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Effect of psychological factors and cognitive factors on consumer behavior

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ABSTRACT:
The theory of behavioral economics investigates the influence of behavioral and psychological factors on economic decisions. Psychologists and economists of energy consumption have studied the effects of behavior economy on energy consumption and have shown that behavioral factors can have a significant impact on energy consumption patterns. Therefore, consumer behavior as a variable and an interesting category has played a significant role in the behavioral economy and has a special impact on the energy economy. Nowadays, reducing energy consumption to protect the environment, reduce greenhouse gas emissions, and increase economic stability has become one of the most important priorities of policymakers. Thus, countries and governments seek to use various solutions through extensive studies on energy consumption. The effect of consumer behavior has been a main factor in achieving the goal of reducing energy consumption. The trend and path of reducing energy consumption are directly dependent on consumer behavior and consumer's energy consumption habits. The current study investigates the effect of psychological factors and cognitive factors on consumer behavior and analyzes the mentioned subject with a descriptive survey method. As the findings show, the variable of psychological factors can predict 45% of the changes in the variable of consumer behavior. The variable of cognitive factors can predict 20% of the changes in the variable of consumer behavior.

Keywords: behavioral economics, energy economy, consumer behavior, psychological factors, cognitive factors

INTRODUCTION:

Behavioral economics is a new branch of economics that studies the effects of psychological and cognitive factors on economic decisions and examines its differences from classical economic theories. Behavioral economics examines the economic decisions of individuals and their behavior in interaction with the market. Studying the decision-making behavior of economic agents from a psychological perspective provides a better understanding of the factors influencing decision-making to better understand the decision-making behavior of economic agents. It can explain their behavior individually and collectively. Likewise, another goal of behavioral economics as a branch of economics is to evaluate economic policies (Ahmadi, 2013: 14).

The term "behavioral economics" was first used by Katona in 1951 (Ashugh, 2012: 3). The 1970s can be a period of transition from the old behavioral economics to the new one. Many of the concepts used in behavioral economics are actually not new concepts and have already been discussed in classical economics. However, one of the important and effective causes in changing important concepts such as behavioral economics is the change in living conditions; so most of the big cities and different countries in the world are facing the problem of high energy consumption, and energy as a turning point in the concept of the energy economy is very important. Energy economics studies the behaviors, demand, supply, and policies of energy consumption and production. Thus, understanding its meaning in the energy economy and behavioral economy is a subject deserving attention.

The studies show that there is a significant relationship between energy economics and behavioral economics. Identifying the existing components that affect this relationship is important. Nowadays, rational behavior leads to the achievement of a known goal under certain assumptions. Undoubtedly, humans have cognitive power, logical thinking, and calculating power. However, we know that humans are faced with real cognitive deficiencies and this characteristic affects their rationality. Now a question is raised, the answer of which will be effective in the energy economy: Does irrational action reduce welfare? This is where the concept of consumer behavior in behavioral economics intersects with the concept of energy economy. Behavioral economics includes consumer

behavior and consumer behavior is associated with categories such as energy consumption, its reduction or increase, and the like. We can get a better understanding of the relationship between welfare and consumer behavior by reviewing them. Behavioral economics examines the decision-making process and human performance, and consumer behavior is an important and unique phenomenon in this category.

As we stated, behavioral economics investigates the influence of behavioral and psychological factors on economic decisions. As for energy consumption, psychologists and economists have studied the effects of behavioral economics on energy consumption and have shown that behavioral factors can have a significant impact on energy consumption patterns. Identifying the application of behavioral economics in the energy economy to explain the concept of the intermingling of the two will help to explain the relevant role of consumer behavior. Behavioral economics helps us to gain a better understanding of individuals' decisions about energy consumption, and this understanding can be useful in designing policies and programs to reduce energy consumption and preserve the environment. Energy economics, as a broad scientific field that includes issues of the supply and use of energy in societies, is not a complete and independent field but a practical subfield of economics.

Energy economy and consumer behavior examines behaviors, decisions, and patterns of energy consumption in society. Economic studies are oriented to economic, social, and behavioral factors that affect energy consumption. The study of energy consumption behaviors and decisions in society analyzes the effect of various factors on consumption patterns. Some of these factors can include the price of energy, awareness and information, financial incentives, and comfort and convenience factors. Energy price is a basic factor in consumption decisions. An increase in energy prices may act as an incentive for saving and optimal use of energy resources. Simultaneously, price reduction can increase energy consumption. Access to information and awareness about energy consumption patterns and their impact on the environment plays an important role in individuals' consumption behavior.

Knowledge of energy-saving solutions and technologies can help change consumption patterns. Financial incentives have also application in the energy economy. Financial incentives, discounts, and financial rewards will encourage the use of low-energy sources. Finally, comfort and convenience factors also are important in consumer behavior. The convenience and ease of use of energy-saving technologies and equipment can affect energy consumption. The analysis of economic and psychological factors that influence energy consumption behavior is very important in energy economics and consumer behavior. They can be effective in designing policies and programs to reduce energy consumption and protect the environment. Therefore, the current research investigates purposefully the role of psychological factors and cognitive factors in consumer behavior.

Theoretical Foundations of Research:

Behavioral economics

Behavioral economics studies psychological, emotional, cultural, and social factors and their impact on the decision-making process of individuals and organizations. It concerns the economic decision-making processes of individuals, businesses, institutions, organizations, institutions and even governments. Behavioral economics combines elements of economics and psychology to understand how and why individuals behave as they do in the real world. It differs from neoclassical economics, which assumes that most individuals have well-defined preferences and make informed, self-interested decisions based on those preferences.

Supporters of this school, who consider behavioral economics as a reaction to the weaknesses and shortcomings of conventional economics, state that we should complete and modify the existing body of economic theories of classical and neoclassical schools to create a more realistic picture of the economic process. The theories of behavioral economics are based on the psychological view obtained from the connection of economics and psychology. It is noteworthy that some supporters of the behavioral economics school have dared to use psychological, sociological, and anthropological theories to explain economic dynamism (Hosseini, 2004: 9).

Some have introduced behavioral economics as a discipline, some as a sub-discipline, and others as a school. Some have defined this discipline based on its predictive and interpretative power, and some have defined it based on experimental methods. Thus, behavioral economics is defined as: "A branch of economics that, with an interdisciplinary approach, tries to connect the theoretical foundations, achievements, and tools of other branches of social and human sciences such as psychology, sociology, and anthropology with economics and, while correcting the assumptions of conventional economics, present more realistic theories to examine various economic aspects. Finally, these theories should help us make more accurate forecasts of economic developments and more suitable policies (Rahbar, 2012: 137).

Factors that affect consumer behavior:

As we mentioned, one of the human characteristics is their consumption behavior. It is necessary to consume a certain amount of human products in various areas of life for each person to continue his personal and social life. Consumption includes all material and spiritual manifestations of human production. Each of us uses or consumes food, clothes, housing, transportation, household items, ideas, and services. Human consumption behaviors, on the one hand, affect various aspects of economic and social life, and on the other hand, they are influenced by various factors. The amount and type of consumption can express issues

such as lifestyle, class, and even the attitude of individuals. Likewise, the amount and type of consumption can be measured according to the mentioned cases. Various causes and factors can influence consumer behavior. Two factors are the main causes:

1. Psychological factors:

Consumer behavior is a learned behavior. Just as we learn to walk, eat, tie our shoes, or drive, we also learn to shop. Learning consumer behavior comes from sources beyond parents, and we acquire preferences, habits, and other internal information that we use in purchasing decisions from birth to adulthood. Defining learning is difficult. However, learning happens when we encounter new information through stimuli and this information somehow affects our thinking, memory, or behavior. Thus, almost all consumer behavior involves some form of learning. It is a process that consumers go through to satisfy their needs, which includes problem recognition and product search to purchase and post-purchase behaviors. "Learning" and "consumer behavior" are closely associated with together. We learn attitudes, values, tastes, behaviors, preferences, feelings, etc., and all these factors play a role in consumer behavior (Shakeri, 2008: 14).

The correct and rational use of energy and its products is an issue of human behavior. Although the experts have proposed various solutions, such as designing the environment, implementing laws, exercising the power of external power sources, threats or coercion, using new technologies, etc., many experts do not consider cost-effective methods as a better approach. Therefore, experts in a major part of social science and social psychology have focused on finding ways to encourage individuals to reduce energy consumption. Any behavior, including correct or irrational consumption of energy, can have reasons. The energy consumer may or may not be aware of the cause of his behavior, but his behavior is a result of several factors. The development and change of such behavior can be influenced by several factors such as social norms, learning, previous experiences of a person in the family environment, school, individual differences, and finally his beliefs and attitudes. Individuals' consumption behavior is formed through their thoughts, beliefs, and attitudes, and any change in stable behavior requires basic changes in attitudes (Marzooghi, 1391: 16). We can briefly categorize the psychological factors as follows:

Motivation: Motivation is the driving force that makes a person act. The motivation for action is movement and goal achievement. A motivated human being has a set of needs. When these needs are supported by purchasing power, they become wants; so motivation stimulates buyer behavior.

Perception: A motivated person is ready to act. The action of a motivated person is influenced by his perception of the situation. Perception means seeing, hearing, touching, smelling, and feeling something, an event or relationship, and organizing, interpreting, and finding meaning in experience.

Learning: Learning describes changes in a person's behavior that result from experience. Almost everything one does or thinks is learned. Learning is a process of acquiring knowledge about products, their benefits, methods of use, and disposal of the product after use. Example - Product display is a very effective way to convince the consumer. Products like paint, pressure cooker, and chemical fertilizer are promoted through the show.

Belief: Belief is a descriptive thought a person has about something. These beliefs may be based on knowledge, belief, or faith. They may or may not have an emotional change. Attitude describes a person's favorable or unfavorable cognitive evaluations, emotional feelings, and practical tendencies toward an object or idea (Safarinia: 2013).

2. Cognitive (demographic) factors:

Gender differences can affect consumer decision-making approaches and decision-making difficulty. They affect behaviors and attitudes. There are also differences in the men's and women's responses to the same marketing stimuli. Men and women have different ways of processing data and evaluating their services in different ways. Likewise, age is a relevant factor in service design. So the buyer's decisions are also influenced by personal characteristics, especially the buyer's age and life cycle, job, economic conditions, lifestyle, personality, and self-concept.

Life cycle: People buy different goods and services during their lifetime. A person's life cycle begins with birth, moves through infancy, adolescence, adulthood, middle age, and old age, and then ends with death. Individuals' buying behavior is different at each stage. Decisions in the first three stages are not made by the consumer. They are completely dependent on others. Next, buyers not only make their own decisions but also influence the buying decisions of others. They revert to the initial stages in the later stages of the life cycle. For example, children in school, with exposure to television, start influencing their buying decisions on biscuits, chocolates, soft drinks, and toys, and marketers are targeting this.

Job: A person's behavior depends on his job. The CEO of a company prefers expensive suits, air travel, separate cabins, etc. Hence, the satisfaction of his needs depends on his job which provides him the means.

The economic conditions of the job create economic conditions. A person may tend to buy a lot of things. All his needs do not become wants. This results from his purchasing power. Individuals' economic conditions refer to their disposable income, savings, assets, borrowing power, and their attitude toward spending versus saving.

Lifestyle: Lifestyle may be defined as a person's pattern or way of life, which is shown through a person's activities, interests, and opinions. A person may live in an apartment. He may have expensive

furniture. He may spend his dinner only in five-star hotels. His hobby may be playing billiards. The above activities help us understand the lifestyle of a person. Hence, his choices correspond to his lifestyle.

Personality: Personality is a person's distinctive psychological characteristics that lead to relatively stable reactions to his environment. These characteristics are self-confidence, mastery, autonomy, respect, sociability, defensiveness, and adaptability. A person who preserves his personality makes his purchase decision in a relevant manner. He buys products and services that reflect his image (Mansoori, 2013).

Research background:

Safarinia (2004) in research entitled "Role of psychology in consumer behavior" states: "Consumer psychology is one of the most popular trends in psychology in recent years, which seeks to know and analyze behaviors in consumption. It investigates mainly the issues such as expectations, tastes, and demands of consumers. Meanwhile, with the help of this science, we can examine, by reviewing the consumer's behavior, the basic factors affecting their attitudes and beliefs in choosing the brand of the product under consideration, and the cultural-social factors in the consumption decision process.

Heydari (2014) in a research entitled "Evaluation of the impact of energy consumers' behavior on the alignment of energy efficiency and load response programs" states: "Consumption management programs in recent years have attracted the attention of various consumer groups. The efficient and optimal use of the electricity market depends on the proper interaction between production and consumption, and the management of consumption load and the use of efficient and high-tech devices are ways to do it. This article has investigated the effect of consumer behavior on energy efficiency. Likewise, it examined the effect of energy saving on different load response programs.

Mansouri (2013) in a research entitled "Analysis of resources and social institutions effective in improving the consumption behavior of urban households (case study: energy consumption behavior)" showed that the institution of the family has the highest influence. The institutions of the media and education have relatively equal importance. Governmental and public institutions, prominent social figures, and reference and friendship groups are in the next rank. The last social source is non-profit public institutions, which are less effective than other social sources and institutions.

Ashugh (2012) in a research entitled "Consumer Behavior Analysis: Behavioral Economics Meets the Market" states: "Development of behavior analysis to areas outside of the common experimental analysis in animal behavior allows to study the fields of human behavior. This article describes the development of behavior analysis towards understanding the behavior of human consumers in the markets. In particular, it addresses how behavioral economics has come to analyze the behavior of human consumers in the natural settings of market economies.

Michel (2012) in "Behavioral Economics in the Analysis of Energy Demand: A Foundation" states: "Neoclassical economics has shaped our thinking about human behavior for a long time. While still it is an important starting point for economic studies, neoclassical frameworks have generally imposed strong assumptions; for example on profit maximization, information, and predictability, while they treat consumer preferences as given or out of context. However, these strong assumptions are not entirely valid in reality. Behavioral economics refers to the study and theorizing about deviations from traditionally modeled economic decision-making in the behavior of individuals. The US Energy Information Administration (EIA) is interested in the impact of behavioral economics on energy demand.

Elisha (2015) in "Home Energy Use: Applying Behavioral Economics to Understand Consumer Decision-Making and Behavior" states that "home energy conservation is a great challenge and opportunity for researchers, doctors, and policymakers. Consumers also apparently become more aware of the value and need for sustainable energy practices, especially amid growing public concerns about greenhouse gas emissions and climate change. However, many consumers still fail to take significant steps towards energy efficiency and savings even with sufficient knowledge about energy saving and a clear desire to do so. There is often a significant gap between individuals' reported knowledge, values, attitudes, and intentions, and their observable behavior – examples of which are the 'knowledge-practice gap' and the 'value-practice gap'. However, household energy consumption is not primarily driven by financial incentives and the rational pursuit of material benefits. Indeed, individuals sometimes respond in unexpected and undesirable ways to rewards and sanctions that aim to change consumers' cost-benefit calculations in favor of sustainable behaviors.

Research method:

The current applied research was descriptive-analytical and quantitative. It used library sources in the descriptive-analytical section and questionnaires in the quantitative and statistical sections. This research presented the questions to some experts, consultants, and managers of the automotive industry organization to check the validity of the questionnaire. They expressed their opinion about the quality of the questionnaire questions. Their positive opinion showed that the questionnaire has formal validity. The calculation of Cronbach's alpha in this research is according to (Table 1).

Table 1: Cronbach's alpha

Index	Alpha
Psychological	0.87
Cognitive	0.81

Since the questionnaire was prepared by the researcher, 10 samples were initially distributed before its wide distribution to obtain the reliability of the questionnaire, and were calculated the reliability of the questionnaire using spss software.

Research variables:

- Dependent variable: consumer behavior
- Independent variables: psychological factors, cognitive factors

Consumer behavior is a continuous variable that shows the approach, attitude, and performance of a person in buying and using goods and services. This variable is scored through a self-made questionnaire with 10 four-choice questions from 1 to 4. The higher the score, the better the consumer behavior.

Psychological and cognitive factors are two independent variables, each of which is scored with 5 four-choice questions from 1 to 4. The higher the score, the greater the presence of the desired factor. The definition of each of these factors is as follows:

Psychological factor: It shows personality characteristics, memory, learning, feelings, and motivation of a person to buy and use goods and services.

Cognitive factor: It represents a person's knowledge, belief, perception, and judgment about goods and services.

Regression model:

Consumer behavior = $\beta_0 + \beta_1 \times$ behavioral economics $+ \beta_2 \times$ psychological factors

Where:

- β_0 is a constant number (intercept) that represents the point of intersection of the model with the y-axis.
- β_1 shows the impact of behavioral economics on consumer behavior.
- β_2 shows the impact of psychological factors on consumer behavior.
- ε is the model error factor that may be caused by uncertain factors and sampling errors.

Research hypotheses

1. Seemingly consumer behavior has an impact on energy economy management.
2. Seemingly psychological factors affect consumer behavior.
3. Seemingly cognitive factors affect consumer behavior.

Findings:

Table (2) shows the descriptive statistics of all research variables for statistical indicators.

Table 2: Descriptive statistics of research variables

Variable	Number	Minimum	Maximum	Mean	Variance	Standard deviation
Energy economy management	234	1	5	92.2	805.0	897.0
Consumer behavior	234	1	4	86.2	485.0	696.0
Psychological factors	234	2	4	83.2	363.0	602.0
Cognitive factors	234	1	3	85.2	369.0	606.0

As Table (2) shows, the variable of energy economy management has the highest average and the social factors variable has the lowest average. Likewise, the variable of energy economy management has the highest dispersion (standard deviation) and the psychological factors variable has the lowest dispersion.

Table 3: Regression analysis of consumer behavior between psychological factors

	Coefficient R	Coefficient of determination or R^2	Correction coefficient	The standard deviation of the error of the estimation equation
1	0.672	0.451	0.449	3.66986

As Table (3) shows, correlation coefficient r = 0.672 and coefficient R^2 = 0.451. It means that the variable of psychological factors can predict 45% of the changes in the variable of consumer behavior.

Table 4: Regression analysis of consumer behavior between cognitive factors

	Coefficient R	Coefficient of determination or R^2	Correction coefficient	The standard deviation of the error of the estimation equation
1	0.456	0.207	0.282	2.88652

As Table (4) shows, correlation coefficient r = 0.456 and coefficient R^2 = 0.207. It means that the variable of cognitive factors can predict 20% of the changes in the variable of consumer behavior.

Table 5: Regression model coefficients

Model		Non-standardized coefficients		Standardized coefficients	T	Sig.	Collinear statistic	
		Beta coefficient	Standard error	Beta coefficient			Tolerance	VIF
1	Constant	197.0	267.0		739	462		

				.0	.0		
Consumer behavior	486.0	078.0	470.0	244.6	000.0	816.0	225.1
Psychological factors	391	073.0	401.0	327.6	000.0	008160.0	225.1
Cognitive factors	389.0	075.0	425.0	125.5	000.0	852.0	215.1

As the beta coefficients and the significance level of the test (Table 5) reveal, the predictive model of energy economy management goes through consumer behavior variables, psychological factors, and cognitive factors:

Energy economy management = consumer behavior (0.470) + psychological factors (0.401) + cognitive factors (0.425)

Psychological factors and cognitive factors, with each unit of standard deviation in consumer behavior, are added to energy economy management by 0.470, 0.401, and 0.425, respectively.

Table 6: Analysis of variance (ANOVA)

Model	Total squares	Degrees of freedom	Mean squares	Value of the test statistic	Significance level
Regression	145.2	5	569.0	289.3	0.000
Remainder	456.30	229	172.0		
Total	601.32	234			

As Table (6) shows, sig=0.000. The ANOVA Table shows that the scores of the F value, and the scores of the predicting variables are effective in predicting the independent variable.

CONCLUSION

This research investigates the effect of psychological factors and cognitive factors on consumer behavior. The results showed that the role of psychological factors on consumer behavior was effective. Factors such as motivation, beliefs, and personal motivations can be effective and encourage consumers to change their behavior to reduce energy consumption. Therefore, psychological factors affect consumer behavior. Likewise, cognitive factors have been effective. As the results show, the consumer's knowledge and awareness about the optimal methods of energy consumption can have an important effect. Education and information can help reduce energy consumption. Therefore, cognitive factors affect consumer behavior.

Economic and social research is complex and time-consuming. This research is no exception. Time limitations may affect the conduct of research and data collection. This research focused on a specific region or country and its results may not be generalizable to other regions. This limitation may affect the validity and reliability of the results.

More comparative subjects should be addressed in the research to examine the influence of cultural, social, and behavioral factors in different countries and regions on energy economy management to improve the generalizability of the results. The use of more advanced analytical models such as behavioral economic models and network models can help to better interpret the relationship between different factors.

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