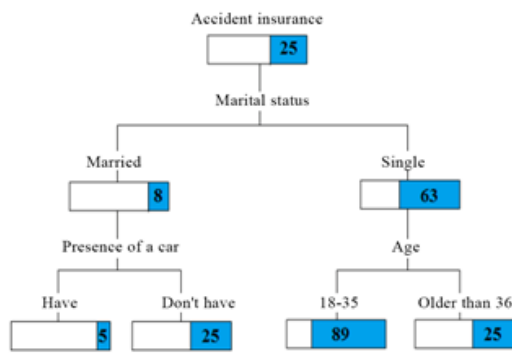
Fig. 2. Classification tree of the "accident insurance" service customers

CHAID analysis also allows dividing customers according to the value of such factor as "marital status", and thus 63% of respondents from the "single" subgroup purchase this insurance service. If we divide it further into two subgroups, then the most active consumers of this service (89% want to acquire it) will be single people aged 18-35. The above is explained by the fact that this target group is the most active one. Therefore, these customers require "protection" on the roads, in their flights over long distances, during exercise activities, and may also be associated with the effects of the use of low-quality food, or with the possibility of acute infections.

The authors then estimated the proportion of those who buy the "insurance against tick-borne encephalitis" service, which amounted to 22% (Fig. 3).
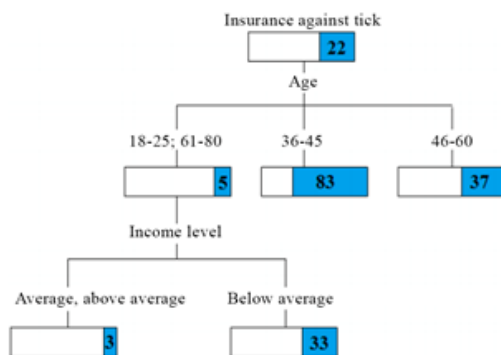

Fig. 3. Classification tree of the "insurance against tick-borne encephalitis" service customers

According to Rospotrebnadzor (Federal Service for Supervision of Consumers Protection), the number of residents of the Novosibirsk Region who seek medical care because of a tick bite is growing every year. Thus, the "tick-borne encephalitis insurance" service is quite promising. As part of the CHAID analysis for this service, three age groups were at the first stage, in one of which 83% purchased this insurance (46 of the surveyed consumers aged 36-45). The largest group (206 people), which included both young consumers and aged clients, initially seemed to be unpromising (only 5% of the clients of this group considered purchasing a policy). In the second step of the analysis, the authors defined a subgroup of consumers with incomes below the average, for example, residents of the suburb of Novosibirsk and rural areas of the Novosibirsk Region,

among whom 33% agreed to buy tick-borne encephalitis insurance. However, the small number of clients (only 5% of their total number) significantly reduced the need of targeting this group.

The share of the company's customers who purchase "life insurance" service amounted to 31% (Fig. 4).
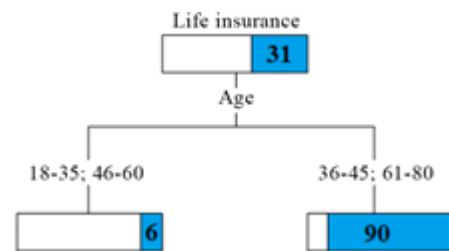

Fig. 4. Classification tree of the "life insurance" service customers

If one divides all clients by age, then in one of the resulting groups (89 people aged 36-45 years and 61-80), 90% acquire the insurance service under consideration. Hence, there is a reason to believe that there is a target group of consumers for this product. Further CHAID-analysis did not reveal any groups of consumers particularly different in the probability of purchasing this service.

At the same time, it can be noted that products like "life insurance" and "accident insurance" are generally close to each other. However, CHAID analysis indicates that their consumers have significant differences. For instance, they belong to different age groups. It can be said that many of those who acquire this type of insurance have a mortgage agreement, which might include insurance as a mandatory requirement.

The share of the consumers who buy "CASCO insurance with included OSAGO" service is 26% (Fig. 5).

Customer distribution by marital status indicates that in one of the resulting groups (unmarried people) 70% (90 people) tend to purchase this insurance service. Yet again, further CHAID analysis has not revealed any consumer subgroups.
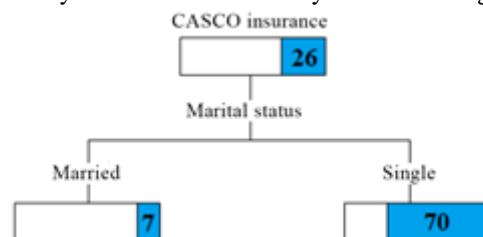

Fig. 5. Classification tree of "CASCO insurance with included OSAGO" service customers

In contrast to the CASCO insurance, the share of the consumers buying only compulsory "OSAGO insurance" service is approximately twice as large and amounts to 56% (Fig. 6).
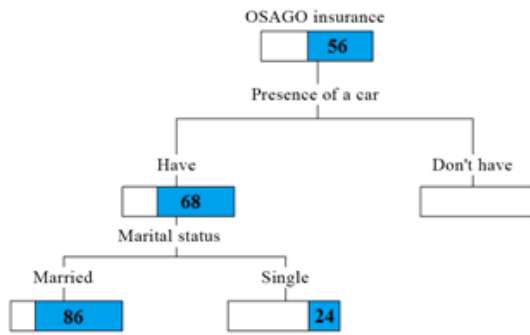
Fig. 6. Classification tree of "OSAGO insurance" service customers

CHAID analysis allows dividing all of the company's customers by whether or not they own a car. Thus, in one of the identified subgroups, which are "family" customers, 86% purchase OSAGO policies (their total number among the surveyed customers is 174). Further use of CHAID analysis also did not result in new customer subgroups.

It can be assumed that the difference in the characteristics of consumers choosing CASCO and OSAGO is because "CASCO insurance" service (with the included OSAGO) is purchased primarily for luxury cars, that is, quite expensive, including those purchased on credit or the new ones. According to the insurance company employees, their owners are rarely burdened with family ties. Whereas, family people generally buy OSAGO policies, since their cars are normally much cheaper, which eliminates the need to purchase CASCO insurance.

As a consequence of the results' analysis, it can be concluded that the most significant characteristics to create customers segmentation are the marital status and age. This is confirmed both with the hypothesis testing using the chi-square, and using the CHAID-analysis. Examination of the constructed consumer classification trees suggests that such indicators as "income" and "presence of children" do not influence customers' choice of insurance products.

It is worth noticing that the trees presented above are not "dead" – they can change over time for various reasons: changes in the insurance market, including those arising from changes in the insurance legislation, changes in consumer preferences, the emergence of the new insurance products, competitors' behavior, etc. Therefore, for practical purposes, it is possible to advise conducting consumer surveys and rebuilding classification trees for example once a year. This will give an opportunity not only to assess the current state of the market, the efficiency of customer service, but also to identify new trends and implement (mainly short- and medium-term) forecasts for the future, based on the analysis of changes in the tree structure.

Thus, the research performed using the CHAID analysis revealed which types of insurance services implied the most effective combination. Table 2 below summarizes the results of CHAID analysis for the six insurance products and their corresponding consumer characteristics.

Table 2. Summarized results of the CHAID-analysis

Insurance products	Marital status		Age segment				Presence of a car	
	Married	Single	18-35	36-45	46-60	61-80	Have	Don't have
Accident		+	+					
Anti-tick				+				
Life				+		+		
CASCO		+						
OSAGO	+						+	
Real estate	+	+	+		+	+		

Analysis of the results in Table 2 suggests four options for combining insurance products for company customers:

Package number 1. "Accident insurance + real estate insurance" targeted at clients aged 18-35.

Package number 2. "Insurance against tick-borne encephalitis + life insurance" aimed at clients aged 36-45.

Package number 3. "Life insurance + real estate insurance" for clients aged 61-80.

Package number 4. "Accident insurance + CASCO insurance" targeted at single/unmarried clients.

VI. CONCLUSION

Consumer study in the marketing system aims to establish the entire volume of factors motivating the buyer when choosing goods. Factors of this kind have a social, psychological, and economic nature: demography, income, prices, traditions, group interests, motivation, etc. [22, 23].

On the one hand, modeling consumer behavior allows understanding the reaction of consumers to marketing incentives. On the other hand, it helps to reveal a significant competitive advantage for an enterprise. At the same time, it is essential to establish typical customer conditions, explore consumer segments, choose the model type, which will determine the marketing policy of an enterprise. Modeling consumer behavior enhances the effectiveness of advertising campaigns and customers' commitment to the brand.

Thus, it can be concluded that modeling of consumer preferences and behavior is of particular importance. The article examines a specific example of modeling in the insurance industry. Nevertheless, this model can be used in any industry related to the provision of services and goods. It can be noted that most companies mainly offer a standard product for wide consumer groups, while not considering specific consumer preferences.

However, due to the growing competitiveness of the market, companies have to consider compliance of their products' properties with the consumers' preferences in specific consumer segments. Moreover, they need to change their approach to the formation of the product range and its management.

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