*Finans Ekonomi ve Sosyal Araştırmalar Dergisi Cilt3/Sayı3*
*Research of Financial Economic and Social Studies (RFES)*
*ISSN : 2602 – 2486*

*Makale Geliş Tarihi: 07.05.2018*
*Makale Kabul Tarihi: 17.10.2018*
*DOI :* ***10.29106/fesa.421679***

# KONUT SATIN ALMA KARARIMIZI NASIL VERİRİZ? KASTAMONU'DA BİR ARAŞTIRMA[1]

# HOW WE MAKE OUR HOUSING DECISIONS? A RESEARCH IN KASTAMONU

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**Abstract**:

Generally housing is accepted as a basic human need in economy. This increases the importance of housing in economic decisions. There exist many factors influencing housing decisions of consumers. Meanwhile construction industry has occupied an important place in Turkish economy which performs higher economic growth in recent years. The aim of this research is to investigate housing decisions of Turkish consumers. To this aim, construction industry and housing decisions of consumers are analyzed in this research. Then we conducted a survey in Kastamonu city and analyzed results of this survey. As a result of this research it is revealed that factors about financial, location, exterior and interior design, environment has influenced housing decisions of consumers.

**Keywords**: Housing, Construction Industry, Consumer Decisions

**JEL CODES**: D11, D12

**ÖZET:**

Konut ve barınma genellikle temel insan ihtiyacı olarak kabul görmektedir. Bu da konut kararlarının önemini artırmaktadır. Tüketicilerin konut kararlarını etkileyen çok sayıda faktör bulunmaktadır. Bununla beraber inşaat sektörü son yıllarda yüksek ekonomik büyüme performansı gösteren Türkiye ekonomisi içinde oldukça önemli bir yer kaplamaktadır. Bu araştırmanın amacı Türk tüketicilerin konut kararlarını araştırmaktır. Bu amaçla önce inşaat sektörü ve tüketicilerin konut kararları incelenmiştir. Daha sonra Kastamonu şehrinde bir anket düzenlenerek sonuçları paylaşılmıştır. Bu araştırmanın sonucunda finans, yerleşim, estetik, içsel ve dışsal dizayn, çevre ile ilgili faktörlerin tüketicilerin konut kararlarında etkili olduğu ortaya çıkmıştır.

**Anahtar Kelimeler**: Konut, İnşaat Sektörü, Tüketici Kararları

**JEL Kodları**: D11, D12

[1] This research is the enlarged version of research which is presented in International Social Research Congress 2018 (26-27 April 2018 İstanbul).

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## 1. INTRODUCTION

One of the basic needs of human is to sheltering and living in safety, shortly housing. Adequate housing is significant part of the needs of society (Opoku and Abdul Muhmin, 2010). However buying home is one of the largest spending in household budgets. Most consumers must save money for a long time or borrow to purchase a home. Addition to this, purchasing a house is a good way of investing because of increase in house prices. So purchasing a home is accepted as one of the most important decision for households during their life (Kupke, 2008). Construction industry and related industries have great roles in Turkish economy which performs well after 2002. Turkish construction industry has witnessed strong growth since 2002 and it seems that this grow will continue in future. In developing economy, demand for houses has increased due to gain in wealth of Turkish citizens, urbanization and rise in population. Objectives and values of rational agents play an important role in house purchasing decisions which are made in a dynamic process.

In real estate markets which are economically classified as imperfect, products or houses are not homogenous. Being basic human need, the weight of construction industry in Turkish economy and heterogeneity of houses make purchasing decisions more complex for rational consumers. Many factors such as demographic, financial, neighborhood, interior and exterior design, social and behavioral factors have influences on housing preferences (Abdullah et.al. 2012; Al-Nahdi et.al. 2015). For instance; families with children usually prefer houses with gardens and open spaces instead of inner-city apartments though houses are cheaper than apartments (Carroll et.al. 2010). Motivations of first time home buyer are different from buyers who want to purchase house with an intention to invest (Khan et.al. 2017; Kupke, 2008). Housing can be characterized as a bundle of attributes which are derived from the internal and external characteristics (Chia et.al, 2016; Maoludyo and Aprianingsih, 2015). These characteristics can be classified as macro level and micro level factors (Coolen and Hoekstra, 2001). Purchasing a house requires gathering a lot of information regarding its features, facilities etc. because of its importance in household budget (Kamal et.al, 2016:154). Housing choice has been searched and studied in academic literature in various ways (Wildish, 2015) because knowing market factors which changes attitudes of consumers, creates opportunities for construction and real estate firms (Kamal et.al. 2016) and helps reaching economic targets. Studies about real estate benefit from different disciplines such as sociology, psychology, marketing, economics etc (Al-Nahdi et.al 2015:146).

The purpose of this research is to reveal consumer preferences about housing. To this aim we conducted a questionnaire on Kastamonu city that is capital of Kastamonu region. Although Kastamonu city has rich cultural, historical heritage and natural beauty, its population is lower according to many cities in Turkey. Still, Kastamonu is a developing city which has a population of only 114.131 in 2016 (Açıksöz, 2017). In first part we explore competition in housing and construction industry. After that we reviewed academic literature about housing decisions of consumers. Lastly we shared results of questionnaire and investigate the weight of factors of financial, location, aesthetic and interior design on purchasing decisions.

## 2. Housing and Construction Industry

The importance of construction industry on economic growth of developing countries such as Turkey is generally accepted (Kaya et.al. 2013). This sector is regarded as one of the most powerful economic sector because of its contribution to employment. Contribution of construction industry is not limited with itself; also we should consider related industries which provide inputs to construction industries. These related industries are numerous and variety so that contribution of construction industry is bigger than estimated. Construction industry is named as locomotive of economy because it also triggers demands in subsectors which are more than 200 (Kaya et.al. 2013:150). By this way construction industry play a key role in development and growth of country.

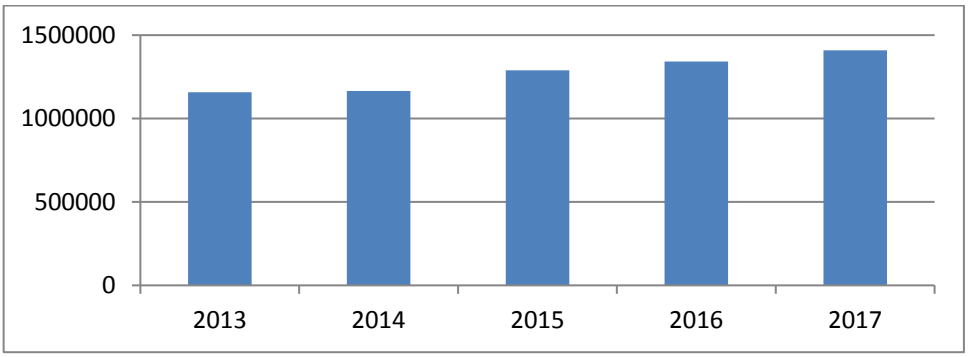
Though construction industry includes fixed capital investments, building investments of firms, public investments such as bridges, airports, highways, schools, hospitals etc. generally it is considered as housing of consumers. Whereas housing sector is a component of the construction industry. Developing countries generally should invest on infrastructure of country if they wanted to grow and develop according to Rostow approach (Kesgingöz and Dilek, 2016). Turkey is a country which is in socio-economic transformation since 2002. Many giant projects and investment such as Yavuz Sultan Selim Bridge, Marmararay Tunnel, Eurasia Tunnel, Third İstanbul Airport, Osmangazi Bridge have been realized in Turkey which grew with more than 4% averagely since 2002. Naturally, revival in construction industry affects also related sectors and whole economy positively.

On the other side in growing economies, consumers increase their house demands due to increase in their incomes. So, housing market is also an important indicator of consumer spending and total wealth. There exist other factors that have influences on house demands such as population, age, number of marriages, urbanization etc.

Population of Turkey has exceeded 80 million (80.810.525) and estimated that it will continue to increase in future (www.tuik.gov.tr). Addition to this urban population rate has increased so that this increase support demand for new houses and construction industry. Population of young people is also significant opportunity for constructors. According to TUİK, people under 25 have a population of 32.016.585 (www.tuik.gov.tr).

An important part of the housing production is realized by the private sector however projects for middle and lower income groups are undertaken by a public organization TOKİ. In 2017, 1.409.314 houses were sold in Turkey while 1.341.453 houses were sold in 2016 (www.tuik.gov.tr). Sale numbers of houses are given in Graph 1. It can easily be seen that sales has been increased between 2013 and 2017.

**Graph 1. Sale numbers of Houses**




Turkish constructors also realized many projects successfully in other countries especially Africa, Turkic Republics, Russia and Middle East.

Housing sector is based on domestic capital, creates high added value, has high employment potential and has a tight relationship with other sectors (Öztürk and Fitöz, 2009:23).

## 3. Literature Review About Construction Industry and Housing

There exist many researches about housing and construction industry in literature. According to Abdullah et.al (2012) there are seven factors (financial, location, neighborhood, developer's reputation, interior design and space, family life, exterior design) have impact on consumer demand. Chia et.al. (2016) claimed that five factors (financial, distance, superstition numbers, environment and house features) are important in housing decision. Attitudes, perceptions, personality and lifestyle are also important factors in deciding houses (Gibler and Nelson, 1998). Another important feature of housing market is intermediaries or real estate agents. Housing market has included uncertainty, asymmetric information problem and transaction costs. Monitoring these factors generally includes costs for consumers. They have to look and travel many houses to find convenient house for them. Therefore buyers have need of Estate agents who have impacts on consumer decisions, decrease transaction and coordination costs (Dilek, 2014).

There are differences between first time home buyers and others. Khan et.al (2017) defined first time home buyer as an individual who did not own any house and have intention to buy a house. First time home buyers want to purchase houses to live inside. However, others generally evaluates buying house as financial investment and prefer to invest on houses which will probably gain value in future.

*Financial Factors*: Consumers generally try to maximize their utility by considering their budget (Akalın and Dilek, 2012). Therefore, financial factors have importance in making housing decisions. Purchasing a house generally occupy one of the highest investment of most household. According to Abdullah et.al (2012), the second most important factor in purchasing a house is financial factor. Kupke (2008:470) mentioned studies which confirm the importance of financial factors such as house prices, rent rises, interest rates in housing decisions. Maoludyo and Aprianingsih (2015) explored that the most important factor for buyers in Depok is prices. Kamal et.al (2016:154) stated that people prefer to buy an apartment from developers than buy land and build own houses in Bangladesh because of high land costs.

*Demographic Factors*: Also demographic factors such as age, marital status affect housing decisions. Baxter and McDonald (2004) stated that delay in marriage can affect home ownership rates of young ages. Couples who have child can prefer houses outside the center of city center because of recreational facilities such as gardens, child parks etc. Apartments in the center of city are insufficient to meet needs of families and children (Carroll et.al. 2011). However, most singles and small families prefer to live in apartments in city center. According to academic researches, divorced couples are unlikely to own houses (Kupke, 2008:470). Levy et.al (2008:287) states that generally men give importance in financial factors and women give importance in interior design familial issues during decision making process. Also income is an important factor that has influences on housing demand. Dökmeci and Terzi (2008:26) explored İstanbul

housing market and found that the rate of single are higher in high income neighborhoods such as Kadıköy and Şişli. Because of this reason small apartments can be chosen in these neighborhoods. Addition to this young people generally prefer to live in neighborhoods out of city center while old people want to live in the center in İstanbul (Dökmeci and Terzi, 2008:103).

*Location (Distance)*: People generally prefer to live close to their work places, offices, relatives, schools, shopping centers etc. Abdullah et.al (2012) revealed that the most important factor in housing decisions is location factor. Levine (1998) claims that the time spent to reach work place is important determinant in house choices. Many researches support the importance of distance to critical places such as business areas, schools, shopping centers (Opoku and Abdul-Muhmin, 2010; Chia et.al. 2016; Tu and Goldfinch, 1996).

*Exterior Design*: Exterior design and architecture of houses can attract and convince many buyers. Chia et.al. (2016:97) mentioned that consumers consider about house features which include interior and exterior design while making decisions. For instance; the comfortable life style which is surrounded by green spaces, parks etc. in the modern housing sites has attracted middle and high income families in İstanbul. This is the reason of decentralization in İstanbul (Dökmeci and Terzi, 2008). Opoku and Abdul Muhmin (2010:225) stated that developers should be aware of the important attributes when designing houses and neighborhoods that will meet needs of targeted social classes.

*Developer's Reputation*: Mostly, house buyers are informed about the quality of houses, quality of inputs used in. Some houses are sold before the finishing of construction so buyers can't be sure that construction will be finished in time. Because of this reasons reputation, brand and history of developers are important factor for consumers (Chia et.al. 2016).

*Interior Design (Architecture)*: Interior designs are also attracts households in making housing decisions. Generally, the importance of interior design comes from culture which includes society's beliefs, values, ethics, customs, shared meanings, rules, rituals, norms and traditions (Gibler and Nelson, 1998:16). For example; generally Turkish families prefer to live in houses with big kitchens because women generally waste of their time on kitchen and they need large spaces for tomato paste, canned food and kitchen tools in traditional Turkish families. Generally big families want to live in large houses with many rooms while singles or small families prefer small houses with one or two rooms. Opoku and Abdul-Muhmin (2010) explore that Saudi households give importance in living spaces while making housing decisions. Living spaces includes issues like size of living room and kitchen, number of bedrooms and bathrooms. Barua et.al (2010:244) stated that rising of western culture attract consumers more to purchase apartments. Dökmeci and Terzi (2008:86) stated that size of house, size of hall, number of bathrooms and floor has attracted consumer preferences.

*Environment*: Consumers generally care about environmental conditions which include neighborhood, attractiveness of the area, quality and type of neighboring houses, density of housing, wooded area or tree coverage, slope or topography of the land, attractive views, open space, non-residential uses in the area, vacant sites, traffic noise, level of owner occupation in neighborhood, level of education and income in neighborhood, security from crime, quality of schools, religious composition of neighborhood (Chia et.al. 2016:98). According to Jarvis (2003:603) families prefer attractive places in which to live, work, socialize and raise families.

*Marketing In Sales of Houses*: One of the factors which affect purchasing decision of the consumers is the marketing activities that the companies competing in the real estate sector. We mean real estate project, price, distribution and promotion of the project by marketing activities. However, If produced real estate projects are similar to each other, advertisements and efforts of sales consultants will be more effective in consumer decisions. Today, a significant part of TV advertisements which still remain important in terms of audiences reached are consists of real estate advertisements. These advertisements are trying to persuade target consumers by giving information about location, distance to public transportation, shopping and social facilities, contribution to the quality of individuals life, social status etc. In order to increase the effectiveness of advertisements, famous artists, athletes or players are used in the national or international arena. Also sale consultants have a great influence on attracting consumer purchasing decisions. Sales consultants who have developed themselves on sales and communication techniques can affect the purchasing decisions of unstable consumers. Therefore, corporate firms consider employees to be competent in sales and communication techniques and send them to trainings at regular intervals. Sales consultants improve themselves in persuading consumers to earn more. Another tool used by firms is promotions. Companies present a number of products such as vacation, electronic devices and furnitures etc. to consumers.

The main purpose of the advertisements of the housing sector is to gain the trust of consumers. Trust is an important factor in attracting consumers. This goes with institutionalization (Su and Kaplan, 2017:8). An important point that needs to be mentioned here is that there are misleading advertisements in sector.

There is a significant image problem with the real estate sector due to the fact that presence of pensioners, job seekers, gatekeepers or part time real estate agents (Çengel, 2006:127). Consumers are advised to conduct detailed research on the legal status of the firm, the properties of the project and the most importantly legal rights they have.

## 4. Method

To get information about housing demand in Kastamonu we conducted a survey. In first part of survey we asked demographic questions such as age, gender, education, income etc. Then in second part we asked questions about factors that can be affective on housing demand in Kastamonu by using five Likert scale. These factors are financial, location, exterior design, fame of developer, interior design and environment. In preparing questions about these factors we used previous researches. In Kastamonu city approximately 115.000 people is living. Küçük (2016:95) stated that 384 samples are required for population of 1 million in order to produce 95% confidence level in the analysis. Surveys are conducted in four main points of city which are Nasrullah Square, Republic Square, Çengeller Bridge, Barutcuoğlu Shopping center. Though 432 participants answered questions, after eliminating faulty questionnaires we analyzed 407 of them.

## 5. FINDINGS

The results about demographic questions are given in Table 1. Most of participants are between 18 and 45 ages. 31,4% of participants are between 26 and 35 ages while 26,5% of them are between 18 and 25 ages. The third age group is 36- 45 ages group which includes 21,4% of participants. The ratio of males and females are close to each other. Approximately 51,4% of participants are male and 48,6% of them are female. More than half of participants are working in private sector while 18,4% of them are entrepreneur and have own business. Member numbers of households are generally 3 or 4 persons. 22,4% of participants live in 3 person families and 32,7% of them live in 4 person families. Probably crowded families have different housing needs. 38,1% of participants have income a little more than minimum wage (1500 TL). More than one third of participants (35,9%) have less income than 1500 and this is not surprising in Kastamonu which is developing province of Turkey. Most of participants are graduated from Lycee (40,1%) and Faculties (37,1%). More than half of participants have own houses (51,6%). Approximately half of participants are married.

**Table 1. Demographic Results**

| Ages | F | % | Gender | F | % |
|---|---|---|---|---|---|
| 18-25 Ages | 108 | 26,5 | Male | 209 | 51,4 |
| 26-35 Ages | 128 | 31,4 | Female | 198 | 48,6 |
| 36-45 Ages | 87 | 21,4 | Total | 407 | 100 |
| 46-55 Ages | 53 | 13,0 | Person lived in same house | F | % |
| 56-65 ages | 17 | 4,2 | 1 person | 27 | 6,6 |
| 66+ | 14 | 3,5 | 2 persons | 52 | 12,8 |
| Total | 407 | 100 | 3 person | 91 | 22,4 |
| Occupation | F | % | 4 persons | 133 | 32,7 |
| Public Sector | 23 | 5,7 | 5 persons | 56 | 13,8 |
| Private Sector | 215 | 52,8 | 6 persons | 30 | 7,4 |
| Entreprenur, own business | 75 | 18,4 | 7+ persons | 18 | 4,3 |
| Not working | 94 | 23,1 | Total | 407 | 100 |
| Total | 407 | 100 | Education | F | % |
| Income | F | % | Primary School | 73 | 17,9 |
| Less than 1500 | 146 | 35,9 | Lycee | 163 | 40,1 |
| 1501-2500 TL | 155 | 38,1 | Graduation | 151 | 37,1 |
| 2501-3500 TL | 56 | 13,8 | MBA/ Doctorate | 20 | 4,9 |
| 3501-4500 TL | 42 | 10,3 | Total | 407 | 100 |
| 4501 + TL | 8 | 1,9 | Marital status | F | % |
| Total | 407 | 100 | Single | 172 | 42,3 |
| Having House | F | % | Married | 203 | 49,9 |
| Yes | 210 | 51,6 | Widow/ widower | 32 | 7,8 |
| No | 197 | 48,4 | Total | 407 | 100 |
| Total | 407 | 100 | | | |

After demographic questions we asked about financial factors that may influence house demand. These questions are prepared by the help of Abdullah (et.al. 2012). Questions and it's skewness and kurtosis values are presented in Table 2. We also searched it's reliability by Cronbach Alfa and found coefficient as 0,778. Küçük (2016:232) stated that if Cronbach Alfa coefficient is between 0,60 and 0,80 it is reliable enough. As it can be seen the highest value is

due to price. Also we witnessed that skewness and kurtosis values are between -1 and 1 except question B1. According to Morgan (et.al. 2004:49) if skewness and kurtosis values are between -1 and +1, statistics can be considered as normally distributed so parametric tests can be used in analyzing. Average of total (Total B) has also skewness and kurtosis between -1 and +1 so parametric tests can be used while using Total B in analysis. Questions B1, B2 and B3 have averages bigger than 3,67 while B4 and B5 have average very close to 3,67. According to Küçük (2016:239) if averages are higher than 3,67 it can be evaluated as high level.

**Table 2. Financial Factors**

| | MEAN | SKEWNESS | KURTOSIS |
|---|---|---|---|
| B1: Price of house you think to purchase affects House demand | 4,12 | 1,349 | 2,385 |
| B2: Financial opportunities of house you think to purchase affects house demand | 3,82 | -0,861 | 0,528 |
| B3: Interest rates for loans to buy a house affect house demand. | 3,77 | -0,724 | 0,185 |
| B4: Expectation of house to gain value affects house demand. | 3,57 | -0,644 | -0,226 |
| B5: Rent income of house you think to purchase affects house demand | 3,62 | -0,687 | -0,206 |
| TOTAL B | 3,775 | -0,682 | 0,909 |

In our analysis we searched whether there are differences between groups.

H1: Total Financial factors affecting house demand differs according to age. Total financial factors can be evaluated as normally distributed so we used parametric test (One Way Anova). As a result of Anova test, it is found that there are differences between age groups (F:3,924 and Sig:0,002). To determine which groups cause these differences we decided to apply post hoc tests. Results of Levene test showed that variances are homogeneous (Levene: 0,777, sig:0,567). Therefore we decided to use Tukey HSD test and found that there are differences between 26-35 age group and 66+ age group. The mean of 26-35 age group is 3,9797 while 66+ age group has 3,2857 mean. Means of other age groups are as below. 18-25 age (Mean:3,7407), 36-45 age (Mean:3,7356), 46-55 age (Mean:3,6415), 56-65 age (Mean:3,4824). These means show that as age increase total financial factors decrease. This result may be caused by lack of expectation of olds. It is important to care on that only difference between 26-35 age group and 66+ age group are statistically significant at 5% level. Though there are differences between older ages and younger ages, they are not significant at 5% level.

H2: Total Financial factors affecting house demand differs according to education level. To test this hypothesis we applied One Way Anova test. As a result it is found that there are not statistically significant differences between education levels (F:1,592 and Sig:0,191) at 5% level. The means are as below. Primary school graduates (Mean:3,6027), Lycee graduates (Mean:3,7939), Faculty graduates (Mean:3,8397), MBA and Doctorate graduates (Mean:3,77).

H3: Total Financial factors affecting house demand differs according to income level. We again used One Way Anova to test this hypothesis and according to result (F:3,385 and sig:0,010) we accept it. To reveal which groups differ we used post hoc tests. Results of Levene test encourages us to apply Tukey HSD test (Levene:1,903 and Sig:0,109). Tukey HSD test shows that there are differences between income level higher than 4501 TL and other income levels. The means are as below. Income lower than 1500 TL (Mean:3,8137), income between 1501 and 2500 TL (Mean:3,80), income between 2501 and 3500 TL (Mean:3,7643), income between 3501 and 4500 TL (Mean:3,7524), income higher than 4501 TL (Mean:2,80). Results say that as income increase consumers less care about financial factors while purchasing house, unsurprisingly. The highest score is due to income level with lower than 1500 TL while the highest score is due to income higher than 4500 TL.

H4: Total Financial factors affecting house demand differs according to marital status. One Way Anova test is used to analyse this relationship. Results encourages us to reject this hypothesis (F:0,896 and sig:0,409). Singles have mean of 3,8233 while marrieds have mean of 3,7241 and widows/widowers have 3,8438. These averages are not significant at 5% level.

H5: Total Financial factors affecting house demand differs according to occupation. We applied One Way Anova test to test this hypothesis. As a result of this test we reached that there are differences in groups (F:4,167 and Sig:0,006). Because of the results of Levene test we accept the homogeneity of variances (Levene:1,342 and Sig:0,260). Homogeneity of variances makes us to use Tukey HSD test and found that there are differences between participants working in private sector and non-workers. Means are as below. Public sector (Mean:3,6261), Private Sector (3,8940), entrepreneurs (3,7280) and non-workers (3,5787). Researchers should study about the reasons of this hypothesis.

H6: Total Financial factors affecting house demand differs according to gender. We benchmark two groups (males and females) and therefore we decided to use Independent Sample T test. Results show that there are not significantly difference between two groups (t:-0,187 and Sig:0,852) at 5% level. Means of males are 3,7684 while means of females are 3,7828. We reject this hypothesis.

H7: Total Financial factors affecting house demand differs according to ownership of houses. Again we used Independent Sample T Test because we study on participants who has house and who has no houses. We rejected according to results of this test (t:-0,517 and sig:0,606). The mean of participants who has houses is 3,7562 and who has no houses is 3,7959.

Consumers also care about proximity of houses to important places while purchasing houses. To analyse location factor we asked questions about location factors by benefiting study of Abdullah (et.al. 2012). Questions C2, C3, C4 and C5 have averages higher than 3,67 and according to Küçük (2016:239) these averages have high level. Also average of Question C1 is very close to 3,67. Average of total location factor is 3,757 which is bigger than 3,67. All skewness and kurtosis values of questions and also total location factor are between -1 and +1. So they can be accepted as normally distributed (Morgan et.al. 2004:49).

**Table 3. Location Factors**

| | MEAN | SKEWNESS | KURTOSIS |
|---|---|---|---|
| C1: Proximity of house to working places affects house demand | 3,57 | -0,527 | -0,341 |
| C2: Proximity of house to schools affects house demand | 3,73 | -0,641 | -0,309 |
| C3: Proximity of house to shopping areas affects house demand | 3,73 | -0,767 | 0,037 |
| C4: Proximity of house to city center affects house demand | 3,80 | -0,758 | -0,023 |
| C5: Proximity of house to main roads and mass transportation affects house demand | 3,95 | -0,898 | 0,440 |
| Total Location | 3,757 | -0,626 | 0,327 |

H8: Total location factors affecting house demand differs according to age. We used parametric test, One Way Anova to query whether there are differences between age groups. One Way Anova reveals that there are differences between age groups (F:2,906 and Sig:0,014). To analyse which age groups differ we should use post hoc tests. Levene test shows that variances are homogenous (Levene:0,316 and Sig:0,903). Because of this homogeneity, Tukey HSD test helps us to reveal which groups differ. Age groups 46-55 and 36-45 have statistically significant differences at 5% level. Means are as below. 18-25 age group (Mean:3,6242), 26-35 age group (Mean:3,8766), 36-45 age group (Mean:3,9103), 46-55 age group (Mean:3,4792), 56-65 age group (Mean:3,5294) and 66+ age group (Mean:3,8286). As it can be seen 46-55 age group and 56-65 age group has lower averages than other age groups so they give less importance to location of houses according to other age groups. This difference can be caused by familial or other reasons. The significant difference between 46-55 and 36-45 age groups should be studied in further studies.

H9: Total location factors affecting house demand differs according to education. One Way Anova test reveals that there are differences between education levels (F:8,687 and Sig:0,000). To reveal which groups differ from each other we first test homogeneity with Levene test and then decide which test should be used in. According to Levene test results (Levene:3,567 and Sig:0,014) variances are not homogeneous and therefore we used Tamhane's test. According to Tamhane's test, Primary school graduates have low averages and they give less importance to location while deciding house purchase. Means are as below. Primary school (Mean:3,3014), Lycee graduates (Mean:3,8589), Faculty graduates (Mean:3,8490), MBA or Doctorate (Mean:3,90). The differences between Primary school graduates and other education levels have significant difference at 5% level. Most probably primary school graduates generally have less income according to other education levels and think that houses close to central places are more expensive. Because of that reason they care about other factors instead of location factors.

H10: Total location factors affecting house demand differs according to income level. We used One Way Anova to test this hypothesis and found that there is significant difference between income levels (F:3,209 and Sig:0,013). We tested homogeneity of variances by using Levene test and found that variances are homogeneous (Levene:0,882 and

Sig:0,474). Tukey HSD test shows that participants who have income lower than 1500 TL differ from other income groups significantly at 5% level. Means are as below. Income lower than 1500 TL (Mean:3,5808), Income between 1501 and 2500 TL (Mean:3,8684), Income between 2501 and 3500 TL (Mean:3,8036), Income between 3501 and 4500 TL (Mean:3,9667) and Income higher than 4501 TL (Mean: 3,7572). It is normal for low income groups to focus on price and other economic factors instead of location factor.

H11: Total location factors affecting house demand differs according to marital status. We used One Way Anova test and results encourages us to reject this hypothesis (F:0,929 and sig:0,396). Means are as below. Singles (Mean:3,8163), Married (Mean:3,6985), Widows/Widowers (Mean:3,8125).

H12: Total location factors affecting house demand differs according to occupation. We applied One Way Anova test for this hypothesis. Results make us to reject this hypothesis (F:1,994 and Sig:0,114). Means are as below. Public sector (Mean:3,9826), Private Sector (3,7991), entrepreneurs (3,7867) and non-workers (3,5840). Though non-workers have less average than other groups this difference is not significant at 5% level.

H13: Total location factors affecting house demand differs according to gender. We benchmark two groups (males and females) by using Independent Sample T test. We accept this hypothesis by considering results of T test (t:-2,145 and Sig:0,033). Means of males are 3,6679 while females have 3,8515. Females generally care about school of child, shopping of house and therefore the results are not surprising.

H14: Total Financial factors affecting house demand differs according to ownership of houses. We used Independent Sample T Test because we study on participants who has house and who has no houses. This hypothesis is accepted by considering results (t:-3,101 and sig:0,002). The average of house owners is 3,6295 while the average of non-house owners is 3,8934. Non-House owners generally want to purchase their first house and of course it is not surprising that they have higher expectations.

People also care about exterior design of houses such as garden, appearance, isolation and exterior walls, autopark etc. To search these factors we prepared questions by benefiting from Zeng (2013:142). Mean, Skewness and Kurtosis values are shared in Table 4. Questions D2, D3, D4 and D5 have mean higher than 3,67 and they can be evaluated as high level according to Küçük (2016:239). Addition to this, all skewness and kurtosis values are between -1 and +1. So they can be accepted as normally distributed (Morgan et.al. 2004:49). Also total exterior design has skewness and kurtosis values between -1 and +1.

**Table 4. Exterior Design Factors**

| | MEAN | SKEWNESS | KURTOSIS |
|---|---|---|---|
| D1: External Appearance of house affects house demand. | 3,61 | -0,628 | -0,246 |
| D2: Garden and size of garden in house affect house demand | 3,78 | -0,731 | -0,093 |
| D3: External walls and isolation of house affects house demand | 3,68 | -0,544 | -0,429 |
| D4: External areas such as entrance of apartment, elevator space affects house demand | 3,83 | -0,746 | 0,023 |
| D5: Presence of Autopark in house affects house demand | 3,91 | -0,992 | 0,734 |
| D6: Security in the external door of house affects house demand | 3,65 | -0,662 | -0,624 |
| Total Exterior Design | 3,74 | -0,518 | 0,119 |

H15: Total Exterior Design factors affecting house demand differs according to age. One Way Anova is used to search whether there are differences between age groups. Results show that there is not differences between age groups (F:0,565 and Sig:0,727). Means are as below. 18-25 age group (Mean:3,7145), 26-35 age group (Mean:3,8164), 36-45 age group (Mean:3,7625), 46-55 age group (Mean:3,6519), 56-65 age group (Mean:3,7647) and 66+ age group (Mean:3,5357). We reject this hypothesis.

H16: Total Exterior Design factors affecting house demand differs according to education level. One Way Anova test is a tool for query whether there is difference between education levels. We accept this hypothesis because of results of Anova (F:5,612 and Sig:0,001). We tested homogeneity of variances by Levene test to decide tests which give us significantly different education levels. We accept homogeneity because of Levene test results (Levene:0,478 and Sig:0,698). Tukey HSD test reveals that firstly primary graduates and Faculty graduates differ and secondly primary graduates and postgraduates. Means of education levels are as below. Primary graduates (Mean:3,4749), Lycee

graduates (Mean:3,6953), Faculty graduates (Mean:3,8863) and Post graduates (Mean:4,0583). High educated participants generally give more importance to details such as security, autopark, garden etc. than low educated participants.

H17: Total Exterior Design factors affecting house demand differs according to income level. We used One Way Anova test to query whether there is difference between groups. We reject this hypothesis (F:1,709 and Sig:0,147). Means are as below. Income lower than 1500 TL (Mean:3,6678), Income between 1501 and 2500 TL (Mean:3,7183), Income between 2501 and 3500 TL (Mean:3,8363), Income between 3501 and 4500 TL (Mean:4,0079) and Income higher than 4501 TL (Mean: 3,9445). Though participants with high income levels have higher average this difference is not significant at 5% level.

H18: Total Exterior Design factors affecting house demand differs according to marital status. We used One Way Anova test and it is found that there is no significant differences at 5% level (F:1,006 and sig:0,367). We reject the hypothesis. Means are as below. Singles (Mean:3,7868), Married (Mean:3,6905), Widows/Widowers (Mean:3,8594).

H19: Total Exterior Design factors affecting house demand differs according to occupation. One Way Anova test is used to test this hypothesis (F:0,955 and Sig:0,414) and reject this hypothesis. Means are as below. Public sector (Mean:3,7246), Private Sector (3,7612), entrepreneurs (3,8400) and non-workers (3,6348). Though non-workers have less average than other groups this difference is not significant at 5% level.

H20: Total Exterior Design factors affecting house demand differs according to gender. Independent Sample T tests help us benchmarking males and females. We accept this hypothesis by considering results of test (t:-3,185 and Sig:0,002). Means of males are 3,6212 while females have 3,8746. Females generally have wasted more time in houses therefore details are more important for females.

H21: Total Exterior Design factors affecting house demand differs according to ownership of houses. Independent Sample T test helps us benchmarking participants own houses and participants who don't own houses. This hypothesis is rejected (t:-0,123 and Sig:0,902). The average of house owners is 3,7397 while the average of non-house owners is 3,7496.

We also investigate the effect of developer's fame on house demand by questions in Table 5. The questions are prepared by looking at Abdullah et.al (2012). All questions have average more than 3,67 so that they are evaluated as high level (Küçük, 2016:239). Except E3, skewness and kurtosis value of all questions are between -1 and +1. Skewness and kurtosis value of Total fame of developer is between -1 and +1 so that parametric tests can be used in researches (Morgan et.al. 2004:49).

**Table 5. Fame of Developer**

| | MEAN | SKEWNESS | KURTOSIS |
|---|---|---|---|
| E1: Fame of Developer affects house demand | 3,94 | -0,889 | 0,334 |
| E2: The probability not to give house in time and with wanted quality affects house demand. | 3,95 | -0,990 | 0,787 |
| E3: The fact that known people have bought before from the developer affect house demand | 3,97 | -1,010 | 0,401 |
| Total Fame of Developer | 3,955 | -0,886 | 0,704 |

H22: Total fame of developer affecting house demand differs according to age. Due to results of One Way Anova test we accepted hypothesis (F:3,308 and Sig:0,006). We decided to use Tukey HSD test because of the results of Levene test (Levene: 0,435 and Sig:0,824). Tukey HSD test results show that 36-45 age group and 18-25 age group has differed significantly at 5% level. Means are as below. 18-25 age group (Mean:3,7438), 26-35 age group

(Mean:3,8932), 36-45 age group (Mean:4,1762), 46-55 age group (Mean:4,0692), 56-65 age group (Mean:4,0588) and 66+ age group (Mean:4,1143). Though the significant difference is between only 18-25 age group and 36-45 age group it is observed that participants older than 36 have higher average (bigger than 4). Most probably older persons generally observed more corruption, bribe etc. during their life and therefore they became more insecure and behave carefully while purchasing.

H23: Total fame of developer affecting house demand differs according to education level. One Way Anova test reveals that there is not significant difference between education groups (F:0,861 and Sig:0,461). We rejected this hypothesis. Means of education levels are as below. Primary graduates (Mean:3,8356), Lycee graduates (Mean:4,0102), Faculty graduates (Mean:3,9382) and Post graduates (Mean:4,0567).

H24: Total fame of developer affecting house demand differs according to income level. We decided to reject this hypothesis because of results (F:1,254 and Sig:0,287). Means are as below. Income lower than 1500 TL (Mean:3,8836), Income between 1501 and 2500 TL (Mean:4,0581), Income between 2501 and 3500 TL (Mean:3,8869), Income between 3501 and 4500 TL (Mean:3,9762) and Income higher than 4501 TL (Mean: 3,9250).

H25: Total fame of developer affecting house demand differs according to marital status. It is revealed that there are significant differences between groups. To determine which groups differ we firstly applied Levene Test and decided that variances are homogeneous (Levene:2,001 and Sig:0,137). Due to homogeneous of variances we applied Tukey HSD test and reached that there are significant differences between a) Singles and marrieds, b) Singles and widows/widowers. Means are as below. Singles (Mean:3,8062), Married (Mean:4,0312), Widows/Widowers (Mean:4,1708). Married participants don't only care about himself/herself but also his/her family. So it can be estimated that they behave more carefully. Widows and widowers think that they feel themselves lonely and unsafe. Therefore they try to behave carefully while purchasing and chose known developers.

H26: Total fame of developer affecting house demand differs according to occupation. One Way Anova results make us reject this hypothesis (F:0,586 and Sig:0,626). Means are as below. Public sector (Mean:4,0580), Private Sector (3,9333), entrepreneurs (4,0484) and non-workers (3,9043).

H27: Total fame of developer affecting house demand differs according to gender. By the help of Independent Sample T test results we accept this hypothesis (t:-3,784 and Sig:0,000). Males (Mean:3,8038) and Females (Mean:4,1145). Females generally can't feel themselves in safe and they don't want to lose money while purchasing house. Therefore they give more importance to fame of developer and try to purchase houses from known developers.

H28: Total fame of developer affecting house demand differs according to ownership of houses. Independent Sample T test shows that differences between house owners and non-house owners are not significant at 5% level (t:1,828 and Sig:0,068). Though there are differences between two groups they are not statistically significant at 5% level. House owners have mean of 4,0286 and non-house owners have 3,8765.

People also care about interior design of houses. For instance; most of people wants to live in large houses, some of them want to live in flats in second or third floor, some of them wants bathrooms near their bedroom etc. We also investigate these factors by asking questions in Table 6. Questions are prepared by considering the research of Abdullah et.al. (2012). All questions have average higher than 3,67 and this shows that participants give high level importance to interior design factors (Küçük, 2016:239). Another important result is that generally skewness and kurtosis values of questions are not between -1 and +1. So we evaluate them not normally distributed (Morgan et.al. 2004:49).

**Table 6. Interior Design**

| | MEAN | SKEWNESS | KURTOSIS |
|---|---|---|---|
| F1: The Size of house affect house demand | 4,08 | -1,213 | 0,983 |
| F2: The Floor of House affects house demand | 3,86 | -0,969 | 0,172 |
| F3: The Interior Design of House affects house demand | 4,09 | -1,177 | 1,041 |
| F4: The number of bathroom and bedroom affects house demand | 4,15 | -1,445 | 2,390 |
| F5: The type and quality of finishing affects house demand | 4,02 | -0,944 | 0,342 |
| F6: The size of kitchen affects house demand | 4,09 | -1,066 | 0,780 |
| Total Interior Design | 4,04 | -1,189 | 1,651 |

H29: Total Interior Design affecting house demand differs according to age. We used non parametric test for this hypothesis. According to Kruskal Wallis test the hypothesis is accepted (Chi Square:14,081 and Sig:0,015). Means are as below. 18-25 age group (Mean:3,8472), 26-35 age group (Mean:4,1641), 36-45 age group (Mean:4,1935), 46-55 age

group (Mean:4,0786), 56-65 age group (Mean:4,0392) and 66+ age group (Mean:3,5357). Results show that younger age (18-25) and older age (66+) groups give less important to interior design. Middle age groups care about interior design of houses.

H30: Total Interior Design affecting house demand differs according to education level. Kruskal Wallis test results show that there is no significant difference between education levels (Chi Square:7,314 and Sig:0,063) at 5% level. Means of education levels are as below. Primary graduates (Mean:3,9059), Lycee graduates (Mean:4,0593), Faculty graduates (Mean:4,1887) and Post graduates (Mean:3,8833). Though there is difference between education level, this difference is not significant at 5% level. Primary graduates and post graduates have less expectation from interior designs of houses.

H31: Total Interior Design affecting house demand differs according to income level. We accept this hypothesis (Chi Square:20,122 and Sig:0,000) at 5% level. Means are as below. Income lower than 1500 TL (Mean:3,8219), Income between 1501 and 2500 TL (Mean:4,1570), Income between 2501 and 3500 TL (Mean:4,2440), Income between 3501 and 4500 TL (Mean:4,1706) and Income higher than 4501 TL (Mean: 4,0625). Lower income group has less expectation about interior design of houses. Most probably they are aware that as interior design of house increase also its price increase too.

H32: Total Interior Design affecting house demand differs according to marital status. Scores of Kruskal Wallis test makes us reject this hypothesis (Chi Square:3,488 and Sig:0,175) at 5% level. Means are as below. Singles (Mean:3,9583), Married (Mean:4,1100), Widows/Widowers (Mean:4,1406).

H33: Total Interior Design affecting house demand differs according to occupation. We rejected this hypothesis at 5% level (Chi Square:6,593 and Sig:0,086). Means are as below. Public sector (Mean:3,8913), Private Sector (4,0992), entrepreneurs (4,2012) and non-workers (3,8475).

H34: Total Interior Design affecting house demand differs according to gender. We used Mann-Whitney test to benchmark males and females. Because of results we accept this hypothesis (Mann-Whitney U:17181,500 and Sig:0,003). Males (Mean:3,9457) and Females (Mean:4,1555). Females waste more time inside of houses to cook, cleaning, taking care of child etc. Therefore the results are not surprising.

H35: Total Interior Design affecting house demand differs according to ownership of houses. We rejected this hypothesis (Mann-Whitney U:19607,500 and Sig:0,361) at 5% level. House owners (Mean:4,0087) and non-house owners (Mean:4,0905).

We also investigate the affect of environment factors in house demand. To this aim we asked questions about environment as it can be seen in Table 7. These questions are prepared by the help of research of Tan (2016:26). Question G4 and G5 have average higher than 3,67 so that they can be evaluated as having high level. Other questions (G1, G2 and G3) have very close average to 3,67. Also skewness and kurtosis values are between -1 and +1 so that we can accept that they are distributed normally (Morgan et.al. 2004:49).

**Table 7. Environment**

| | MEAN | SKEWNESS | KURTOSIS |
|---|---|---|---|
| G1: Neighbours affect house demand | 3,51 | -0,497 | -0,166 |
| G2: Area attractiveness affect house demand | 3,47 | -0,710 | -0,104 |
| G3: Silence being not noisy affect house demand | 3,61 | -0,629 | -0,296 |
| G4: Low criminal rates affect house demand | 3,77 | -0,737 | -0,200 |
| G5: Not air pollution affect house demand | 3,99 | -0,996 | 0,481 |
| Total Environment | 3,67 | -0,917 | 0,424 |

H36: Total Environment factor affecting house demand differs according to age. Due to One Way Anova Test results we reject this hypothesis at 5% level (F:0,822 and Sig:0,535). Means are as below. 18-25 age group (Mean:3,6241), 26-35 age group (Mean:3,6953), 36-45 age group (Mean:3,6023), 46-55 age group (Mean:3,6604), 56-65 age group (Mean:3,9802) and 66+ age group (Mean:3,8714).

H37: Total Environment factor affecting house demand differs according to education level. There is not significant differences between education levels at 5% level (F:1,340 and Sig:0,261). Means of education levels are as below. Primary graduates (Mean:3,5288), Lycee graduates (Mean:3,6663), Faculty graduates (Mean:3,7099) and Post graduates (Mean:3,9300).

H38: Total Environment factor affecting house demand differs according to income level. We rejected this hypothesis at 5% level (F:0,593 and Sig:0,668). Income lower than 1500 TL (Mean:3,5945), Income between 1501 and

2500 TL (Mean:3,6865), Income between 2501 and 3500 TL (Mean:3,7571), Income between 3501 and 4500 TL (Mean:3,7762) and Income higher than 4501 TL (Mean: 3,70).

H39: Total Environment factor affecting house demand differs according to marital status. One way Anova results show that there are significant differences between marital status groups at 5% level (F:6,258 and Sig: 0,002). To reveal which groups differ first we applied Levene test and found that variances are homogeneous (Levene:0,130 and Sig:0,879). As a result of Tukey HSD test it is revealed that there is difference between widow/widowers and others. Means are as below. Singles (Mean:3,6314), Married (Mean:3,6227), Widows/Widowers (Mean:4,1875). Widow/widowers give more important to environment due to negative images of widows in society and fears from bad impacts that may come from society.

H40: Total Environment factor affecting house demand differs according to occupation. The hypothesis is rejected because of One Way Anova results (F:0,331 and Sig:0,803). Means are as below. Public sector (Mean:3,6174), Private Sector (3,6614), entrepreneurs (3,7573) and non-workers (3,6362).

H41: Total Environment factor affecting house demand differs according to gender. By the help of Independent Sample T test results we accept this hypothesis (t:-2,540 and Sig:0,011). Males (Mean:3,5646) and Females (Mean:3,7828). It is not surprising because females generally prefer to live in safe and clean environment.

H42: Total Environment factor affecting house demand differs according to ownership of houses. Independent Sample T test shows that differences between house owners and non-house owners are not significant at 5% level (t:1,282 and Sig:0,201). House owners (Mean:3,6171) and non-house owners (Mean:3,7279).

## 6. CONCLUSION

Due to construction industry occupies an important place in Turkish economy, housing demand is important in achieving 2023 targets of Turkish economy. We try to reveal factors affecting housing demand by conducting a survey in Kastamonu. The main results in our research are presented in below.

a) Financial factors are important for consumers while making purchasing decisions.

b) Age is an important factor because 26-35 age group gives the highest level importance on financial factors while 66+ age group gives the least. As age increases, the importance of financial factors decreases.

c) İncome level is also important factor for the importance of financial factors. Unsurprisingly, rich people give the least importance on financial factors while purchasing houses.

d) In general consumers care about location factor while they are making purchasing decision. Proximity to working places, schools, shopping areas, city centre and main roads are important. Kastamonu is one of the small cities of Turkey with approximately population of 115.000. So, distance between central places is shorter and traffic is less crowded in Kastamonu. Probably, researches which will be held in bigger cities such as İstanbul, Ankara etc. will show that location factor is more important.

e) Lowest income group (Lower than 1500 TL) give less important to location factor. Lower income groups care about financial factors, prices instead of location.

f) Participants between 26 and 45 age give higher importance to location due to familial and individual reasons. For instance; participants between 26 and 45 age generally have small children so proximity to school is important for these families.

g) Primary school graduates give less importance to location factor due to their low income. They have lower income according to other education levels.

h) Generally location factor is more important for female participants. Because they care about school of children, shopping and needs of houses etc. and they waste more time in houses. To save time they give importance to location of houses.

I) The location of houses is more important for non-house owners. Generally, non-house owners want to buy their first house to live in and it is not surprising that they want to live in houses closer to central places.

J) In general participants care about exterior design of houses which include items such as exterior wall, isolation, garden etc.

K) As education level increase the importance of exterior design increases. Education level encourages participants to think in more details and have higher expectations about houses.

L) Exterior design is more important for females because they waste more time in houses and items such as presence of garden, size of elevator space, isolation etc. are more important for them, naturally.

M) Singles think less about the fame of developer due to familial and financial reasons. They are braver because they do not worry about the future of their wives and children. Also marrieds and widows/widowers are in higher ages and have more life experiences so they have less confidence to other people.

N) The fame of developer is more important for females. Generally, females are more afraid from deceiving while males are braver.

O) Interior design which includes size of houses, number of bedroom and bathrooms etc. are important in purchasing decision.

P) Young participants (18-25 age) and older participants (66+ age) give less important to interior design with different reasons. Generally young participants are single and they do not worry about their wives and children. So items such as size of house are not important for them. They can live in small houses with only one bedroom. Older participants have less life expectations. They can worry about their grandson, granddaughter and hobbies, but size of houses or other items about interior design is not important for them.

R) Lowest income participants (less than 1500 TL) give less importance to interior design due to prices. As size of houses increase or number of bedroom increase the prices will increase.

S) Females give more importance to interior design because they waste more time in houses. Management of houses is generally due to females so the size of kitchen, presence of bedroom for quests are important for them. However, males do not interest in the size of kitchen or other items.

T) Also environment of houses are important for participants.

U) Widows/widowers give more importance to environment due to negative images of widows/widowers in society.

We searched the purchasing behaviour of consumers in Kastamonu and searched some results. These results are important for scholars, developers and salesman, however our research has some constraints. First, our research is conducted in small city which has approximately 115.000 population. Most probably, researches in cities with crowded population will give different solutions. Also we searched mean differences between groups but we do not investigate the reasons. Further researches will be more beneficial if they focus on reasons.

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