

## Identifying the Mental Pattern of Housing Demand by grounded Theory: The Cognitive Science Approach

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### Abstract:

One of the main challenges of housing demand is the optimal selection of housing that almost everyone faces. A model that can measure the role and impact of all factors affecting the demand for housing is not presented unambiguously and has not been dramatically formulated explicitly. Considering the centrality of budget, behavioral and control factors in housing demand, the present study seeks to explain and design the mental pattern of consumer demand, capital and housing leases with a cognitive and behavioral approach in Tabriz. The present study is based on the qualitative approach and using the grounded theory method. The data collection method was semi-structured interviews. In order to collect information, an interview was carried out using a targeted sampling method with 12 experts in the field of housing. Data analysis was performed in three stages: open coding, axial coding, selective coding, and a qualitative research model has been designed. The results of this study indicate that extraction of more than 250 codes, along with an inventory of more than 20 concepts and 4 categories, are presented in the form of a paradigmatic model including budget constraints as axial categories and causal conditions (as reasons for selection), underlying factors (physical factor) and interventional conditions (control and behavioral factors).

**Keywords: Housing Demand, grounded Theory, Cognitive Science**

## 1. Introduction:

Housing is one of the basic needs of households, viewed as an economic commodity. Housing is one of the important elements in determining the quality of life, which is the main source of many economic activities (Maher, 1994). Choosing house is one of the most important economic decisions of households because it accounts for the majority of household budgets in consumption and capital forms (MacLennan, 1977), and due to the uncertainty of the future, they play an important role in the economic conditions of the middle and low class households (Coulombel 2010).

Housing applicants focus on one or more elements of housing in their choices due to the major changes and the multidimensionality of housing, and with the changing social conditions and the attitudes of current generations to housing. The low-risk housing sector is considered as a safe and risk-free part for household investment, and households are more confident in investing in this sector than in other sectors. In other words, households focus on choosing the right combination of assets to maximize long-term utility in their decisions, and for the future they will store items in an asset portfolio that will maintain the value of their assets.

In the last few decades, there have been two different approaches to financial issues and financial theories in the subject of investment and about the type of decision-makers. The first approach is the neoclassical approach to financial science, the basic assumption of which is market efficiency and rational behavior of investors in the market. This approach began with the capital asset pricing model (CAPM), the Emerging Markets Theory (EMH) in the 1960s, the mid-term capital asset pricing model, and the Miller and Modigliani Arbitration pricing theory (APT) in the 1970s. As time goes on and do different research, the researchers found many of the movements and disruptions in financial

markets that were not justified by the use of market-based theories. This led to the emergence of a behavioral revolution in financial debates with the 1979 Kahneman and Tversky paper. Theories and financial theories, according to this approach, point out that investment decisions are not only influenced by economic indicators and rationality, but also other factors that have a significant impact on the behavior and type of decisions they make. Among them, people in their decisions try to focus on aspects such as avoiding regret, reluctant effect, mental accounting, representation, stereotyping, luminous behavior, conservatism, and ownership. The explanation of each of the mental and behavioral factors is as follows.

Avoiding regret is an emotional phenomenon that often leads investors to stay loyal to their losing investment opportunities for a long time, in order to avoid mistakes and realization of losses. The basic idea behind this theory is that when a person chooses between two options, he does not just think about the revenues of the choice, but he also thinks about the loss of revenue for not choosing another option. The reluctant effect of this is that investors tend to sell assets that are profitable and keep assets that are lost. In other words, while realizing the profit from asset holdings, investors who are worried about losing profits prefer to sell the asset, and vice versa, when holding the asset that led to losses, the investor prefers to hold the asset until it becomes profitable.

The people's desire to codify, classify, and evaluate economic consequences by grouping them into a set of mental accounts is called mental accounting. In other words, individuals want to consider each components of their portfolio investment separately.

Individuals will consider the probability of occurrence of a phenomenon according to the similarity of the phenomenon with the observed phenomena of the previous one, and decide accordingly, called fluctuating behavior or complaint behavior.

The behavioral pattern is correlated with others who copulate their behavior without intention, which can cause irrational behaviors by individuals, as the massive behavior.

Conservatism is a kind of mental process that makes people look at the views with their past predictions and ignore new information or react less than they need to be conservative. This causes people to overemphasize their initial estimates and thus cannot respond to new evidence as a rational person.

The hypothesis according to which individuals value more than what they own, rather than what they own, called the effect of ownership. In other words, people evaluate it more valuable when they get possession of something (Barberis and Thaler, 2003).

In this context, the mental pattern is one of the methods used in decision making and selection. Models and mental patterns; people's attitudes cover cognitive influences and do not necessarily have a conscious and scientific aspect but are used as effective and hidden stimuli to create a proper attitude toward the problem (Zaubrecher et al., 2016). The subjective models of internal representation of cognitive systems is for interpreting the environment, a better understanding of the individual from the surrounding environment and decision making (Schmid et al., 2017). To this end, a goal is first defined, then the optimal mentality is determined based on the defined model, and among them the changing and effective variables are identified.

Given the importance and role of housing in the economy, considering its impact on the development of countries, the value of consumption (purchase and lease) and its capital, and its simultaneous importance in microeconomics and macroeconomics, identifying the factors affecting household decision making for choosing house (with the aim of investing, buying and hiring) is important in the field of housing and the extraction of their mental pattern, and it has a great importance that this study addresses this issue.

Various studies have been conducted in the field of housing. Previous studies show that Kim and Morrow-Jones (2005), Bayoh et al. (2006) and Lee (2009) studied the factors influencing the choice of residential space in their studies. The results of their studies show that housing costs, home ownership

and household characteristics are important factors in housing location. Also, housing prices, type of building, neighbors' characteristics and availability were also effective factors in this direction.

Also, Sener et al. (2011) in their studies modeled the behavior of choosing residential units using the polynomial Logit model. And the effects of variables such as housing prices, household characteristics, income and properties of neighbors and spatial variables in the model, and the results showed that this method could better assist modeling. Ho et al. (2015) examined the choice of housing by households using the Internet and using the S-shape utility function and fuzzy logic. The results show that the proposed method provides better customer satisfaction with housing choices than manual systems. Bork and Møller (2015), using DMA and DMS methods, tried to predict housing prices as one of the most important and effective factors in choosing housing in 50 US states. They concluded that the best variables are different to predict house prices over time and in different states. Wei and Cao (2017) also predicted housing prices in 30 major cities in China using the DMA method.

The study concluded that there was no indicative predictor of housing prices in China, and prices changed over time, and this result was obtained through the use of the DMA method. According to Aliyeva (2017), regarding the decision to choose a house, because the preferences of individuals are ambiguous, the best method for studying can be the second type fuzzy set. Mei et al. (2018) using a hedonic evaluation, showed that buying a house with high vegetation cover leads to a higher price when compared to homes with low vegetation cover.

Studies in the field of housing demand and extraction of the mental pattern of individuals to identify the important factors affecting their choice and their decision shows that no studies have been done in this regard. To cover and answer the question of this research, we are trying to study consumer demand (purchase, hire) and housing capital. Unlike recent studies, a new method has been used for this study. For this purpose, the grounded theory method is used to extract the mental pattern of

individual in the demand for housing and identify the factors influence choosing house in Tabriz, Iran.

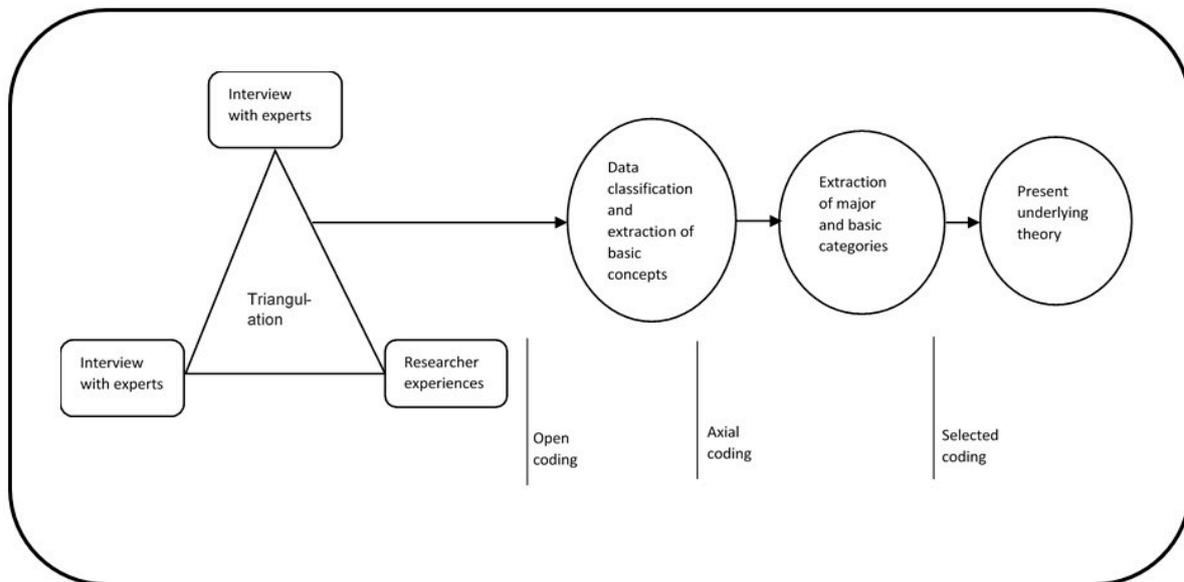
The study is summarized in the next four sections. In addition to a brief explanation of the subject literature, the data grounded theory is presented. Then, the level of the work and the research findings are presented in Sections 3 and 4. Conclusion is presented in the last topic.

## **2. Grounded Theory:**

Grounded theory, the method of research is qualitative, general for the theory production. Grounded theory is an inductive and exploratory research method in the subject areas that researchers use to formulate the theory using it and without relying on existing theories. Data collection and analysis of the data derived from the data are closely related to this strategy. Instead of starting a study with a pre-conceived theory, the researcher began his work with a particular study area, allowing the theory to emerge from the heart of the data (Flick, 2008).

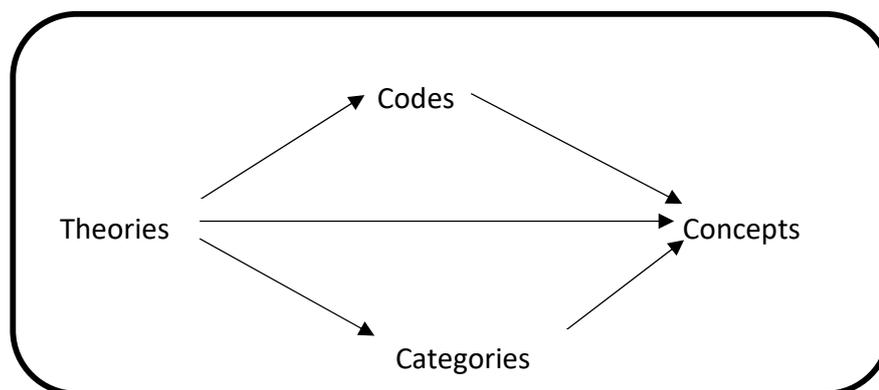
In using this theory, the theory or theories that examine the current situation are designed to be interviewed and to be managed by the interviewee as the information progresses (Corbin and Strauss, 2008). This method of collecting information allows individuals to have a more complete understanding of the research aspects and predict possible points that may be important as a result of the study. This method leads to the emergence of new theories or a combination of existing theories (Qazelah and Emami, 2009). The process of conducting research on the theory of ground processing involves: research questions, notes and data collection, analysis, theoretical sampling and theoretical saturation, writing and compiling the theory, and comparing the texts. The process of analysis begins with open coding and ideally ends in selective coding (Strauss and Corbin, 2006).

Encoding is the main process of constructing and addressing the theory of data (Corbin and Strauss, 1990). The diagram of the research according to the coding steps is presented in figure (1) as below.



**Figure 1:** Encoding steps

Data analysis is also performed as a multi-stage process (Beckman & Kingas, 1999). For analysis, the data should be repeatedly recalled and, by means of this work, the concepts and the main data are obtained. To achieve proper analysis, after identifying the key points, the data is coded, then the assigned code has common axes converted to a set of concepts and is extracted through the grouping of concepts, the categories. Finally, the theory is formulated by mapping the relationships between categories and concepts. This evolution of the theory of data from the data is evident in Chart (2):



**Figure 2:** The evolutionary nature of the data theory

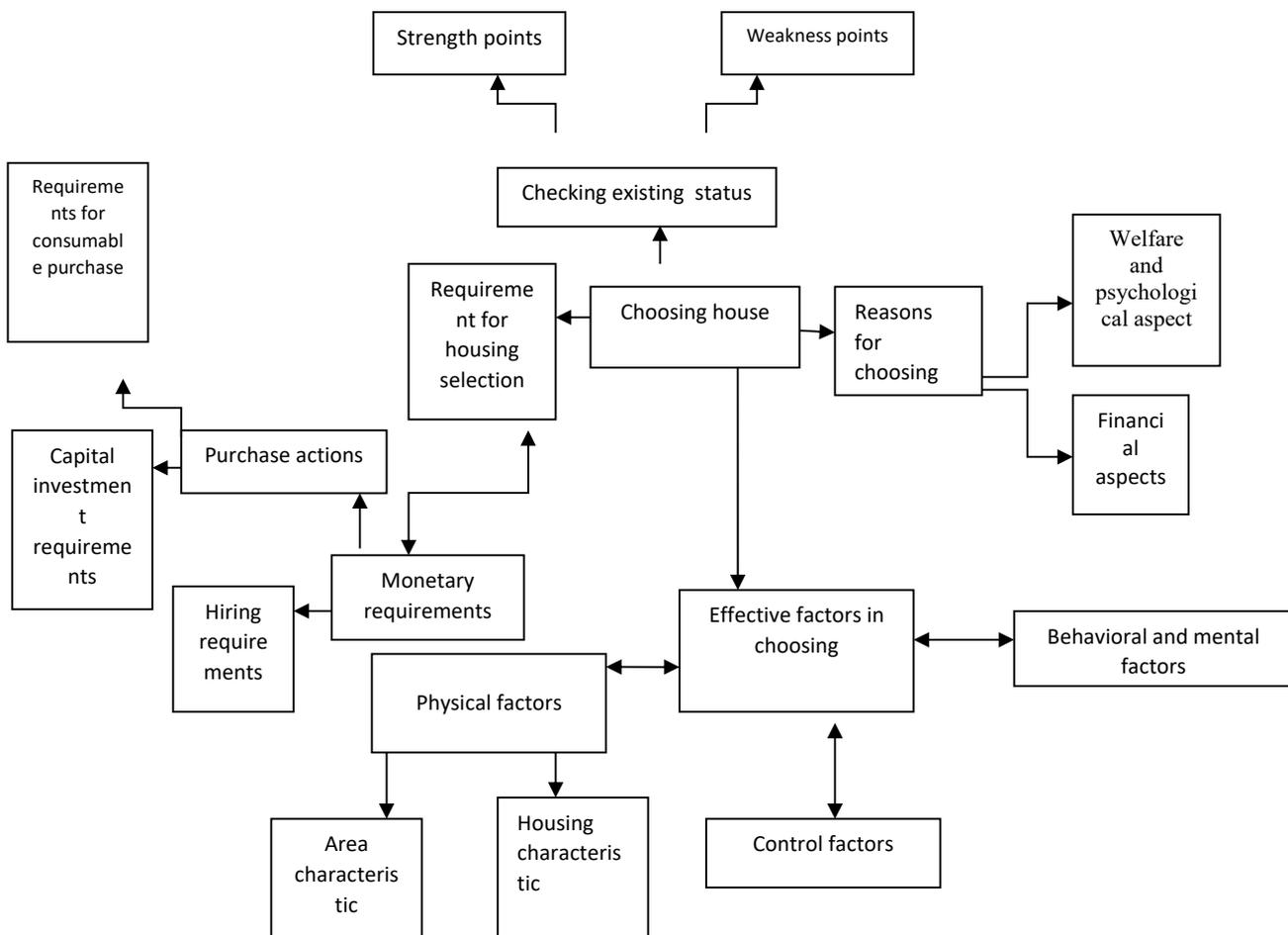
In fact, the grounded theory is one of the methods of conducting qualitative research that attempts to discover the theory by collecting data (Khan, 2014). In general, the main purpose of this method is to explain a phenomenon by identifying the key elements of that phenomenon and then classifying the relations between these elements within the context and the process of that phenomenon. (Corbin and Strauss, 1990)

### **3- Research method:**

The grounded theory research in this study has been elected by designing the main and the minor questions with consideration of previous theories and research, and the interview was selected as a tool for answering questions and high understanding the problem. After selecting the city of Tabriz as a statistical population, sampling was done purposefully and was carried out until accurate information was obtained. After interviewing 12 informed people in the area of housing in Tabriz and ensuring the saturation of new information, coding and the text of interviews were conducted to extract key points. After classifying the information, the analysis of the results was done in order to extract the mental pattern of individuals in choosing house for investment, consumption and hiring.

### **4. Research findings:**

Figure (3) is based on the analysis and thorough study of the interviews. In the following figure, the factors in choosing housing can play an important role in decision making, it is presented in a coherent structure and also the importance of grounded theory in extracting the mental pattern of housing selection in this process.



**Figure 3:** the results of interview

According to figure (3), which is the result of a multi-year experience of experts in the field of housing, the first step in choosing house for the purpose of requesting it from the viewpoint of the participants in the interview is to examine the current situation of the housing market and identify its weaknesses and strengths. This study will help to focus more on solving the leading problems and barriers and making optimal use of available resources to ultimately lead to better choices. Strengths for current housing owners who seek new housing choices can be considered to have the potential for optimal selection and success in this area due to these strengths and if used properly. Among these strengths we can explain the following items: 1. Having the minimum funding required from the current housing estate; 2. Having adequate information on housing in the home; and using that

information in an optimal selection; and 3- Gain experience and enough information about personal tastes in the realm of housing.

In the second step, the housing selection process should take into account the most important housing selection requirements which are monetary requirements. The most important challenge in choosing house is the household budget issue. In addition to household consumption in order to meet their needs, there is a lot of demand in this market for more profit and high incomes due to the low risk and high profits of this sector. If applicants have sufficient budget in this market, they will invest in the housing market or they will most likely prefer to buy housing, that is to say, they will respond to demand for capital and consumption, otherwise, and with insufficient budget, demand for housing will be fulfilled through leasing house.

The third step in choosing house is the reasons for choosing it. By analyzing the information obtained from the interview and studying the studies conducted in this area, the reason for choosing housing by families is twofold: 1- Welfare and psychological aspect and 2- Financial aspect.

### **1- Welfare and psychological aspect**

#### **1-1. Welfare and psychological aspects for investment in housing**

- Stress and pressure from economic instability
- The pressure of people to buy housing
- Stress and pressure from economic instability
- Further prosperity and security caused by the purchase of housing
- Reduced stress and stress caused by tenants

#### **1-2. Welfare and psychological aspects for renting housing**

- More prosperity and security than homelessness

### **2. Financial aspect**

## 1.2 Financial aspects for investment in housing

- To maintain the value of assets (investing to prevent the loss of wealth)
- Profitability resulting from rising housing prices purchased in the future
- Pre-purchase housing to collect money
- Optimal combination of wealth and the use of market shocks for profitability
- Using mortgages purchased money to finance housing purchase
- Maintain asset value
- Profitability resulting from rising housing prices purchased in the future
- Pre-purchase housing for collection and minor savings

## 2.2 Financial aspects for renting housing

- Lack of funds for housing
- Hire housing with higher quality and less budget
- Investing in other markets (markets with higher profitability)
- Using villa housing with little money

The fourth step we investigate and identify the factors affecting the choice of housing. The results of the interview show that the physical factors including the characteristics of the areas and properties related to the desired housing, have been emphasized by the applicants for capital and consumption of housing.

The characteristics of the regions are influenced by various environmental values that are one of the most important environmental values affecting the choice of housing. The following can be mentioned: familiarity with the characteristics of the people in the region (the situation of the inhabitants of the area), cultural and religious habits, proximity to work place, high security, local originality, avoiding congestion and traffic, access to the main street, access to the market, access to urban services, family closeness, access to universities and schools, the luxury of a residential area,

weather conditions, the value of the location of the region in the city, its proximity to the educational and health centers and the quality of urban development in the region.

Housing characteristics and residential environment include building plan, building view, parking, south of the building, heating and cooling system, construction quality and resistance to natural and abnormal accidents, lighting of the building, less unit and more room (bigger area), elevator, location inside the alley (length and width of the alley), new building and ... that are effective in choosing a house.

The interview with the housing department experts also identified the division of behavioral and control factors. The function of the custodians of the housing sector and inflation in this section are controlling variables. Having enough information on the housing market situation and the prediction of expected income and time rates, refers to the effect of the reluctance of the behavioral factor. According to this aspect of behavioral factors, asset owners tend to sell profitable assets and to hold losing assets. The risk factor for the experiences of them refers to the aspect of the behavioral conservatism due to the fact that applicants respond to the experiences of others and make their own decisions and react to their past perspectives and predictions.

Housing applicants will evaluate the probability of inflation in this sector, taking into account inflation in previous periods and comparing events of different periods, and on the basis of which they decide to invest, buy or hire, which refers to the effect of the representative intuition of behavioral factors. In the optimal combining factor of the individual's wealth, he is concerned with the aspect of being away from regret and regret of the behavioral factor. The next factor is business intelligence and individual business power, which is a combination of behavioral factors such as being away from regret and desire effect. In an aspect of distress and regret, the applicant seeks to choose the best option considering its opportunity cost, as well as the applicants with their own business intelligence, they tend to sell profitable assets and hold losing assets, which refers to the

effect of the behavioral factor. In terms of factors such as decision-making power and the level of education, people are choosing to hire housing with low risk and generally high returns in this section, to mimic the behavior of others in this area, which may lead to wrong decisions because of this does not consider all aspects of affairs. These cases refer to the aspect of the behavioral factors.

## **5- Conclusion:**

The present study aims to extract the mental pattern of individuals in the process of choosing house in Tabriz by investing, buying or hiring, using the grounded theory and method of interviewing from experts in the field of housing. The choosing house process begins with a family budget constraint, which, if the household budget does not have the ability to purchase (consumption or capital), is forced to hire, and certainly the choice of consumption and capital will not take shape, but if there is enough budget and decide to choose, then choose from these three models of investing, buying and hiring house. Housing conditions as well as the budget are examined and evaluated. If the conditions are appropriate for each of the choices, the desired choice has been made during this process, the requirements are met and by identifying the different regions and their characteristics as well as the adaptation Individual expectations and mental and behavioral factors are taken step by step according to housing conditions. In Fig. 4, these are briefly summarized as the starting point for the budget constraint.



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