TENURE CHOICE AND DEMAND FOR HOMEOWNERSHIP IN ANKARA

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ABSTRACT

TENURE CHOICE AND DEMAND FOR HOMEOWNERSHIP IN ANKARA

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Housing is a basic requirement for all individuals in every country. Being one of the main tools of urban planning, housing contains different social, economic, psychological, and design aspects, and it attracts attention of different disciplines. A review of the theoretical models, data, and empirical methods reveals deficiencies in all areas of housing sector in Turkey. Especially, there is an important gap in the literature about housing tenure choice. A new research agenda focusing on households' tenure choice is needed with the help of models to be developed for this purpose. In this thesis, it is aimed to identify this model by focusing transition from tenancy to homeownership, and by choosing Ankara as the case study.

The thesis has two main steps. In the first step, different economic ways of shifting from tenancy to homeownership is examined by using the data of Household Budget Survey (2003) from Turkish Statistical Institute. In the second step, the thesis examines effects of different socio-economic factors on the probability of shifting from tenancy to homeownership, and the way in which the impact of these drives might change with different forms of housing provision with the help of a

survey carried out in Yenimahalle and Çankaya. Results of calculations show that housing credits do not offer new homeownership opportunity for households who are not able to purchase a dwelling by saving their incomes in Turkey. The first step illustrates that, households earning less than 1 000 TL per month have no chance to afford a dwelling in Ankara. However next step highlights an irregular mechanism which enables these households to shift to homeownership in Turkey.

Keywords: Housing Tenure, Homeownership Probability, Housing Credits, Housing Provision Methods, Residential Mobility

ÖZ

ANKARA'DA KONUT KULLANIM BİÇİMİ VE MÜLK KONUT TALEBİ

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Barınma hakkı bir bireyin en temel haklarındandır. Bu bağlamda kent planlamasının temel taşlarından biri olan konut, farklı sosyal, ekonomik, psikolojik ve tasarım boyutlarını bir arada içermekte, dolayısıyla farklı disiplinlerin ilgi odağı olmaktadır. Türkiye'de ise konut üzerindeki çalışmaların bu alanları doldurmada yeterli olmadığı, özellikle konut kullanım biçimi üzerinde önemli açığın bulunduğu gözlenmiştir. Bu anlamda, konut kullanım biçimi üzerinde yeni bir araştırmaya bu amaç doğrultusunda üretilecek modeller yardımıyla ihtiyaç duyulmaktadır. Bu tezdeki amaç, kiracılıktan konut sahipliliğine geçiş sürecinin Ankara örneğiyle incelenmesi ve konut kullanım biçimi üzerindeki literatüre katkı sağlanmasıdır.

Tez iki ana aşamadan oluşmaktadır. İlk aşamada, Türkiye İstatistik Enstitüsü'nden elde edilen Hanehalkı Bütçe Anketi (2003) verileri ile kiracılıktan konut sahipliliğine geçişin farklı ekonomik yolları incelenmektedir. İkinci aşamada ise, Yenimahalle ve Çankaya ilçelerinde gerçekleştirilen anket yardımıyla, farklı sosyo-ekonomik etmenlerin bu geçiş süreci üzerindeki etkileri farklı konut sunum biçimleri çerçevesinde ele alınmaktadır. Araştırmanın sonucunda, kendi

tasarruflarıyla konut satın alamayan hanehalkları için konut kredilerinin yeni fırsatlar sunmadığı gözlenmiştir. Tezin ilk aşamasında aylık 1 000 TL'nin altında kazancı olan hanehalklarının Ankara'nın ilgili bölgelerinde konut satın alma ihtimallerinin olmadığı gözlenmiştir. Fakat çalışmanın ikinci aşamasında bu hanehalklarının konut sahipliliğine geçişini sağlayan farklı bir düzen dışı sistemin Türkiye konut piyasasında varlığını sürdürdüğü gözlenmiştir.

Anahtar Kelimeler: Konut Kullanım Biçimi, Konut Sahipliliği Olasılığı, Konut Kredileri, Konut Sunum Biçimleri, Konut Yer Seçim Hareketliliği

To my lovely Mother and Father...

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CHAPTER 1

INTRODUCTION

The Context and the Aim of the Thesis:

This thesis examines the key drives that determine the way in which households shift from tenancy to homeownership, and the effects of different socio-economic factors on this shift with respect to different forms of housing provision.

Housing is one of the main issues of interest in urban planning that contains different social, economic, psychological, and design aspects, so it is inevitable that it attracts attention of different disciplines. Several sets of the literature are explored to gain a better understanding of that issue.

One of the topics about housing that literature emphasizes is household's tenure choice. This literature provides important evidences for determination of housing supply and policies about promotion of homeownership.

Among many other topics about housing tenure choice, a great attention is given to economic factors. Almost all studies argue that housing demand is both income and price elastic. According to the most analyses in the literature, high wealth and current income increase the probability of homeownership, and also credit constraints are important barriers for owning a dwelling especially for low-moderate income groups. Besides economic factors, also there is an important literature on the effects of social factors on housing tenure choice. Effects of social factors change according to the related case study areas, but there is a consensus

that high education and having a stable job positively affect the shift from tenancy to homeownership.

However studies about housing in Turkey show that developments in housing markets have different dynamics from countries with advanced housing market with well functioning housing development agencies and housing finance systems. For this reason, the models provided for these countries may not be applicable for Turkey because it is expected that effects of socio-economic factors are not much predictable in Turkey. One of the aims of the thesis is shedding light to the effects of these different socio-economic factors. In advanced countries there is a systematic relation between household's permanent income and shifting to homeownership due to much dependence on mortgage credits for housing purchase. For this reason, the demand side of housing can be predictable. This systematic relation is not visible in Turkey. Also, review of theoretical studies reveals deficiencies in the literature on housing tenure choice in this framework in Turkey. Therefore, the aim of the study is to make a contribution to fill the gap in the literature about housing tenure choice by focusing on unique dynamics of housing system in Turkey. The thesis aims to reveal these dynamics that affect the shift from tenancy to homeownership.

Volatile economic environment with high interest rates of mortgage credits makes long terms housing credits costly. Despite the fact that the Mortgage Law was enacted in 2007, it is predicted that the law cannot totally achieve its goals as long as interest rates remain high, and there are still important segments in the population for whom purchasing a home is still only a dream. For this purpose, it is aimed to investigate which population segments are facing housing affordability problem and those that are not facing it, by studying incomes, expenditures and savings of households at different income quintiles. A new research focusing on differences and inequality in households' tenure choice is needed with the help of models to be developed for this purpose. In this thesis, it is aimed to identify these different dynamics of housing market in Turkey by choosing Ankara as the case study. It is

aimed to create a perspective for the community's goal for housing strategy and expected socio-economic trends and future demand for housing.

Main Research Questions of the Thesis:

In this concept, the thesis examines the process of shifting from tenancy to homeownership by focusing social and economic factors. By taking into account of quintile distribution of income groups, different economic ways of shifting are investigated. It is aimed to evaluate the possibility of home purchase for different income groups. Another aim of the thesis is to evaluate the effects of social factors in this process. There are three basic research questions to be examined for this purpose in this thesis.

The first one is "which income quintiles economically are able to shift from tenancy to homeownership, and which income quintiles are not". With the help of this question it is aimed to examine the accessibility of different income groups to homeownership. After investigating the affordability in housing, the second and third questions examine the process of shift. That is, the second question is "how social and economic factors affect decision of households about tenure transition, and at which period of their lives households make the decision to shift" for income groups who are economically able to achieve this shift. It is aimed to identify different social dynamics which are effective in housing tenure choice in Turkey. The third question of the study is "how bundles of housing packages with different attributes, locations and prices differentiate across different process of shifting to homeownership". It is aimed to evaluate how the dynamics in this shift change with respect to different locations and household's preferences about housing packages. These three questions are investigated by two different analyses in the study.

The Research Design and the Hypotheses of the Thesis:

In the first analysis, the data is from Household Budget Survey from Turkish Statistical Institute. The data presents information about households' income and allocation of household budget on different consumption items including housing. With this data, possible saving amounts are calculated for different income quintiles, and possibility of accumulating the required equity for homeownership which are differentiated according tenure are calculated in the first part of the study. The answer of the first question is investigated in this part of the thesis. That is, ways of shifting from tenancy to homeownership in Turkey are investigated with findings at this stage of the study. The thesis aims to clarify how the usage of housing credits, including loan-to-value ratio of credits, and the share of equity of households differ with respect to different ways of shifting from renting to homeownership. By considering a standard 3+1 room apartment unit at different parts of Ankara, the variation of prices in these locations are identified, and different ways of shifting from tenancy to homeownership are examined by considering price levels at eight districts (Çankaya, Mamak, Altındağ, Gölbaşı, Etimesgut, Sincan, Keçiören, and Yenimahalle) in Ankara.

The second stage is the spatial analysis of the issues specified theoretically in the first stage. Yenimahalle and Çankaya districts of Ankara are chosen as samples of housing developments with different forms of provision. A survey is carried out with recent home buyers in Yenimahalle and Çankaya in order to examine the probability of shifting from tenancy to homeownership. The list of surveyed dwellings is composed of different house types produced by different housing provision methods. It includes 38 questions about socio-economic characteristics of households, characteristics of each household's dwelling unit, locational preferences of households, and their process of shifting from tenancy to homeownership. Results of this survey are expected to provide information about variation of the probability of becoming homeowners according to the forms of provision of dwelling units. It is expected to find information about which socio-

economic characteristics support the decision of shifting from tenancy to homeownership, and how this decision varies for different locations. Also it is expected to find out which housing provision methods provide relatively higher probability for homeownership. The answers of the second and third questions are investigated with the help of this survey.

There are a set of hypothesis related with these two stages of the study, namely:

Hypothesis 1: Credit and wealth constraints are important barriers in homeownership for low- to-middle income groups in Turkey.

Hypothesis 2: Mortgage credits do not significantly increase the probability of homeownership for households who are not able to purchase a dwelling because of high interest rates, leading to high debt service and low loan to value ratios in Turkey.

Hypothesis 3: Transition to homeownership of households living in private rental accommodation are expected to be related as much on transitory income, including inherited wealth, as on permanent income, in addition to homeownership opportunities provided by different forms of housing provision in Turkey.

Hypothesis 4: Forms of housing provision also affects the probability of shifting from tenancy to homeownership for households.

Hypothesis 5: Demand for housing in different housing submarkets in Ankara is related to socio-economic backgrounds of households as well as characteristics of dwelling units in each submarket.

Hypothesis 6: Existence of housing submarkets with highly differentiated price levels enable households with different incomes to buy the preferred housing package at the submarkets with affordable price level.

Hypothesis 7: Households choose to buy housing in submarkets where households of similar socio-economic characteristics live, although there may be housing alternatives with similar attribute endowments and prices in some other submarkets. Therefore, there is high mobility between only certain housing sub-markets.

Outline of the Chapters:

The thesis has seven chapters. After Introduction, the next chapter summarizes the literature survey on tenure choice and homeownership by classifying the studies under three main headings. The first heading focuses on economic factors by researching literature on wealth, income, cost, savings, uncertainty, risk considerations, institutional factors, local housing market conditions, locational influences, household mobility and unemployment. The second one is about social factors including demographical factors, race and ethnicity. The third heading focuses on psychological factors.

The next chapter provides information about the theoretical framework and hypotheses of the thesis. Chapter starts with discussing the main purpose and method of the study. As the thesis consists of two stages, also two different methods are used in the study. In the first stage, different economic ways are investigated by taking into account of utility functions of households. In the second stage effects of different socio-economic factors and location and housing package decisions of households are evaluated by using Cox Regression Analysis. After discussing the method of the study, hypotheses are described in more details in this chapter.

The forth chapter is a brief summary on housing sector in Turkey by taking into account the historical developments in housing provision and housing tenure in Turkey.

Chapter 5 is the first stage of the analyses of the thesis which is the allocation of household budgets on consumption and saving in Ankara on the basis of household

budget surveys and different ways of shifting from tenancy to homeownership with five cases. The first case includes the assumption that households do not apply for housing credit or borrow from other individuals. The only source for purchasing a dwelling is their savings. In the second case, households can apply for housing credit. In this case, monthly repayment potential is calculated for every income quintiles, and total credit amounts are investigated for different time periods. The aim of this case is to analyze whether long term housing credit is an alternative option for households who cannot purchase a dwelling by waiting until to save sufficient amount of money. The third case also examines the long term housing credit option by taking into account debt to income ratio. This case makes a comparison between two different ways of calculation of total housing credit amounts. In the forth case, it is assumed that households may limit their expenditures when they decide to purchase a dwelling. In the last case, it is assumed that there will be 2 per cent increase in every household's saving every year. The last two assumptions assume to create a more optimistic environment for purchasing a dwelling unit.

The sixth chapter is the second analysis of the thesis, and it evaluates the theoretical results of Chapter 5 by making a research on recent homebuyers at different locations of Ankara. It investigates the effects of different socio-economic factors and housing provision methods on the probability of shifting from tenancy to homeownership. That is, it aims to investigate in which period of their lives households decide to purchase a dwelling. Also, this chapter has two different stages. In the first stage, the analyses are carried out for five different housing acquisition methods: Purchasing Dwelling from a Seller, Constructing Dwelling on their own Plot by Contracting with a Speculative Builder, Purchasing from the HDA, Acquisition through a House-Building Cooperative, and Acquisition with the Exchange of Land. In the next step, analyses are carried for three housing acquisition methods after exclusion of Constructing Dwelling on their own Plot by Contracting with a Speculative Builder and Acquisition with the Exchange of Land.

The last chapter concludes the thesis which provides a summary of the general findings of the analyses in the study. Also, this chapter aims to provide discussions for future research areas and policy proposal about housing system in Turkey.

CHAPTER 2

LITERATURE SURVEY ON TENURE CHOICE AND HOME OWNERSHIP

Housing as a commodity has a long and complex history. “By the mid-nineteenth century house property began to develop as an individual commodity that was bought and sold and that conveyed social, political and economic meaning and power” (Forrest, et. al., 1990: 78-79). As a result of these different meanings, there is an important literature about housing. Different disciplines provide different studies about the concept. It becomes one of the most important commodities that both attain the attraction of individuals and the public institutions because production and consumption processes of housing are different from other market goods. It is a consumption good that is not only a concern of the individual who bought the dwelling, but it is in the interest of public institutions because of its fixed location and duration. Housing is the main sector that affects the production industry in a country because its production process affects different input sectors in the market more than the other consumption goods, and also being the main element of the cities, it attracts the attention of town planning.

The decision of owning a home is an important one for an individual because it involves investment of a large amount of money. The consumption on housing has dual role because it can be both consumption and investment good. As a result of this, households make decision by seeking to maximize utility by considering both the use and investment value of home ownership (Hui, 2007). The consumption and investment aspects of a household related to the household’s budget as well as household’s saving decision. In addition to these characteristics, the durability, spatial fixity of housing, its physical size, its necessity, and its political importance

(Forrest, et. al., 1990; Kan, 2000) also make the issue an interesting topic for different disciplines.

This chapter reviews the literature on homeownership and housing tenure choice. Households face the possibility of moving home several times over their life cycles. Marital status of household members, job and income changes, households' size, cultural and social factors, government policies and economic conditions of the country are some of the determinants of tenure choice and homeownership during the lifetime of households. Interest in measuring the impact of these factors on homeownership is increasing. This topic is part of the growing literature produced by scholars, it is in the governments' agenda, and concerned by commercial organizations and the public. This chapter provides a general review of articles about homeownership and tenure choice in a thematic framework.

In this chapter, attention is given to a thematic framework of literature review. This analysis of the literature focuses on different authors' interests of different aspects of the topic. The rest of the chapter is organized as follows. Section 2.2 represents a brief review on previous studies under the headings of economic factors, social factors, and psychological factors.

2.1. The Brief Review on Previous Studies

There is a vast amount of literature about tenure choice decision. Different studies examine different aspects of homeownership. For instance, economists have primarily focused on house prices. That is, one of the important determinations of choice between renting and owning is the housing cost. On the other hand, sociologists and geographers mainly examine tenure choice by focusing on individual households' behaviors, and then distribute these factors across the population. Their focus is on socio-economic and demographic variables in the lifecycle of households (Coolen, et. al., 2002). In this thesis the literature review is

under the categories of economic factors, social factors, and psychological factors. Each category has its own sub-categories.

2.1.1. Economic Factors

An analysis of the literature on housing tenure choice and homeownership revealed that differences between studies are largely related with the topics of the study, the empirical methods, theoretical models and data they use. Among many other topics, a great attention is given to the economic factors concerning with tenure choice and homeownership. In this study of literature review economic factors are examined under three general categories. The first category is wealth, income, cost, savings, price and income uncertainty, and risk considerations. The second one is institutional factors, local housing market conditions and locational influences. The third one is household mobility and unemployment.

2.1.1.1. Wealth, Income, Cost, Savings, Uncertainty and Risk Considerations

A large number of papers strongly indicate that homeownership is affected from risk factors, uncertainty, cost, savings, wealth, and income considerations. An early study about housing tenure choice is from Henderson and Ioannides (1983), “A Model of Housing Tenure Choice”. According to the authors, there are two basics approaches in the literature of tenure choice. The first one is to examine factors affecting choices of single consumer. In this approach, some of them concentrate on life cycle aspects of the problem. The others concentrate risk avoidance behavior of consumers. The second approach is to solve for market equilibrium. In this paper, authors prefer to integrate the key economic elements in the literature. The aim of the study is to investigate how the tenure choice is affected by the considerations like wealth, life cycle, etc. The authors focus on uncertainty and comparisons between owning and renting. Their general proposition is that, a household’s consumption demand for housing is not equal to their investment demand for housing. There are two cases. In the first one, consumption demand for housing is less than the investment demand. In this situation the household will owner-occupy

the housing they consume. This is related with income receipts and level of wealth of households. In the second one consumption demand for housing exceeds investment demand. In this situation, the person may rent or owner-occupy. The authors aim to analyze economic differences between the opportunity cost of renting and owning. According to the authors if there is perfect certainty, tenure choice depends on externality associated with renting. The rental externality occurs from the maintenance problem. The presence of rental externality shows that owning dominates renting. In contrast to this situation, renting dominates owning if housing is subject to random capital gains or losses.

One of the early studies on uncertainty is "Housing Tenure, Uncertainty, and Taxation" from Rosen, et al. (1984). They want to construct a model in the study, in order to estimate housing tenure choice which allows the effects of price uncertainty. They use the data between the years 1956 and 1979. The results show that there is a negative relationship between price uncertainty and homeownership. The main conclusion of the study is that, the previous studies that ignored the price uncertainty may overstate the impacts of the income tax system on the households' tenure choice decision.

Henderson and Ioannides (1986) examine tenure choice in a broad scale in their study of "Tenure Choice and the Demand for Housing". The authors study tenure choice decision and housing consumption as a joint decision. They use behavioral method in order to examine discrete and continuous elements of housing market behavior. The paper takes into account the role of capital market imperfections and discriminatory practices in constraining housing market decision. The paper examines housing tenure choice by using a behavioral model. Two models of housing market are estimated by the authors. In the first model, authors use Annual Housing Survey data from 36 Standard Metropolitan Statistical Areas. In this model, authors examine the tenure and housing consumption choices of recent movers only. In the second model, authors employ different assumptions about the nature of the stochastic components of the tenure choice.

In their study, the authors initially drive the utility functions for homeowners and tenants. The utility function for homeowners is,

$$\text{“}V_{oi} = V(P_{oi}, P_x, Y_i, e_{oi})\text{”}, \quad (2.1)$$

and utility function for renters is,

$$\text{“}V_{Ri} = V(P_R, P_x, Y_i, e_{Ri})\text{”}, \quad (2.2)$$

where,

V: family’s indirect utility function
P_{oi} : net price of owning
P_R : rental price of housing
P_x : price of all other goods
Y_i : permanent real income
e_{oi}, e_{Ri} : disturbance term
i : denotes household

Then, according to the authors, if the utility of owning the dwelling is greater than the utility of renting ($V_{oi} - V_{Ri} > 0$), the family will prefer to own. So the probability to own can be calculated with the help of following function:

$$\text{“}p_i = Pr\ (V_{oi} – V_{Ri} > 0)\text{”}, \quad (2.3)$$

where, p_i is the tenure choice function.

For the authors, another important point about tenure choice is the identification of whether the households able to enter the mortgage market. So the authors also drive the rationing function of the family as:

$$\text{“}qi = \int_{-\infty}^{C_1\delta} g_1(z)dz\text{”}, \tag{2.4}$$

$$C_i\delta = \delta_0 + C_{i1}\delta_1 + \cdots. \tag{2.5}$$

where,

q_i : the probability that a family is not rationed

$g_1(z)$: density function

C_i : vector of family and location characteristics

δ : vector of unknown parameters

z_i : error term.

They assume that the family is not rationed if $C_i\delta > z_i$.

So, in summary, the authors find the probability of a family owning is π_i, and the family renting is 1- π_i, and “$\pi_i = p_i q_i$”.

As the result of these, the demand function of housing is,

$$\text{“}h_{ij} = h_j\,(P_{ji}, P_x, Y_i, \varepsilon_{ij})\text{”}, \tag{2.6}$$

where, j = o,R (o: owning, R: renting) and ε_{ij} are error terms.

With the help of the first model, authors indicate that housing demand is both income and price inelastic. Second model shows that, people with lower education, age and current income are more likely to be denied a mortgage. Another finding is that race also has impact on homeownership. The last argument is that rationing and incomplete specification of homeownership price remain as an important factor in the housing market.

Hendershott, et al. (1997) investigates the financial decisions of the households in “Debt Usage and Mortgage Choice: The FHA-Conventional Decision”. According

to the authors the choice of the Loan-to-Value Ratio (LTV) for the wealthier households is most related to household's portfolio diversification desires and its aversion to risk. For less wealthier households the decision is related to the amount of LTV which maximizes house value.

In order to find maximum house value, the authors first of all, drive the housing expenditure function. They argue that, housing expenses cannot exceed a fraction of household income.

$$\text{“HOUSEXP} \leq \alpha\,(T)Y\text{”} \tag{2.7}$$

and,

$$\text{“HOUSEXP} = f\,[i\,(T, LTV), t, h, LTV]\,V\text{”} \tag{2.8}$$

where,

HOUSEXP : housing expenditures
α : the fraction varies with mortgage type
Y : household income
T : mortgage type
i : mortgage coupon rate plus the annual default insurance rate
t : property tax rate
h : hazard insurance rate
V : house value.

Then, the authors substitute the second equation (2.8) into the first one (2.7), and drive the maximum housing value function consistent with income constraint:

$$\text{“}V_{maxinc} = \alpha\,(T)Y / f\,[i\,(T, LTV), t, h\ LTV]\text{”} \tag{2.9}$$

In the next step authors define two conditions for wealth constraint:

The first one is that the equity contribution to house purchase cannot be greater than the wealth available for downpayment:

$$\text{“}(1\text{- LTV})V \leq W\text{”}. \tag{2.10}$$

In the second one, authors define that the LTV cannot exceed a maximum β, which changes with the mortgage type:

$$\text{“LTV} \leq \beta(T)\text{”}, \tag{2.11}$$

then, the maximum house value with the wealth constraint:

$$\text{“}V_{maxw} = W\ (1 -\ \text{LTV})\text{”}. \tag{2.12}$$

According to the authors, debt and mortgage choices of individuals depend on the downpayment and monthly payment constraint ratios and needs to lower mortgage insurance costs.

Another study is from Di Salvo and Ermisch (1997), who claim that the first major tenure choice in someone's life has great impact on the distribution of life-years in each tenure type in their study of "Analysis of the Dynamics of Housing Tenure Choice in Britain". In order to examine this hypothesis the authors use the data from 1958 birth cohort in National Child Development Study in Britain. The authors made interviews with respondents or their parents when they are 7, 11, 16, 23, and 33 years old. The results of the study show that a person's tenure background affects the tenure responses to housing and labor market conditions. Not being in employment decreases the rate of homeownership. Also higher wealth and current income increase the probability of homeownership. Respondents, whose parents are owners, are more likely to become homeowners too.

Salandro and Harrison (1997) use the Survey of Consumer Finances in order to test demographic and financial influences on households' equity decisions in their study "Determinants of the Demand for Home Equity Credit Lines".

According to the authors, the optimal choice for the households is to make investment in a point where the return on real investment is equal to the market rate. Every individual has their own preference between current and future consumption. Also they enter to the financial market by borrowing or lending. By the help of this the optimal consumer behavior of the households can be drawn. Investment is optimal for the individual as long as the internal rate of return is greater than the market interest rate.

With N-period framework, there are two constraints in the maximization of the utility function (U(c1, c2, ..., cN)) of the individuals (where, ci is the value of consumption in the i-th period). The first one is the constraint that is imposed by the production possibilities. The authors draw this constraint as:

$$\text{“}T(K_1, K_2, ..., K_N)=0\text{”}, \tag{2.13}$$

where,

K_N : maximum value of consumption possibilities in period N.

The second one is the constraint that is imposed by the capital market. According to the authors, maximum consumption in the N-th period is:

$$\text{“}C_N = a_N + y_N + K_N\text{”}, \tag{2.14}$$

where,

a_N : the sum of the proceeds any investment in the previous periods

y_N : income for the period

Then the authors solve the equation for a_N, and by rearranging the formula they find the capital market constraint.

According to them, the present value of the consumption stream must be equal to the sum of present values of future earned incomes and investments in productive opportunities. By solving the individual's preferred choices by subjecting to these two constraints, the first order condition implies that the preferred allocation of consumption between two periods is characterized by a point of tangency between an indifference curve and the capital market opportunity line. The first order condition also shows that the preferred combination of investments from the productive opportunity between two periods is characterized by a point of tangency between the productive opportunity set and the capital market opportunity line.

According to the results of the study, the choice of a home equity credit line is influenced mainly by percentage of equity in the home, income, net worth, age of the borrower, and credit price.

In 1998 Ben-Shahar examines the tenure choice behavior of a risk-averse consumer in the paper of "On the Optimality of the Hybrid Tenure Mode". He analyzes the effect of the utility function properties of the tenure mode. Then he constructs a comparative static model in order to analyze the household's response to changes in the exogenous variables.

Ben-Shahar uses two-period world in his empirical model, time 0 and time 1. He drives the consumer's indirect utility function as,

$$\text{“}U = V_0 [W_0 - qH_0 - (1 - q)R_0 - T(q) + B] + V_1[W_1 - (1 - q) R_1(\varepsilon) - B]\text{”} \quad (2.15)$$

where,

V(.): utility function of financial wealth

W_t: tenant's endowment in period t

B: the amount of money borrowed at time 0 and paid back at time 1

R_t: the periodic market rent in time t

ε: state variable represent uncertainty

T(.): Transaction cost function

H_0: the property

q: fraction of the market value of the property

Then the author computes the optimal loan size and wants to measure the effects of exogenous factors on tenure choice by using comparative statics analysis.

He argues that everything else being equal, the longer the expected tenure horizon, the greater the propensity to increase homeownership share. According to the study, the risk-averse consumer finds homeownership as a trust against rent price fluctuations. However the transaction cost increases with the level of ownership share. As a result of these arguments, it is suggested in the study that, the household have to choose an optimal combination of homeownership and tenancy.

Robst, et al. (1999) examines relationship between income uncertainty and housing tenure without considering future housing prices and housing price uncertainty in their study of "Income Variability, Uncertainty and Housing Tenure Choice". The authors use the data of University of Michigan's Panel Study of Income Dynamics in their study. Responders' ages are between 18 and 64 in the data. The authors use the following model in order to calculate the opportunity cost of owner occupancy:

$$\text{“}P_s = V_s [(i + p + m) - t (i + p)]\text{”} \quad (2.16)$$

where,

P_s : opportunity cost of owner occupancy

V_s : deflated average house value in Standard Metropolitan Statistical Area (SMSA) s.

i : the nominal mortgage rate

p : the property tax rate

m : the maintenance rate

t : the marginal tax rate

Authors want to examine the variations in labor income due to market forces. For this reason, they only include household head's income in their empirical study. They use different measures for income uncertainty. The first one is that, they assume workers have relatively little knowledge about their future incomes, and then the authors estimate uncertainty by setting permanent income equal to the average real income, and use coefficient of variation of income for the five years. In the second one, workers are assumed to have knowledge about wages of other workers and expect their incomes to be the same as the other workers with similar work characteristics. The function of expected income changes as the characteristics of the households change. So they can estimate the change of households' expected future incomes with the help of the following formula:

$$\text{“}LnY_{it} = X_{it}\beta + \varepsilon_{it}\text{”} \qquad (2.17)$$

where,

i : individuals

t : time

LnY : the natural logarithm of real labor income

X : vector of independent variables (education, quadratics in experience and job tenure, hours worked during the year, dummy variables for race and gender)

The authors also measure uncertainty as,

Uncertainty = standard deviation of residual earnings (Std. Dev. (ε_{it}))

Permanent Income = individual's mean predicted value over the five-year period ($\Sigma (X_{it}\beta/5)$

Transitory Income = individual's mean residual ($\Sigma \varepsilon_{it}/5$)

In the third measure the workers have high degree of information about their future wages. At the end of these measurements, the authors indicate that there is a negative relationship between uncertainty and the probability of homeownership. That is uncertainty reduces the likelihood of homeownership. On the basis of their findings, permanent income has positive effect on homeownership. Also, the results suggest that individuals with more children are more likely to become owners.

Hsueh (2000) examines house price increases, housing tenure choice decision, and saving behavior of households in Taiwan in order to find whether they are correlated or not in "The Relationship Between Housing Price, Tenure Choice and Saving Behavior in Taiwan". The paper has two main hypotheses. The first one is whether house price increases are important for households' saving decisions, and second one is whether housing tenure choice and savings behavior are inter-correlated. The saving behaviors of households are examined with the help of Heckman's two-stage procedure for correcting sample selection bias. Three years are selected for the data in order to make a comparison: 1985, 1989, and 1993. The data is taken from "The Survey of Family Income and Expenditure in the Taiwan Area of the Republic of China" used to estimate saving function. They take house prices from the data of "Housing Status Survey". The results of the regression analysis for homeowner sample shows that marital status affects saving decisions of the households. Never married groups have the highest saving ratios, and the married groups have the lowest ratio. Another point is that, according to the study the higher education level decrease the ratio of savings. The regression results for renters show that renters have higher income elasticity than owners. Another finding is that, the life cycle effect for renters is not obvious as owners. As similar

to owners, also never married renters have the highest savings ratio. The results about education level for renters are also similar to owners according to the study.

Yates (2000) examines whether stable home-ownership rates in Australia is sustainable or not in the study of "Is Australia's Home-Ownership Rate Really Stable? An Examination of Change Between 1975 and 1994". In order to achieve this, the author investigates the changing influences of demographic and economic factors on tenure choice over time in Australia. This study uses cross-sectional data from two different time-periods in order to analyze the sources of changing home-ownership outcomes in Australia. The data are taken from the 1975/76 and 1993/94 Household Expenditure Surveys. The households in Australia face a distinct change in their home-ownership propensities in the past 20 years, and also this change is not uniform across all age-groups and for different households types both with the same and different levels of income.

Gobillon and Le Blanch (2002) aim to estimate a utility-consistent model of mobility and tenure choice by using French data in "The Impact on Borrowing Constraints on Mobility and Tenure Choice". The authors use all the information available from the data in order to explain mobility, tenure choice and the desired stock of housing capital simultaneously. Because there is no panel data, the authors use cross-sectional data. They use two surveys undertaken by the French national Institute of Statistics. The first one is in 1996, and contains information about housing stock in France and housing conditions of French households. The second data is in 1997, and contains the same socio-demographic characteristics as the first data, but also includes income and detailed information about wealth of the households. According to the results of the descriptive statistics, mobility declines with age. In the model, renters are on the average younger than the owners, so it can be concluded that renters are more mobile than the owners. In other words, stayers are much older than movers. According to the paper, if the borrowing constraints are more binding, then the households are less willing to move, and when they are moving, they are less tend to own their dwellings. Authors also find that, changes in

the minimum downpayment ratio and in the maximum payment-to-income ratios have important effects on the mobility and tenure choice.

Guiso & Jappelli (2002), examine the impact of private transfers on the saving time required to purchase housing by using the data of Italian Survey of Household Income and Wealth in 1991 in "Private Transfers, Borrowing Constraints and the Timing of Homeownership". The results show that private transfers have a small effect on saving time requiring purchasing a house. When a household receive a transfer s/he will be able to purchase a larger home. According to the results of the estimation model, transfers shorten the saving period before homeownership, and also increase the value of the house. Borrowing constraints reduce the consumption of young individuals. Another important point is that according to the study, few households receive transfers in order to purchase a house. They prefer to rely on their own savings. One of the reasons of this fact is that, mortgage market imperfections remain a potentially powerful explanation of these high saving rates among individuals.

Haurin and Gill (2002) examines homeownership by considering factors such as transaction costs of selling and the expected length of stay in "The Impact of Transaction Costs and the Expected Length of Stay on Homeownership". The authors use the data from the 1992 Survey of the Married Military Officers and Enlisted Personnel. Constant-quality prices and rents are taken from a secondary data source, the American Chamber of Commerce Research Agency. The results of the study show that longer expected length of stay increase the probability of homeownership. Also the paper supports the evidences that transaction costs of selling are very important for the tenure choice decision.

Ortalo-Magne and Rady (2002) are the other two authors who examine tenure choice under uncertainty of income, housing prices and rents in their study of "Tenure Choice and Riskiness of Non-Housing Consumption". They argue that everything else being equal, if the covariance between the household's earnings and

rents decreases, then the likelihood of ownership will increase. That is, if a household plans to remain in his home, then he is more likely to own a dwelling. However if a household plans to remain in his home over a short period of time, then he is more likely to rent a dwelling. The second argument in the paper is that, if the covariance between the user cost of a home and other properties which the household is likely to consider in the future is high, and then the household is more likely to own his home. That is everything else being equal, the likelihood of ownership increases with the covariance of the prices of other properties in the consumption function of the household.

Barakova, et al. (2003) in the study of "Does Credit Quality Matter for Homeownership", examine how the credit, income, and wealth-based constraints affect homeownership. They investigate how and why such constraints matter in homeownership. The authors have two stages in their analysis. In the first stage, they examine who are financially constrained. In the second stage, they estimate the impact of financial constraints on homeownership. In the first stage, primarily the authors estimate the value of the household's preferred house as the function of household income, non-house assets, local area characteristics, age of household head, and a vector of household demographic characteristics (education level of household head, race of household head, and marital status of the household head). Again in this stage, the authors identify indicators of wealth and income constraint. According to them, when the households are purchasing their home, if the current equity plus liquid and semi-liquid assets of the households is less than 10% of their current house value, then these households are wealth constrained. Likewise, if households' total monthly debt payment obligations are greater than 38% of their monthly income, they are income constrained. In the second stage, in order to estimate the likelihood that an individual become a homeowner, the authors construct a regression model. The dependent variable is the ownership variable which is a dummy variable and indicates whether the household recently purchased or rents their current residence. The independent variables are income of the households, the age of the household heads, the same demographic factors, local

area characteristics, and vector of wealth, income, credit history constraint indicators. According to the results of the study, financing constraint has important effect on tenure choice decision, and the wealth constraint is the one which has the largest impact. Also on the basis of their study, credit constraint is proved to be an important barrier for homeownership. According to the study, higher income households and married couples are more likely to own their homes relative to lower income and single households.

Another study is from Chiuri and Jappelli (2003), which is entitled as "Financial Market Imperfections and Home Ownership: A Comparative Study". The main argument of the paper is that, the countries with highter credit markets should observe lower levels of homeownership rates. The authors use the data on 14 OECD countries. It is a collection of 39 individual national surveys spanning almost 30 years. They focus on individuals not households (due to the dual relationship between household formation and credit market imperfections) aged between 26 and 55. For each individual they examine variables like age, gender, homeownership status, and education. The results suggest that availability of mortgage finance affects the distribution of homeownership. In the study, the mortgage market imperfections are measured by the downpayment ratio, and according the results of the study, downpayment ratio forces young individuals to save. So they postpone home purchase until later in life. This affects the distribution of homeownership rates across different age groups. They find that a lower downpayment associated with higher homeownership rates of the young groups. There is no such an effect on the occupancy rate of the middle aged groups.

Goodman (2003) in his study of "Following a Panel of Stayers: Length of Stay, Tenure Choice, and Housing Demand", examines the effect of income changes on tenure choice. The study identifies that if household's income increases, then also the choice of ownership increases rather than renting. However one year income increases have small impact on housing demand for longer-staying households if these are not permanent increases. For this reason, according to Goodman, income

subsidies should be long term and can be expected to increase housing demand of households.

Yoko Moriizumi (2003) is the other author who studies the wealth accumulation and households' savings related to homeownership decision in the study of "Targeted Saving by Renters for Housing Purchase in Japan".

Moriizumi constructs the model in his paper by taking reference of tenure transition model of Jones (1995). He constructs a latent binary index (I^*) which is the difference of utility between owning and renting:

$$"I^* = I\ (w, p_H, y, R, r_m, z_I)" \qquad (2.18)$$

where,

w : liquefiable wealth

p_H : purchase (stock) price of a unit of housing

z_I : attributes of a household reflecting other factors related to a purchase plan

y : measured earnings

r_m : mortgage interest rate

R : rental price

According to the model, if $I^* > 0$, then the household intends to shift from renting to owning, that is the household is planning to buy a house (I = 1). Otherwise, the household tends to continue renting (I = 0).

Then the author drives the wealth accumulation function (w):

$$"w = w\ (I^*, p_H, y_I, R, r_m, r_s, z_w)" \qquad (2.19)$$

r_s : the interest rate on savings

z_w : household's attributes

According to the author, previous studies on saving behavior for housing purchase do not take into account the simultaneity between wealth accumulation and housing purchase plan. By taking this fact into account, the model becomes a simultaneous limited dependent model:

$$\text{“}w = \gamma_1 I^* + \beta_1 x_1 + u_1\text{”}, \tag{2.20}$$

$$\text{“}I^* = \gamma_2 w + \beta_2 x_2 + u_2\text{”}. \tag{2.21}$$

Where, x_i is a vector of exogenous variables includes income, purchase price, rental price, mortgage interest rate, interest rate on savings, and demographic variables.

The author uses the data from the survey on Housing Demand Trends in 1993 including 3857 households (owners, renters, prospective owners). They asked whether they intended to purchase a house. The results of the model show that the young households reduce their consumption by around 30-40 percent.

Turner (2003) examines the effects of house price risk factor on families' housing decisions in "Does Investment Risk Affect the Housing Decisions of Families?". This study examines house-price risk on tenure choice by using micro-level data and metropolitan-level variation in housing cycles.

First of all, Turner drives the function of user cost of housing in order to analyze rent and ownership decisions of households.

$$\text{“}USERCOST_i = H\,[\delta + m + (1 - \tau_i)(\alpha r^* + (1- \alpha]\, r + t) - E\theta_{jt}]\text{”}, \tag{2.22}$$

where,

$USERCOST_i$: the expected user cost of housing

H : value of the house

δ : depreciation rate

m : maintenance cost

τ_i : household marginal income tax rate

α : loan to value ratio on the house

r^* : mortgage interest rate

t : property tax rate

r : the interest rate.

$E\theta_{jt}$: the expected nominal house-price appreciation rate for MSA j at time t.

He drives another function to measure the propensity of the household to own its housing, such as:

"$prob(OWN)_i = \Phi(\beta_1 + \beta_2 \log[RELCOST_i] + \beta_3 HOUSVAR_{jt} + \beta_4 \log[PERMINC_i] + \beta_5 QINT_i + X_i'\gamma)$", (2.23)

where,

$prob(OWN)_i = 1$, if the household owns,

$= 0$, if the household rents

$\Phi(.)$: standard normal cumulative distribution function

$RELCOST_i$: annual expected relative cost of housing services in the owner mode

$HOUSVAR_{jt}$: expected investment risk of homeownership

$PERMINC_i$: is an estimate of the household's permanent income

$QINT_i$: a dummy variable in order to capture whether the family is constrained in its housing choices by an inability to generate the required downpayment for a home

X_i : includes the composition variables that control for age, marital status, female head, race, ethnicity, educational attainment, the presence of young children, and number of children.

The last estimation is about the housing demand:

$$\text{“}\log(H_i) = \beta_0 + \beta_1\log(\%UC_i) + \beta_2\log(PERMINC_i) + \beta_3(\log[\%UC_i])^2 + \beta_4(\log[PERMINC_i])^2 + \beta_5\log(\%UC_i)\log(PERMINC_i) + \beta_6 HOUSVAR_i + \beta_7 QINT_i + \beta_8 MR_i + X_i'\delta\text{”}, \quad (2.24)$$

where,

H_i : self reported house value
$\%UC_i$: the unit price of housing services for homeowners
MR_i : inverse of the Mill's ratio[1].

The model uses a repeat cross-section of household data from American Housing Survey (AHS) metropolitan core. Respondents are interviewed every four years in that data. The author examines two related decisions on house-price risk. The first one is the household's decision to rent or own. The second one is the conditional factors on the choice of owning and the household's demand for housing services. Also this impact is greater for low and moderate income families and first-time home owners. In their analysis, Turner finds out that in an economic environment with high house-price volatility, families are less likely to own. The results of the study also identify that higher levels of education are associated with higher rate of housing demand. The last argument is that investment risk has negative impact on homeownership and housing demand.

[1] The Mill's Ratio is identified by omitting the average MSA (Metropolitan Statistical Area) rent from the explanatory variables in the housing demand equation (Turner, 2003).

Another study on labor income uncertainty and credits constraints on the probability of homeownership is from Diaz-Serrano (2005): "On the Negative Relationship Between Labor Income Uncertainty and Homeownership: Risk-Aversion vs. Credit Constraints". The paper investigates whether the negative relationship between labor income uncertainty and homeownership is due to risk aversion or credit constraints.

In his research the author initially investigates the cost of owning relative to renting with the help of following equation:

$$\text{“}RC_i = Q_i / R_i \, [r + p + m - t\,(r + p)]\text{”}, \tag{2.25}$$

where,

RC_i : cost of owning relative to renting
Q_i : constant quality measure of the estimated house value for household i
R_i : constant quality measure of the estimated annual rent for household i
r : nominal mortgage rate
p : property tax rate
m : maintenance rate
t : marginal tax rate.

As the second step, the author adds the measure of labor income uncertainty:

$$\text{“}W_{it} = X_{it}\beta + u_{it} + \gamma_t + \varepsilon_{it}\text{”}, \tag{2.26}$$

where,

W_{it} : combined real labor income
X_{it} : set of explanatory variables
γ_t : specific time effect

u_i : time constant permanent shock in labor income

ε_{it} : white noise time-varying residual

i : households

t : time

In order to investigate the effects of credit constraint, Diaz-Serrano follows the model Linneman and Watcher (1989).

$$\text{“}V_i^I: 0.35\ I_i/r\text{”}, \tag{2.27}$$

$$\text{“}V_i^W: 5\ W_i\text{”}, \tag{2.28}$$

where,

V^I : the threshold house value that household i should aim for in order not to be income constrained

V^W : the threshold house value that household i should aim for in order not to be wealth constrained

r : mortgage interest rate

I : annual household income

W : net household wealth.

With the help of above equations, then the author drives the housing demand equation:

$$\text{“}\ln V_i^* = X_i\beta + u_i\text{”}, \tag{2.29}$$

where,

V* : preferred house value

X : vector of household characteristics and house preferences

β : parameter vector to be estimated

u_i : random error term

The author uses the data from the Italian Survey of Household Income and Wealth. It is a panel survey, and contains information about household characteristics, employment, income, assets, financial habits, types of home tenure, etc. Diaz-Serrano concludes that as the previous studies claim, the empirical study in Italy also shows that, credit constrained households and households with volatile incomes are less like to become homeowners. According to the study, both effects are important, however wealth constraint effect dominates over the income constraint effect. The relationship between labor income uncertainty and homeownership is negative only for risk-averse and credit unconstrained households. According to the findings of the paper, the driving force behind the negative relationship between labor income uncertainty and homeownership is household risk aversion.

Hansen and Skak (2005) examine ownership in a manner of contracting cost in "Economics of Housing Tenure Choice". The model represents the consumer's optimization of alternative tenure choices.

The authors drive the linear-quadratic utility function as below:

$$\text{“}U_i = y_i x - (x^2 / 2) + z\text{”} \tag{2.30}$$

$$0 < \alpha \leq y_i \leq \delta \tag{2.31}$$

where,

N : number of consumers
U : utility
x : housing consumption (m^2/year)
z : consumption of all other goods

y_i : a parameter when consumer adopts the home to his specific taste (when the individual rent the dwelling no adaptation take place, then y_i takes the lowest value as α)

α, δ : fixed parameters.

κ : variable investment cost

σ : fixed investment cost

r: the market equilibrium rent.

Then the authors drive the marginal utilities for renters and owners. That is, marginal utility of owner i is:

$$\text{“}\vartheta U_i / \vartheta x = y_i - x_i\text{”}, \tag{2.32}$$

and marginal utility of renting for consumer i is:

$$\text{“}\vartheta U_i / \vartheta x = \alpha - x_i\text{”} \tag{2.33}$$

because if the household is a renter, then, there will be no adaptation takes place, and y_i takes the value of α.

Then authors drive the demand functions of tenants and owners:

The demand function for tenants is,

$$\text{“}x_i = \alpha - r\text{”}, \tag{2.34}$$

and, the demand function of owners is,

$$\text{“}x_i = y_i - r - \kappa\text{”}. \tag{2.35}$$

Then the authors drive the consumer surplus functions.

The tenant's consumer surplus is,

$$\text{“}CS^{t} = (\alpha - r)^{2} / 2\text{”}, \tag{2.36}$$

and, the owner's net consumer surplus is,

$$\text{“}CS_{i}^{o} = (y_i - r - \kappa)^{2} / 2\text{”}. \tag{2.37}$$

With the help of these, the authors then drive the home ownership rate (v) as,

$$\text{“}v = (\delta - y') / (\delta - \alpha)\text{”} \tag{2.38}$$

where,

y' : a preference parameter for owners.

The model shows that homeowners occupy larger dwellings than tenants. Another fact is that congested cities have higher rent, and smaller dwelling units. This leads to a lower rate of homeownership. Because of contracting cost, according to the model, tenants invest less than owners.

Another study about risk consideration is “Neighborhood Externality Risk and the Homeownership Status of Properties” by Christian A. L. Hilber (2005). According to the author, neighborhood externality risk is one of the major components of housing investment risk, and this risk reduces the probability of ownership. The paper investigates neighborhood externality risk effect on homeownership, and whether households take into account the risk of changes in neighborhood amenities before they make a decision to own a house. Also the paper makes a comparison by investigating the importance of neighborhood uncertainty for the inner cities

compared to suburban and rural places. The author uses the data from the AHS conducted by the Bureau of the Census for the Department of Housing and Urban Development. These national surveys cover the period between 1985 and 1999. According to the findings of the study, neighborhood externality risk decreases the attractiveness of owner-occupied housing. According to the study, this risk is higher in center city locations and in distressed neighborhoods.

Özyıldırım, et al. (2005) examines the effects on changes in income tax, property tax, transaction costs, and mortgage rates on tenure choice in "Mobility and Optimal Tenure Choice". They construct a dynamic life-cycle model of the optimal tenure behavior of the individual with random mobility. Authors identify that the decision to own or rent is a discrete decision. So they use discreted state Markov decision model in order to analyze the effects of the tenure choice. They construct a model to predict optimal dynamic tenure choice as a decision tree because this method employs backward induction analysis.

The authors argue that, households seek to maximize their lifetime utility. In their life cycle there is always a probability to move, and if they move they have two options: rent or own. The authors define tenure choice at time t as x_t, and the mobility as s_t. So,

x_t =1 if household buys a house at time t,
x_t = 0 if household rents a house at time t.

Similarly,

s_t =1 if household moves at time t,
s_t = 0 i household does not move at time t.

Then authors drive the lifetime utility function of households as,

$$V = \max_{\{x_t\}_{t=1}^{T}} E\left[\sum_{t=0}^{T} \delta^t u(x_t, s_t)\, p(s_t; s_{t-1}, x_{t-1})\right], \quad (2.39)$$

$\delta > 0$

V : lifetime utility

E : expectation operator

T : terminal period

δ : discount factor

$u(x_t, s_t)$: utility function for tenure choice of x_t in state s_t

$p(s_t; s_{t-1}, x_{t-1})$: state transition probabilities in each period from state s_{t-1} with tenure x_{t-1} to state t.

They argue that if the households decide to own a dwelling when they move at time 1, then they will use initial endowment and use mortgage credit in order to pay the rest of the housing value. However if they prefer to rent at time 1, then they invest their initial endowment at the market interest rate.

So, according to the model, if the household does not move at time t ($s_t = 0$), then the utility function for the renter is:

$$\text{“}u(x_t = 0, s_t = 0) = (y_t + iw_t)(1-\tau) - e_t\text{”}, \quad (2.40)$$

and the utility function for the owner is:

$$\text{“}u(x_t = 1, s_t = 0) = (y_t - \theta h_p - R_t)(1-\tau) - (M - R_t)\text{”}, \quad (2.41)$$

where,

y_t : annual income

w_t : initial endowment at time t

τ : income tax rates

e_t : annual rent

θ : property tax rates

h_p : the value of the house purchased at time $p<t$

M : the owner's constant mortgage payment which includes interest payment

R : interest payment

i : market interest rate.,

and also,

$$\text{“}M = (h_p - w_p) / [(1/r) - (1/r)(1/(1+r))^N]\text{”}, \quad (2.42)$$

where,

N : term of mortgage

r : mortgage interest rate

h_p : the value of house purchased

w_p : the existing endowment of the individual (downpayment)

$h_p - w_p$: loan amount.

After then authors drive the second model by considering that the household moves ($s_t = 1$). This move incurs transaction costs. Then the utility function for the renter:

$$\text{“}u\ (x_t = 0, s_t = 1) = (y_t + iw_t)\ (1-\tau) - e_t - c_t\text{”}\ , \quad (2.43)$$

and the utility function for the owner is:

$$\text{“}u\ (x_t = 1, s_t = 1) = (y_t - \theta h_p - R_t)\ (1-\tau) - (M - R_t) - o_t\text{”}, \quad (2.44)$$

where,

c_t : transaction costs incurred by renter

o_t : transaction costs incurred by owner

The authors drive three different endowment functions because the endowment of the households depends on remaining mortgage balance, and the appreciation of the house value.

$$\text{“}w_t = [h_{t-1}(1 + a_t)] - b_t, \quad \text{if } x_{t-1} = 1; \tag{2.45}$$

$$w_t = h_p[(1 + a_{p+1})(1 + a_{p+2})...(1 + a_k)] - b_k, \text{ if } x_{t-1} = 0,\ x_p = 1,\ p<t,\ k\leq t; \tag{2.46}$$

$$w_t = w_0, \text{ if } x_{t-j} = 0,\ j = 1,...,t\text{”} \tag{2.47}$$

where,

k : time period that the households sell their housing

$a_t \geq -1$: house appreciation rate

b_t : a function of mortgage payments, mortgage interest rate, mortgage term

such as:

$$\text{“}b_t = M[(1/r) - (1/r)(1/(1+r))^{N-(t-p)}]\text{”}, \tag{2.48}$$

where,

M : mortgage payments

r : mortgage interest rate

N : mortgage term

t – p : the time passed since the individual

The authors conclude that there is a significant relationship between ownership decision and the stage of the life cycle of households. The authors examine several factors of tenure choice, and they also conclude that the effects of these factors

change in the stage of life-cycle of the households. Increase in income tax is positively related to homeownership, but the effect is less for older aged groups. Another interesting point is that, there is also a positive relationship between an increase in the home appreciation rate and homeownership at early ages; however this relationship is negative for elderly. Transaction cost is the other factor that has negative impact on homeownership, and middle-aged groups are more sensitive to changes in transaction cost than the other groups. Property tax rate is the factor regardless of age, and also it has a negative impact on homeownership.

Davidoff (2006) tests the claim that households whose incomes covary relatively strongly with housing prices should own relatively little housing in US in the study of "Labor Income, Housing Prices, and Homeownership". According to the study, as the covariance between housing prices and labor income increases, households purchase relatively less housing. The author finds positive correlation between stock market returns and labor income. He again finds a positive correlation between stock market returns and housing prices.

"Microsimulation Modeling of Tenure Choice and Grants to Promote Home Ownership" is another study on micro economic conditions by Wood, Watson, and Flatau (2006). The article focuses on the effects of relative prices, wealth and borrowing constraints on housing tenure choice decision by developing a microsimulation model of the Australian housing market. The second aim of the paper is to identify the impact of government intervention on housing market outcome and tenure choice. The data is taken from two Australian Bureau of Statistics Surveys. The first one is the 1997 Rental Investors Surveys which provides socio-economic, demographic and financial information. The second one is the 1996-1997 Survey of Income and Housing Costs provides information for income units who own, rent or live rent-free. Authors find out those downpayment requirements is an obstacle for homeownership. They find a large demand for homeownership that is not met because of this reason. According to the authors government grants is one way to ease downpayment requirements for first

homebuyers, but formal incidence of this subsidy is not equal among potential first homebuyers. They add that the grant will bring forward the purchase decisions of them. So, it will then have a limited impact in raising the equilibrium rate of homeownership.

Another study is "The Social Renting Sector as an Institutional Crossroad for Housing Choice" from Deutsch (2007). He examines social housing which plays a key role at shifts between different tenure types by using Australian data between the years 1991 and 2001. Standard multinomial logit is used in order to model the tenure choice. The model predicts an inflow in social renting in urban areas between middle income groups with uncertain income expectations.

Li and Yao (2007) examine the effects of house price changes on households' decisions by construction a life-cycle model in "The Life-Cycle Effects of House Price Changes".

Authors assume that households live at most for the length of time T. First of all, they drive the probability that the household lives up to period t is:

$$\text{“}F(t) = \prod_{j=0}^{t} \lambda j\text{”}, \qquad 0 \leq t \leq T, \tag{2.49}$$

where,

F : survival function

λ_j : the probability that the household is alive at time j

Utility of the household (U) is a function of consumption of a numeraire good (C_t), consumption of housing services (H_t), and effective family size (N_t). Then authors focus on bequest function (B), which is affected by bequeathing wealth (Qt) and L which controls the strength of bequest motives.

Another important function is related to the income variables of the households. Authors drive the labor income as:

$$\text{“}Yt = P_t^Y \varepsilon_t\text{”}, \tag{2.50}$$

where,

Y_t : income

P_t^Y : permanent labor income at time t

ε_t : transitory shock to Y_t;

and permanent income is:

$$\text{“}P_t^Y = \exp\{f(t, z_t)\}\ P_{t-1}^Y v_t\text{”}. \tag{2.51}$$

where,

$f(t, z_t)$: function of household age and other characteristics

v_t : the shock to permanent labor income

ε_t : transitory shock to Y_1.

Then the authors drive the effects of mortgage contracts and liquid assets on housing. According to the results of the study, the welfare effects of house price changes are not significant, but their effects depending on household's age and homeownership status differ significantly. For instance, homeowners benefit from the increase of housing price; however the renters and young homeowners are worse off.

2.1.1.2. Institutional Factors, Local Housing Market Conditions and Locational Influences

Other factors that affect homeownership are the local housing market conditions. This is the reason why some similar indicators respond with different results in various studies.

Elder and Zumpano (1991) examine housing conditions by taking into consideration location in their study of "Tenure Choice, Housing Demand and Residential Location". The data of the study comes from the University of Michigan's Panel Study of Income Dynamics (PSID). The sample of the study consists of one employed member households with heads of households between the ages of 18 and 65. The investigation shows that there may exist an important asymmetry between renters and homeowners in their housing decisions. For homeowners the variables like quantity and location are jointly determined. Also tenure choice is independent of housing demand and locational decisions for homeowners. However, these findings are not valid for renters. According to the findings of the study characteristics of the households are important factors in the determination of housing tenure choice. Such as the age of the household head, the presence of children and the level of income are positively related to homeownership. Also permanent income is an important factor for housing demand.

The authors describe the individual household's utility (V) as the function of household income (y), price or rent of the housing unit (p), and the price of the composite consumption commodity (p_z).

That is, in homeownership state,

$$\text{“}V_o = V_o\,(y, p_o, p_z)\text{”} \tag{2.52}$$

In the renting state,

$$\text{“}V_r = V_r\,(y, p_r, p_z)\text{”}, \tag{2.53}$$

where o denotes the choice of homeownership and r denotes the choice renting.

According to the authors the choice of whether to rent or own depends on the value of the utility function. If $V_o > V_r$ then the household prefers to own, and if $V_r > V_o$ then the household prefers to rent.

Then, Elder and Zumpano drive the housing demand functions. According to them, if the households prefer to own the dwelling, then the housing demand and tenure choice is,

$$\text{“}q_o = h_o\,(y, p_o, p_z)\text{”} \tag{2.54}$$

However, if the households prefer to rent, then,

$$\text{“}q_r = h_r\,(y, p_r, p_z)\text{”}, \tag{2.55}$$

where, q_o and q_r are the quantity of housing when choosing to own and choosing to rent, respectively.

With the help of these, the authors drive the index value “I” which determines whether the choice is to own or to rent.

$$\text{“}I\,(= 1,0) = g\,(\,y, p_o, p_r, x) + \varepsilon_i\text{”} \tag{2.56}$$

I = 1 if determination is to own, and I = 0 if the determination is to rent. x is a vector of demographic factors and other characteristics. ε_i is the random error term.

Lastly the authors add the residential location term.

$$\text{“}k = k\ (y, p_o, p_r, x, m)\text{”}, \tag{2.57}$$

where k is a locational metric measured by the distance to work, and m is a vector of location-specific characteristics.

At the end of the study the authors find the probability of an important asymmetry between renters and homeowners in terms of their respective housing decisions. For homeowners, housing quantity and locations are jointly determined, according to the findings of the study when the tenure choice decision is independent of the housing demand and location decisions, then the decision process for homeowners appears to be sequential. However this is not valid for renters. The authors indicate that this may resulted because the tenant's location and housing quantity choices are more limited for them.

Iwarere and Williams (1991) investigate micro-locational and occupation-specific influences on housing tenure choice in "A Micro-Market Analysis of Tenure Choice Using the Logit Model". The study examines micro-locational influences on housing tenure choice by focusing on two major variables: the household's residential location and the commuting time to work. They, then combine these variables with economic and socio-demographic variables in order to estimate the probability of home-ownership. The paper investigates the housing choice behavior of college professors in the Washington D. C. Metropolitan area by employing the logit model. In order to find the probability of choosing to rent or own they construct a non-linear estimation process. The economic variables of the model are income brackets, and the socio-demographic variables are age, marital status, number of children, duration of employment with current employer, and spouses' contribution to household income. That is the function of demand for homeownership consists of income, socio-demographic variables, relative price of owning versus renting and spatial variables. On the basis of the findings, employment-related and spatial forces have great effect on housing tenure choice decision. Employment centered considerations like occupational and micro-

locational variables have great impacts on homeownership. Also, locational influences in terms of urban fringe versus central city location are strong determinants on housing tenure choice.

Lee and Myers (2003) discussed which market factors affect homeownership by using US data in their study of "Local Housing-Market Effects on Tenure Choice". The main argument in the study is that, homeownership is not only dependent on the individual's life cycle behavior and economic status, but also on local housing market conditions of the area. Market variations and individual characteristics affect tenure choice according to the study. They investigate the problem by separating owning into two types, namely single-family housing and multi-family housing. The study investigates the impacts of individual or area level factors on tenure choice by considering owning single-family housing and owning multi-family housing separately, and as a last category renting is examined.

The main argument of the study is that, the studies on homeownership and tenure choice have multi-dimensions. For that reason, examining the concept with the help of single-level analyses has important weaknesses because it disregarded three important concepts: cross-level inference, spatial heterogeneity, and spatial dependency. The first concept is about the relationship between the explanatory variables. The authors emphasize that, if these variables of different levels are examined in a single level analyses, then it creates important problems in the identification of the effects of the variables. Second concept focuses on the spatial dynamics of the housing problem. By studying the housing and tenure choice with the help of multi-level modeling, creates the possibility of examining the effects geographical differentiation on homeownership. According to the authors, the multi-level model is able to recognize different concepts of different places instead of studying the world with the help of single universal equation. The last one is about studying a group that is close in a space may create Type I errors if the observer may ignore the group similarities in that space. As the result of these discussions the authors propose a multi-level model in housing studies. The data for

the model has two levels: the individual (micro) level and the Metropolitan Statistical Area (macro) level).

In the study, tenure choice is the dependent variable and it has three categories: single-family owners, multi-family owners, and renters. The authors do not include age variables into the right hand side of the equation. Instead, the equation is estimated for each age group. The independent variables are decided for household and MSAs. These variables are permanent income, transitory income, household characteristics (household size, household type, etc.), and market characteristics for MSAs. According to the study, income has important effect of tenure choice. However the effect of permanent income is greater than the effect of transitory income on owning. Also household type and immigration status have important effects on homeownership.

Hui (2007) examines how institutional factors affect the mobility of households and tenure preferences in the study of "Population Mobility, Tenure Choice and Institutional Factors". Two different government interventions are discussed in the paper: construction and provision of public rental housing and assisting ownership housing. They use the data of Hong Kong and claim that government is moving in a direction that encourages home ownership. At the end of the study, it is argued that government policies have important affects on tenure choice of public sector households. According to the study, younger households and higher level income groups tend to move more often. Also number of children has a positive and significant impact on residential mobility. Renters tend to move more often compared to owners because of higher transaction cost for owners. Other point is that, the positive change in the household income affect public sector households more than those in the private sector. They argue that the government is quite successful in promoting ownership to the public tenants by reducing the financial obstacles. Direct provision of cheaper housing decreases residential mobility in the public sector, and leads opposite tenure preferences among public housing residents.

Ortalo-Magné and Rady (2008) examine how differences in the timing of move generate income heterogeneity across homeowners by using US Census data in their study "Heterogeneity within Communities: A Stochastic Model with Tenure Choice". The authors find a significant and positive relation between the heterogeneity of incomes of the households and heterogeneity of the times since they bought their homes in the places where there is a strong historical housing price growth.

2.1.1.3. Household Mobility and Unemployment

Among many other problems, the relation between homeownership and housing mobility constitutes an important part of the previous studies. The arguments of the papers mainly focus on the negative correlation of homeownership and housing mobility.

In the study of "Intra-Urban Mobility, Migration, and Tenure Choice", Boehm, et al. (1991) separates household mobility into two components: intra-urban movements and migrations. The choice estimated jointly as a part of a multinomial logit framework. The data is taken from the Panel Study of Income Dynamics. The period between 1968 and 1978 is selected from the data for this study.

In their model authors first of all draw the probability of making a given tenure choice as,

$$\text{“}P_{ijk} = Pr\,(T_{tm} = i,\ MI_{tm} = j,\ MO_{tm} = k)\text{”} \qquad (2.58)$$

where,

m : households
t : time
T_{tm} : the set of tenure choice alternatives

MI_{tm} : the set of migration alternatives

MO_{tm} : the set of intra-urban mobility alternatives.

That is:

T_{tm} =1, if household m chooses to own at time t,

=0, if household m chooses to rent at time t.

MI_{tm} =1, if household m chooses to migrate out of the metropolitan area during the time period beginning at t,

=0, if otherwise.

MO_{tm} =1, if household m chooses to make an intrametropolitan move during the time period beginning at t,

=0, if otherwise.

The authors construct three equation about tenure, migration and intra-urban mobility equation by taking reference to the study of Maddala and Lee in 1976 (?)

The first one is the tenure equation:

$$P(T=1|MI,MO) = (e^{\beta_1 X + \gamma \cdot MI + \delta \cdot MO + \alpha \cdot MI \cdot MO})/(1+ e^{\beta_1 X + \gamma \cdot MI + \delta \cdot MO + \alpha \cdot MI \cdot MO}) \quad (2.59)$$

The second one is migration equation:

$$P(MI =1|T,MO) = (e^{\beta_2 X + \gamma \cdot T + \theta \cdot MO + \alpha \cdot T \cdot MO})/(1+ e^{\beta_2 X + \gamma \cdot T + \theta \cdot MO + \alpha \cdot T \cdot MO}) \quad (2.60)$$

The third equation is intra-urban mobility equation:

$$P(MO =1|T,MI) = (e^{\beta_3 X + \delta \cdot T + \theta \cdot MI + \alpha \cdot T \cdot MI})/(1+ e^{\beta_3 X + \delta \cdot T + \theta \cdot MI + \alpha \cdot T \cdot MI}) \quad (2.61)$$

where,

X_m : a column vector of socioeconomic characteristics associated with household m which effect T_{tm}, MI_{tm}, MO_{tm}.

β_i : row vectors of estimated coefficients.

Results indicate that future mobility and current tenure choice are jointly determined. When the mobility is separated into two components (intra-urban and migration) authors argue that intra-urban and migration decisions are motivated by different factors.

Ioannides and Kan (1996) also examine residential mobility and the decisions of households whether to own or rent after they move in the study of "Structural Estimation of Residential Mobility and Housing Choice". They use micro-data from the Panel Study of Income Dynamics. The authors also examine the financial dimension of the housing mobility and tenure choice.
First of all the authors drive the utility function of the individuals:

$$\text{“}U_t = U\,(C_t, H_t, \theta_t)\text{”}, \tag{2.62}$$

where,

C_t : non-housing consumption,
H_t : housing consumption
θ_t : time varying taste.

Then authors maximize expected lifetime utility:

$$\text{“}\sum_{t=0}^{\infty} E_t\, \beta_t\, U(C_t, H_t; \theta_t)\text{”}, \tag{2.63}$$

by subjecting to the following budget constraint:

$$\text{“}\sum_{t=0}^{\infty} 1/(1+r_t)^t\,(C_t + \pi_t H_t) = A_0\text{”}. \tag{2.64}$$

According to the authors if the household is a renter in period t, then the period cost per unit of housing (π_t) is equal to the rental rate for housing (R_t). However if the household is an owner, then the period cost per unit of housing is equal to the interest rate (r_t) minus the appreciation rate (α_t). A_0 is the household's initial assets.

In the next step the authors define the full set of choices that the household faces in their life cycles:

S_t : discrete state of whether a household rents ($S_t = R$), or owns ($S_t = O$) in period t.

D_t : decision made in period t

"$D_t = (S_{t-1}, X_t, \varepsilon_{D_t})$", and $D_t \in \{STAY, MO, MR\}$, (2.65)

"$S_t = K(S_{t-1}, D_t)$" (2.66)

$K: \{R,O\} \times \{STAY, MO, MR\} \rightarrow \{R,O\}$,

X_t : vector of observable characteristics of the household.

ε_{D_t} : vector of unobservable random variables

STAY : the decision to be stay in the state of previous period

MO : the decision to move and own

MR : the decision to move and rent

K (.) : discrete value function

Then authors drive the tenure choice and residential mobility behavior of owners and the renters.

First of all, if the householder is an owner, then the value function defined by the authors is:

"$V(A_t, H_{t-1}, S_{t-1} = O; \theta_t)$" (2.67)

There are three alternatives of the value function: moving and owning (V_{MO}), moving and renting (V_{MR}), and not moving and holding on to the current amount of housing stock (V_{STAY}).

Secondly, if the household is a renter, then the value function is driven as:

$$\text{“}V(A_t, H_{t-1}, S_{t-1} = R; \theta_t)\text{”} \tag{2.68}$$

Again, there are three alternatives of the value function: moving and owning (V_{MO}), moving and renting (V_{MR}), and not moving and maintaining the existing level of rental housing consumption (V_{STAY}).

In the model, A_t is the financial wealth, and taste shifter is θ_t defined as:

$$\text{“}\theta_t = \theta\ (X_t, D_t) + \psi_t\text{”}. \tag{2.69}$$

The results of the models suggest that, a household's propensity to move depends significantly on their socioeconomic characteristics. According to the study proportional monetary transaction costs are insignificant for the decision of household's mobility, however lump sum monetary transaction costs appear to be significant in housing consumption decision of households. Another argument is that, housing-price appreciation causes renters not becoming homeowners.

Oswald (1997) studies the concept of unemployment of modern economies in their study of “The Missing Piece of the Unemployment Puzzle”. One of his claims is that there can be an important link between the rise in European home-ownership and the unemployment rate. He has four main hypotheses about the explanations of high unemployment rates. One of his hypotheses is that, home-ownership reduces the household mobility and for this reason, high levels of European homeownership may be one of the important reasons for high unemployment rates in Western Europe. Oswald argues that European countries have efforts to increase the home-

ownership rates and decrease the size of the private rented housing sector. The author uses the questionnaire from the British Social Attitudes Surveys. According to this data, renters have greater willingness to move then owners. The findings of the paper support the idea that the rising home-ownership and the decline in the private rental housing sector is a part of explanation of rising unemployment rates. However, the author insists that these issues should be checked by other economists.

Henley (1998) examines residential transition by using British Household Panel Survey in the study "Residential Mobility, Housing Equity and the Labour Market". Two important concluding remarks are driven by the author. The first one is that levels of housing wealth are one of the important factors that affect the residential mobility. The second conclusion is that, residential mobility appears rather unresponsive to labor market conditions.

Kan (2000) indicates that households with larger family size, higher income and a married head are more likely to become owners in his study of "Dynamic Modeling of Housing Tenure Choice". The author used the data of Panel Study of Income Dynamics from the Survey Research Center of University of Michigan. In contrast to some previous studies, the findings of the paper illustrate that inflation does not have statically significant effect on homeownership. The author aims to construct a dynamic model in order to identify the dynamic aspects of housing tenure choice. The paper emphasizes the interdependency between residential mobility and housing tenure mode. The author insists on the fact that, household's tenure mode can be changed only if a move is made by the household. Also according to the author, previous tenure choice has an important impact on the current mobility and tenure choice. For this reason, previous tenure mode is added as an independent variable to the model in order to correct previous models that are studied by different periods. That is, the dependent variable of tenure mode is a function of mobility expectation, previous tenure mode, and socioeconomic characteristics of the households. The results show that tenure choice and future length of stay are

determined simultaneously. After the construction of econometric model, the findings support that residential mobility has important effects on tenure choice.

Haavio and Kauppi (2000) focus on allocation of individuals in space and time by comparing owner-occupied housing and rental housing in their paper of "Housing Markets, Liquidity Constraints and Labor Mobility". They develop a simple intertemporal two-region model. In the model, there are price differences between regions. However both regions have equal, fixed stock of identical houses. So, in the model, wealth affects a household ability to move from a region where house prices are low to a region where house prices are high. Another topic the authors focus is that, under rental arrangement the house is definitely a consumption good. The individual can buy in any period of time, but in ownership the house is an asset which can appreciate or depreciate in value. Based on these arguments, like previous studies, also this model suggests that the mobility of labor between regions is more fluid under rental housing conditions than owner occupation.

Green and Hendershott (2001) investigate the relationship between home-ownership and unemployment in the study of "Home-ownership and Unemployment in the US". They argue that the relationship is non-existent for young households and old households, but it is significant for middle-aged groups. That is because young age groups are more mobile and have accumulated little wealth. The relation is non-existent for old age groups because their members are largely not in the labor force. According to the study, middle age groups assume homeownership as a constraint for labor mobility. That is homeownership leads to higher unemployment rates.

Coulson and Fisher (2002) examine the relation between tenure choice and labor market outcomes in the study of "Tenure Choice and Labor Market Outcomes". They argue that the cost of relocation is higher for homeowners than the renters, and so they are tied to their locations. For these reasons, homeowners are less mobile than renters. According to them, when a group is less mobile than others, this less mobile group will have lower probability of employment, and also lower

wages than others. In their research they tested three hypotheses which are, homeowners have a greater probability of being unemployed, unemployed homeowners experience longer spells of unemployment, and wages of homeowners will be lower than renters. However the US data used by the researchers do not support all the hypotheses. In fact they find out that home owners have lower unemployment probabilities, shorter spells of unemployment, and higher wages than renters.

Dohmen (2005) examines the relationship between housing tenure, regional mobility and unemployment in his study of "Housing, Mobility and Unemployment". A model is constructed for two identical regions. The size of the regions and employment characteristics are the same among the regions. Workers can be either homeowners or renters, but workers live where they work. So they have to move if they find a new job outside the home region. The results suggest that high skilled owners are more mobile than low skilled owners.

2.1.2. Social Factors

Following a comprehensive literature review, social factors that affect homeownership and tenure choice appear to be one of the main concerns of the previous studies. The topic is examined under two main subtitles. The first one is the demographical factors, and the second one is race and ethnicity.

2.1.2.1. Demographical Factors (Age, Marital Status, Gender, Family Type and Education, etc.)

Social factors like age, education, gender, family type, marital status, etc. are mainly the concerns of some earlier studies of 1990s.

Bourassa (1994) examines different behaviors of immigrant and Australian-born residents on housing tenure choice by looking at economic and demographic

characteristics in the study of “Immigration and Housing Tenure Choice in Australia”. Permanent and transitory income, relative costs of owning and renting are the economic factors that the model examines. The marital status and sex of the household head, number of dependent children, and security are among the demographic characteristics of households. At the end of the study, the author argues that there is no significant difference between Australian-born residents and 7 out of 10 major immigrant groups in housing tenure choices by comparing their economic and demographic characteristics.

Jones (1996) studies the housing tenure decision by the elderly in Canada in the study of “Housing Tenure Transition and Dissaving by the Elderly”. It is argued at the end of the study that, households that have diminished in size are more likely to own their homes. Also, older widowed, or divorced, primary maintainers are more likely to make the transition to tenancy.

Another study on social factors is from Weber and Rossi (1996) in “The Social Benefits of Homeownership: Empirical Evidence from National Surveys”. The authors use a large amount of data from three major public use data sets: the General Social Survey, the National Survey of Families and Households, and American National Election Studies. According to the study, there are strong differences in demographic factors between homeowners and renters. There are important racial and ethnic differences in homeownership choice. That is homeownership rate is in smaller rates among Blacks and Hispanies. Also there are strong differences between homeowners and renters in issues like household life cycle and economic conditions. Homeowners have higher incomes and more debts than renters. In some respects there are consistent but weak differences in issues like well being, views on marriage, social integration. Homeowners have greater life satisfaction and self-esteem than renters, and also more likely to be members of community improvement groups. Also, according to the study, homeowners are more likely to become married than renters are, however the difference is not very significant rate.

Gyourko and Linneman (1997) focus on effects of some of the demographic and economic factors on homeownership in the study of "The Changing Influences of Education, Income, Family Structure, and Race on Homeownership by Age over Time". They use data from the four decennial censuses since 1960 for the years 1960, 1970, 1980, and 1990. The analysis consists of households with heads at least 19 years old, who live in urban areas. The dependent variable of the model is homeownership. The key independent variables are age, the head's marital status, educational achievement, and household income, the race of household and housing costs. According to the model, there are important differences about educational achievement on homeownership. The results of the study indicate that there is a decline in homeownership among the least educated households. Another finding of the paper is that, the negative impact of race has also increased among the youngest adult households.

Aaronson (2000) examines homeownership externalities in "A Note on the Benefits of Homeownership". This study uses the Panel Study of Income Dynamics. The results suggest that there is a correlation between the impact of family stability and involvement with homeownership and children's educational attainment. If households increase residential stability, their children have higher school attainment. According to the study, homeowners are wealthier, so that they can afford better schooling opportunities for their children, which can be one of the reasons for this argument.

Painter (2000) examines tenure choice decision in order to correct sample selection how recent movers that was identified in the previous study on homeownership in "Tenure Choice with Sample Selection: Differences among Alternative Samples". He identifies differences among factors such as age, immigrant length and status, and income between different models. He argues that one way of modeling tenure choice is using longitudinal data. This helps to capturing long-term nature of tenure choice; however few data sets are available for this approach. Second one is using cross-sectional data. If it uses a sample of recent moves, there can be a bias between

recent movers and previous movers. According to the author, alternative approach for tenure choice is using cross sectional data of recent movers by accounting for the probability that someone is likely to be a mover. In this study, Painter uses the data from the public use microdata sample file of the 1990 decennial census. There are information about housing unit and households in the data. It includes both renters and owners with households head aged 18-64. The independent variables of the tenure choice function are demographic factors (race/ethnicity, age, marital status, number of people in the household, number of workers in the household, migrant origin and history), economic factors (salary, income, dividend and other income, education level of householder), and other factors. Painter shows that the impact of income and education is similar across the models. The author insists the importance of correcting for sample selection when using cross-sectional data. The findings of research support the idea that other models overestimate the importance of age and immigrant status in tenure choice.

Si-Ming Li and Limei Li (2006) study housing tenure change in China by using Cox Proportional Hazard Model. The interest of their paper is to investigate the transition from renting to owning. Results of the model show that higher education attainment and higher age of households associated with increasing homeownership. They also find out that, a more important factor in changing housing tenure type from renting to owning is changes in marital status.

Laaksonen, et al. (2008) examine homeownership and mortality by using Cox Regression analysis. At the end of their study, they show that renters have higher mortality than homeowners after adjusting for household income, occupational class, and educational level.

Gary Painter and KwanOk Lee study housing tenure transitions of older households by using Cox Proportional Hazard Model in 2009. In their study, they investigate why older households make housing transitions from owning to renting. They show that age is not related directly to housing tenure choice for older households.

Instead, having lower health status and being a single head of household is the important predictor of housing tenure transitions for older households. Also they find out that living next to one's children lowers the probability of shifting from homeownership.

Another study is from Wayne R. Archer, David C. Ling and Brent C. Smith (2010). They use Cox Regression in order to investigate homeownership duration in the residential housing market. They examine the effects of structure features, tenure, household characteristics, and neighborhood factors on ownership turnover rates. The results of their study show that households' characteristics become the strongest power behind the ownership turnover rates.

2.1.2.2. Race and Ethnicity

Race and Ethnicity is the other popular topic in homeownership studies. Kain and Quigley (1972) examine the differences between black and white households on homeownership behavior in "Housing Market Discrimination, Home-ownership, and Savings Behavior". In order to investigate the probability of homeownership and purchase, they develop a model to the socioeconomic characteristics of a sample of 1185 households in the St. Louis metropolitan area. As the result of the probability of ownership equation, they find that old couples are more likely to be homeowners then young couples. Income and employment have positive effects on homeownership. The findings of the study strongly indicate that there are important differences in homeownership among races. Black individuals are less likely to become owners than white individuals of similar characteristic. Housing market discrimination limits homeownership for black individuals.

Another study on ethnicity is from Bourassa (2000): "Ethnicity, Endogeneity, and Housing Tenure Choice". The authors examine the issue by giving particular attention to the endogeneity to current income and wealth relative to tenure choice. The authors drive the probability of homeownership as the function of relative cost

of owning and renting, the constraint of household, marital status, age, number of people in the households. The data cover the years 1993 and 1994 from Household Economic Survey conducted by Statistics New Zealand. The results of the study show that a small portion differences in homeownership is explained by household endowments. Also controlling the endogeneity of factors such as wealth and income has an important impact on tenure choice of two main ethnic groups in the study.

Bostic and Surette (2001) in the study of "Have the Doors Opened Wider? Trends in Homeownership Rates by Race and Income", examine the rise in homeownership among U.S. families. The main idea of the study is to identify which types of families driving these trends, and the factors behind this rise. The paper focuses on racial issues in homeownership among families grouped by income level. As a first step of the study, the authors examine the trends in average homeownership rates. According the authors the mortgage market is governed by the roles of race, ethnicity, and income. So the impacts of race and income are taken as a first stage. As a second step, Bastic and Surette examine the differences in homeownership between minority and nonminority families. The third step is to identify the factors that explain the changing trends in homeownership. The study uses data of Current Population Survey between the years of 1989 and 1998. Between this period homeownership increased for all racial groups according to the data. The authors estimate a discrete model of homeownership. The results of the model show that the ownership rate increases more sharply for blacks, Hispanics, and lower-income families between these periods. Also authors argue that the differences in homeownership between minority and nonminority families decline between these years. The same trend is valid for the differences between middle income and lower income families.

In the paper of "Race and Home Ownership: A Century-Long View", Collins and Margo (2001) examines the trends in racial differences in homeownership and housing values and residential segregation. The paper uses the data of male household heads from the census Integrated Public Use Microdata Series in United

States. According to the data, racial differences in homeownership and housing values have narrowed among male household heads over the 20th century. The proportion of black male household head who were homeowners rises between the years 1900 and 1990. This increase is smaller for white male household heads. For this reason, it can be concluded that the racial gap in homeownership fell between these years.

Painter, Gabriel, and Myers (2001) investigates housing tenure choice among racial and ethnic groups in "Race, Immigrant Status, and Housing Tenure Choice". At the end of the study, they argue that income, education, immigrant status largely explain the homeownership differences between Latinos and whites, Asians are as likely to choose homeownership as whites are.

Another study about race is from Deng, Ross, and Watcher (2003) in the paper of "Racial Differences in Homeownership: the Effect of Residential Location". In the study, the metropolitan sample of the American Housing Survey for Philadelphia in 1985 is used. The authors construct three models for their investigation. Model I helps them to compare their results with existing literature. Models II and III are the focus of their paper. Model I is a standard tenure choice model that controls demographic and financial characteristics. Demographic characteristics involve family structure, age, education. Financial characteristics involve family income and downpayment constraint in housing demand. Models II and III include racial and income composition of a location, and two constructed variables. Three models of tenure choice show that, credit constraints decline the likelihood of homeownership, higher income increase the likelihood of ownership. Also downpayment constraint has important effect on African-Americans households' decision on homeownership. The authors conduct simulation analyses in order to find the magnitude of the effects on constraints. They conclude that the racial differences in homeownership are reduced by 17 percentage point or by 77 percent when the authors eliminate credit constraints in the model. As the result of the test, the authors cannot find any evidence that residential location outcomes lower the

rate of homeownership among African-American households. After they control for neighborhoods, they find that racial differences in homeownership are larger than originally believed. The endowments explain less than half of these differences. The simulations in the paper indicate that racial and income segregation plays an important role in homeownership across the metropolitan area in the model.

2.1.3. Psychological Factors

Another interesting topic is the psychological factors of homeownership and tenure choice. The review also suggests that a number of studies argue that homeownership provides many social and psychological benefits to the households.

Elsinga (1998) examines different meanings of homeownership and experiences of homeowners by taking into consideration of writings of Saunders in their study of "The Meaning of Tenure under Different Conditions; Empirical Evidence from the Netherlands". The study aims to identify the differences in advantages and the experiences between homeownership and renting. The sample for the survey is selected in two urban housing market areas in the Randstad in Netherlands, as 540 homeowners and 400 renters participate in the survey. A Principal Components Analysis is applied to the outcomes of the surveys. First of all, the authors investigate income position. Three classes of household income are identified: low income, medium income, and high income. Second indicator is about the quality of current dwelling. The third variable is the length of occupancy. According to the result of the study, homeowners are more concerned about maintenance and finance than renters. They score higher on their sense of freedom, and also homeowners feel more tied down to their place than renters. Another result is that, there is higher satisfaction rating among homeowners. Also contrary to Saunders's study, according to Elsinga renters are generally more attached to their neighborhood than homeowners. Homeowners feel more responsibility for the financial arrangements and for maintenance. Also homeowners are more satisfied with their neighborhood, their dwelling, and their housing costs than renters.

Coolen and Hoekstra (2001) in their article "Values as Determinants of Preferences for Housing Attributes" want to study microlevel motivational factors of homeownership such as goals and values. In this article, authors use means-end theory in order to examine different housing attributes. There are seven phases of the means-end chains. The first one is the elicitation of relevant attributes. Second one is selection of the attributes. In this phase the respondents select from the list of several attributes those that are most important for them. In the third phase, respondents draw out the attribute levels. The forth step is the key phase of means-end chains. A semi-structured laddering interviewing technique is used in this phase. In this process the "why" question is repeated as a reaction to the answers of the respondent to the questions. The fifth phase is the construction of means-end chains with reference to interviews. A hierarchical value map is constructed as the six phase. And lastly, this map is analyzed and interpretated.

Coolen, et al. (2002) aim to identify the effects of motivational micro level factors such as goals and values on intended tenure choice by using extended means-end model which is based on means-end theory, in their study of "Values and Goals as Determinants of Intended Tenure Choice". Eight value domains are constructed for the study: basic values, hedonism, family values, structure and order, power and achievement, self-esteem, esteem from others, and self actualization. At the end of the study, age, current tenure, income, household consumption account for 91% of the explained variance, and value orientations and the goals contribute 9% to the explained variance of intended tenure choice. The authors examine two aspects of housing: investment and consumption. The investment aspect of housing is more related with the values like power, achievement, and goals like wealth. The consumption aspect seems to be more related with the values like family values, and goals like harmonious family life.

Danny Ben-Shahar (2007) examines housing tenure choice by focusing psychological and economic factors in their study "Tenure Choice in the Housing Market: Psychological Versus Economic Factors. In the study, he identifies that

both psychological and economic factors involved in tenure choice, and also it is argued that psychological factors and economic factors are highly correlated. However according to Ben-Shahar, psychological factors are more significant than economic factors. In fact, he argues that psychological factors may be the main underlying determinants of economic housing tenure. That is psychological factors may be more meaningful than the economic factors.

2.2. Concluding Remarks

To sum up, empirical evidences from previous studies show that one issue of primary importance is the economic factors behind the tenure choice decision. Almost all studies argue that housing demand is both income and price elastic. Higher wealth and current income increase the probability of homeownership. Between these factors permanent income brings more attention in housing ownership decision in previous studies. Another important factor is the price, income uncertainty and constraint issues. There is a consensus on the negative relationship between uncertainty and probability of homeownership. For most households homeownership can be seen as a trust against rent and price fluctuations. Some of the previous studies argue that a downpayment requirement is an obstacle for homeownership. Again credit and wealth constraints are important barriers for owning a dwelling. Families are less likely to own in an economic environment with high house price volatility. Also, some studies focus on negative impacts of transaction cost on homeownership. An issue that is a point of controversy among many researches is the relationship between unemployment and housing ownership. The main argument is that renters are more mobile than owners. For this reason, some researchers argue that homeowners have greater probability of being unemployed than renters. However, some evidence on opposite side is also demonstrated by some other researchers.

The literature also has vast amount of instances of studies about social and psychological factors behind homeownership. Most research literature partly or

completely argue that there are important racial and ethnic differences in homeownership choice. Another observation is that, higher levels of education may bring higher demand for housing. There are also great amount of study about demographical factors behind housing tenure choice, however effects of these variables may change with respect to related case study areas. A final observation is that homeowners have greater life satisfaction and self esteem than renters. They have more sense of freedom, and also feel more tied down to their location.

The literature survey shows that there is an important gap in housing literature in Turkey. This thesis aims to make a contribution to fill the gap in the literature about housing tenure choice in Turkey by choosing Ankara as a case study. The effects of these related socio-economic factors on housing tenure discussed in the literature survey are investigated for the case of Turkey. A new research agenda focusing on differences in households' tenure choice is needed with the help of models to be developed for this purpose. After reviewing this evolving empirical literature, next chapter of the study conceptualizes the theoretical framework and hypotheses of the thesis.

CHAPTER 3

THEORETICAL FRAMEWORK AND HYPOTHESES OF THE THESIS

3.1. Main Purpose and Method of the Study

The main subject of the study is to investigate transition from tenancy to homeownership by examining the case study of Ankara. The literature survey in the previous chapter illustrates that economic factors dominate the process of transition from tenancy to homeownership. Another important result is that socio-economic factors affect the timing of shift to homeownership; however the effects of these factors change according to different case studies. As a result of the arguments in the literature survey, the study is divided into two steps in order to test these two important results. In the first step, the main argument is carried on by focusing on economic factors. That is, it is investigated whether a household is able to shift from renting to owning by taking into account wealth and income constraints. By considering households' monthly measurable income, different economic ways of shifting from tenancy to homeownership are examined in the first step of the study. By using quintile income distribution of households, it is hypothetically tested that whether different income quintiles are able to become homeowners.

Second step evaluates the second result of the literature survey. After investigating which income quintiles are able to buy their own housing units, shifting from tenancy to homeownership is investigated by considering effects of different social and economic factors in Turkey. In this part, it is aimed to figure out in which period of their lives households make decision to shift from tenancy to homeownership for those who are economically able to achieve this transition. In

this respect, the second step of the study is the examination of effects of different socio-economic factors on the probability of shifting from tenancy to homeownership and housing tenure choice decision. While examining when households are able to shift from tenancy to homeownership, also households' decision on housing packages are investigated in the second step of the study. Households start to seek for dwelling units with particular bundle of attributes, suitable location, and acquirable price. Households with different social and economic backgrounds decide to buy different dwellings in different locations which are corresponding with their tastes. These calculations will be differentiated for different housing provision methods in order to make a comparison between the probabilities of homeownership that different methods provide for households. The mobility between different locations of Ankara is examined by considering housing tenure choice.

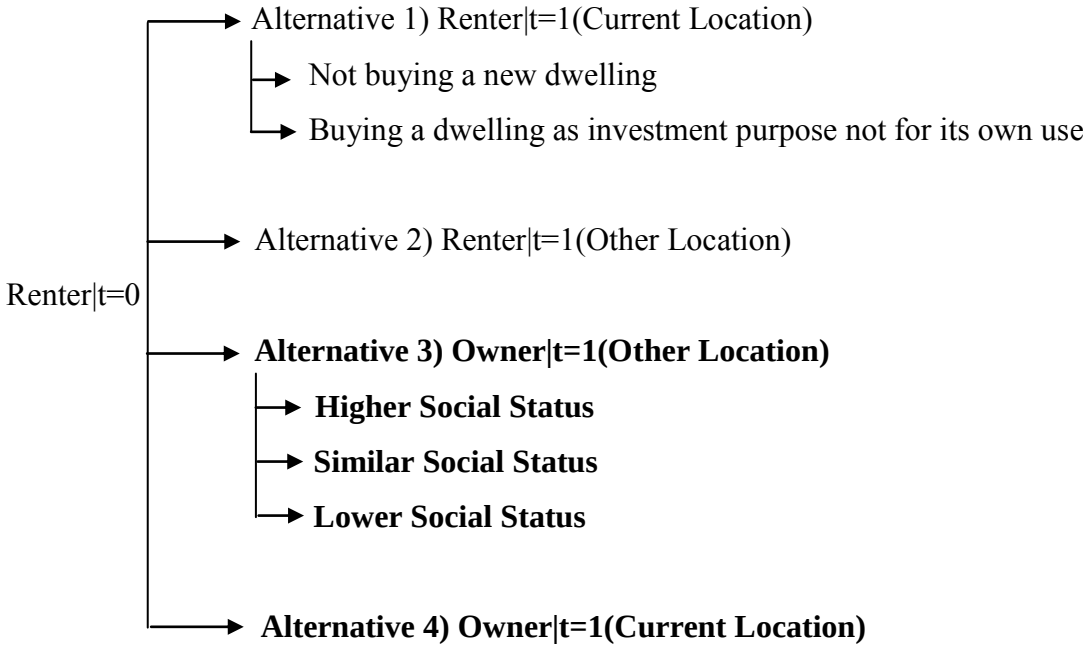
3.1.1. The Method of the Study

The thesis examines tenure and housing consumption choices of recent homebuyers only. There are a lot of possibilities for households. The main purpose of the study is to examine the shift from renting to owning, and whether households prefer to change their current locations in order to become homeowners. For these reasons, the possibilities are reduced into following alternatives by the help of the study of Özyıldırım, et al. (2005).

In order to identify the shifts from tenancy to homeownership, a two-period world will be used in the study (t=0 represents the current time period, and t=1 represents the future time period). In t=0, there are two alternatives, the household may be a renter or an owner. In this thesis, the mobility between locations is also important. For this reason, households have two alternatives again: moving or not moving.

In the first case, let household be a renter:

Case 1: Assumption: t = 0, household is a renter



In this case, the household is a renter, and suppose that s/he is able to purchase a dwelling, which can be located at current district of households or somewhere else. According to the utility functions of owning and renting, the household makes the decision. In this case, the individual can have four alternatives.

If the preference of household about renting is greater than owning, then household will stay in the current location as a renter. There is not a move or change in the current tenure condition. This preference is represented as Alternative 1 above. However, there is also the possibility that household may purchase the dwelling as an investment purpose, but prefers to stay at the current location again as a renter because of social or locational preferences of household about the current location.

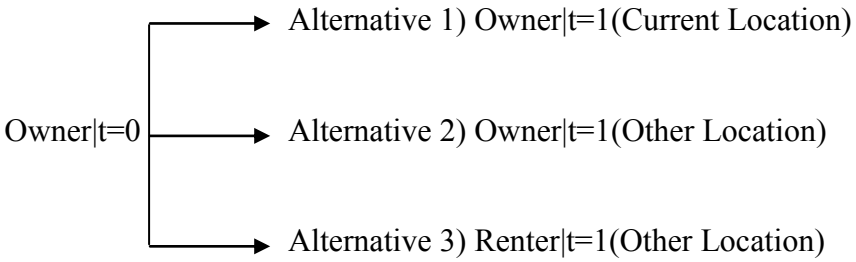
Another alternative is that, household may prefer to move but again being a renter in the new location. The main reason of this case may be the change in his/her workplace (Alternative 2).

However if the preference of the household about owning is greater than renting, then he/she will buy the new dwelling. In this condition, the household moves and becomes a homeowner in t=1, as shown in Alternative 3. In this alternative, the household may have the chance to move to another location with the same or higher social status. However the reverse can be possible, that is household may not afford to buy a dwelling at a location with the same or higher social status, so prefers to move to another location having lower social status and housing prices for the purpose of becoming a homeowner.

The forth alternative is that, the household may have the opportunity of purchasing a dwelling at the current location (Alternative 4).

In the second case, the household is a homeowner in current time.

Case 2: Assumption: t = 0, household is a homeowner



In the first alternative, household may move to another dwelling in the current location as a homeowner because their preferences about housing may change.

The second alternative is that, the household may change the current location in order to shift to a better dwelling as a homeowner. In this alternative, the main determining factor is social preferences of households about the amenities of location, and in general they are able to carry out this process by selling one of their current properties.

In the third alternative, the household may prefer to move from current location and become a renter in a new location. In general, the main reason of this alternative would be the change of workplace.

There can be another statistical alternative that household become a renter in their current location, which may be related to the attachment of the household to that locality.

In this thesis, the first purpose is to investigate the decision of households about shifting from renting to owning. For these reasons, the third and the forth alternatives of the first case are the main problem areas of the study. As literature survey illustrates social and economic factors affect the possibility of this move and households' decision on location and dwelling units.

Two steps of the thesis use different methods in the study. Each of them is discussed in the next sections of this chapter.

3.1.1.1. Step 1: Different Economic Ways of Shifting from Tenancy to Homeownership

As discussed in the literature survey in the previous chapter, Henderson and Ioannides (1986) study the utility functions of both renters and homeowners. In their model, utility function is composed of different variables, which are the price of owning (for homeowners) or rental price of housing (for renters), the price of all other goods, permanent real income, and disturbance term. Here disturbance term

comprises variables which are not included in the model, like neighborhood amenities.

Permanent income is the main determinant factor when households purchase a dwelling by using housing credits. However in Turkey, the ratio of using housing credits in housing purchase is not as high as the ratio of housing credits in countries with developed housing credit markets. For this reason, in this part of the study, not only permanent income but also transitory income and wealth of households are added to the model because they play important roles in tenure choice decisions of households in Turkey. For this purpose, like the model of Moriizumi (2003), measured income is added into the model instead of taking into consideration of permanent income only, because measured income includes both permanent and transitory income. Also again as Moriizumi (2003), liquefiable wealth is included into the model. According to Moriizumi (2003) the saving behavior of households is also related with the plans about purchasing housing. They save more if they have such a plan. So, the amount of wealth is affected from purchase plan equations of households about housing.

That is,

$$\text{“}U_{oi} = f(p_o, p_x, Y, w, e_o)\text{”} \quad (3.1)$$

$$\text{“}U_{ri} = f(p_r, p_x, Y, w, e_r)\text{”} \quad (3.2)$$

where,

U_{oi} : Utility function for homeowners
U_{ri} : Utility function for renters
p_o : Net price of owning
p_r : Rental price of housing
p_x : Price of all other goods
Y : Measured income

w : Liquefiable wealth

e_o, e_r : Disturbance terms.

In these conditions, if the utility of owning is greater than the utility of renting, household prefers to own; and if the utility of renting is greater than the utility of owning, then household prefers to rent.

In Chapter 5, households' decision on tenure choice is examined by only considering these economic factors. Without adding social characteristics of households, it is investigated that whether households are able to buy a dwelling. If utility of owning is greater than utility of renting, then households prefer to own as a result of these equations based on economic factors above. By calculating their income and prices of 3+1 room dwelling units in different locations of Ankara (Çankaya, Mamak, Altındağ, Gölbaşı, Etimesgut, Sincan, Keçiören, and Yenimahalle), it is examined whether different income quintiles are able to own a dwelling unit.

3.1.1.2. Step 2: Effects of Different Socio-Economic Factors and Housing Provision Methods on the Probability of Shifting from Tenancy to Homeownership, and Location and Housing Packages Decisions of Households while Purchasing a Home

After examining which income quintiles are able to shift from tenancy to homeownership and different economic ways of this shift in Chapter 5, effects of different socio-economic factors on the probability of shifting from tenancy to homeownership, and decision of household about location and characteristics of the dwelling units are examined in Chapter 6.

In this part of the study, the analysis is based on Cox Proportional Hazard Model. Cox Proportional Hazard Model is a method of survival analysis. "Survival analysis is a method of analyzing whether or not an event will happen. Cox regression

provides an estimate of the treatment on the survival rate, after adjustment of the explanatory variable[2]". Like other regression models, in the Cox Proportional Hazard Model, coefficients of the explanatory variables are estimated. That is, Cox Regression determines the relationship between survival and explanatory variables.

"Cox's regression is a semi-parametric approach to survival analysis. The proportional hazard model is the most general of the regression models because no assumptions concerning the nature or shape of the underlying survival distribution are required. The model assumes that the underlying hazard rate (rather than survival time) is a function of the independent variables (covariates). The method does not require that a probability distribution be formally specified; however, in contrast to nonparametric methods, Cox's regression does use regression parameters in the same way as generalized linear models" (Archer, et al, 2010:45).

Some housing studies also use Cox Proportional Hazard Model particularly in order to analyze the duration of housing tenure choices. Cox Proportional Hazard Model is originally introduced by David Roxbee Cox in 1972.

One of the main purposes of this thesis is to investigate the probability of shifting from tenancy to homeownership, and what specific life course events are important in this shift. In this respect, Cox Proportional Hazard Model provides important role to evaluate the role of socio-economic factors affecting the episode of housing tenure change and the timing of the shift.

Like in the study of Li and Li (2006), the shift is investigated by taking into account of both economic and socio-demographic factors. For this purpose, a survey is carried out in different parts of Çankaya and Yenimahalle districts of Ankara. The responders of the survey are the households who recently bought a house. The survey contains information about the value of the related house, and socio-economic characteristics of households. In socio-economic characteristics,

[2] http://www.statisticssolutions.com/methods-chapter/statistical-tests/cox-regression/

measured income is used as the variable representing income of households. However, as it is discussed before also wealth of households is an important indicator in the decision of purchasing a house. For this reason, the survey has information about both households' income and current wealth. Also, in order to test the income effect on this decision, the survey contains information about the job history of households. In other to evaluate the effects of social and other economic variables in this shift, the survey contains information like age and education of households, changes in marital status, times of birth of children, retirement status, change in family composition, history of tenure choice, and average household size.

In Cox Regression, the dependent variable is called the status variable, and it is binary in nature. The value of 1 is given for events that happen, and the value 0 is given for events that do not happen[3]. In this case, the status variable is the housing tenure of households. It takes the value of 1 if the household is homeowner, and takes the value of 0 otherwise.

There is "time" variable in Cox Regression which measures the duration of the status variable, and independent variables are called covariates. Covariates can be categorical variables or dummy variables. In Cox Proportional Hazard Model, hazard is the event of interest occurring, and hazard ratio is the probability of events happening in time t+1[4].

Let,

$$X = \{x_1, x_2, ..., x_n\} \tag{3.3}$$

be a vector of 1 or more explanatory variables (covariates) that are believed to affect housing tenure choice of households. These variables may be continuous or

[3] http://www.statisticssolutions.com/methods-chapter/statistical-tests/cox-regression/

[4] http://www.statisticssolutions.com/methods-chapter/statistical-tests/cox-regression/

may be dummy variables which takes the value '1' if the factor is present, or takes the value of '0' otherwise.

Xβ is a linear regression function:

$$(\beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \ldots + \beta_n x_n) \quad (3.4)$$

where, β's are unknown parameters.

In this model, the probability of endpoint of an event is called the hazard[5], and $h_0(t)$ demonstrates the baseline hazard function, and h(x,t) is the hazard function at time t.

The proportional hazard function is driven as:

"$h(x,t) = h_0(t)e^{X\beta}$" (Archer, et al. 2010). (3.5)

"$e^{X\beta}$ is the exponential function that specifies how the exogenous variables (x_1, x_2,...,x_n) affect h(x,t)" (Archer, et al. 2010:45). In this thesis, h(x,t) represent the probability of shift from tenancy to homeownership at time t.

"Cox regression obtains maximum-likelihood estimates of the β parameters without, the necessity of specifying the baseline hazard function, $h_0(t)$. The proportional hazard model evaluates the probability of ownership termination, conditional on ownership of the unit to that point in time. Therefore, the model not only evaluates the determinants of turnover at the time of termination, but also analyzes the behavior of the unit's owner over the entire event history of ownership" (Archer, et al. 2010:45).

[5] http://www.statisticssolutions.com/methods-chapter/statistical-tests/cox-regression/

"One implementation condition of the Cox model is continuous observation of the events over the observation period. This condition is typically not met by economic data, which are most often gathered periodically in discrete time intervals" (Archer, et al. 2010:45). However there are other implementations which are right and left censoring. The most common form is right censoring; the period of observation expires before the events occur, such as the household may not able to shift from tenancy to homeownership at the end of the period. The second type is left censoring. If initial time of shifting from tenancy to homeownership is unknown, that is left censoring. In some observations, there can be both left and right censoring.

All analyses are carried out separately for different regions and Cox Proportional Hazard Models are used to estimate hazard ratios comparing different locations of Çankaya and Yenimahalle districts of Ankara. As it is discussed before the main problem area of this study is examination of the probability of shifting from tenancy to homeownership at time t. The dependent variable is the length of housing tenure (start as a tenant until switching to homeownership). The independent variables can be socio-economic factors like income, wealth, age (five-year age groups), marital status (married, never married, divorced, and widowed), birth of the child, education level (Primary School, High School, University, MS Degree, PhD Degree), retirement, average household size, and etc..

Cox Proportional Hazard Models predict the likelihood that a household shifts from tenancy to homeownership. It is aimed to investigate which households are more likely to become homeowners. Li and Li (2006) argues that "Cox's proportional hazards model, is employed to overcome the conceptual difficulties that arise in normal regression context in handling incomplete episode of housing and in measuring explanatory variables whose values change during the time that the household is at risk of making the change" (Li & Li, 2006: 658).

Cox Proportional Hazard Models estimate hazard ratios with 95% confidence intervals in this study. In order to test which dependent variables are significantly related to the shift from tenancy to homeownership the corresponding ρ-value is calculated. If the value is smaller than 0,05, then the related variable is significant.

The second step is the calculation of the hazard ratio. "The hazard ratio is a measure of the sensitivity of ownership termination to changes in an independent variable. For example, a hazard ratio of 0.90 means that a one unit increase in the independent variable is associated with a 10 percent decline in the hazard. Conversely, a hazard ratio of 1.10 implies that a one-unit increase in the independent variable is associated with a 10 percent increase in the conditional probability of ownership termination" (Archer, et al., 2010:51). That means, for the significant independent variables, if the hazard ratio is smaller than 1, which means there is a negative relation between this independent variable and dependent variable. The corresponding β value of the independent variable will have negative sign in this case. If the hazard ratio is greater than 1 that means there is positive relation between this independent variable and dependent variable, and the β value of the related independent variable will have positive sign in this case.

Chapter 6 also investigates the link between probability of shifting to homeownership and households' decision on location and housing packages. "The housing market is not a uniform entity; rather it can be considered to be a set of distinctive submarkets arising from structural and locational attributes" (Adair, et al. (1996:67). For this reason, tenure choice and ways of shifting from tenancy to homeownership vary across different locations. As a result, two residential districts corresponding to different submarkets are identified for the case study of Ankara as Çankaya and Yenimahalle.

Different households in the society have different tastes for various components of housing packages. For that reason, each household conducts an extensive search for a dwelling appropriate to their tastes and income after they decide to buy a dwelling

(Rothenberg, et al., 1991). They search to find an equilibrium point between different characteristics and location of housing unit, and households' income.

In Classical Economy, rational household will choose a residential location by weighting attributes of each available alternative. These alternatives compose different variables like accessibility to the workplace, shopping, and schools; quality of neighborhood life; travel cost; dwelling characteristics like age, number of rooms, types of appliances, etc. (McFadden, 1977). In housing location decision, households focus on a trade-off between these characteristics and location of the dwelling subject to income constraint. For these reasons, three important components can be identified in the process of decision on housing purchase: location, characteristics of the dwelling, and income of households.

One of the decisions in the process of housing purchase is about the location of the dwelling. There is an important literature on residential location. "Alonso (1964) first proposed bid-rent as the basis for land use and urban location theory. He developed a deterministic equilibrium model in continuous space, where utility depends on the consumption of a generalized good, property size, and distance to the central business district (CBD), subject to an income constraint" (Pérez, et al., 2003:772). In Alonso's model, it is assumed that the city is on a featureless plain, and there is identical transport cost at a given distance from CBD. That is, locations are differentiated only by their distance from CBD, and the utility functions of the households are derived through the concept of willingness-to-pay (Pérez, et al., 2003).

Solow (1973) and Rosen (1974) made important contributions to this model by introducing the theory of hedonic prices into the model. Also in 1973 Ewans defined the lot size, the time devoted to work, the travel time to work located at the CBD, and the time devoted to other activities as sources of households' utility. Morisugi and Yoshida (1986) link location models with the value of time theory

developed in transport research, and they concluded that the time spent at different activities is the principal source of utility (Pérez, et al., 2003).

"Different locations provide different utility levels to each individual member according to the value he or she assigns to the location's characteristics—the set of attributes describing the dwelling and the environment, including the neighborhood. The choice of location also determines different individual utility levels depending on its spatial relationship with the location of activities performed by each household member, that is, depending on individual accessibility variables" (Pérez, et al., 2003:773).

In the process of housing purchase, also variety of other residential location attributes may affect the housing and location choices of households besides transportation accessibility. These may include the social composition of neighborhoods, residential density, and the level of public services such as schools, police, fire, and recreational services (Weisbrod, et al. 1978).

Locations are not unique in the city; for this reason price of dwellings at different locations also vary. For that reason, households make a decision about the location of the dwelling by taking into account their income constraints. "Location has different prices, or rents, that are expended from the total family income and reduce the disposable income for other goods. Therefore, family members compete with one another to maximize their individual utility in a space of possibilities restricted by the household income" (Pérez, et al., 2003:773).

The second decision is about the characteristics of the dwelling, such as age, size, quality, condition, and price of the dwelling. Households drive utility from these various characteristics of the dwelling. Also housing prices vary in relation to the dwelling characteristics. For this reason, households make a decision about characteristics of the dwelling again by considering the income constraint.

Housing is a heterogeneous good. For this reason, in economic models housing is taken as a combination of different structural and environmental elements. In empirical analysis price of each dwelling is estimated by the help of hedonic pricing index (Türel, 1981). "A hedonic equation is a regression of expenditures (rents of values) on housing characteristics. The independent variables represent the individual characteristics of the dwelling, and the regression coefficients may be transformed into estimates of the implicit prices of these characteristics" (Malpezzi, 2003:68). Equilibrium in the housing market is driven by the relationship between market prices of the dwelling and the characteristics of the related unit (Rothenberg, et al., 1991).

Consider housing is specified as a vector of those characteristics:

$$H_i = (h_1, h_2, ..., h_n) \quad (3.6)$$

Where, each h_n is the amount of a particular housing characteristics, such as age of the dwelling, floor space, condition, structural characteristics of the dwelling, social structure of the environment, etc. "This defines a space in which each housing unit is defined by such a vector; transactions in housing units are thus seen as "tied sales" of bundles of characteristics. It is assumed that the vector (h_1,...,h_n) includes all attributes necessary to describe the housing unit completely and that each attribute is capable of objective measurement (though certainly households' valuations of alternative combinations may differ)" (Rothenberg, et al., 1991: 54, 55).

Also, the price of the dwelling can be written as a function of prices to particular bundles of characteristics of the dwelling:

$$p(H_i) = p\ (h_1, h_2, ..., h_n) \quad (3.7)$$

Where $p(H_i)$ is the market value of the dwelling with characteristics $H_i = (h_1, h_2, ..., h_n)$ (Rothenberg, et al., 1991).

However, there is another important point which should be introduced into this model. Here, price of the dwelling is calculated by adding prices of different characteristics of the dwelling. However in reality, similar characteristics of housing are priced differently in different locations of the city. That is, the price of dwellings with similar characteristics may have different prices or rents in different locations. For this reason, in order to calculate the price of a dwelling, location of the dwelling (d_j) should also be introduced into the model. Then,

$$p(H_i dj) = p\ (h_1 d_j, h_2 d_j, ..., h_n d_j) \quad (3.8)$$

where,

d_j: the location j

$p(H_i d_j)$: the price of i^{th} dwelling in location j.

Household make a decision which maximizes their utility subject to their budget constraint. A household with a vector of socio-economic characteristics drives utility function from various characteristics of the dwelling (H_i), and from the non-housing goods (Z) (Palmquist, 1984).

As a result, the utility function of the household can be written as:

$$U = U(H_i d_j; Z) = U(h_1 d_j, ..., h_n d_j; Z) \quad (3.9)$$

where,

Z: the quantity of all other goods and services consumed.

So household's income function can be written as,

$$Y = \{p(H_i d_j).(H_i d_j) + p(Z).Z + T(k, d_j)\} \quad (3.10)$$

where,

p(Z): the price of all other goods and services
$T(k, d_j)$: Transport Cost
k: Unit Transport Cost

As a result, the household's money income (m) can be drawn as:

$$m = Y - T(k, d_j)$$
$$= p(H_i d_j).(H_i d_j) + p(Z).Z \quad (3.11)$$

Utility maximization is achieved when a combination of Z and H_i meets both the budget constraint and the first order condition. The household chooses a dwelling with the combination of characteristics yielding it the greatest satisfaction given their income and their relative tastes for each characteristic and for all other goods and services (Rothenberg, et al., 1991).

Then, the problem has two dimensions. The first one is that, households face a residential location decision subject to their income level. The second one is the decision about different characteristics of the dwelling, again subject to the budget constraints of the households. Two decision matrixes can be drawn as results of these discussions.

First of all, households search for a dwelling which is suitable for their tastes, and they seek for locations where they can find that dwelling with suitable bundle of attributes:

Housing Attribute Packages at Different Sub-Areas:

$$
\begin{array}{c} \\ H_1 \\ H_2 \\ . \\ . \\ . \\ H_i \end{array}
\begin{array}{c}
\begin{array}{ccccccc} d_1 & d_2 & d_3 & . & . & . & d_j \end{array} \\
\left[\begin{array}{ccccccc}
H_1d_1 & H_1d_2 & H_1d_3 & . & . & . & H_1d_j \\
H_2d_1 & H_2d_2 & H_2d_3 & . & . & . & H_2d_j \\
. & & & & & & . \\
. & & & & & & . \\
. & & & & & & . \\
H_id_1 & H_id_2 & H_id_3 & . & . & . & H_id_j
\end{array}\right]
\end{array}
$$

As it is discussed before, the prices of similar dwellings may also vary across different locations. So after households decide to buy a dwelling with a particular bundle of attributes, then they seek for the affordable price in different locations where they can afford to buy it. That is, in the second matrix, households make a decision for dwelling units with a particular bundle of attributes at different locations by considering price constraint.

Price of Housing Attribute Packages at Different Sub-Areas:

$$
\left[\begin{array}{ccccccc}
P(H_1d_1) & P(H_1d_2) & P(H_1d_3) & . & . & . & P(H_1d_j) \\
P(H_2d_1) & P(H_2d_2) & P(H_2d_3) & . & . & . & P(H_2d_j) \\
. & & & & & & . \\
. & & & & & & . \\
. & & & & & & . \\
P(H_id_1) & P(H_id_2) & P(H_id_3) & . & . & . & P(H_id_j)
\end{array}\right]
$$

This thesis aims to investigate households' decisions in these two different matrixes when they decide to buy a dwelling.

3.2. Hypotheses of the Thesis

A set of hypotheses, related with the case study of Ankara, are put forward considering each stage discussed above. Hypotheses of the thesis can be classified under two headings. The first one is about the first part of the study: ways of shifting from tenancy to homeownership. The second group of hypothesis is about the effects of different socio-economic factors and housing provision methods on the probability of shifting from tenancy to homeownership, and about location and housing packages decisions of households.

3.2.1. Hypothesis about Ways of Shifting from Tenancy to Homeownership

Empirical evidence shows that there is an important literature on relations between wealth accumulation, households' savings and homeownership. For instance, Hsueh (2000) examines the correlation between housing tenure choice and savings behavior. Especially because of credit constraints, wealth and savings become an important component in homeownership studies.

However numerous theoretical and empirical studies focus on income constraints because sheltering purpose of homeownership is the main focus of most studies. The findings support high correlation between income and homeownership.

However, in countries where there is a well developed housing finance system, the permanent income of the family is the main determinant of housing demand because families are able to repay credits, which will not exceed a specific proportion of their permanent income. In such an environment, there is a high tendency of homeownership, and also it is possible to define a systematic relationship between income of households and the housing demand (Türel, 1996b).

However this systematic relation may not be visible in Turkey. Lee and Myers (2003) focus on importance of income effect on homeownership. The findings of their research indicate that the effect of permanent income is greater than the effect of transitory income. These results are more consistent with the economies of developed countries, not with the economies of countries like Turkey where there was not an effective housing finance system until recently.

In countries like Turkey, where there is a lack of well developed housing credit market, the demand for homeownership in housing is mostly related to the wealth and savings of the family than the current income level of households (Türel, 1996b) unlike developed countries. In Turkey, although the Mortgage Law was enacted in 2007, it cannot enable the financial market establish an effective mortgage credits as long as interest rates remain high. In fact, it only provides some institutional arrangements on current housing financial system in the country. As Erol and Patel (2004) argue, due to the highly volatile economic environment of Turkey, high interest rates and inflation increase the riskiness of both adjustable-rate and fixed-rate mortgage contracts. For these reasons, the ratio of using long-term housing credits in housing acquisition is not expected to be high in Turkey. Also, purchasing a home by the help of housing credits makes households feel like they will have limited flexibility in their future choices, and down payment requirement associated with housing credit plays an important role in home purchase particularly for young households with little accumulated wealth.

Table 3.1 illustrates that both number of households who used housing credits and amounts of credits after the year 1997. However being the fact that interest rates of housing credits still very high in Turkey, the effects of housing credits on homeownership cannot be directly defined.

Table 3.1. Total Housing Credit Amounts and Number of People Who Used Housing Credits between the Years 1997 and 2010

Year	Million TL	Number of People
1997	12	2315
1998	26	2001
1999	17	645
2000	154	2756
2001	30	454
2002	125	1148
2003	281	2694
2004	487	3771
2005	172	981
2006	0	1
2007	2	15
2008	8	53
2009	18	163
2010	19	228

Source Data: THE BANKS ASSOCIATION OF TURKEY (2001), Consolidated Report on Consumer Loans and Housing Loans, 1997-2010 2001, http://www.tbb.org.tr/net/donemsel/default.aspx?dil=EN.

The unequal opportunity of owning a dwelling between different individuals is related with the fact that housing credits that have been provided from some public funds are not available for every individual in the society. Previous savings and wealth of the family become the main factors in housing acquisition process. Because of these reasons, in most cases households prefer to combine different financial tools when purchasing a home such as saving, transferring from parents or relatives, and using housing credits.

There are a set of hypotheses related with this topic as a result of these discussions:

Hypothesis 1 Credit and wealth constraints are important barriers in homeownership for low-middle income groups in Turkey.

Hypothesis 2 Mortgage credits in current conditions would not significantly increase the probability of homeownership for households who are not able to purchase a dwelling because of high interest rates, which lead to high debt service with respect to their incomes and low loan to value ratios in Turkey.

3.2.2. Hypothesis about Effects of Different Socio Economic Factors and Housing Provision Methods on the Probability of Shifting From Tenancy to Homeownership and about Location and Housing Packages Decisions of Households

The analysis of housing market in Turkey is a complicated study because housing development process is highly different from advanced countries. The dual concern of households that includes sheltering and investment aspects of housing demand is particularly important in Turkey. There had not been a well-developed housing finance system until recently, and it is not yet operating at affordable conditions for moderate-to-lower income households. Due to the absence of a well functioning housing credit system for most home buyers, peculiar forms of housing provision have been developed that rely on the wealth and equity financing capabilities of individuals in the society. In such an environment, probability of homeownership may also depend on some coincidences for moderate-to-lower income groups, such as joining to a cooperative or having the opportunity of building an unauthorized housing, which may be subsequently regularized. Another opportunity of homeownership is for the owners of urban land through making deals with small-capital house builders (yap-satçı), who prefer (and can afford) paying for land with dwelling units that they built on the plot. Therefore, homeownership in Turkey depends to some extent on the form of housing provision.

A critical review of literature on homeownership revealed that no developed model is available for a systematic analysis of the ways about shifting from renting to homeownership with regard to different types of housing provision in Turkey. In general, five different forms of housing acquisition can be discussed: purchasing from a previous owner, purchasing from a speculative builder either small capital (yap-satçı) or large capital, self provision, acquisition through a cooperative. In recent years HDA (Housing Development Administration, TOKİ) has increased its activities to produce low-cost housing and sell to homeless households by providing credit at below market interest rate. If there is lack of affordable housing credits, the first two forms rely on the household's own equity. Households use their own savings and equity in building their own housing (self-provision) as well. House building by cooperatives in Turkey takes much longer time than self-provision. The time span between purchasing the land and getting the occupancy permit for the dwelling units may take about ten years (Türel, 2000).

The demand for housing acquisition may be related to sheltering purposes or gaining rental income and speculative profit. Acquisition of housing for sheltering purposes depends on savings and permanent income of the family, their preferences about houses, availability of affordable housing credits, interest rates, etc. The main determinants of acquisition of housing for investment purposes are expected to be related predominantly with wealth and savings of the family (Türel, 1996b).

Also in this thesis, it is claimed that whether using housing credits or relying on wealth and savings, in tenure choice decisions may also change with respect to different forms of housing provision in Turkey. It is expected that the ratio of households who used housing credits is greater for those who acquired housing through cooperatives or purchased from the HDA. In contrast, it is expected that households rely mostly on their own savings and wealth in the self provision, as well as in purchasing from a builder or an owner.

The probability of shifting from tenancy to homeownership differentiates across different submarkets. “The submarket concept relies on the idea of substitutability. Substitutes are pairs of goods for which an increase in the price of one leads to an increase in the demand for the other. Pairs of goods with similar characteristics are likely to be substitutes. In equilibrium, prices equalize across substitutes. Within housing submarkets, prices of houses are similar because submarkets contain close substitutes. Implicit prices of the characteristics of houses are similar for the same reason” (Bourassa, et al., 2007: 146). Also, dwelling units have similar characteristics within a housing submarket.

However there is an important price differentiation between different housing submarkets. Also there are important differences between characteristics of dwelling units across different locations. For this reason, the probability of shifting from tenancy to homeownership differentiates across different submarkets in Ankara because the probability of shifting from renting to homeownership is also related with the social preferences of individuals about the location of housing.

Social preferences of households may also become an important factor on tenure choice decision. Such as, if a household is renter and pleased with their current location, they may not leave the place even though they have the chance of becoming homeowner at a different location where housing is available at affordable prices. On account of not moving from the current location, the household may choose to live as a renter if they cannot afford to buy a dwelling at the current place or at locations where similar social groups are concentrated. Instead of becoming homeowners in locations where people in the neighborhood are not socially acceptable to the potential homeowners, they prefer to live as tenants in another neighborhood where they want to live. In related part of the thesis, mobility between locations becomes important, and it is aimed to draw a pattern by associating this mobility with tenure choice decision.

There are a set of hypothesis related with this topic:

Hypothesis 3 Transition to homeownership of households living in private rental accommodation are expected to be related as much on transitory income, including inherited wealth, as on permanent income, in addition to homeownership opportunities provided by different forms of housing provision in Turkey.

Hypothesis 4 Forms of housing provision also affect the probability of shifting from tenancy to homeownership for households.

Hypothesis 5 The demand for a dwelling in different housing submarkets in Ankara is related with socio-economic backgrounds of households as well as characteristics of dwelling units in each submarket.

Hypothesis 6 Existence of housing submarkets with highly differentiated price levels enable households with different income to buy the preferred housing package at the submarkets with affordable price levels.

Hypothesis 7 Households choose to buy housing in submarkets where households of similar socio-economic characteristics live, although there may be housing alternatives with similar attribute endowments and prices in some other submarkets. Therefore, there is high mobility between only certain housing sub-markets.

3.3. Concluding Remarks

This chapter illustrates the framework and hypotheses of the chapter. In the first part of the study the analysis is based on Households Budget Survey in order to investigate different economic ways of shifting from tenancy to homeownership. The second part of the study investigates effects of different socio-economic factors on the probability of homeownership. The analysis is developed with the help of Cox Regression Analysis.

Before evaluating each step of the thesis and related hypotheses, the next chapter briefly summarizes historical developments in housing tenure and housing provision methods in Turkey in order to understand the dynamics in housing sector in Turkey. This summary will provide a better understanding for the results of the analysis in the following chapters and evaluation of the hypotheses.

CHAPTER 4

HOUSING SECTOR IN TURKEY

Before examining the shift from tenancy to homeownership by considering different housing provision methods, a brief summary on historical developments in housing provision and housing tenure in Turkey are discussed in this chapter. It is important to note that, the study area of the thesis only covers the authorized housing stocks. So the chapter summarizes historical developments in housing provision and housing tenure in Turkey.

4.1. The Historical Developments in Housing Provision in Turkey and the Authorized Housing in Ankara

In a country, housing provision depends on factors such as ownership of land, rise in land values, speed of urbanization, developments in construction industry, and interventions of the state on the housing sector. While these factors change with time, also housing provision methods changes in order to accommodate with these new conditions and social needs. Also, housing provision in Turkey has had important transformations, and new types of housing provisions have been developed since the 1930s with changing conditions in Turkey (Tekeli, 1982). Also housing pattern in Ankara has been undergoing significant changes since 1923, after the declaration of Ankara as the capital city of Turkey.

The forms of housing provision can be grouped under two headings: non-profit housing provision and speculative housing provision. Under the heading of non-profit housing provision, the supply of cooperatives, municipalities, social security

organizations and Housing Development Administration (HDA) can be grouped. Under the heading of speculative housing provision, small-capital speculative house builders (Yap-Satçı) and large capital construction firms can be discussed (Türel, 1996a).

In this study, small and large capital speculative house builders are examined under the heading of Commercial Developments. The supply of housing by the Social Security Organizations and the Housing Development Administration are examined under the heading of Public Sector Developments.

When historical developments of housing provision in Turkey are examined, self-provision of housing historically emerged earlier than the other types of housing provision as it is expected. In 1930s, self-provision was the principal form of housing provision. While there was slow urbanization in that period, and urban land had not gained much speculative value yet, the land cost in housing production was relatively small. For this reason, local authorities had the possibility to develop sufficient land for urban growth. This environment provided necessary conditions for self provision on housing to satisfy housing demand of the society in 1930s. In this process, the role of local authority was to control the housing production process rather than involving in the process by itself (Tekeli, 1982).

When self-provision was the main housing provision method in the society, the most common tenure type would be the owner-occupation. In this process, the rate of tenancy would be lower than the rate of tenancy in other periods. The shift from homeownership to tenancy would depend on changes in the social position of households in the society. The factors like the change in the location of employment, or divorce, or inheritance may cause some empty stock of housing units in the market which are the structural changes that shape the new housing tenure pattern in the society. As a consequence of these changes, these empty housing units may be introduced into the market as rentable units for other households. This process results in emplacement of the renters in these new empty

stocks which were abandoned by their homeowners (Tekeli, 1982). The change in the tenure structure from homeownership to renting is likely to continue also today.

After acceleration of urbanization and the rise in land values, self provision became insufficient to supply housing demand in the society. With rapid urbanization, demand for housing started to increase, and self-provision method on housing could not catch up with this increasing velocity. Also rising land values removed the possibility of constructing detached houses in single plots for middle income groups. For these reasons, self-provision became a luxury method which was only available for higher income groups as well as in smaller settlements where low rise house building still dominates. So, in order to satisfy the housing needs of moderate-to-lower income groups, new ways of housing provision methods started to be introduced into the market, such as illegal housing provision (squatter housing) and house building cooperatives (Tekeli, 1982).

4.1.1. The Cooperatives

"Cooperatives, which are non-governmental organizations, have been producing housing for their members (shareholders) since mid-1930s in Turkey. Cooperative members acquire dwellings in freehold ownership status after construction is finished, and then the cooperative that has fulfilled its task is dissolved" (Türel, 2002:2).

After middle income groups lost their opportunity to attain detached houses in single plots, housing cooperatives started to be established in mid-1930s in Turkey. The first example was Bahçeli Evler Housing Cooperative in Ankara. After the rapid urbanization started to affect other parts of the country, this new type of housing provision method spread to the whole country in 1950s. Even the first creators of cooperative formation in Ankara were high ranked bureaucrats, after 1950s, this form of provision started to be available for middle and upper income groups (Tekeli, 1982).

After housing by a cooperative is constructed, households living in these dwelling units will be homeowners, but after horizontal and vertical mobility in the society, some of the dwellings will be brought to the market as rentable units (Tekeli, 1982). In this section of the study, historical developments and formation of housing cooperatives in Turkey are discussed.

Housing cooperatives aim to provide housing to their members (shareholders) at affordable prices. Housing cooperatives normally consist of between 20 to 100 apartments. As Türel (2002) summarizes:

"Cooperatives are civil society organizations that are founded and managed in accordance to the Cooperatives Law, dated 1969, and amended in 1988. A cooperative can be founded by at least 7 persons, and it acquires legal status with the approval of its charter by the Ministry of Trade and Industry, where all cooperatives are registered. The Ministry has the authority to inspect the accounts and activities of cooperatives. Cooperative members are called members in the Law, and the council of members has to meet at least once a year to review and approve activities and accounts of the executive committee, to elect executive committee members for the next year, and to take decisions concerning the work program of the cooperative and monthly payment obligation of each shareholder. An officer of the Ministry should be present in the meeting" (Türel, 2002: 8).

The cooperative movement in the Western countries has close relations with development of industrial capitalism. The development of the cooperative system was not an unexpected event; in fact it emerged in order to deal with the unpleasant consequences of industrialization. However, the development of cooperative movement in Turkey can be seen as an adaptation of housing cooperative models of Western countries (Özkan, 2009) with a major difference that housing cooperatives were social rented housing, whereas they produce owner occupied housing in Turkey.

The economic crisis of 1930s affected the housing sector in this period. For these reasons, there was a need of new alternatives for housing provision. So after the declaration of Ankara as the capital city of the nation, the first cooperative housing (Bahçeli Evler Housing Cooperative) was established in Ankara in 1934 (Özkan, 2009).

Bahçeli Evler Housing Cooperative was shaped as a reinterpretation of the Western housing cooperative movement. In this period, the cooperative movement in Turkey has been supported by governments in an ideological manner. The Turkish Cooperatives Association was established in 1930s which can be shown as a sign of support towards this form of housing provision. Also in that period, the State owned Real Estate and Credit Bank provided credits to finance the construction of houses by the Bahçeli Evler Housing Cooperative (Tekeli & İlkin, 1984 cited in Özkan 2009).

As it is discussed before, the housing cooperative movement in the Western countries started to emerge as a reaction to negative impacts of industrialization. It is resulted to meet housing demand of low income households who were living in poor conditions, insecurity and hardship. However the emergence of housing cooperatives was not a movement of low income groups in Turkey, in fact one of the important features of the Bahçeli Evler Cooperative was the high social status of its members. They were high ranked bureaucrats who want to solve their housing problem with the help of a housing cooperative (Tekeli & İlkin, 1984 cited in Özkan 2009).

After the Bahçeli Evler Housing Cooperative, another one under the name of Güvenevler Housing Cooperative was established in 1936 by some of powerful bureaucrats who left the Bahçeli Evler Housing Cooperative. The site plan of this new housing cooperative was designed in lines with the “garden city approach” (Kubin, 1991 cited in Özkan 2009).

Bahçeli Evler Cooperative was not formed with the aim of having tenure rights in the frame of cooperative rules. Instead, the members of the cooperatives preferred private ownership (Özkan, 2009). "Bahçeli Evler Housing Co-operative was formed by these middle/high ranked bureaucrats and was based on the principle of building housing for private ownership by its members. Also the member's status was an advantage for the co-operative in the sense that they could benefit from their close relationships with the local and central government authorities as well as with the state owned banks" (Özkan, 2009: 165).

Turkey started to shift from agricultural based economy to industrial based economy after the Second World War. As a result of this process, the level of migration from rural to urban areas started to increase. However the cooperative movement began to be experienced in 1930s when the industrial development was at an initial stage in Turkey yet (Özkan, 2009). "Huge amount of the population was constituted by rural people and adverse impacts of the industrialization, which were regarded as one of reasons of the start of the co-operative movement in Britain, were not again in the agenda of Turkey. Thus, being aware of this differentiation, Turkish experience might be regarded as an adaptation of a historically and contextually emerged institution to an environment where the context was very different" (Özkan, 2009:160).

The environment suitable for cooperative development in Turkey started to be prepared in late 1920s, when the Trade Law and other Laws concerning agriculture cooperatives were enacted. However the first cooperative organizations in Turkey appeared before this period (Keleş, 1967 cited in Özkan 2009). For these reasons, it can be argued that the start of cooperative movement in Turkey was a result of a top to down movement unlike the examples in Europe which were results of bottom up movements (Tuna, 1944 cited in Özkan 2009). "That is to say, the start of co-operative movement in Turkey has been different from the case in Europe, where the co-operative movement appeared as a result of socio-economic needs. In Turkey the ideological discourses and adaptations have been influential for the start of the

co-operative movement. Although contextual differences exist between the Europe and Turkey, this Western institution were tried to be adapted in Turkey as a top down movement" (Özkan, 2009:160).

The Second World War had one of the most important impacts on the formation of housing sector in Turkey. Second World War was the beginning of the years which were determinant in many respects in the formulation and definition of the housing issue and the policies for the following years. The roots of the urbanization trends and labor market dynamics had affected the housing sector, and these economic and social dynamics also led the emergence of illegal housing provision (gecekondu) in Turkey which necessitates new formulation for housing policies. There was rapid urbanization, growing non-agricultural labor which resulted high migration from rural to urban areas, and also the growing weight of irregular settlements in the urban centers started to become main characteristics of urban spaces (Burkay, 2006). In these periods, the housing supply could not be increased to meet the demand created by immigration, and rapid urbanization after the Second World War, which started to affect urban areas. These factors increased the demand for housing in Turkey, which had already started to increase after the declaration of the Republic.

In 1948, the Real Estate and Credit Bank was reorganized and continued to give credit for housing. After 1950s, the Social Security Organization started to give credits for cooperatives of the members of this organization (Özkan, 2009). "In fact, involvement of the Social Security Organization in housing financing can be regarded as a turning point for the co-operative housing movement. At the same time, the Mutual Help Organization of Army Officers also began to give credits to the co-operatives of its members in 1962, but its contribution to housing provision has been much less than the Real Estate and Credit Bank and the Social Security Organization. In this period, the number of housing co-operatives has grown slightly" (Özkan, 2009: 169).

In 1960s, the housing cooperative developments started to increase. In this period, there was increasing need for new housing developments as a result of migration to cities. In 1965, the Flat Ownership Law also contributed to the organization of the housing cooperative movement. In that period, housing policy was included in the First Five Year Development Plan (1963-67), that is housing provision was tied with the rise in economic and social standards in this period (Özkan, 2009).

One of the most important impacts of the Flat Ownership Law is that, the Law makes it possible to build apartment blocks in one parcel. This provides opportunity for middle income groups to share the increasing cost of land development that increase the possibility for middle income groups to become homeowners. In this period, housing cooperatives continued to produce dwelling units for upper and middle income groups (Özkan, 2009). However lower income groups were not able to afford the repayments of housing cooperatives.

In 1960s, as the results of the government's support on mass housing in Turkey, more favorable environment was established for the development of housing cooperatives. Also in that period, the Squatter Housing Law was enacted in 1966 which also supported housing cooperatives by providing squatter prevention areas created by central and local government organization (Özkan, 2009).

In the period of Second Five Year Development Plan (1968-1972), the Land Development Office was established with the Law 1164 in 1969. The establishment of the Office aimed to generate social benefit from the development and production activities of land. In this period, in order to regulate cooperative institutions, the Cooperatives Law was enacted which was an important development for housing cooperatives. The laws gave priority to housing cooperatives on publicly developed land, and also aimed to regulate housing cooperatives as one of the important housing provision methods (Koç, 1989 cited in Özkan 2009).

Another important point is that, there were also close relationships between housing cooperatives and local authorities. One of the examples of this cooperation was Kent Koop being a municipal type of cooperative housing and it had taken its roots from the İzmit Project. This cooperative union was supported and founded by the Municipality of Ankara (Özkan, 2009).

One of the largest housing cooperative projects in Turkey was Batıkent which was also produced by Kent-Koop. It is an important project because it has became a model for housing cooperatives after it was established. The establishment of Kent Koop has been one of the turning points in terms of housing cooperative development in Turkey. Kent-Koop was established by the Ankara Municipality and thirteen cooperatives in year 1979 (Özkan, 2009).

"1970s was the initial phase for the progressive housing cooperative movement in Turkey. The "mass housing" discourse has been firstly introduced with the Second Five Years Development Plan (1968-72). So, institutionalization of mass housing began with the Second Five Year Development Plan. Oran City was the first example for mass housing implications, which was undertaken by a private sector initiative" (Özkan, 2009: 177).

By the end of 1970s, many large housing cooperative projects including İzmit, Batıkent were planned and implemented with the contribution of municipalities and the finance provided from public sources (Özkan, 2009). "The crucial characteristic of the period, which was that cooperatives established or managed with the contribution of municipalities, continued by the following projects. These municipalities were run by social democrats who tried to enable lower income people to benefit from mass housing investments of municipalities through the way of housing cooperatives" (Özkan, 2009: 178).

The economic crises at the end of 1970s affected welfare policies in the World. A new period for Turkey also started at the beginning of the 1980s. This period is

described as the transition to the liberal and open market economy which also affected the housing sector in Turkey.

In 1980s, the housing cooperative movements were supported by the government, so 1980s were the years of strengthening of the housing cooperatives. For these reasons, the number of housing cooperatives increased sharply in this period. This increase may also took its root from the fact that, housing cooperatives have began to be seen as a third alternative for the housing market in the new economic environment in 1980s (Pestoff, 1991 cited in Özkan 2009).

In this period, two housing laws were enacted. The first one was in 1981, which was the Mass Hosing Law of 2487. The law necessitated the allocation of at least 5 per cent of state budget for the finance of mass housing projects. The law can be regarded as the continuation of the housing cooperative movement (Özkan, 2009). "With this Law, without making any differentiation between households, everybody was allowed to get credits via housing cooperatives and the Social Security Organization, as much as the 90 % of the construction cost. Hence, the housing co-operatives and their associations, and other social security organizations had the priority for getting credits" (Özkan, 2009: 179).

With related to the economic stabilization program of 1980s, the housing demand decreased in Turkey. For these reasons, the Mass Housing Fund became more effective after the second Mass Housing Act dated 1984, and numbered 2985, which made much greater contribution to the housing cooperative developments. This law removed certain priorities on housing cooperatives, and opened door for individual credit demands (Özkan, 2009).

"In 1985, Türkkonut, the second central association of housing co-operatives, was established to carry out the Çayyolu Project in Ankara with the financial support from the Mass Housing Fund. It was established by the initiative of the Mayor of Ankara Municipality who was a member of Mr. Özal's party and has different

political views from social democrats. Hence, the Çayyolu Project was developed by Türkkonut in competition with the Batıkent Project of Kent-koop" (Özkan, 2009).

After 1990s, because the resources of the Mass Housing Fund were limited, Housing Development Administration (HDA) had to limit the amount of credits for housing cooperatives. After 2000s, the number of housing cooperatives started to decrease due to decreasing financial supportive mechanisms of the government (Özkan, 2009).

To sum up, 1980s and 1990s are the years when the housing cooperative movement had its golden years. However, beginning from 2000s, the number of housing cooperatives started to decrease. One of the reasons behind the decrease is related to high real interest rates in 2000s, causing a significant rise in the cost of cooperative constructions. Another reason can be the rise of dominance of speculative house builders which both serves to upper and lower income groups (Özkan, 2009).

"Contrary to their counterparts in many European countries, cooperatives have not produced social rented housing in Turkey as this is not a defined task in the legislation concerning housing cooperatives. Their contribution to housing provision began to increase in the first half of 1980s, and about a quarter of new housing has been built by cooperatives during the last two decades. They have been supported by local and central governments in the forms of the priority given to cooperatives in the allocation of credits from public funds, in the sale of land developed by local or central government agencies, and in the supply of infrastructure to cooperative housing projects. Subsidies are involved in most of these forms of support by the public sector" (Türel, 2002:2).

Housing cooperatives are mostly encouraged by public credit mechanism. Because of that reason, the method is not affordable for all income groups in the society.

This resulted in the development of other forms of housing provision during the same time period (Tekeli, 1982).

4.1.2. Commercial Developments

Small and large capital speculative house builders produce housing for their economic profits. The housing industry differs from the other industrial types as the producers of housing units are also the sellers of their own products (Türel, 1996a).

Small capital speculative house builders (yap-satçı) started to be common in housing provision in the late of 1950s. As it is discussed before, after rapid urbanization and rising land values, middle income groups started to produce new alternatives which enable them to share the land cost by cooperating together (Tekeli, 1982).

In small capital speculative housing provision, the main actor is not the housing buyer, but the speculative builder. In this process, the builder has the whole responsibility of land provision, housing construction, and submission of the dwelling into the market (Tekeli, 1982).

In 1950s, this type of provision was developed by small capital house builders with limited capital in related period. This type of entrepreneurship has two different roots. The first one is composed by individuals who have occupations like architecture and civil engineering. They perform their jobs with their very limited capital. The second type starts to work in construction business when they are so young. After saving a certain amount of capital they enter to the market as house constructors (Tekeli, 1982).

Usually, the small capital house builders are not the owners of the land. They build dwellings on plots of other individual's ownership. The land can be acquired after the destruction of an old building; as well it can be an empty plot having

development rights. The speculative builder gains the rights to build the house on the related plot by giving the ownership of some of the flats to the owners of the land. By this way, it is not necessary for the builder to consume capital for the land. The builder starts to construct the building after they sell some of the flats belonging to him (Tekeli, 1982).

In this type of housing provision, relatively more dwellings are introduced to the market as renting than self-provision and cooperative types of housing provision because owner of the land will be the owner of more than one dwelling after the construction is completed. The small capital house builders prefer to construct apartment buildings in relatively prestigious locations in order to obtain more profits. These conditions pressurize a rise in development rights on related lands (Tekeli, 1982).

Large capital speculative house builders are usually mass housing production firms. In this housing provision, the housing project does not consist of one single apartment block. They are large massive housing projects. These housing projects differ from small capital house provision in some different aspects. First of all, unlike the small capital entrepreneurship, the ownership rights of the land belong to the entrepreneur in large capital entrepreneurship. That is, all properties (building and land) are owned by the large capital firms. The generated value after the acquisition of developing rights is captured by the house builders in this type of housing provision. For this reason, in the development process, house builders should apply for the development plan and attain development rights of the related plot for housing development. This process necessitates the construction of a mass housing project in a large plot in order to achieve economically profitable projects which is also different from small capital house provision in Turkey (Tekeli, 1982).

4.1.3. Public Sector Developments

Social Security Organization, Armed Forces Pension Fund and Social Security Organization of Merchants and Artisans and Other Self-Employed Professionals are social security organizations providing housing finance to their members. However, these housing loans were limited due to the lack of funds, and only limited group of members could benefit from these institutions' housing loans (Keleş, 1997 cited in Aydın 2006).

With the Law numbered 5417, the Social Security Organization (SSK) was authorized to give loans for housing. The loans were provided to the members of the Social Security Organization who were covered by its health insurance and pension schemes. Social Security Organization provided housing credits between the years 1950 and 1984 for 233 dwelling units (Türel, 1994).

"Armed Forces Pension Fund (OYAK) which was established in 1961 has been providing loans since 1963 to members who will purchase or construct houses by themselves or via housing cooperatives. The building cooperatives that had 20 members of OYAK could benefit from these loans. Also, personal loans have been given to its 20 year-members and to the members who bought the houses constructed by OYAK" (Aydın, 2006: 75).

In 1996, OYAK provided Housing Saving Fund which made it possible for the OYAK's members to save up the down payment which was needed for buying a housing unit (Aydın, 2006).

Between the years 1976 and 1980 Social Security Organization of Merchants and Artisans and Other Self-Employed Professionals (Bağ-Kur) also provided credits for its members. In order to get credits from Bağ-Kur, the household should have at least 5 year membership. The loans were provided for the housing cooperatives which had at least 15 members who did not have their own houses. The loans had

interest rates of 5 per cent with a period of 15 years. Because of the high inflationary environment in Turkey and rapidly increasing financial problems of the Fund, Bağ-Kur stopped providing housing loans after 5 years (Türel, 1994; Uludağ, 1997 cited in Aydın 2006).

Another housing finance organization in housing provision in Turkey was Emlak Bank, which was found in 1926 under the name of Emlak ve Eytam Bank. It aimed to support and finances the building sector. The Bank was reorganized in 1946 in order to increase its effectiveness, and renamed as Emlak ve Kredi Bank after this year. The Bank again reorganized in 1988 and was renamed as Emlak Bank in related year (Türel, 1994 cited in Aydın 2006). "Emlak Bank began to give housing loans not only for newly built housing but also for owner builders with a fixed monthly interest rate 5,5 percent for a maximum period of 20 years during the second half of 1980s. The source of these loans were the contributions of employers for 'assistance for home ownership of employees' deposited in Emlak Bank" (Aydın, 2006: 78).

As Aydın (2006) discussed,

> "Emlak Bank was the only bank that had the legal authorization to participate in joint venture of residential construction business given by Turkish Banking Act. In other words, it operated both as a lender and developer in housing sector. It raised funds from the sale of own built houses. This method of fund raising is used by the Housing Development Administration recently in order to fund social housing projects. On 06.07.2001 the activities of Emlak Bank was decommissioned by the government under the law of 4684 and Cabinet decision number 2001/2202, and its banking assets and liabilities were taken over by another state-owned bank namely Ziraat Bank as a part of economic program implemented as a result of the 2001

> economic crisis. The assets and liabilities related to the activities as real estate developer and shares of Emlak Bank in three affiliated companies, which were not operating in the banking sector were transferred to Housing Development Administration" (Aydın, 2006: 79).

"Although Emlak Bank was the only financial institution specialized in housing finance among Turkish Bank, its share in institutionalized housing finance system was between 5-19 percent during the years it had operated. The reasons behind this failure were not only unstable economic conditions such as high inflation and interest rates and lack of necessary funding for housing loans, but also targeting to a small group with high income level and financing of luxury housing which were affordable only for this group." (Aydın, 2006: 79).

After the economic stabilization program in 1980, interest rates granted by banks and bankers for deposits, increased over the inflation rate. As a result of this, households prefer to invest in banks and bankers instead of investing on housing as the rate of return in housing investment decreased relatively to savings to banks or bankers. Also real wages had decreased with the implementation of the economic stabilization program. All these factors resulted in decreases in housing demand. So, prices of housing units fell, and the housing sector went into a financial crisis. In order to take the housing sector out of the crisis, the state searched for new financial tools for housing system. This system would be under the direct control of the government, and two housing laws were enacted (Türel, 1994 cited in Aydın 2006).

"In the first mass housing law numbered 2487, it was stated that at least 5 percent of the income of the national budget had to be transferred to a fund each year. This fund would be used to finance large scale housing projects to be produced on lands developed by the Ministry of Reconstruction and Resettlement (MRR). MRR was attributed duties such as being the developer of publicly owned land and finance

institution for both the supply and demand side of the housing sector" (Aydın, 2006: 81).

The second Mass Housing Law numbered 2487 was enacted in 1984. With this Law, the Mass Housing Fund was created and aimed to be the main source for housing loans. The resources of the Fund came from the taxes like charges on goods and services which were regarded as luxury consumption goods. Also again in 1984, Housing Development Administration (HDA) has founded (Akçay, 2003 cited in Aydın 2006). HDA also provided personal loans in that period, however it stopped to give personal credits after 1989 (Aydın, 2006).

HDA has been one of the most important actors in housing provision since 1984. However the number of loan applications accepted by the HDA decreased by the years because of insufficient financial sources of the institution. Another important reason is that, the increase in construction cost caused the loan-to-value of HDA to fall. Also between the years 1988 and 1989, HDA had to transfer 30 percent of its income to the national budget which caused financial difficulties to HDA, and in the following year, the HDA's income transfer percentage increased to 50 per cent (Aydın, 2006).

The "dual-indexed mortgage system" was the new housing credit system introduced by HDA in order to deal with the financial problems discussed above. The system was designed to operate in inflationary environment of Turkey. In this system, credit balances were indexed to the inflation plus a moderate positive return and repayments indexed to the civil servants' salary increase rates. In order to avoid the problems that can occur if income of households increase less than the rate of inflation, the latter ratio should be higher than the former one (Türel, 1994 cited in Aydın 2006). In 1993, all income of HDA was transferred to the national budget caused the HDA not to function as an effective housing finance institution after this period (Aydın, 2006).

After 1990, commercial banks started to give housing credits in the form of consumer loans. However the monthly compounded interest rate wash high as 5,5 per cent for a one year repayment period, and 6-7 per cent for the maximum 3 year repayment period which makes the system a very expensive type of housing finance system (Türel, 1994 cited in Aydın 2006).

"Although, originally the Mass Housing Fund was intended to solve the problem of housing for the middle and low income groups, eventually it proved to be a mechanism of house ownership for the middle and upper income groups. Such a consequence is related to the concerns and priorities of the political decision makers embedded in the institutional and legal framework of the Mass Housing Fund as much as the economic logic of the period" (Burkay, 2006: 63).

In 2004, legal proceedings on the Mortgage Law were launched in Turkey, and the Law was enacted on February 21st in 2007. Mortgage credit system has long been used in housing policies by advanced countries. The common feature of the system is that, it gives the opportunity to acquire housing by the help of small amounts of payments in a long time period changing from 15 to 30 years. Households prefer repaying mortgage credits instead of paying rent because at the end of repayment period they become owners of the in dwelling. However, although the Law was enacted in 2007, it is still subject to debate to what extent lower-middle income groups can fulfill the requirements of the system in Turkey because both wealth (equity) and credit constraints still remain important barriers for homeownership.

Until the late 1990s, the Commercial Banks did not prefer to invest in the housing sector. Instead they preferred to invest in government bonds because government was borrowing at higher rates. However, after the supply of high income government bonds lost their profitability, then commercial banks started to invest in housing finance business after this period. These factors necessitates new formation of housing credit market, so the mortgage market in Turkey began to flourish after 1990s (Erol and Patel, 2005).

The Mortgage Law numbered 5582 has rearranged the finance system by bringing new opportunities for both lenders and consumers. The Law defined the establishment of new institutions like Financing Firms and Financial Renting Firms in a mortgage system besides the commercial banks.

However, Turkey has high inflationary environment and unstable economic conditions. For these reasons, households are unwilling to sign a very long term mortgage contracts. Also, current interest rates in mortgage credits are still high, which makes the mortgage system an expensive way of shifting to homeownership compared to non-profit forms of housing provision methods.

4.2. Historical Development in Housing Tenure in Turkey and in Ankara

Rental sector in Turkey differs in many aspects from European countries. There is no publicly owned rentable housing in Turkey. Households in Turkey prefer home ownership not only for occupation, but also for investment purposes. Also the inflationary economy promotes homeownership in Turkey.

Tenancy in Turkey also has different historical development from countries with advanced economies. In Turkey, government seldom provides welfare measures in the housing sector. During the Second World War, there was an effort to protect tenants. The government imposed rent control during that time, as well as at the beginning of the 2000-2010 decade. However provision of rental housing was never a practical objective of the authorities. In fact, the main objective is to encourage the homeownership, and the public sector has provided subsidies for potential homeowners and credits for new constructions. However, there was not a comprehensive model and social policy for homeownership yet, and also tenants have been ignored in this process (Balamir, 1999).

In mid-1980s, Housing Development Administration (HDA) started to provide credits with an implicit interest subsidy to both supply and demand sides for new

constructions, by giving priority to cooperatives. This action increased the volume of housing production, especially the volume of large-scale housing. However, it has little contribution to the needs of tenants (Balamir, 1999). “In the European tradition, large-scale housing developments in physical terms represent publicly subsidized social housing to support tenants. In contrast, cooperative investments subsidized by the HDA in Turkey imply support for ownership alone, ousting tenants. Currently, the only protection available for tenants is that of the judicial system and court decisions concerning restrictions on evictions and annual rental increases, unless otherwise overridden by the terms of privately drawn up tenancy agreements” (Balamir, 1999: 388).

Since 1960s, housing production in Turkey has been striking. There were low levels of capital accumulation and per capita income. Also public resources available for developments were scarce. In spite of these factors, housing production in Turkey exceeded even the housing production volumes of high producing countries. This situation depends on rearrangements of property relations. The formation of squatter settlements is one of these rearrangements. The second one is the process of informal sharing of land that is legally owned. The third one is a model of cooperation between the entrepreneur, the landowner, and the participating investor households in the construction of residential buildings. This type of rearrangements reaches its formal recognition with the legalization of “flat easements” and “flat ownership” in 1965. In this process, the landowner acquires a share equivalent to the “land rent” or “surplus”. This share is usually between 25 or 60 percent of the new block of flats. The property owner may either put the stock for rent in the market or sell all of them (Balamir, 1999). Income tax is paid only if those flats are sold within 5 years of acquisition. In this process, some households have the chance to increase their wealth rapidly and to improve their status.

Also this process is responsible for the appearance of various tenancy forms. “Tenants, renter households, and owner-occupiers are all interrelated and accommodated in each block of flats at proportions based on the economics of

development and sharing of the property. This leads spatially and functionally to a mosaic of different tenures all taking part in a symbiotic coexistence, rather than to spatial differentiations and enclaves of tenures. Tenants are therefore well distributed in spatial terms and in terms of stock age and type. The implication of such distribution is that tenants are not discriminated or constrained in any manner. Rather, they have a wide range of options in every district of the city, in housing of different ages and type, and have comfortable access specifically to the newly completed parts of the stock. This leads to an extensive market of rentable stock in the city, with a consolidated range and relatively lower rental prices for new units" (Balamir, 1999, p.391).

Housing tenure choice in Turkey can be classified under four headings: tenants, homeowners, households live in lodgement, and other tenure groups. The households who are not homeowners, but live in homes of their parents or relatives paying no rent or very small amount of rent can be classified under the heading of "other" tenure type. In Turkey, in general the rate of home ownership was 59,8 per cent, and the rate of tenancy was 31,6 per cent in 2000. Households who live in public housing was 2,2 per cent. The rate of households belonging in the other type of housing tenure was 5,5 per cent in 2000 (Konut Müsteşarlığı, APK Daire Başkanlığı, 2003).

In Turkey, the main focus is on tenancy when the subject is to develop housing policies. Some households prefer to buy their own dwellings after living as tenants up to a certain time, and save money during this period. Balamir (1996) classifies tenancy in five groups in addition to this group. The first group is chronic tenants. These are households who do not struggle to become homeowners. They are not saving for this purpose and they are belonging in low level of income groups. The households who choose to live in squatters or in dwellings with very low living conditions compose the second group of tenants. The third group is called as invisible tenants. These are new married couples who live in the same dwelling with their parents. These are the households who will take over the existing housing

stock from their parents in the future. However they will be invisible tenants in the society up to this year. The forth groups is called the special tenure type in the classification of Balamir. These are bachelors or divorced households. The last group is the households who are volunteer tenants. These households are tenants because they do not prefer to invest on housing (Balamir, 1996). Housing policy gives priority to provide new opportunities to households who are chronic tenants in Turkey.

4.3. Concluding Remarks

In this chapter, historical developments in housing provision and tenure in Turkey are briefly discussed. The summary shows that developments in housing sector in Turkey have different dynamics than countries with well functional housing system.

High inflationary environment and unstable economic conditions promote homeownership in Turkey because households prefer to be homeowners against this risky environment in the country. Also governments used to produce policies to encourage homeownership for the citizens by providing subsidies for potential homeowners and credits for new constructions. Another factor is that, there is no publicly owned rentable housing stock in the country. As a result of all these reasons, households seek ways of becoming homeowners not only for sheltering purpose, but also for investment purpose. In some households' portfolio rental income from ownership of housing has important shares.

However besides these encouragements for homeownership, policies about supplying affordable housing for low-to-moderate income groups are not sufficient in the country. For instance, Western countries started the housing cooperative movement in order to provide better housing for lower income groups. However, the initial aim of this movement was significantly different in Turkey. The intended population of housing cooperative movement was not lower income groups, but in fact it was started by upper income groups in Turkey. Housing cooperative provide

social rented housing in Western countries, however they are established to produce owner occupied housing in Turkey.

Another factor which points the deficiency of policies about affordable housing is that interest rates of housing credits in Turkey are much higher from countries with advanced housing finance system. All these factors are obstacles for moderate to lower income groups to become homeowners. For these reasons, different ways of housing provision methods were introduced to the market in order to satisfy housing needs of lower income groups which creates specific dynamics in housing sector in Turkey.

The second chapter summarizes different factors affecting the tenure choice of households. This chapter provides a framework that developments in housing tenure and housing provision methods in Turkey are different from countries with advanced housing finance system. Next two chapters provide analyses to evaluate these different dynamics by the help of a theoretical framework identified in the previous chapter.

CHAPTER 5

ALLOCATION OF HOUSEHOLD BUDGETS ON CONSUMPTION AND SAVING IN ANKARA ON THE BASIS OF HOUSEHOLD BUDGET SURVEYS AND DIFFERENT WAYS OF SHIFTING FROM TENANCY TO HOMEOWNERSHIP

The literature review illustrates that economic factors dominate household's decision on tenure choice. The first analytical study in the thesis is about the allocation of Household Budgets on consumption and saving, and different economic ways of shifting from tenancy to homeownership. The first problem of the chapter is to analyze which households are able to shift from tenancy to homeownership.

In order to investigate these assumptions and the shift from tenancy to homeownership, different economic ways are examined in five different cases for different income quintiles. The first case includes the assumption that households do not apply for housing credit or borrow from other individuals. The only source of purchasing a dwelling is their savings. In the second case, households can apply for housing credit. In this case, monthly repayment potential is calculated for every income quintiles, and total credit amounts are investigated for different time periods. The aim of this case is to analyze whether long term housing credit is an alternative option for households who cannot purchase a dwelling by waiting until to save sufficient amount of money. The third case also examines long term housing credit option by taking into account debt to income ratio. This case makes a comparison between two different ways of calculation of total housing credit amounts. In the forth case, it is assumed that households may limit their expenditure

while they decide to purchase a dwelling. In the last case, it is assumed that there are 2% increase in every household's saving in every year. The last two assumptions assume to create a more optimistic environment for purchasing a dwelling unit.

With this purpose there are two hypotheses to be evaluated. The first one is, "Credit and wealth constraints are important barriers in homeownership". The second one is, "Mortgage credits in current conditions would not significantly increase the probability of homeownership for households who are not able to purchase a dwelling because of high interest rates, which lead to high debt service with respect to their incomes and low loan to value ratios in Turkey".

In this part of the study, the statistical data from Turkish Statistical Institute is used in order to examine the allocation of household budgets on consumption and saving in Ankara. The data was aggregated by using NUTS classification. The Household Budget Survey has information for each region of NUTS 2. In NUTS 2 Codes Ankara is assigned as a single region as TR51. For the study, TR51 is decomposed from the rest of the data. However TR51 NUTS 2 code consists information about both rural and urban areas of Ankara. The data names settlements with population greater than 20 000 as urban, and names settlements with population lower than 20 000 as rural. So another decomposition is made in order to select the data for urban areas of Ankara. As a result, every analysis in this chapter covers urban settlements in Ankara Province.

5.1. Definition of Household Income and Components According to Quintile Distribution of Households

The main variable in this chapter is household's income. This part of the study drives main definition for household's income. By using Household Budget Survey from Turkish Statistical Institute, five components of household's total income are classified in Table 5.1. These are:

Table 5.1. Average Household Income (TL/Month) in 2003

	ANKARA					TURKEY				
	Owner Occupancy	Tenants	Public Housing Occupancy	Other	Total[6]	Owner Occupancy	Tenants	Public Housing Occupancy	Other	Total[7]
Number of Households	804	349	23	120	1296	11859	5089	259	1071	18278
Average Households Income	1492	1045	1144	778	1300	1017	814	1090	644	939
%	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
Wage Income	816	639	941	537	745	508	521	968	389	511
%	54,7	60,6	82,3	69,0	57,3	50,0	64,0	88,8	60,4	54,4
Income from Entrepreneurial Activities	160	220	0	85	166	206	155	4	130	184
%	10,7	21,2	0,0	11,0	12,8	20,2	19,0	0,4	20,3	19,6
Real Estate Income	114	21	129	20	80	60	24	54	17	47
%	7,7	2,1	11,3	2,6	6,2	5,9	3,0	5,0	2,8	5,0
Securities Income	38	6	42	8	27	23	14	29	9	19
%	2,5	0,6	3,7	1,0	2,1	2,3	1,7	2,7	1,4	2,0
Transfers	364	161	32	127	281	221	100	34	98	178
%	24,4	15,5	2,7	16,4	21,6	21,6	12,3	3,1	15,2	19,0

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

[6] Average Household Income without subdivision by tenure
[7] Average Household Income without subdivision by tenure

1. Wages and pensions includes wages from primary and secondary jobs, bonuses, overtime payments, subsidies, any special cash payment, and income of retired members;
2. Collective earnings from their own enterprises (includes net income from farming);
3. Real estate income;
4. Earnings from interest on savings deposits, bonds, and dividends;
5. Transfers.

Table 5.1 summarizes level and composition of total household income according to the Household Budget Survey (HBS) of 2003 for both urban Ankara and urban Turkey. Figure 5.1 illustrates the bar graph of different components of average household income in Ankara, and Figure 5.2 illustrates the income components for Turkey. As the main purpose of the study is to examine tenure choice and homeownership, the average value of principal components of household income are calculated for each tenure type (homeowner, tenants, public housing occupancy, and other).

According to the results of calculations in Table 5.1., it can be claimed that the ratio of homeownership is relatively higher than the other tenure types both in urban Ankara and urban Turkey. In the survey, among 1296 participants in Ankara, 804 (about 62 %) households are homeowners, 349 (about 27 %) households are renters, 23 (about 2 %) of them live in public housing, and 120 (about 9 %) households belong to other tenure group. Other tenure group indicates households who do not pay rent for housing or pay very little amount comparing to market condition. They are households living in flats belonging to their parents or relatives. In urban areas of Turkey among 18278 participants, 11859 (about 65 %) households are homeowners, 5089 (about 28 %) households are renters, 259 (about 1 %) of them live in public housing, and 1071 (about 6 %) households belong to other tenure group. There is not a significant difference between Ankara and Turkey about the shares of population in different tenure types.

According to Table 5.1 earnings from wages are the single largest source of household total income for all different tenure types both in urban Ankara and in urban Turkey. The shares of wages are greater than 50 percent of total income for all tenure groups. However for households, who live in lodgement, wages constitute almost 82 percent of their total income in urban Ankara (Figure 5.1) and wages constitute almost 89 percent of total income in urban Turkey (Figure 5.2) because these are white collar households.

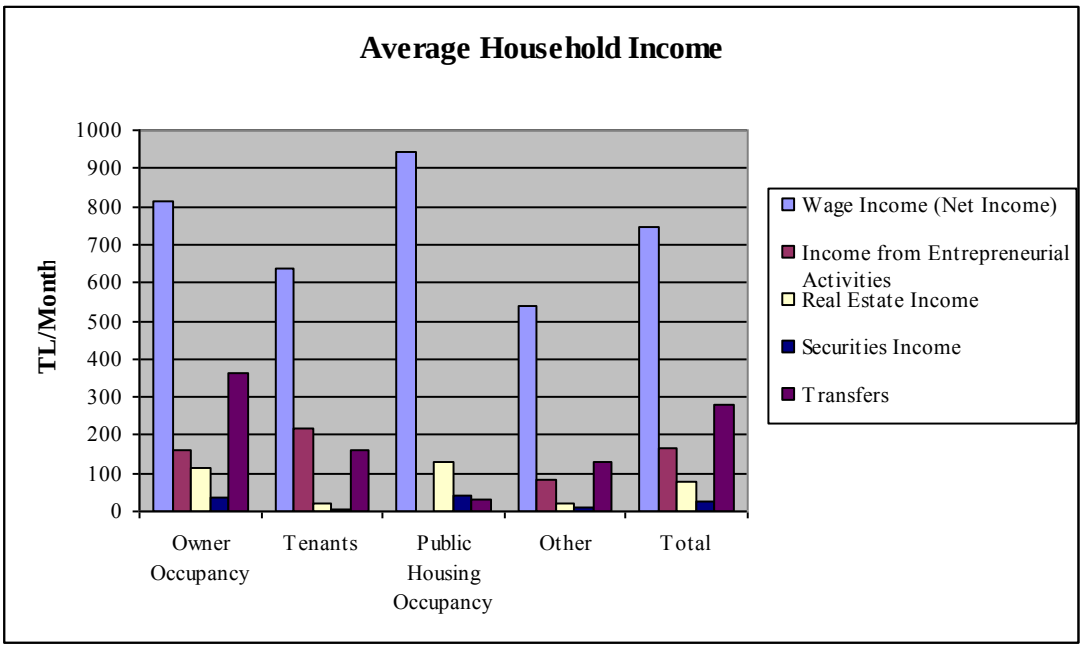


Figure 5.1. Components of Average Household Income in 2003 (Urban Ankara)

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

After wages the next most important source of household income is transfers in urban Ankara which are about 22 percent of total income. This ratio is 19 percent in urban Turkey. However the next most important source after wages in urban

Turkey is not the transfers but the income from entrepreneurial activities. The share of income from entrepreneurial activities in total income is 20 percent for urban Turkey. However, income from entrepreneurial activities constitutes around 13 percent of total income in urban Ankara.

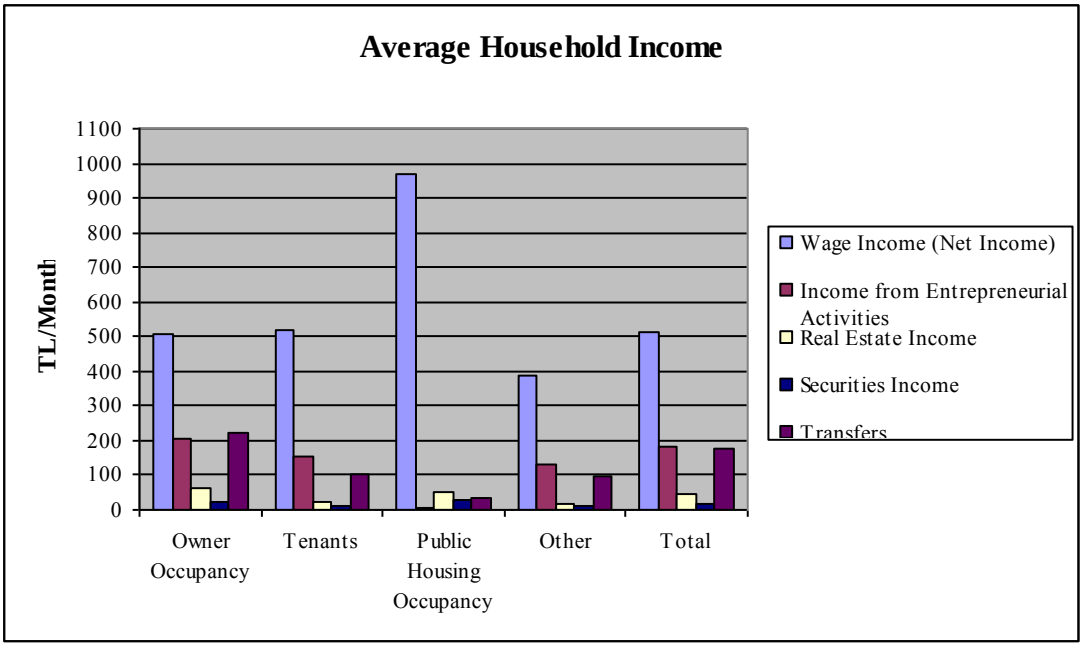


Figure 5.2. Components of Average Household Income in 2003 (Urban Turkey)
Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

Both in urban Ankara and in urban Turkey, for homeowners, tenants and other tenure case transfers remain as one of the main sources of total income; however the share of transfer income is very small for households who live in public housing (about 2,7 percent in urban Ankara, and 3,1 percent in urban Turkey).

Income from entrepreneurial activities also reaches its maximum share for renters (about 21 percent) in urban Ankara. As it is expected, the share of income from

entrepreneurial activities is zero for households who live in public housing. However, the share of income from entrepreneurial activities in total income is higher for homeowners and other tenure type than tenants in urban Turkey.

The next source of household income is real estate income which is around 6 percent of total income in urban Ankara and 5 percent in urban Turkey. This rate reaches its maximum value for households who live in public housing (around 11 percent) in urban Ankara. Government officials have the chance of living in public housing by paying lower amount of rent than the market rent. For this reason, even if they have their own flats, they prefer to live in public housing and get income by renting out their own flats. For this reason, the share of real estate income is greater for this tenure group in urban Ankara compared to other tenure types. As it is expected, real estate income has the smallest share in total income for tenants and other tenure type. Securities income constitutes around 2 percent of total household income both in urban Ankara and in urban Turkey. This rate is also greater for households living in public housing.

Table 5.1 gives general information to make a comparison between urban Ankara and urban Turkey by considering different income sources of households. Such as, the percent of wage income in total household income is greater in urban Ankara than in urban Turkey. Another important difference is that, the share of income from entrepreneurial activities is only 13 percent of total household income in urban Ankara. However this ratio is almost 20 percent for urban Turkey in general. There is not a significant difference for real estate, securities and transfers income.

Because Ankara is the capital city of Turkey, it is not a coincidence that the ratio of wage income is greater than the ratio in Turkey because it is the center of the most public services. The ratio of entrepreneurial activities is not very high in Ankara, so the share of income from entrepreneurial activities is lower in Ankara than in Turkey because of the same reason.

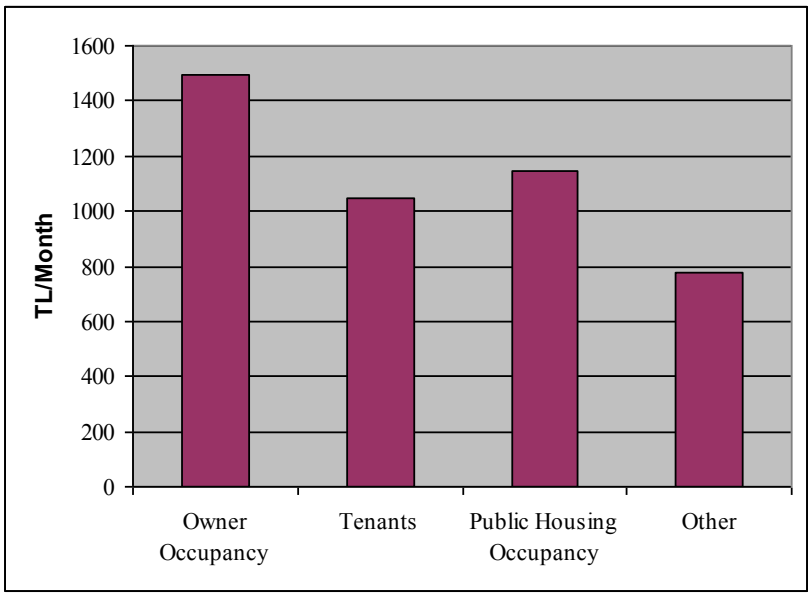


Figure 5.3. Average Household Income in 2003 (Urban Ankara)

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

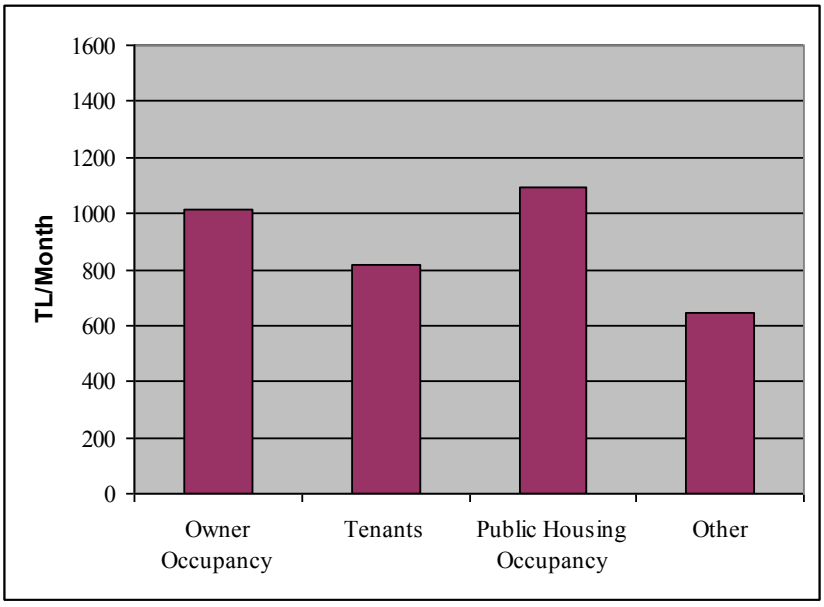


Figure 5.4. Average Household Income in 2003 (Urban Turkey)

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

Figure 5.3 and Figure 5.4 give information about average household income without making a subdivision about components of income. In general, the average income of households for each tenure type is greater in urban Ankara than in urban Turkey case. In Ankara case, homeowners have the highest average income, however in Turkey case, households who live in lodgement have the highest average monthly income.

Table 5.2. Quintile Distribution of Average Households Income (TL/Month) in 2003

	Owner Occupancy	**Tenancy**	**Public Housing Tenancy**	**Other**	**Total**[8]
Number of Households	804	349	23	120	1296
1. Quintile	155,77	174,92	-	177,29	168,88
2. Quintile	282,00	281,96	275,00	275,98	280,49
3. Quintile	359,07	370,96	360,00	354,67	362,68
4. Quintile	437,79	450,10	439,67	425,63	440,45
5. Quintile	524,83	518,16	536,67	530,04	522,83
6. Quintile	609,13	604,42	616,54	603,36	607,08
7. Quintile	676,32	680,18	-	680,10	678,04
8. Quintile	738,08	743,73	-	742,50	739,79
9. Quintile	804,96	805,01	812,70	809,58	805,24
10. Quintile	885,03	888,39	-	-	885,60
11. Quintile	986,19	982,99	-	1001,87	985,93
12. Quintile	1088,99	1096,18	1060,00	1076,17	1088,60
13. Quintile	1204,64	1213,45	1195,29	1223,86	1207,91
14. Quintile	1330,41	1328,56	-	1327,67	1329,97
15. Quintile	1514,36	1490,68	-	1504,01	1510,13
16. Quintile	1721,85	1722,51	-	1666,20	1718,58
17. Quintile	2018,57	2006,48	-	1912,58	2011,03
18. Quintile	2357,44	2398,92	2376,67	2181,08	2364,89
19. Quintile	2949,17	3079,24	2890,00	2948,79	2961,33
20. Quintile	5256,25	8632,48	5043,33	-	5584,85
Households Average Income	1491,51	1046,92	1144,18	777,71	1299,53

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

[8] Income Distribution without subdivision by tenure

After examining the components of average household income, the average income of each quintile, which are composed by income levels according to NUTS2 Codes, are calculated by considering different housing tenure types for urban Ankara (Table 5.2).

An interesting point is that, in higher income quintiles, tenants have higher monthly average income than homeowners. Especially for the 20th income quintile, tenants have almost 1,5 times average income than homeowners. One of the reasons behind this fact is that, many businessmen choose to rent rather than invest on good quality housing.

In the utility function, housing is one of the most important consumption goods for most homeowners, and also it is the dominant asset in their portfolio. As it is discussed before, housing differs from investment tools like stocks and bond in many ways. Once a household purchases a house, no adjustment to the size, location and etc. can be made without selling this property. However, there can be adjustment in holdings of financial assets with zero transaction cost unlike owning a house (Flavin & Yamashita, 2002). For this reason, some households do not prefer to own a house. Instead they prefer to rent in order to satisfy their demand for housing services. So, they can invest in different ways because they want to invest this money in more profitable businesses which have greater rate of return comparing to investing in house. This may be the reason that, in the Table 5.2, in the very upper income quintiles, households in tenants column have higher average income than homeowners because high income groups may prefer to invest in more profitable ways with higher rate of return than investing in housing.

Table 5.3. Quintile Distribution of the Number of Households by Tenure Categories (2003)

Quintiles	Owner Occupancy		Tenants		Public Housing Tenancy		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
1.	22	1,70	31	2,39	-	0,00	12	0,93	65	5,0
2.	21	1,62	28	2,16	1	0,08	15	1,16	65	5,0
3.	27	2,08	24	1,85	2	0,15	12	0,93	65	5,0
4.	28	2,16	22	1,70	6	0,46	9	0,69	65	5,0
5.	23	1,77	31	2,39	3	0,23	8	0,62	65	5,0
6.	34	2,62	18	1,39	2	0,15	11	0,85	65	5,0
7.	36	2,78	21	1,62	-	0,00	8	0,62	65	5,0
8.	44	3,40	15	1,16	-	0,00	6	0,46	65	5,0
9.	44	3,40	18	1,39	1	0,08	2	0,15	65	5,0
10.	54	4,17	11	0,85	-	0,00	-	0,00	65	5,0
11.	42	3,24	20	1,54	-	0,00	3	0,23	65	5,0
12.	44	3,40	13	1,00	1	0,08	7	0,54	65	5,0
13.	45	3,47	11	0,85	2	0,15	7	0,54	65	5,0
14.	51	3,94	11	0,85	-	0,00	3	0,23	65	5,0
15.	50	3,86	9	0,69	-	0,00	6	0,46	65	5,0
16.	46	3,55	15	1,16	-	0,00	4	0,31	65	5,0
17.	40	3,09	23	1,77	-	0,00	2	0,15	65	5,0
18.	47	3,63	15	1,16	2	0,15	1	0,08	65	5,0
19.	52	4,01	7	0,54	2	0,15	4	0,31	65	5,0
20.	54	4,17	6	0,46	1	0,08	-	0,00	61	4,7
Total	804	62,04	349	26,93	23	1,77	120	9,26	1296	100,0

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

It is expected that homeowners would be more likely to be in the upper and upper-middle income quintiles. Table 5.3 displays the relationship between income quintiles and housing tenure choice.

The rate of homeownership is often used as an indicator of the quality of a country's housing finance system. It also demonstrates the impact of demographic trends of government policy on homeownership in various countries (Proxenos, 2002). The rate of homeownership in urban Ankara is 62,04 percent, and the rate of tenancy is 26,93 percent in urban Ankara. Whether housing finance system in Turkey helps households to purchase their own dwelling units will be discussed in Case 2 and 3 in following sections of this chapter. The high homeownership rate in urban Ankara is related with promoting policies of government on homeownership and life customs of household in Turkey. Investment in real estate is seen as an essential for financial and social success. For most of households in Turkey, purchasing a dwelling is seen as a forced saving plan for those who cannot otherwise save their money. Also, homeownership is seen as an economic and social guarantee in the society in Turkey.

As it is expected, the number of homeowners increases as we move from lower to upper income quintiles. There are 121 households in the first five income quintiles. This constitutes 9,33 percent of total surveyed population. In contrast there are 239 households in the five highest income quintiles, and this constitutes 18,45 of total surveyed population.

In the tenants' case, the number of tenants decreases when we move from lower income quintiles to higher income quintiles. There are 6 households in the 20^{th} quintile; however there are 31 households in the first quintile. The lowest five income quintiles contain 10,49 percent of total surveyed population, and the top five income quintiles contain 5,09 percent of total surveyed households.

Table 5.3 shows that, households prefer owning instead of renting as their income increases. However when the highest three quintiles are examined in the Table 5.2, it is clear that tenants have higher average monthly income than homeowners as it is discussed before.

The number of households belonging to the other tenure type decreases as we move from lower income quintiles to higher income quintiles. There is no household living in public housing in the 1st, 7th, 8th, 10th, 11th, 14th, 15th, 16th, and 17th income quintiles.

Table 5.4. Quintile Distribution of Average Total Incomes (TL/Month) in 2003

	Owner Occupancy		**Tenancy**		**Public Housing Tenancy**		**Other**		**Total**[9]	
Number of Households	804		349		23		120		1296	
Quintiles	**Total Income**	**%**	**Total Income**	**%**	**Total Income**	**%**	**Total Income**		**Total Income**	**%**
1.	3427	0,20	5422	0,32	-	0,00	2128	0,13	10977	0,65
2.	5922	0,35	7895	0,47	275	0,02	4140	0,25	18232	1,08
3.	9695	0,58	8903	0,53	720	0,04	4256	0,25	23574	1,40
4.	12258	0,73	9902	0,59	2638	0,16	3831	0,23	28629	1,70
5.	12071	0,72	16063	0,95	1610	0,10	4240	0,25	33984	2,02
6.	20711	1,23	10880	0,65	1233	0,07	6637	0,39	39460	2,34
7.	24348	1,45	14284	0,85	-	0,00	5441	0,32	44072	2,62
8.	32475	1,93	11156	0,66	-	0,00	4455	0,26	48086	2,86
9.	35418	2,10	14490	0,86	813	0,05	1619	0,10	52340	3,11
10.	47792	2,84	9772	0,58	-	0,00	-	0,00	57564	3,42
11.	41420	2,46	19660	1,17	-	0,00	1001,87	0,06	64086	3,81
12.	47915	2,84	14250	0,85	1060	0,06	1076,17	0,06	70759	4,20
13.	54209	3,22	13348	0,79	2391	0,14	1223,86	0,07	78514	4,66
14.	67851	4,03	14614	0,87	-	0,00	1327,67	0,08	86448	5,13
15.	75718	4,50	13416	0,80	-	0,00	1504,01	0,09	98158	5,83
16.	79205	4,70	25838	1,53	-	0,00	1666,20	0,10	111708	6,63
17.	80743	4,79	46149	2,74	-	0,00	1912,58	0,11	130717	7,76
18.	110800	6,58	35984	2,14	4753	0,28	2181,08	0,13	153718	9,13
19.	153357	9,11	21555	1,28	5780	0,34	2948,79	0,18	192487	11,43
20.	283837	16,85	51795	3,08	5043	0,30	-	0,00	340676	20,23
Total	1199173	71,20	365376	21,69	26316	1,56	93325	5,54	1684190	100

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

[9] Income Distribution without subdivision by tenure

In the next step, the distribution of total income in each quintile is examined. The values of total income and the share of each quintile in total income are given in Table 5.4. It shows the distribution of income in year 2003 in urban Ankara.

Income distribution in Table 5.4 shows that, the share of income belonging to the poorest quintile is only 0,65 per cent in urban Ankara. However, the share of the richest quintile is 20,23 percent. When the top five quintiles are added, it appears that, 55,18 percent of total income belongs to the 25 percent of total population in urban Ankara. However the share of the lowest 25 percent of total population is only 6,85 percent of total income.

If tenure groups classified by their shares in total income position, it is clear in Table 5.4 that shares of homeowners in total income are greater than shares of other three tenure types. In total, homeowners have 71,2 percent of total income in urban Ankara. However tenants earn 21,7 percent, households living in public housing earn 1,6 percent, and households in other tenure type earn 5.5 percent of total income.

5.2. Consumption Expenditures According to Quintile Distribution of Households

In the next step of the study, some general descriptive statistics about consumption expenditures are examined in order to identify the general characteristics of households in urban Ankara.

In this part of the study, the focus is on life-cycle patterns of consumption of households in urban Ankara. In doing so, it is aimed to identify the allocation of consumption expenditures with respect to different income groups. The data is from "Households Budget Survey" from Turkish Statistical Institute covering 1296 households in urban Ankara. By using the data, it is aimed to identify the household's preferences that determine the allocation of their budget to different

goods. The data record all income sources and expenditures, the stock of household durables, and also the financial situation of households.

The data is examined with respect to quintile distribution of household income by taking into account NUTS 2 codes. Income quintiles are generated by taking into account the related part of the survey in urban Ankara. Table 5.5 examines the changes in consumption pattern of households in relation to different income groups. Table 5.6 examines these changes for homeowners, and Table 5.7 examines these changes for tenants. It provides a comprehensive framework for analyzing the relationship between allocation of consumption and the budget of households by dividing them into quintiles according to their income.

The data in Table 5.5 give information about monthly expenditures on food and non-alcoholic beverages of households. Alcoholic beverages, cigarette and tobacco are presented separately in the data. It has also information about expenditures on clothing and footwear, expenditures on housing, water, electricity and fuel, furniture, houses appliances and home care services, expenditure on health, transportation, communication, entertainment and culture, educational services, restaurant and hotels, and expenditure on various goods and services. One of the most important information in the data is the expenses related to the housing including rent, and water, electricity and fuel. However, the data on housing expenditures also include the implicit rent amount for homeowners besides the real rent payments of tenants. Because the aim of the thesis is to find average real expenditures of the households, the implicit rent expenses are excluded from the data.

Table 5.5. Average Expenditures of Household (TL/ Month) in 2003

Quintiles	Food & Non-Alcoholic Beverages	%	Alcoholic Beverages, Cigarette & Tobacco	%	Clothing & Footwear	%	Expenditures on Housing, Water, Electricity, and Fuel	%	Furniture, Houses Appliances & Home Care Services	%	Health	%	Transportation	%	Communication	%	Entertainment & Culture	%	Educational Services	%	Restaurant & Hotels	%	Various Good & Services	%	Total Expenditure	%
1.	95,6	32,6	24,4	8,3	9,3	3,2	64,8	22,1	12,9	4,4	15,5	5,3	30,8	10,5	11,5	3,9	4,4	1,5	2,3	0,8	16,5	5,6	5,8	2,0	293,7	100
2.	107,7	32,6	25,4	7,7	10,4	3,2	84,3	25,6	21,2	6,4	5,4	1,6	29,0	8,8	11,1	3,4	5,7	1,7	1,7	0,5	19,4	5,9	8,7	2,6	329,9	100
3.	128,1	31,0	23,7	5,7	17,5	4,2	103,8	25,1	23,8	5,8	4,5	1,1	40,0	9,7	15,5	3,8	5,2	1,3	6,2	1,5	32,7	7,9	11,8	2,9	412,9	100
4.	146,2	32,7	23,0	5,1	20,5	4,6	118,7	26,6	20,1	4,5	5,8	1,3	43,2	9,7	17,3	3,9	5,4	1,2	2,6	0,6	27,0	6,0	17,3	3,9	447,0	100
5.	154,7	30,0	27,0	5,2	30,7	6,0	141,6	27,5	15,7	3,0	5,4	1,0	54,5	10,6	24,3	4,7	9,6	1,9	5,5	1,1	30,5	5,9	16,2	3,1	515,8	100
6.	164,0	30,9	30,0	5,7	33,6	6,3	123,6	23,3	38,0	7,2	6,3	1,2	48,4	9,1	26,9	5,1	10,3	1,9	6,7	1,3	27,1	5,1	15,6	2,9	530,4	100
7.	192,3	32,6	25,9	4,4	35,5	6,0	124,7	21,1	29,6	5,0	17,9	3,0	57,9	9,8	22,3	3,8	10,8	1,8	11,4	1,9	31,5	5,3	30,8	5,2	590,6	100
8.	204,5	31,3	22,3	3,4	60,0	9,2	138,2	21,2	24,7	3,8	12,8	2,0	59,9	9,2	31,4	4,8	22,1	3,4	22,1	3,4	21,8	3,3	33,0	5,1	652,8	100
9.	179,1	28,9	41,7	6,7	36,0	5,8	147,4	23,8	30,6	4,9	7,5	1,2	59,0	9,5	32,7	5,3	12,5	2,0	22,4	3,6	21,1	3,4	30,1	4,9	620,0	100
10.	181,4	29,1	24,3	3,9	43,3	7,0	146,4	23,5	48,8	7,8	9,9	1,6	57,7	9,3	32,7	5,2	12,4	2,0	13,2	2,1	29,9	4,8	22,9	3,7	623,0	100
11.	193,8	25,8	42,6	5,7	67,8	9,0	168,0	22,4	42,6	5,7	7,0	0,9	90,9	12,1	45,4	6,1	20,0	2,7	10,6	1,4	34,7	4,6	26,5	3,5	750,0	100
12.	230,9	28,8	50,9	6,3	44,4	5,5	152,1	18,9	48,7	6,1	16,0	2,0	131,0	16,3	38,8	4,8	11,7	1,5	16,1	2,0	42,2	5,3	20,3	2,5	803,0	100
13.	214,6	23,6	51,4	5,6	70,3	7,7	201,3	22,1	57,7	6,3	17,2	1,9	106,6	11,7	51,2	5,6	30,5	3,3	10,9	1,2	59,9	6,6	39,3	4,3	910,9	100
14.	240,0	26,3	29,7	3,3	68,6	7,5	176,3	19,3	50,5	5,5	26,6	2,9	132,7	14,5	51,3	5,6	23,2	2,5	20,8	2,3	45,2	5,0	48,2	5,3	913,0	100
15.	247,0	22,3	44,0	4,0	136,9	12,3	159,7	14,4	55,3	5,0	28,1	2,5	142,0	12,8	75,0	6,8	53,0	4,8	26,3	2,4	60,1	5,4	82,3	7,4	1109,8	100
16.	248,3	19,4	50,1	3,9	116,9	9,1	217,4	17,0	75,7	5,9	24,8	1,9	255,0	19,9	82,5	6,4	33,7	2,6	29,7	2,3	83,5	6,5	62,6	4,9	1280,2	100
17.	249,8	19,4	61,9	4,8	86,2	6,7	261,9	20,4	64,4	5,0	27,1	2,1	253,5	19,7	83,4	6,5	32,2	2,5	34,7	2,7	72,5	5,6	59,2	4,6	1286,7	100
18.	244,6	18,6	45,8	3,5	122,4	9,3	253,9	19,3	111,5	8,5	15,3	1,2	215,1	16,3	89,2	6,8	46,2	3,5	31,8	2,4	59,9	4,6	79,8	6,1	1315,7	100
19.	290,3	20,5	50,4	3,6	98,6	7,0	248,5	17,6	113,5	8,0	30,4	2,2	243,4	17,2	80,3	5,7	46,8	3,3	35,1	2,5	79,8	5,6	95,9	6,8	1413,0	100
20.	342,3	13,2	58,4	2,3	226,1	8,7	342,8	13,3	206,9	8,0	101,5	3,9	396,9	15,4	122,8	4,8	192,3	7,4	176,0	6,8	232,0	9,0	187,0	7,2	2585,1	100

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

Table 5.6. Average Expenditures of Homeowners (TL/ Month) in 2003

Quintiles	Food & Non-Alcoholic Beverages	%	Alcoholic Beverages, Cigarette & Tobacco	%	Clothing & Footwear	%	Expenditures on Housing, Water, Electricity, and Fuel	%	Furniture, Houses Appliances & Home Care Services	%	Health	%	Transportation	%	Communication	%	Entertainment & Culture	%	Educational Services	%	Restaurant & Hotels	%	Various Good & Services	%	Total Expenditure	%
1.	119,4	34,5	23,0	6,6	8,0	2,3	41,8	12,1	19,6	5,7	42,6	12,3	45,2	13,0	15,5	4,5	8,4	2,4	4,1	1,2	7,1	2,0	11,4	3,3	346,4	100
2.	112,6	36,6	18,8	6,1	8,0	2,6	55,5	18,0	18,5	6,0	10,1	3,3	32,7	10,6	14,9	4,8	6,6	2,1	4,4	1,4	22,0	7,1	4,0	1,3	307,9	100
3.	129,0	35,3	22,4	6,1	11,3	3,1	85,2	23,3	21,6	5,9	3,4	0,9	42,2	11,5	16,4	4,5	2,3	0,6	0,7	0,2	19,7	5,4	11,4	3,1	365,7	100
4.	141,0	33,1	21,0	4,9	25,8	6,1	82,6	19,4	22,8	5,4	5,9	1,4	52,8	12,4	15,6	3,7	4,7	1,1	3,3	0,8	25,3	5,9	25,1	5,9	425,7	100
5.	167,9	33,8	24,8	5,0	47,5	9,6	92,6	18,7	19,0	3,8	6,1	1,2	46,5	9,4	25,0	5,0	8,4	1,7	8,0	1,6	29,2	5,9	21,0	4,2	496,1	100
6.	181,3	39,3	17,9	3,9	30,9	6,7	89,0	19,3	25,9	5,6	5,5	1,2	31,8	6,9	23,8	5,2	9,9	2,1	9,6	2,1	19,7	4,3	15,8	3,4	461,1	100
7.	197,1	35,3	21,8	3,9	41,7	7,5	93,1	16,7	25,7	4,6	20,4	3,7	52,9	9,5	20,4	3,7	13,9	2,5	13,5	2,4	20,5	3,7	37,2	6,7	558,0	100
8.	208,2	33,0	19,5	3,1	57,3	9,1	115,3	18,3	26,2	4,2	13,5	2,1	57,6	9,1	27,9	4,4	19,4	3,1	22,4	3,6	22,8	3,6	40,4	6,4	630,5	100
9.	182,7	34,8	38,4	7,3	31,3	6,0	84,9	16,2	34,6	6,6	10,3	2,0	52,1	9,9	28,3	5,4	11,6	2,2	6,4	1,2	14,7	2,8	29,4	5,6	524,6	100
10.	182,9	30,9	23,7	4,0	41,9	7,1	118,8	20,1	46,4	7,9	10,1	1,7	50,4	8,5	32,7	5,5	13,4	2,3	15,5	2,6	29,3	5,0	26,0	4,4	591,0	100
11.	199,7	28,5	35,2	5,0	75,5	10,8	110,0	15,7	40,9	5,8	5,7	0,8	101,1	14,4	47,7	6,8	14,1	2,0	13,2	1,9	32,8	4,7	25,7	3,7	701,5	100
12.	237,0	31,3	48,4	6,4	37,8	5,0	121,5	16,0	54,8	7,2	6,5	0,9	134,1	17,7	33,4	4,4	10,9	1,4	19,6	2,6	36,7	4,8	17,0	2,2	757,9	100
13.	216,0	26,3	46,5	5,7	54,4	6,6	174,9	21,3	39,7	4,8	16,3	2,0	107,4	13,1	44,4	5,4	16,4	2,0	8,3	1,0	55,6	6,8	41,5	5,1	821,5	100
14.	255,6	28,5	31,5	3,5	75,3	8,4	140,3	15,6	56,7	6,3	27,8	3,1	115,0	12,8	51,8	5,8	25,2	2,8	23,9	2,7	47,1	5,2	48,1	5,4	898,2	100
15.	257,3	23,7	41,5	3,8	153,6	14,2	129,2	11,9	62,6	5,8	26,8	2,5	118,5	10,9	70,2	6,5	45,8	4,2	30,6	2,8	55,8	5,1	91,9	8,5	1083,9	100
16.	246,7	21,3	44,2	3,8	98,4	8,5	158,9	13,7	54,5	4,7	29,2	2,5	283,4	24,5	66,7	5,8	36,5	3,2	25,8	2,2	55,7	4,8	58,2	5,0	1158,3	100
17.	256,1	21,3	56,1	4,7	88,6	7,4	196,7	16,4	58,5	4,9	31,4	2,6	200,6	16,7	87,7	7,3	38,7	3,2	42,0	3,5	81,5	6,8	61,8	5,2	1199,6	100
18.	252,4	19,8	45,3	3,6	128,5	10,1	185,7	14,6	130,7	10,3	9,3	0,7	230,5	18,1	87,1	6,8	49,1	3,9	19,9	1,6	56,2	4,4	79,5	6,2	1274,1	100
19.	285,8	21,3	49,8	3,7	101,8	7,6	212,5	15,9	126,6	9,4	28,4	2,1	239,5	17,9	83,2	6,2	44,3	3,3	25,3	1,9	72,1	5,4	70,6	5,3	1339,9	100
20.	346,1	13,5	52,2	2,0	240,6	9,4	310,6	12,1	207,4	8,1	112,4	4,4	411,4	16,0	106,9	4,2	193,2	7,5	164,4	6,4	243,7	9,5	184,3	7,2	2573,0	100

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

Table 5.7. Average Expenditures of Tenants (TL/ Month) in 2003

Quintiles	Food & Non-Alcoholic Beverages	%	Alcoholic Beverages, Cigarette & Tobacco	%	Clothing & Footwear	%	Expenditures on Housing, Water, Electricity, and Fuel	%	Furniture, Houses Appliances & Home Care Services	%	Health	%	Transportation	%	Communication	%	Entertainment & Culture	%	Educational Services	%	Restaurant & Hotels	%	Various Good & Services	%	Total Expenditure	%
1.	77,8	29,2	21,8	8,2	12,3	4,6	91,5	34,3	6,7	2,5	1,7	0,6	23,0	8,6	5,9	2,2	2,4	0,9	1,0	0,4	19,7	7,4	2,8	1,1	266,6	100
2.	106,6	28,5	26,2	7,0	10,8	2,9	132,2	35,4	25,4	6,8	3,9	1,0	27,1	7,2	7,8	2,1	6,7	1,8	0,1	0,0	19,5	5,2	7,6	2,0	373,9	100
3.	118,0	27,9	25,2	6,0	15,3	3,6	154,6	36,5	11,2	2,6	4,3	1,0	40,7	9,6	14,5	3,4	3,5	0,8	3,0	0,7	24,0	5,7	9,1	2,1	423,5	100
4.	130,3	27,3	23,9	5,0	13,7	2,9	175,2	36,7	14,0	2,9	6,9	1,4	44,3	9,3	18,7	3,9	4,0	0,8	1,8	0,4	33,8	7,1	11,1	2,3	477,6	100
5.	141,4	25,3	26,5	4,7	19,7	3,5	205,3	36,7	16,0	2,9	3,8	0,7	62,3	11,1	21,5	3,8	10,7	1,9	4,0	0,7	35,4	6,3	12,6	2,3	559,2	100
6.	142,0	24,2	32,9	5,6	22,2	3,8	202,7	34,6	20,4	3,5	8,7	1,5	71,2	12,2	24,0	4,1	5,1	0,9	2,8	0,5	39,4	6,7	14,5	2,5	585,9	100
7.	168,2	25,6	31,7	4,8	24,4	3,7	207,1	31,5	38,3	5,8	16,7	2,5	60,0	9,1	24,3	3,7	7,6	1,2	5,5	0,8	53,4	8,1	19,2	2,9	656,5	100
8.	188,7	25,8	39,0	5,3	66,3	9,1	234,4	32,1	15,5	2,1	11,7	1,6	70,1	9,6	46,5	6,4	6,5	0,9	15,3	2,1	18,1	2,5	18,3	2,5	730,4	100
9.	179,8	21,1	54,1	6,4	35,1	4,1	295,8	34,8	22,2	2,6	0,9	0,1	64,5	7,6	44,4	5,2	16,4	1,9	62,9	7,4	39,8	4,7	35,1	4,1	850,9	100
10.	174,1	22,3	27,3	3,5	50,4	6,5	281,8	36,1	60,3	7,7	9,0	1,2	93,5	12,0	33,1	4,2	7,6	1,0	2,3	0,3	32,7	4,2	7,6	1,0	779,7	100
11.	178,3	21,3	64,6	7,7	53,0	6,3	273,4	32,7	47,2	5,6	10,7	1,3	66,3	7,9	36,8	4,4	32,8	3,9	6,2	0,7	43,5	5,2	23,9	2,9	836,7	100
12.	233,6	23,0	57,6	5,7	35,7	3,5	286,4	28,1	49,4	4,9	21,6	2,1	153,7	15,1	57,7	5,7	13,4	1,3	5,9	0,6	72,4	7,1	30,0	2,9	1017,6	100
13.	175,5	18,4	64,3	6,7	65,7	6,9	264,4	27,7	55,7	5,8	21,6	2,3	100,8	10,6	39,2	4,1	19,0	2,0	30,5	3,2	94,2	9,9	22,6	2,4	953,7	100
14.	200,4	17,9	25,1	2,2	54,6	4,9	359,1	32,2	35,5	3,2	16,5	1,5	241,6	21,6	42,1	3,8	19,2	1,7	12,3	1,1	48,6	4,4	61,6	5,5	1116,5	100
15.	222,2	20,9	74,5	7,0	62,0	5,8	282,6	26,5	14,1	1,3	33,8	3,2	92,1	8,7	75,4	7,1	63,0	5,9	8,9	0,8	92,2	8,7	43,5	4,1	1064,5	100
16.	255,1	14,7	70,0	4,0	180,2	10,4	416,8	24,1	141,4	8,2	17,1	1,0	209,6	12,1	135,6	7,8	27,6	1,6	17,7	1,0	170,9	9,9	88,0	5,1	1729,9	100
17.	236,7	16,3	77,1	5,3	77,0	5,3	376,8	26,0	78,9	5,4	18,7	1,3	361,3	24,9	66,9	4,6	22,7	1,6	15,6	1,1	59,5	4,1	59,2	4,1	1450,5	100
18.	232,6	16,1	50,7	3,5	112,5	7,8	452,8	31,3	57,2	4,0	32,1	2,2	185,9	12,8	91,0	6,3	31,1	2,1	59,5	4,1	68,5	4,7	73,4	5,1	1447,2	100
19.	346,7	22,4	38,1	2,5	56,2	3,6	502,4	32,5	26,6	1,7	39,6	2,6	152,7	9,9	63,2	4,1	54,7	3,5	92,9	6,0	60,3	3,9	112,8	7,3	1546,3	100
20.	318,6	12,6	105,3	4,2	91,0	3,6	570,0	22,6	133,6	5,3	16,3	0,6	278,4	11,0	265,9	10,5	161,5	6,4	293,6	11,6	148,7	5,9	141,7	5,6	2524,6	100

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

Table 5.5 shows that households' consumption on food and non-alcoholic beverages increase as income level increases. However the ratio of food consumption in total expenditure decreases as level of income increases. As expected lower income groups spend larger share of their income on food because they are necessary goods.

Also, households with higher income level spend higher amounts on alcoholic beverages, cigarette and tobacco, and the share of these expenditures in total consumption is relatively less than the shares of lower income groups.

The shares of consumer expenditures devoted to clothing and footwear, furniture, houses appliances and home care services, transportation, communication, entertainment and culture, and educational services in total expenditure of households increase for higher income groups. The shares of expenditures on health care, restaurant and hotels in total households' expenditures are unevenly distributed across income-groups while the amounts increase as we move from lower income quintiles to higher ones.

According to the Table 5.5, expenditures on housing including rent, water, electricity and fuel increase as level of income increases. However the share of expenditure on housing and rent in total expenditure decreases with increasing income.

The main difference between Table 5.6 and Table 5.7 is about expenditures on housing, water, electricity and fuel which also include monthly rent amounts for tenants. As it is expected, the share of expenditure on housing, water, electricity and fuel in total expenditures is greater for tenants than homeowners, as tenants are paying rent for housing. Another difference is that for most income quintiles, the share of expenditure on furniture, houses appliances and home care services are higher for homeowners. The reason is that, tenants may have not to worry about repairs, and home care services. These costs may be handled by homeowners. Also,

household may be willing to pay more for the furniture and decorating as they are living their own homes.

Table 5.8 shows mean values of housing expenditure (TL/Month) across different tenure types. It shows what amount of households' budget homeowners and tenants spend on housing. Using household-level consumption data from the Consumer Expenditure Survey, it is clear that higher income groups spend more on housing for all tenure types as they can afford more expensive houses. In general, because homeowners do not pay rent, the mean value of expenditure on housing is lower for homeowners than tenants.

For lower income quintiles, households spend almost 40 percent of their budget on housing and rent. For upper quintiles, it is lower than 10 percent of their budget. For the case without subdivision by tenure, the share of expenditure on housing in household budget declines by moving from lower to upper income quintiles. Especially for tenants, the share of housing expenditure in their total income is almost 40-50 percent at lower quintiles, and it falls to around 20 percent at upper quintiles.

By examining the Table 5.8, it is recognized that especially for lower income groups the high share of housing expenditures in household's income is an important barrier that limits access to homeownership. Whether the financing constraints are important barriers to access for homeownership are examined in the next section of this chapter.

Table 5.8. Share of Expenditure on Housing in Household Average Income across Different Tenure Types in 2003

Quintiles	Owner Occupancy			Tenants			Public Housing Tenancy			Other			Total[10]		
	Average Households Income (TL/Month)	Average Expenditure on Housing (TL/Month)	%	Average Households Income (TL/Month)	Average Expenditure on Housing (TL/Month)	%	Average Households Income (TL/Month)	Average Expenditure on Housing (TL/Month)	%	Average Households Income (TL/Month)	Average Expenditure on Housing (TL/Month)	%	Average Households Income (TL/Month)	Average Expenditure on Housing (TL/Month)	%
1.	155,77	41,8	26,8	174,92	91,5	52,3	-	-	-	177,29	38,3	21,6	168,88	64,8	38,4
2.	282,00	55,5	19,7	281,96	132,2	46,9	275,00	66,4	24,1	275,98	36,4	13,2	280,49	84,3	30,1
3.	359,07	85,2	23,7	370,96	154,6	41,7	360,00	85,9	23,9	354,67	47,2	13,3	362,68	103,8	28,6
4.	437,79	82,6	18,9	450,10	175,2	38,9	439,67	76,4	17,4	425,63	121,0	28,4	440,45	118,7	26,9
5.	524,83	92,6	17,6	518,16	205,3	39,6	536,67	62,7	11,7	530,04	65,5	12,4	522,83	141,6	27,1
6.	609,13	89,0	14,6	604,42	202,7	33,5	616,54	76,9	12,5	603,36	109,9	18,2	607,08	123,6	20,4
7.	676,32	93,1	13,8	680,18	207,1	30,4	-	-	-	680,10	50,5	7,4	678,04	124,7	18,4
8.	738,08	115,3	15,6	743,73	234,4	31,5	-	-	-	742,50	66,1	8,9	739,79	138,2	18,7
9.	804,96	84,9	10,5	805,01	295,8	36,7	812,70	34,8	4,3	809,58	243,4	30,1	805,24	147,4	18,3
10.	885,03	118,8	13,4	888,39	281,8	31,7	-	-	-	-	-	-	885,60	146,4	16,5
11.	986,19	110,0	11,2	982,99	273,4	27,8	-	-	-	1001,87	277,4	27,7	985,93	168,0	17,0
12.	1088,99	121,5	11,2	1096,18	286,4	26,1	1060,00	20,0	1,9	1076,17	113,6	10,6	1088,60	152,1	14,0
13.	1204,64	174,9	14,5	1213,45	264,4	21,8	1195,29	359,4	30,1	1223,86	226,7	18,5	1207,91	201,3	16,7
14.	1330,41	140,3	10,5	1328,56	359,1	27,0	-	-	-	1327,67	118,7	8,9	1329,97	176,3	13,3
15.	1514,36	129,2	8,5	1490,68	282,6	19,0	-	-	-	1504,01	229,7	15,3	1510,13	159,7	10,6
16.	1721,85	158,9	9,2	1722,51	416,8	24,2	-	-	-	1666,20	142,2	8,5	1718,58	217,4	12,6
17.	2018,57	196,7	9,7	2006,48	376,8	18,8	-	-	-	1912,58	242,8	12,7	2011,03	261,9	13,0
18.	2357,44	185,7	7,9	2398,92	452,8	18,9	2376,67	412,7	17,4	2181,08	158,6	7,3	2364,89	253,9	10,7
19.	2949,17	212,5	7,2	3079,24	502,4	16,3	2890,00	454,2	15,7	2948,79	168,3	5,7	2961,33	248,5	8,4
20.	5256,25	310,6	5,9	8632,48	570,0	6,6	5043,33	720,0	14,3	-	-	-	5584,85	342,8	6,1

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

[10] Without subdivision by tenure

5.3. Savings According to Quintile Distribution of Households

Household Budget Survey includes information about level of income and expenditure behaviors about households, but do not have information about saving rates among different households. By following the study of Türel, et al. (2007), the analysis of households savings are built on information of income and expenditure data from Household Budget Survey. That is, savings of households are calculated by subtracting monthly expenditures from total monthly income. The study calculates saving rates for 20 income quintiles for all different tenure types.

Savings of households can be calculated by subtracting expenditure amounts from net incomes, and then adding the income from investments. In this study, the average monthly incomes of households in Table 5.2 are calculated by the sum of net income of households and the income from investments. For this reason, the saving amounts in Table 5.9 are calculated by subtracting average monthly expenditure from average monthly income (including income from investments) of households.

Table 5.9 presents amounts of savings for different income quintiles. The result of calculations shows that, there are negative saving rates especially for lower income quintiles.

Table 5.9 indicates that, rate of savings increases as we move from lower to higher income quintiles for most cases, and in general saving amounts are greater for homeowners than tenants because they do not pay rent.

Table 5.9. Savings of Households across Different Tenure Types in 2003

Quintiles	Owner Occupiers			Tenants			Public Housing Occupancy			Other			Total[11]		
	Average Households Income (TL/Month)	Average Consumption (TL/Month)	Saving (TL/Month)	Average Households Income (TL/Month)	Average Consumption (TL/Month)	Saving (TL/Month)	Average Households Income (TL/Month)	Average Consumption (TL/Month)	Saving (TL/Month)	Average Households Income (TL/Month)	Average Consumption (TL/Month)	Saving (TL/Month)	Average Households Income (TL/Month)	Average Consumption (TL/Month)	Saving (TL/Month)
1.	155,77	346,4	-190,6	174,92	266,6	-91,7	-	-		177,29	267,0	-89,71	168,88	293,7	-124,82
2.	282,00	307,9	-25,9	281,96	373,9	-91,9	275,00	309,8	-34,8	275,98	280,0	-4,02	280,49	329,9	-49,41
3.	359,07	365,7	-6,6	370,96	423,5	-52,5	360,00	984,9	-624,9	354,67	403,0	-48,33	362,68	412,9	-50,22
4.	437,79	425,7	12,1	450,10	477,6	-27,5	439,67	360,9	78,77	425,63	496,0	-70,37	440,45	447,0	-6,55
5.	524,83	496,1	28,7	518,16	559,2	-41,0	536,67	474,3	62,37	530,04	420,0	110,04	522,83	515,8	7,03
6.	609,13	461,1	148,0	604,42	585,9	18,5	616,54	503,0	113,54	603,36	658,0	-54,64	607,08	530,4	76,68
7.	676,32	558,0	118,3	680,18	656,5	23,7	-	-		680,10	565,0	115,1	678,04	590,6	87,44
8.	738,08	630,5	107,6	743,73	730,4	13,3	-	-		742,50	622,0	120,5	739,79	652,8	86,99
9.	804,96	524,6	280,4	805,01	850,9	-45,9	812,70	668,4	144,3	809,58	615,0	194,58	805,24	620,0	185,24
10.	885,03	591,0	294,0	888,39	779,7	108,7	-			-	-		885,60	623,0	262,6
11.	986,19	701,5	284,7	982,99	836,7	146,3	-			1001,87	850,0	151,87	985,93	750,0	235,93
12.	1088,99	757,9	331,1	1096,18	1017,6	78,6	1060,00	479,8	580,2	1076,17	735,0	341,17	1088,60	803,0	285,6
13.	1204,64	821,5	383,1	1213,45	953,7	259,8	1195,29	1601,2	-405,91	1223,86	1220,0	3,86	1207,91	910,9	297,01
14.	1330,41	898,2	432,2	1328,56	1116,5	212,1	-	-		1327,67	420,0	907,67	1329,97	913,0	416,97
15.	1514,36	1083,9	430,5	1490,68	1064,5	426,2	-	-		1504,01	1390,0	114,01	1510,13	1109,8	400,33
16.	1721,85	1158,3	563,6	1722,51	1729,9	-7,4	-	-		1666,20	995,0	671,2	1718,58	1280,2	438,38
17.	2018,57	1199,6	819,0	2006,48	1450,5	556,0	-	-		1912,58	1150,0	762,58	2011,03	1286,7	724,33
18.	2357,44	1274,1	1083,3	2398,92	1447,2	951,7	2376,67	1604,9	771,77	2181,08	723,0	1458,08	2364,89	1315,7	1049,19
19.	2949,17	1339,9	1609,3	3079,24	1546,3	1532,9	2890,00	2994,1	-104,1	2948,79	1340,0	1608,79	2961,33	1413,0	1548,33
20.	5256,25	2573,0	2683,3	8632,48	2524,6	6107,9	5043,33	3597,5	1445,83	-	-	-	5584,85	2585,1	2999,75

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

[11] Income Distribution without subdivision by tenure

When the saving rates are examined in respect to different tenure types, it is found that for homeowners the average monthly saving rate is negative only for the lowest three income quintiles. For tenancy, in the 1st, 2nd, 3rd, 4th, 5th, 9th, and 16th income quintiles saving rates are negative. For households living in public housing, saving rates are negative for the 2nd, 3rd, 13th, and 19th income quintiles. Also for households belonging in "other" tenure group, saving rates are negative for the 1st, 2nd, 3rd, and 4th income quintiles.

In most cases, the high dissaving rates are related with low income and high expenditure levels. However, there can be different explanations for the negative saving rates. For instance, there can be income underreporting among some households. This situation may be valid for young households taking financial support from their parents or relatives. Another reason can be that, in this study households' income and expenditure values are calculated for one month. Households may compensate these negative savings by reducing consumption or by transitory shocks to income which maybe observable in other months of whole year. This may explain the negative saving rates of high income quintiles.

In this part of the study, it is possible to drive the relationship between saving rates and total income by not taking into account the transitory shocks to the income. However the transitory shocks to income will affect the rate of household savings which may be an important source of access to homeownership. This hypothesis will be examined in the later chapters of the thesis.

5.4. Different Economic Ways of Shifting from Tenancy to Homeownership

As it is discussed in the previous sections, there can be two different reasons for the demand of housing: investment and consumption. Ioannides and Rosenthal (1994) study consumption and investment demands for housing. As the literature argues, households prefer to own if investment demand for housing is greater than consumption demand. According to the authors, investment demand is more

sensitive to wealth and income; however consumption demand is more sensitive to demographic variables in an environment without tax distortions, borrowing constraints, and transaction costs. Four different subtenures are classified by the authors: Rent 1: households may be renting without owning property, Rent 2: households may be renting while owning another property, Own 1: households may own their home without owning another property, and Own 2: households may own their home and some other properties.

Then authors define an index (J) which indicates the excess of investment demand over consumption demand for housing. So, if J exceeds a series of thresholds, then households can move from Rent 1 to Own 2.

Homeownership is not for everyone because some families have unstable monthly incomes and few liquid assets. Under these conditions, they may be unable to meet mortgage payment requirements. For these families, renting may be more economically sensible than owning (Carasso, et al., 2005). However other households can afford to buy properties by saving up to a certain period.

In this part of the thesis, the possibility of shifting to homeownership by different income groups is examined in five different cases. All cases examine possibility of saving the required for homeownership by different households. In Case 1, it is assumed that, households do not use housing credits or borrow from other households, but they only rely on their own savings in order to buy a dwelling unit. By calculating the saving amounts for different saving periods, it is aimed to find out when households become able to afford to own a dwelling unit. In Case 2, it is assumed that households can apply for housing credits, and the possibility of saving the required equity for homeownership by different households groups are calculated. In Case 3, again it is assumed that households prefer to buy a dwelling by using housing credits. However in this case, possible credit repayments are calculated by using Debt to Income Ratio. In Case 4, it is assumed that households

limit some of their consumption after they decide to buy a dwelling. In Case 5, it is assumed that saving rates increase 2 percent in each year.

5.4.1. Case 1: House Purchase without Using Housing Credits or Borrowing

In Case 1, the assumption is that, households do not apply for housing credits or borrow from other individuals. The only source of buying a flat is their savings. As a first step, households' savings are calculated from their income and expenditure data in Table 5.9 for different income quintiles by considering different tenure types. In the second step, house prices are examined for every related local area in Ankara. As a third step, the analysis shows the relative difficulty of accessing to homeownership in different parts of Ankara for different income groups.

Table 5.10. 2003 Based Consumer Price Index Numbers (Rate of Change in Twelve Months Moving Averages (%))[12]

	%
October 2004	8,44[13]
October 2005	8,47
October 2006	9,25
October 2007	8,98
October 2008	10,12
October 2009	6,95

[12] www.tuik.gov.tr

[13] % 8,44 is the rate of change in ten months between 1 January and 31 October 2003.

The income and expenditure values are taken from Households Budget Survey of Turkish Statistical Institute. The Survey is conducted to find out monthly collected behavior of households for one year period between 1 January and 31 December 2003. For this reason, the prices are assumed to indicate the values in December of 2003. In order to construct a relationship between households' savings and homeownership, these values of 2003 should be converted to the year 2009. In order to achieve this, Consumer Price Index numbers (based year=2003) is taken from the Turkish Statistical Institute (Table 5.10).

Table 5.11. The 2009 Year Value of Total Monthly Savings in 2003 (TL/Month)

	Owner Occupancy		**Tenancy**		**Public Housing Tenancy**		**Other**	
	2003	**2009**	**2003**	**2009**	**2003**	**2009**	**2003**	**2009**
1. Quintile	-190,6	-314,4	-91,7	-151,2	-	-	-89,71	-148,0
2. Quintile	-25,9	-42,7	-91,9	-151,6	-34,8	-57,4	-4,02	-6,6
3. Quintile	-6,6	-10,9	-52,5	-86,6	-624,9	-1030,7	-48,33	-79,7
4. Quintile	12,1	20,0	-27,5	-45,4	78,77	129,9	-70,37	-116,1
5. Quintile	28,7	47,3	-41,0	-67,6	62,37	102,9	110,04	181,5
6. Quintile	148,0	244,1	18,5	30,5	113,54	187,3	-54,64	-90,1
7. Quintile	118,3	195,1	23,7	39,1	-	-	115,1	189,8
8. Quintile	107,6	177,5	13,3	21,9	-	-	120,5	198,7
9. Quintile	280,4	462,5	-45,9	-75,7	144,3	238,0	194,58	320,9
10. Quintile	294,0	484,9	108,7	179,3	-	-	-	-
11. Quintile	284,7	469,6	146,3	241,3	-	-	151,87	250,5
12. Quintile	331,1	546,1	78,6	129,6	580,2	957,0	341,17	562,7
13. Quintile	383,1	631,9	259,8	428,5	-405,91	-669,5	3,86	6,4
14. Quintile	432,2	712,9	212,1	349,8	-	-	907,67	1497,1
15. Quintile	430,5	710,0	426,2	703,0	-	-	114,01	188,0
16. Quintile	563,6	929,6	-7,4	-12,2	-	-	671,2	1107,0
17. Quintile	819,0	1350,8	556,0	917,0	-	-	762,58	1257,8
18. Quintile	1083,3	1786,7	951,7	1569,7	771,77	1272,9	1458,08	2404,9
19. Quintile	1609,3	2654,3	1532,9	2528,3	-104,1	-171,7	1608,79	2653,5
20. Quintile	2683,3	4425,7	6107,9	10074,1	1445,83	2384,7	-	-

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

Table 5.11 displays saving rates after converting values in Table 5.9 to the year 2009. Prices in the table indicates values equivalent to households total monthly savings in October in 2009.

After calculating 2009 values of total monthly savings of households, the next step is to calculate savings of households at the end of 5, 10, 15, 20, 25 and 30 years. It is aimed to examine whether households in different income groups are able to buy their houses by saving some parts of their incomes. First of all, the current annual nominal interest rate (i) is found as 7,75 %. The inflation rate of 2009 is calculated by taking average of annual rate of change in Consumer Price Index Numbers between 1 January and 31 October 2009. The inflation rate (j) is 6,33 %. Then the annual real interest rate (d) is estimated as 1,34 % by using the following formula:

"$d = (i-j)/(1+j)$". (5.1)

As income values have been calculated per month, this annual real interest rate should be converted into monthly interest rate. In general, the formula is:

"$(\text{Monthly rate} + 1)^{12} = (1 + \text{annual rate})$",
"$\text{Monthly rate} = (1 + \text{annual rate})^{(1/12)} - 1$". (5.2)

Monthly interest rate is calculated as 0,11 % (0,0011). Then the total savings of households at the end of different saving periods are calculated by using the following formula:

"$P=A((1+I)^N-1) / I(1+I)^N)$", (5.3)

P: Present (2009) Value of Total Saving at the end of each Total Saving Period
A: Monthly Savings
N: Total Saving Time
I: Monthly Real Interest Rate

Table 5.12. Total Savings of Tenants (TL)

	Monthly Savings	t=5 (N=60)	t=10 (N=120)	t=15 (N=180)	t=20 (N= 240)	t=25 (N=300)	t=30 (N= 360)
1. Quintile	-151	-8779	-16994	-24662	-31935	-38649	-44926
2. Quintile	-152	-8798	-17031	-24716	-32005	-38733	-45024
3. Quintile	-87	-5026	-9730	-14120	-18283	-22127	-25721
4. Quintile	-45	-2633	-5096	-7396	-9577	-11590	-13473
5. Quintile	-68	-3925	-7598	-11027	-14278	-17280	-20087
6. Quintile	31	1771	3429	4976	6443	7797	9064
7. Quintile	39	2269	4392	6374	8254	9989	11611
8. Quintile	22	1273	2465	3577	4632	5606	6516
9. Quintile	-76	-4394	-8506	-12345	-15985	-19346	-22488
10. Quintile	179	10406	20145	29235	37855	45814	53255
11. Quintile	241	14006	27113	39347	50950	61661	71676
12. Quintile	130	7525	14567	21139	27373	33128	38508
13. Quintile	429	24871	48147	69873	90477	109498	127282
14. Quintile	350	20305	39307	57044	73865	89394	103913
15. Quintile	703	40801	78985	114625	148426	179631	208806
16. Quintile	-12	-708	-1371	-1990	-2577	-3119	-3625
17. Quintile	917	53227	103041	149535	193630	234338	272398
18. Quintile	1570	91108	176374	255957	331434	401114	466261
19. Quintile	2528	146747	284085	412269	533840	646074	751006
20. Quintile	10074	584721	1131946	1642703	2127106	2574306	2992411

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

Table 5.13. Total Savings of Homeowner Occupiers (TL)

	Monthly Savings	t=5 (N=60)	t=10 (N=120)	t=15 (N=180)	t=20 (N= 240)	t=25 (N=300)	t=30 (N= 360)
1. Quintile	-314	-18247	-35323	-51261	-66377	-80332	-93380
2. Quintile	-43	-2479	-4800	-6966	-9020	-10916	-12689
3. Quintile	-11	-632	-1223	-1775	-2298	-2782	-3234
4. Quintile	20	1158	2242	3254	4214	5100	5928
5. Quintile	47	2748	5319	7719	9995	12096	14061
6. Quintile	244	14168	27428	39804	51542	62378	72509
7. Quintile	195	11325	21924	31816	41199	49860	57958
8. Quintile	177	10301	19941	28939	37472	45350	52716
9. Quintile	462	26843	51965	75413	97651	118181	137375
10. Quintile	485	28145	54486	79071	102387	123913	144038
11. Quintile	470	27255	52762	76569	99148	119993	139482
12. Quintile	546	31697	61361	89048	115307	139549	162214
13. Quintile	632	36675	70998	103034	133416	161466	187690
14. Quintile	713	41375	80097	116239	150516	182160	211745
15. Quintile	710	41213	79782	115782	149924	181443	210913
16. Quintile	930	53955	104449	151579	196276	237541	276122
17. Quintile	1351	78404	151781	220268	285221	345185	401248
18. Quintile	1787	103706	200762	291351	377265	456580	530735
19. Quintile	2654	154061	298243	432817	560447	678274	788436
20. Quintile	4426	256877	497282	721666	934472	1130934	1314615

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

Table 5.14. Total Savings of Households Living in Public Housing (TL)

	Monthly Savings	t=5 (N=60)	t=10 (N=120)	t=15 (N=180)	t=20 (N= 240)	t=25 (N=300)	t=30 (N= 360)
1. Quintile	-	-	-	-	-	-	-
2. Quintile	-57	-3331	-6449	-9359	-12119	-14667	-17049
3. Quintile	-1031	-59823	-115810	-168065	-217624	-263378	-306154
4. Quintile	130	7541	14598	21185	27432	33199	38591
5. Quintile	103	5971	11559	16774	21721	26287	30557
6. Quintile	187	10869	21042	30536	39541	47854	55626
7. Quintile	-	-	-	-	-	-	-
8. Quintile	-	-	-	-	-	-	-
9. Quintile	238	13814	26742	38809	50253	60818	70696
10. Quintile	-	-	-	-	-	-	-
11. Quintile	-	-	-	-	-	-	-
12. Quintile	957	55544	107526	156043	202057	244538	284254
13. Quintile	-669	-38859	-75225	-109168	-141360	-171079	-198865
14. Quintile	-	-	-	-	-	-	-
15. Quintile	-	-	-	-	-	-	-
16. Quintile	-	-	-	-	-	-	-
17. Quintile	-	-	-	-	-	-	-
18. Quintile	1273	73883	143028	207565	268773	325279	378109
19. Quintile	-172	-9966	-19292	-27997	-36253	-43875	-51001
20. Quintile	2385	138412	267948	388852	503517	609376	708348

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

Table 5.15. Total Savings of Other Group of Tenure (TL)

	Monthly Savings	t=5 (N=60)	t=10 (N=120)	t=15 (N=180)	t=20 (N= 240)	t=25 (N=300)	t=30 (N= 360)
1. Quintile	-148	-8588	-16625	-24127	-31242	-37810	-43951
2. Quintile	-7	-385	-745	-1081	-1400	-1694	-1969
3. Quintile	-80	-4627	-8957	-12998	-16831	-20370	-23678
4. Quintile	-116	-6737	-13041	-18926	-24507	-29659	-34476
5. Quintile	181	10534	20393	29595	38322	46379	53911
6. Quintile	-90	-5231	-10126	-14695	-19029	-23029	-26769
7. Quintile	190	11019	21331	30956	40084	48511	56390
8. Quintile	199	11536	22332	32408	41965	50787	59036
9. Quintile	321	18628	36061	52332	67763	82010	95330
10. Quintile	-	-	-	-	-	-	-
11. Quintile	250	14539	28145	40845	52889	64009	74405
12. Quintile	563	32661	63227	91757	118814	143793	167148
13. Quintile	6	370	715	1038	1344	1627	1891
14. Quintile	1497	86893	168214	244115	316101	382557	444690
15. Quintile	188	10914	21129	30663	39705	48052	55856
16. Quintile	1107	64255	124390	180517	233749	282892	328837
17. Quintile	1258	73003	141325	205094	265572	321406	373607
18. Quintile	2405	139585	270219	392147	507784	614539	714349
19. Quintile	2653	154013	298149	432680	560269	678059	788186
20. Quintile	-	-	-	-	-	-	-

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

In Case 1, it is assumed that households do not use housing credits or borrow money from other individuals, but they use their own savings in order to shift from renting to owning. For this reason, total savings of households at the end of different time periods are calculated for different tenure groups. Table 5.12 represents total savings for tenants, Table 5.14 shows total savings for homeowners, Table 5.13 is for households living in public housing, and total savings of other groups are represented in Table 5.15.

In Table 5.12 households in the 1st, 2nd, 3rd, 4th, 5th, 9th and 16th income quintiles have negative saving rates. Households in the 6th, 7th, and 8th have positive saving rates, however they are able to save around only 20-40 TL per month.

Table 5.13 illustrates that homeowners are able to save more than tenants in Table 5.12 in general. Again households in the 1st, 2nd, and 3rd income quintiles have negative saving rates. Households in the 4th and 5th income quintiles achieve positive saving rates, however they are able to save only around 20-50 TL per month. Table 5.14 indicates that there are no household living in the public housing in the 1st, 7th, 8th, 10th, 11th, 14th, 15th, 16th, and 17th income quintiles. Households in the 2nd and 3rd, 13th, and 19th income quintiles are not able to achieve positive saving rates. There are no households in the other tenure group in the 10th and 20th income quintiles. Table 5.15 shows that households in the 1st, 2nd, 3rd, 4th, and 6th income quintiles have negative saving rates. Households in the 13th income quintile hardly achieve positive saving amounts.

As a second step, house prices for each local area in urban Ankara are examined. In order to make standardization and a comparison between different locations, prices of dwellings with 3 bedrooms and 1 living room are taken into consideration. Tables between 5.16 and 5.23 display house prices of different districts. The prices are taken from the web site "http://www.emlak.net/konut/satilik-daire/turkiye/ankara.html".

Table 5.16. House Prices in Çankaya for 3+1 Room Dwellings

,000 TL	ÇANKAYA	TL
400+	Angora Evleri	420 000
	Yıldız	415 000
350-399	Bilkent	360 000
300-349	Mebus Evleri	305 000
	Çukurambar	300 000
250-299	100. Yıl	260 000
200-249	Dikimevi	245 000
	Gaziosmanpaşa	240 000
	Çiğdem Mahallesi	225 000
	Bahçelievler	210 000
	Birlik Mahallesi	210 000
	Kavaklıdere	210 000
	Oran Sitesi	210 000
	Yeni Oran	210 000
	Beştepe Mahallesi	200 000
150-199	Ayrancı	185 000
	Karakusunlar	180 000
	Maltepe	175 000
	Cinnah	170 000
	Demirtepe	170 000
	Emek	170 000
	Mustafa Kemal Mahallesi	170 000
	Sıhhıye	170 000
	Aşağı Ayrancı	165 000
	Turan Güneş Bulvarı	165 000
	İlker	160 000
	Kızılay	160 000
	Hoşdere	155 000
	Balgat	150 000
	Keklikpınarı	150 000
	Kırkkonaklar	150 000
	Küçükesat	150 000
	Öveçler	150 000
	Sancak	145 000
100-149	Cebeci	135 000
	Yukarı Ayrancı	135 000
	Dikmen	130 000
	Kolej	130 000
	Hilal	120 000
	Kurtuluş	120 000
	Büyükesat	115 000
	Seyranbağları	110 000
	Esat	100 000
	Sokulu	100 000
50-99	-	-
-49	-	-

Table 5.17. House Prices in Mamak for 3+1 Room Dwellings

,000 TL	MAMAK	TL
400+	-	-
350-399	-	-
300-349	-	-
250-299	-	-
200-249	-	-
150-199	-	-
100-149	Demirlibahçe	110 000
	Türközü	100 000
50-99	Adinpaşa	90 000
	Gülveren	90 000
	Saimekadın	90 000
	Tuzluçayır	90 000
	Akdere	85 000
	Mamak Merkez	85 000
	Şahintepe	85 000
	Kayaş	80 000
	Bayındır	70 000
	Kıbrısköy	70 000
	Boğaziçi	65 000
	Hüseyingazi	65 000
-49	-	-

Table 5.18. House Prices in Altındağ for 3+1 Room Dwellings

	ALTINDAĞ	**TL**
400+	-	-
350-399	-	-
300-349	-	-
250-299	-	-
200-249	-	-
150-199	-	-
100-149	Karacaören	135 000
	Aydınlıkevler	130 000
	Hasköy	125 000
	Güneşevler	120 000
	Telsizler	100 000
	Yeni Ziraat Mahallesi	100 000
50-99	Örnek	90 000
	Altındağ Merkez	85 000
	Dışkapı	80 000
	İskitler	80 000
	Altınova	75 000
	Yenidoğan	75 000
	Hüseyin Gazi	70 000
	Karapürçek	70 000
	Siteler	65 000
	Ulubey	65 000
-49	-	-

Table 5.19. House Prices in Gölbaşı for 3+1 Room Dwellings

,000 TL	GÖLBAŞI	TL
400+	-	-
350-399	-	-
300-349	-	-
250-299	-	-
200-249	-	-
150-199	-	-
100-149	Bahçelievler	120 000
	Karşıyaka	115 000
	Gölbaşı Merkez	105 000
	Seğmenler	105 000
50-99	-	-
-49	-	-

Table 5.20. House Prices in Etimesgut for 3+1 Room Dwellings

,000 TL	ETİMESGUT	TL
400+	-	-
350-399	-	-
300-349	-	-
250-299	-	-
200-249	-	-
150-199	Bağlıca	165 000
100-149	Eryaman	125 000
50-99	Etimesgut Merkez	80 000
	İstasyon	80 000
	Alsancak	75 000
	Elvankent	75 000
	Kazım Karabekir	75 000
	Piyade Mahallesi	75 000
	Topçu Mahallesi	75 000
	Süvari Mahallesi	70 000
	30 Ağustos	60 000
-49	-	-

Table 5.21. House Prices in Sincan for 3+1 Room Dwellings

,000 TL	SİNCAN	TL
400+	-	-
350-399	-	-
300-349	-	-
250-299	-	-
200-249	-	-
150-199	-	-
100-149	-	-
50-99	Fatih	85 000
	Organize Sanayi Bölgesi	85 000
	Saraycık	70 000
	Sincan Merkez	70 000
	Yeniçimşit	60 000
	Yenikent	55 000
-49	-	-

Table 5.22. House Prices in Keçiören for 3+1 Room Dwellings

,000 TL	KEÇİÖREN	TL
400+	-	-
350-399	-	-
300-349	-	-
250-299	-	-
200-249	-	-
150-199	Subay Evleri	190 000
100-149	Aşağı Eğlence	130 000
	Etlik	130 000
	Keçiören Merkez	120 000
	İncirli	115 000
	Gazino	110 000
	Sanatoryum	110 000
	Basınevleri	110 000
	Uyanış	110 000
	Bademlik	105 000
	Esertepe	105 000
	Ovacık	105 000
	Güzelyurt	100 000
	Ufuktepe	100 000
	Şenlik	100 000
50-99	19 Mayıs	95 000
	Aktepe	95 000
	Danişment	95 000
	Kalaba	90 000
	Pursaklar	85 000
	Bağlum	80 000
	Hacıkadın	80 000
	Tepebaşı	80 000
	Kalaba	70 000
	Sarayköy	70 000
-49	-	-

Table 5.23. House Prices in Yenimahalle for 3+1 Room Dwellings

,000 TL	YENİMAHALLE	TL
400+	-	-
350-399	-	-
300-349	-	-
250-299	Mesakoru	275 000
	Konutkent	270 000
200-249	Ümitköy	240 000
	Yaşamkent	230 000
	Çayyolu	200 000
150-199	-	-
100-149	İvedik	135 000
	Yenimahalle Merkez	135 000
	Ostim	120 000
	Batıkent	115 000
	Ergazi	100 000
50-99	Demetevler	90 000
	Şentepe	90 000
	Yakacık	85 000
	Karşıyaka	65 000
-49	-	-

In order to empirically test the relationship between house prices and household savings, the spatial variation in housing prices are examined in Ankara. The structure of housing market varies across different parts of Ankara. In order to standardize the housing market, selling prices of flats with only 3 bedrooms and 1 living room are searched, and then average values are calculated. Table 5.16 shows average house prices in different parts of Çankaya, Table 5.17 shows prices in Mamak, Table 5.18 shows prices in Altındağ, Table 5.19 shows prices in Gölbaşı, Table 5.20 shows prices in Etimesgut, Table 5.21 shows prices in Sincan, Table 5.22 shows prices in Keçiören, and Table 5.23 shows prices in Yenimahalle.

Property prices are considered to be the highest in Çankaya especially in Angora Evleri, Yıldız, and Bilkent. Also prices in Mebus Evleri, Çukurambar, 100. Yıl in Çankaya, and Mesakoru, Konutkent in Yenimahalle are higher than other parts of the city. In contrast, access to homeownership is the easiest for lower income groups in Sincan because house prices are lower than other parts of the city.

In Çankaya, it is not very common to find a 3+1 dwelling under the price of 100 000 TL. However 3+1 dwellings with a price around 150 000 TL is most common in Çankaya, which are more accessible and preferable by middle income groups.

The average house prices in Mamak, Altındağ, Etimesgut, Keçiören and Gölbaşı are more similar compared to other parts of the city for a standard 3+1 dwelling unit. However Bağlıca in Etimegut and Subay Evleri in Keçiören have considerably higher housing prices than the other parts of Keçiören.

As it is discussed in the previous chapters, there are many factors effecting home selection decisions of households. Social status of the family, its income level, social environment and neighborhood characteristics of different locations, house type and price of the dwelling are some of these factors. However in this study, the main focus is to investigate whether households in different income groups are able to purchase housing by relying on their own savings. For this reason, only economic factors are examined in the context of the study, and psychological and social factors are assumed to be the same for all households.

The third step of Chapter 5 is to examine the accessibility to homeownership in different locations of Ankara for different income groups. In order to achieve this, the data in Step 1 and Step 2 are combined. Both house prices and total savings are fixed to their values in 2009. However this theoretical framework is based on the assumption that stable economic conditions for households do not change in these long saving periods. They will not lose their jobs; they will not have another investment plan except buying a house or they will not have important health expenditures. That is, there will be no important change in their lives that prevent them to save that certain amount in the related saving periods. The following section of the chapter illustrates the accessibility of each tenure type.

5.4.1.1. Households in Private Rental Accommodation

The link is examined for tenants in the first order. Table 5.12 shows monthly savings of tenants. Because households belonging in the 1st, 2nd, 3rd, 4th, 5th, 9th and 16th income quintiles have negative saving rates, these households cannot save sufficient amount of money to buy a flat, if they only rely on their own savings. Whether they can shift to homeownership by using other ways such as applying for housing credits will be examined later in Cases 2 - 5. Also households in the 6th, 7th, 8th, and 12th income quintiles are not able to buy a 3+1 room flat in related saving periods because even after 30 saving years none of these groups are able to save more than 40 000 TL, and their savings would not be sufficient to buy a 3+1 room flat even in the lowest priced districts of Ankara.

When Table 5.12 is examined, it is demonstrated that, at the end of 5 year saving periods, households in the 20th income quintiles become able to buy a 3+1 room flat anywhere in Ankara, including locations with high social prestige such as Yıldız and Angora Evleri in Çankaya. However as it is discussed before, many tenants in this income quintiles prefer tenancy to homeownership because they do not choose to buy housing as a profitable investment because its rate of return is lower than other type of investments.

At the end of 5 saving years, households belonging to the 19th income quintile are able to buy a flat with a price around 145 000 TL by relying on their own savings. Sancak in Çankaya is one of the location alternatives where they can buy a dwelling with a price around 145 000 TL. However households belonging to this income group may not prefer to live in these parts of the City, in fact they would rather live as tenants instead to become homeowners in these locations. At the end of 10 years they are able to save around 285 000 TL, and they will be able to buy a flat in 100. Yıl in Çankaya or Konutkent, Mesakoru in Yenimahalle. It is after 15-20 years that they become able to buy a 3+1 dwelling in any location in Ankara.

Households in the 18th income quintile are able to save around 90 000 TL at the end of 5 years, and able to buy a dwelling in some parts of Ankara like Tuzluçayır, Saimekadın, Gülveren, Abidinpaşa in Mamak; Örnek in Altındağ, Kalaba, Danişment, Aktepe, 19 Mayıs in Keçiören; or Şentepe, Demetevler in Yenimahalle where these income levels would not prefer to live. It is not until 10 years these households will be able to buy a 3+1 room dwelling in locations with more prestigious social environment such as Ayrancı, Karakusunlar, or Maltepe in Çankaya. It is after 20 years that they become able to buy a 3+1 dwelling in any related locations in Ankara.

Households belonging to the 17th income quintile are able to save sufficient amount of money to buy a 3+1 room dwelling unit in Ankara until at the end of 5 years with around 55 000 TL, and their only alternative is Yenikent in Sincan where a 3+1 flat is priced around 55 000 TL. After 10 years they are able to save around 105 000 TL, and Esat, Sokullu in Çankaya; Türközü in Mamak; Telsizler, Yeni Ziraat Mahallesi in Altındağ; Gölbaşı Merkez, Seğmenler in Gölbaşı; Ufuktepe, Şenlik, Ovacık, Esertepe, Bademlik, Güzelyurt in Keçiören; or Ergazi in Yenimahalle are the locations where they can afford to buy a 3+1 room dwelling unit. After 30 years they become able to buy a dwelling in Maltepe, Cinnah, Demirtepe, Emek, Mustafa Kemal Mahallesi in Çankaya or Bağlıca in Etimesgut.

Tenants in the 15th income quintile are not able to buy a dwelling until 10 years. At the end of 10 years they reach around 80 000 TL. With this money they are able to buy a dwelling in Kayaş in Mamak; İskitler, Dışkapı in Altındağ; Etimesgut Merkez, İstasyon in Etimesgut or Bağlum, Hacıkadın, Tepebaşı in Keçiören. At the end of 15 years they reach around 115 000 TL. With this amount of saving they are able to buy a 3+1 room flat in Büyükesat, Seyranbağları in Çankaya; Karşıyaka in Gölbaşı, Demirlibahçe in Mamak, or Gazino, Sanatoryum, Basınevleri, Uyanış in Keçiören. They save around 150 000 TL at the end of 20 years, and 180 000 TL at the end of 25 years. At the end of 30 years they reach around 210 000 TL, and buy a

flat in Bahçelievler, Birlik Mahallesi, Kavaklıdere, Oran Sitesi, or Yeni Oran in Çankaya.

Households in the 14th income quintile are able to buy a 3+1 flat at related parts of Ankara after 15 years. After this period, they are able to save around 55 000 TL and, their only locational alternative is Yenikent in Sincan. After 20 years they are able to save around 75 000 TL, however they have very narrow location choices like Altınova, Yenidoğan in Altındağ; or Alsancak, Elvankent, Kazım Karabekir, Piyade Mahallesi, Topçu Mahallesi in Etimesgut. After 25 years they are able to save around 90 000 TL, and after 30 years they reach around 105 000 TL. The location alternatives with this money are Esat, Sokullu in Çankaya, Türközü in Mamak, Telsizler, Yeni Ziraat Mahallesi in Altındağ, Gölbaşı Merkez, Seğmenler in Gölbaşı, Bademlik, Esertepe, Ovacık, Güzelyurt, Ufuktepe, Şenlik in Keçiören, and Ergazi in Yenimahalle.

Tenants in the 13th income quintile are not able to save money for a 3+1 dwelling until 15 saving years, and they can buy a flat in Bayındır, Kıbrısköy in Mamak; Hüseyingazi, Karapürçek in Altındağ; Süvari Mahallesi in Etimesgut; Sincan Merkez, Saraycık in Sincan; or Kalaba, Sarayköy in Keçiören with 70 000 TL at the end of this period. After 20 years they reach around 90 000 TL, and they can afford a 3+1 dwelling in Abidinpaşa, Gülveren, Saimekadın, Tuzluçayır in Mamak, Örnek in Altındağ; Kalaba in Keçiören; or Demetevler, Şentepe in Yenimahalle. They can save around 110 000 TL after 25 years. The alternative locations to buy a 3+1 flat are Esat, Sokullu, Seyranbağları in Çankaya; Demirlibahçe in Mamak; Gölbaşı Merkez and Seğmenler in Gölbaşı, Uyanış, Basımevleri, Sanatoryum, Gazino in Keçiören, and Batıkent in Yenimahalle. After 30 years they reach around 130 000 TL. Kolej in Çankaya, Aydınlıkevler in Altındağ, Aşağı Eğlence, Etlik in Keçiören are location alternatives with 130 000 TL.

Households in the 11th income quintile can afford a dwelling in 30 Ağustos in Etimesgut, or Yeniçimşit in Sincan after saving around 25 years, and at the end of

30 years they are able to save around 70 000, and they can buy a flat in Bayındır, Kıbrısköy in Mamak; Hüseyingazi, Karapürçek in Altındağ; Süvari Mahallesi in Etimesgut; Sincan Merkez, Saraycık in Sincan; or Kalaba, Sarayköy in Keçiören.

Households in the 10th income quintile cannot afford to buy a 3+1 room dwelling until 30 years, and at the end of this period they afford a 3+1 dwelling only in Yenikent in Sincan.

5.4.1.2. Owner-Occupied Households

Table 5.13 represents total savings of households who already own a home. In this part of the chapter, it is examined whether and when they can buy their second flats. As in households living in public housing case, the investment purpose may dominate the consumption purpose of housing purchase in this case. These households may sell their current homes while purchasing a new home to increase their equity. However such situations are excluded in the context of this study.

Households in the 1st, 2nd, and 3rd income quintiles have negative saving rates, for that reason they are not able to buy another home. Households in the 4th and 5th income quintiles have positive saving rates, however even if at the end of 30 years they cannot reach to a sufficient amount of saving in order to buy a 3+1 room flat in urban Ankara.

Households in 6th income quintile are able to buy their second house after saving around 25 years with 60 000 TL. With this amount of saving they are able to afford a dwelling in 30 Ağustos in Etimesgut, or Yeniçimşit in Sincan. After 30 years they are able to save around 75 000 TL. Altınova, Yenidoğan in Altındağ; or Alsancak, Elvankent, Kazım Karabekir, Piyade Mahallesi, Topçu Mahallesi in Etimesgut are their alternatives after 30 years with a price around 75 000 TL.

Households in the 7th income quintile can save around 60 000 TL at the end of 30 years. The alternatives for buying a 3+1 room flat at that price level are in Yenikent in Yenimahalle.

Households in 8th income quintile are able to buy their second house after saving around 55 000 TL at the end of 30 years. Their only alternative is Yenikent in Sincan.

Households in the 9th and 11th income quintiles are not able to buy a 3+1 room flat in Ankara after they save around 15 years. At the end of this period, they are able to save around 75 000 TL, and have location alternatives like Altınova, Yenidoğan in Altındağ; or Alsancak, Elvankent, Kazım Karabekir, Piyade Mahallesi, Topçu Mahallesi in Etimesgut. After 20 years they reach 100 000 TL. They afford to buy a dwelling with 120 000 TL at the end of 25 years, and they can buy their second house in Ostim in Yenimahalle; Keçiören Merkez; Bahçelievler in Gölbaşı, Güneşevler in Altındağ; or Kurtuluş and Hilal in Çankaya. After 30 years they are able save around 135 000 TL.

Households in the 10th income quintile are able to buy their second dwelling after saving 10 years which is priced around 55 000 TL, and Yenikent in Sincan is the only location where they can buy a 3+1 room flat with this money. They reach to 80 000 TL after saving 15 years. They reach to 100 000 TL saving at the end of 20 years, and Esat, Sokullu in Çankaya; Türközü in Mamak; Telsizler, Yeni Ziraat Mahallesi in Altındağ; Güzelyurt, Ufuktepe, Şenlik or Ergazi in Yenimahalle in Keçiören are the location alternatives for them. At the end of 25 years they are able to save around 125 000 TL and able to buy a 3+1 room flat in locations such as Kurtuluş, Hilal in Çankaya; Güneşevler, Hasköy in Altındağ; Bahçelievler in Gölbaşı; Keçiören Merkez; Eryaman in Etimesgut; or Ostim in Yenimahalle. After 30 years, they are able to save around 145 000 TL, and Sancak in Çankaya is one of the location alternatives where they can buy a dwelling with a price around 145 000 TL.

Households in the 12th income quintile are able to buy a dwelling by saving 10 years. At the end of 15 years, households in the 12th income quintile reach around 90 000 TL, and reach around 115 000 TL after 20 years. After 25 years they afford to save around 140 000 TL, and at the end of 30 years 160 000 TL, and they may prefer to buy a flat in İlker, Hoşdere, Aşağı Ayrancı, Kızılay in Çankaya; or Bağlıca in Etimesgut with this amount of saving.

Households in the 13th income quintile can buy their second homes after 10 years by saving around 70 000 TL, and after 20 years they will be able to save around 105 000 TL. Esat, Sokullu in Çankaya; Türközü in Mamak; Telsizler, Yeni Ziraat Mahallesi in Altındağ; Gölbaşı Merkez, Seğmenler in Gölbaşı; Ufuktepe, Şenlik, Ovacık, Esertepe, Bademlik, Güzelyurt in Keçiören; or Ergazi in Yenimahalle are the locations where they can afford to buy a 3+1 room dwelling with this amount of saving. After 20 years, they can buy a 3+1 room flat with 135 000 TL. They reach 160 000 TL saving level at the end of 25 years, and they may prefer to buy a flat in İlker, Hoşdere, Aşağı Ayrancı, Kızılay in Çankaya; or Bağlıca in Etimesgut with this amount of saving. They reach 190 000 TL at the end of 30 years.

Households in the 14th and 15th income quintiles can save around 80 000 TL at the end of 10 years and become able to buy a dwelling unit. After 15 years they are able to buy a 3+1 room flat in Büyükesat, Seyranbağları in Çankaya; Karşıyaka in Gölbaşı, Demirlibahçe in Mamak, or Gazino, Sanatoryum, Basınevleri, Uyanış in Keçiören with 115 000 TL. They save around 150 000 TL at the end of 20 years. They can wait until at the end of 25 years in order to buy a dwelling in Karakusunlar in Çankaya or Subayevleri in Keçiören with a price around 180 000 TL. At the end of 30 years they reach around 210 000 TL, and buy a flat in Bahçelievler, Birlik Mahallesi, Kavaklıdere, Oran Sitesi, or Yeni Oran in Çankaya.

Households in the 16th income quintile can buy their second homes after 5 years by saving around 55 000 TL, and able to buy a dwelling in a limited number of districts in Ankara. After 10 years they save around 105 000 TL, and they can

purchase their second dwelling in location alternatives Esat, Sokullu in Çankaya, Türközü in Mamak, Telsizler, Yeni Ziraat Mahallesi in Altındağ, Gölbaşı Merkez, Seğmenler in Gölbaşı, Bademlik, Esertepe, Ovacık, Güzelyurt, Ufuktepe, Şenlik in Keçiören, and Ergazi in Yenimahalle. At the end of 20 years they reach around 195 000 TL. With this amount of saving they can buy a dwelling in Ayrancı in Çankaya, or Subay Evleri in Keçiören. After 25 years they are able to save around 240 000 TL, and at the end of 30 years they can afford a dwelling 100. Yıl in Çankaya, or Mesakoru, Konutkent in Yenimahalle with a saving around 275 000 TL.

Households in the 17th income quintile are able to buy a dwelling at the end of 5 years by saving around 80 000 TL. After 10 years they save around 150 000 TL. With 220 000 TL they can achieve a 3+1 room dwelling in Çiğdem Mahallesi in Çankaya after saving 15 years. At the end of 20 years they are able to save around 285 000 TL, and they will be able to buy a flat in 100. Yıl in Çankaya or Konutkent, Mesakoru in Yenimahalle. They reach 345 000 TL saving at the end of 25 years and now they may prefer to buy a flat in Mebusevleri in Çankaya with this amount of saving. At the end of 30 years they can hardly afford a 3+1 room dwelling in Angora Evleri or Yıldız in Çankaya.

Households in the 18th income quintile can save around 105 000 TL at the end of 5 years and become able to buy a 3+1 room dwelling unit. After 10 years they are able to save around 200 000 TL, and are able to buy a 3+1 flat in Beştepe Mahallesi in Çankaya or Çayyolu in Yenimahalle. After 25 years they reach around 455 000 TL saving, and able to buy a dwelling in anywhere in Ankara.

Households belonging to the 19th income quintile are able to buy a flat which can satisfy their preferences about location at the end of 10 years by saving around 300 000 TL, and they will be able to buy a flat in Çukurambar, Mebus Evleri in Çankaya or Konutkent, Mesakoru in Yenimahalle with this amount of savings. They can afford to save around 430 000 TL at the end of 15th saving years, and 785 000 TL at the end of 30 years.

Households in 20th income quintile can achieve 250 000 TL saving in about 5 years. Only after 10 years, they become able to buy their second house anywhere in Ankara.

5.4.1.3. Households in Public Housing (Lodgement)

Table 5.14 represents saving amounts for households who live in public housing. For this tenure group, the utility of investment purpose on housing may be greater than the utility of consumption purpose on housing as it is discussed before.

There are no household in the 1st, 7th, 8th, 10th, 11th, 14th, 15th, 16th, and 17th income quintiles in this tenure type. Households in the 2nd, 3rd, 13th, and 19th income quintiles have negative saving rates.

Because the period of living in a public housing is not greater than 5 years in general, in this part of the study the case is not discussed in detailed.

5.4.1.4. Households in Other Tenure Type

Table 5.15 represents saving amounts for other tenure groups. Again households in 1st, 2nd, 3rd, 4th, and 6th income quintiles have negative saving rates for this tenure type. Households belonging in the 13th income quintile have positive saving rates, however they cannot save sufficient amount of money to enable them to buy a 3+1 room flat in Ankara even not at the end of 30 saving years.

This type of housing tenure is one of the special cases. For this reason, the case is not discussed in details in this part of the study.

5.4.1.5. General Review for Case 1

This part of the study analyzes house prices and households' savings and affordability of homeownership at different districts in Ankara. It provides information about whether households are able to purchase a dwelling having 3 rooms and 1 living room by saving after a certain time period.

The analysis shows that, as it is expected; people with higher incomes are more likely to own their homes without using housing credits or borrowing from other people. The households especially belonging to the 1st, 2nd, 3rd, and 4th income quintiles are not able to buy a dwelling even after 30 saving years for all tenure groups. From this point of view, it can be concluded that households' own savings are limited to buy a dwelling for most income quintiles. Homeownership possibility is very limited for lower income groups. Income-based constraints are important barriers to homeownership.

5.4.2. Case 2: House Purchase by Using Housing Credits

In Case 2, access to homeownership is examined under the assumption that households apply for housing credits in order to purchase a dwelling. The aim of Case 2 is to evaluate whether long term housing credits provide new opportunities for households who are not able to purchase a dwelling by only saving money in each month.

Households' savings are calculated in Case 1. However the assumption of Case 2 is that, households use housing credits and repay the loan after they purchase the dwelling. For this purpose, monthly rents of households are also added to their monthly savings in order to find out how much households afford to borrow. These amounts are demonstrated in Table 5.24, and show how much monthly repayment households can afford in each month.

Table 5.24. Monthly Repayment Potential of Households in Different Income Quintiles (2003)

(TL/Month)	Owner Occupancy			Tenants			Public Housing Occupancy			Other		
	Saving (TL/Month)	Monthly Rent	Repayment Potential	Saving (TL/Month)	Monthly Rent	Repayment Potential	Saving (TL/Month)	Monthly Rent	Repayment Potential	Saving (TL/Month)	Monthly Rent	Repayment Potential
1. Quintile	-190,6	0	-190,6	-91,7	64,0	-27,7	-	-	-	-89,71	0	-89,71
2. Quintile	-25,9	0	-25,9	-91,9	100,6	8,7	-34,8	0	-34,8	-4,02	0	-4,02
3. Quintile	-6,6	0	-6,6	-52,5	101,0	48,5	-624,9	0	-624,9	-48,33	0	-48,33
4. Quintile	12,1	0	12,1	-27,5	108,9	81,4	78,77	11,8	90,57	-70,37	0	-70,37
5. Quintile	28,7	0	28,7	-41,0	125,2	84,2	62,37	0	62,37	110,04	0	110,04
6. Quintile	148,0	0	148,0	18,5	118,9	137,4	113,54	0	113,54	-54,64	0	-54,64
7. Quintile	118,3	0	118,3	23,7	130,5	154,2	-	-	-	115,1	0	115,1
8. Quintile	107,6	0	107,6	13,3	153,7	167	-	-	-	120,5	0	120,5
9. Quintile	280,4	0	280,4	-45,9	185,0	139,1	144,3	20,0	164,3	194,58	0	194,58
10. Quintile	294,0	0	294,0	108,7	205,9	314,6	-	-	-	-	0	-
11. Quintile	284,7	0	284,7	146,3	166,4	312,7	-	-	-	151,87	0	151,87
12. Quintile	331,1	0	331,1	78,6	175,8	254,4	580,2	0	580,2	341,17	0	341,17
13. Quintile	383,1	0	383,1	259,8	190,0	449,8	-405,91	72,5	-333,41	3,86	0	3,86
14. Quintile	432,2	0	432,2	212,1	231,8	443,9	-	-	-	907,67	0	907,67
15. Quintile	430,5	0	430,5	426,2	207,2	633,4	-	-	-	114,01	0	114,01
16. Quintile	563,6	0	563,6	-7,4	217,7	210,3	-	-	-	671,2	0	671,2
17. Quintile	819,0	0	819,0	556,0	217,2	773,2	-	-	-	762,58	0	762,58
18. Quintile	1083,3	0	1083,3	951,7	270,0	1221,7	771,77	120,0	891,77	1458,08	0	1458,08
19. Quintile	1609,3	0	1609,3	1532,9	299,3	1832,2	-104,1	120,0	15,9	1608,79	0	1608,79
20. Quintile	2683,3	0	2683,3	6107,9	345,8	6453,7	1445,83	90,0	1535,83	-	0	-

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

There are four important factors in housing credit process. The first one is households' income, the second one is repayment, the third one is the mortgage interest rate, and last one is loan to value ratio (LTV). Also, lenders will consider households' assets and liabilities. Each factor will be discussed in the next paragraphs of the chapter. In this study, theoretically assumed that, every individual can apply and get housing credit. The combination of the first two inputs constitutes Table 5.24. However as it is discussed in Case 1, the values in Table 5.24 represent the amounts which are indexed to the year 2003, so they are converted to 2009 values, and presented in Table 5.25.

Table 5.25. The 2009 Values Equivalence of Possible Monthly Repayment Potential for Mortgage Credits of Households in Different Income Quintiles (TL/Month)

	Owner Occupancy		Tenants		Public Housing Tenancy		Other	
	2003	**2009**	**2003**	**2009**	**2003**	**2009**	**2003**	**2009**
1. Quintile	-190,6	-314,4	-27,7	-45,7	-	0,0	-89,71	-148
2. Quintile	-25,9	-42,7	8,7	14,3	-34,8	-57,4	-4,02	-7
3. Quintile	-6,6	-10,9	48,5	80,0	-624,9	-1030,7	-48,33	-80
4. Quintile	12,1	20,0	81,4	134,3	90,57	149,4	-70,37	-116
5. Quintile	28,7	47,3	84,2	138,9	62,37	102,9	110,04	181
6. Quintile	148,0	244,1	137,4	226,6	113,54	187,3	-54,64	-90
7. Quintile	118,3	195,1	154,2	254,3	-	0,0	115,1	190
8. Quintile	107,6	177,5	167	275,4	-	0,0	120,5	199
9. Quintile	280,4	462,5	139,1	229,4	164,3	271,0	194,58	321
10. Quintile	294,0	484,9	314,6	518,9	-	0,0	-	-
11. Quintile	284,7	469,6	312,7	515,8	-	0,0	151,87	250
12. Quintile	331,1	546,1	254,4	419,6	580,2	957,0	341,17	563
13. Quintile	383,1	631,9	449,8	741,9	-333,41	-549,9	3,86	6
14. Quintile	432,2	712,9	443,9	732,1	-	0,0	907,67	1497
15. Quintile	430,5	710,0	633,4	1044,7	-	0,0	114,01	188
16. Quintile	563,6	929,6	210,3	346,9	-	0,0	671,2	1107
17. Quintile	819,0	1350,8	773,2	1275,3	-	0,0	762,58	1258
18. Quintile	1083,3	1786,7	1221,7	2015,0	891,77	1470,8	1458,08	2405
19. Quintile	1609,3	2654,3	1832,2	3021,9	15,9	26,2	1608,79	2653
20. Quintile	2683,3	4425,7	6453,7	10644,4	1535,83	2533,1	-	-

As it is expected the larger the repayments, the larger the loan that households able to borrow, and consequently the more house that household afford to buy. As monthly rent is included to the savings of tenants, monthly repayment potential has increased in Table 5.24 comparing to Case 1 for tenants. In Case 1, tenants in the 1st, 2nd, 3rd, 4th, 5th, 9th, 16th income quintiles have negative saving rates. When rent payments are excluded from their monthly expenditure values, all households except in the 1st income quintile achieve positive monthly repayment potential. Also same calculations are repeated for households living in the public housing. However, because the rent payments for public housing are lower than private rental accommodation, there is no significant increase in the amounts of monthly repayment potential for these households.

Table 5.26. Total Credits That Tenants Can Take in Relation to Their Monthly Repayment Potential (TL)

	Monthly Repayments	t=5 (N=60)	t=10 (N=120)	t=15 (N=180)	t=20 (N= 240)
1. Quintile	-45,7	-	-	-	
2. Quintile	14,3	634	973	1154	1251
3. Quintile	80,0	3546	5444	6459	6998
4. Quintile	134,3	5953	9140	10843	11747
5. Quintile	138,9	6157	9453	11214	12150
6. Quintile	226,6	10044	15421	18294	19821
7. Quintile	254,3	11272	17306	20531	22244
8. Quintile	275,4	12207	18742	22234	24090
9. Quintile	229,4	10168	15612	18520	20066
10. Quintile	518,9	23001	35313	41893	45389
11. Quintile	515,8	22863	35102	41642	45118
12. Quintile	419,6	18599	28555	33876	36703
13. Quintile	741,9	32885	50489	59896	64895
14. Quintile	732,1	32451	49822	59105	64038
15. Quintile	1044,7	46307	71096	84342	91382
16. Quintile	346,9	15377	23608	28006	30344
17. Quintile	1275,3	56529	86789	102959	111553
18. Quintile	2015,0	89316	137129	162678	176256
19. Quintile	3021,9	133948	205652	243969	264332
20. Quintile	10644,4	471820	724394	859360	931087

Table 5.27. The Appraised Value of Real Property with respect to Loan-to-Value (LTV) Ratio in Table 5.26.

	Monthly Repayments	t=5 (N=60)	t=10 (N=120)	t=15 (N=180)	t=20 (N= 240)
1. Quintile	-45,7	-	-	-	-
2. Quintile	14,3	792	1216	1443	1564
3. Quintile	80	4433	6805	8073	8747
4. Quintile	134,3	7441	11425	13553	14684
5. Quintile	138,9	7696	11816	14017	15187
6. Quintile	226,6	12555	19276	22868	24776
7. Quintile	254,3	14090	21633	25663	27805
8. Quintile	275,4	15259	23428	27793	30112
9. Quintile	229,4	12710	19514	23150	25083
10. Quintile	518,9	28751	44142	52366	56737
11. Quintile	515,8	28579	43878	52053	56398
12. Quintile	419,6	23249	35694	42345	45879
13. Quintile	741,9	41107	63112	74870	81119
14. Quintile	732,1	40564	62278	73881	80048
15. Quintile	1044,7	57884	88870	105428	114227
16. Quintile	346,9	19221	29510	35008	37930
17. Quintile	1275,3	70661	108487	128699	139441
18. Quintile	2015	111645	171411	203348	220320
19. Quintile	3021,9	167435	257065	304961	330415
20. Quintile	10644,4	589776	905492	1074200	1163859

Table 5.28. Total Credits That Homeowners Can Take in Relation to Their Monthly Repayment Potential (TL)

	Monthly Repayments	**t=5 (N=60)**	**t=10 (N=120)**	**t=15 (N=180)**	**t=20 (N= 240)**
1. Quintile	-314,4	-	-	-	-
2. Quintile	-42,7	-	-	-	-
3. Quintile	-10,9	-	-	-	-
4. Quintile	20,0	887	1361	1615	1749
5. Quintile	47,3	2097	3219	3819	4137
6. Quintile	244,1	10820	16612	19707	21352
7. Quintile	195,1	8648	13277	15751	17066
8. Quintile	177,5	7868	12080	14330	15526
9. Quintile	462,5	20501	31475	37339	40456
10. Quintile	484,9	21494	32999	39148	42415
11. Quintile	469,6	20815	31958	37912	41077
12. Quintile	546,1	24206	37164	44089	47768
13. Quintile	631,9	28009	43003	51015	55274
14. Quintile	712,9	31600	48516	57555	62359
15. Quintile	710,0	31471	48318	57321	62105
16. Quintile	929,6	41205	63263	75050	81314
17. Quintile	1350,8	59875	91927	109055	118157
18. Quintile	1786,7	79197	121592	144247	156286
19. Quintile	2654,3	117654	180636	214291	232177
20. Quintile	4425,7	196172	301187	357302	387125

Table 5.29. The Appraised Value of Real Property with respect to Loan-to-Value (LTV) Ratio Table 5.28.a.

	Monthly Repayments	**t=5 (N=60)**	**t=10 (N=120)**	**t=15 (N=180)**	**t=20 (N= 240)**
1. Quintile	-314,4	-	-	-	-
2. Quintile	-42,7	-	-	-	-
3. Quintile	-10,9	-	-	-	-
4. Quintile	20	1108	1701	2018	2187
5. Quintile	47,3	2621	4024	4773	5172
6. Quintile	244,1	13525	20765	24634	26690
7. Quintile	195,1	10810	16597	19689	21332
8. Quintile	177,5	9835	15099	17913	19408
9. Quintile	462,5	25626	39344	46674	50570
10. Quintile	484,9	26867	41249	48935	53019
11. Quintile	469,6	26019	39948	47391	51346
12. Quintile	546,1	30258	46455	55111	59711
13. Quintile	631,9	35012	53754	63769	69092
14. Quintile	712,9	39500	60645	71944	77948
15. Quintile	710	39339	60398	71651	77631
16. Quintile	929,6	51506	79079	93812	101642
17. Quintile	1350,8	74844	114909	136319	147696
18. Quintile	1786,7	98996	151990	180308	195358
19. Quintile	2654,3	147067	225795	267864	290221
20. Quintile	4425,7	245215	376483	446628	483906

In Case 2, households will apply for housing credits while they are purchasing their new homes in contrast to Case 1. In order to find how much of a home that households can afford, the possible housing credit amounts are calculated with a 1,05 % mortgage interest rate which are affordable for different income quintiles. Table 5.26 represents available credit amounts for tenants. The same amounts are represented for homeowners in Table 5.28. Households living in public housing and belonging in other housing tenure types are excluded from this part of the study as it is discussed before.

All the values are fixed to current year (2009), and the previous formula is used to calculate the amount of credit (P) in relation to the monthly repayment (A).

$$\text{“}P=A((1+I)^{N}-1) / I(1+I)^{N})\text{”} \quad (5.3)$$

Housing credits with a fixed rate (1,05 % per month) are calculated for four different repayment periods (5, 10, 15, and 20 years). When households apply for housing credits, the lenders want to know what portion of the value of home will be financed by the credit amount. This is called loan to value ratio (LTV) and calculated as dividing “the amount borrowed” by “the price value of the purchased house” (LTV = Mortgage Amount / Property Value).

This ratio is very significant because it shows how much of equity households will provide in relation to the overall cash of the dwelling. As it is expected, the higher the LTV, the less cash is required as the equity by the household.

In this study LTV is taken as 80 percent. Table 5.26 shows the loan amounts available for tenants for different income quintiles. Table 5.27 displays the appraised value of real property that households are able to buy with respect to Loan-to-Value (LTV) Ratio. Table 5.28 illustrates available loan amounts for homeowners, and Table 5.29 illustrates the appraised value of real property that homeowners can afford.

The examination of which income quintiles are able to purchase a dwelling by using long-term housing credits is represented in the following sub-sections.

5.4.2.1. Households in Private Rental Accommodation

This section evaluates the shift from tenancy to homeownership for households in private rental accommodation. Table 5.26 and 5.27 illustrates that households belonging between the 1st and 9th income quintiles and households in the 16th income quintile are not able to borrow sufficient amount of loan in order to purchase a 3+1 room dwelling in related parts of Ankara. These households also are not able to save sufficient money to purchase a dwelling even at the end of 20 years in Case 1.

Households in the 12th income quintile are able to save around 40 000 TL at the end of 30 years in Case 1. In Case 2, these households also are not able to borrow sufficient amount of housing loan to purchase a 3+1 room dwelling unit in related locations of the study.

Tenants in the 10th income quintile are able to borrow around 45 000 TL by using a fixed rate 20 year housing credits. As the LTV ratio is taken as 80 % in this study, the borrower should put down around 11 000 TL as a downpayment when they are purchasing a dwelling. When the Table 5.12 is examined, it is obvious that, households in this income quintile are able to save around 10 500 TL at the end of 5 saving periods. So it can be concluded that, tenants in this income quintile can purchase a dwelling with a price around 56 000 (45 000+11 000) TL after 5 saving years if they apply for a fixed rate 20-year mortgage credits. So at the end of 25 years they will become homeowners of a dwelling unit priced around 56 000 TL. However if these households prefer to save instead of using housing credits as in Case 1, at the end of 25 years they will save around 45 000 TL which is not sufficient to purchase a dwelling unit. For this income quintile purchasing a

dwelling unit by using housing credits is more profitable than purchasing after saving the necessary amount.

When same calculations are repeated for the 11th and 14th income quintiles, it is found out that there is no important difference between two different methods of house purchase in Case 1 and Case 2.

Households in the 13th income quintile are able borrow around 65 000 TL when they apply for 20 year housing credits. With this amount of money and by saving around 15 000 TL as a downpayment, they are able to purchase a dwelling priced around 80 000 TL. They are going to be in debt for around 20 years, and at the end of 20 years households in this group will be homeowners of dwelling units priced around 80 000 TL. However, instead of using housing credits if these households choose to save the necessary money in order to purchase a dwelling, at the end of 20 years they are able to save more than 90 000 TL. So, at the end of 20 years they become homeowners of a dwelling priced around 90 000 TL which is more profitable than using housing credits.

So it can be claimed that, waiting to save and then buying the house is economically more profitable than using housing credits for this income quintile. The same results are obtained when the process is repeated for the 15th, and 17th- 20th income quintiles. The gap between two amounts increases as we move from lower to upper income quintiles. For instance, for households in the 20th income quintile, it is calculated that, households are able to borrow around 930 000 TL, if they apply, for a fixed rate housing credit with 20 years repayment period. This amount is 80 % of the property value, so the property value can be around 1 160 000 TL. However if they wait and save around 20 years, they are able to buy a dwelling with a price of about 2 125 000 TL, which is economically more profitable than using housing credits. The profit of household in this income quintile is 965 000 TL.

The economic profit is 200 000 TL for 19th income quintile, 110 000 TL for 18th income quintile, 55 000 TL for the 17th income quintile, and 35 000 TL for the 15th income quintile. As we move from higher to lower income quintiles the amount of profit starts to decrease.

5.4.2.2. Owner-Occupied Households

This section examines the house purchase for owner-occupied households by using long term housing credits. Homeowners in the 1st, 2nd, and 3rd income quintiles have negative saving amounts. For this reason, these households are not able to save sufficient amount of money to purchase a dwelling in Case 1, and also in Case 2 because of negative saving rates they are not able to borrow loan.

Homeowners in the 4th and 5th income quintiles are not able to save sufficient money to purchase a dwelling even if at the end of 30 years in Case 1. Also, housing credits do not offer homeownership opportunity for these income quintiles.

Households in the 7th and 8th income quintiles are able to save over 55 000 TL at the end of 30 years to purchase a 3+1 room dwelling in related parts of Ankara. However if they apply for long term housing credits, they cannot afford sufficient amount of loan to purchase a dwelling. Households in the 11th income quintile are able to save around 100 000 TL at the end of 20 years. However, again these households cannot borrow sufficient loan to purchase a 3+1 room dwelling. For these three income quintiles saving are economically more profitable than using housing credits.

Also, for households between 9th - 20th income quintiles, and households in the 6th income quintile waiting to save and then purchasing a dwelling is more profitable than using housing credits as they can purchase a more valuable dwelling by waiting and saving money. As in tenants case, the profit increases as we move from lower income quintiles to higher income quintiles. The profit is around 50 000 TL

fort the 10th income quintile, around 55 000 TL for the 12th income quintile, around 65 000 TL for the 13th income quintile, around 70 000 TL for the 14th and 15th income quintiles, around 95 000 TL for the 16th income quintile, around 135 000 TL for the 17th income quintile, around 180 000 TL for the 18th income quintile, around 270 000 TL for the 19th income quintile, and around 450 000 TL for the 20th income quintile.

5.4.2.3. General Review for Case 2

In Case 2, shifting from tenancy to homeownership is examined by assuming that households apply for housing credits. Housing credits with a fixed rate (1,05 % per month) are calculated for four different repayment periods (5, 10, 15, and 20 years), and loan to value ratio is taken as 80 % in this part of the study.

In Case 1, tenants between 1st- 9th income quintiles, and tenants in the 12th and 16th income quintiles are not able to save sufficient amount of money in order to purchase a dwelling even at the end of 30 years. Also in Case 2, Table 5.26 indicates that households in the same income quintiles cannot afford to borrow sufficient amount of credit which is needed to purchase a dwelling. In Case 1, homeowners between 1st-5th income quintiles are not able to own their second homes by saving even for 30 years. In Case 2, again these households are not able to borrow sufficient amount of loan to purchase a dwelling.

That is, housing credits do not offer homeownership opportunity for households who are not able to purchase a dwelling by saving their incomes in Case 1 in Turkey. The discussions have similar results for also three other tenure cases. Housing finance is not only limited for some groups of households, but is only accessible to a small proportion of households belonging in the higher level of incomes. Therefore access of lower income groups to homeownership is quite limited in Turkey.

When home purchases in Case 1 and Case 2 are compared, for tenants in the 10th income quintile, purchasing a dwelling unit by using housing credits is more profitable than purchasing after saving the necessary amount. For tenants in the 11th and 14th income quintiles, there is no significant difference between two methods. An interesting point is that, for tenants in the 13th, 15th, 17th, 18th, 19th, and 20th income quintiles, purchasing after saving is more profitable than using housing credits even if they will pay rent when they stay as tenants. Also, for households between 9th - 20th income quintiles, and for households in the 6th income quintile, waiting to save and then purchasing a dwelling is more profitable than using housing credits as they can purchase a more valuable dwelling by waiting and saving money. This difference in economic profit occurs because of high interest rate of housing credits in Turkey.

If interest rate in housing credits were same as real market interest rate, then there would be no difference for homeowners in economic profit of purchasing a dwelling unit after saving money or purchasing a dwelling by using housing credits because these households do not pay rent in their current residence. However, using housing credits would be more profitable for tenants because they would able to buy a dwelling by transferring their monthly rent to monthly repayments of housing credits.

However because of high interest rate in housing credits, the cost of debt of mortgage credits is much higher than the profit from saving in Turkey especially for homeowners. For the first home buyers, the household should compare the cash flow of monthly installments of housing credits and their monthly savings and rent. The calculations of this study in Case 1 and 2 show that, if monthly rent is greater than a portion of household's monthly savings, the cost of debt of housing credits is smaller than the cost of renting. The portion depends on the ratio of interest rate in housing credits to market real interest rates. Such as, tenants in the 10th income quintile are able to save around 110 TL per month. Their monthly rent is around 205 TL. Because household's monthly rent is much greater than their monthly

saving, households should apply for housing credits when they have plans to purchase a dwelling unit. However monthly savings and monthly rent amounts are very close for tenants in the 11th and 14th income quintiles. For these households there is no significant difference between the cost of debt and the profit from saving as discussed before. For upper income quintiles monthly saving amounts are much greater than monthly rent that households are paying. For these households the profit of saving is much greater than the cost of debt. The economic profit increases as we move from lower income quintiles to higher ones as the ratio of saving per month over rent increases. So it is suggested that these households should save and then buy their homes instead of applying for housing credits.

However comparison of the cost of debt and the profit of saving cannot be determined exactly because households' saving habits may change after they apply for housing credits. Some households pay a lot of attention to limit their expenditures after they apply for credits; otherwise they are not willing to save. For these households who have difficulties to save their incomes, applying for credits may have compulsive affect on investing money. This assumption will be discussed in Case 4, after examining housing credits by taking into account of debt to income ratios in Case 3 as an alternative of calculations in Case 2.

5.4.3. Case 3: House Purchase with Housing Credits by Using Debt to Income Ratio

When households apply for mortgage credits, lenders also take into consideration another ratio, which is debt to income ratio (DTI). DTI is the percentage of monthly income that goes toward paying debts.

A common rule can be expressed as, debt to income ratio should be lower than 36 (28 % for housing and 8 % for debt) percent. If it is higher than 36 percent, the lender will not be willing to give credits. Debt includes all repayments of households, like mortgage credits, auto credits, etc. Another point is that, lenders

also prefer that the total amount of mortgage payments should not exceed 28 percent of household's total income.

In Case 3, the alternative way of credit amounts are calculated by using debt to income ratio. Table 5.30 and Table 5.31 display the amount of credits that households are able to repay. However because there is lack of information about other debts of households such as credit card bills, car loan payments, etc. in the data, it is not possible to evaluate whether households total debt is greater than 36 percent of total income. So, the amounts in tables are calculated as 28 percent of households' total monthly income. The amounts in the tables give ideas about how much of household's income is available for monthly housing credit payments.

Table 5.30. Total Credit that Tenants Can Get by Using Debt to Income Ratio (TL)

	Monthly Income (2003)	**Monthly Income (2009)**	**Monthly Repayments**	**t=5 (N=60)**	**t=10 (N=120)**	**t=15 (N=180)**	**t=20 (N= 240)**
1. Quintile	175	289	81	3581	5498	6522	7066
2. Quintile	282	465	130	5772	8862	10513	11390
3. Quintile	371	612	171	7594	11659	13831	14985
4. Quintile	450	742	208	9214	14146	16782	18182
5. Quintile	518	855	239	10607	16285	19319	20932
6. Quintile	604	997	279	12373	18996	22535	24416
7. Quintile	680	1122	314	13924	21377	25360	27477
8. Quintile	744	1227	343	15225	23374	27729	30044
9. Quintile	805	1328	372	16479	25300	30014	32519
10. Quintile	888	1465	410	18186	27921	33123	35888
11. Quintile	983	1621	454	20122	30894	36650	39709
12. Quintile	1096	1808	506	22439	34451	40870	44282
13. Quintile	1213	2001	560	24840	38137	45243	49019
14. Quintile	1329	2191	614	27196	41755	49534	53669
15. Quintile	1491	2459	688	30515	46850	55579	60218
16. Quintile	1723	2841	795	35261	54136	64223	69583
17. Quintile	2006	3309	927	41074	63061	74810	81054
18. Quintile	2399	3957	1108	49107	75395	89442	96907
19. Quintile	3079	5079	1422	63034	96776	114807	124390
20. Quintile	8632	14238	3987	176711	271307	321856	348720

Table 5.30 displays total credit amounts for tenants by calculating households' monthly repayments by using debt to income ratio. When the table is compared with Table 5.26, for some quintiles amounts of monthly repayments that households are able to pay increases when it is calculated by debt to income ratio, however for others the amounts decrease.

In Table 5.26 households between 1st and 9th income quintiles and households in the 12th and 16th income quintiles are not able to borrow sufficient amount of housing credits to buy a 3+1 room dwelling unit in Ankara. In Table 5.30 households between the 1st and 11th income quintiles are not able to get sufficient amount of housing credits to buy a 3+1 room dwelling unit in related parts of Ankara. That is, while households in the 10th and 11th income quintiles are able to borrow sufficient amount of money in order to purchase a 3+1 room dwelling unit in Case 2, these households cannot afford sufficient amount of credit in Case 3. In contrast, households in the 12th and 16th income quintiles are able to borrow sufficient amount of loan in Case 3, however cannot achieve it in Case 2.

Table 5.31 displays total credit amounts for homeowners by calculating households' monthly repayments by using debt to income ratio. In Case 2, households between the 1st and 9th income quintiles, and households in the 11th income quintile are not able to borrow sufficient amount of money to purchase a 3+1 room dwelling unit in related locations in Ankara. However, Table 5.31 indicates that households between the 1st and 11th income quintiles are not able to borrow higher than 40 000 TL fixed rate housing credit with 20 year repayment period in Case 3.

Table 5.31. Total Credit that Homeowners Can Get by Using Debt to Income Ratio (TL)

	Monthly Income (2003)	Monthly Income (2009)	Monthly Repayments	t=5 (N=60)	t=10 (N=120)	t=15 (N=180)	t=20 (N= 240)
1. Quintile	156	257	72	3189	4896	5808	6293
2. Quintile	282	465	130	5773	8863	10514	11392
3. Quintile	359	592	166	7350	11285	13388	14505
4. Quintile	438	722	202	8962	13759	16323	17685
5. Quintile	525	866	242	10744	16495	19568	21201
6. Quintile	609	1005	281	12469	19144	22711	24607
7. Quintile	676	1115	312	13845	21256	25216	27321
8. Quintile	738	1217	341	15109	23197	27519	29816
9. Quintile	805	1328	372	16478	25299	30012	32517
10. Quintile	885	1460	409	18117	27815	32998	35752
11. Quintile	986	1627	455	20188	30995	36769	39838
12. Quintile	1089	1796	503	22292	34226	40602	43991
13. Quintile	1205	1987	556	24660	37860	44914	48663
14. Quintile	1330	2194	614	27234	41813	49603	53744
15. Quintile	1514	2498	699	31000	47594	56462	61175
16. Quintile	1722	2840	795	35247	54115	64198	69556
17. Quintile	2019	3329	932	41321	63441	75261	81543
18. Quintile	2357	3888	1089	48258	74091	87896	95232
19. Quintile	2949	4864	1362	60371	92689	109958	119136
20. Quintile	5256	8669	2427	107598	165197	195976	212333

5.4.3.1. General Review for Case 3

In Case 2 in this chapter, households' capacity to borrow housing credits is calculated by focusing on monthly expenditures of households. Saving per month for each income quintiles is calculated by subtracting monthly expenditures from monthly average incomes of households. By adding rent amounts in each month for tenants, repayment potential for each income quintile is estimated. For different repayment periods, how much housing credit that each income quintile is able to borrow is defined.

In Case 3, credit amounts for different repayment periods are calculated by using debt to income ratio. Debt amounts include total monthly payments like housing

credit payments, credit cards, child support, other loans, and any other monthly debt obligations. However, other expenses like gasoline, entertainment, groceries, utilities, telephone services, and etc. are not included to the calculations. The standard debt to income ratio is 36 percent. That means total housing expenses (including mortgage payment) and debt payments combined should be less than 36 percent of total monthly income of households, and monthly housing credit payment should not exceed 28 percent of total monthly income. For all income quintiles, 28 percent of monthly income is calculated in order to figure out how much households are able to repay in each months, and for different repayment periods total amount of loan are calculated for each income quintile.

Beside the fact that, for most income quintiles total loan amounts in Case 3 and Case 2 are close to each other, the probability of purchasing a home with the help of housing credits may change as the results of these two processes. Such as, households who have negative saving rates in Case 2 are not able to use housing credits. However in Case 3 applying for a housing credit depends on debt to income ratio by only considering debt payments. For these reasons, these households with negative saving rates are now able to apply for housing credit. However, as expected they are not able to borrow sufficient amount of credit to purchase a dwelling also in Case 3.

Another difference is that, while some income quintiles are not able to borrow sufficient amount of credit to purchase a dwelling as the results of the calculations in Case 2, these households become able to borrow sufficient amount of loan in Case 3 as the loan amounts are calculated by debt to income ratio. It can be concluded that these households' monthly expenditures are much higher than the expected amount of monthly expenditures for each household which is standardized by debt to income ratio.

However for some households, available loan amounts decrease when calculations are based on debt to income ratio. The reason behind the fact is that, monthly

expenditures for these households are lower than the standardized expenditure values determined by debt to income ratio.

Debt to income ratio is an important indicator of available housing credit amounts for households. However, because debt to income ratio is a general standardized value without taking into consideration of different tastes and life styles of different households. Only taking into account of this ratio while households applying for housing credits may misguide for both the applier and the lender. For this reason, while applying for a credit, calculations should be based on monthly income and expenditures for each household as in Case 1 because these attitudes may change for each different household. However as it is discussed before, all calculations in Case 1, 2, and 3 based on the assumption that households' expenditure behaviors would not be change after they decide to buy a dwelling. However, households may limit their expenditures if they decide to make an investment such as purchasing a dwelling. This assumption will be discussed in the next section of the chapter as Case 4.

5.4.4. Case 4: House Purchase by Limiting Expenditures

In the first three cases, it is concluded that especially low and middle income households cannot purchase a home by saving in long terms or using housing credits as they could not afford such loans with their incomes. However there are strict assumptions in the first three cases that there will be no difference in households' living conditions in the long term.

In case 4, it is assumed that households are able to increase their savings by limiting their consumption. Households' consumption-saving behavior may change after they decide to buy a house. By transferring the money that they would have spent on some services and goods to their saving accounts they may start to increase their saving amounts. Because, buying a home is a major decision that requires a lot of commitment, households start to control their spending in order to handle their

finances responsibly. In this part of the study, the data are examined in order to figure out whether households can limit their expenditures on some goods and services. It is found out that, households can increase the amount of money they have in saving when they decide to buy a house by limiting their expenditures on new furniture and carpets, some clothing accessories, accommodation in some hotels, some equipment for entertainment at homes, some services and goods for personal self-care and jewelry. Also households may postpone buying a car if they decide to buy a house.

Table 5.32. Average Expenditures of Households after Limiting Their Expenditures (TL/Month in 2003)

Income Quintiles	**Owner Occupancy**	**Tenancy**
1.	341,55	262,98
2.	294,61	348,28
3.	355,62	410,53
4.	401,28	466,05
5.	474,63	547,06
6.	450,45	561,96
7.	543,67	641,41
8.	606,31	715,42
9.	505,10	829,42
10.	554,94	770,32
11.	682,95	819,18
12.	690,16	923,99
13.	785,80	916,83
14.	847,38	893,50
15.	987,84	977,73
16.	963,25	1499,22
17.	1141,20	1124,17
18.	1098,37	1379,64
19.	1219,43	1500,07
20.	2191,55	2403,05
Total[14]	832,80	755.74

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

[14] Housing expenditure without subdivision by income quintiles

In the Household Budget Survey, it is possible to find out how much households spend on these goods and services. As a result, new average monthly expenditures are calculated in Table 5.32 by assuming that households can limit their expenditures in order to increase saving amounts.

Table 5.33. Savings of Households across Different Tenure Types after Limiting Expenditures on Some Goods and Services (TL/Month in 2003)

	Owner Occupants			**Tenants**		
Income Quintiles	**Average Households Income (TL/Month)**	**Average Consumption (TL/Month)**	**Saving (TL/Month)**	**Average Households Income (TL/Month)**	**Average Consumption (TL/Month)**	**Saving (TL/Month)**
1.	156	342	-186	175	263	-88
2.	282	295	-13	282	348	-66
3.	359	356	3	371	411	-40
4.	438	401	37	450	466	-16
5.	525	475	50	518	547	-29
6.	609	450	159	604	562	42
7.	676	544	132	680	641	39
8.	738	606	132	744	715	29
9.	805	505	300	805	829	-24
10.	885	555	330	888	770	118
11.	986	683	303	983	819	164
12.	1089	690	399	1096	924	172
13.	1205	786	419	1213	917	296
14.	1330	847	483	1329	894	436
15.	1514	988	526	1491	978	513
16.	1722	963	759	1723	1499	224
17.	2019	1141	878	2006	1124	882
18.	2357	1098	1259	2399	1380	1019
19.	2949	1219	1730	3079	1500	1579
20.	5256	2192	3064	8632	2403	6229

Source Data: Analysis of data from Household Budget Survey, 2003, Turkish Statistical Institute.

In Table 5.33 savings of households are calculated by assuming that households decide to buy a home, and start to limit their expenditures on these goods and services. When Table 5.33 is compared with Table 5.9, it is obvious that average savings increase for all income quintiles. Homeowners in the 3rd income quintile are able to achieve positive saving rates if they start to limit their expenditures on related goods and services. However homeowners in the 1st and 2nd income quintiles are still have negative saving rates even after limiting their expenditures. For the tenant's case, households between the 1st and 5th income quintiles, and households in the 9th income quintile still have negative saving rates, however households in the 16th income quintile afford to save around 224 TL after limiting their expenditure. It is more affordable for the upper quintiles to shift positive saving rates after limiting their expenditures because their negative savings are mostly related with expenditures on luxury goods.

Table 5.34. The 2009 Year Values of Total Monthly Savings in 2003 after Limiting Expenditures on Some Goods and Services (TL/Month)

	Owner Occupancy		**Tenancy**	
Income Quintiles	**2003**	**2009**	**2003**	**2009**
1. Quintile	-186	-306,8	-88	-145,1
2. Quintile	-13	-21,4	-66	-108,9
3. Quintile	3	4,9	-40	-66,0
4. Quintile	37	61,0	-16	-26,4
5. Quintile	50	82,5	-29	-47,8
6. Quintile	159	262,2	42	69,3
7. Quintile	132	217,7	39	64,3
8. Quintile	132	217,7	29	47,8
9. Quintile	300	494,8	-24	-39,6
10. Quintile	330	544,3	118	194,6
11. Quintile	303	499,8	164	270,5
12. Quintile	399	658,1	172	283,7
13. Quintile	419	691,1	296	488,2
14. Quintile	483	796,6	436	719,1
15. Quintile	526	867,6	513	846,1
16. Quintile	759	1251,9	224	369,5
17. Quintile	878	1448,1	882	1454,7
18. Quintile	1259	2076,5	1019	1680,7
19. Quintile	1730	2853,4	1579	2604,3
20. Quintile	3064	5053,6	6229	10273,8

The values in the Table 5.33 are the average amounts of the year 2003 which are taken from Household Budget Survey from Turkish Statistical Institution, so the Table 5.34 displays the amounts after converting them to the values of 2009.

As a next step, total savings of households are calculated at the end of 5, 10, 15, 20, 25 and 30 years. The monthly real interest rate is taken as 0,11 % which was calculated in Case 1. Table 5.35 represents total savings for tenants, and Table 5.36 displays total savings for homeowners.

Table 5.35. Total Savings of Tenants after Limiting Expenditures on Some Goods and Services (TL)

	Monthly Savings	**t=5 (N=60)**	**t=10 (N=120)**	**t=15 (N=180)**	**t=20 (N= 240)**	**t=25 (N=300)**	**t=30 (N= 360)**
1. Quintile	-145,1	-8422	-16304	-23660	-30637	-37078	-43101
2. Quintile	-108,9	-6321	-12236	-17757	-22994	-27828	-32348
3. Quintile	-66,0	-3831	-7416	-10762	-13936	-16865	-19605
4. Quintile	-26,4	-1532	-2966	-4305	-5574	-6746	-7842
5. Quintile	-47,8	-2774	-5371	-7794	-10093	-12215	-14199
6. Quintile	69,3	4022	7787	11300	14632	17709	20585
7. Quintile	64,3	3732	7225	10485	13577	16431	19100
8. Quintile	47,8	2774	5371	7794	10093	12215	14199
9. Quintile	-39,6	-2298	-4450	-6457	-8361	-10119	-11763
10. Quintile	194,6	11295	21866	31732	41089	49728	57804
11. Quintile	270,5	15700	30394	44108	57115	69123	80349
12. Quintile	283,7	16467	31877	46261	59902	72496	84270
13. Quintile	488,2	28336	54855	79607	103081	124753	145015
14. Quintile	719,1	41738	80800	117258	151835	183757	213601
15. Quintile	846,1	49109	95069	137967	178651	216210	251326
16. Quintile	369,5	21447	41518	60251	78018	94421	109756
17. Quintile	1454,7	84434	163453	237206	307154	371730	432104
18. Quintile	1680,7	97551	188847	274058	354873	429481	499235
19. Quintile	2604,3	151159	292624	424662	549888	665495	773581
20. Quintile	10273,8	596312	1154385	1675266	2169272	2625336	3051730

Table 5.36. Total Savings of Homeowner Occupiers after Limiting Expenditures on Some Goods and Services (TL)

	Monthly Savings	**t=5 (N=60)**	**t=10 (N=120)**	**t=15 (N=180)**	**t=20 (N= 240)**	**t=25 (N=300)**	**t=30 (N= 360)**
1. Quintile	-306,8	-17807	-34473	-50027	-64780	-78399	-91132
2. Quintile	-21,4	-1242	-2405	-3490	-4519	-5468	-6357
3. Quintile	4,9	284	551	799	1035	1252	1455
4. Quintile	61,0	3541	6854	9947	12880	15588	18119
5. Quintile	82,5	4788	9270	13453	17420	21082	24506
6. Quintile	262,2	15219	29461	42755	55362	67002	77884
7. Quintile	217,7	12636	24461	35499	45966	55630	64666
8. Quintile	217,7	12636	24461	35499	45966	55630	64666
9. Quintile	494,8	28719	55597	80683	104475	126440	146975
10. Quintile	544,3	31592	61159	88755	114927	139089	161679
11. Quintile	499,8	29009	56159	81498	105531	127717	148461
12. Quintile	658,1	38197	73945	107311	138955	168169	195482
13. Quintile	691,1	40113	77653	112692	145923	176602	205284
14. Quintile	796,6	46236	89508	129895	168199	203561	236622
15. Quintile	867,6	50357	97485	141473	183190	221704	257712
16. Quintile	1251,9	72663	140666	204137	264334	319907	371864
17. Quintile	1448,1	84051	162711	236130	305761	370043	430144
18. Quintile	2076,5	120524	233320	338598	438445	530623	616804
19. Quintile	2853,4	165617	320614	465281	602484	729149	847574
20. Quintile	5053,6	293321	567833	824050	1067047	1291382	1501121

As in Case 1, also in Case 4 it is assumed that households do not apply for housing credits, and they purchase a dwelling after saving sufficient money for it. However in this case it is assumed that household starts to limit their expenditures as they decide to purchase a home.

When Table 5.35 is compared with Table 5.12 it is obvious that total savings for all income groups increase after limiting their expenditures. In Table 5.12 households between the 1st and 5th income quintiles and households in the 9th and 16th income quintiles are not able to purchase a dwelling because they have negative saving rates. In the Table 5.35 only households in the 16th income quintile achieve positive saving rates after limiting their expenditures, and after 15 years they are able to save sufficient amount of money to purchase a 3+1 room dwelling in limited locations of Ankara. In Case 1, households in the 6th, 7th, 8th and 12th income quintiles have

positive saving rates, but they are not able to save sufficient amount of money to buy a 3+1 room dwelling in Ankara. In Case 4, their savings increased at important rates. However only households in the 12th income quintile can save sufficient amount of money at the end of 20 years, and are able to buy a dwelling in a limited number of districts of Ankara.

For homeowners, only households in the 1st, 2nd, and 3rd income quintiles have negative saving amounts in Case 1, and households in the 3rd income quintile can achieve positive saving rates in Case 4, but they are not able to save sufficient amount of money to buy a 3+1 room dwelling even at the end of 30 saving years. For both cases, households in the 4th and 5th income quintiles are not afford to purchase a dwelling even saving after 30 years.

5.4.4.1. General Review for Case 4

Case 4 shows that, even if households start to limit their consumption on some goods and services after they decide to buy a dwelling, their saving amounts increase to some extent, however these are not enough for shifting to homeownership for lower income quintiles. Only for higher income quintiles limiting expenditures help them to increase their saving to an extent to purchase a dwelling unit. This may be caused by the fact that higher income quintiles may have excessive expenditures, so they may achieve to limit these expenditures to purchase a dwelling. However, for lower income quintiles, the expenditures are mostly on necessary goods and services that households may not able to limit in a great extent.

5.4.5. Case 5: House Purchase by Increasing Saving Rates

In Case 4, it is assumed that households start to limit their expenditures after they decide to buy a house. In Case 5, again it is assumed that households limit their expenditures, and also it is assumed that there is increase in income in every year.

For each month savings of households are calculated, and the amount of savings increases 2 percent in every year in Case 5. For this reason, as a first step, annual savings are calculated in order to find 2 percent increase per year. The related saving calculations are demonstrated in Table 5.37 and Table 5.38. Table 5.37 displays total saving amounts at the end of 5, 10, 15, 20, 25, and 30 years for tenants. Table 5.38 shows calculations for homeowners.

In this part of the study, annual real interest rate is used instead of using monthly interest rate, because it is assumed that every year saving rates of households increase by 2 percent. Annual real interest rate is taken as 1,34 percent.

In this case, income of households increases in every year, and their saving amounts is assumed to increase by 2 percent as a result. For this person, in order to calculate saving rates in 5, 10, 15, 20, 25 and 30 years, geometric gradient series are used instead of using equal payment series. The formula is:

$$P = A_1 \{ [1 - (1 + g)^N (1 + i)^{-N}] / [i - g]\} \quad (5.4)$$

where,

P : present worth
g : rate of increase per time
i : interest rate
N : time.

Table 5.37. Total Savings of Tenants with 2 percent Increasing Saving Rates (TL)

	Monthly Savings	Annual Saving	t=5	t=10	t=15	t=20	t=25	t=30
1. Quintile	-145,1	-1741	-8235	-14764	-20579	-25332	-30067	-33236
2. Quintile	-108,9	-1307	-6182	-11083	-15449	-19017	-22572	-24951
3. Quintile	-66,0	-792	-3746	-6716	-9361	-11524	-13678	-15119
4. Quintile	-26,4	-317	-1499	-2688	-3747	-4612	-5475	-6052
5. Quintile	-47,8	-574	-2715	-4868	-6785	-8352	-9913	-10958
6. Quintile	69,3	832	4407	9064	13696	18586	24494	28929
7. Quintile	64,3	772	4089	8410	12708	17245	22728	26842
8. Quintile	47,8	574	3040	6252	9447	12820	16899	19958
9. Quintile	-39,6	-475	-2247	-4028	-5615	-6911	-8203	-9068
10. Quintile	194,6	2335	12377	25454	38461	52192	68742	81188
11. Quintile	270,5	3246	17204	35381	53462	72548	95562	112863
12. Quintile	283,7	3404	18043	37108	56070	76088	100214	118357
13. Quintile	488,2	5858	31050	63857	96488	130935	172460	203683
14. Quintile	719,1	8629	45735	94058	142123	192863	254038	300030
15. Quintile	846,1	10153	53812	110670	167223	226924	298904	353020
16. Quintile	369,5	4434	23500	48331	73028	99100	130537	154170
17. Quintile	1454,7	17456	92519	190275	287507	390151	513905	606945
18. Quintile	1680,7	20168	106893	219836	332174	450764	593746	701241
19. Quintile	2604,3	31252	165633	340642	514714	698473	920059	1086632
20. Quintile	10273,8	123286	653414	1343813	2030514	2755433	3629540	4286654

Table 5.38. Total Savings of Homeowners with 2 percent Increasing Saving Rates (TL)

	Monthly Savings	Annual Saving	t=5	t=10	t=15	t=20	t=25	t=30
1. Quintile	-306,8	-3682	-17416	-31223	-43521	-53573	-63588	-70289
2. Quintile	-21,4	-257	-1216	-2179	-3038	-3739	-4438	-4906
3. Quintile	4,9	59	312	641	968	1314	1737	2051
4. Quintile	61,0	732	3880	7979	12056	16360	21550	25452
5. Quintile	82,5	990	5247	10791	16305	22127	29146	34422
6. Quintile	262,2	3146	16676	34296	51821	70322	92618	109386
7. Quintile	217,7	2612	13846	28475	43026	58387	76897	90819
8. Quintile	217,7	2612	13846	28475	43026	58387	76897	90819
9. Quintile	494,8	5938	31469	64720	97792	132705	174815	206464
10. Quintile	544,3	6532	34617	71194	107575	145981	192302	227118
11. Quintile	499,8	5998	31787	65374	98780	134046	176581	208550
12. Quintile	658,1	7897	41855	86079	130067	176502	232488	274579
13. Quintile	691,1	8293	43954	90396	136589	185353	244146	288348
14. Quintile	796,6	9559	50664	104195	157440	213648	281417	332366
15. Quintile	867,6	10411	55179	113482	171472	232690	306500	361990
16. Quintile	1251,9	15023	79621	163749	247426	335760	442277	522350
17. Quintile	1448,1	17377	92099	189411	286202	388380	511579	604198
18. Quintile	2076,5	24918	132065	271606	410399	556917	733586	866399
19. Quintile	2853,4	34241	181476	373225	563946	765282	1008055	1190560
20. Quintile	5053,6	60643	321409	661011	998794	1355376	1785330	2108557

When the Table 5.37 is compared with Table 5.35, it is obvious that for households who have positive saving rates, the amounts of total saving rates are higher than the amounts in Case 4. However, again tenants between the 1st and 9th income quintiles are not able to buy a dwelling also in this case.

For homeowners, Table 5.38 indicates that, only households in the 1st and 2nd income quintile have negative saving rates like in Table 5.36. For other households, saving amounts are higher in Case 5 than in Case 4. However again households between the 1st and 5th income quintiles are not able to save sufficient amount of money to purchase a 3+1 room dwelling units in related parts of Ankara.

5.4.5.1 General Review for Case 5

Case 5 creates a very optimistic environment. This case assumes that households start to limit some of their expenditures after they decide to borrow a dwelling unit. Also, it is assumed that savings of households increase 2 percent in every year. However even with these optimistic assumptions, income quintiles that are not able to purchase a dwelling in previous cases, are not able to purchase a 3+1 room dwelling also in this case.

5.5. The General Evaluation of Different Economic Ways of Shifting from Tenancy to Homeownership and Summary of Findings of the Chapter

Chapter 5 examines different ways of shifting from tenancy to homeownership by identifying the allocation of household budgets on consumption and saving in urban Ankara. In order to achieve this, the statistical data on Household Budget Survey in 2003 from Turkish Statistical Institute is used. There are 1296 cases in the data which are related to urban Ankara. The data are divided into 20 income quintiles in order to examine different ways of shifting from tenancy to homeownership in five different cases.

In Case 1 in Chapter 5, ways of shifting from tenancy to homeownership are examined by assuming that households do not apply for housing credits or borrow from other individuals. The only way of purchasing a dwelling is their saving. For every income quintile monthly expenditures are subtracted from average monthly income in order to calculate savings of households per month. Then saving amounts for each income quintile are calculated for the saving periods of 5, 10, 15, 20, 25, and 30 years. It is aimed to find out which income quintiles are able to purchase a 3+1 room dwelling unit by saving money for different time periods. Another aim of the chapter is to identify in which locations of Ankara households are able to purchase a dwelling by saving a specific part of their income. In order to achieve this, the average prices of 3+1 room dwelling units are investigated for different locations of Ankara to make standardization between the prices of locations.

In this case, tenants between the 1st and 9th income quintiles and tenants in the 12th and 16th income quintiles are not able to purchase a 3+1 room dwelling units in related locations by saving even 30 years. Homeowners between the 1st and 5th income quintiles are not able to purchase a 3+1 room dwelling unit in related locations of Ankara because they are not able to save sufficient amount of money even at the end of 30 years.

After examining whether households are able to purchase a dwelling by saving money in each month, the next step is to investigate whether long term housing credits help those households who are not able to purchase a dwelling in Case 1.

In Case 2, access to homeownership is examined under the assumption that households apply for housing credits in order to purchase a dwelling. Like in Case 1, also tenants in quintiles between the 1st and 9th, and tenants in the 12th and 16th quintiles cannot afford to borrow a sufficient amount of credit which is needed to purchase a dwelling even they apply for housing credits with 20 year repayment periods. For homeowners' case, households between the 1st and 5th income quintiles are not able to borrow sufficient amount of money to purchase a dwelling. That is,

even long term housing credits do not help lower income quintiles to purchase a dwelling unit.

In Case 3, again house purchase with the help of housing credits is examined. However in this case, available credit amounts are calculated by using debt to income ratio. Again in this case, tenants between the 1st and 9th income quintiles are not able to get sufficient amount of housing credit to purchase a dwelling. Tenants in the 10th and 11th income quintiles are able to borrow sufficient amount of loan in Case 2, however these households are not able to borrow sufficient amount of money in Case 3. In contrast, households in the 12th and 16th income quintiles are able to borrow sufficient amount of money in Case 3, which could not achieve it in Case 1.

In the first three cases, all calculations based on the assumption that household's expenditure behaviors do not change after they decide to purchase a dwelling. However, most households change their expenditure behavior when they decide to make an investment plan. Case 4 examines the ways of home purchase by assuming that households can limit their expenditures. By limiting expenditure and saving more, only tenants in the 12th and 16th income quintile become able to buy a dwelling at the end of 30 years unlike the first case. For homeowners, households in the 3rd income quintile achieve positive saving after limiting expenditure however not able to save sufficient amount of money even saving for 30 years.

Case 5 creates a more optimistic environment. That is, it is assumed that saving rates increase 2 percent in every year. Again in this case, tenants between the 1st and 9th income quintiles cannot afford to buy a dwelling. For homeowners' case, households between the 1st and 5th income quintiles are not able to save sufficient amount of money to purchase a 3+1 room dwelling unit. With these assumptions every households are able save more, however even in this optimistic environment these households are not able to shift from tenancy to homeownership, and income quintiles who can achieve this by sustaining these optimistic environment for very

long years. That is, they have to limit their expenditures on related goods and services for long time periods like 10-15 years which is not so possible.

Table 5.39. The 2009 Year Value of Average Total Income in 2003 (TL/Month)

	Owner Occupancy		**Tenancy**	
	2003	**2009**	**2003**	**2009**
1. Quintile	156	257	175	289
2. Quintile	282	465	282	465
3. Quintile	359	592	371	612
4. Quintile	438	722	450	742
5. Quintile	525	866	518	855
6. Quintile	609	1005	604	997
7. Quintile	676	1115	680	1122
8. Quintile	738	1217	744	1227
9. Quintile	805	1328	805	1328
10. Quintile	885	1460	888	1465
11. Quintile	986	1627	983	1621
12. Quintile	1089	1796	1096	1808
13. Quintile	1205	1987	1213	2001
14. Quintile	1330	2194	1329	2191
15. Quintile	1514	2498	1491	2459
16. Quintile	1722	2840	1723	2841
17. Quintile	2019	3329	2006	3309
18. Quintile	2357	3888	2399	3957
19. Quintile	2949	4864	3079	5079
20. Quintile	5256	8669	8632	14238

The findings in Chapter 5 support the literature on economic ways in housing tenure choice. Barakova, et al. (2003) argues that financing constraint have important effect on tenure choice decision. According to the authors, wealth constraint has the largest effect among these financing constraints. They also argue that credit constraint is an important barrier for homeownership. For the authors, higher income households are more likely to own their homes relative to lower income

households. Also, Robst, et al. (1999), Lee & Myers (2003), and Elder & Zumpano (1991) argue that permanent income has positive effect on homeownership. Result of this study also shows that higher income quintiles are more likely to become homeowners. The results of five cases illustrate that households in the first 5 income quintiles are not able to purchase a dwelling unit unless they have other financial sources. Table 5.39 illustrates 2009 year value of average total income of quintiles per month. The first five quintiles are those who have average monthly income less than 1000 TL as Table 5.39 shows.

According to the chapter, households earning less than 1 000 TL per month cannot afford a dwelling in Ankara. These findings support the hypothesis that "Credit and wealth constraints are important barriers in homeownership for low-middle income groups in Turkey".

In countries with advanced housing credit systems, long term housing credits tend to be some of the cheapest money that households get as the interest rate of housing credits is the lowest in the financial market. However in Turkey even if housing credits are cheap compared with most other credits, interest rate is not as low as these advanced countries. Also volatile economic environment with relatively high inflation rate in Turkey makes long-term housing credits risky for households. One of the problems of this chapter is to investigate whether households should wait until saving sufficient amount of money to purchase a dwelling or should apply for housing credits in such an environment.

Results of calculations show that housing credits do not offer homeownership opportunity for households who are not able to purchase a dwelling by saving their incomes in Turkey. There are several types of mortgage credits today which provide different repayment schedules with fixed or flexible interest rates. However because of high interest rates, the cost of mortgage debt is too high and even long term housing credits do not provide new opportunities for low income quintiles to purchase their own homes. That is, if a household is not able to purchase a dwelling

by saving, they also are not able to borrow sufficient amount of loan to purchase the dwelling.

These calculations in this chapter also support the second hypothesis of the thesis: "Mortgage credits in current conditions would not significantly increase the probability of homeownership for households who are not able to purchase a dwelling because of high interest rates, which lead to high debt service with respect to their incomes and low loan to value ratios in Turkey".

Another result is about the comparison of two options: the cost of housing credit debt versus the profit of saving. In building a financial model to compare saving and using housing credits, fixed monthly installments with fixed interest rate are assumed in Case 1 and 2 in this chapter. When we look at saving versus using housing credits equation from an economic perspective, saving come out economically more profitable for most households in the study.

As discussed before, interest rates in housing credits are higher comparing with market interest rates paid for deposit accounts. Because homeowners do not pay rent for their current residence, the profit of purchasing after saving necessary amount of money for their second homes is greater than the cost of mortgage debt.

However in the rent scenario, the way to figure out whether to save or use housing credit is to look at the rent over saving ratio. In the first option, households continue to pay rent while saving their money. In the second option, households purchase the dwelling by using housing credit instead of paying rent in each month for someone else's home. It is excepted that using housing loan would be more profitable for tenants because instead of paying rent in each month they are able to transfer monthly rent to the repayments of housing loan. However, calculations show that especially for the upper income quintiles purchasing after saving necessary amount is more profitable in economic perspective. The fact is related with the rent over saving ratio. That is, if monthly rent that household pays for the current dwelling is

k times greater than their monthly saving, then household should apply for housing credits. In this option, opportunity cost of buying would be the cost of renting which is higher than households' savings. These households would gain economic profit by transferring their monthly rent into the budget of installments for housing credits. The constant k is defined by the proportional relation between interest rate of mortgage credits to market real interest rate. The result also indicates that if monthly rent is close to household's monthly savings, then household is indifferent to save or use housing credits. Last of all, if household's saving per month is k times greater than rent per month, then saving is economically more profitable than using housing credits. Again, the constant k is defined by the proportion of interest rates of mortgage credits to market real interest rate. However this chapter focuses only the economic profit of households. That is, economic profit is greater for these households so they should stay as tenant until they save sufficient amount of money to purchase a dwelling. However previous studies in the literature review show that there are significant social and psychological benefits of being homeowners. For these reasons, households should make a tradeoff between these economic and social-psychological benefits before making a decision about purchasing a house.

One of the results of this chapter is about debt to income ratio. Debt to income ratio is an important indicator on household's ability to qualify for a housing credit. It shows household's capacity to repay the installments of housing credits. In this study, housing credit amounts are calculated by using two different methods as discussed above. It is found out that credit amounts vary when calculations based on monthly saving amounts of households and when calculations based on debt to income ratio. The difference occurs because debt to income ratio is a general standardized rule for every household in the society. However calculations show that expenditure behavior changes for different households as they have different life styles and tastes. For this reason, only relying on a standardized rule may misguide both appliers and lenders. Instead, for each household calculating monthly repayment potential based on each household's expenditure behavior and income in

addition to debt to income ratio with credit scores would be more reliable method for both appliers and the lenders.

Another finding of the study is about housing prices. In order to make a comparison between different locations average prices of 3+1 room dwelling units are investigated in the study. The economic values of dwelling units are affected from various factors. These factors can be grouped under two headings. The first one is the physical factors of the dwelling unit itself, such as floor size, number of bedrooms, heat system, etc. The second one is the environmental and neighborhood characteristics, such as, distance to the city center, proximity to open space, crime rates, etc. In order to make a comparison, dwelling units with similar physical characteristics are investigated. Average prices of a 3+1 room apartment unit are calculated for each location. It is found out that average prices of a standard 3+1 apartment dwelling units differ from 55 000 TL to 420 000 TL. As these dwelling units have similar physical characteristics, the main determinant factor on house prices is the environmental and neighborhood characteristics of the locations. A dwelling unit with exactly same physical characteristics may have very different prices as a result of the changes in the name of the neighborhood that the dwelling unit is located in Ankara. This differentiation enables households with different income to purchase housing packages with affordable prices according to their income levels. This findings support the hypothesis that "Existence of housing submarkets with highly differentiated price levels enable households with different income to buy the preferred housing package at the submarkets with affordable price level" which will be also discussed in the next chapter of the thesis. The locations with most expensive house prices are Angora Evleri, Yıldız, Bilkent, Mebusevleri, Çukurambar in Çankaya and Konutkent, Mesakoru in Yenimahalle. The locations with lowest house prices are 30 Ağustos in Etimesgut, and Yeniçimşit, Yenikent in Sincan.

5.6. Concluding Remarks

This chapter illustrates different economic ways of purchasing a 3+1 room dwelling units in different locations of Ankara. Findings of this chapter support the evidences in the vast literature on housing which is examined in Chapter 2 in this thesis. However analyses in Chapter 5 are based on only household's monthly average income, and theoretically the possibility of homeownership for different income quintiles are examined without adding other socio-economic factors. To contribute this framework, the following chapter examines the issue by carrying out a survey in Çankaya and Yenimahalle in Ankara with recent homebuyers. The aim of this chapter is to evaluate the findings of Chapter 5 in the real world, and to examine the effects of other socio-economic factors on tenure shift beside household's monthly average income. The overview of historical developments on tenure choice and housing provision methods in Turkey in Chapter 4 illustrates that housing sector in Turkey has its own unique dynamics, so Chapter 6 aims to examine these dynamics with the help of the survey.

CHAPTER 6

EFFECTS OF DIFFERENT SOCIO-ECONOMIC FACTORS AND HOUSING PROVISION METHODS ON THE PROBABILITY OF SHIFTING FROM TENANCY TO HOMEOWNERSHIP

In Chapter 5, an analysis is carried out in order to identify which income quintiles are able to shift from tenancy to homeownership, and different economic ways of purchasing a dwelling unit in a theoretical framework by using Household Budget Survey (2003). The next step of the thesis is to evaluate these theoretical results by investigating recent home buyers in related locations of Ankara. That is, this chapter investigates in which period of their lives households decide to purchase a dwelling for recent homeowners who have purchased a dwelling unit within 3 years.

In this chapter, effects of different socio-economic factors on the probability of shifting from tenancy to homeownership are examined for households who are able to achieve the shift. Cox Proportional Hazard Model is used to identify what specific life course events are important in this shift. Cox Proportional Hazard Model can provide important results to evaluate the role of socio-economic factors affecting the episode of housing tenure change examined in this chapter.

The literature also shows that tenure choice and residential mobility are integrated. Kan (2000) argues that previous tenure mode have great impact on current mobility and tenure mode decision of households. Previous ownership status may indicate the preference for ownership, and financial status. Also, previous tenure mode may be determinant of residential mobility due to the higher transaction costs of moving for homeowners (Kan, 2000). Households who are tenants in their previous

residences may wait until they afford to buy a dwelling unit in location where they used to live. Other households may choose to move to other locations in order to shift from tenancy to homeownership. Households who are homeowners in their previous residences may choose to move because they are not pleased with their residential location, or a better quality dwelling unit alternative may be the reason for the move.

When households decide to move there are multiple neighborhood alternatives. Choice among neighborhoods is affected not only by locational characteristics, but also by the availability and characteristics of housing types in those locations. That is, dwelling type selection is conditioned on neighborhood choice and influenced by the availability of dwelling units (Clark, 1983).

In this chapter, housing tenure choice is examined as integrated with relocation behavior of households. Households' socio-economic characteristics are used to explain their mobility expectation, decision on dwelling type, and tenure choice in this chapter.

A survey is carried out in Yenimahalle and Çankaya in Ankara in order to identify socio-economic factors affecting the decision of households on homeownership. The survey included 38 questions about socio-economic characteristics of households, characteristics of each household's dwelling unit, locational preferences of households, and their process of shifting from tenancy to homeownership. Yenimahalle and Çankaya are chosen as the case study areas in order to compose a sample of different submarkets with different housing provision methods and house-prices. Yenimahalle and Çankaya provide the opportunity of having these differentiated housing submarkets in Ankara.

The survey is carried out for collecting data from recent home buyers only. In order to specify the sample for the survey, lists of housing units which were issued occupancy permit in 2010 is obtained from the Municipalities of Çankaya and

Yenimahalle. From these lists, around 220 addresses of housing units were chosen for the survey by particularly giving attention to include housing units with different features, and different provision methods. Also, the samples are drawn from different housing submarkets which are differentiated across housing prices.

However, only 11 surveys are carried out from the list because of difficult field conditions. As a second step, by making face to face interview with the headmen of districts, a new list was created. A total of 184 households were surveyed in Ankara (92 surveys in Yenimahalle and 92 surveys in Çankaya districts) who have bought a dwelling during last three years.

The outcomes from the empirical analysis in this chapter seek the answers of the questions as "how social and economic factors effect decision of households about tenure transition, and which period of their lives households make the decision to shift" and "how bundles of housing packages with different attributes, locations and prices differentiate across different process of shifting to homeownership. With this purpose, a set of hypotheses is evaluated in this chapter. These are:

- Transition to homeownership of households living in private rental accommodation are expected to be related as much on transitory income, including inherited wealth, as on permanent income, in addition to homeownership opportunities provided by different forms of housing provision in Turkey.

- Forms of housing provision also affect the probability of shifting from tenancy to homeownership for households.

- The demand for a dwelling in different housing submarkets in Ankara is related with socio-economic backgrounds of households as well as characteristics of dwelling units in each submarket.

- Existence of housing submarkets with highly differentiated price levels enable households with different income to buy the preferred housing package at the submarkets with affordable price level.

- Households choose to buy housing in submarkets where households of similar socio-economic characteristics live, although there may be housing alternatives with similar attribute endowments and prices in some other submarkets. Therefore, there is high mobility between only certain housing sub-markets.

The paper proceeds by summarizing socio-economic characteristics of surveyed population in the next section. The probability of shifting from tenancy to homeownership with respect to different housing provision methods follows in Section 6.2. The chapter is concluded in Section 6.3.

6.1. Socio-Economic Characteristics of Surveyed Population

Empirical evidences show that socio-economic factors have important effects on housing tenure choice. Especially effects of socio-demographic factors may change with respect to different case studies. Also, Chapter 4 illustrates that housing system in Turkey has its own specific dynamics making it different from the countries with advanced and rooted housing finance system. This makes Turkey an interesting case study to be examined. This section summarizes the general review of socio-economic characteristics of the surveyed population in the study.

Models of housing tenure choice include a combination of economic and social variables. The standard model of housing tenure choice includes economic variables, measuring household income and as well as several socio-demographic variables describing the households' marital status, age, education, and household size (Bourassa, 2000).

“Demographic variables such as age, marital status, number of children, or household size may have an independent effect on tenure choice. Generally, these variables relate to the household's stage in the life cycle and the degree to which it is mobile or settled. Gender may also be a factor, if males and females have different attitudes to home ownership or face different obstacles in housing markets” (Bourassa, 2000: 326).

Table 6.1 demonstrates basic socio-demographic characteristics of the studied population. Table provides information about age, and marital status of the household reference person, and the education level of both responders and the partners.

Table 6.1. Socio-Demographic Characteristics of the Surveyed Population

		Frequency	Percent
Age	20-30	41	22,1
	31-40	42	22,7
	41-50	47	25,5
	51-60	34	18,4
	61-70	14	7,5
	71-80	6	3,1
Marital Status	Single	10	5,4
	Married	166	90,2
	Widowed	6	3,3
	Divorced	2	1,1
Education Level of Household Head	Primary Education	56	30,5
	High School	61	33,2
	University	62	33,7
	Post Graduate	4	2,2
	No Answer	1	0,5
Education Level of Partners	Primary Education	68	37,0
	High School	56	30,4
	University	39	21,2
	Post Graduate	2	1,1
	No Answer	19	10,3
	Total	184	100

Painter, et al. (2001) argues that, among demographic and economic variables, higher ages, being married, having larger households, and higher levels of education all increase homeownership probabilities.

Table 6.1 shows that age of responders differs from 20 to 80 years. In the table, age is stratified into six age groups: 20-30, 31-40, 41-50, 51-60, 61-70, 71-80. The proportion of owner occupation at the age under 30 is 22,1 percent. The ratio of owner occupation increases through age for the first three groups. The proportion of owner occupation at the age between 31-40 is 22,7 percent, and at the age between 41-50 is 25,5 percent. The ratio of owner occupation decreases through age for the next three groups. It is 18,4 percent for the age group 51-60, and 7,5 percent for the age group 61-70. The oldest age group (ages between 71-80) comprises only 3,2 percent of total surveyed population. Table shows that owner occupancy rate is relatively high at young ages.

Baxter and McDonald (2005) argue that one of the most significant factors associated with homeownership is the formal marriage. In their study, they find out that married people are more likely to purchase their first home then single people who are still living with their parents.

In this study, 90,2 percent of total surveyed population of recent home buyers is married, only 5,4 percent of the sample is single. The ratio of widowed and divorced households constitute only 4,4 percent of total surveyed population.

Kleinjans (2008) argues that characteristics of head of household are insufficient to fully characterize a household. In their study, they argue that predicted probabilities of homeownership for a couple where the female spouse has the highest possible education differ from those of a couple where she has the lowest possible education. Predicted probabilities of home ownership differ quite substantially under different assumptions of women's educational achievement according to their study. With this respect, the education level for both partners is investigated in this study.

Table 6.1 shows that, 30,5 percent of the household heads had attained a primary education, and 33,2 percent of responders had attained a high school education. The proportion achieving a higher education in the data reached almost 36 percent of total surveyed population.

Table also demonstrates that 37 percent of responders' partners had attained a primary school, and 30,4 percent of responders' partners were graduated from a high school. 32,6 percent of responders' partners were graduated from a higher education level.

Table 6.2. The Crosstab of Education Level between Household Head and Partners

		Partners					
		Primary	High School	University	Post Graduate	No Answer	Total
Household Head	Primary	48	2	1	0	5	56
	High School	22	26	5	1	7	61
	University	7	19	31	0	5	62
	Post Graduate	0	0	2	1	1	4
	No Answer	0	0	0	0	1	1
	Total	77	47	39	2	19	184

Table 6.2 illustrates the crosstab of education level between household head and their partners. 57,6 percent of surveyed population had attained same education level as their partners. 41,8 percent of surveyed population has higher education level than their partners.

Table 6.1 illustrates age of responders in year 2010, and Table 6.3 demonstrates the age of responders when they have purchased their first homes.

Table 6.3. Age of Responders when They Have Purchased their First Home

		Frequency	Percent
Age	Not Valid	22	12
	Under 20	13	7
	21-30	57	31
	31-40	37	20,1
	41-50	36	19, 6
	51-60	13	7,1
	61-70	5	2,7
	Over 71	1	0,5
	Total	184	100

Table shows that the average age at the first home purchase is in 20s. The proportion of owner-occupation at the age under 20 is 7 percent, reaches around 31 percent at the age between 21 and 30. The ratio starts to decrease after 30s. Owner occupancy rate at age 30s and 40s is 39,7 percent. The proportion of owner occupancy after the age 60 is as low as 3,2 percent.

Household size is one of the most important factors in determining expenditure levels of households (Paulin, 1995). Also literature on homeownership studies suggests that household size affects the probability of homeownership. All else equal, household size increases the probability of owning single family housing. However for the older age groups, household size has negative relationship with the choice of single family housing because as age increases and children leave home, and for this reason the older age groups may not need to own their houses (Lee and Myers, 2003). Table 6.4 demonstrates the household size for the surveyed population.

Table 6.4. Household Size

	Frequency	Percent
1	3	1,6
2	36	19,6
3	60	32,6
4	56	30,4
5	17	9,2
6	7	3,8
7	1	0,5
8	1	0,5
9	3	1,6
Total	184	100,0

The average household size is 3,5 in this sample. Single households contribute 1,6 percent of total surveyed population. The percent of households size of 2 is 19,6. The highest percentage of household size is 3 with 32,6 percent. Household size with 4 is 30,4 percent of total surveyed population. Household size greater than 4 contributes 15,6 of total surveyed population. As in contrast to the literature, the table shows that the ratio of homeownership is lower for the larger household size.

Literature suggests that number of children effects homeownership decision of households in different ways. Baxter and McDonald (2005) in their study of homeownership in Australia, find out that the number of children born is a strong indicator for homeownership. In ceteris paribus, men and women with no children are most likely to have purchased a house in their study, and also according to their research the likelihood of home purchase falls as the number of children born increases.

Another, important point is that, number of school-age children may be an important factor for homeownership. The expenditures of households who have school-age children will be higher which may delay the purchase of a house.

Table 6.5. Total Number of Children

Number of Children	Frequency	Percent
0	27	14,7
1	42	22,8
2	66	35,9
3	31	16,8
4	14	7,6
5	3	1,6
6	1	0,5
Total	184	100,0

Table 6.5 shows total number of children in the surveyed population. Table 6.6 illustrates the number of children out of household, and Table 6.7 shows the number of children who are still living with their parents.

Table 6.5 shows that, there are 344 children in total in the study. The average number of children per household is 1,87. 27 households have no children. 22,8 percent of total surveyed population has only one child. The majority of households has 2 children, which is 35,9 percent of total surveyed population. 16,8 percent of responders have 3 children, and 7,6 percent of responders have 4 children. The ratio of households having more than 4 children is 2,1 percent.

Table 6.6. Number of Children out of their Households

Number of Children	Frequency	Percent
0	52	28,3
1	63	34,2
2	52	28,3
3	13	7,1
4	4	2,2
5	-	-
6	-	-
Total	184	100,0

Table 6.7. Number of Children living with their Parents

Number of Children	Frequency	Percent
0	125	67,9
1	22	12,0
2	22	12,0
3	6	3,3
4	7	3,8
5	2	1,1
6	-	-
Total	184	100,0

Table 6.6 shows that among 344 children, 222 of them were not living with their parents. Table 6.7 illustrates that 122 children were still living with their parents during the survey time.

Another factor effecting homeownership is the number of school-aged children. Because of strong school districts households with school-aged children are less likely to move. Households' expenditures on education increase if they have school-aged children which decrease the probability of home purchase. However, Kain and Quigley (1975) argue that number of school-aged children also increases household

demand for residential space. Table 6.8 illustrates the number of children of the related survey population who are currently attending to school. The ratio of children attending school to total number of children in the surveyed population is 37,8. Among them, 19,8 percent of children are attending to primary school, 9,9 percent are attending to high school, 7,0 percent are attending to university, and 1.1 percent of children are attending to a post graduate education.

Table 6.8. Number of Children Attending School

	Frequency	Percent
Not Attending	214	62,2
Primary	68	19,8
High School	34	9,9
University	24	7
Post Graduate	4	1,1
Total	344	100,0

The relationship between homeownership and school type of children provides evidence about the wealth of households. The result of the survey shows that, in total, 130 children are attending to school in the surveyed population, as shown in Table 6.9. Also, the table provides information about the ratio of children attending public and private schools. In recent years, a growing number of population starts to believe that private education offers students a more varied and creative course of study, and choose to send their children to private school. This belief is especially high for the primary education. As high as 13,1 percent of children are attending to a private school, and 86,9 percent are attending to a public school. Households who send their children to private schools will be less likely able to save the equity for house purchase. On the other hand, same households may already have resources to own housing and sending their children to private schools.

Table 6.9. Types of School

	Public School		Private School	
	Frequency	Percent	Frequency	Percent
Primary	57	43,8	11	8,5
High School	30	23,1	4	3,1
University	22	16,9	2	1,5
Post Graduate	4	3,1	-	-
Total	113	86,9	17	13,1

Table 6.10 shows that the average permanent income is relatively low for surveyed population. In Chapter 5, the possibility of shifting from tenancy to homeownership has examined for different income quintiles. The results of the survey about permanent income in Table 6.10 are inconsistent with the analysis in Chapter 5. Unlike the expectations, the permanent income of the recent homeowners in the study is low. Households are likely to rely on transitory income while purchasing their dwelling. In order to understand this effect, Table 6.11 shows average transitory income of households. Transitory income includes real estate income, and earnings from interest on savings deposits, bonds, and dividends. Unfortunately, only 32 percent of total surveyed population has answered this question which is not sufficient to reach a conclusion on the effect of transitory income.

Table 6.10. Average Permanent Income of Households (TL/Month)

	Frequency	Percent
Less than 1000	41	22,3
1000-1500 TL	40	21,7
1500-2000 TL	24	13,0
2000-2500 TL	32	17,4
2500-3000 TL	18	9,8
3000-3500 TL	8	4,3
3500-4000 TL	7	3,8
4000-4500 TL	1	0,5
4500-5000 TL	2	1,1
5000-6000 TL	4	2,2
6000-7500 TL	0	0
7500-10000 TL	0	0
Over 10000 TL	3	1,6
No Answer	4	2,2
Total	184	100,0

Table 6.11. Average Transitory Income of Households (TL/Month)

	Frequency	Percent
Less than 1000 TL	17	9,2
1000-1500 TL	8	4,3
1500-2000 TL	4	2,2
2000-2500 TL	1	0,5
2500-3000 TL	3	1,6
3000-3500 TL	1	0,5
3500-4000 TL	2	1,1
4000-4500 TL	1	0,5
4500-5000 TL	1	0,5
5000-6000 TL	1	0,5
6000-7500 TL	0	0
7500-10000 TL	0	0
Over 10000 TL	2	1,1
No Answer	143	77,7
Total	184	100,0

The responders of the survey are the households who have bought a dwelling within three years. To sum up, the data show that homeownership ratio starts to decrease after the age 50s. Around 70 percent of recent homeowners are younger than age 50. As a second step the age of responders are calculated for the time period when they bought their first home. It is interesting that an important portion of responders have bought their first home before the age 30. One of the reasons of this early aged homeownership may be the fact that most of the responders of the survey are the female partners. Their partners may be at higher ages when they bought their dwellings. Also it is expected that there is high relationship between early aged homeownership and marriage date of households which is going to be examined in the following sections of the chapter.

This section evaluates the general socio-economic characteristics of whole surveyed population. The next section investigates probability of shifting from tenancy to homeownership with respect to different housing provision methods.

6.2. Probability of Shifting From Tenancy to Homeownership

The results of the literature survey suggest that effects of different socio-economic factors change with respect to different case studies. This part of the study examines socio-economic dynamics in housing tenure choice by using Cox Regression Analysis. In this part of the study, probability of shifting from tenancy to homeownership is examined by considering different housing provision methods. "In housing provision a number of district tasks are performed by different agents. Land dealers, design professionals, planning authorities at central and local governments, builders, finance institutions and professionals dealing with housing transactions are the principal agents in housing provision. The types of agents involved and the role performed by each one may differ depending on the form of provision" (Türel, 1998: 2), and the probability of shifting to homeownership differs with respect to different housing provision methods.

Yenimahalle and Çankaya in Ankara are chosen as samples where housing developments with different forms of provision take place. In order to examine the probability of shifting to homeownership with respect to different housing provision methods, the survey list is constituted as a mixture of different samples of housing acquisition methods like cooperative buildings, HDA houses, and houses produced by private house builders.

Table 6.12 examines how recent homeowners have acquired their current homes in Çankaya and Yenimahalle. There are six different ways that how responders of the survey have acquired their homes. In the first one, households purchase dwelling unit from a seller. The seller could be either previous owner of the dwelling unit or private builder of the unit.

In the second one, households acquired their dwelling units, which were constructed on their own plots that they own by making deals with a speculative builder. "Small-capital house builders who are called "yap-satçı" in Turkey, meaning builder and seller, produce multi-storey apartment housing usually on single plots of land. Land is not generally purchased in cash, due to shortage of capital, but a deal is made until the land owner for the payment of land buy flats to be built by the yap-satçı. By acquiring land in this way, yap-satçı saves in operating capital, but has to accept the terms of the land owner. Production cost of housing by yap-satçı has increased continuously due to rising share that land-owners demand. Yap-satçı also relies on advance payments of the buyers of housing that he produces in order to fill his operating capital deficit. Dwelling units to be produced are put on sale as soon as construction begins, by offering convenient conditions of payment, stretching over the years. The price to be charged at an early stage of construction would not include much speculative profit" (Türel, 1998:3).

"Speculative housing provision is dominated by small capital producers in Turkey. Although this is also the case in many other countries, the way in which they operate under the conditions of insufficient finance is the specific feature of this

form of provision in Turkey. Large capital house builders, on the other hand, have been less engaged in speculative house building, compared to their contractual undertakings until recent years. Contrary to small-capital house builders who built housing mostly on single plots within planned boundaries of cities, large capital house builders develop large tracts of unplanned land as speculative ventures. Large capital house builders determine their annual output levels on the basis of the marketing prospects of the houses that they build for the people who are not dependent on mortgage credit" (Türel, 1998:3).

The third way of housing provision is purchasing from the Housing Development Administration (HDA). Housing Development Administration (HDA) is the only responsible public institution in the housing sector of Turkey. The aim of the HDA is to provide new opportunities for households who would not otherwise have an opportunity to own their homes. Also the HDA aims to create a model framework for good quality low-cost housing, produce housing for regions in Turkey where private sector is not active, offer low and middle income groups the opportunity to finance the homes that they buy from the HDA, and create financial opportunities to finance social housing projects such as innovative income-sharing projects with the private sector[15].

The forth one is purchasing from house-building cooperatives. "Similar to other developing countries, housing problem is one of the crucial problems of Turkey since the Second World War. Rapid urbanization and concomitant process of migration to cities have resulted in many qualitative and quantitative housing problems. There have been periods that public and private housing provision could not meet housing demand. Housing co-operatives in Turkey have been significantly contributing to the growth of housing stock, especially since 1980s" (Özkan, 2009:1,2). Housing co-operatives are nongovernmental organizations can be regarded as one of the actors in housing provision (Özkan, 2009).

[15] http://www.toki.gov.tr/

Table 6.12. Housing Acquisition Methods for the Surveyed Population

		Frequency	Percent
ÇANKAYA	Purchasing Dwelling from a Seller	64	69,6
	Constructing Dwelling on their own Plot by Contracting with a Speculative Builder	16	17,4
	Purchasing from HDA Houses	0	0
	Purchasing from House-Building Cooperative	0	0
	Acquiring as a Heritage or as a Gift	10	10,9
	Acquisition as an Exchange of a Land	0	0
	Other	1	1,1
	No Answer	1	1,1
	Total	92	100,0
YENİMAHALLE	Purchasing Dwelling from a Seller	24	26,1
	Constructing Dwelling on their own Plot by Contracting with a Speculative Builder	15	16,3
	Purchasing from HDA Houses	34	37,0
	Purchasing from House-Building Cooperatives	5	5,4
	Acquiring as a Heritage or a Gift	2	2,2
	Acquisition as an Exchange of a Land	11	12,0
	Other	1	1,1
	No Answer	0	0
	Total	92	100

In the fifth one, households acquire the dwelling as a heritage or as a gift. The last way is housing acquisition as an exchange of a land. In this method, households who have land as a property may prefer to become homeowner by exchanging their land with dwelling units, instead of selling land in cash and buying their dwelling units. In this method, households gave their land usually to a house builder, and instead constructing a house on the plot by making a deal with builder, they take a

dwelling from the developer in some other location. In some cases, household prefers to give the plot to the municipality, and the municipality gives a dwelling in some other location as an exchange for the land.

The ratios of different housing provision methods in Table 6.12 illustrates how many surveys were carried out in different housing provision methods in Çankaya and Yenimahalle. Table 6.12 illustrates that acquisition of housing through the HDA has the largest share with 37 % among different housing provision methods in the sampled dwellings in Yenimahalle. This share is zero for Çankaya. The most common way of housing provision for the surveyed population in Çankaya is purchasing the dwelling from a seller with a ratio of 69,6 percent in total. This ratio is 26,1 for Yenimahalle.

In both Çankaya and Yenimahalle, the system of making agreements with speculative house builders (yap-satçı) is common in the survey. In this system, yap-satçı prefers (and can afford) paying for households' land with dwelling units that they built on the plot. In Çankaya, 17,4 percent and in Yenimahalle 16,3 percent of the total surveyed population has acquired their own dwelling units with the help of this system.

The ratio of purchasing from house-building cooperatives is 5,4 percent in Yenimahalle, however the ratio is zero in Çankaya for the surveyed population.

Among the interviewed households in Çankaya 10,9 percent of them declared that they have acquired their dwelling as a heritage or gift. This ratio is 2,2 percent in Yenimahalle.

Another common way of housing acquisition in Yenimahalle is exchanging with land at a ratio of 12 percent. However this ratio is zero in Çankaya.

Table 6.13. Housing Acquisition Methods of Different Income Groups

	Housing Acquisition Methods																			
		Purchasing Dwelling from a Seller	%	Constructing Dwelling on their own Plot by Contracting with a Speculative Builder	%	Purchasing from HDA Houses	%	Purchasing from House-Building Cooperatives	%	Acquiring as a Heritage or a Gift	%	Acquisition as an Exchange of a Land	%	Other	%	No Answer	%	Total	%
Average Permanent Income (TL/Month)	Less than 1000	6	14,6	17	41,5	6	14,6	1	2,4	3	7,3	8	19,5	0	0,0	0	0,0	41	100
	1000-1500 TL	20	50,0	7	17,5	7	17,5	2	5,0	1	2,5	2	5,0	1	2,5	0	0,0	40	100
	1500-2000 TL	13	54,2	2	8,3	6	25,0	0	0,0	2	8,3	0	0,0	0	0,0	1	4,2	24	100
	2000-2500 TL	15	46,9	0	0,0	10	31,3	1	3,1	4	12,5	1	3,1	1	3,1	0	0,0	32	100
	2500-3000 TL	13	72,2	2	11,1	2	11,1	1	5,6	0	0,0	0	0,0	0	0,0	0	0,0	18	100
	3000-3500 TL	7	87,5	0	0,0	0	0,0	0	0,0	1	12,5	0	0,0	0	0,0	0	0,0	8	100
	3500-4000 TL	6	85,7	0	0,0	1	14,3	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	7	100
	4000-4500 TL	1	100,	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	1	100
	4500-5000 TL	1	50,0	1	50,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	2	100
	5000-6000 TL	2	50,0	0	0,0	2	50,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	4	100
	Over 10000 TL	3	100,	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	3	100
	No Answer	1	25,0	2	50,0	0	0,0	0	0,0	1	25,0	0	0,0	0	0,0	0	0,0	4	100
	Total	88	47,8	31	16,8	34	18,5	5	2,7	12	6,5	11	6,0	2	1,1	1	0,5	184	100

An interesting point is that, as it is discussed in the previous section of the chapter, 22,7 % of total surveyed population earns less than 1 000 TL per month (Table 6.10). In order to understand how these income groups were able to become homeowners, the crosstable of average permanent income and housing acquisition methods is constructed in Table 6.13.

Table 6.13 illustrates that, 41,5 percent of households who have monthly average permanent income less than 1 000 TL became homeowners by contracting with a speculative builder. They indicated that, they have constructed their current dwelling units on their own plots with the help of this housing provision method. Second common way of housing acquisition for this income group is exchanging their land with a dwelling unit. Around 19,5 % of this income level in the studied population used this method in order to become homeowners.

In both of these housing acquisition methods, the level of permanent income has no important effect because the related population used other real estate property in order to become homeowners of their current dwelling unit instead of paying money for it.

In Chapter 5, different economic ways of purchasing a dwelling unit is discussed in five different cases. Results of calculations show that households with less than 1 000 TL monthly income are not able to purchase a dwelling by considering these five different economic ways. However the survey carried out in different locations of Çankaya and Yenimahalle illustrates that 22,7 percent of total surveyed population who have purchased a dwelling unit within 3 years have average income less than 1000 TL per month. As discussed before, Table 6.13 illustrates that 61 percent of these households purchased their dwelling as a result of their ownership of a land which points a new mechanism in home purchase in addition to five different methods discussed in Chapter 5. In order to understand this process, more detailed information is drawn for these households by the help of the survey. However before discussing these detailed information about households, land

acquisition as the result of squatting process and the rise of yap-satçı (build-and-sell) type of sector will be summarized briefly in order to understand this provision mechanism.

After the economic growth and industrialization between 1950 and 1980, immigration from rural areas to urban gain access in Turkey. This spontaneous movement came upon the city with lack of infra-structure. These new movers to the city with insufficient capital to afford housing in the urban, created new solutions as building squatters in one night on state and private lands at the edge of the cities (Egercıoğlu, 2008). Squatting of land that belongs to someone else became one of the main agenda of government since this period. The problem of squatting is related with the fact of inadequate affordable housing for low income groups. Instead of producing affordable housing opportunities for these income groups, policies were developed by the authority with a single dimension by naming squatter settlements as threats for the urban. Year by year, these inadequate policies changed the initial character of the squatter settlements. Results of different legal arrangements on squatter settlements with single dimension in different periods caused the birth of a new rooted mechanism in housing sector in Turkey.

"One of the most important laws of that period is considered to be the Act of Municipality numbered 327, which was put in effect in 1963 and introduced the election of a mayor by the public directly. This was followed by the Act of Flat Ownership which was accepted in 1965 and which supported enlargement of ownership rights related to individual construction units. This Act gave way – with the market mechanism – to the demolishing of available small-sized apartment buildings by housing producers with small capital, and construction of multi-storey apartment buildings" (Turkey National Report and Action Plan, 1996, cited in Egercıoğlu, 2008:99). "In parallel to these developments, the squatter areas were legalized with the Act of Squatters numbered 775 in 1966. It was envisaged that the improvement plan would be put in effect in order to prevent illegal settlements. An

improvement plan converts an illegal area of settlement into a legal one and secures the people living there (Tekeli 2005, cited in Egercıoğlu, 2008:99).

"The legalization of the squatter areas before 1980s and its becoming a means of trade paved the way to the organized production of squatters in this period. This was the period during which the ownership of houses showed a rise both through individual investments and through illegal organizations. This also led to both certificated and not certificated constructions in various places. Constructions without permit started to be seen not only in squatter areas but also in the regions within the city center where apartments were common. In this period, the production of housing by means of build-and-sell system became very common. The conversion of squatters into four or five storey apartments also led to a spread in the structure of shared title deed (hisseli tapu) and ownership" (Egercıoğlu, 2008:100).

In this process, the state has played the leading role in the legalization of squatter settlements by enacting Redevelopment Law (No. 2981) which introduces the notion of improvement plan. After the changes in this law in 1986, even vacant lands could have been defined as potential squatter development areas (Mühürdaroğlu, 2005). "This law regulated the procedures to provide a legal document (tapu tahsis belgesi) for each type of gecekondu. This document was not a formal title deed, but the gecekondu owners, who were provided with these documents, became a right-holder of the area that would be redeveloped by improvement plans" (Türker-Devecigil, 2005:215).

The improvement plan provides a model which transform squatters with market incentives by establishing new ownership pattern modern apartment blocks similar to the ones in authorized areas. It is a typical build-and-sell model of housing provision which is the most common model used in authorized housing provision since the 1960s (Türker-Devecigil, 2005). "It is based on the increased development rights in parcel level to build apartment blocks in individual parcels. It has the

speculative house builder and landowner as the two main actors at its core. The responsibilities of the speculative house builder are to obtain land, supply required financial sources, get all of the necessary permits, acquire the building project and provide construction. These are usually small entrepreneurs, who have a limited amount of capital. In general, they do not own the land that they develop. They obtain the land within the urban area by contracting the landowner. If the land is located in a prestigious neighborhood, they share the dwelling units of the apartment with the landowner at a rate of up to 60 per cent. This percentage varies according to the location of the land (Tekeli 1982, cited in Türker-Devecigil, 2005: 216)".

In this mechanism, the transformation of squatter areas depends on the location of the squatter areas. Some squatter areas have locational advantages and are more attractive for small or large capital house constructors due to high land values and high rent. The main problem of this model is that, improvement plan generates increases in construction density, and it is lack of capacity to transform the squatter areas which do not have locational advantages (Türker-Devecigil, 2005:216).

As the results of these mechanisms, after 1980s, the characteristics of squatter settlements have changed. The squatter settlements have become the tool of profit making (Kahraman, 2008:56). This initial purpose of sheltering of squatter settlements started to change after new regulations of the central and the local governments as the purpose of gaining vote in the elections. The first comers start to construct new squatters in order to gain rental income from new comers to the city which creates a new informal mechanism in cities. "The number of second-generation rural migrants has increased who have displayed different characteristics while socializing in the city. On the other hand, most of the squatter housing areas have transformed since the 1980s. The transformation of squatter housing settlements started with amnesty laws. The first laws legalized the existing squatter housing stock; the others provided new ownership patterns and transformed squatter houses into high-rise apartment buildings. The improvement plans, and then, urban

transformation projects realized the transformation of squatter housing areas" (Kahraman, 2008:56,57).

After this brief history of squatter settlements and rise of build-and-sell model in Turkey, the socio-economic characteristics of households who have acquired their dwelling units by contracting with these small capital house builders and having less than 1000 TL permanent income per month are discussed in more detail.

First of all, Table, 6.14 drives information about locations where households constructed their dwelling units for two different housing provision methods: constructing dwelling on their own plot by contracting with a speculative builder (Group 1) and acquisition as an exchange of a land (Group 2). As discussed before, these households have less than 1 000 TL permanent income per month.

Table 6.14. Location of two Housing Acquisition Methods

	Group 1: Constructing Dwelling on their own Plot by Contracting with a Speculative Builder		Group 2: Acquisition as an Exchange of a Land	
	Frequency	Percent	Frequency	Percent
Burç	2	11,8	-	-
Çiğdemtepe	1	5,9	-	-
Kardelen	1	5,9	-	-
Keklikpınarı	1	5,9	-	-
Kırkkonaklar	7	41,2	-	-
Yeşilevler	5	29,4	-	-
Karşıyaka	-	-	7	100,0
Total	17	100,0	7	100,0

Table 6.13 illustrates that there are 17 households in Group 1. Table 6.14 shows that households who constructed the dwelling on their own plot by making deal with a speculative builder with less than 1 000 TL income per month are the owners of lands in Burç, Çiğdemtepe, Kardelen, Keklikpınarı, Kırkkonaklar, and Yeşilevler. Again Table 6.13 illustrates that there are 8 households who have acquired their current dwelling as an exchange of a land. Households in this group are the owners of plots in Karşıyaka except one of them (Table 6.14). The location of the plot for these households was not indicated in the survey.

An interesting point is that, all these seven locations in Table 6.14 are invaded by squatter settlements in this high migration period discussed above. This strengthens the assertion that, these households are the owners of squatter settlements on these plots.

Table 6.15 illustrates education levels of these two groups. In both groups, there is no household who are graduated from a degree higher than a high school. In the first group 64,7 percent of head of household were graduated from a primary school, and 88,2 percent of the partners were graduated from a primary school. In the second group, ratios are 57,1 and 80,0 respectively.

Table 6.15. Education Level of Households in Group 1 and 2

	Group 1		Group 2	
	Head of Household	Partner	Head of Household	Partner
Primary	11	15	4	4
High School	6	2	3	1
University	-	-	-	-
Post Graduate	-	-	-	-
Missing Data	-	-	-	2
Total	17	17	7	7

In the survey, all households indicate that they have acquired a dwelling which is an apartment unit. Whether households took more than one dwelling unit after the construction and exchange processes for these two housing supply methods is an important indicator for the analysis. No household in the second group has more than one dwelling unit in their property. The results of the survey show that two households in the first group have ownership of two dwelling units. However none of these second dwelling units is located in the same apartment buildings with the current dwelling unit. These households were also homeowners in their previous residences, and they acquired their current dwelling unit without selling their previous dwelling units.

So none of the households has acquired more than one dwelling unit at the end of construction and exchange processes of Yap-Sat. The reason may be that there was more than one owners of the plot, and the constructor transferred the dwelling units to each partner as the result of the structure of shared title deed and ownership.

Another interesting point is that, Table 6.13 illustrates that only 14,6 % of this income group became homeowners by purchasing from HDA, which aims to produce low-cost housing for moderate-to-lower income groups. When households with a permanent income of less than 4 000 TL are taken into consideration, the ratio of purchased dwellings from a seller among other housing provision methods increases as the income increases. However the ratio of constructing dwelling on their own plot by making deals with house builders decreases as income increases. As the income level increases the ratio of purchasing from HDA houses increases for the first four income groups. Among these income groups, purchasing from HDA has the highest ratio for households at the 2 000-2 500 TL permanent income category, with 31,3 percent. The results of the survey demonstrates that, almost 85 % [(6+7+6+10+12)*100/34] of studied population who bought houses from HDA have average permanent income less than 2 500 TL per month.

The literature review in this thesis shows the importance of income effect on household's tenure choice. Also, calculations in Chapter 5 have parallel arguments with discussions in the literature review, and shows that purchasing a home is not possible for household with less than 1 000 TL monthly incomes. However this chapter highlights an irregular mechanism which increases the possibility of home purchase for these households. Almost 22,3 percent of total surveyed population who have recently bought a dwelling unit, earn less than 1 000 TL per month. At first sight, this can be thought as the success of governments about the policies on affordable house supply for low-moderate income groups. However, unfortunately this case is not related with effective house supply policies by governments, in fact it is related with the process of legalization on invasion of both public and private lands by newcomers to cities. Furthermore, this legalization did not solve the sheltering problems of low income groups, but only changed dimension of the problem. That is, initially squatters were constructed only for sheltering purposes. However, after legalization, some interest groups have realized new ways about how to earn additional income from the phenomenon of gecekondu. That is, the sheltering purpose has shifted to the purpose of speculative gains for some groups. While this fact attracts more people from urban to rural, these new comers have not been as lucky as the previous comers because the interest groups have already started to manage the speculative gains and become the main actors of this phenomenon in house market. As the result of this process, on one hand there are interest groups earning more and more speculative gains, on the other hand there are low income groups becoming poorer. Also, this changing dimension of squatter settlements gave birth to irregular urbanization in big cities. This process is an example of emergence of irregular mechanisms and threats for urban areas as the result of deficiency of effective policies on affordable house supply of governments in Turkey.

These discussions show that, formal housing provision for low income groups ineffective in Turkey. Housing policies about developing low cost and affordable housing inadequate to cover housing need for low income groups due to high rates

of migration from rural to urban after industrialization period. The results of calculations in Chapter 5 illustrate that, long term housing credits and Mortgage Law was not prepared to meet housing needs of low income households due to high interest rates in Turkey. Also, housing projects of HDA are acting more affectively for middle income groups than for low income groups. So, households who want to live in urban, create their own housing mechanism as an alternative of formal housing provision methods. This mechanism by gaining access after 1960 has changed dimension as the results of different policies of governments in different periods, and today it still have validity among different housing provision methods. However this system has shifted to a completely different dimension as becoming a rent mechanism especially as the result of improvement plans and build-and-sell system. In this mechanism, gainers of the larger part of the profit are not the owners of the plots, but the actors who have roles in the process of construction. Unless the sustainable solution of housing provision for low income groups was not solved fundamentally, this mechanism would continue to increase density of housing areas and create irregular urbanization. One of the solutions of the problem can be a more widespread provision of social housing which can be seen as a remedy for housing inequality. Also, existing housing stock in Turkey should be upgraded by considering in balance between supply and demand sides.

As discussed before, households' tenure choice is also related with households' decision on location and dwelling unit. For this reason, probability of shifting from tenancy to homeownership is also affected from these factors. Next section aims to drive a framework for evaluating housing mobility for the surveyed population before analyzing the probability with the help of Cox Regression Analysis.

6.2.1. Evaluation of Residential Mobility for Recent Home Buyers

In Chapter 5, the economic affordability for homeownership is examined by taking into account of different income quintiles. In Chapter 6, the shift from tenancy to homeownership is examined by considering different socio-economic factors. The

aim of the chapter is to investigate time of shifting in life-cycles of households, and to examine factors influencing location and dwelling decisions of households.

Table 6.16. Crosstab between Permanent Income of Households and Districts

	ÇANKAYA	%	YENİMAHALLE	%	TOTAL
Up to 1000 TL	13	16,4	25	28,7	38
1000-1500 TL	19	24,1	19	21,8	38
1500-2000 TL	10	12,7	11	12,6	21
2000-2500 TL	10	12,7	17	19,5	27
2500-3000 TL	10	12,7	8	9,2	18
3000-3500 TL	5	6,3	2	2,3	7
Over 3500 TL	12	15,2	5	5,7	17
TOTAL	79	100	87	100	166

Table 6.16 provides information about location choice of different income groups for two districts (Yenimahalle and Çankaya) where the survey was carried out. Table illustrates that, households with lower permanent income prefer to resident in Yenimahalle. As income increases they are more likely to settle in Çankaya. When Table 5.16 and 5.23 are examined it is clear that average prices of 3+1 room dwelling units are higher in Çankaya than in Yenimahalle in general. Higher income allows households to purchase a dwelling in Çankaya with high house prices.

In the Classical Economies Theory, rational household chooses a residential location by weighting different attributes of each available alternative location in order to satisfy maximum utility. These attributes are accessibility of workplace and schools, quality of neighborhood life, availability of public services, travel costs, dwelling characteristics such as age, number of rooms, floor size, etc. In this

process, housing prices and the supply of new dwelling units will be configurated by the consumer tastes with the existing housing stock (McFadden, 1977). Theoretical models of urban location often posit a population of consumers with identical tastes, and a housing market in which prices adjust frictionlessly to an equilibrium in which the consumer is indifferent among all housing alternatives. Then, housing price is the carrier of all information on consumer tastes for public services, accessibility, and dwelling characteristics (McFadden, 1977:1-2).

Because of these different aspects of residential location choice, there are different approaches developed for modeling residential mobility. "Location allocation theories have been in existence since the last century. However, most efforts have come to light only in 1950s. Based upon the relative stress each approach has placed on certain group of variables to explain decisions taken by households for residential location, approaches could be broadly divided into three distinct categories- Geographic Models, Social Models and Economic Models. Geographic models have stressed mainly on the parameters of accessibility i.e. distance to work place, shopping destinations, social facilities and amenities along with cost implications based on their mode affordability and choice. Social models have relied mainly on life cycle factors i.e. age and structure of households, neighborhood characteristics, quality of life, environmental pollution, community relations, ethnic and cultural ties and social recognition as the main explanatory variables. Economic models have extensively relied on economic parameters i.e. housing prices and quality, subsidies and taxes, availability of housing finance, etc. Some hybrid models have also evolved which tried to explain residential choice by using a combination of social, economic and geographic variables" (Digambar, 2010:2).

"The residential location choice literature provides some evidence on a connection between travel preferences and residential location choice. The bid rent model from urban economics says that residential location choice is a trade-off between commute distance and land price: a location near the center of the city means a

short commute but high land prices and thus small living spaces; a location near the edge of the city means low land prices large living spaces but a long commute" (Handy, et al., 2004:7). Households make tradeoff between these variables. Some households may prefer to live in a dwelling near the center of the city in order to decrease transport cost. Other households prefer to live in a dwelling which is located near the edge of the city in order to have larger living spaces. "Residential location choice has also been analyzed with the use of hedonic pricing models. These empirical models explain housing prices through the characteristics of the house and the characteristics of its location" (Handy, et al., 2004:7).

The decision of homeownership is related with these two types of integrated decision making: the choice of location and the choice of dwelling unit properties. "Thus residential mobility research has focused on the decision to move or stay and not on the outcome of residential selection that necessarily follows the decision to move. That is, the mobility decision is assumed to be made without reference to the alternative units to which a household may relocate, except insofar as they are represented by the price of housing services (in the expenditure disequilibrium model) or the hedonic price function (in the multiattribute disequilibrium model). The relocation models therefore are not transferable from one housing market to another unless the hedonic price function is estimate separately for each market of interest. This limitation can be partially overcome by formulating a joint model of the mobility decision and housing choice" (Onaka & Clark, 1983: 290).

In this chapter, a joint model of the mobility decision and housing choice is used for Çankaya and Yenimahalle. As it is discussed before, the neighborhoods are selected to provide a variation for neighborhood types and housing provision methods. This chapter examines the mobility pattern between different locations in Ankara by considering housing tenure choice. It is aimed to identify the direction of the residential mobility while households are purchasing their new homes. People move between different locations by considering different socio-economic factors which maximize their utility. The movement is linked with the decision to buy a dwelling

unit by carrying out a survey with recent home buyers. This part of the study aims to evaluate the hypothesis "Households choose to buy housing in submarkets where households of similar socio-economic characteristics live, although there may be housing alternatives with similar attribute endowments and prices in some other submarkets. Therefore, there is high mobility between only certain housing sub-markets".

Table 6.17 shows the pattern of movement by considering the municipality boundary. As discussed before there are 92 surveys in Çankaya, and 92 surveys in Yenimahalle.

There are 169 households in the survey who have purchased their dwelling units as a result of five different housing acquisition methods: Purchasing Dwelling from a Seller, Constructing Dwelling on their own Plot by Contracting with a Speculative Builder, Purchasing from the HDA, Purchasing from a House-Building Cooperative, and Acquisition as an Exchange of a Land. Acquisition as a heritage or a gift is excluded from the analysis in this part of the study.

Table 6.17. Direction of the Move by Considering Boundaries of Municipalities of Çankaya and Yenimahalle

	Frequency	Percent
Staying in the Boundary of the Municipality	122	72,2
Not Staying in the Boundary of Municipality	25	14,8
First Residence in Ankara	22	13,0
Total	169	100,0

Table 6.17 shows that 122 (72,2 percent) households prefer to stay in the boundary of the Municipality of their previous residence. 25 (14,8 percent) households indicate that they have not stayed in the boundary; 22 (13,0 percent) households admit that their current dwelling units are their first residences in Ankara.

Table 6.18. Direction of the Move by Different Neighborhoods of Çankaya and Yenimahalle

	Frequency	Percent
Staying in the Boundary of Neighborhood	34	20.1
Not Staying in the Boundary of Neighborhood	113	66,9
First Residence in Ankara	22	13,0
Total	169	100.0

Table 6.18 provides more detailed information about mobility by considering the boundaries of different neighborhoods of Çankaya and Yenimahalle. In this case, only 34 (20,1 percent) households have stayed in the boundary of their previous residence. 113 (66,9) responders have chosen to move to another location while purchasing their current dwelling units.

The survey was carried out with recent home buyers in Yenimahalle and Çankaya. The list of locations for the related 169 cases is shown in Table 6.19. The list of current locations in the table is also the list of destination locations in the study where households have purchased their dwelling. 46,2 percent of total surveyed population in Çankaya has purchased their dwelling units in Kırkkonaklar. 33,7 percent of surveyed population in Yenimahalle has purchased their dwelling units in Yeşilevler. However these ratios do not illustrate the attractiveness of different

locations in Çankaya and Yenimahalle because these ratios emerged as the result of the number of surveys carried out in different neighborhoods in Ankara.

Table 6.19. List of Current Residences of Households in the Survey

		Frequency	Percent
ÇANKAYA	Akpınar	13	16,2
	Ata	1	1,2
	Dikmen	1	1,2
	Huzur	1	1,2
	Karapınar	12	15,0
	Keklikpınarı	8	10,0
	Kırkkonaklar	37	46,2
	Orta Öveçler	1	1,2
	Osman Temiz	1	1,2
	Öveçler	1	1,2
	Ş. Cengiz Karaca	1	1,2
	Sokullu	3	3,8
	Total	80	100,0
YENİMAHALLE	Aşağıyurtçular	5	5,6
	Burç	3	3,4
	Çigdemtepe	1	1,1
	Gayret	3	3,4
	Güventepe	1	1,1
	Kardelen	20	22,5
	Karşıyaka	12	13,5
	Ostim	1	1,1
	Turgut Özal	12	13,5
	Yenimahalle	1	1,1
	Yeşilevler	30	33,7
	Total	89	100,0

Table 6.20. Direction of Movement of Households

From	To	Frequency
Akdere	Kırkkonaklar	1
	Total	1
Akpınar	Gayret	1
	Total	1
Aşağı Dikmen	Akpınar	2
	Karapınar	4
	Keklikpınarı	1
	Total	7
Ayrancı	Kırkkonaklar	3
	Total	3
Balgat	Akpınar	1
	Total	1
Barıştepe	Karşıyaka	1
	Total	1
Batıkent	Kardelen	7
	Karşıyaka	1
	Turgut Özal	5
	Total	13
Birlik	Kırkkonaklar	7
	Total	7
Cebeci	Kırkkonaklar	1
	Total	1
Çankaya	Keklikpınarı	1
	Total	1
Çiğdem	Aşağı Yurtçular	1
	Total	1
Demet	Gayret	1
	Karşıyaka	2
	Kırkkonaklar	1
	Turgut Özal	4
	Ş. Cengiz	1
	Yeşilevler	6
	Kardelen	1
	Total	16
Demetlale	Keklikpınarı	1
	Total	1
Ehlibeyt	Huzur	1
	Total	1
Elmadağ	Kırkkonaklar	1
	Total	1
Ergazi	Kardelen	1
	Total	1
Ertuğrul Gazi	Öveçler	1
	Total	1
Esentepe	Karşıyaka	1
	Total	1

Table 6.20 (Continued)

From	To	Frequency
Etimesgut	Turgut Özal	1
	Total	1
Etlik	Kardelen	1
	Yeşilevler	1
	Total	2
Güzelyaka	Karşıyaka	1
	Yeşilevler	1
	Total	2
Gölbaşı	Akpınar	1
	Total	1
İlkadım	Sokullu	1
	Total	1
İlker	Akpınar	1
	Total	1
İlkyerleşim	Kardelen	1
	Turgut Özal	1
	Total	2
İncirli	Kırkkonaklar	1
	Total	1
Karşıyaka	Yeşilevler	3
	Total	3
Keklikpınarı	Yenimahalle	1
	Total	1
Kentkoop	Yeşilevler	1
	Total	1
Kızılay	Kırkkonaklar	1
	Total	1
Küçükesat	Akpınar	1
	Kırkkonaklar	1
	Total	2
Maltepe	Karapınar	1
	Total	1
Mamak	Akpınar	1
	Kırkkonaklar	1
	Total	2
Oran	Kırkkonaklar	1
	Total	1
Pınarbaşı	Güventepe	1
	Total	1
Seyranbağları	Kardelen	1
	Kırkkonaklar	1
	Total	2
Sincan	Keklikpınarı	2
	Total	2
Solakuşağı	Kırkkonaklar	1
	Total	1

Table 6.20 (Continued)

From	To	Frequency
Sokullu	Akpınar	1
	Ata	1
	Karapınar	1
	Total	3
Şenlik	Kardelen1	2
	Total	2
Tepealtı	Kardelen	1
	Total	1
Tepebaşı	Karşıyaka	1
	Total	1
Topraklık	Yeşilevler	1
	Total	1
Yakupabdal	Kırkkonaklar	1
	Total	1
Yaşamkent	Aşağı Yurtçular	1
	Total	1
Yenibatı	Kardelen	1
	Total	1
Yenimahalle	Burç1	2
	Gayret	1
	Karapınar	1
	Yeşilevler	4
	Total	8
Yukarı Dikmen	Akpınar1	2
	Karapınar	1
	Keklikpınarı	1
	Osman Temiz	1
	Total	5
Yüzüncüyıl	Kırkkonaklar	1
	Total	1
Total		113

Table 6.20 provides information about direction of movement for the responders in the survey. Table shows information for the recent movers only, so the list contains 113 households in total. It provides information about previous residences of households, in order to identify the direction of movement to current residences in Table 6.19.

In this case, Demet has the highest ratio for out migration with 16 cases in total. Batıkent has the second highest ratio for out migration with 13 cases in the survey. Also, Birlik and Yenimahalle Merkez have relatively high out migration in Table 6.20.

Again Table 6.21 provides information about direction of movement, however in the table the list is arranged by the destination locations in this case. In the survey sample, Kırkkonaklar is the location with the highest in migration. However this is related with the fact that, Kırkkonaklar is the place where the highest number of interviews has been carried out.

Table 6.21. Direction of Movement

From	Frequency	To
Aşağı Dikmen**	2	Akpınar
Balgat**	1	
Gölbaşı	1	
İlker*	1	
Küçükesat	1	
Mamak	1	
Sokullu**	1	
Yukarı Dikmen**	2	
Total	10	
Çiğdem	1	Aşağı Yurtçular
Yaşamkent	1	
Total	2	
Sokullu*	1	Ata
Total	1	
Yenimahalle**	2	Burç
Total	2	
Akpınar	1	Gayret
Demet*	1	
Yenimahalle*	1	
Total	3	
Pınarbaşı	1	Güventepe
Total	1	
Ehlibeyt*	1	Huzur
Total	1	

Table 6.21 (Continued)

Aşağı Dikmen**	4	
Maltepe	1	
Sokullu*	1	Karapınar
Yenimahalle	1	
Yukarı Dikmen*	1	
Total	8	
Batıkent*	7	
Demet	1	
Ergazi**	1	
Etlik	1	
İlkyerleşim*	1	Kardelen
Seyranbağları	1	
Şenlik	2	
Tepealtı	1	
Yenibatı	1	
Total	16	
Barıştepe*	1	
Batıkent**	1	
Demet*	2	Karşıyaka
Esentepe*	1	
Güzelyaka*	1	
Tepebaşı	1	
Total	7	
Aşağı Dikmen**	1	
Çankaya	1	
Demetlale	1	Keklikpınarı
Sincan	2	
Yukarı Dikmen*	1	
Total	6	
Akdere**	1	
Ayrancı**	3	
Birlik*	7	
Cebeci**	1	
Demet	1	
Elmadağ	1	
İncirli	1	
Kızılay**	1	Kırkkonaklar
Küçük Esat**	1	
Mamak	1	
Oran	1	
Seyranbağları**	1	
Solakuşağı	1	
Yakupabdal	1	
100. Yıl*	1	
Total	23	
Yukarı Dikmen*	1	Osman Temiz
Total	1	

Table 6.21 (Continued)

Ertuğrul Gazi	1	Öveçler
Total	1	
İlkadım*	1	Sokullu
Total	1	
Demet	1	Ş. Cengiz Karaca
Total	1	
Batıkent*	5	Turgut Özal
Demet	4	
Etimesgut	1	
İlkyerleşim*	1	
Total	11	
Keklikpınarı	1	Yenimahalle
Total	1	
Demet*	6	Yeşilevler
Etlik**	1	
Güzelyaka*	1	
Karşıyaka*	3	
Kentkoop	1	
Topraklık	1	
Yenimahalle*	4	
Total	17	
	113	Total

* Location within 2,5 km. boundary

** Location within 5 km. boundary

Table 6.20 and 6.21 provide information about direction of movement for recent homeowners. As a second step, in order to understand how far households prefer to move, map of each destination locations based on Table 6.21 are prepared. In each map, two circles are drawn with 2,5 and 5 kilometers radius respectively from the central location, in order to analyze the movement patterns in related locations of Ankara.

In this section of the study, 19 figures are drawn by choosing a central location for each one. Locations are destination districts of households taken from Table 6.21 in the survey. A 2,5 km. and a 5 km. boundaries are set up around each location to represent the distance which household prefer to move in order to purchase a

dwelling. Each map is shown in Appendix A at the end of the thesis by discussing each move in detail.

In order to evaluate the hypotheses, locations with high inter mobility are investigated. From the Tables 6.20 and 6.21, it is found out that the residential mobility is intensive between the locations below:

Aşağı Dikmen - Karapınar
Batıkent – Kardelen
Birlik – Kırkkonaklar
Batıkent – Turgut Özal
Demet – Turgut Özal
Demet – Yeşilevler

When we look at socio-economic characteristics of Aşağı Dikmen and Karapınar, for both locations, average age is around 40 years old. Average household size is 3,6 for Aşağı Dikmen, and it is 4,1 for Karapınar. In Aşağı Dikmen, the ratio of household head who have been retired is 12,5%, and in Karapınar there is household head who have been retired. The ratio of households who are graduated from a university or a higher degree is 50 % in Aşağı Dikmen for both household heads and partners. The ratio is 58 % in Karapınar. In Aşağı Dikmen the ratio of households who earn more than 3 500 TL average permanent income per month is 37,5, and this ratio is 41,7 in Karapınar. For both locations the majority of population earn more than 3 500 TL. In our survey, there is high mobility between Aşağı Dikmen and Karapınar as discussed above. These statistics show that these households have similar socio-economic characteristics.

Another high mobility is between Birlik and Kırkkonaklar. Average ages are slightly more for this group. It is 45 for Birlik, and 43 for Kırkkonaklar. However, average household sizes are slightly lower for the group. It is 3,6 for Kırkkonaklar, and 2,9 for Birlik. There is no retired household in Birlik, however the ratio of

retired households is 15 % in Kırkkonaklar for the surveyed population. The ratio of households who are graduated from a university or a higher degree is around 30 % and around 14 % in Birlik for household head. In Birlik, 28,6 of households earn less than 1 000 TL average permanent income per month. This ratio is also 27 % in Kırkkonaklar. Around 21,6 percent of households earn more than 2 500 TL per month in Kırkkonaklar. This ratio is 28,6 % in Birlik.

There is high mobility from Batıkent to both Kardelen and Turgut Özal. Average age of households is 47 in Batıkent, 44 in Turgut Özal, and 41 in Kardelen. Average household size is 3,3 in Batıkent, 3,8 in Turgut Özal, and 3,15 in Kardelen. For three locations, the ratio of households who are retired is around 50 %. These statistics illustrate that these three locations are mostly preferred by retired households. when we look at the education level of household head, there is no household graduated from a lower degree than a high school in Batıkent, this ratio is only 8,3 % in Turgut Özal, and is 15 % in Kardelen. For both Batıkent and Kardelen, the most common income level is between 1 000–1 000 TL per month, and it is between 2 000-2 500 TL per month in Turgut Özal.

Also, there is high mobility from Demet to Turgut Özal and Yeşilevler. The average is 41 in Demet, and 46 in Yeşilevler. Average household size is 3,6 in Demet, and 3,4 in Yeşilevler. For household head, around 31 % of households have been retired, and this ratio is 47 % in Yeşilevler. Like in Batıkent, Kardelen, and Turgut Özal, also these locations attract population who are retired. For household head who are graduated from a higher degree of university is 30 % in Yeşilevler, and it is 37 % in Demetevler. This ratio is around 35 % in Kardelen. For Demetevler, the most common level of income is between 1 000-1 500 TL like in Batıkent and Kardelen, and it is less than 1 000 TL in Yeşilevler.

These statistics show that when households choose to buy a dwelling unit they prefer to live with other households who have socio-economic backgrounds and life styles.

Table 6.22. Reasons for Location and Dwelling Choices

	Frequency	%
Physical Characteristics of the Dwelling	115	68,0
Size	90	53,3
Age	54	32,0
Being a Detached House	10	5,9
Being a Housing Estate	28	16,6
Heat System	52	30,8
Opportunity of Having a Garden	16	9,5
Opportunity of Having a Parking Space	11	6,5
Security	51	30,2
Location of the Dwelling	119	70,4
Physical Characteristics Like Transportation and Infrastructure of Location	123	72,8
Socio-Economic and Cultural Backgrounds of the Dwellers in the Location	75	44,4
Proximity to Work Place	17	10,1
Proximity to the CBD	56	33,1
Proximity to Schools of Children	18	10,7
Proximity to Relatives and Children	22	13,0
Affordable Housing Prices of the Location	124	73,4
Total	169	100

This part of the study focuses on the identification parameters which are significant in both residential location and dwelling choices of households. One of the goals of the study is to gain an understanding about parameters which are significant in residential location choices of households who purchased a dwelling within 3 years period. The reasons for purchasing a dwelling in a neighborhood are slightly different for different movers. Table 6.22 illustrates primary reasons of households on neighborhood selection from the survey results.

Another hypothesis related with the subject is that “The demand for a dwelling in different housing submarkets in Ankara is related with socio-economic backgrounds of households as well as characteristics of dwelling units in each submarket”. Table 6.22 provides detailed information in order to evaluate this hypothesis.

The clear message that comes out of this survey is that financial consideration dominates process of purchasing a house. When households are asked for the primary reason for their decision about their current dwelling unit, around 73,5 percent of recent home buyers reported that housing prices in the location affected their decision while purchasing a dwelling in that location. 70,4 percent indicated that location was an important factor while making their decision. Physical characteristics of dwelling were important indicator for 68 percent of the surveyed population. Among physical characteristics, floor size of the dwelling unit was the most significant factor influencing household's decision while purchasing a dwelling unit. Age, heat system and security of the dwelling unit, and being in a housing estate were also determinant factor on household's decision.

Around 70 percent of recent home buyers in the study reported that physical characteristics of location like transportation and infrastructure were important reasons while selecting a neighborhood. Around 44,4 percent of respondents reported socio-economic characteristics and cultural backgrounds of dwellers at that location as important reasons for choosing a neighborhood, and also proximity to the CBD was also an important factor on household's decision for 33,1 percent of total surveyed population.

While reporting that affordable house prices, physical characteristics of the location, socio-economic characteristics of the neighborhood, and access to CBD were primary reasons to select a residential location, few households admitted that convenience of reaching to relatives and friends, convenience of access to the workplace and schools of their children were the main criterion for selecting a neighborhood. That is, unlike the expectations, proximity to schools of children and proximity to workplace of households are not one of the primary reasons of the neighborhood selection for households.

One of the aims of the study is to establish a model of mobility within the homeownership framework. It is possible to determine boundary mobility for each

household by classifying each household by the direction of the move. In the survey each household was asked for the reasons of selecting the particular neighborhood and reasons for purchasing the current dwelling. The survey also included questions about households' future plans on residential location.

Another question in the survey was about households' preferences on residential location if they had sufficient money to buy any dwelling in any location of Ankara. The location preferences were grouped as follow:

Angora Evleri-Yıldız-Bilkent-Mebusevleri
Çukurambar-Karakusunlar
Gaziosmanpaşa-Oran
Subay Evleri
Mesakoru-Konutkent-Çayyolu-Ümitköy-Yaşamkent
Batıkent-Eryaman

Around 5 percent of recent movers admitted that they would prefer to live in their current residences even if they had sufficient money to buy any dwelling. While reporting their new preferences about location, a clear massage comes out of the survey that the majority of respondents do not want to move far away from their current residences. Instead they prefer locations close to their current neighborhoods having more central location with greater prestige.

6.2.2. Probability of Shifting From Tenancy to Homeownership by Considering Five Different Housing Provision Methods with Cox Regression Analysis

In this part of the study the probability of shifting to homeownership is studied by using Cox Regression Analysis. The survey is carried out in Çankaya and Yenimahalle in Ankara by particularly giving attention to obtain examples of different housing acquisition methods as discussed in previous parts of the chapter.

In this part of the study, the Cox analysis is carried out for five housing acquisition types (Table 6.23): Purchasing Dwelling from a Seller, Constructing Dwelling on their own Plot by Contracting with a Speculative Builder, Purchasing from the HDA, Purchasing from House-Building Cooperatives, and Acquisition as an Exchange of a Land.

Table 6.23. Housing Acquisition Methods

	Frequency	Percent
Purchasing Dwelling from a Seller	88	52,1
Constructing Dwelling on their own Plot by Contracting with a Speculative Builder	31	18,3
Purchasing from the HDA	34	20,1
Purchasing from House-Building Cooperatives	5	3,0
Acquisition as an Exchange of a Land	11	6,5
Total	169	100,0

Acquisition as a heritage or a gift is excluded from the analysis in this part of the study. As a result, there are 169 cases available for the Cox Regression Analysis as discussed before.

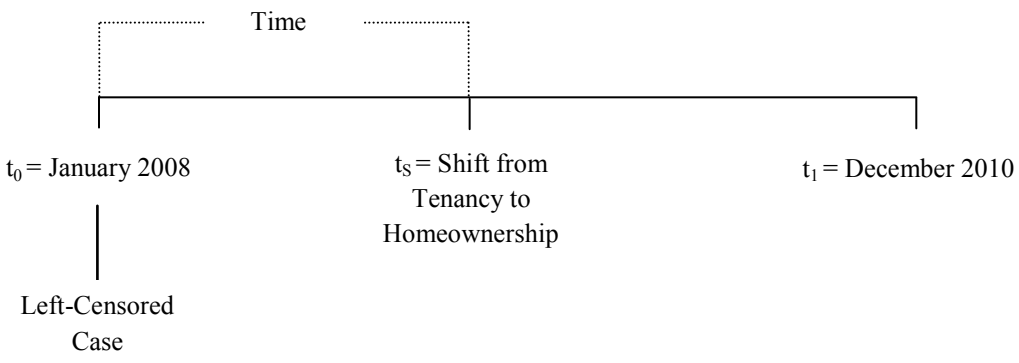
Cox Proportional Hazard Model is used to estimate hazard ratios with 95% confidence intervals. “A proportional hazard model is specified to facilitate more detailed analysis. The proportional hazard model, originally introduced by Cox (1972), provides a particularly useful approach to analyze the duration of residential ownership. Cox's regression is a semi parametric approach to survival analysis. The proportional hazard model is the most general of the regression models because no assumptions concerning the nature or shape of the underlying survival distribution

are required. The model assumes that the underlying hazard rate (rather than survival time) is a function of the independent variables (covariates). The method does not require that a probability distribution be formally specified; however, in contrast to nonparametric methods, Cox's regression does use regression parameters in the same way as generalized linear models" (Archer, et.al, 2010: 44-45).

Survival analysis is used on a quantitative type of data corresponding to the time from a well-defined time origin until the occurrence of some particular event of interest or end point (Chan, 2004). "Generally, survival analysis is a collection of statistical procedures for data analysis for which the outcome variable of interest is time until an event occurs" (Kleinbaum & Klein, 2005:4). Time may be indicated by years, months, weeks, or days from the beginning of follow-up of an individual until an event occurs; alternatively, time can refer to the age of an individual when an event occurs. Event is any designated experience of interest that may happen to an individual (Kleinbaum & Klein, 2005).

In this study, the time origin is January 2008, and the end point is December 2010 because the responders of the surveys are households who bought their dwelling between this period. The event of interest is the point where households shift from tenancy to homeownership.

"Most survival analyses must consider a key analytical problem called censoring. In essence, censoring occurs when we have some information about individual survival time, but we don't know the survival time exactly" (Kleinbaum & Klein, 2005:5).



Censored observations arise in two cases: a person does not experience the event before the study ends (right censored), and the event of interest has occurred before the origin time period (left censored). “Left-censored data can occur when a person’s true survival time is less than or equal to that person’s observed survival time” (Kleinbaum & Klein, 2005:8).

In this study, there is no right-censored case because every household shifts to homeownership until the end of surveyed period. However there are left-censored cases because some households have shifted to homeownership before the year 2008. In 169 cases, there are 106 cases which have shifted to homeownership between periods 2008-2010, and there are 63 cases entered the sample as homeowners, so their homeownership status is left censored.

Cox Regression Model is usually used in medical studies in order to analyze disease incidence, recovery from an illness, etc. For this reason, usually time variable is called as survival time, and the event is called hazard.

Beside the survival time, the second important variable is the Status. The variable tells the analysis which case is censored (denoted by 0) and which case is an event (denoted by 1) (Chan, 2004).

“The Cox model formula says that the hazard at time t is the product of two quantities. The first of these, $h_0(t)$, is called the baseline hazard function. The second quantity is the exponential expression e to the linear sum of $\beta_i X_i$, where the sum is over the p explanatory X variables. An important feature of this formula, which concerns the proportional hazards (PH) assumption, is that the baseline hazard is a function of t, but does not involve the X’s. In contrast, the exponential expression shown here, involves the X’s, but does not involve t. The X’s here are called time-independent X’s” (Kleinbaum & Klein, 2005: 94). “It is possible, nevertheless, to consider X’s which do involve t. Such X’s are called time-dependent variables. If time-dependent variables are considered, the Cox model

form may still be used, but such a model no longer satisfies the PH assumption, and is called the extended Cox model. A time-independent variable is defined to be any variable whose value for a given individual does not change over time. The Cox model formula has the property that if all the X's are equal to zero, the formula reduces to the baseline hazard function. That is, the exponential part of the formula becomes e to the zero, which is 1. This property of the Cox model is the reason why $h_0(t)$ is called the baseline function. Or, from a slightly different perspective, the Cox model reduces to the baseline hazard when no X's are in the model. Thus, $h_0(t)$ may be considered as a starting or "baseline" version of the hazard function, prior to considering any of the X's. Another important property of the Cox model is that the baseline hazard, $h_0(t)$, is an unspecified function. It is this property that makes the Cox model a semi parametric model." (Kleinbaum & Klein, 2005:95).

The data collected are used to construct Cox Regression Analysis in this part of the study. The data set contains 22 explanatory variables. Each variable will be discussed in detail in the following section.

6.2.2.1. The Identification of Explanatory Variables

This section of the chapter identifies each 22 explanatory variable in detail.

CODE: Groups of Neighborhoods

The first explanatory variable is CODE which indicates different groups of neighborhoods where recent home buyers have purchased their dwelling units.

Table 6.24 provides the crosstab between five different housing acquisition methods and different locations of Çankaya and Yenimahalle. The survey was carried out in 12 different neighborhoods in Çankaya, and in 11 different neighborhoods in Yenimahalle.

Table 6.24. Crosstab between Locations and Housing Acquisition Methods

		Purchasing Dwelling from a Seller	Constructing Dwelling on their own Plot by Contracting with a Speculative Builder	Purchasing from HDA Houses	Purchasing from House-Building Cooperatives	Acquisition as an Exchange of a Land	Total
ÇANKAYA	Akpınar	13	0	0	0	0	13
	Ata	1	0	0	0	0	1
	Dikmen	1	0	0	0	0	1
	Huzur	1	0	0	0	0	1
	Karapınar	11	1	0	0	0	12
	Keklikpınarı	5	3	0	0	0	8
	Kırkkonaklar	26	11	0	0	0	37
	Orta Öveçler	1	0	0	0	0	1
	Osman Temiz	1	0	0	0	0	1
	Öveçler	0	1	0	0	0	1
	Ş. Cengiz Karaca	1	0	0	0	0	1
	Sokullu	3	0	0	0	0	3
	Total	64	16	0	0	0	80
YENİMAHALLE	Aşağı Yurtçular	0	0	5	0	0	5
	Burç	0	2	0	0	1	3
	Çigdemtepe	0	1	0	0	0	1
	Gayret	0	0	3	0	0	3
	Güventepe	1	0	0	0	0	1
	Kardelen	11	4	0	5	0	20
	Karşıyaka	0	0	2	0	10	12
	Ostim	0	0	1	0	0	1
	Turgut Özal	12	0	0	0	0	12
	Yenimahalle	0	0	1	0	0	1
	Yeşilevler	0	8	22	0	0	30
	Total	24	15	34	5	11	89

Table 6.25. Groups of Neighborhoods with Respect to Location and Housing Provision Methods

	Purchasing Dwelling from a Seller	Constructing Dwelling on their own Plot by Contracting with a Speculative Builder	Purchasing from HDA Houses and Purchasing from House-Building Cooperatives	Acquisition as an Exchange of a Land
ÇANKAYA	**Group 1:** Akpınar Ata Dikmen Huzur Karapınar Keklikpınarı Öveçler Osman Temiz Ş. Cengiz Karaca Sokullu **Group2:** Kırkkonaklar	**Group 4:** Karapınar Keklikpınarı Öveçler **Group5:** Kırkkonaklar		
YENİMAHALLE	**Group3:** Güventepe Kardelen Turgut Özal	**Group6:** Burç Çigdemtepe Kardelen Yeşilevler	**Group7:** Aşağı Yurtçular Gayret Kardelen Karşıyaka Ostim Yenimahalle Yeşilevler	**Group8:** Burç Karşıyaka

Kırkkonaklar is the neighborhood in Çankaya with the most number of surveys carried out. Akpınar is the second location, and Karapınar is the next location. In

Yenimahalle the highest number of surveys was carried out in Yeşilevler. The next neighborhood is Kardelen.

In order to group the data, the neighborhoods are classified under eight groups by taking into account the proximity of locations and housing acquisition methods of surveyed households who purchased their dwellings in these locations (Table 6.25). Figure 6.1-6.7 illustrates approximate locations of each group.

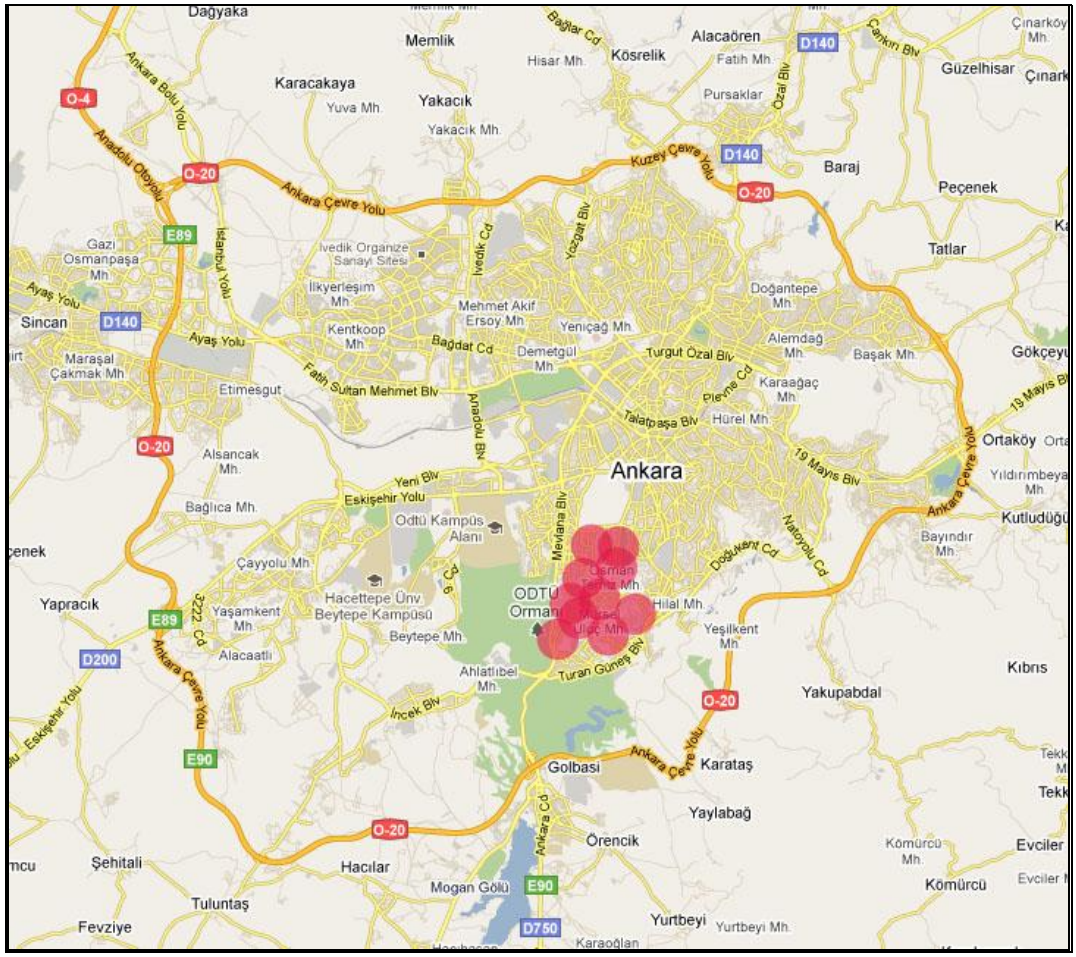


Figure 6.1. Neighborhoods in Group 1

In Group 1, Group 2, and Group 3, housing provision method is purchasing the dwelling from a seller. Surveys in Akpınar, Ata, Dikmen, Huzur, Karapınar, Keklikpınarı, Orta Öveçler, Osman Temiz, Ş. Cengiz Karaca, and Sokullu are classified under the name of Group 1. Figure 6.1 shows the locations of neighborhoods in Group 1.

Figure 6.2. Neighborhoods in Group 2 and Group 5

Under the name of Group 2, there are households who purchased dwelling from a seller in Kırkkonaklar. Figure 6.2 is preferred for locations in Group 2. In Group 3, there are surveys in Güventepe, Kardelen, and Turgut Özal in Yenimahalle, and Figure 6.3 demonstrates locations for Group 3.

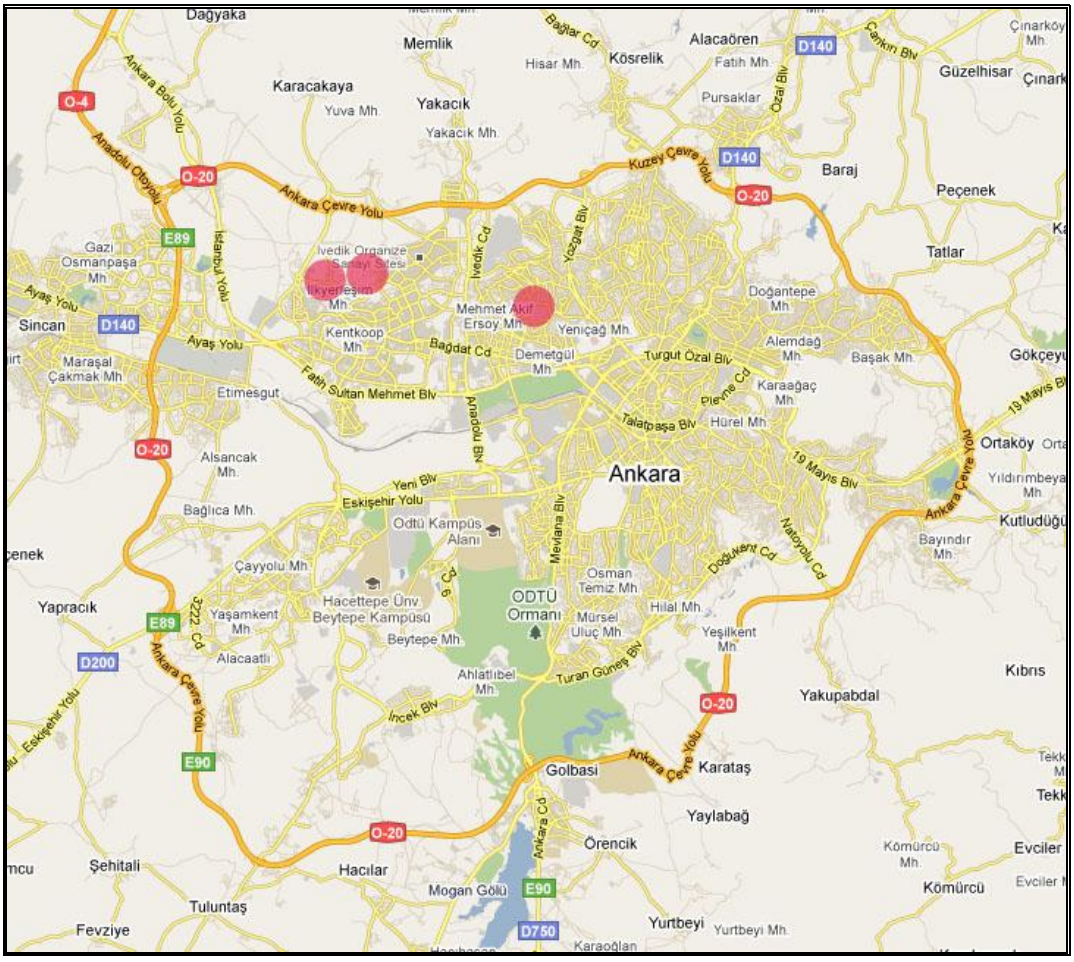


Figure 6.3. Neighborhoods in Group 3

The housing provision in Group 4, Group 5, and Group 6 is “constructing dwelling on their own plot by contracting with a speculative builder”. Karapınar,

Keklikpınarı, Öveçler constitute Group 4. Figure 6.4 illustrates the map for Group 4.

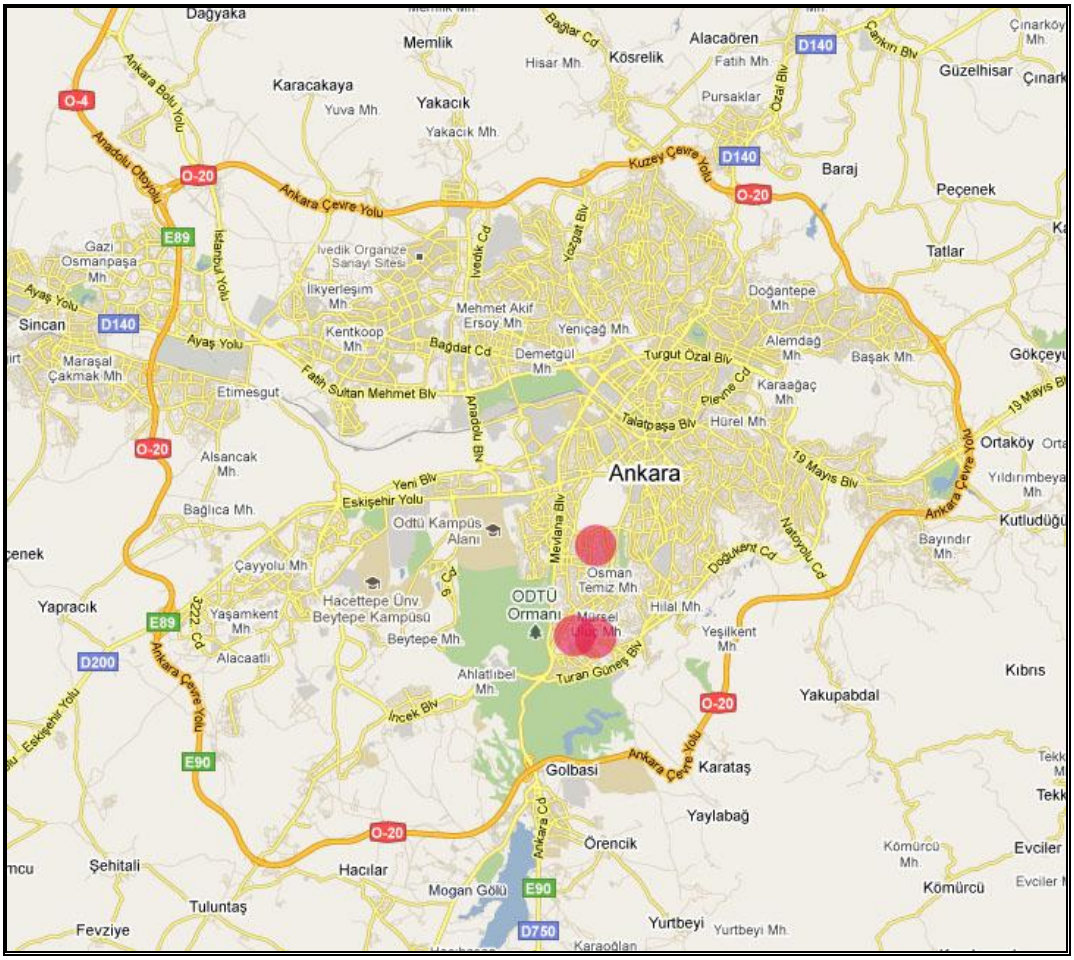


Figure 6.4. Neighborhoods in Group 4

In Group 5, the location is again Kırkkonaklar. However, in this group households in Kırkkonaklar are those who constructed dwelling on their own plot by contracting with a speculative builder. The location of Kırkkonaklar is shown in Figure 6.2.

Burç, Çiğdemtepe, Kardelen and Yeşilevler are in Group 6. Figure 6.5 is preferred for Group 6.

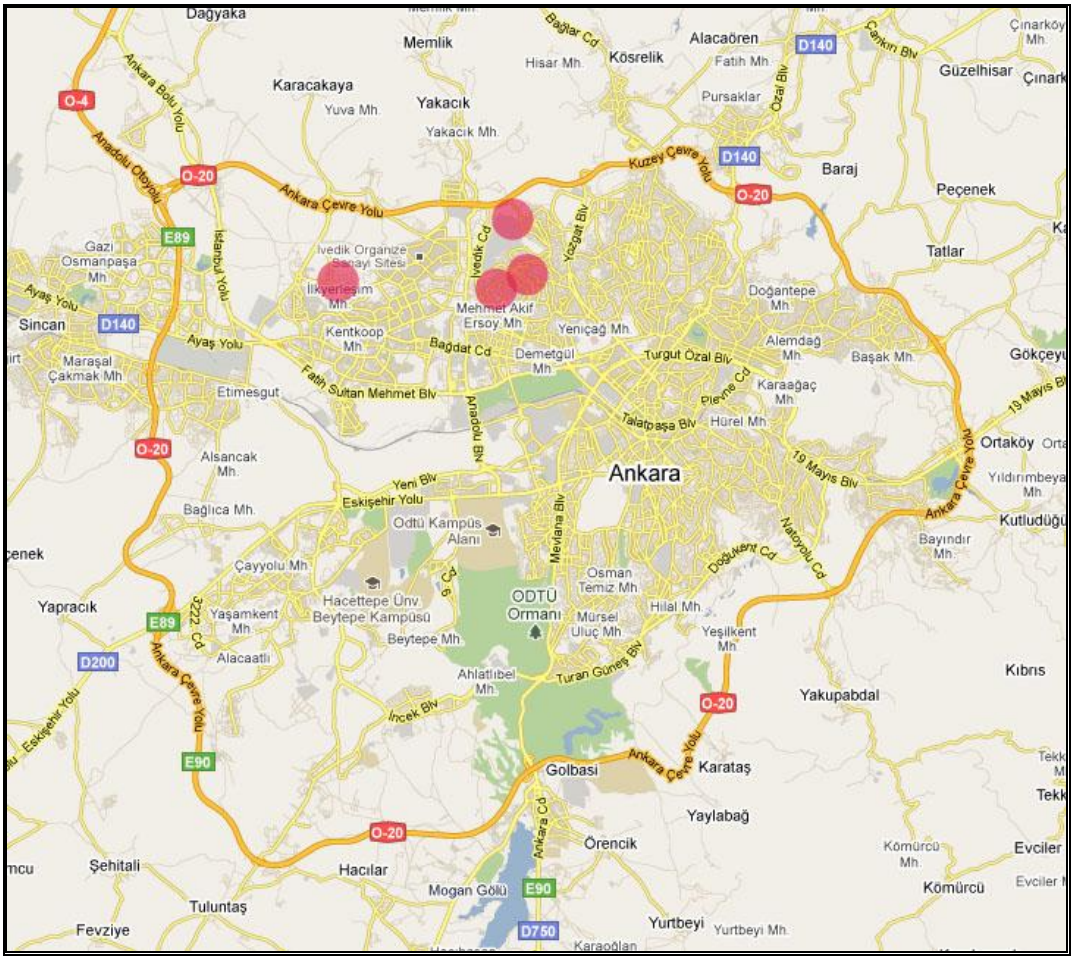


Figure 6.5. Neighborhoods in Group 6

In Group 7, locations are Aşağı Yurtçular, Gayret, Kardelen, Karşıyaka, Ostim, Yenimahalle, and Yeşilevler in Group 6.6. The housing provision method is purchasing from the HDA or purchasing from house-building cooperatives.

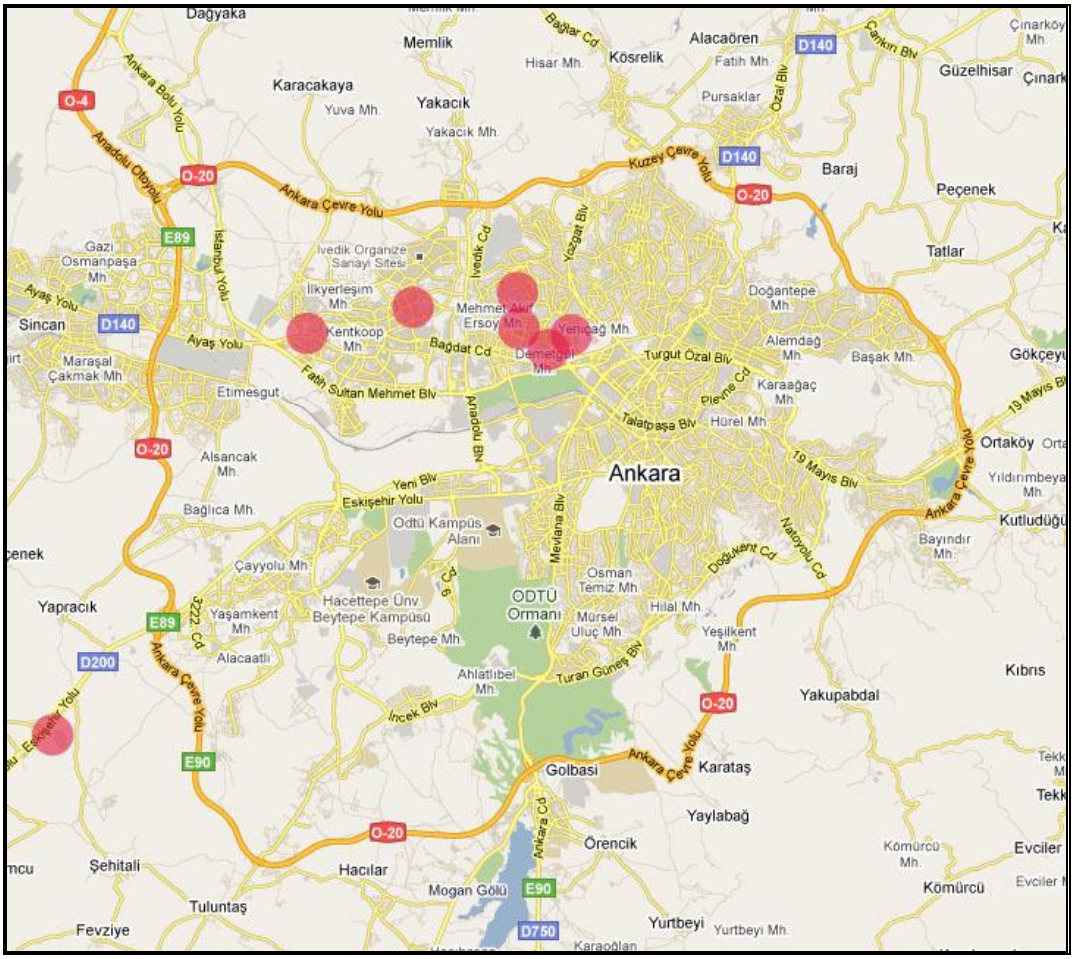


Figure 6.6. Neighborhoods in Group 7

Acquisition as an exchange of land is the housing acquisition method in Group 8, and Burç and Karşıyaka are the locations. Locations of neighborhoods are demonstrated in Figure 6.7.

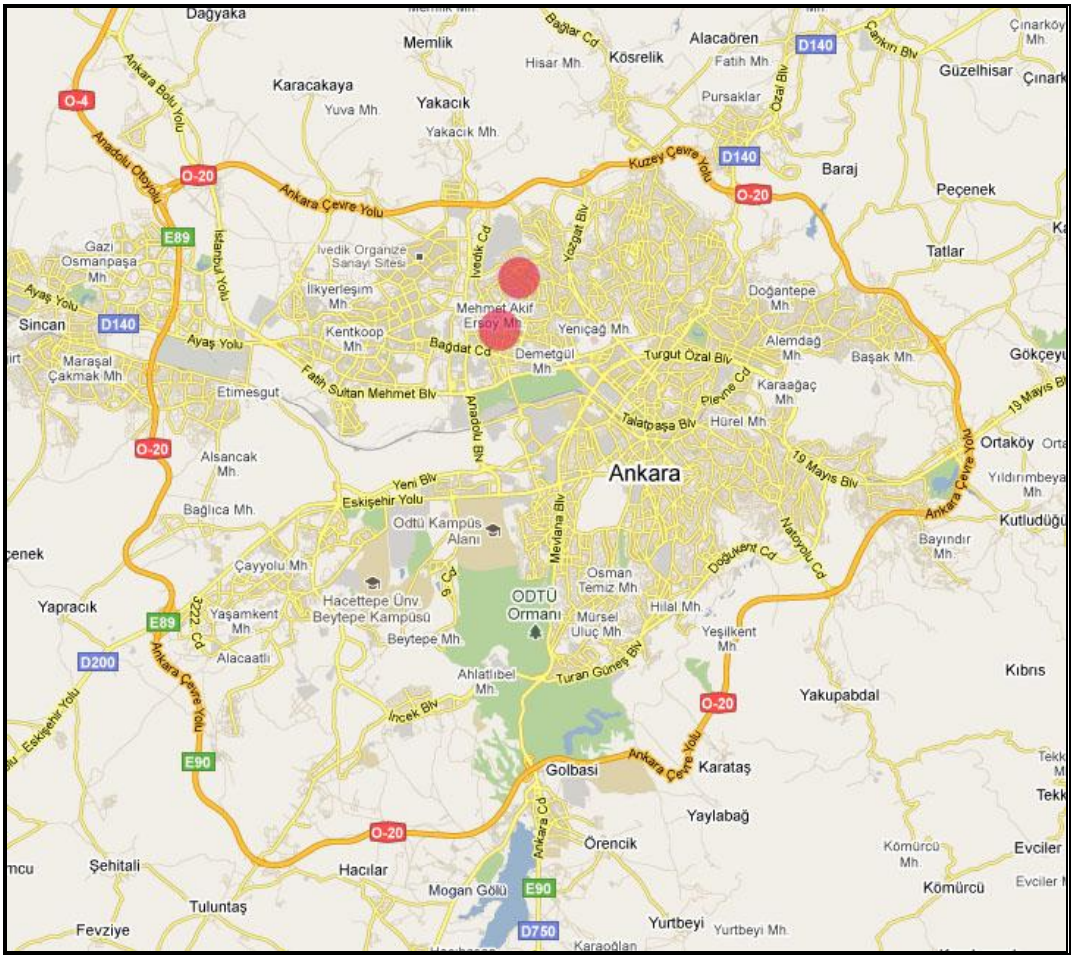


Figure 6.7. Neighborhoods in Group 8

Table 6.26 provides information about the number of survey carried out in each samples.

Table 6.26. Frequency of CODE

	Frequency	Percent
1st group	38	22.5
2nd group	26	15,4
3rd group	24	14,2
4th group	5	3,0
5th group	11	6,5
6th group	15	8,9
7th group	39	23,1
8th group	11	6,5
Total	169	100.0

One of the assumptions of the thesis is that probability of purchasing a dwelling unit changes with different housing provision methods and locations in Ankara. In order to test this assumption the variable CODE is included to the study.

MOBILITY

In previous sections residential mobility for recent home buyers are discussed. It is assumed in this thesis that housing tenure choice and residential mobility are joint decisions. In order to establish a model of mobility within the homeownership framework, the boundaries of mobility for each household by classifying each household by the direction of the move is discussed in section 6.2.1. Table 6.20 and 6.21 provide information about direction of movement for recent homeowners, and two circles are drawn with 2,5 and 5 kilometers radius respectively by choosing the central location, in order to analyze the movement patterns in related locations of Ankara in this section.

Table 6.27. Frequency of MOBILITY

	Frequency	Percent
Within the Boundary of Same Neighborhood	34	20,1
Within the Boundary of 2,5 km.	51	30,2
Within the Boundary of 5 km.	24	14,2
Not Within the Boundary of 5 km.	60	35,5
Total	169	100,0

Table 6.27 provides information about frequency of explanatory variable 'Mobility'. Table illustrates that 20,1 percent of recent home buyers purchased their current dwelling within the same boundary of their previous residential location. 30,2 percent of surveyed population did not stay in the boundary of their previous neighborhood, however stay within 2,5 km. boundary of the neighborhood. 14,2 percent of households decided to purchase their current dwelling within the boundary of 5 km. These households did not purchase their dwelling in the first 2,5 km. boundary, however they purchased it in the next 2,5 km. boundary. 35,5 of recent homebuyers did not purchased the dwelling within these boundaries of their previous residential location.

The inclusion of this explanatory variable in the regression analysis aims to understand households' preferences of movement in order to purchase a dwelling, and the effect of mobility decision on the probability of purchasing a home.

INCOME

Another important explanatory variable is monthly permanent income of households. Table 6.28 illustrates information about frequency of INCOME. It is interesting that 44,5 percent of total surveyed population has monthly income less than 1 500 TL.

Table 6.28. Frequency of INCOME

	Frequency	Percent
Up to 1000 TL	38	22,5
1 001-1 500 TL	38	22,5
1 501-2 000 TL	21	12,4
2 001-2 500 TL	27	16,0
2 501-3 000 TL	18	10,7
3 001-3 500 TL	7	4,1
Over 3 501 TL	17	10,1
Missing	3	1,8
Total	169	100,0

Another important point is that, the survey contains questions about both permanent and transitory income of households. However among 169 households, 131 of them (77,5 percent) were not willing to give information about their transitory income event if the fact that 20,7 percent of responders admit that the main source of their savings are their transitory income (Table 6.29). For this reason, transitory income cannot be introduced into the model due to lack of information.

One of the hypotheses in the thesis is that "Transition to homeownership of households living in private rental accommodation are expected to be related as much on transitory income, including inherited wealth, as on permanent income, in addition to homeownership opportunities provided by different forms of housing provision in Turkey". However even 20,7 percent of households indicate that transitory income is one of the main sources of their incomes, 77,5 percent of total surveyed population were not willing to give information about their transitory income. That is, the contribution of transitory income on the probability of homeownership cannot be examined due to lack of information in the data.

Table 6.29. The ratio of Contributions of Permanent and Transitory Income on Households' Savings

	Frequency	Percent
Permanent Income	108	63,9
Transitory Income	35	20,7
No Answer	26	15,4
Total	169	100,0

EDUCATION_HEAD

This variable indicates education level of household head based on the highest completed educational degree.

Table 6.30. Frequency of EDUCATION_HEAD

	Frequency	Percent
Primary Education	51	30,2
High School	58	34,3
University	55	32,5
Post Graduate	4	2,4
No Answer	1	0,6
Total	169	100

The distribution of education of household head has close ratios for the first three education levels as Table 6.30 shows.

EDUCATION_PARTNER

As discussed before, literature shows that education of partner also affected homeownership probability for households. For this reason, EDUCATION_PARTNER is included to the model as an indicator of education level of partner based on the highest completed educational degree.

Table 6.31. Frequency of EDUCATION_PARTNER

	Frequency	Percent
Primary Education	73	43,2
High School	42	24,9
University	37	21,9
Post Graduate	2	1,2
No Answer	15	8,9
Total	169	100

A great majority (43,2 percent) of partners have graduated from a primary school (Table 6.31). Only 21,9 percent of partners were graduated from a university.

AGE

The variables indicate age of responders when they purchased their current dwelling units. Table 6.32 illustrates the distribution of AGE.

Table 6.32. Frequency of AGE for Recent Homebuyers

	Frequency	Percent
21-30	35	20,7
31-40	39	23,1
41-50	50	29,6
51-60	26	15,4
61-70	13	7,7
71-80	6	3,6
Total	169	100,0

The data is classified under 6 groups. However, age is not obtained for household heads, in fact it illustrates the age of the respondents of the survey. For this reason, by grouping the data it is assumed that both the household head and the partner would be in the same age group.

20,7 percent of the surveyed population has purchased their homes before their 30s. 26,7 percent of recent homebuyers purchased their dwelling after the age 50.

Age is a time dependent variable, however in this study age indicates the age of households when they bought their recent homes so in this study it is taken as time independent.

EMPLOYMENT

There is a vast amount on literature on the relation between unemployment and homeownership. However the literature mainly focuses on effects of homeownership on unemployment. According to the most researches, “homeownership causes a decline in people's willingness to switch locations, and this decline might be expected to raise the average amount of unemployment”

(Oswald, 1997:10). In this study, the relation between the homeownership and employment is studied with a reverse overlook. Effects of unemployment on the probability of homeownership are investigated with the help of Cox Regression Analysis.

Table 6.33 provides information about the frequency of EMPLOYMENT. There are three groups under EMPLOYMENT. Not Working refers to households who are not working in a stable job. Working refers households who are working in a stable job. Retired indicates households who have been retired. The variable indicates the employment of household head. 61,5 percent of total responders are working in a stable job, 12,4 percent are not working in a stable job in the data.

Table 6.33. Frequency of EMPLOYMENT

	Frequency	Percent
Not Working	21	12,4
Working	104	61,5
Retired	44	26,0
Total	169	100,0

EMPLOYMENT_PARTNER

Also, it is expected that employment of household head and partner will affect the probability of homeownership in different ways. For this reason, the employment of partner is shown by a different explanatory variable in the study.

Table 6.34. Frequency of EMPLOYMENT_PARTNER

	Frequency	Percent
Not Working	131	77,5
Working	25	14,8
Retired	13	7,7
Total	169	100,0

Table 6.34 provides information about frequency of EMPLOYMENT_PARTNER. A great majority of partners are not working in a stable job. Only 14,8 percent of partners are working in a stable job. The ratio of partners who are working in a stable job is 22,5 in Çankaya, however this ratio is only 7,9 in Yenimahalle.

JOB_LOCATION

Another explanatory variable is JOB_LOCATION which indicates the relation between households' job location and their previous residential location. "It is a major factor that influences attractiveness of a certain location aside from the area's physical characteristics. It is argued that the reason why most people prefer to live in city centers and built-up areas because of accessibility –potential for a variety of activities aside from being near to work. This notion explains why accessibility has been always present in most location choice models" (Rivera&Tiglao, 2005:1170).

With this variable it is aimed to investigate whether probability of shifting is affected by locational characteristics like job. Households make a tradeoff between transportation cost and the cost of housing while they are planning to buy a dwelling. Households prefer to wait until to buy a dwelling in a location where there is easy accessibility to job location which may postpone the purchase the decision. In order to understand this effect, JOB_LOCATION makes a comparison

between household's job location and location of previous residences before purchasing their current homes.

Table 6.35. Frequency of JOB_LOCATION

	Frequency	Percent
0	130	76,9
1	31	18,3
2	8	4,7
Total	169	100,0

Table 6.35 provides information about the frequency of JOB_LOCATION. 0 indicates the situation that workplaces of both partners were not the same location of their previous residential location (76,9 %). 1 indicates the situation that the workplace and previous residential location are same for only one of the partners (18,3 %). 2 indicates that the workplace and previous residential location are the same place for both the household head and partner (4,7 %).

It is aimed to investigate whether location of residence and workplace are interrelated and whether households postpone home purchase decision in order to be resident in the same location with their workplace.

MARRIAGE

In 169 surveys, there are 7 households who are single, and there are 6 households who are either widowed or divorced. However in the Cox Regression Analysis, due to missing values in some cases because of other explanatory variables, these households are eliminated from the analysis. For this reason, households' marital

status is not taken as one of the explanatory variables in Cox Regression Analysis. Instead, the date of marriage is included in the analysis. MARRIAGE indicates how long households have been married at the day they purchased their dwelling units.

Table 6.36. Frequency of MARRIAGE

	Frequency	Percent
0-5	30	17,8
6-10	14	8,3
11-15	21	12,4
16-20	23	13,6
More than 21	68	40,2
Not Married	13	7,7
Total	169	100,0

Table 6.36 indicates the frequency of MARRIAGE. Around 40 percent of total surveyed population indicates that they have been married for more than 21 years. 17,8 percent of responders have been married less than 5 years when they have purchased their current dwelling unit.

HOUSEHOLDS

The next explanatory variable is HOUSEHOLDS which indicates the number of people who lived together in the residential unit. It is aimed to investigate whether number of households has impact on the probability of purchasing a dwelling.

Table 6.37. Frequency of HOUSEHOLDS

Number of People	Frequency	Percent
1	2	1,2
2	33	19,5
3	56	33,1
4	52	30,8
5	14	8,3
6	7	4,1
7	1	0,6
8	1	0,6
9	3	1,8
Total	169	100,0

Table 6.37 provides information about the number of households. The average households size is 3,5 in the studied sample.

CHILDREN

Table 6.38. Frequency of CHILDREN

Number of Children	Frequency	Percent
0	21	12,4
1	38	22,5
2	63	37,3
3	29	17,2
4	14	8,3
5	3	1,8
6	1	,6
Total	169	100,0

CHILDREN indicates total number of children. Table 6.38 provides information about the number of children. 12,4 percent of households have no child. The great majority in the sample (37,3 percent) has two children.

SCHOOL

Literature on homeownership shows that there is a link between having school-aged children and residential location decision of households. Households may have to make trade-offs by giving up some level of housing quality in order to live in locations close to good qualified schools. “For example, when a household moves, it examines several houses in different locations, and its final decision is made through a trade-off, for example, choosing a smaller house in a very good school district or a similarly priced, larger house in a poorer school district. If the household has school-aged children, it may be more likely to choose a good school district and a smaller house as a trade-off” (Kim, 2010:5).

Table 6.39. Frequency of SCHOOL

	Frequency	Percent
No	91	53,8
Yes	78	46,2
Total	169	100,0

Table 6.39 provides information about frequency of SCHOOL. No indicates households with no school-aged children. Yes indicates households who have school-aged children. 46,2 percent of households have children who are currently attending to school.

RENT

Literature shows that current wealth of households has important effect on home purchase probability. However this affect cannot be directly measured because of insufficient information in the data. For this reason, RENT is used as a measure of current wealth of households in this study. Households are asked whether they have a secondary dwelling unit that they earn rental income.

Table 6.40. Frequency of RENT

	Frequency	Percent
No	145	85,8
Yes	24	14,2
Total	169	100,0

Table 6.40 illustrates the frequency of RENT. “No” indicates households who have no dwelling units that they gain rental income. “Yes” indicates households who have dwelling units that they earn rental income. 14,2 percent of households indicate that they earn rental income from their secondary homes.

CREDIT

The calculations in Chapter 5 shows that housing credits do not provide new opportunities for households who are not able to purchase a dwelling by saving their money. In order to understand whether applying for long-term housing credits affect the probability of shifting to homeownership, the explanatory variable CREDIT is included into the model. CREDIT is an indicator of whether households used housing credit or not.

Table 6.41. Frequency of CREDIT

	Frequency	Percent
No	117	69,2
Yes	52	30,8
Total	169	100,0

Table 6.41 provides information about the frequency of CREDIT. 30,8 percent of households indicated that they applied for long-term housing credits while purchasing their current homes.

PREFERENCES

While households decide to buy a dwelling unit they seek for particular attributes for the dwelling. They may postpone purchasing the dwelling until they find that suitable dwelling with these attributes. In order to test whether households delay buying a dwelling for these reasons PREFERENCES is added to the model as an explanatory variable.

Table 6.42. Frequency of PREFERENCES

	Frequency	Percent
Same	133	78,7
Lower	30	17,8
Better	4	2,4
Indifferent	2	1,2
Total	169	100,0

Table 6.42 provides information about the frequency of PREFERENCES. “Same” indicates the situation that households wait to purchase a dwelling with the same attributes that they prefer to buy. “Lower” indicates households who did not wait to find a dwelling with the same attributes they wish to purchase. These households have purchased a dwelling with a lower attributes. “Better” illustrates households who were able to purchase a dwelling with better attributes that they wish to buy. “Indifferent” are the households who did not think a particular attributes for dwelling before they purchased it. The great majority of households waited to purchase the dwelling until they find the one which had the same attributes with their preferences.

FLOOR SIZE

Another important characteristic of the dwelling is the floor size. As discussed before most of the households in the survey indicated that the floor size is important for them while purchasing a dwelling.

Table 6.43 indicates the frequency of FLOOR_SIZE. The most common floor size that households prefer to purchase is 100-149 m^2.

Table 6.43. Frequency of FLOOR SIZE

	Frequency	Percent
0-49 m2	1	0,6
50-99 m2	30	17,8
100-149 m2	117	69,2
150-199 m2	16	9,5
200-249 m2	1	0,6
More than 250 m2	2	1,2
Missing	2	1,2
Total	169	100,0

ROOM

ROOM indicates the number of room per housing unit. It is aimed to find out what number of rooms is most common in housing purchase and what number of rooms is most affordable for households.

Table 6.44 provides information about the frequency of ROOM. The most preferred number of rooms is 3+1.

Table 6.44. Frequency of ROOM

	Frequency	Percent
2+1	20	11,8
3+1	126	74,6
4+1	11	6,5
5+1	8	4,7
6+1	3	1,8
7+1	1	,6
Total	169	100,0

TYPE

Households gave priority to the type of the dwelling unit before purchasing it. For instance, some households preferred to live in detached houses. However in this survey, it was not possible to make interviews with households who have purchased a detached house.

Table 6.45 provides information about frequency of TYPE. 47,9 percent of total survey was carried out in apartment units. 30,8 percent was carried out in housing estate, and 20,7 was carried out in gated housing estate.

Table 6.45. Frequency of TYPE

	Frequency	Percent
Housing Estate	52	30,8
Gated Housing Estate	35	20,7
Apartment Unit	81	47,9
No Answer	1	0,6
Total	169	100,0

This part of the study focuses on the identification parameters which are significant in both residential location and dwelling choices of households. Next part of the chapter identifies Cox Regression analysis for recent home buyers.

6.2.2.2. Cox Regression Analysis for Recent Home Buyers with five Different Housing Provision Methods

In this part of the study, the model of Cox Regression is introduced for recent home buyers. The probability of shifting to homeownership is analyzed by taking into account of five different housing acquisition methods.

"A key reason for the popularity of the Cox model is that, even though the baseline hazard is not specified, reasonably good estimates of regression coefficients, hazard ratios of interest, and adjusted survival curves can be obtained for a wide variety of data situations. Another way of saying this is that the Cox PH model is a "robust"

model, so that the results from using the Cox model will closely approximate the results for the correct parametric model" (Kleinbaum & Klein, 2005: 96).

"The formula for the Cox model likelihood function is actually called a "partial" likelihood function rather than a (complete) likelihood function. The term "partial" likelihood is used because the likelihood formula considers probabilities only for those subjects who fail, and does not explicitly consider probabilities for those subjects who are censored. Thus the likelihood for the Cox model does not consider probabilities for all subjects, and so it is called a "partial" likelihood" (Kleinbaum & Klein, 2005: 99).

In this study, the data are suitable for Cox Proportional Hazard Model because they provide information whether households are homeowners or not, and when they shift to homeownership for the period 2008-2010. Cox Proportional Hazard Function provides information about duration of time when households shift from tenancy to homeownership. All analysis in this part of the study is carried out by using SPSS 16.0.

There are two assumptions of the Cox Proportional Hazard Model. In the first one, if there are time-dependent variables in the data, the Cox model form may still be used, but such a model no longer satisfies the PH (proportional hazard) assumption. In this case, extended Cox Model should be used. As it is discussed before, in this study the variables assumed to be constant in time. That is variables are time independent.

Secondly, the Cox Proportional Hazard Model assumes a constant hazard ratio across time (Kleinbaum & Klein, 2005). "Equivalently, this means that the hazard for one individual is proportional to the hazard for any other individual, where the proportionality constant is independent of time. The PH assumption is not met if the graph of the hazards crosses for two or more categories of a predictor of interest. However, even if the hazard functions do not cross, it is possible that the PH

assumption is not met. Thus, rather than checking for crossing hazards, we must use other approaches to evaluate the reasonableness of the PH assumption" (Kleinbaum & Klein, 2005: 135).

A number of different tests for assessing the PH assumption have been proposed in the literature. In this study, the test of Harrel and Lee (1986) is used, which is a variation of a test, originally proposed by Schoenfeld (1982). The test based on the residuals defined by Schoenfeld, now called the Schoenfeld residuals. In this method, for each predictor in the model, Schoenfeld residuals are defined for every subject who has an event (Kleinbaum & Klein, 2005). "The idea behind the statistical test is that if the PH assumption holds for a particular covariate then the Schoenfeld residuals for that covariate will not be related to survival time" (Kleinbaum & Klein, 2005: 151).

Table 6.46. Pearson Correlation between Variables and Time

		Rank of TIME
Partial residual for RENT	Pearson Correlation	.023
	Sig. (2-tailed)	,825
	N	96
Partial residual for PREFERENCES	Pearson Correlation	.062
	Sig. (2-tailed)	,550
	N	96
Partial residual for FLOOR_SIZE	Pearson Correlation	-.265**
	Sig. (2-tailed)	,009
	N	96
Partial residual for TYPE	Pearson Correlation	-.311**
	Sig. (2-tailed)	,002
	N	96
Partial residual for HOUSEHOLDS	Pearson Correlation	-.001
	Sig. (2-tailed)	,989
	N	96
Partial residual for EDUCATION_HEAD	Pearson Correlation	-.019
	Sig. (2-tailed)	,853
	N	96

Table 6.46 (Continued)

		Rank of TIME
Partial residual for EDUCATION_PARTNER	Pearson Correlation	.000
	Sig. (2-tailed)	,998
	N	96
Partial residual for INCOME	Pearson Correlation	-.044
	Sig. (2-tailed)	,674
	N	96
Partial residual for CREDIT	Pearson Correlation	-.037
	Sig. (2-tailed)	,721
	N	96
Partial residual for ROOM	Pearson Correlation	-.168
	Sig. (2-tailed)	,102
	N	96
Partial residual for CHILDREN	Pearson Correlation	-.112
	Sig. (2-tailed)	,279
	N	96
Partial residual for SCHOOL	Pearson Correlation	-.024
	Sig. (2-tailed)	,813
	N	96
Partial residual for AGE	Pearson Correlation	-.011
	Sig. (2-tailed)	,915
	N	96
Partial residual for EMPLOYMENT	Pearson Correlation	.025
	Sig. (2-tailed)	,808
	N	96
Partial residual for EMPLOYMENT_PARTNER	Pearson Correlation	-.003
	Sig. (2-tailed)	,974
	N	96
Partial residual for JOB_LOCATION	Pearson Correlation	-.176
	Sig. (2-tailed)	,087
	N	96
Partial residual for CODE	Pearson Correlation	.284**
	Sig. (2-tailed)	,005
	N	96
Partial residual for MOBILITY	Pearson Correlation	.018
	Sig. (2-tailed)	,859
	N	96
Partial residual for MARRIAGE	Pearson Correlation	-.073
	Sig. (2-tailed)	,481
	N	96

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

In order to test the PH assumption, Schoenfeld residuals for all covariates is calculated by running a Cox Regression. Then, a variable including ranked order of survival time is obtained. As a last step, a Pearson correlation test is applied between the ranked order of survival time and Schoenfeld residuals of each variable. Table 6.46 illustrates the results of this correlation test. It provides information about the correlation, and the p-values between the ranked survival and the partial residuals. These p-values are also the p-values for the PH test. Correlation is significant at 0.95 CI level (2-tailed) if the p-value is smaller than 0.05.

Table shows that, p-values for the correlation between the rank of time and partial residuals for FLOOR_SIZE, AGE_BUILDING, STOREY_DWELLING, TYPE, STORIES, and CODE are smaller than 0,05 which are significant at the 0,05 CI level. That is, there are correlation between these residuals and time. The correlation between the rank of time and other residuals are insignificant for a 95 % Confidence Interval level. So variables as FLOOR_SIZE, TYPE, and CODE do not satisfy the assumption of Proportional Hazard as the correlation for these related residuals and time is significant. Other variables satisfy the PH assumption.

There are two alternatives when one or more variables do not satisfy the PH assumption. The first one is using the Stratified Cox Regression Model. “The “stratified Cox model” is a modification of the Cox proportional hazards (PH) model that allows for control by “stratification” of a predictor that does not satisfy the PH assumption. Predictors that are assumed to satisfy the PH assumption are included in the model, whereas the predictor being stratified is not included” (Kleinbaum & Klein, 2005: 176). If this model is used, none of these variables can be included into the model as it does not satisfy the PH assumption. For that reason, hazard ratio cannot be obtained for none of these variables if stratified Cox Regression Analysis is used.

Second alternative is using Extended Cox Proportional Hazard Model. This model involves using time dependent variables. "A time-dependent variable is defined as any variable whose value for a given subject may differ over time (*t*). In contrast, a time-independent variable is a variable whose value for a given subject remains constant over time. As a simple example, the variable RACE is a time-independent variable, whereas the variable RACE x time is a time-dependent variable" (Kleinbaum & Klein, 2005: 176).

In this study, it is preferred to use extended Cox Regression Model instead of using Stratified Cox Regression Model in order to include one of the variables which does not satisfy the PH assumption into the model.

In Extended Cox Regression, the variable does not satisfy the PH assumption is also kept into the model by using time dependent variables. A new variable is defined to analyze this time-independent variable which does not satisfy the PH assumption. However, this method enables inclusion of only one of the variables into the model. In this study, there are three variables that do not satisfy the PH assumption. As the variable CODE is the most significant variable for the study, the extended Cox Regression is used by including CODE as a time dependent variable.

In order to choose the best model, stepwise regression with backward elimination is used. The elimination is started with all variables which satisfy PH assumptions above. The logic behind stepwise regression is that, variables which are not statistically significant are deleted after running regression in each step. Table 6.47 illustrates the steps of Backward Cox Regression Analysis.

Table 6.47. Description of Models

	Variables	Description of Model	Significant Variables	Not Significant Variables
Model 1	AGE EMPLOYMENT EMPLOYMENT_PARTNER JOB_LOCATION CODE MOBILITY MARRIAGE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER INCOME CREDIT ROOM CHILDREN SCHOOL RENT PREFERENCES	Model is Significant	CODE EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN PREFERENCES	AGE EMPLOYMENT EMPLOYMENT_PARTNER JOB_LOCATION MOBILITY MARRIAGE HOUSEHOLDS INCOME CREDIT SCHOOL RENT
Model 2	AGE EMPLOYMENT EMPLOYMENT_PARTNER JOB_LOCATION CODE MOBILITY MARRIAGE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER INCOME CREDIT ROOM CHILDREN SCHOOL PREFERENCES	Model is Significant	CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN PREFERENCES	AGE EMPLOYMENT EMPLOYMENT_PARTNER JOB_LOCATION MOBILITY MARRIAGE INCOME CREDIT SCHOOL

Table 6.47 (Continued)

	Variables	Description of Model	Significant Variables	Not Significant Variables
Model 3	AGE EMPLOYMENT JOB_LOCATION CODE MOBILITY MARRIAGE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER INCOME CREDIT ROOM CHILDREN SCHOOL PREFERENCES	Model is Significant	EMPLOYMENT CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN PREFERENCES	AGE JOB_LOCATION MOBILITY MARRIAGE INCOME CREDIT SCHOOL
Model 4	EMPLOYMENT JOB_LOCATION CODE MOBILITY MARRIAGE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER INCOME CREDIT ROOM CHILDREN SCHOOL PREFERENCES	Model is Significant	EMPLOYMENT CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN PREFERENCES	JOB_LOCATION MOBILITY MARRIAGE INCOME CREDIT SCHOOL

Table 6.47 (Continued)

	Variables	Description of Model	Significant Variables	Not Significant Variables
Model 5	EMPLOYMENT JOB_LOCATION CODE MOBILITY MARRIAGE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER INCOME ROOM CHILDREN SCHOOL PREFERENCES	Model is Significant	EMPLOYMENT CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN PREFERENCES	JOB_LOCATION MOBILITY MARRIAGE INCOME SCHOOL
Model 6	EMPLOYMENT JOB_LOCATION CODE MARRIAGE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER INCOME ROOM CHILDREN SCHOOL PREFERENCES	Model is Significant	CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN PREFERENCES	EMPLOYMENT JOB_LOCATION MARRIAGE INCOME SCHOOL
Model 7	EMPLOYMENT CODE MARRIAGE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER INCOME ROOM CHILDREN SCHOOL PREFERENCES	Model is Significant	CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN PREFERENCES	EMPLOYMENT MARRIAGE INCOME SCHOOL

Table 6.47 (Continued)

	Variables	Description of Model	Significant Variables	Not Significant Variables
Model 8	EMPLOYMENT CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER INCOME ROOM CHILDREN SCHOOL PREFERENCES	Model is Significant	EMPLOYMENT CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN PREFERENCES	INCOME SCHOOL
Model 9	EMPLOYMENT CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER INCOME ROOM CHILDREN PREFERENCES	Model is Significant	EMPLOYMENT CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN PREFERENCES	INCOME
Model 10	EMPLOYMENT CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN PREFERENCES	Model is Significant	EMPLOYMENT CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN	PREFERENCES
Model 11	EMPLOYMENT CODE HOUSEHOLDS EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN	Model is Significant	CODE EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN	EMPLOYMENT HOUSEHOLDS

Table 6.47 (Continued)

	Variables	Description of Model	Significant Variables	Not Significant Variables
Model 12	EMPLOYMENT CODE EDUCATION_HEAD EDUCATION_PARTNER ROOM CHILDREN	Model is Significant	CODE EDUCATION_HEAD EDUCATION_PARTNER	EMPLOYMENT ROOM CHILDREN
Model 13	EMPLOYMENT CODE EDUCATION_HEAD EDUCATION_PARTNER ROOM	Model is Significant	CODE EDUCATION_HEAD EDUCATION_PARTNER ROOM	EMPLOYMENT
Model 14	CODE EDUCATION_HEAD EDUCATION_PARTNER ROOM	Model is Significant	CODE EDUCATION_HEAD	EDUCATION_PARTNER ROOM
Model 15	CODE EDUCATION_HEAD EDUCATION_PARTNER	Model is Significant	EDUCATION_HEAD	CODE EDUCATION_PARTNER
Model 16	CODE EDUCATION_HEAD	Model is Significant		CODE EDUCATION_HEAD
Model 17	CODE	Model is Significant	CODE	

In variables column, Table illustrates explanatory variables in each model. The first model contains all possible explanatory variables which satisfy PH assumption. The backward regression is started with 17 explanatory variables. In each step, an explanatory variable is eliminated by taking into account its relevance to the model. Next column provides information whether the model is statistically significant or not in overall score. Table shows that, all 17 models are statistically significant in overall score. The following column demonstrates which variables are statistically

significant and the next column shows variables which are not statistically significant for each model.

The backward regression analysis is an elimination procedure to test the significance of explanatory variables. Starting out with the maximum model, the variable with the highest p -value is eliminated for the test of significance of the variable. In the next step, the regression is runned for the reduced model (having removed the variable from the maximum model), and again the variable with the highest p-value for the test of significance is removed from the reduced model. This procedure is repeated for each step of the backward analysis. The procedure ends when no more variables can be removed from the model at the related significance level. F-test criterion in this procedure is used in this process[16]. After evaluating the Cox Regression Analysis by using Backward Stepwise Method, Model 3 is chosen for the study as including more explanatory variables in the model. The SPSS outputs of Cox Regression Analysis in each model are represented in Appendix B at the end of the thesis.

Table 6.48. Case Processing Summary

		N	Percent
Cases available in analysis	Event[a]	97	57.4%
	Censored	54	32,0%
	Total	151	89,3%
Cases dropped	Cases with missing values	18	10.7%
	Cases with negative time	0	0,0%
	Censored cases before the earliest event in a stratum	0	0,0%
	Total	18	10,7%
Total		169	100.0%

a. Dependent Variable: TIME

[16] http://statmaster.sdu.dk/courses/st111/module08/index.html

Table 6.48 provides case processing summary for the extended Cox regression model. After removing observation with missing variables (18 cases), 151 cases are available for the analysis. Among 151 cases, there are 54 censored cases.

Table 6.49 provides information about summary statistics of explanatory variables of Cox Regression Analysis and categorical definition. In categorical definition, the control groups are denoted by 1, and the reference groups are denoted by 0.

That is, for instance the reference category for CODE is group 8 because it takes the value 0 in all cases. Cox Regression analysis provides information by changing the control group in different analysis. For instance, the column (1) for CODE illustrates the analysis where group 1 is the control group. Likewise, the column (2) provides information when the control is group 2.

Table 6.49. Summary Statistics of Variables and Categorical Definition

	N	1	2	3	4	5	6	7
AGE	151							
21-30	30	1	0	0	0	0		
31-40	36	0	1	0	0	0		
41-50	48	0	0	1	0	0		
51-60	20	0	0	0	1	0		
61-70	12	0	0	0	0	1		
71-80	5	0	0	0	0	0		
JOB LOCATION	151							
Not Same	114	1	0					
One of Them is Same	29	0	1					
Both Same	8	0	0					
EMPLOYMENT	151							
Not Working	14	1	0					
Working	96	0	1					
Retired	41	0	0					
MARRIAGE	151							
0-5	30	1	0	0	0			
6-10	14	0	1	0	0			
11-15	21	0	0	1	0			
16-20	23	0	0	0	1			
More than 21	63	0	0	0	0			

Table 6.49 (Continued)

	N	1	2	3	4	5	6	7
CHILDREN	151							
0	14	1	0	0	0	0	0	
1	37	0	1	0	0	0	0	
2	60	0	0	1	0	0	0	
3	24	0	0	0	1	0	0	
4	12	0	0	0	0	1	0	
5	3	0	0	0	0	0	1	
6	1	0	0	0	0	0	0	
EDUCATION HEAD	151							
Primary	45	1	0	0				
High School	52	0	1	0				
University	51	0	0	1				
Post-Graduate	3	0	0	0				
EDUCATION PARTNER	151							
Primary	70	1	0	0				
High School	42	0	1	0				
University	37	0	0	1				
Post-Graduate	2	0	0	0				
INCOME	151							
< 1000 TL	34	1	0	0	0	0	0	
1 001-1 500 TL	34	0	1	0	0	0	0	
1 501-2 000 TL	18	0	0	1	0	0	0	
2 001-2 500 TL	27	0	0	0	1	0	0	
2 501-3 000 TL	14	0	0	0	0	1	0	
3 001-3 500 TL	7	0	0	0	0	0	1	
>3 501 TL	17	0	0	0	0	0	0	
CODE	151							
1	37	1	0	0	0	0	0	0
2	22	0	1	0	0	0	0	0
3	21	0	0	1	0	0	0	0
4	5	0	0	0	1	0	0	0
5	10	0	0	0	0	1	0	0
6	14	0	0	0	0	0	1	0
7	33	0	0	0	0	0	0	1
8	9	0	0	0	0	0	0	0
MOBILITY	151							
Within the same	29	1	0	0				
Within 2,5 Km.	44	0	1	0				
Within 5 Km.	22	0	0	1				
Not within the Boundary	56	0	0	0				

Table 6.49 (Continued)

	N	1	2	3	4	5	6	7
HOUSEHOLDS	151							
2	27	1	0	0	0	0	0	0
3	51	0	1	0	0	0	0	0
4	47	0	0	1	0	0	0	0
5	14	0	0	0	1	0	0	0
6	7	0	0	0	0	1	0	0
7	1	0	0	0	0	0	1	0
8	1	0	0	0	0	0	0	1
9	3	0	0	0	0	0	0	0
CREDIT	151							
No	105	1						
Yes	46	0						
ROOM	151							
2+1	15	1	0	0	0	0		
3+1	114	0	1	0	0	0		
4+1	10	0	0	1	0	0		
5+1	8	0	0	0	1	0		
6+1	3	0	0	0	0	1		
7+1	1	0	0	0	0	0		
SCHOOL	151							
No	78	1						
Yes	73	0						
PREFERENCES	151							
Same	121	1	0	0				
Lower	24	0	1	0				
Better	4	0	0	1				
Indifferent	2	0	0	0				

Likewise, the reference category for AGE is “71-80”. For JOB_LOCATION “Both Same”, for EMPLOYMENT “retired” are the reference categories. “More than 21” is reference category for MARRIAGE, and “6” is for CHILDREN. For EDUCATION_HEAD and EDUCATION_PARTNER the reference variable is “Post-Graduate”. For INCOME, the reference variable is “>3 501 TL”. “Not within the Boundary” is the reference category for MOBILITY, and “9” is for HOUSEHOLDS. “Yes” is for CREDIT, “7+1” is for ROOM, “Yes” is for SCHOOL, and “Indifferent” is REFERENCES.

Table 6.50 shows that the omnibus test is significant for Cox Regression Analysis.

Table 6.50. Omnibus Tests of Model Coefficients

	Overall (score)			Change From Previous Step			Change From Previous Block		
-2 Log Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
658,663	88,485	59	0,008	89,684	59	0,006	89,684	59	0,006

Table 6.51 provides information about the estimates of variables in Cox Regression. The analysis gives estimates of regression coefficients corresponding to each variable in the model, standard errors of the estimated regression coefficients, p-values (Sig.) for testing the significance of each coefficient, and hazard ratios (Exp(B)) of the variables.

Table 6.51. Estimates of Variables in Cox Regression

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV	0,013	0,007	3,616	1	0,057	1,013	1,000	1,027
AGE			4,737	5	0,449			
AGE (1)	0,251	1,547	,026	1	0,871	1,285	0,062	26,624
AGE (2)	0,444	1,466	,092	1	0,762	1,559	0,088	27,596
AGE (3)	0,071	1,450	,002	1	0,961	1,073	0,063	18,422
AGE (4)	-0,743	1,429	,271	1	0,603	0,476	0,029	7,828
AGE (5)	-01,687	1,650	1,046	1	0,307	0,185	0,007	4,695
EMPLOYMENT			8,844	2	0,012			
EMPLOYMENT (1)	2,309	0,777	8,835	1	0,003	10,060	2,195	46,097
EMPLOYMENT (2)	0,790	0,643	1,508	1	0,219	2,203	0,625	7,770

Table 6.51 (Continued)

							95,0% CI	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	B
JOB LOCATION			2,981	2	0,225			
JOB_LOCATION (1)	-1,650	0,956	2,979	1	0,084	0,192	0,029	1,251
JOB_LOCATION (2)	-1,270	0,864	2,160	1	0,142	0,281	0,052	1,527
CODE			17,132	7	0,017			
CODE (1)	2,921	1,354	4,651	1	0,031	18,552	1,305	263,704
CODE (2)	2,220	1,325	2,809	1	0,094	9,210	0,686	123,588
CODE (3)	0,485	1,195	0,164	1	0,685	1,624	0,156	16,903
CODE (4)	0,411	1,852	0,049	1	0,824	1,509	0,040	56,852
CODE (5)	-0,826	1,748	0,223	1	0,637	0,438	0,014	13,474
CODE (6)	1,402	1,099	1,626	1	0,202	4,063	0,471	35,050
CODE (7)	-0,607	0,725	0,702	1	0,402	0,545	0,132	2,255
MOBILITY			4,150	3	0,246			
MOBILITY (1)	-1,236	0,711	3,021	1	0,082	0,290	0,072	1,171
MOBILITY (2)	-0,643	0,411	2,456	1	0,117	0,525	0,235	1,175
MOBILITY (3)	-0,609	0,493	1,525	1	0,217	0,544	0,207	1,430
MARRIAGE			6,980	4	0,137			
MARRIAGE (1)	-2,262	,976	5,372	1	0,020	0,104	0,015	,705
MARRIAGE (2)	-0,514	1,024	0,252	1	0,616	0,598	0,080	4,447
MARRIAGE (3)	-0,423	0,802	0,278	1	0,598	0,655	0,136	3,155
MARRIAGE (4)	-0,651	0,699	0,867	1	0,352	0,521	0,132	2,053
HOUSEHOLDS			19,708	7	0,006			
HOUSEHOLDS (1)	0,539	1,026	0,276	1	0,599	1,714	0,230	12,800
HOUSEHOLDS (2)	2,236	1,514	2,181	1	0,140	9,360	0,481	182,108
HOUSEHOLDS (3)	-0,442	1,475	0,090	1	0,765	0,643	0,036	11,585
HOUSEHOLDS (4)	-1,204	1,762	0,467	1	0,494	0,300	0,009	9,476
HOUSEHOLDS (5)	-0,302	1,705	0,031	1	0,859	0,739	0,026	20,914
HOUSEHOLDS (6)	2,089	1,945	1,154	1	0,283	8,080	0,179	365,644
HOUSEHOLDS (7)	-5,226	235,820	0,000	1	0,982	0,005	0,000	2,887
EDUCATION HEAD			18,789	3	0,000			
EDUCATION_HEAD (1)	2,986	1,160	6,629	1	0,010	19,803	2,040	192,238
EDUCATION_HEAD (2)	4,444	1,102	16,272	1	0,000	85,104	9,822	737,363
EDUCATION_HEAD (3)	3,448	1,049	10,810	1	0,001	31,440	4,025	245,566
EDUCATION PARTNER			14,046	3	0,003			
EDUCATION_PARTNER (1)	-3,577	1,838	3,789	1	0,052	0,028	0,001	1,025
EDUCATION_PARTNER (2)	-4,502	1,766	6,501	1	0,011	0,011	0,000	0,353
EDUCATION_PARTNER (3)	-2,849	1,722	2,738	1	0,098	0,058	0,002	1,691
INCOME			7,540	6	0,274			
INCOME (1)	0,496	0,865	0,329	1	0,566	1,642	0,301	8,956
INCOME (2)	0,879	0,745	1,391	1	0,238	2,408	0,559	10,371
INCOME (3)	-0,698	0,721	0,936	1	0,333	0,498	0,121	2,045
INCOME (4)	0,361	0,591	0,374	1	0,541	1,435	0,451	4,568
INCOME (5)	-0,369	0,832	0,197	1	0,657	0,692	0,135	3,530
INCOME (6)	-0,068	0,991	0,005	1	0,945	0,934	0,134	6,511
CREDIT	-0,358	0,341	1,102	1	0,294	0,699	0,359	1,364

Table 6.51 (Continued)

							95,0% CI	
	B	SE	Wald	Df	Sig.	Exp(B)	Lower	B
ROOM			18,944	5	0,002			
ROOM (1)	-3,649	2,533	2,074	1	0,150	0,026	0,000	3,731
ROOM (2)	-3,007	2,488	1,461	1	0,227	0,049	0,000	6,483
ROOM (3)	-3,068	2,598	1,395	1	0,238	0,047	0,000	7,564
ROOM 4)	-4,952	2,657	3,474	1	0,062	0,007	0,000	1,291
ROOM (5)	-8,119	2,974	7,454	1	0,006	0,000	0,000	0,101
CHILDREN			15,787	6	0,015			
CHILDREN (1)	2,490	1,980	1,582	1	0,208	12,061	0,249	583,974
CHILDREN (2)	0,722	1,598	,204	1	0,651	2,058	0,090	47,146
CHILDREN (3)	2,043	1,433	2,034	1	0,154	7,717	0,465	127,969
CHILDREN (4)	2,895	1,410	4,217	1	0,040	18,081	1,141	286,477
CHILDREN (5)	3,144	1,738	3,274	1	0,070	23,194	0,770	698,915
CHILDREN (6)	6,265	2,171	8,328	1	0,004	526,054	7,464	37074,435
SCHOOL	0,612	0,594	1,061	1	0,303	1,844	0,575	5,910
PREFERENCES			10,466	3	0,015			
PREFERENCES (1)	-3,095	1,120	7,640	1	0,006	0,045	0,005	0,406
PREFERENCES (2)	-4,158	1,397	8,859	1	0,003	0,016	0,001	0,242
PREFERENCES (3)	-1,221	1,807	0,456	1	0,499	0,295	0,009	10,189

The first column of the table illustrates the name of independent variables. The next column, B, provides the slope coefficient for the independent variables. This means that, for every 1 unit change in the independent variable, there is B X unit change in the dependent variable. The next column labeled "SE" provides a standard error for the slope coefficient[17]. The third column illustrates the Wald estimates which give the “importance” of the contribution of each variable in the model. The higher the value of the estimate, the more “important” it is (Chan, 2004a). The column df illustrates degrees of freedom. Degrees of freedom equals the number of observations less the number of parameters estimated[18]. The next column shows the significance of the variable. If the t-statistic reported in column four is larger than the critical value you choose for the test, the estimated coefficient is said to be

[17] http://en.wikibooks.org/wiki/Using_SPSS_and_PASW/Ordinary_Least_Squares_Regression

[18] http://www.eviews.com/illustrated/EViews_Illustrated_Chapter_3.pdf

"statistically significant"[19]. Exp(B) illustrates the hazard ratio, and next columns are the lower and upper boundaries.

As it is discussed before, the event in this analysis is the shift from tenancy to homeownership. The analysis is carried on for 95% CI for the hazard ratio (HR). When the Hazard Ratio of the variable is equal to 1, this means that there is no difference between groups of the related variable in having a "shorter time to event". When Hazard Ratio is greater than 1, the group of interest comparing to the reference group is likely to have a shorter time to event. Last of all, having a Hazard Ratio smaller than 1 means, the group of interest is less likely to have a shorter time to event (Chan, 2004).

In this study, wealth effects cannot be measured directly with the data at hand. The variable RENT is included to the analysis in order to measure whether the probability of home purchase is affected from the current wealth of households. However, it was dropped from the chosen model because it is not a significant factor at the end of stepwise Cox Regression Analysis. Also the variable of EMPLOYMENT_PARTNER is dropped from the analysis at the end of stepwise backward regression for the same reason.

From Table 6.51, it is concluded that, p-values for AGE, JOB_LOCATION, MOBILITY, MARRIAGE, INCOME, CREDIT, and SCHOOL are not statistically significant.

Literature survey highlights the importance of income on households' tenure choice. Also, calculations in Chapter 5 support these arguments. That is, Chapter 5 illustrates the importance of income constraints for potential home buyers by showing that households with monthly income less than 1 000 TL are not able to purchase a dwelling unit in current conditions in Turkey. However Chapter 6 highlights an irregular mechanism for home purchase for these households which is

[19] http://www.eviews.com/illustrated/EViews_Illustrated_Chapter_3.pdf

yap-satçı type of home acquisition on squatter settlements. With this mechanism households with less than 1 000 TL monthly income are able to become homeowners of their own dwelling units. This system decreases the importance of family income for determining the probability of homeownership, and the effect of INCOME is not statistically significant in Table 6.51 as a result of Cox Regression Analysis.

The reason is that, calculations in Chapter 5 based on a theoretical framework. By investigating current interest rates, mortgage credits, and monthly income level of households, it shows the difficulty of shifting to homeownership in current conditions in Turkey. As literature shows, countries like Turkey with high mortgage interest rates and with high volatile economic environment create risky conditions for households to purchase a dwelling. In such an environment lower income groups are less willing to purchase a home. Up to this point, calculations are in line with the arguments in the literature on housing tenure choice. However as discussed in Chapter 4, housing market in Turkey has its own specific dynamics. Chapter 6 aims to analyze homeownership by evaluating these dynamics, and the results of the analyses show that parameters in housing market in Turkey have not parallel effects with the literature. The first difference is that, income effect is not as important as in the literature. Low income groups have created their own irregular mechanisms to shift to homeownership which eliminate the effect of permanent income on housing tenure choice.

Literature shows that demographic variables may have an independent effect on tenure choice. Henderson and Ioannides argue that, for age it was unclear what to expect. Age has differing impacts at different stages of the life-cycle (Henderson&Ioannides, 1986), which could affect the probability of homeownership. Generally, these variables relate to the household's stage in the life cycle and the degree to which it is mobile or settled, and age is closely related to the wealth and the income (Bourassa, 2000). Young households may have difficulties in accumulating wealth and paying for downpayment, which may decrease the

probability of owning a home. Also, it is expected that young households are more mobile and are less willing to settle and purchase a home. However, estimations in the Table 6.51 show that age is not a statistically significant factor in our sample. That is, there is no significant relation between the age of responder and the probability of purchasing a home. Owner occupancy is already high at young ages. In order to understand how these households have purchased their home, a crosstab between age and housing acquisition methods is illustrated in Table 6.52.

Table 6.52. Housing Acquisition Methods across Different Age Groups

			Housing Acquisition Methods					
			Purchasing Dwelling from a Seller	Constructing Dwelling on their own Plot by Contracting with a Speculative Builder	Purchasing from the HAD	Purchasing from House-Building Cooperatives	Acquisition as an Exchange of a Land	Total
AGE	21-30	Count	20	4	8	1	2	35
		%	22,7%	12,9%	23,5%	20,0%	18,2%	20,7%
	31-40	Count	22	6	6	1	4	39
		%	25,0%	19,4%	17,6%	20,0%	36,4%	23,1%
	41-50	Count	31	10	6	2	1	50
		%	35,2%	32,3%	17,6%	40,0%	9,1%	29,6%
	51-60	Count	13	3	7	1	2	26
		%	14,8%	9,7%	20,6%	20,0%	18,2%	15,4%
	61-70	Count	2	4	6	0	1	13
		%	2,3%	12,9%	17,6%	0,0%	9,1%	7,7%
	71-80	Count	0	4	1	0	1	6
		%	0,0%	12,9%	2,9%	0,0%	9,1%	3,6%
Total		Count	88	31	34	5	11	169
		%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Table 6.52 shows that the most common home acquisition is purchasing from a seller for the earliest age group. That is HDA houses may provide good opportunity for the younger households who want to purchase a dwelling unit. The next common method is purchasing from the HDA. An interesting point is that households between the age 71 and 80, the most common housing acquisition is Constructing Dwelling on their own Plot by Contracting with a Speculative Builder. These households may have the opportunity of constructing on their own plot by contracting with a speculative builder after some legalization process, so they acquire their dwelling in such old ages.

Table 6.53. Usage of Housing Credit across Different Age Groups

			CREDIT	
			No	Yes
AGE	21-30	Count	23	12
		%	19,7%	23,1%
	31-40	Count	28	11
		%	23,9%	21,2%
	41-50	Count	34	16
		%	29,1%	30,8%
	51-60	Count	17	9
		%	14,5%	17,3%
	61-70	Count	11	2
		%	9,4%	3,8%
	71-80	Count	4	2
		%	3,4%	3,8%
Total		Count	117	52
		%	100%	100%

The results of Cox Regression Analysis also show that CREDIT has no significant effect on homeownership probability as expected from the results of Chapter 5. Chapter 5 illustrates that even long term housing credits do not provide new

opportunities for households who are not able to purchase a dwelling because of high interest rates in mortgage credits in Turkey. In order to define which age group prefers to apply for housing credit the crosstab between housing credits and age is constructed in Table 6.53.

The ratio of applying for housing credit is most common for the age group 41-50. The ratio starts to decrease as households get older as older age groups are less willing to be in long term debt. Table 6.52 illustrates that for the age groups 51-60 and 61-70 housing acquisition as purchasing from HDA has important ratio, and for the households aged 71-80, housing acquisition as constructing dwelling on their own plot by contracting with a speculative builder is the most common method which may also decrease the usage of housing credits.

Table 6.54. Usage of Housing Credit across Different Income Groups

			CREDIT	
			No	Yes
INCOME	< 1000 TL	Count	36	2
		%	31,3%	3,9%
	1 001-1 500 TL	Count	28	10
		%	24,3%	19,6%
	1 501-2 000 TL	Count	14	7
		%	12,2%	13,7%
	2 001-2 500 TL	Count	11	16
		%	9,6%	31,4%
	2 501-3 000 TL	Count	14	4
		%	12,2%	7,8%
	3 001-3 500 TL	Count	4	3
		%	3,5%	5,9%
	>3 501 TL	Count	8	9
		%	7,0%	17,6%
Total		Count	115	51
		%	100%	100%

In order to understand which income groups prefer to apply for housing credits Table 6.54 is constructed. Table shows that usage of housing credits is most common for the income group 2 001-2 500 TL. As expected from the results of Chapter 5, applying for housing credits is less common for households who have permanent income less than 1 000 TL as they would not able to repay the monthly installments of the housing credits. These income groups mostly constructing dwelling on their own plot. That is, for these groups wealth effect on homeownership is much greater than the income and credit effect.

The permanent income of the family is the main determinant of housing demand in countries with advanced housing finance system. In such an environment, there is a high tendency of homeownership, and also it is possible to define a systematic relationship between income of households and the housing demand (Türel, 1996b). However this systematic relation is not visible in Turkey as the results of the analyses show. In Turkey, the demand for homeownership in housing is mostly related to the wealth (especially to the land ownership) of the family than the current permanent income level of households. The results of Cox Regression Analysis in the second step of the study show that permanent income level has no statistically significant effect on homeownership probability. In Turkey, although the Mortgage Law was enacted in 2007, it cannot enable the financial market establish effective mortgage credits as long as interest rates remain high. In fact, it only provides some institutional arrangements on current housing financial system in the country. There are several types of mortgage credits today which provide different repayment schedules with fixed or flexible interest rates. However because of high interest rates, the cost of mortgage debt is too high for especially low and middle income groups. Analyses show that the ratio of using long-term housing credits in housing acquisition is not high in Turkey. The results of the survey show that only 34,3 percent of households have used housing credits when they were purchasing their current homes. Also, 90,5 percent of total surveyed population indicates that, purchasing a home by the help of housing credits makes them feel like they will have limited flexibility in their future choices. Also, down payment

requirement associated with housing credit plays an important role in home purchase particularly for young households with little accumulated wealth. 42 percent of total surveyed population indicates that down payment requirement is a significant obstacle for them in home purchase.

Table 6.55. Ratio of Monthly Repayment Amounts in Household's Total Monthly Income

Mortgage Debt/Income	Frequency	Percent
5	1	1,7
10	5	8,6
20	3	5,2
25	1	1,7
30	11	19,0
35	1	1,7
40	7	12,1
45	1	1,7
50	14	24,1
55	1	1,7
60	3	5,2
65	2	3,4
70	3	5,2
75	2	3,4
90	1	1,7
No Answer	2	3,4
Total	58	100,0

Table 6.55 indicates the ratio of monthly repayment amounts in household's total monthly income. 24,1 percent of households admit that the repayment amount per month is 50 percent of their total monthly income. The first step of the study shows that debt to income ratio should not exceed 36 percent. In this ratio debt for housing should be lower than 28 percent of total income. However Table 6.55 illustrates that

only 17,2 percent of households who used housing credits while purchasing a home satisfies this condition. That is, the cost of mortgage credit is too high in Turkey, and long term housing credits do not provide new opportunities for low income quintiles to purchase their own homes. That is, if a household is not able to purchase a dwelling by saving, they also are not able to borrow sufficient amount of loan to purchase the dwelling.

Table 6.56 illustrates repayment periods of housing credits for those who used housing credits while purchasing a dwelling unit. Table shows that the great majority preferred to use housing credits with 5 year repayment periods. Only 12.1 percent of households preferred to use housing credits with repayment periods more than 10 years. That is, long term housing credits are still not common in Turkey in home purchase.

Table 6.56. Repayment Periods of Housing Credits

Year	Frequency	Percent
2	2	3,4
3	7	12,1
4	7	12,1
5	18	31,0
7	6	10,3
8	1	1,7
9	2	3,4
10	8	13,8
12	1	1,7
14	1	1,7
15	4	6,9
20	1	1,7
Total	58	100,0

Table 6.57. Loan to Value Ratios of Housing Credits for Households who have used Housing Credits while purchasing their Current Homes.

LTV	Frequency	Percent
20	4	6,9
30	5	8,6
40	4	6,9
45	1	1,7
50	7	12,1
55	1	1,7
60	2	3,4
65	2	3,4
70	7	12,1
75	2	3,4
80	9	15,5
90	1	1,7
100	7	12,1
No Answer	6	10,3
Total	169	100,0

Table 6.57 provides information about loan to value ratios of housing credits for households who have used housing credits while purchasing their current homes. In the first part of the study, LTV is taken as 80 percent. The table shows that also 15,5 percent of households used credit amounts which are 80 percent of the value of the related property. However 60,3 percent of households who used housing credits while purchasing the dwelling were able to borrow credit amounts which are lower than 80 percent of the value of the property. An interesting point is that 12,1 percent of households indicate that they were able to borrow credit amounts which provide all the value of the related dwelling unit. These households may have used more than one type of consumer credits with the name of one of their relatives.

These results of the Cox Regression Analysis show that applying for housing credits has no significant effect on the probability of homeownership which support the

hypotheses that credit constraint is still a barrier for households who want to purchase a home in Turkey, and mortgage credits do not significantly increase the probability of homeownership for households.

Table 6.51 shows that there is no statistically significant effect of MOBILITY on probability of purchasing a dwelling unit. This means households preferences about moving or staying in their previous neighborhood's boundaries do not affect the timing they decide to buy the dwelling unit.

Results of Cox Regression Analysis also show that MARRIAGE has no significant effect on the probability of shifting from tenancy to homeownership. When households get married they start to think where they live. They may decide to buy their first home if they have sufficient equity for downpayment, or stay as tenant until to save sufficient amount of money. Some of them afford a dwelling by a great support from their parents. Table 6.49 illustrates that a great portion of responders have been married less than 5 years while purchasing their current dwelling. However there is no statistically significant relation between date of marriage and probability of shifting to homeownership.

"Among the different destinations that can be accessed, access to workplaces has long been examined in studies of travel behavior. Voluminous research has examined criss-cross commuting patterns in polycentric cites. Much of the previous research has assumed that commuting time and cost are endogenous to people's decisions about where to live and work. Thus, a renewed emphasis on location decisions is critical to examining the importance of accessibility for transportation and land development" (Cho, et al.,2008:121). However the analysis in Table 6.51 illustrates that there is no statistically significant relation between the JOB_LOCATION and probability of shifting to homeownership in Turkey. As discussed in the previous sections of the chapter, few households admitted that convenience of access to the workplace are one of the reasons in location choice.

This is another different dynamic of housing market in Turkey which does not support the arguments in the literature.

Another factor which is not significant is SCHOOL. It is expected that households with school-aged children are attached to the locations, and they are more immobile. However, the results of Cox Regression Analysis show that it has no significant effect on the probability of shifting to homeownership.

Table 6.51 illustrates that the p-value is 0,012 for EMPLOYMENT variable which is statistically significant for 95% Confidence Interval. This means, the conditional probability of shifting to homeownership is relatively and significantly related to the employment of household. In order to understand which groups perform better we should look headings under the EMPLOYMENT row. The categorical definition in 6.49 shows that "Not Working" is the control group in EMPLOYMENT (1), and the other two groups are the reference groups. That is, this line in Table 6.49 illustrates whether there is significant difference between the "Not Working" group and the other two groups. Similarly, EMPLOYMENT (2) compares "Working" with the other two groups whether to have a shorter time to event. Table illustrates that the p-value is statistically significant for EMPLOYMENT(1), however it is not significant for EMPLOYMENT(2). That means, there is significant relation between household head who are not working in a stable job and probability of purchasing a home. This probability is also positively related with each other because the Hazard Ratio (Exp (B)) of the related variable is 10,060. That is, the relative probability of purchasing a home for this group is 10,06 times the probability of other groups. The regression coefficient of EMPLOYMENT (1) is 2,309 which also support the positive relation between "Not Working" group and shifting from tenancy to homeownership. That is, in our sample, household head who are not working in a stable job are more likely to purchase a dwelling. The probability of shifting to homeownership in Ankara case is related with the irregular mechanism as discussed before. Because of this mechanism the importance of income and employment effect on determining the probability of shifting to

homeownership decreases. Table 6.58 illustrates the crosstab between housing acquisition method and employment of household head. Table shows that there are 21 households who purchased a dwelling within 3 years and are not working in a stable job. 33,3 percent of these 21 households have purchased the dwelling as the result of ownership of a land. The ratio is much smaller for households who are working in a stable job.

Table 6.58. Housing Acquisition Methods across Employment

		Purchasing Dwelling from a Seller	Constructing Dwelling on their own Plot by Contracting with a Speculative Builder and Acquisition as an Exchange of a Land	Purchasing from HDA Houses	Purchasing from House-Building Cooperative	Total
Not Working	Count	7	7	5	2	21
	%	33,3%	33,3%	23,8%	9,5%	100,0%
Working	Count	63	21	18	2	104
	%	60,6%	20,2%	17,3%	1,9%	100,0%
Retired	Count	18	14	11	1	44
	%	40,9%	31,8%	25,0%	2,3%	100,0%
Total	Count	88	42	34	5	169
	%	52,1%	24,8%	20,1%	3,0%	100,0%

In Chapter 5, the regular mechanisms of purchasing a dwelling are investigated for different income quintiles, and it is concluded that income constraint is an important barrier for most households. This chapter also supports this argument by illustrating the importance of wealth on the probability of purchasing a home. In Ankara case, having a land provides greater opportunity of purchasing a home comparing to having high income or having a regular job. That is, wealth effect on homeownership is much important than the income effect in Turkey.

Table 6.54 also shows that the p-value is statistically significant for CODE. In order to understand which groups the relation is significant we again should look under the subheading of CODE variable. Table shows that, the relation is significant only for CODE (1). In this line, the control group is 1 (Table 6.49). In this group there are households who have purchased their dwelling from a seller in one of the locations of Akpınar, Ata, Dikmen, Huzur, Karapınar, Keklikpınarı, Öveçler, Osman Temiz, Ş. Cengiz Karaca, or Sokullu (Table 6.26). Table shows that there is positive and significant relation between this group of households and home purchase as the Hazard Ratio is 18,552. There is no significant relation between the probability of home purchase and other CODEs.

These findings support the hypothesis of the thesis is that "Forms of housing provision also affect the probability of shifting from tenancy to homeownership for households".

The probability of purchasing a home also statistically significant with HOUSEHOLDS. However model does not identify which group performs better.

The probability of shifting from tenancy to homeownership is statistically related to the EDUCATION_HEAD. From Table 6.49 the categorical definition for Education of Household Head can be obtained. That is, EDUCATION_HEAD (1) in Table 6.49 indicates that "Primary" is the control group, and the other three groups are the reference groups. That is, this line in Table 6.51 illustrates whether there is

significant difference between the “Primary Group” and the other three groups. Similarly, EDUCATION_HEAD (2) compares “High School” with the other three groups whether to have a shorter time to event. In the next row (EDUCATION_HEAD (3)), the control group is “University”. Table 6.51 illustrates that, EDUCATION_HEAD (1), EDUCATION_HEAD (2) and EDUCATION_HEAD (3) have significant p-values. That is, there is positive relation between these levels of education and probability of shifting to homeownership. In order to make a comparison Hazard Ratios of each line is examined. Hazard Ratio is highest for the EDUCATION_HEAD (2) which means households graduated from a high school has the highest probability to shift to homeownership. The next highest probability is for households who graduated from a university. Those households have shorter time to purchase their own dwelling units than households who graduated from a primary school.

Also the p-value is statistically significant for education of partner. Again, the control group is “Primary” for the first row, “High School” for the second row, and “University” for the third row (obtained from the categorical definition in Table 6.49). The line of EDUCATION_PARTNER (2) shows that, the p-value is 0,011 which is statistically significant. The HR value is 0,011 which means that partner graduated from a high school is less likely to shift from tenancy to homeownership because comparing to the reference groups, the control group is likely to have the event which is shifting from tenancy to homeownership.

The probability of shifting from tenancy to homeownership is also negatively related to ROOM as evidenced by statistical significant p-value of 0,002. The relation is significant for ROOM (5) with a corresponding Hazard Ratio of 0,914 which indicates dwelling units with 6+1 room. This means households who preferred to purchase a 6+1 room dwelling unit delay their home purchase until to afford it.

Also Table 6.51 illustrates that p-value is significant for CHILDREN. Households with 3 or 5 children are more likely to purchase a home according to the results of Cox Regression Analysis.

Table 6.59. PREFERENCES across Different Income Quintiles

		< 1000 TL	1 001-1 500 TL	1 501-2 000 TL	2 001-2 500 TL	2 501-3 000 TL	3 001-3 500 TL	>3 501 TL	Total
Same	Count	23	32	19	23	13	7	15	132
	%	17,4%	24,2%	14,4%	17,4%	9,8%	5,3%	11,4%	100,0%
Lower	Count	13	6	1	4	3	0	1	28
	%	46,4%	21,4%	3,6%	14,3%	10,7%	,0%	3,6%	100,0%
Better	Count	2	0	1	0	0	0	1	4
	%	50,0%	,0%	25,0%	,0%	,0%	,0%	25,0%	100,0%
Indifferent	Count	0	0	0	0	2	0	0	2
	%	,0%	,0%	,0%	,0%	100,0%	,0%	,0%	100,0%
Total	Count	38	38	21	27	18	7	17	166
	%	22,9%	22,9%	12,7%	16,3%	10,8%	4,2%	10,2%	100,0%

The p-value is 0,015 for PREFERENCES which is statistically significant. PREFERENCES (1), and PREFERENCES (2) are negatively and significantly related with the probability of purchasing a home. From the categorical definition in

Table 6.49, it is found out that “Same” is the control group for PREFERENCES (1), and “Lower” is the control group for PREFERENCES (2). For PREFERENCES (1), the p value is 0,006, and the corresponding hazard ratio is 0,045, that means households who wait to find a dwelling unit with similar attributes with their tastes delay their home purchase decision until to find it. Table 6.59 illustrates that 132 households among 166 waited to find a dwelling unit until to find the one with same attributes as they want. For PREFERENCES (2), the p value is 0,003, and the corresponding hazard ratio is 0,016. These households who bought a dwelling with a lower attributes than their tastes also have lower chance to purchase a dwelling. This may be the reason that, those households have not sufficient resource to buy the dwelling unit. For this reason they have less opportunity to purchase a dwelling unit. Table 6.59 shows that 46,4 percent of households who purchased a dwelling with lower attributes have monthly permanent income less than 1 000 TL.

This part of the study examines homeownership probability for recent homebuyers by considering 5 different housing acquisition methods. However, next section examines the probability by eliminating home acquisition as a result of land ownership.

6.2.2.3. Cox Regression Analysis for Recent Homebuyers with three Different Housing Provision Methods

In this part of the study, the probability of shifting from tenancy to homeownership is examined by taking into consideration of three different housing provision methods: purchasing dwelling from a seller, purchasing from HDA, and purchasing from house-building cooperatives. Housing acquisition method by constructing dwelling on their own plot by contracting with a speculative builder and acquisition as an exchange of a land are excluded from this part of the study, due to the fact that households do not enter directly into housing market mechanism through contracting with a speculative builder. After excluding these types of provision from the analysis, the related locations where households have bought their

dwelling units by using this acquisition method are also excluded from this part of the study. Table 6.61 illustrates that there are no data in the 4th, 5th, 6th and 8th neighborhood codes in this part of the study.

Again in this part of the study, Cox Proportional Hazard Model is used to estimate hazard ratios of the variables with 95 percent Confidence Interval (CI) level in order to examine the shift from renting to owning. All analyses are carried out by using SPSS 16.0.

Table 6.60 shows the case processing summary of Cox Regression Analysis. There are 14 cases with missing values, so 11,0 percent of the data have to be removed due to missing observations. After cleaning for missing information, there are 113 cases for the analysis. Among these data, there are 32 cases which are censored.

Table 6.60. Case Processing Summary for Cox Regression Analysis with three Provision Methods

		N	Percent
Cases available in analysis	Event[a]	81	63,8%
	Censored	32	25,2%
	Total	113	89,0%
Cases dropped	Cases with missing values	14	11,0%
	Cases with negative time	0	0,0%
	Censored cases before the earliest event in a stratum	0	0,0%
	Total	14	11,0%
Total		127	100,0%

a. Dependent Variable: TIME

Table 6.61. Summary Statistics of Variables and Categorical Definition for Cox Regression Analysis with three Housing Provision Methods

	N	1	2	3	4	5	6	7
AGE	113							
21-30	24	1	0	0	0	0		
31-40	27	0	1	0	0	0		
41-50	38	0	0	1	0	0		
51-60	16	0	0	0	1	0		
61-70	7	0	0	0	0	1		
71-80	1	0	0	0	0	0		
JOB LOCATION	113							
Not Same	81	1	0					
One of Them is Same	25	0	1					
Both Same	7	0	0					
EMPLOYMENT	113							
Not Working	10	1	0					
Working	76	0	1					
Retired	27	0	0					
MARRIAGE	113							
0-5	24	1	0	0	0			
6-10	12	0	1	0	0			
11-15	17	0	0	1	0			
16-20	19	0	0	0	1			
More than 21	41	0	0	0	0			
CHILDREN	113							
0	10	1	0	0	0	0	0	
1	33	0	1	0	0	0	0	
2	47	0	0	1	0	0	0	
3	14	0	0	0	1	0	0	
4	6	0	0	0	0	1	0	
5	2	0	0	0	0	0	1	
6	1	0	0	0	0	0	0	
EDUCATION HEAD	113							
Primary	25	1	0	0				
High School	39	0	1	0				
University	46	0	0	1				
Post-Graduate	3	0	0	0				
EDUCATION PARTNER	113							
Primary	41	1	0	0				
High School	36	0	1	0				
University	34	0	0	1				
Post-Graduate	2	0	0	0				

Table 6.61 (Continued)

	N	1	2	3	4	5	6	7
INCOME	113							
< 1000 TL	11	1	0	0	0	0	0	
1 001-1 500 TL	25	0	1	0	0	0	0	
1 501-2 000 TL	16	0	0	1	0	0	0	
2 001-2 500 TL	26	0	0	0	1	0	0	
2 501-3 000 TL	12	0	0	0	0	1	0	
3 001-3 500 TL	7	0	0	0	0	0	1	
>3 501 TL	16	0	0	0	0	0	0	
CODE	113							
1	37	1	0	0				
2	22	0	1	0				
3	21	0	0	1				
7	33	0	0	0				
MOBILITY	113							
Within the same	20	1	0	0				
Within 2,5 Km.	37	0	1	0				
Within 5 Km.	17	0	0	1				
Not within the Boundary	39	0	0	0				
HOUSEHOLDS	113							
2	16	1	0	0	0	0	0	0
3	44	0	1	0	0	0	0	0
4	37	0	0	1	0	0	0	0
5	9	0	0	0	1	0	0	0
6	3	0	0	0	0	1	0	0
7	1	0	0	0	0	0	1	0
8	3	0	0	0	0	0	0	1
CREDIT	113							
No	68	1						
Yes	45	0						
ROOM	113							
2+1	11	1	0	0	0			
3+1	86	0	1	0	0			
4+1	8	0	0	1	0			
5+1	7	0	0	0	1			
6+1	1	0	0	0	0			
SCHOOL	113							
No	57	1						
Yes	56	0						
PREFERENCES	113							
Same	98	1	0	0				
Lower	11	0	1	0				
Better	2	0	0	1				
Indifferent	2	0	0	0				

Table 6.61 provides information about summary statistics of the variables and categorical definition. A great majority of households did not work in the same location where they are resident. 67,3 percent of households are working in a stable job. Most households have been married for more than 21 years at the time they have purchased their homes. 8,8 percent of surveyed population has no child. The majority of household heads have been graduated from a university, and the majority of household partners have been graduated from a primary school. 9,7 percent of the related surveyed population earns less than 1 000 TL per month, and 14,2 percent of the related population earns more than 3 500 TL. 34,5 percent of sample preferred to move out of 5 km. boundary when they purchased their current dwelling. The average household size is 3,6. 60,2 percent of the related surveyed population did not use housing credit while purchasing the dwelling. The most preferable dwelling is a 3+1 room dwelling unit by the households. Half of the surveyed sample has school-aged children. Most of the related surveyed population waited to purchase a dwelling until they find the one with the same preferences they wanted.

Table 6.61 also illustrates the categorical definition for the Extended Cox Proportional Analysis. In the table, control groups are denoted by 1, and the reference groups are denoted by 0, as discussed in the previous section of the chapter.

The current residence of 32,7 percent of the related population is corresponding to the 1st group of CODE. 1st group includes cases in Akpınar, Ata, Dikmen, Huzur, Karapınar, Keklikpınarı, Orta Öveçler, Osman Temiz, Ş. Cengiz Karaca, and Sokullu where households bought their dwelling units by purchasing from a seller. 19,5 percent of households bought their dwelling unit from the 2nd group. In the 2nd group there are households who bought their dwelling unit from a seller in Kırkkonaklar. 18,6 percent of households are living in the 3rd group who has bought their dwelling unit from a seller in either Güventepe, Kardelen, or Turgut Özal. 29,2 percent of cases are from the 7th group where households bought their dwellings

from the HDA or from house-building cooperatives in either Aşağı Yurtçular, Gayret, Kardelen, Karşıyaka, Ostim, Yenimahalle, or Yeşilevler.

In Table 6.62, the omnibus tests illustrates that the model is statistically significant with a corresponding p-value of 0,029.

Table 6.62. Omnibus Tests of Model Coefficients for Cox Regression Analysis with three Housing Provision Methods

	Overall (score)			Change From Previous Step			Change From Previous Block		
-2 Log Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
518,543	74,223	53	0,029	74,177	53	0,029	74,177	53	0,029

Table 6.63 shows the results of Extended Cox Regression Analysis by considering three housing provision methods. Table 6.63 illustrates that the relationship between shifting to homeownership and explanatory variables of AGE, JOB_LOCATION, MOBILITY, MARRIAGE, INCOME, CREDIT, SCHOOL, and PREFERENCES are not statistically significant. Unlike the results of the previous case, there is no significant difference between PREFERENCES and probability of shifting to homeownership in this case.

The p-value for EMPLOYMENT is 0,006 which is statistically significant. Like in the previous case with five housing provision methods, also in this case there is significant relationship between household head who is not working in a stable job and probability of purchasing a home. There is an increase in the importance of this variable as the HR decreases in Table 6.63.

As in previous case, also in this case there is a significant relation between the probability of CODE and probability of shifting from tenancy to homeownership. Table shows that, the relation is significant for CODE (1). In this group there are households who have purchased their dwelling from a seller in one of the locations Akpınar, Ata, Dikmen, Huzur, Karapınar, Keklikpınarı, Öveçler, Osman Temiz, Ş. Cengiz Karaca, or Sokullu. Table shows that there is positive and significant relation between this group of households and home purchase as the Hazard Ratio is 31,111. This means, purchasing from a seller among different housing acquisition methods provides highest probability of shifting from tenancy to homeownership.

Table 6.63. Estimates of Variables in Cox Regression Analysis with three Housing Provision Methods

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV	0,013	0,008	2,489	1	0,115	1,013	0,997	1,030
AGE			5,145	5	0,398			
AGE (1)	5,056	51,526	0,010	1	0,922	156,975	0,000	1,135
AGE (2)	5,090	51,524	0,010	1	0,921	162,357	0,000	1,170
AGE (3)	4,427	51,521	0,007	1	0,932	83,694	0,000	5,994
AGE (4)	3,235	51,518	0,004	1	0,950	25,407	0,000	1,807
AGE (5)	3,275	51,524	0,004	1	0,949	26,456	0,000	1,906
EMPLOYMENT			10,219	2	0,006			
EMPLOYMENT (1)	2,946	0,922	10,196	1	0,001	19,022	3,119	116,006
EMPLOYMENT (2)	1,285	0,777	2,734	1	0,098	3,614	0,788	16,575
JOB_LOCATION			2,320	2	0,313			
JOB_LOCATION (1)	-1,563	1,073	2,119	1	0,145	0,210	0,026	1,718
JOB_LOCATION (2)	-1,405	0,949	2,192	1	0,139	0,245	0,038	1,576
CODE			9,772	3	0,021			
CODE (1)	3,438	1,267	7,362	1	0,007	31,111	2,597	372,639
CODE (2)	2,714	1,196	5,155	1	0,023	15,096	1,449	157,225
CODE (3)	1,131	1,041	1,181	1	0,277	3,099	0,403	23,829
MOBILITY			2,035	3	0,565			
MOBILITY (1)	-1,225	0,886	1,910	1	0,167	0,294	0,052	1,669
MOBILITY (2)	-0,408	0,442	0,850	1	0,357	0,665	0,279	1,583
MOBILITY (3)	-0,186	0,531	0,122	1	0,727	0,831	0,293	2,352
MARRIAGE			6,817	4	0,146			
MARRIAGE (1)	-2,607	1,146	5,175	1	0,023	0,074	0,008	,697
MARRIAGE (2)	-1,506	1,123	1,797	1	0,180	0,222	0,025	2,005
MARRIAGE (3)	-0,752	0,994	,573	1	0,449	0,471	0,067	3,307
MARRIAGE (4)	-1,141	0,904	1,593	1	0,207	0,320	0,054	1,878

Table 6.63 (Continued)

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	B
HOUSEHOLDS			18,084	6	0,006			
HOUSEHOLDS (1)	-,350	1,279	0,075	1	0,784	0,705	0,057	8,634
HOUSEHOLDS (2)	1,588	1,846	0,740	1	0,390	4,894	0,131	182,498
HOUSEHOLDS (3)	-1,537	1,788	0,738	1	0,390	0,215	0,006	7,161
HOUSEHOLDS (4)	-1,651	1,897	0,758	1	0,384	0,192	0,005	7,894
HOUSEHOLDS (5)	-3,098	2,080	2,218	1	0,136	0,045	0,001	2,663
HOUSEHOLDS (6)	-0,173	2,583	0,004	1	0,947	0,841	0,005	132,927
EDUCATION_HEAD			15,498	3	0,001			
EDUCATION_HEAD (1)	2,543	1,235	4,237	1	0,040	12,713	1,129	143,113
EDUCATION_HEAD (2)	4,122	1,155	12,738	1	0,000	61,660	6,412	592,906
EDUCATION_HEAD (3)	3,381	1,074	9,910	1	0,002	29,390	3,582	241,170
EDUCATION_PARTNER			12,693	3	0,005			
EDUCATION_PARTNER	-3,628	1,945	3,481	1	0,062	0,027	0,001	1,201
EDUCATION_PARTNER	-4,916	1,863	6,962	1	0,008	0,007	0,000	0,282
EDUCATION_PARTNER	-3,388	1,814	3,488	1	0,062	0,034	0,001	1,182
INCOME			5,107	6	0,530			
INCOME (1)	1,421	1,012	1,974	1	0,160	4,143	0,570	30,094
INCOME (2)	0,738	0,805	0,840	1	0,359	2,092	0,432	10,142
INCOME (3)	-0,332	0,816	0,166	1	0,684	0,717	0,145	3,548
INCOME (4)	0,222	0,659	0,113	1	0,736	1,248	0,343	4,538
INCOME (5)	-0,200	0,891	0,050	1	0,823	0,819	0,143	4,693
INCOME (6)	0,406	1,064	0,146	1	0,703	1,501	0,187	12,069
CREDIT	-0,495	0,361	1,889	1	0,169	0,609	0,301	1,235
ROOM			10,829	4	0,029			
ROOM (1)	-1,461	51,542	0,001	1	0,977	0,232	0,000	1,729
ROOM (2)	-0,241	51,533	0,000	1	0,996	0,786	0,000	5,7603
ROOM (3)	-0,412	51,540	0,000	1	0,994	0,663	0,000	4,921
ROOM (4)	-2,750	51,544	0,003	1	0,957	0,064	0,000	4,782
CHILDREN			19,253	6	0,004			
CHILDREN (1)	2,694	2,192	1,510	1	0,219	14,785	0,201	1,085
CHILDREN (2)	0,757	1,749	0,187	1	0,665	2,131	0,069	65,650
CHILDREN (3)	2,481	1,538	2,602	1	0,107	11,949	0,587	243,403
CHILDREN (4)	2,940	1,644	3,200	1	0,074	18,923	0,755	474,389
CHILDREN (5)	4,485	2,064	4,723	1	0,030	88,671	1,553	5,064
CHILDREN (6)	10,532	2,848	13,671	1	0,000	3,750	141,061	9,967
SCHOOL	0,110	0,654	0,028	1	0,867	1,116	0,309	4,023
PREFERENCES			7,456	3	0,059			
PREFERENCES (1)	-3,377	1,251	7,281	1	0,007	0,034	0,003	0,397
PREFERENCES (2)	-4,246	1,742	5,944	1	0,015	0,014	0,000	0,435
PREFERENCES (3)	-6,135	51,538	0,014	1	0,905	0,002	0,000	1,605

Also, the significance of this variable has increased in this case than the previous case because the HR increases from 18,552 to 31,111. In the previous case CODE (1) is the only significant group, however in this case CODE (2) is also a significant factor. CODE (2) indicates the case in which Group 2 is the control group. The second highest probability to shift to homeownership is for households in Group 2. Also households in this group have bought their dwelling units from a seller. In this case, the location is Kırkkonaklar. To sum up, among different housing acquisition methods purchasing from a seller provides highest probability to shift to homeownership.

Again HOUSEHOLDS is significant. However the model does not show which group performs better.

The p-value for the EDUCATION_HEAD is 0,001 which is statistically significant. EDUCATION_HEAD (2) has HR of 61,660 with a corresponding p-value of 0,000. EDUCATION_HEAD (3) has HR of 29,390 with a corresponding p-value of 0,002. EDUCATION_HEAD (1) has HR of 12,713 with a corresponding p-value of 0,04. Thus, the probability of shifting to homeownership is positively and significantly related to these three variables. Households graduated from a high school have the highest probability of shifting to homeownership; however the significance of this variable decreased from the previous case. The second highest probability is for the households graduated from a university. These households are more likely to shift from tenancy to homeownership than household head graduated from a primary school.

The p-value for the EDUCATION_PARTNER is 0,005 which is statistically significant. Cox proportional hazard estimation shows that only the partners who have graduated from a high school (EDUCATION_PARTNER (2)) have a statistically significant p-value with a corresponding HR as 0,007. The probability of shifting to homeownership is also negatively related to this variable. Partners

who have graduated from a high school are less likely to shift from tenancy to homeownership comparing to other three groups.

The probability of shifting from tenancy to homeownership is also negatively related to ROOM as evidenced by statistical significant p-value of 0,029. However, the model does not show which group performs better.

Also Table 6.63 illustrates that p-value is significant for CHILDREN. The estimated hazard ratio for CHILDREN (5) is 88.671 with a corresponding p-value of 0.030, and the estimated hazard ratio for CHILDREN (6) is 3.750 with a corresponding p-value of 0.000. Thus, the conditional probability of shifting to homeownership is positively and significantly related to household size with 4 and 5.

In contrast to previous case, there is no statistically significant relation between PREFERENCES and probability of shifting to homeownership.

In general the results illustrate that, purchasing from a seller among all housing acquisition methods provide the highest probability to shift from tenancy to homeownership in related parts of Ankara.

6.3. The General Evaluation on the Probability of Shifting from Tenancy to Homeownership and Summary of Findings of the Cox Regression Analyses

Chapter 5 aims to investigate different economic ways of purchasing a dwelling unit in theoretical framework. Chapter 6 aims to test this framework by running out a survey in Ankara with recent home buyers. The probability of shifting to homeownership is investigated by taking into account of different socio-economic factors and different housing acquisition methods. The timing of the shift is investigated as the results of different factors, and the data are suitable for Cox Proportional Hazard Model. Cox Proportional Hazard Model provides information

about duration of time when households shift from tenancy to homeownership. All analyses in this part of the study are carried out by using SPSS 16.0. The data collected are used to construct Cox Regression Analysis containing 19 explanatory variables.

In order to run a Cox Regression analysis, the explanatory variables should satisfy the Proportional Hazard Assumption. Analysis shows that, variables of FLOOR_SIZE, TYPE, and CODE do not satisfy the assumption of Proportional Hazard. Extended Cox Regression Model is used by including the variable of CODE. However the model does not give the opportunity to include FLOOR_SIZE and TYPE into the model. Also, RENT and EMPLOYMENT_PARTNER are dropped from the chosen model in the stepwise analysis because they are not thought as significant factors at the end of backward Cox Regression Analysis.

Two different analyses are carried with the help of Cox Regression Analysis in this chapter. In the first one, the shift is investigated for the five different housing acquisition methods: Purchasing Dwelling from a Seller, Constructing Dwelling on their own Plot by Contracting with a Speculative Builder, Acquisition as an Exchange of a Land, Purchasing from HDA, and Purchasing from House-Building Cooperative. In the second analysis, housing acquisition methods as Constructing Dwelling on their own Plot by Contracting with a Speculative Builder and Acquisition as an Exchange of a Land are excluded from the analysis. Table 6.64 illustrates the summary of these two models.

In both analysis, p-values for AGE, JOB_LOCATION, MOBILITY, MARRIAGE, INCOME, CREDIT, and SCHOOL are greater that 0,05 which means these factors are not statistically significant at 95 % confidence interval level.

Analyses carried out in Chapter 5 have similar findings with the literature survey in Chapter 5. That is, it shows the importance of income and credit constraints on tenure choice especially for lower income groups. However as it is discussed before

when historical developments of housing market in Turkey are investigated, it shows very different background developments and dynamics. In order to evaluate these different dynamics of housing market in Turkey, researches were carried out in different housing submarkets in Ankara as a case study. The researches put forward interesting evidences which support the uniqueness of housing market in Turkey.

As the results of Cox Regression Analysis shows, the first difference from the literature is about the effect of permanent income on household's tenure choice. There is no statistically significant relation between permanent income and housing tenure choice in our sample.

Chapter 5 illustrates the importance of income constraints for potential home buyers. Results of calculations in Chapter 5 show that households with less than 1 000 TL monthly income are not able to purchase a dwelling by considering five different economic ways. However, Chapter 6 illustrates that, 22 percent of total surveyed population who have purchased a dwelling unit within 3 years in related parts of Ankara have average income less than 1 000 TL per month. An interesting point is that, 61 percent of these households purchased their dwelling as a result of their ownership of a land which points a new mechanism in home purchase in addition to five different economic methods discussed in Chapter 5. This irregular mechanism for home purchase is yap-satçı type of home acquisition on squatter settlements. With this mechanism, households with less than 1 000 TL monthly income are able to become homeowners of their own dwelling units, as they were previously owners of squatter settlements in related parts. This system decreases the importance of family income for determining the probability of homeownership, and the most effective factor on the probability of the shift from tenancy to homeownership is household's wealth in our sample as the result of this irregular housing provision method.

Table 6.64. Summary Results of 1st and 2nd Analyses

1st Analysis	2nd Analysis	
Significant Variables	Significant Variables	Change in Significance at the end of 2nd Analysis
EMPLOYMENT	EMPLOYMENT	
Positive relation between Household Head not working in a stable job	Positive relation between Household Head not working in a stable job	Increase in Significance
CODE	CODE	
Positive relation between Purchasing from a Seller in Akpınar, Ata, Dikmen, Huzur Karapınar, Keklikpınarı, Öveçler, Osman Temiz, Ş. Cengiz Karaca, Sokullu	Positive relation between Purchasing from a Seller in Akpınar, Ata, Dikmen, Huzur Karapınar, Keklikpınarı, Öveçler, Osman Temiz, Ş. Cengiz Karaca, Sokullu	Increase in Significance
	Positive relation between Purchasing from a Seller in Kırkkonaklar	
HOUSEHOLDS	HOUSEHOLDS	
Model does not identify which group performs better	Model does not identify which group performs better	
EDUCATION_HEAD	EDUCATION_HEAD	
Household Head graduated from a high school has the highest probability	Household Head graduated from a high school has the highest probability	Decrease in Significance
Household Head graduated from a university has the next highest probability	Household Head graduated from a university has the next highest probability	Decrease in Significance
Household Head graduated from a primary school has the lowest probability	Household Head graduated from a primary school has the lowest probability	Decrease in Significance
EDUCATION_PARTNER	EDUCATION_PARTNER	
Partner graduated from a high school shows the lowest probability	Partner graduated from a high school shows the lowest probability	Decrease in Significance
ROOM	ROOM	
Negative relation between 6+1 room dwelling unit	Model does not identify which group performs better	
CHILDREN	CHILDREN	
Households with 5 children have the highest probability	Households with 4 children have the highest probability	
Households with 3 children have the second highest probability	Households with 5 children have the second highest probability	
PREFERENCES		
Households who want to purchase a dwelling with similar attributes are more likely to delay their purchase		
Households who buy a dwelling with a lower attributes have lower chance to shift to homeownership		
Not Significant Variables	Not Significant Variables	
AGE	AGE	
JOB_LOCATION	JOB_LOCATION	
MOBILITY	MOBILITY	
MARRIAGE	MARRIAGE	
INCOME	INCOME	
CREDIT	CREDIT	
SCHOOL	SCHOOL	
	PREFERENCES	

As Table 6.64 illustrates, another insignificant factor is household's age. The results of the survey show that owner occupancy is already high at young ages. Another result is that, households preferences about moving or staying in their previous neighborhood's boundaries do not affect the timing they decide to buy the dwelling unit.

Analyses in this thesis show that date of marriage has no significant effect on the probability of shifting from tenancy to homeownership, and there is no statistically significant relation between the job locations of households and the probability of shifting to homeownership. It is expected from the literature survey that households with school-aged children are attached to the locations, and they are more immobile. However, the results of Cox Regression Analysis show that it has no significant effect on the probability of shifting from tenancy to homeownership in this sample. These results provide arguments in contrast the findings of the literature.

The results of Cox Regression Analysis also show that applying for housing credits has no significant effect on homeownership probability as expected from the results of Chapter 5. Chapter 5 has also showed that even long term housing credits do not provide new opportunities for households to purchase a dwelling unit. The reason is that, interest rates in mortgage credits are too high to provide significant opportunities for households who aim to purchase a dwelling unit in Turkey.

Table 6.64 shows that there is positive relation between household head who is not working in a stable job and probability to shift to homeownership. The relation between household head's employment and probability of shifting to homeownership is significant as the literature suggests; however there is a reverse effect of what is expected. The same discussions about permanent income also can be repeated about this topic. As the wealth effect is greater than the income effect in our sample, the importance of working in a stable job decreases.

The Cox Regression Analysis shows that among different housing acquisition methods, purchasing from a seller provides the highest probability for households who want to purchase a dwelling unit. Also among different locations, Akpınar, Ata, Dikmen, Huzur, Karapınar, Keklikpınarı, Öveçler, Osman Temiz, Ş. Cengiz Karaca, or Sokullu provide highest homeownership probability. As discussed above, in the second part of the study, the probability of shifting from tenancy to homeownership is examined by taking into consideration of three different housing acquisition methods: purchasing dwelling from a seller, purchasing from HDA, and purchasing from house-building cooperatives. After excluding two types of provision from the analysis, the related locations where households have bought their dwelling units by using these acquisition methods are also excluded from this part of the study. That is, there are no data in the 4^{th}, 5^{th}, 6^{th} and 8^{th} neighborhood codes in the second part of the study. In addition to households who purchased their dwelling from a seller in one of the locations at Akpınar, Ata, Dikmen, Huzur, Karapınar, Keklikpınarı, Öveçler, Osman Temiz, Ş. Cengiz Karaca, or Sokullu, also households who purchased the dwelling from a seller in Kırkkonaklar are more likely to purchase a dwelling in the second case. To sum up, among different housing acquisition methods purchasing from a seller provides the highest probability for the shift from tenancy to homeownership. These arguments support the hypothesis that "Forms of housing provision also affect the probability of shifting from tenancy to homeownership for households".

In the model there is significant relation between the probability to shift from tenancy to homeownership and size of households; however the model does not show which group performs better in both cases.

The probability of shifting from tenancy to homeownership is positively related to the education level of household head. Household heads graduated from a high school has the highest probability to shift to homeownership. The next highest probability is for households who graduated from a university. Those households

have shorter time to purchase their own dwelling units than households who graduated from a primary school.

Also the p-value is statistically significant for education level of partners. Partners graduated from high school are less likely to shift from tenancy to homeownership according to the results of Cox Regression Analysis.

The probability of shifting from tenancy to homeownership is also negatively related to 6+1 room dwelling units in the first analysis. This means households who preferred to purchase a 6+1 room dwelling unit delay their home purchase until to afford it. Again, in the second model the variable has significant effect; however the analysis does not show which groups perform better.

Households with 3 or 5 children are more likely to purchase a home according to the results of the first Cox Regression Analysis. In the second model, the conditional probability of shifting to homeownership is positively and significantly related to households with 4 or 5 numbers of children.

Another result of the first analysis is that, households who wait to find a dwelling unit with similar attributes with their tastes delay their home purchase decision until to find it which means for these households the probability of shifting to homeownership decreases. Also, households who bought a dwelling with lower amount of attributes than their tastes also have lower chance to purchase a dwelling. This may be the reason that, those households have not sufficient resource to buy the dwelling unit. For this reason, they have less opportunity to purchase a dwelling unit. However, Table 6.64 shows unlike the results of the previous case, there is no significant relation between PREFERENCES and probability of shifting to homeownership in the second case.

The clear message that comes out of this survey is that financial consideration dominates process of purchasing a house. When households were asked for the

primary reason for their decision about their current dwelling unit, households indicate that housing prices in the location, location of the dwelling unit, and physical characteristics of the dwelling have affected their decision while purchasing a dwelling in that location. Among physical characteristics, floor size of the dwelling unit has been the most significant factor influencing household's decision while purchasing a dwelling unit. Age, heating system and security of the dwelling unit, and being in a housing estate have been also determinant factors on household's decision.

Households also indicated that physical characteristics of location like transportation facilities and infrastructure have been important reasons while selecting a neighborhood. Also respondents reported socio-economic characteristics and cultural backgrounds of dwellers at that location, and proximity to the CBD as important reasons for choosing a neighborhood.
As consistent with the results of Cox Regression Analysis, few households admitted that convenience of reaching to relatives and friends, convenience of access to the workplace, and the schools of their children have been the main criterion for selecting a neighborhood.

These findings support three hypotheses as "The demand for a dwelling in different housing submarkets in Ankara is related with socio-economic backgrounds of households as well as characteristics of dwelling units in each submarket", "Existence of housing submarkets with highly differentiated price levels enable households with different income to buy the preferred housing package at the submarkets with affordable price level", and "Households choose to buy housing in submarkets where households of similar socio-economic characteristics live, although there may be housing alternatives with similar attribute endowments and prices in some other submarkets. Therefore, there is high mobility between only certain housing sub-markets". As discussed in Chapter 5, there are various housing submarkets which have been highly differentiated by prices. Dwelling units with very similar physical characteristics may have very different prices in relation to its location and socio-economic backgrounds of dwellers at that location. As a result of

this mechanism, households have chance to purchase a dwelling in different locations which increase the probability of purchasing a home for different income groups.

6.4. Conluding Remarks

In Chapter 5, the regular mechanisms of purchasing a dwelling are investigated for different income quintiles, and it is concluded that income constraint is an important barrier for most households as in line with the discussions in the literature on housing tenure choice. This chapter shows other dimensions of housing phenomenon of housing market in Turkey which do not support the discussions on the literature. These dimensions eliminate the importance of income effect in the probability of homeownership in Turkey; in fact it emphasizes the importance of household's wealth on the probability of purchasing a home. In Ankara case, having a land provides greater opportunity of purchasing a home comparing to having high income or having a regular job.

CHAPTER 7

CONCLUSION

This chapter summarizes the general findings of the study, and also some policy proposals and future research areas are aimed to be formulated in this part of the study. The main subject of the thesis is to investigate transition from tenancy to homeownership based on two steps with the help of case study of Ankara in order to make a contribution to the literature on housing tenure choice. The first step is based on economic analysis with theoretical framework, and the second step is based on spatial analysis to test these theoretical findings of the first step.

In the first step, it is investigated that, which households are able to shift from tenancy to homeownership by taking into account of wealth and income constraints. By considering households' monthly measurable income, different economic ways of shifting from tenancy to homeownership are examined for different income quintiles in the first step of the study. The analysis based on the data from Households Budget Survey (formerly called Households Income and Consumption Expenditures Surveys) from Turkish Statistical Institute. The data present information about households' income and allocation of household budget on different consumption items, including housing. On the basis of saving information, possibility of accumulating the required equity for home purchase for different income quintiles, which are differentiated according different tenure types, are calculated in the first part of the study in order to investigate the possibility for homeownership for different income groups. That is, the first step of the study seeks answers to the question that "which income quintiles economically are able to shift from tenancy to homeownership, and which income quintiles are not".

In this part of the study, by considering a standard 3+1 room dwelling unit in different parts of Ankara, the variation of prices in these different locations is identified. Different ways of shifting from tenancy to homeownership are examined under five cases by considering these different prices of eight locations (Çankaya, Mamak, Altındağ, Gölbaşı, Etimesgut, Sincan, Keçiören, and Yenimahalle). In the first case, house purchase without using housing credits or borrowing from other individuals is investigated. The only source of house purchase is household's monthly savings. In the second case, house purchase by using housing credits based on monthly repayment potentials of households is examined. In this case, it is aimed to investigate whether long term housing credits help those households who are not able to purchase a dwelling in the first case. In the third case, again house purchase by using housing credits is investigated; however in this case, available credit amounts are calculated based on debt to income ratio. The forth case assumes that households may change their expenditure behavior when they decide to make an investment plan, and this case examines the ways of home purchase by assuming that households limit their expenditures. Whether the possibility of purchasing a house increases is investigated in this case. In the last one, house purchase is investigated by assuming that saving rates of households increase 2 percent in each year.

After investigating which income quintiles are able to achieve the shift to homeownership, the timing of the shift from tenancy to homeownership is investigated by considering effects of different social and economic factors in the second step of the study. In this part, it is aimed to figure out in which period of their lives households make decision to shift from tenancy to homeownership for those who are economically able to achieve this transition. While examining the probability of the shift from tenancy to homeownership, also households' decision on housing packages and location are investigated in this step of the study. Households start to seek for dwelling units with particular bundle of attributes, suitable location, and acquirable prices. These investigations are also differentiated for different housing provision methods in order to make a comparison between the

probabilities of homeownership that different methods provide. For this step, a survey was carried out in Yenimahalle and Çankaya in Ankara. Results of the survey provide information about variation of the probability of becoming homeowners according to the forms of different housing provision methods. That is, the second step of the study examines the question "how social and economic factors affect decision of households about tenure transition, and which period of their lives households make the decision to shift" for income groups who are economically able to achieve this shift. In the second step of the study, also the question of "how bundles of housing packages with different attributes, locations and prices differentiate across different process of shifting to homeownership" is examined for households who decide to buy a dwelling and become homeowners.

This chapter is the spatial analysis of the issues specified theoretically in the previous stage. Yenimahalle and Çankaya in Ankara were chosen as samples of housing developments with different forms of provision. The list of addresses in the survey was chosen by particularly giving attention to include housing units with different properties and different provision methods. The survey has included 38 questions about socio-economic characteristics of households, characteristics of each household's dwelling unit, locational preferences of households, and their process of shifting from tenancy to homeownership. The survey was carried out for collecting data from recent home buyers only. A total of 184 households were interviewed in Ankara (92 in Yenimahalle and 92 in Çankaya) who have bought a dwelling within the years 2008, 2009, and 2010.

In this step, Cox Proportional Hazard Model is used to identify what specific life course events are important in the shift from tenancy to homeownership. Cox Proportional Hazard Model can provide important results to evaluate the role of socio-economic factors affecting the episode of housing tenure change.

Also in this step there are two cases. In the first one, the shift is investigated for the five different housing acquisition methods: Purchasing Dwelling from a Seller,

Constructing Dwelling on their own Plot by Contracting with a Speculative Builder, Acquisition as an Exchange of Land, Purchasing from HDA, and Acquiring through a House-Building Cooperative. In the second analysis, housing acquisition methods of Constructing Dwelling on their own Plot by Contracting with a Speculative Builder and Acquisition as an Exchange of Land are excluded from the analysis as households do not enter housing market directly with these methods, and the regression is carried out for other three housing acquisition methods.

General Findings of the Study:

One of the results of the analyses is about different house prices of different locations in Ankara. Prices of a 3+1 room dwelling units in different locations of Ankara are investigated in the study in order to examine households' access to homeownership at different locations. Even these dwelling units have similar physical characteristics, average prices differ from 55.000 TL to 420.000 TL. This differentiation is caused by the location of the dwelling units. It is interesting that a dwelling unit with similar physical characteristics may be priced at 55.000 TL in Yenikent and however it may be priced at 420.000 TL in Angora Evleri. There are highly differentiated price levels in housing submarkets in Ankara even if dwelling units have similar physical characteristics. The locations with most expensive house prices are Angora Evleri, Yıldız, Bilkent, Mebusevleri, Çukurambar in Çankaya and Konutkent, Mesakoru in Yenimahalle. The locations with lowest house prices are 30 Ağustos in Etimesgut, and Yeniçimşit, Yenikent in Sincan. This differentiation enables households with different income to purchase housing packages with affordable prices according to their income levels. However the results of the calculations show that there are still lower income groups who are not able to afford housing even in the locations with the lowest prices. The next purpose of the study is to identify which income quintiles cannot afford the shift from tenancy to homeownership and to evaluate the reasons of this failure.

In order to investigate the affordability of homeownership, the thesis investigates the relationship between income, wealth accumulation and savings of households in the process of shifting from tenancy to homeownership. The thesis investigates different economic ways of purchasing a dwelling unit in the first part of the study, and it shows that households with less than 1 000 TL per month are not able to purchase a dwelling unit in any conditions with a theoretical framework. That is, the thesis puts forward that income and wealth constraints are important barriers in homeownership for low and middle income groups in Turkey. After the conclusion, then the next aim is to evaluate whether long term housing credits help these households to afford their own homes. Long term housing credits provide the greatest probability of homeownership for households in countries with well developed housing credit systems. In these countries, housing credits are one of the cheapest and the most common way of house purchase due to low interest rates. However, this mechanism in Turkey is not as functional as in those countries. Also, volatile economic environment with relatively higher inflation rates in Turkey makes long-term housing credits risky for low and middle income groups. This study shows that, mortgage credits do not significantly increase the probability of homeownership for households who are not able to purchase a dwelling. That is, the cost of mortgage credit is too high in Turkey, and long term mortgage credits do not provide new opportunities for low income quintiles to purchase homes. If households are not able to purchase a dwelling by saving, they are also not able to borrow sufficient amount of loan to purchase the dwelling.

Up to this first point of the study, findings of the research in the first step have important parallel arguments with the literature on housing tenure choice. However, the second part of the study illustrates an irregular mechanism in housing sector in Turkey which decreases the importance of income effect on home purchase, which is contrary to the vast literature on housing studies.

That is, first step of the thesis illustrates the importance of income constraints for potential home buyers. Results of calculations show that households with less than

1 000 TL monthly income are not able to purchase a dwelling by considering five different economic ways. However, the results of the surveys carried out in Yenimahalle and Çankaya with recent homebuyers illustrate that 22 percent of total surveyed population have average permanent income less than 1 000 TL per month. An interesting point is that, 61 percent of these households purchased their dwelling as a result of their ownership of a land, which points a new mechanism in home purchase in addition to five economic methods discussed in the first step of the study. This irregular mechanism for home purchase is build-and-sell type of home acquisition in former squatter settlements. With this mechanism, households with less than 1.000 TL monthly income are able to become homeowners, as they were previously owners of squatter housing in these locations in Ankara. This system decreases the importance of family income on determination of the probability of homeownership.

Another finding of the study shows different dynamics of housing sector in Turkey as related to social factors. Analyses show that effects of social factors are highly different in Turkey than the countries with rooted advanced housing system. One of the findings of the Cox Regression Analysis supporting this different mechanism of the housing sector in Turkey is about employment. The results of Cox Regression Analysis show that the relation between household head's employment and the probability of shifting to homeownership is significant. However there is a reverse effect of what is expected as the result of the literature survey. The probability is positively related with household heads who are not working in a stable job. That is, in our sample, household heads who are not working are more likely to purchase a dwelling. This is due to the fact that wealth effect is greater than the income effect in home purchase because housing system in Turkey cannot provide a well functional housing finance system which provides opportunity for households to become homeowners with their incomes. Accumulation of wealth may be due to selling properties, including unauthorized built housing. Another factor that causes reverse effect is about education levels of households. In the literature, it is argued that high education level increases the probability of homeownership. However in

Turkey household heads graduated from a high school have the highest probability of becoming homeowners. Unfortunately it was not possible to trace the sources of the wealth that creates the equity in housing purchase.

To sum up, the permanent income of the family is the main determinant of housing demand in countries with advanced housing finance system. In such an environment, there is a high tendency of homeownership, and also it is possible to define a systematic relationship between income of households and the housing demand (Türel, 1996b). However this systematic relation is not visible in Turkey as the results of the analyses show. The results of Cox Regression Analysis in the second step of the study illustrate that permanent income level has no statistically significant effect on homeownership probability. In Turkey, the demand for homeownership in housing is mostly related to the wealth (especially to the land ownership) of the family than the permanent income level of households.

In Turkey, although the Mortgage Law was enacted in 2007, it has not enabled the establishment of an effective mortgage credit system yet, as interest rates still remain high. In fact, it only provides some institutional arrangements on current housing financial system in the country. There are several types of mortgage credits today which provide different repayment schedules with fixed or flexible interest rates. However because of high interest rates, debt services are too high for especially low and middle income groups. Analyses show that the ratio of using long-term housing credits in housing acquisition is not high in Turkey, and housing credits do not provide new opportunities for homeownership for low and moderate income groups.

Policy Proposals and Future Research Areas:

The aim of the thesis is to examine the shift from tenancy to homeownership by focusing different factors and problems affecting this shift. It is aimed to investigate which population segments are facing housing affordability and which are not by

taking into account of different income quintiles. It is aimed to create a perspective for the community's goal for housing strategy and expected socio-economic trends and future demand for housing.

The thesis investigates the regular mechanisms of purchasing a dwelling unit for different income quintiles in a theoretical framework, and it is concluded that income constraint is an important barrier for most households in the first part of the study. However, a survey carried out in the second part of the thesis has revealed an irregular mechanism which shows the importance of wealth accumulation on the probability of purchasing a home. That is, the outcomes from the empirical analysis in the thesis shed light to an implicit mechanism in which wealth effect dominates income effect in home purchase. That is, having ownership of a plot provides greater opportunity of purchasing a home comparing to having high income or having a stable job.

By examining Turkey with the help of Ankara case in this perspective, it is found out that housing system in Turkey is a highly different functional system than countries with advanced housing finance system. In 2004, legal proceedings on the Mortgage Law were launched in Turkey, and the Law was enacted on February 21st in 2007. The findings of this study support the argument that the law is not able to fulfill the total deficiency in this area by showing that housing credits do not offer homeownership opportunities for low-to-moderate income groups due to high interest rates in housing credits. There is an important deficiency in housing finance system in Turkey. First time home buyers are not able to purchase a dwelling unit unless they have accumulated sufficient amount of equity or getting support from their parents due to the deficiency in the housing finance system caused by high interest rates. The policies produced to create solutions for this problem should focus on eliminating the deficiencies in the housing finance system by providing some affordable solutions for lower income households. In other words, unregulated housing market could not create conditions for housing acquisition for moderate-to-lower income households.

Turkey is a country with an active housing construction sector, and high level of output gives the indication of excess supply in the housing market. Although high levels of housing output continues, social differences in the society lead to much differentiation on the demand side, which has not been adequately treated by government policies. Housing built and sold by providing credits mostly to moderate-to-lower income households by the Housing Development Administration has about 10 per cent market share, which is much less than the share of households that need assistance in housing acquisition.

This housing provision system without regarding social differences in the society limits the access of different socio-economic groups to homeownership. For this reason, low income groups provide their own irregular mechanism in order to become homeowners in addition to regular housing provision methods. The housing system in Turkey still takes its roots from this irregular mechanism which provides obstacles to make estimation about housing demand and supply in Turkey.

Policies about provision of housing for low income groups should be one of the main agendas of the authorities. One of the solutions for these income groups, who cannot afford a dwelling, can be the provision of social renting housing in Turkey. The deficiency in the qualified housing stock increases the prices of houses. The implication of social renting housing in Turkey can support the affordable housing for low-moderate income groups, and as a consequence it can improve income equality in the society. The ways to strengthen the support for affordable housing by focusing on housing needs of different groups can produce effective policies for the main roots of the problem in housing sector in Turkey. Therefore, future research should attempt to focus on policies on affordable housing supply and the applicability of social renting housing in Turkey.

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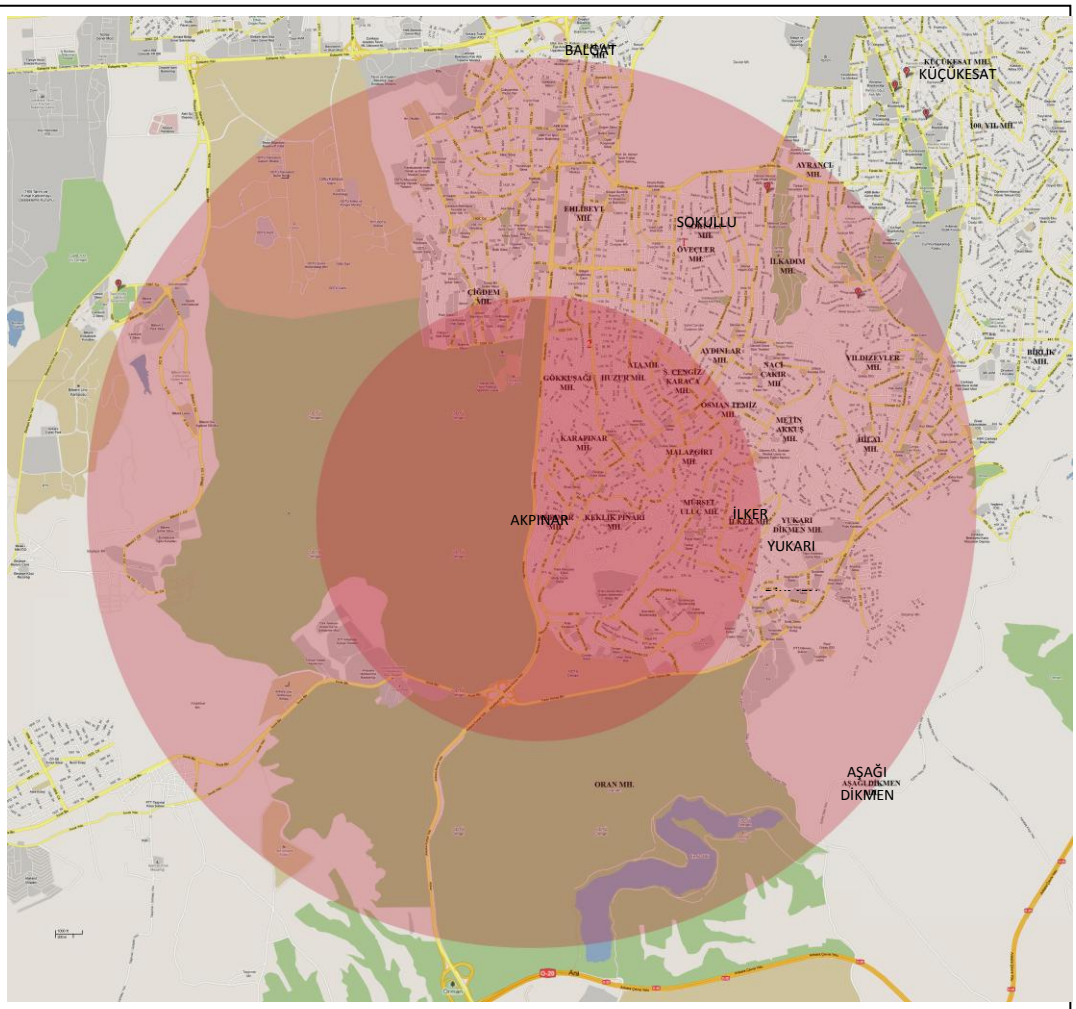
APPENDIX A

MOBILITY



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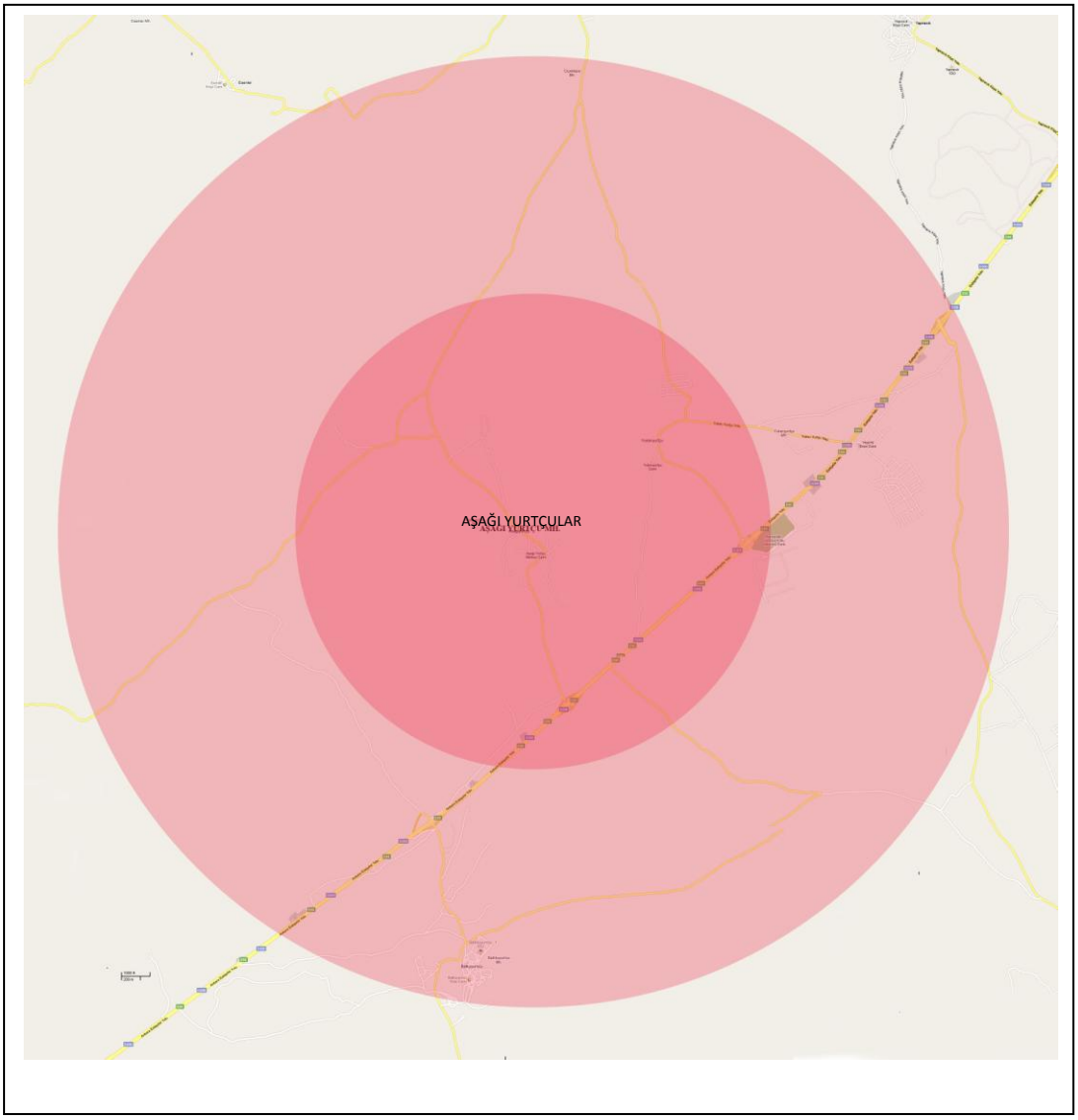

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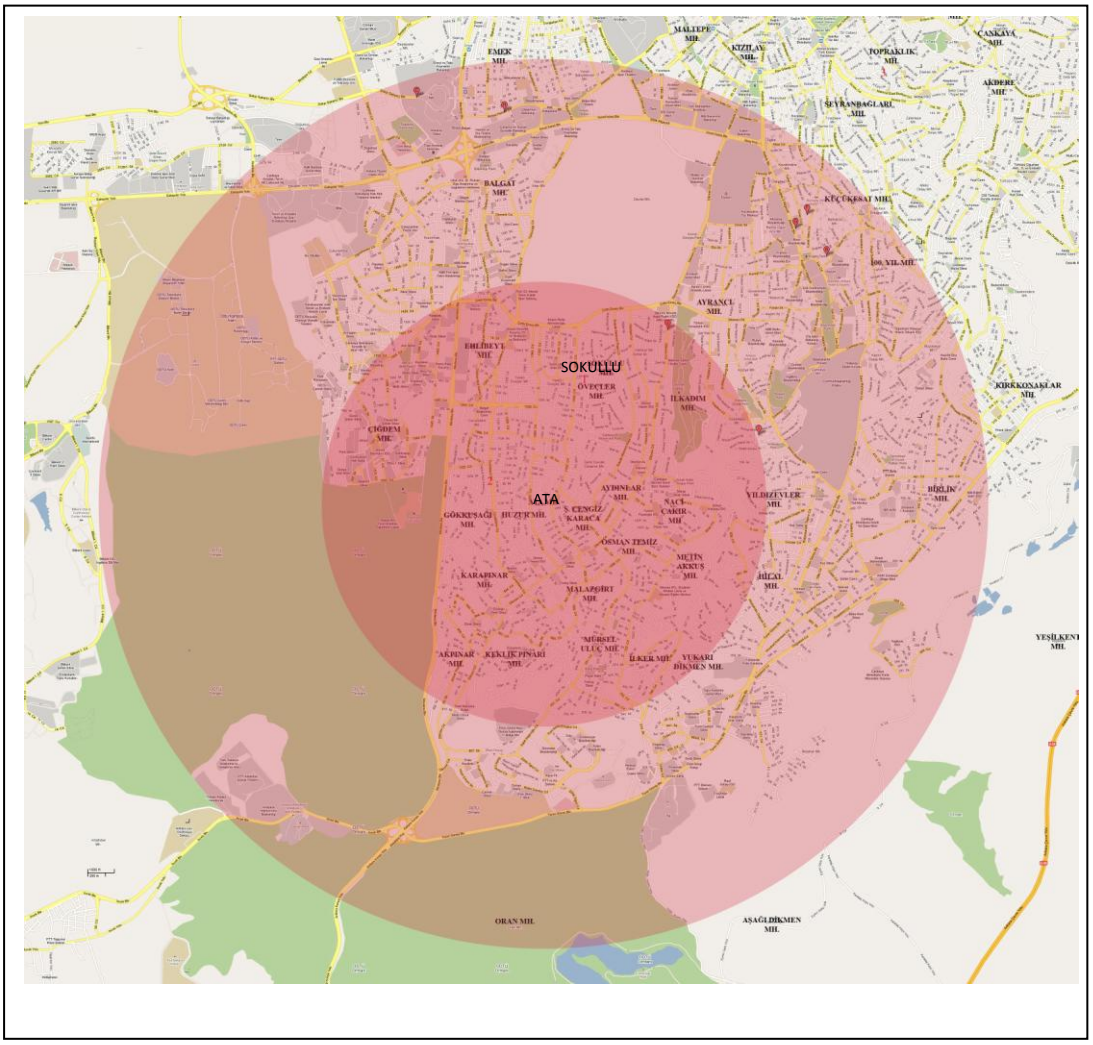

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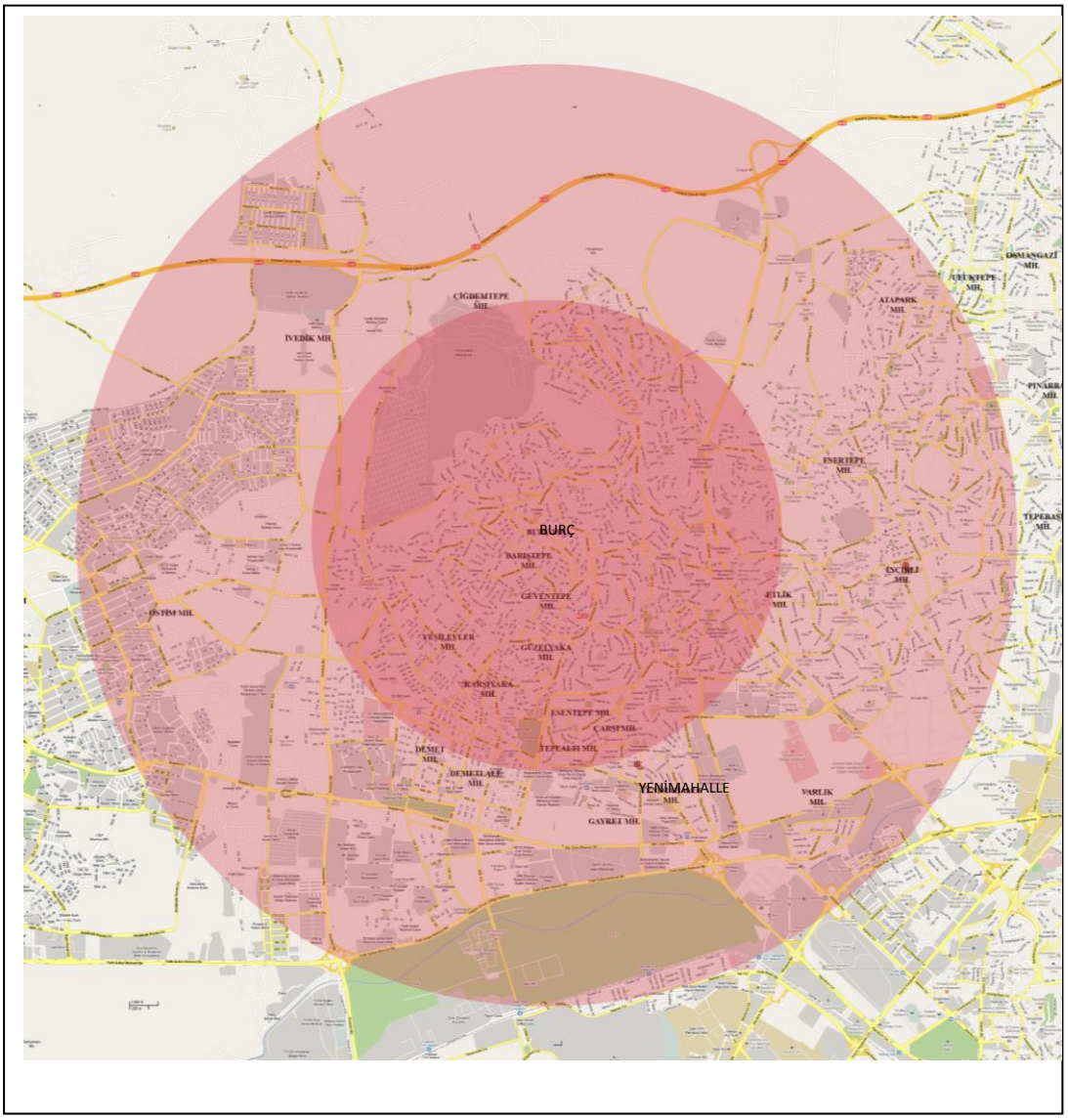

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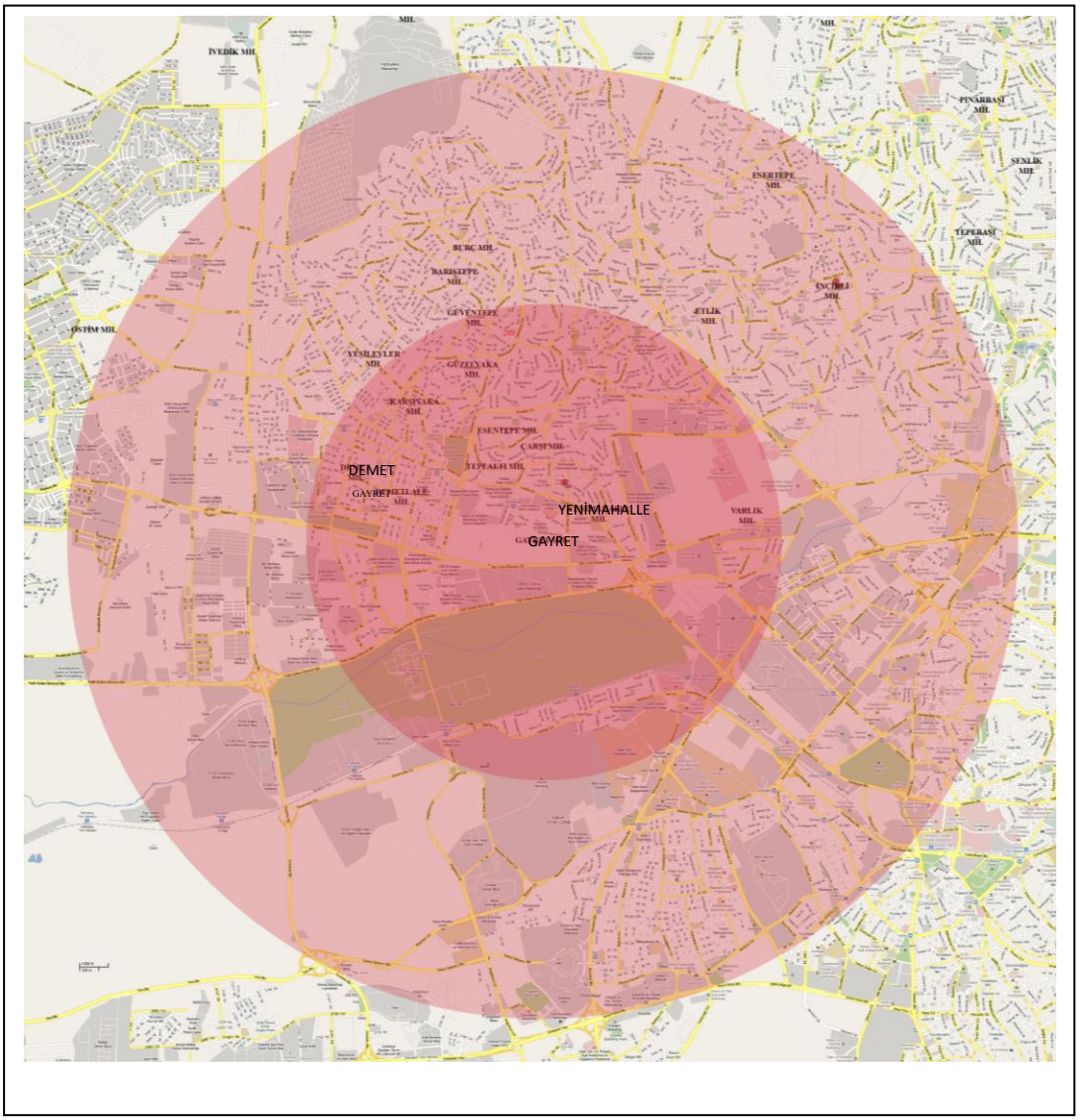

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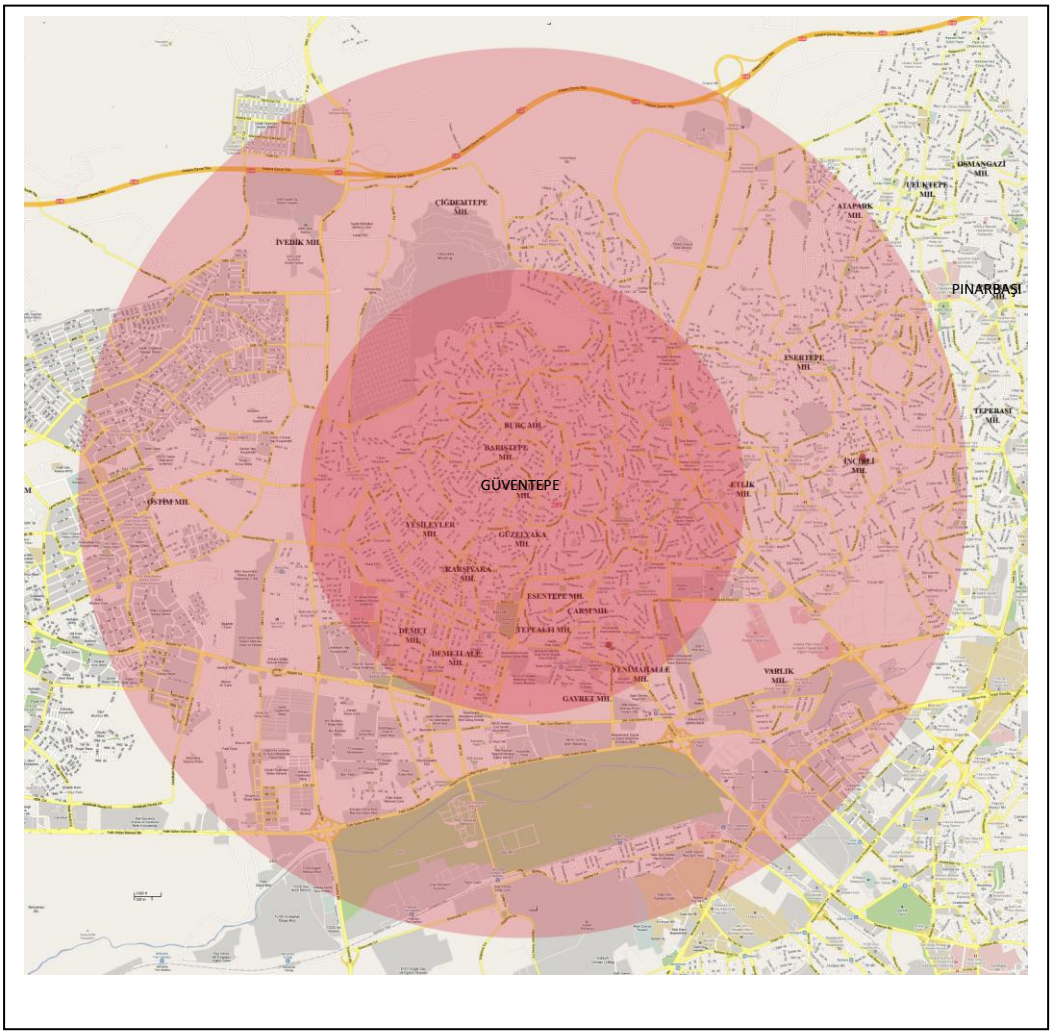

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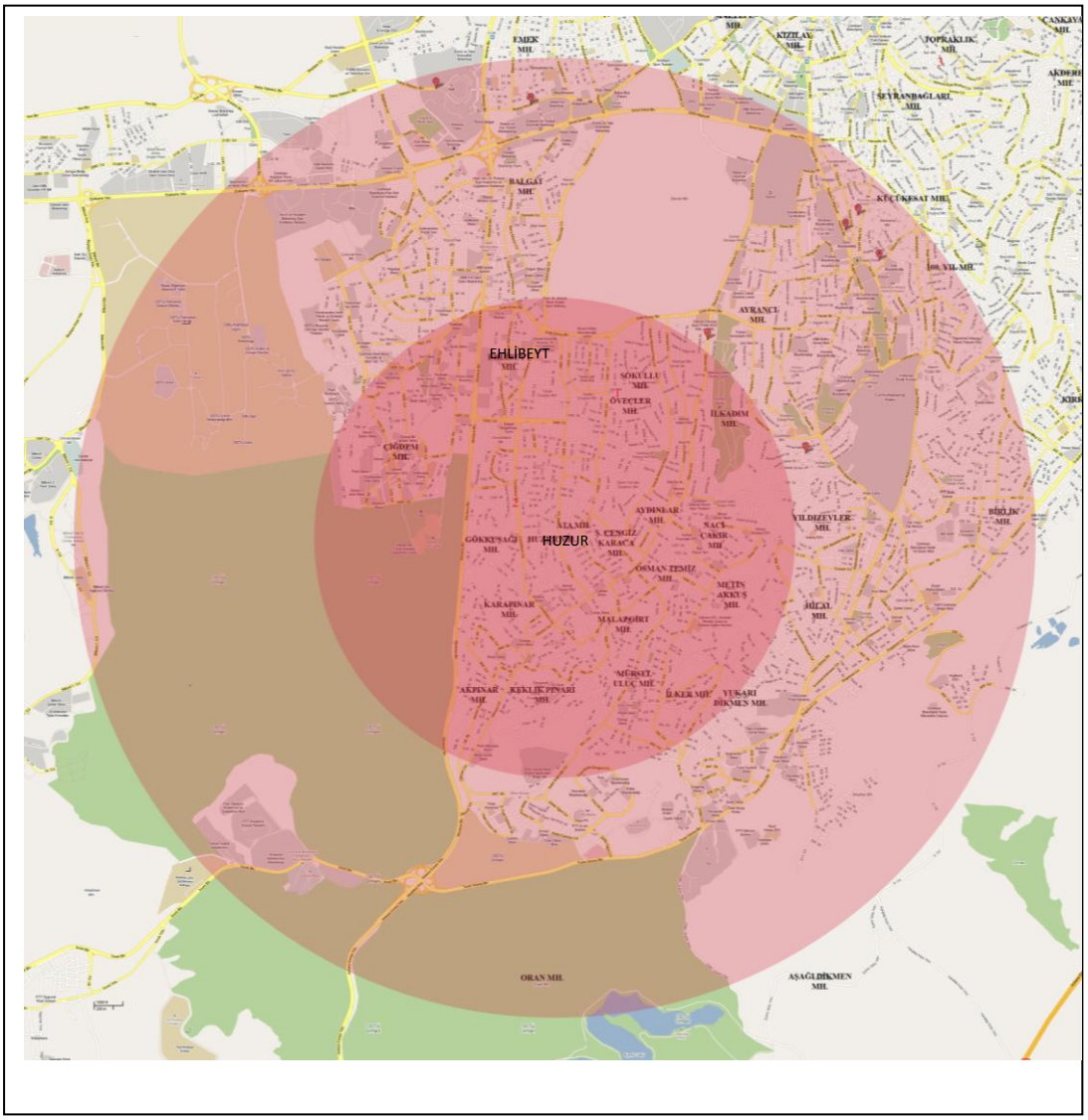

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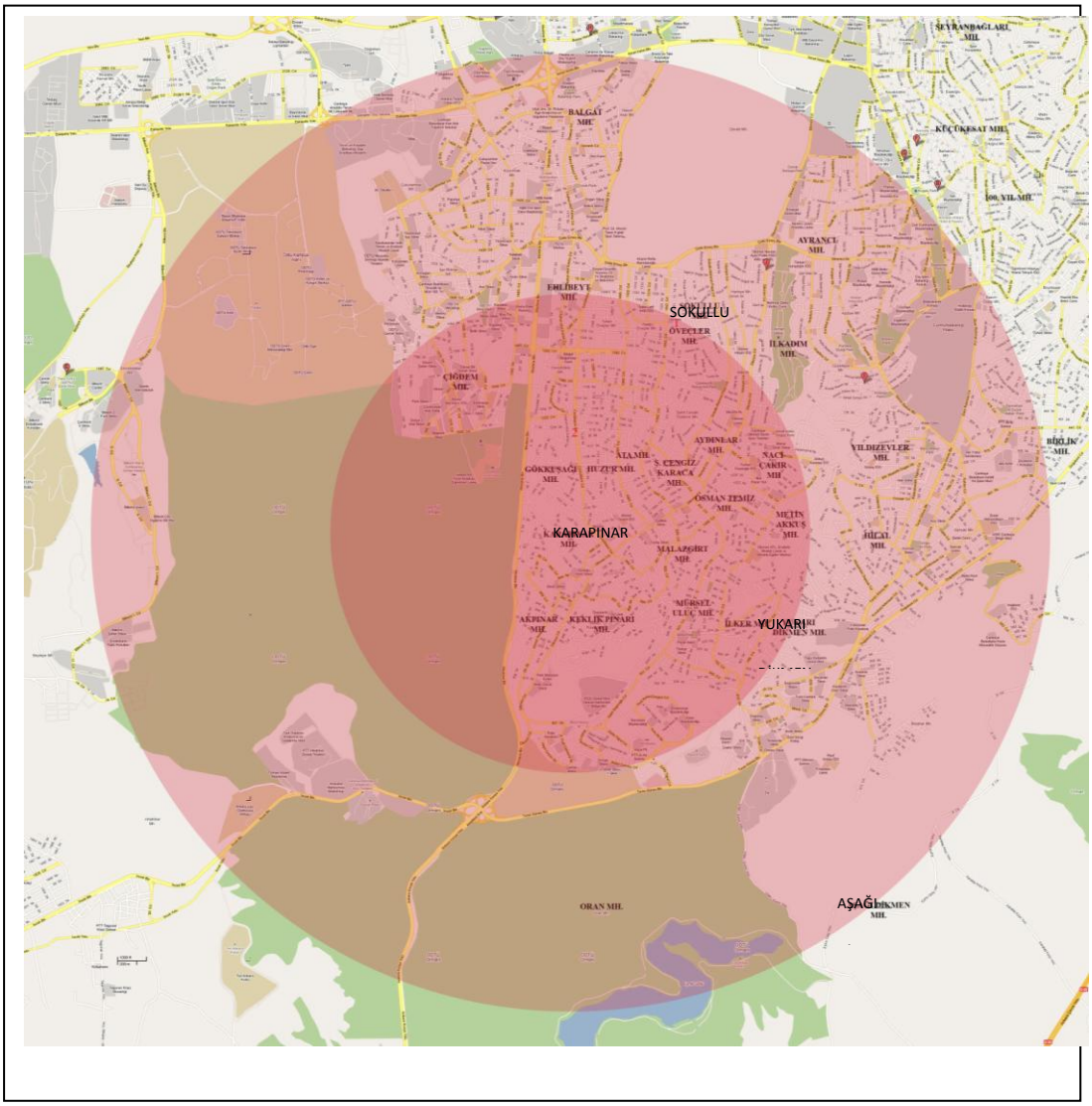

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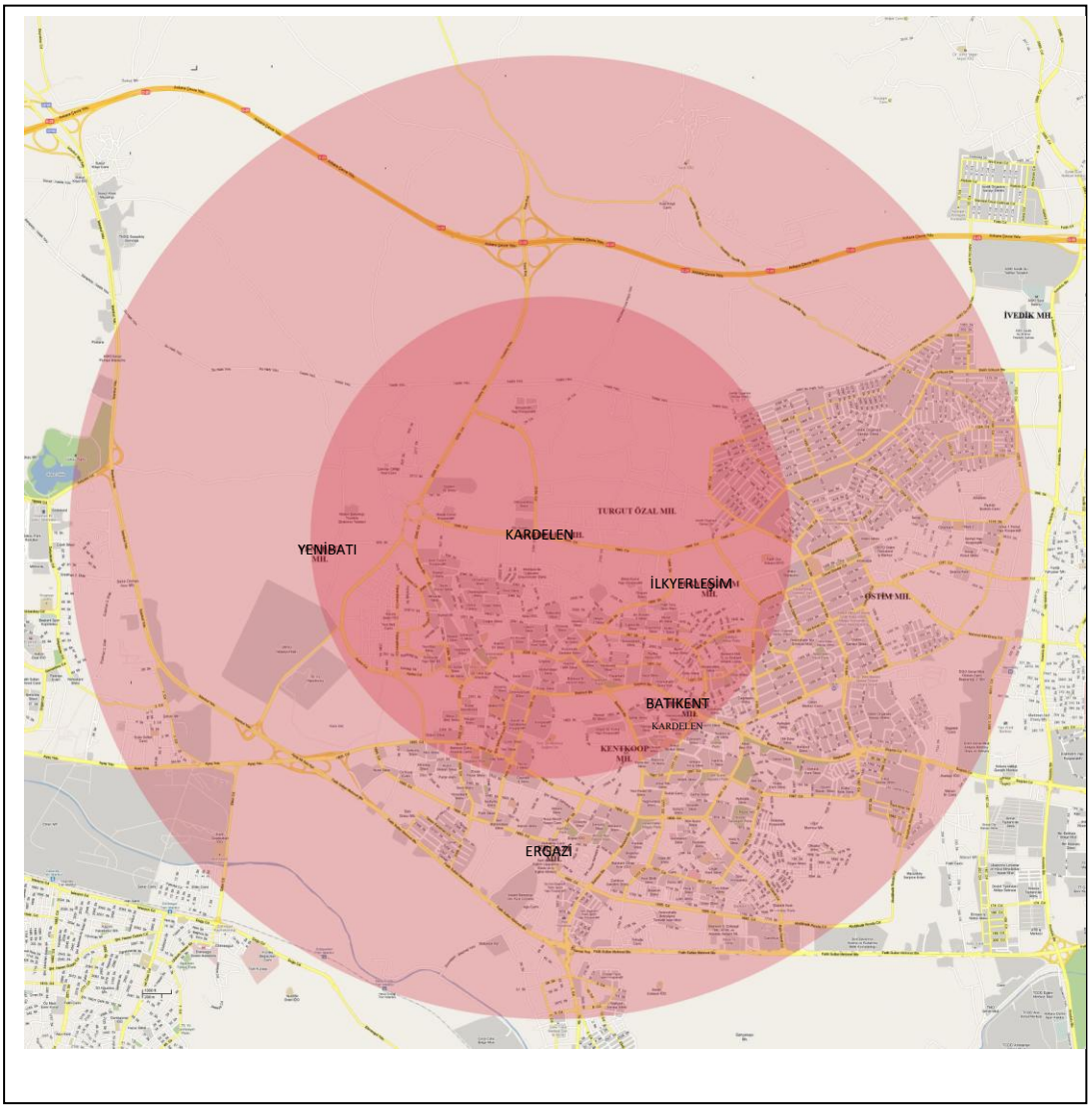

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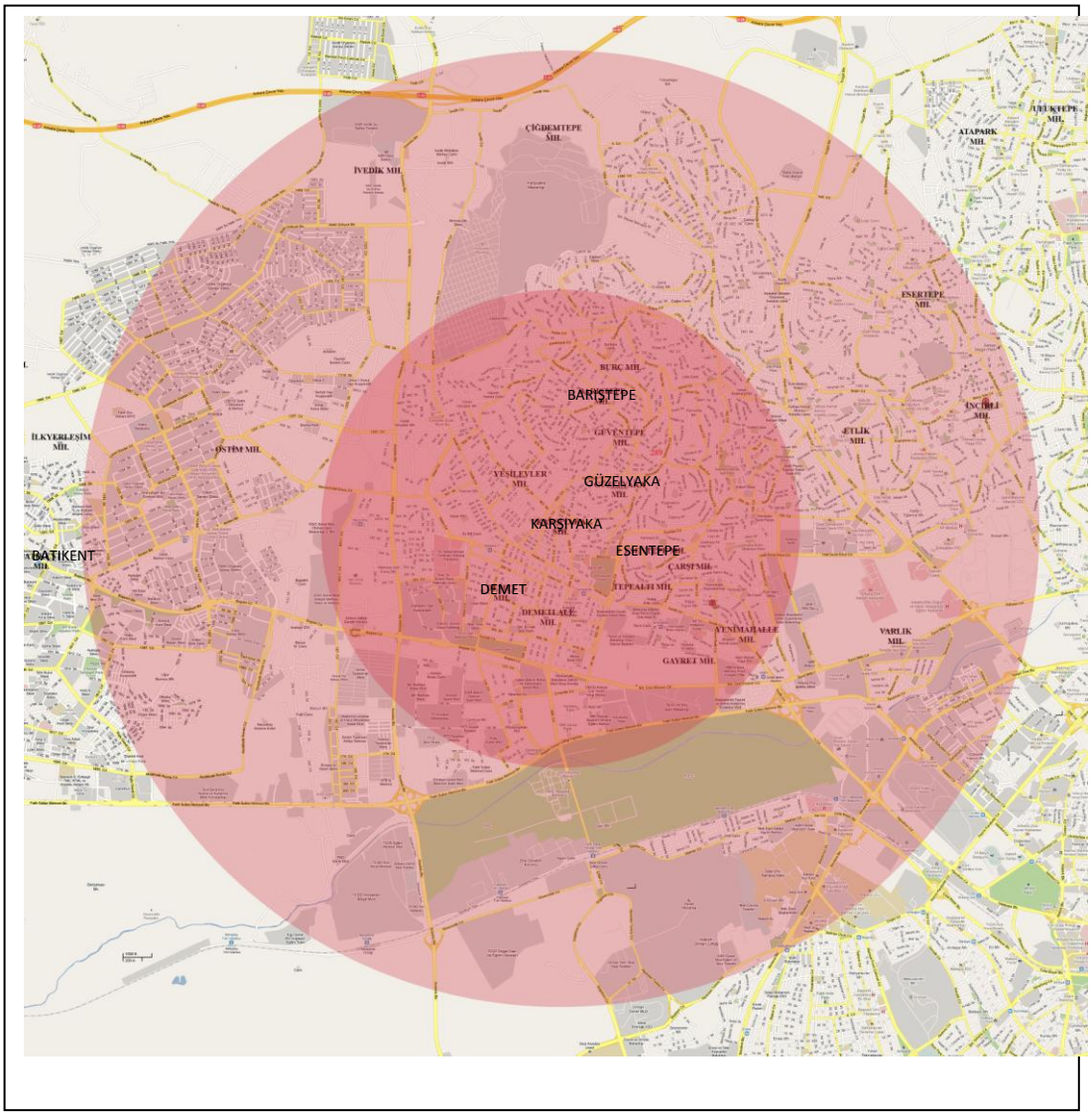

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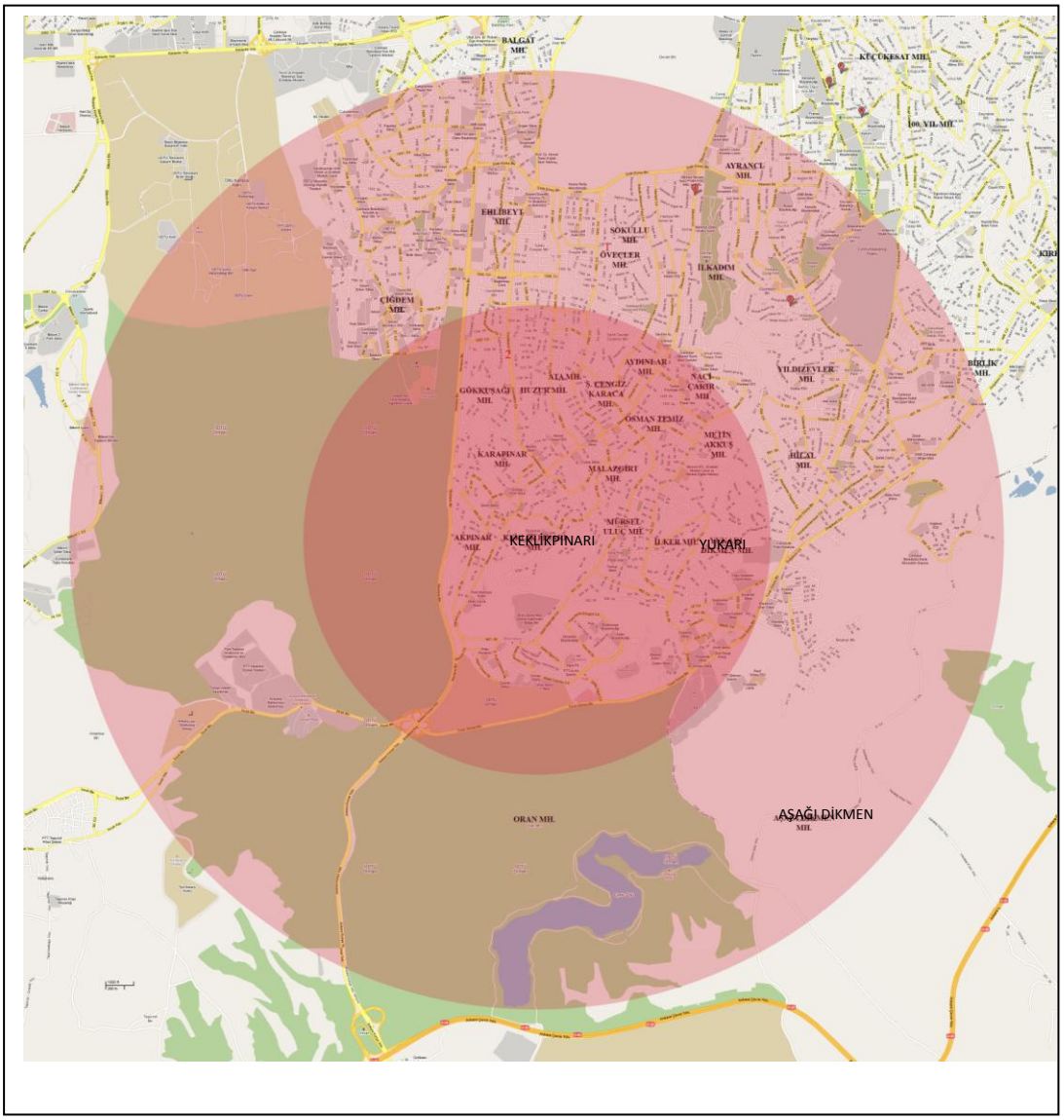

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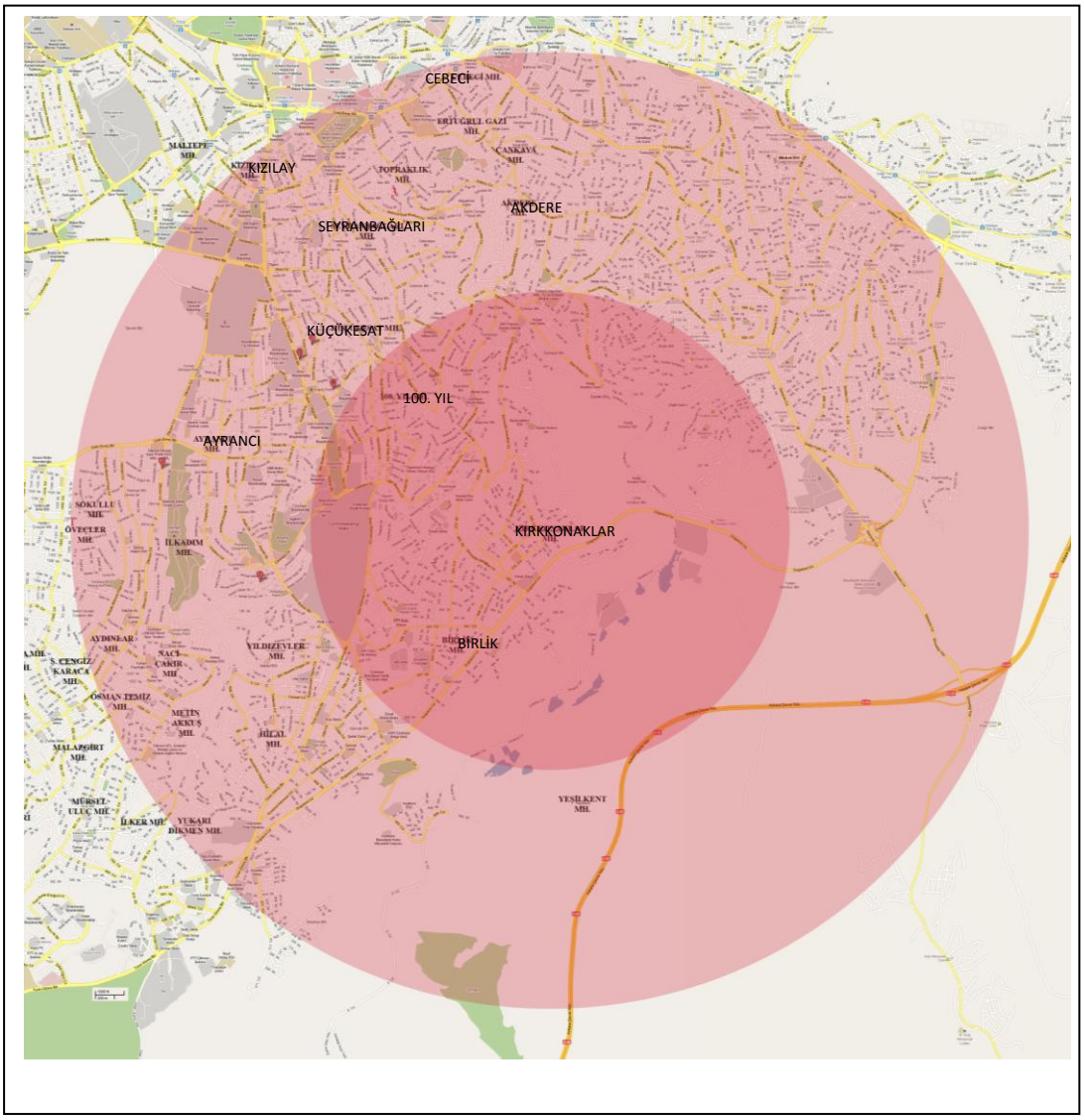

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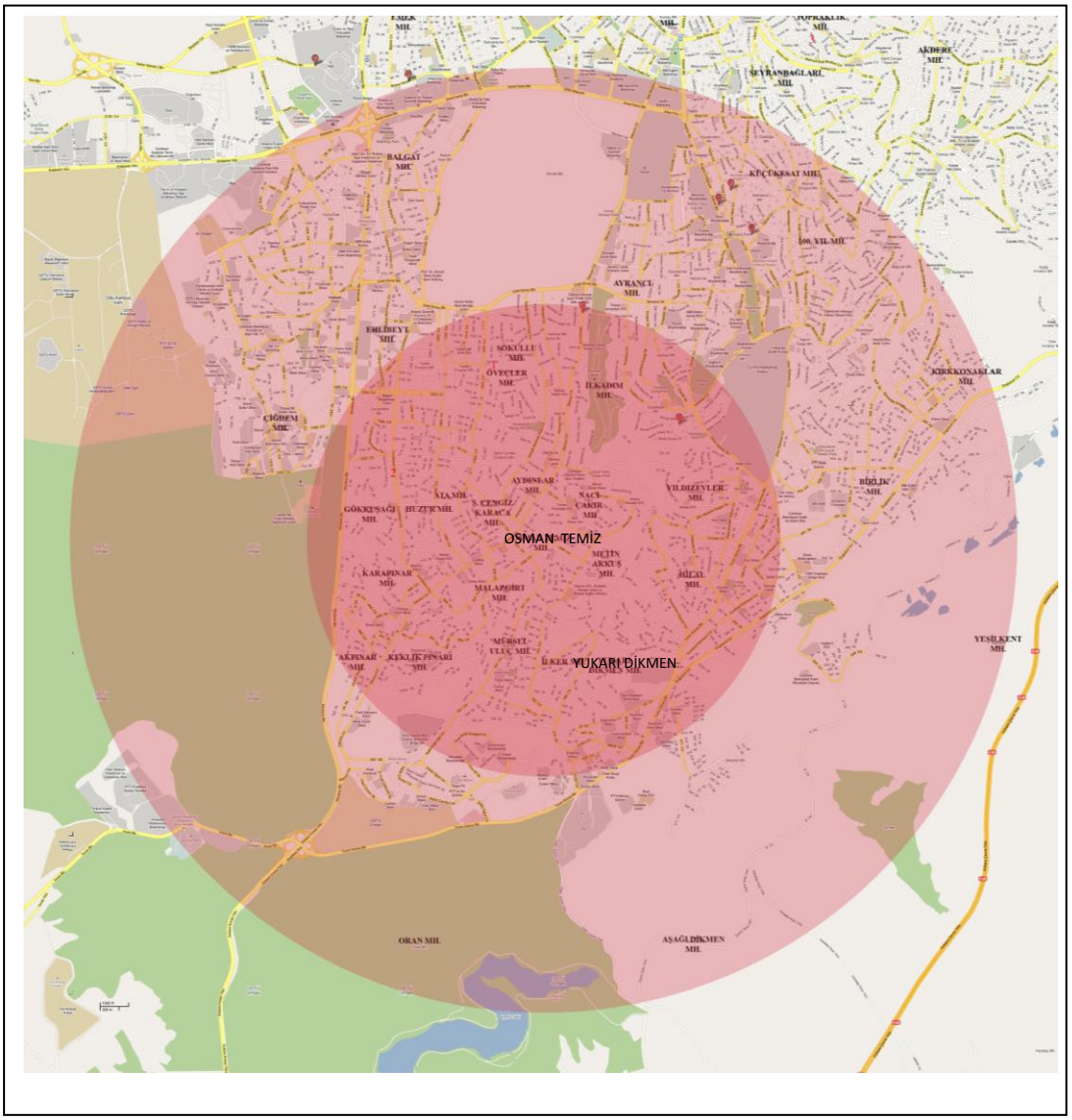

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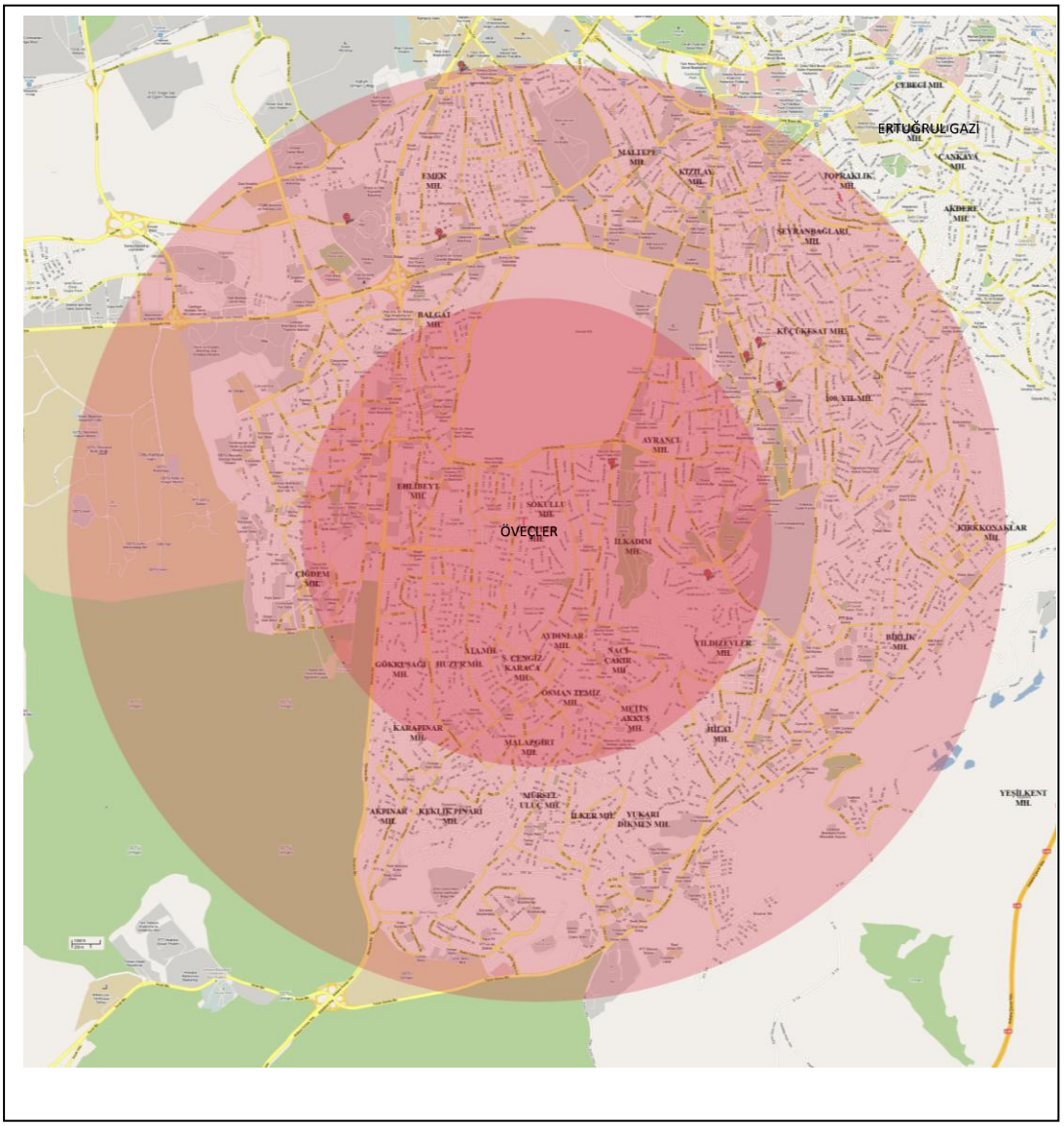

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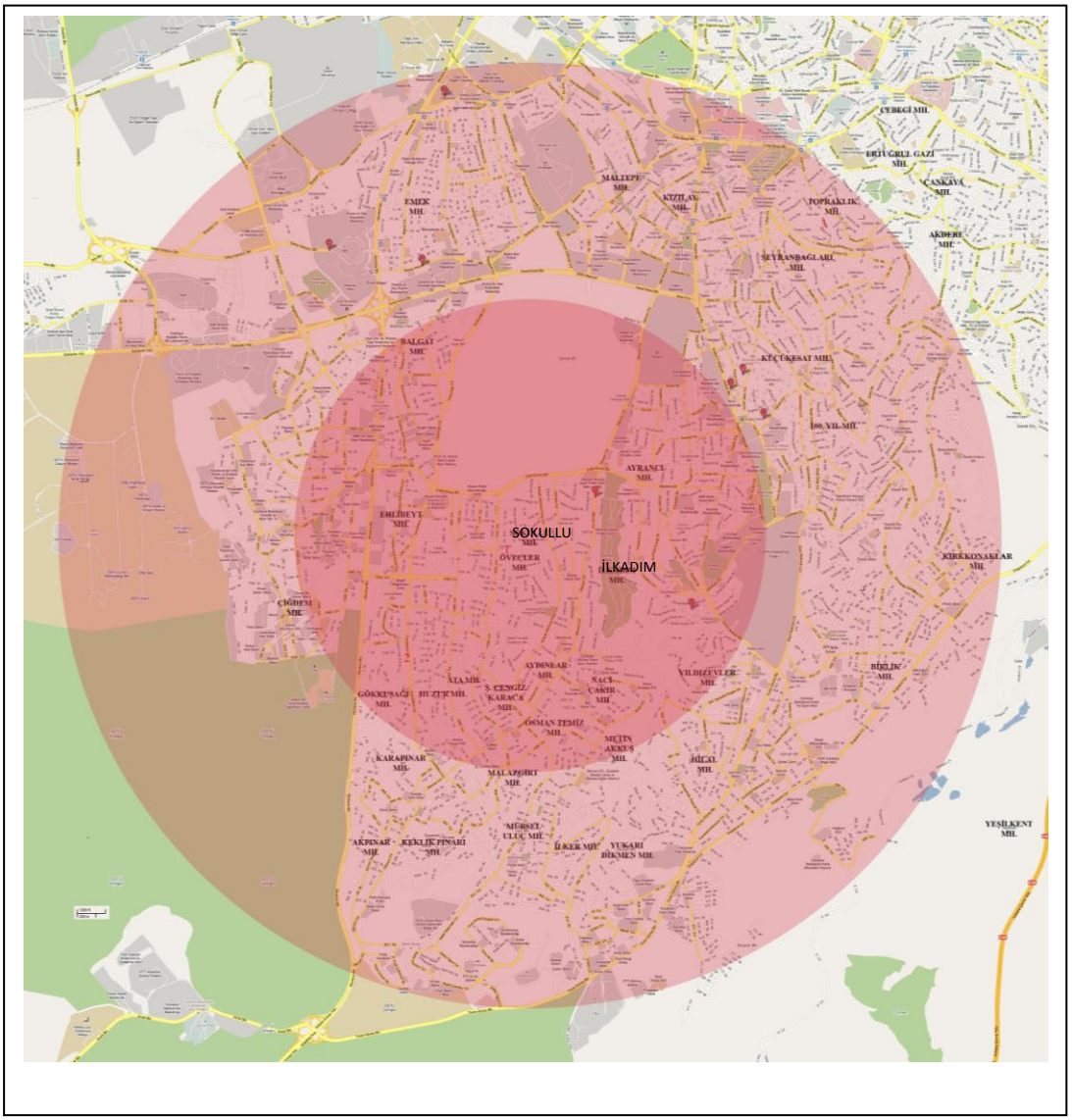

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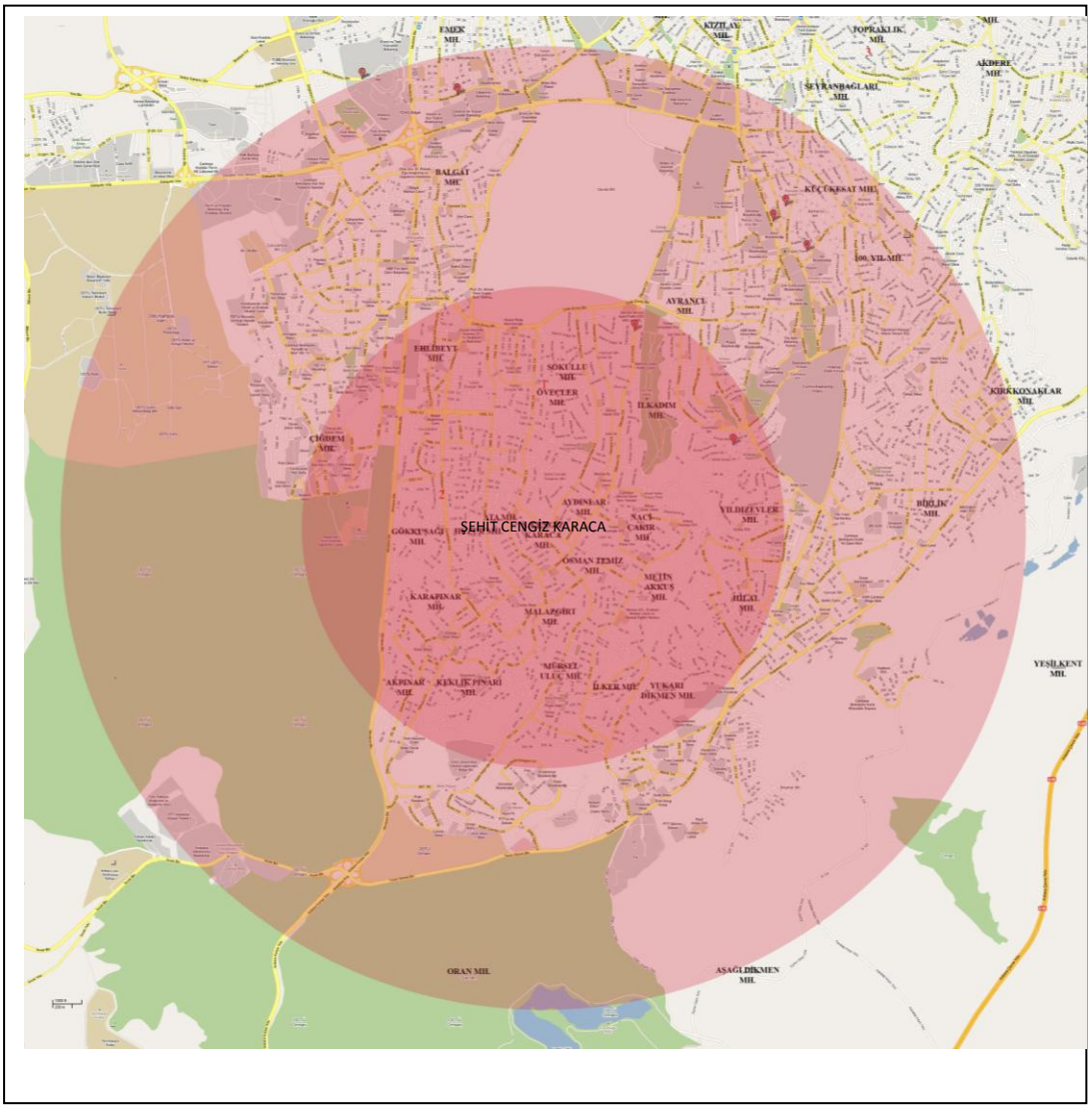

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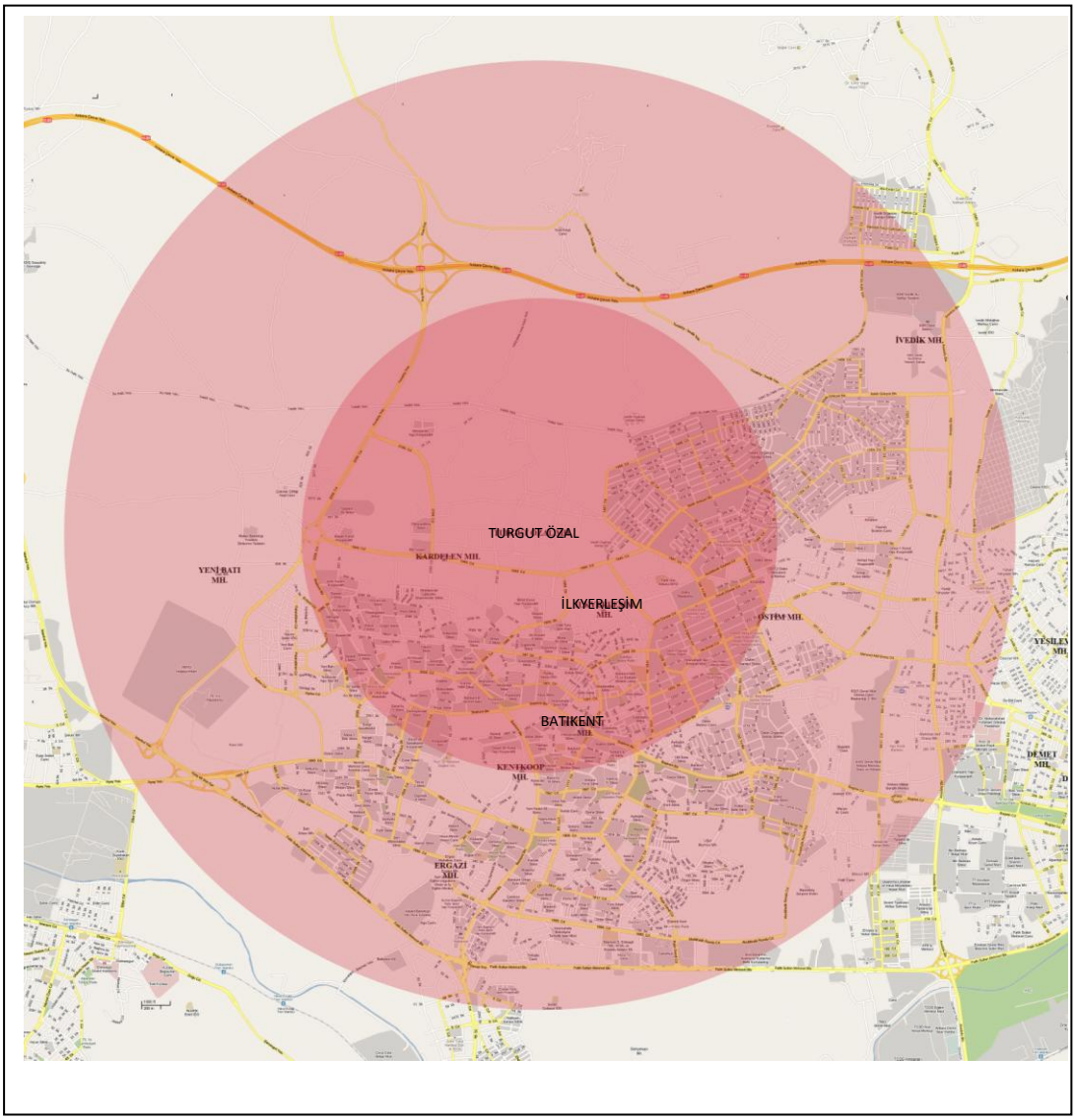

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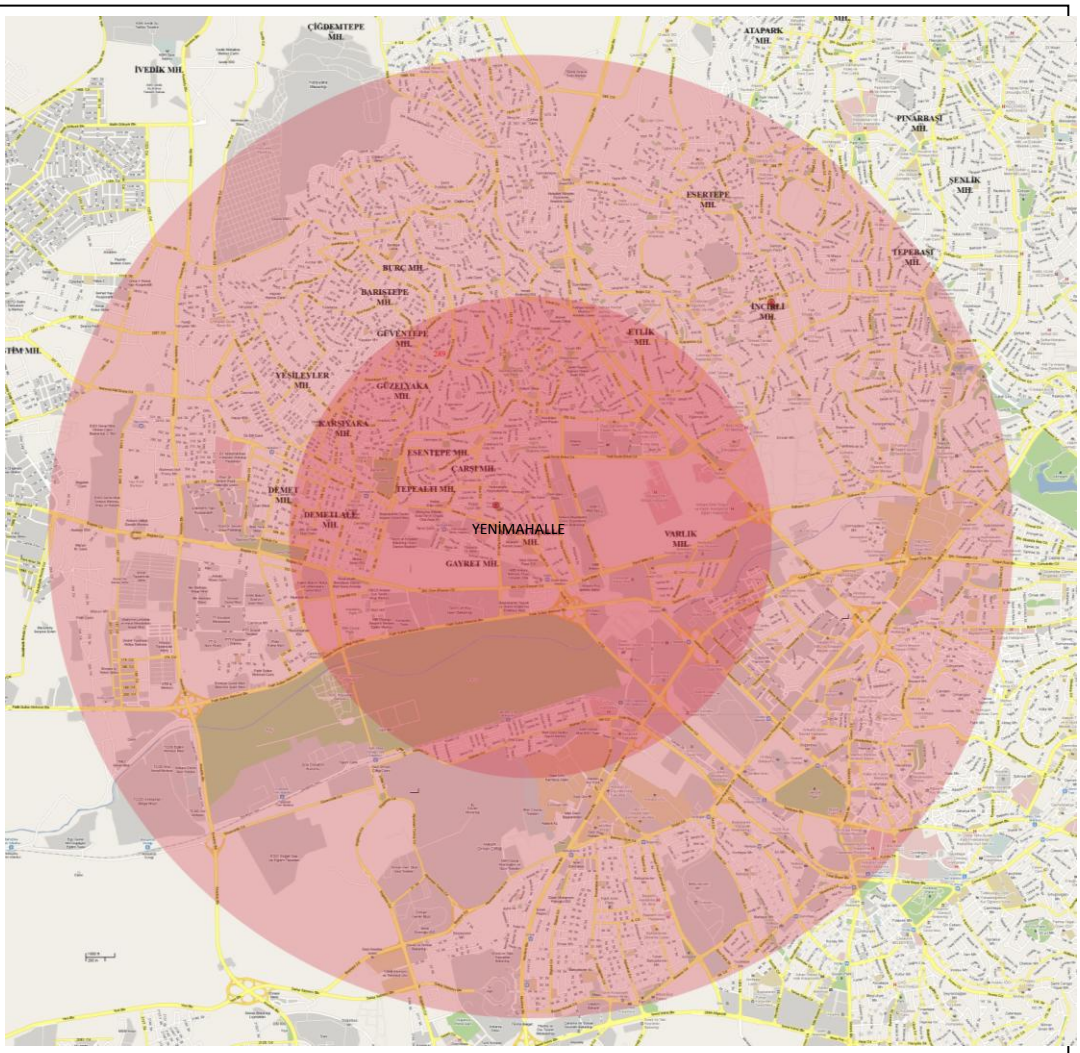

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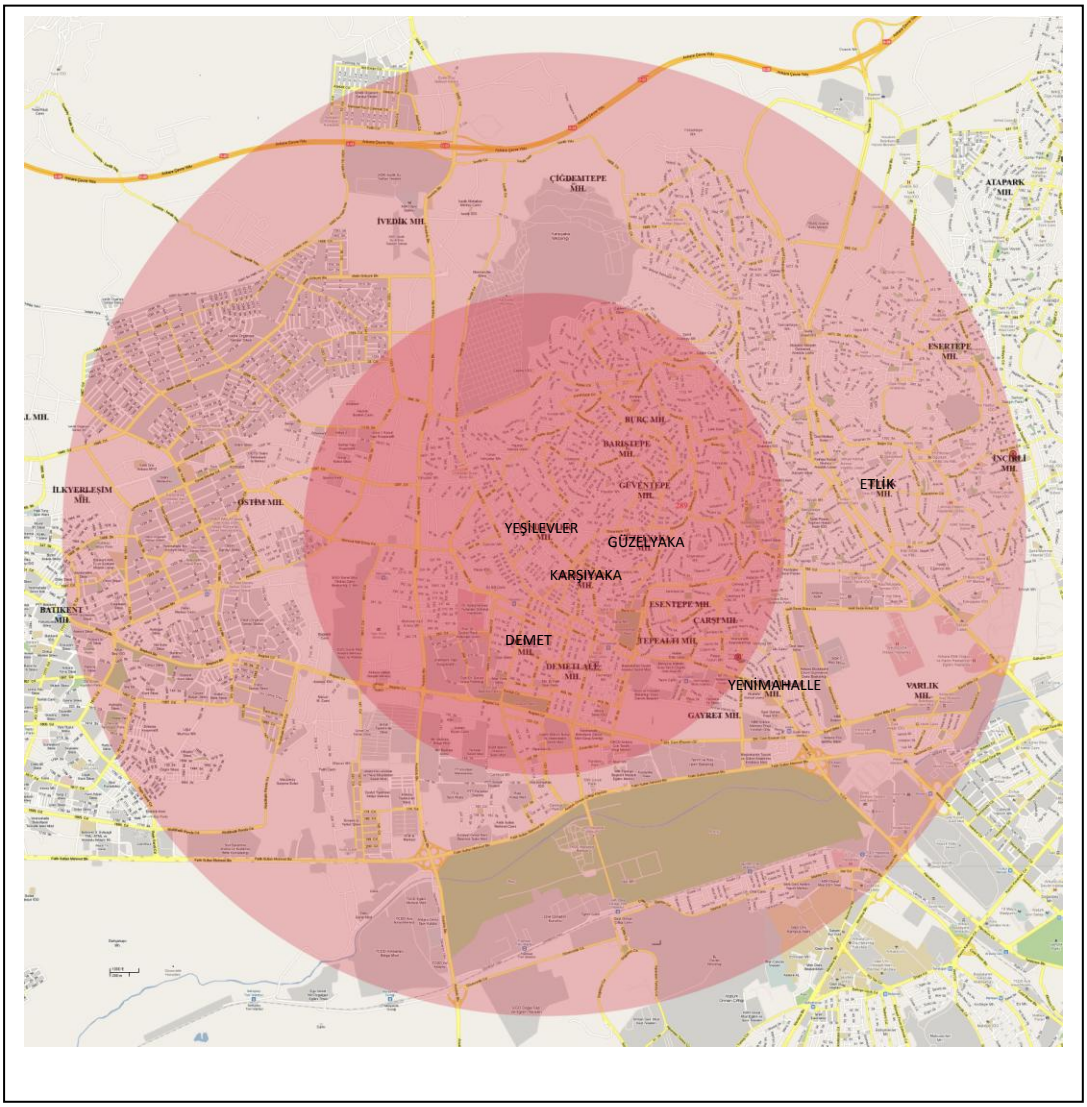

Figure A.19. Yeşilevler

APPENDIX B

OUTPUTS OF BACKWARD STEPWISE COX REGRESSION ANALYSIS

Model 1

Table A.1. Omnibus Tests of Model 1 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
657,228	90,386	62	,011	91,119	62	,009	91,119	62	,009

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.2. Cox Regression Analysis for Model 1

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,014	,007	3,829	1	,050	1,015	1,000	1,029
AGE			5,607	5	,346			
AGE (1)	,214	1,566	,019	1	,891	1,238	,057	26,681
AGE (2)	,444	1,479	,090	1	,764	1,559	,086	28,311
AGE (3)	-,019	1,468	,000	1	,990	,981	,055	17,420
AGE (4)	-1,282	1,513	,718	1	,397	,277	,014	5,382
AGE (5)	-1,986	1,709	1,351	1	,245	,137	,005	3,909
EMPLOYMENT			4,533	2	,104			
EMPLOYMENT (1)	1,902	,896	4,502	1	,034	6,700	1,156	38,830
EMPLOYMENT (2)	,648	,679	,911	1	,340	1,913	,505	7,241

Table A.2 (Continued)

							95,0% CI for Exp(B)	
	B	SE	B	SE	B	SE	B	SE
EMPLOYMENT_PARTNER			1,299	2	,522			
EMPLOYMENT_PARTNER (1)	-,964	,937	1,059	1	,304	,381	,061	2,393
EMPLOYMENT_PARTNER (2)	-,475	,949	,251	1	,616	,622	,097	3,991
JOB_LOCATION			1,822	2	,402			
JOB_LOCATION (1)	-1,344	1,046	1,652	1	,199	,261	,034	2,025
JOB_LOCATION (2)	-,930	,985	,891	1	,345	,395	,057	2,721
CODE			15,842	7	,027			
CODE (1)	2,900	1,400	4,290	1	,038	18,170	1,168	282,543
CODE (2)	2,218	1,377	2,596	1	,107	9,193	,619	136,570
CODE (3)	,566	1,225	,213	1	,644	1,761	,160	19,439
CODE (4)	,240	1,880	,016	1	,898	1,271	,032	50,633
CODE (5)	-,804	1,820	,195	1	,659	,447	,013	15,858
CODE (6)	1,285	1,121	1,315	1	,252	3,614	,402	32,491
CODE (7)	-,677	,734	,853	1	,356	,508	,121	2,139
MOBILITY			2,558	3	,465			
MOBILITY (1)	-1,113	,756	2,164	1	,141	,329	,075	1,447
MOBILITY (2)	-,564	,442	1,631	1	,202	,569	,239	1,352
MOBILITY (3)	-,450	,529	,724	1	,395	,637	,226	1,798
MARRIAGE			5,977	4	,201			
MARRIAGE (1)	-2,161	1,012	4,557	1	,033	,115	,016	,838
MARRIAGE (2)	-,489	1,045	,219	1	,639	,613	,079	4,750
MARRIAGE (3)	-,387	,837	,214	1	,644	,679	,132	3,501
MARRIAGE (4)	-,618	,731	,715	1	,398	,539	,129	2,257
HOUSEHOLDS			18,314	7	,011			
HOUSEHOLDS (1)	,412	1,094	,142	1	,707	1,510	,177	12,899
HOUSEHOLDS (2)	1,886	1,665	1,283	1	,257	6,594	,252	172,432
HOUSEHOLDS (3)	-,658	1,547	,181	1	,671	,518	,025	10,744
HOUSEHOLDS (4)	-1,708	1,959	,760	1	,383	,181	,004	8,430
HOUSEHOLDS (5)	-,774	1,903	,165	1	,684	,461	,011	19,222
HOUSEHOLDS (6)	1,504	2,098	,514	1	,473	4,502	,074	275,171
HOUSEHOLDS (7)	-12,329	5832,078	,000	1	,998	,000	,000	.
EDUCATION_HEAD			17,931	3	,000			
EDUCATION_HEAD (1)	2,962	1,148	6,653	1	,010	19,341	2,037	183,661
EDUCATION_HEAD (2)	4,391	1,100	15,949	1	,000	80,750	9,357	696,836
EDUCATION_HEAD (3)	3,439	1,042	10,901	1	,001	31,148	4,045	239,870

Table A.2 (Continued)

							95,0% CI for Exp(B)	
	B	SE	B	SE	B	SE	B	B
EDUCATION_PARTNER			11,419	3	,010			
EDUCATION_PARTNER (1)	-3,242	1,899	2,914	1	,088	,039	,001	1,617
EDUCATION_PARTNER (2)	-4,218	1,845	5,227	1	,022	,015	,000	,548
EDUCATION_PARTNER (3)	-2,651	1,769	2,246	1	,134	,071	,002	2,261
INCOME			7,624	6	,267			
INCOME (1)	,538	,914	,346	1	,556	1,712	,286	10,270
INCOME (2)	1,052	,798	1,738	1	,187	2,864	,599	13,687
INCOME (3)	-,505	,749	,455	1	,500	,604	,139	2,618
INCOME (4)	,496	,647	,589	1	,443	1,642	,463	5,832
INCOME (5)	-,508	,881	,333	1	,564	,601	,107	3,379
INCOME (6)	-,009	1,004	,000	1	,992	,991	,138	7,085
CREDIT	-,416	,354	1,384	1	,239	,659	,330	1,320
ROOM			17,365	5	,004			
ROOM (1)	-3,876	2,669	2,110	1	,146	,021	,000	3,873
ROOM (2)	-3,052	2,595	1,383	1	,240	,047	,000	7,644
ROOM (3)	-2,986	2,683	1,238	1	,266	,051	,000	9,718
ROOM 4)	-4,995	2,748	3,305	1	,069	,007	,000	1,477
ROOM (5)	-7,703	3,064	6,322	1	,012	,000	,000	,183
CHILDREN			15,167	6	,019			
CHILDREN (1)	1,444	2,274	,404	1	,525	4,240	,049	365,341
CHILDREN (2)	-,028	1,778	,000	1	,987	,972	,030	31,738
CHILDREN (3)	1,228	1,670	,541	1	,462	3,414	,129	90,112
CHILDREN (4)	2,387	1,556	2,352	1	,125	10,881	,515	229,859
CHILDREN (5)	2,697	1,857	2,110	1	,146	14,841	,390	564,843
CHILDREN (6)	5,926	2,228	7,071	1	,008	374,608	4,750	29542,959
SCHOOL	,584	,645	,818	1	,366	1,793	,506	6,350
PREFERENCES			11,068	3	,011			
PREFERENCES (1)	-3,540	1,196	8,758	1	,003	,029	,003	,303
PREFERENCES (2)	-4,500	1,460	9,501	1	,002	,011	,001	,194
PREFERENCES (3)	-2,041	1,961	1,084	1	,298	,130	,003	6,063
RENT	,131	,719	,033	1	,856	1,140	,279	4,660

Table A.3. Omnibus Tests of Model 2 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
657,263	90,362	61	,009	91,084	61	,008	91,084	61	,008

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.4. Cox Regression Analysis for Model 2

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,014	,007	3,873	1	,049	1,015	1,000	1,029
AGE			5,632	5	,344			
AGE (1)	,253	1,538	,027	1	,869	1,288	,063	26,246
AGE (2)	,478	1,455	,108	1	,742	1,613	,093	27,945
AGE (3)	,027	1,433	,000	1	,985	1,028	,062	17,057
AGE (4)	-1,260	1,503	,702	1	,402	,284	,015	5,403
AGE (5)	-1,913	1,635	1,369	1	,242	,148	,006	3,639
EMPLOYMENT			4,639	2	,098			
EMPLOYMENT (1)	1,860	,865	4,628	1	,031	6,422	1,180	34,958
EMPLOYMENT (2)	,654	,678	,929	1	,335	1,923	,509	7,269
EMPLOYMENT_PARTNER			1,408	2	,495			
EMPLOYMENT_PARTNER (1)	-,981	,929	1,114	1	,291	,375	,061	2,318
EMPLOYMENT_PARTNER (2)	-,471	,948	,247	1	,620	,625	,097	4,005
JOB_LOCATION			1,802	2	,406			
JOB_LOCATION (1)	-1,297	1,012	1,642	1	,200	,273	,038	1,988
JOB_LOCATION (2)	-,880	,947	,864	1	,353	,415	,065	2,653

Table A.4 (Continued)

							95,0% CI for Exp(B)	
	B	SE	B	SE	B	SE	B	SE
CODE			16,038	7	,025			
CODE (1)	2,897	1,400	4,279	1	,039	18,111	1,164	281,753
CODE (2)	2,230	1,377	2,624	1	,105	9,299	,626	138,107
CODE (3)	,557	1,224	,207	1	,649	1,746	,159	19,212
CODE (4)	,281	1,862	,023	1	,880	1,325	,034	50,957
CODE (5)	-,785	1,815	,187	1	,666	,456	,013	16,015
CODE (6)	1,310	1,112	1,387	1	,239	3,705	,419	32,767
CODE (7)	-,683	,734	,867	1	,352	,505	,120	2,127
MOBILITY			2,637	3	,451			
MOBILITY (1)	-1,074	,725	2,196	1	,138	,342	,083	1,414
MOBILITY (2)	-,545	,429	1,615	1	,204	,580	,250	1,344
MOBILITY (3)	-,432	,519	,694	1	,405	,649	,235	1,795
MARRIAGE			5,964	4	,202			
MARRIAGE (1)	-2,135	1,001	4,553	1	,033	,118	,017	,840
MARRIAGE (2)	-,461	1,036	,198	1	,656	,631	,083	4,802
MARRIAGE (3)	-,357	,822	,188	1	,664	,700	,140	3,506
MARRIAGE (4)	-,604	,726	,692	1	,406	,547	,132	2,268
HOUSEHOLDS			18,716	7	,009			
HOUSEHOLDS (1)	,406	1,095	,138	1	,711	1,501	,176	12,838
HOUSEHOLDS (2)	1,870	1,662	1,267	1	,260	6,490	,250	168,482
HOUSEHOLDS (3)	-,654	1,547	,179	1	,672	,520	,025	10,784
HOUSEHOLDS (4)	-1,692	1,957	,748	1	,387	,184	,004	8,530
HOUSEHOLDS (5)	-,751	1,903	,156	1	,693	,472	,011	19,670
HOUSEHOLDS (6)	1,478	2,083	,503	1	,478	4,385	,074	260,267
HOUSEHOLDS (7)	-14,167	14212,477	,000	1	,999	,000	,000	.
EDUCATION_HEAD			17,969	3	,000			
EDUCATION_HEAD (1)	2,963	1,149	6,647	1	,010	19,348	2,035	183,960
EDUCATION_HEAD (2)	4,382	1,097	15,956	1	,000	80,021	9,319	687,108
EDUCATION_HEAD (3)	3,423	1,038	10,870	1	,001	30,667	4,008	234,665
EDUCATION_PARTNER			11,644	3	,009			
EDUCATION_PARTNER (1)	-3,214	1,894	2,880	1	,090	,040	,001	1,645
EDUCATION_PARTNER (2)	-4,183	1,834	5,200	1	,023	,015	,000	,556
EDUCATION_PARTNER (3)	-2,636	1,766	2,227	1	,136	,072	,002	2,284

Table A.4 (Continued)

							95,0% CI for Exp(B)	
	B	SE	B	SE	B	SE	B	B
INCOME			7,621	6	,267			
INCOME (1)	,514	,899	,326	1	,568	1,671	,287	9,736
INCOME (2)	1,042	,792	1,734	1	,188	2,836	,601	13,380
INCOME (3)	-,495	,743	,443	1	,505	,610	,142	2,617
INCOME (4)	,521	,634	,674	1	,412	1,683	,486	5,832
INCOME (5)	-,502	,881	,325	1	,568	,605	,108	3,401
INCOME (6)	,016	,994	,000	1	,987	1,016	,145	7,129
CREDIT	-,418	,353	1,397	1	,237	,659	,330	1,316
ROOM			17,829	5	,003			
ROOM (1)	-3,936	2,631	2,239	1	,135	,020	,000	3,385
ROOM (2)	-3,104	2,561	1,469	1	,225	,045	,000	6,787
ROOM (3)	-3,017	2,666	1,280	1	,258	,049	,000	9,106
ROOM 4)	-5,018	2,733	3,372	1	,066	,007	,000	1,402
ROOM (5)	-7,670	3,054	6,307	1	,012	,000	,000	,186
CHILDREN			16,518	6	,011			
CHILDREN (1)	1,490	2,255	,436	1	,509	4,436	,053	368,413
CHILDREN (2)	,028	1,752	,000	1	,987	1,028	,033	31,848
CHILDREN (3)	1,283	1,643	,609	1	,435	3,606	,144	90,269
CHILDREN (4)	2,480	1,472	2,837	1	,092	11,945	,667	214,058
CHILDREN (5)	2,754	1,818	2,295	1	,130	15,701	,445	553,658
CHILDREN (6)	5,947	2,196	7,337	1	,007	382,773	5,176	28304,818
SCHOOL	,619	,619	1,001	1	,317	1,857	,552	6,242
PREFERENCES			11,085	3	,011			
PREFERENCES (1)	-3,539	1,195	8,775	1	,003	,029	,003	,302
PREFERENCES (2)	-4,499	1,457	9,535	1	,002	,011	,001	,193
PREFERENCES (3)	-2,035	1,961	1,077	1	,299	,131	,003	6,097

Table A.5. Omnibus Tests of Model 3 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
658,663	88,485	59	,008	89,684	59	,006	89,684	59	,006

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.6. Cox Regression Analysis for Model 3

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,013	,007	3,616	1	,057	1,013	1,000	1,027
AGE			4,737	5	,449			
AGE (1)	,251	1,547	,026	1	,871	1,285	,062	26,624
AGE (2)	,444	1,466	,092	1	,762	1,559	,088	27,596
AGE (3)	,071	1,450	,002	1	,961	1,073	,063	18,422
AGE (4)	-,743	1,429	,271	1	,603	,476	,029	7,828
AGE (5)	-1,687	1,650	1,046	1	,307	,185	,007	4,695
EMPLOYMENT			8,844	2	,012			
EMPLOYMENT (1)	2,309	,777	8,835	1	,003	10,060	2,195	46,097
EMPLOYMENT (2)	,790	,643	1,508	1	,219	2,203	,625	7,770
JOB_LOCATION			2,981	2	,225			
JOB_LOCATION (1)	-1,650	,956	2,979	1	,084	,192	,029	1,251
JOB_LOCATION (2)	-1,270	,864	2,160	1	,142	,281	,052	1,527
CODE			17,132	7	,017			
CODE (1)	2,921	1,354	4,651	1	,031	18,552	1,305	263,704
CODE (2)	2,220	1,325	2,809	1	,094	9,210	,686	123,588
CODE (3)	,485	1,195	,164	1	,685	1,624	,156	16,903
CODE (4)	,411	1,852	,049	1	,824	1,509	,040	56,852
CODE (5)	-,826	1,748	,223	1	,637	,438	,014	13,474
CODE (6)	1,402	1,099	1,626	1	,202	4,063	,471	35,050
CODE (7)	-,607	,725	,702	1	,402	,545	,132	2,255

Table A.6. (Continued)

							95,0% CI for Exp(B)	
	B	SE	B	SE	B	SE	B	SE
MOBILITY			4,150	3	,246			
MOBILITY (1)	-1,236	,711	3,021	1	,082	,290	,072	1,171
MOBILITY (2)	-,643	,411	2,456	1	,117	,525	,235	1,175
MOBILITY (3)	-,609	,493	1,525	1	,217	,544	,207	1,430
MARRIAGE			6,980	4	,137			
MARRIAGE (1)	-2,262	,976	5,372	1	,020	,104	,015	,705
MARRIAGE (2)	-,514	1,024	,252	1	,616	,598	,080	4,447
MARRIAGE (3)	-,423	,802	,278	1	,598	,655	,136	3,155
MARRIAGE (4)	-,651	,699	,867	1	,352	,521	,132	2,053
HOUSEHOLDS			19,708	7	,006			
HOUSEHOLDS (1)	,539	1,026	,276	1	,599	1,714	,230	12,800
HOUSEHOLDS (2)	2,236	1,514	2,181	1	,140	9,360	,481	182,108
HOUSEHOLDS (3)	-,442	1,475	,090	1	,765	,643	,036	11,585
HOUSEHOLDS (4)	-1,204	1,762	,467	1	,494	,300	,009	9,476
HOUSEHOLDS (5)	-,302	1,705	,031	1	,859	,739	,026	20,914
HOUSEHOLDS (6)	2,089	1,945	1,154	1	,283	8,080	,179	365,644
HOUSEHOLDS (7)	-5,226	235,820	,000	1	,982	,005	,000	2,887E198
EDUCATION_HEAD			18,789	3	,000			
EDUCATION_HEAD (1)	2,986	1,160	6,629	1	,010	19,803	2,040	192,238
EDUCATION_HEAD (2)	4,444	1,102	16,272	1	,000	85,104	9,822	737,363
EDUCATION_HEAD (3)	3,448	1,049	10,810	1	,001	31,440	4,025	245,566
EDUCATION_PARTNER			14,046	3	,003			
EDUCATION_PARTNER (1)	-3,577	1,838	3,789	1	,052	,028	,001	1,025
EDUCATION_PARTNER (2)	-4,502	1,766	6,501	1	,011	,011	,000	,353
EDUCATION_PARTNER (3)	-2,849	1,722	2,738	1	,098	,058	,002	1,691
INCOME			7,540	6	,274			
INCOME (1)	,496	,865	,329	1	,566	1,642	,301	8,956
INCOME (2)	,879	,745	1,391	1	,238	2,408	,559	10,371
INCOME (3)	-,698	,721	,936	1	,333	,498	,121	2,045
INCOME (4)	,361	,591	,374	1	,541	1,435	,451	4,568
INCOME (5)	-,369	,832	,197	1	,657	,692	,135	3,530
INCOME (6)	-,068	,991	,005	1	,945	,934	,134	6,511
CREDIT	-,358	,341	1,102	1	,294	,699	,359	1,364

Table A.6. (Continued)

							95,0% CI for Exp(B)	
	B	SE	B	SE	B	SE	B	B
ROOM			18,944	5	,002			
ROOM (1)	-3,649	2,533	2,074	1	,150	,026	,000	3,731
ROOM (2)	-3,007	2,488	1,461	1	,227	,049	,000	6,483
ROOM (3)	-3,068	2,598	1,395	1	,238	,047	,000	7,564
ROOM 4)	-4,952	2,657	3,474	1	,062	,007	,000	1,291
ROOM (5)	-8,119	2,974	7,454	1	,006	,000	,000	,101
CHILDREN			15,787	6	,015			
CHILDREN (1)	2,490	1,980	1,582	1	,208	12,061	,249	583,974
CHILDREN (2)	,722	1,598	,204	1	,651	2,058	,090	47,146
CHILDREN (3)	2,043	1,433	2,034	1	,154	7,717	,465	127,969
CHILDREN (4)	2,895	1,410	4,217	1	,040	18,081	1,141	286,477
CHILDREN (5)	3,144	1,738	3,274	1	,070	23,194	,770	698,915
CHILDREN (6)	6,265	2,171	8,328	1	,004	526,054	7,464	37074,435
SCHOOL	,612	,594	1,061	1	,303	1,844	,575	5,910
PREFERENCES			10,466	3	,015			
PREFERENCES (1)	-3,095	1,120	7,640	1	,006	,045	,005	,406
PREFERENCES (2)	-4,158	1,397	8,859	1	,003	,016	,001	,242
PREFERENCES (3)	-1,221	1,807	,456	1	,499	,295	,009	10,189

Model 4

Table A.7. Omnibus Tests of Model 4 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
663,793	84,878	54	,005	84,554	54	,005	84,554	54	,005

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.8. Cox Regression Analysis for Model 4

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,013	,006	3,780	1	,052	1,013	1,000	1,026
EMPLOYMENT			6,789	2	,034			
EMPLOYMENT (1)	1,871	,731	6,544	1	,011	6,495	1,549	27,237
EMPLOYMENT (2)	1,014	,614	2,725	1	,099	2,758	,827	9,195
JOB_LOCATION			1,952	2	,377			
JOB_LOCATION (1)	-1,183	,855	1,913	1	,167	,306	,057	1,638
JOB_LOCATION (2)	-,793	,765	1,075	1	,300	,452	,101	2,026
CODE			18,028	7	,012			
CODE (1)	2,629	1,278	4,229	1	,040	13,856	1,131	169,722
CODE (2)	2,114	1,254	2,844	1	,092	8,281	,710	96,653
CODE (3)	,707	1,092	,419	1	,518	2,027	,238	17,236
CODE (4)	,660	1,676	,155	1	,694	1,934	,072	51,670
CODE (5)	-1,667	1,617	1,063	1	,303	,189	,008	4,489
CODE (6)	1,299	1,047	1,541	1	,215	3,667	,471	28,540
CODE (7)	-,733	,708	1,072	1	,301	,480	,120	1,925
MOBILITY			2,877	3	,411			
MOBILITY (1)	-,796	,603	1,741	1	,187	,451	,138	1,471
MOBILITY (2)	-,498	,383	1,689	1	,194	,608	,287	1,288
MOBILITY (3)	-,480	,477	1,015	1	,314	,619	,243	1,575
MARRIAGE			4,751	4	,314			
MARRIAGE (1)	-1,596	,894	3,184	1	,074	,203	,035	1,170
MARRIAGE (2)	-,246	,841	,085	1	,770	,782	,150	4,069
MARRIAGE (3)	-,167	,780	,046	1	,830	,846	,184	3,902
MARRIAGE (4)	-,323	,689	,219	1	,640	,724	,188	2,795
HOUSEHOLDS			20,091	7	,005			
HOUSEHOLDS (1)	,279	,987	,080	1	,777	1,322	,191	9,145
HOUSEHOLDS (2)	2,748	1,333	4,250	1	,039	15,611	1,145	212,871
HOUSEHOLDS (3)	,283	1,328	,046	1	,831	1,328	,098	17,941
HOUSEHOLDS (4)	-,100	1,577	,004	1	,949	,905	,041	19,914
HOUSEHOLDS (5)	,239	1,567	,023	1	,879	1,270	,059	27,395
HOUSEHOLDS (6)	1,375	1,717	,641	1	,423	3,956	,137	114,545
HOUSEHOLDS (7)	-3,931	231,203	,000	1	,986	,020	,000	1,239E195
EDUCATION_HEAD			17,858	3	,000			
EDUCATION_HEAD (1)	2,977	1,125	6,997	1	,008	19,620	2,162	178,053
EDUCATION_HEAD (2)	4,189	1,047	16,020	1	,000	65,981	8,481	513,293
EDUCATION_HEAD (3)	3,418	,998	11,726	1	,001	30,511	4,313	215,824

Table A.8 (Continued)

							95,0% CI for Exp(B)	
	B	SE	B	SE	B	SE	B	SE
EDUCATION_PARTNER			11,117	3	,011			
EDUCATION_PARTNER (1)	-3,518	1,716	4,203	1	,040	,030	,001	,857
EDUCATION_PARTNER (2)	-4,258	1,669	6,508	1	,011	,014	,001	,373
EDUCATION_PARTNER (3)	-2,956	1,596	3,430	1	,064	,052	,002	1,188
INCOME			7,422	6	,284			
INCOME (1)	,315	,803	,153	1	,695	1,370	,284	6,611
INCOME (2)	,567	,634	,799	1	,371	1,762	,509	6,102
INCOME (3)	-,904	,650	1,931	1	,165	,405	,113	1,449
INCOME (4)	,239	,546	,191	1	,662	1,270	,435	3,705
INCOME (5)	-,359	,744	,233	1	,629	,698	,162	3,002
INCOME (6)	-,098	,886	,012	1	,912	,907	,160	5,147
CREDIT	-,193	,313	,381	1	,537	,824	,446	1,522
ROOM			18,986	5	,002			
ROOM (1)	-5,000	2,352	4,519	1	,034	,007	,000	,677
ROOM (2)	-4,331	2,284	3,596	1	,058	,013	,000	1,156
ROOM (3)	-4,474	2,408	3,453	1	,063	,011	,000	1,278
ROOM 4)	-6,023	2,462	5,986	1	,014	,002	,000	,302
ROOM (5)	-8,765	2,729	10,317	1	,001	,000	,000	,033
CHILDREN			15,658	6	,016			
CHILDREN (1)	3,374	1,937	3,035	1	,081	29,208	,656	1300,918
CHILDREN (2)	,924	1,484	,388	1	,533	2,520	,137	46,234
CHILDREN (3)	2,336	1,371	2,901	1	,089	10,337	,703	151,972
CHILDREN (4)	3,024	1,344	5,064	1	,024	20,579	1,477	286,639
CHILDREN (5)	3,511	1,711	4,208	1	,040	33,467	1,169	957,887
CHILDREN (6)	5,566	2,049	7,381	1	,007	261,507	4,715	14505,198
SCHOOL	,661	,548	1,453	1	,228	1,937	,661	5,673
PREFERENCES			10,134	3	,017			
PREFERENCES (1)	-2,663	1,079	6,085	1	,014	,070	,008	,579
PREFERENCES (2)	-3,853	1,303	8,742	1	,003	,021	,002	,273
PREFERENCES (3)	-,736	1,805	,166	1	,684	,479	,014	16,465

Model 5

Table A.9. Omnibus Tests of Model 5 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
664,176	84,551	53	,004	84,171	53	,004	84,171	53	,004

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.10. Cox Regression Analysis for Model 5

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,012	,006	3,574	1	,059	1,012	1,000	1,025
EMPLOYMENT			7,174	2	,028			
EMPLOYMENT (1)	1,899	,724	6,883	1	,009	6,676	1,616	27,576
EMPLOYMENT (2)	1,044	,611	2,919	1	,088	2,841	,858	9,414
JOB_LOCATION			1,926	2	,382			
JOB_LOCATION (1)	-1,176	,847	1,925	1	,165	,309	,059	1,624
JOB_LOCATION (2)	-,854	,750	1,298	1	,255	,426	,098	1,850
CODE			18,183	7	,011			
CODE (1)	2,652	1,273	4,342	1	,037	14,185	1,171	171,874
CODE (2)	2,139	1,243	2,961	1	,085	8,493	,743	97,094
CODE (3)	,729	1,087	,450	1	,502	2,074	,246	17,470
CODE (4)	,561	1,700	,109	1	,741	1,753	,063	49,032
CODE (5)	-1,851	1,592	1,351	1	,245	,157	,007	3,561
CODE (6)	1,284	1,039	1,526	1	,217	3,609	,471	27,663
CODE (7)	-,675	,700	,930	1	,335	,509	,129	2,008
MOBILITY			2,904	3	,407			
MOBILITY (1)	-,834	,604	1,904	1	,168	,434	,133	1,420
MOBILITY (2)	-,454	,374	1,475	1	,225	,635	,305	1,322
MOBILITY (3)	-,523	,474	1,221	1	,269	,593	,234	1,499

Table A.10 (Continued)

							95,0% CI for Exp(B)	
	B	SE	B	SE	B	SE	B	SE
MARRIAGE			4,793	4	,309			
MARRIAGE (1)	-1,607	,888	3,279	1	,070	,200	,035	1,142
MARRIAGE (2)	-,259	,836	,096	1	,756	,772	,150	3,971
MARRIAGE (3)	-,200	,774	,067	1	,796	,818	,179	3,734
MARRIAGE (4)	-,318	,687	,214	1	,643	,728	,189	2,796
HOUSEHOLDS			20,272	7	,005			
HOUSEHOLDS (1)	,360	,982	,135	1	,714	1,434	,209	9,824
HOUSEHOLDS (2)	2,850	1,326	4,622	1	,032	17,292	1,286	232,449
HOUSEHOLDS (3)	,375	1,318	,081	1	,776	1,454	,110	19,246
HOUSEHOLDS (4)	,017	1,562	,000	1	,991	1,017	,048	21,711
HOUSEHOLDS (5)	,215	1,578	,019	1	,892	1,240	,056	27,329
HOUSEHOLDS (6)	1,319	1,721	,588	1	,443	3,741	,128	109,111
HOUSEHOLDS (7)	-3,649	231,273	,000	1	,987	,026	,000	1,885E195
EDUCATION_HEAD			18,276	3	,000			
EDUCATION_HEAD (1)	3,064	1,108	7,647	1	,006	21,406	2,441	187,739
EDUCATION_HEAD (2)	4,226	1,036	16,651	1	,000	68,415	8,989	520,714
EDUCATION_HEAD (3)	3,416	,989	11,925	1	,001	30,456	4,381	211,724
EDUCATION_PARTNER			11,433	3	,010			
EDUCATION_PARTNER (1)	-3,581	1,699	4,441	1	,035	,028	,001	,778
EDUCATION_PARTNER (2)	-4,286	1,655	6,704	1	,010	,014	,001	,353
EDUCATION_PARTNER (3)	-2,934	1,583	3,434	1	,064	,053	,002	1,185
INCOME			7,820	6	,252			
INCOME (1)	,247	,800	,096	1	,757	1,281	,267	6,149
INCOME (2)	,479	,617	,603	1	,437	1,614	,482	5,404
INCOME (3)	-,976	,636	2,352	1	,125	,377	,108	1,312
INCOME (4)	,225	,549	,167	1	,682	1,252	,427	3,673
INCOME (5)	-,436	,738	,349	1	,555	,647	,152	2,746
INCOME (6)	-,140	,871	,026	1	,872	,869	,158	4,794
ROOM			19,126	5	,002			
ROOM (1)	-5,225	2,331	5,025	1	,025	,005	,000	,519
ROOM (2)	-4,611	2,244	4,221	1	,040	,010	,000	,809
ROOM (3)	-4,752	2,378	3,991	1	,046	,009	,000	,914
ROOM 4)	-6,283	2,435	6,657	1	,010	,002	,000	,221
ROOM (5)	-9,074	2,687	11,401	1	,001	,000	,000	,022

Table A.10 (Continued)

							95,0% CI for Exp(B)	
	B	SE	B	SE	B	SE	B	B
CHILDREN			15,530	6	,017			
CHILDREN (1)	3,443	1,933	3,172	1	,075	31,278	,708	1382,523
CHILDREN (2)	1,024	1,474	,482	1	,487	2,784	,155	50,049
CHILDREN (3)	2,399	1,368	3,075	1	,080	11,013	,754	160,856
CHILDREN (4)	3,070	1,344	5,222	1	,022	21,552	1,548	300,030
CHILDREN (5)	3,577	1,708	4,389	1	,036	35,780	1,259	1016,575
CHILDREN (6)	5,741	2,054	7,814	1	,005	311,462	5,561	17444,695
SCHOOL	,658	,538	1,496	1	,221	1,931	,673	5,544
PREFERENCES			9,786	3	,020			
PREFERENCES (1)	-2,596	1,079	5,796	1	,016	,075	,009	,617
PREFERENCES (2)	-3,726	1,285	8,405	1	,004	,024	,002	,299
PREFERENCES (3)	-,726	1,824	,159	1	,690	,484	,014	17,252

Model 6

Table A.11. Omnibus Tests of Model 6 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
667,162	81,890	50	,003	81,185	50	,003	81,185	50	,003

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.12. Cox Regression Analysis for Model 6

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,011	,006	3,184	1	,074	1,011	,999	1,024
EMPLOYMENT			5,903	2	,052			
EMPLOYMENT (1)	1,633	,683	5,728	1	,017	5,122	1,344	19,515
EMPLOYMENT (2)	,843	,577	2,134	1	,144	2,323	,750	7,200
JOB_LOCATION			,625	2	,731			
JOB_LOCATION (1)	-,563	,717	,616	1	,433	,570	,140	2,324
JOB_LOCATION (2)	-,468	,686	,465	1	,495	,626	,163	2,403
CODE			17,278	7	,016			
CODE (1)	2,246	1,240	3,283	1	,070	9,450	,832	107,277
CODE (2)	1,827	1,221	2,238	1	,135	6,216	,567	68,113
CODE (3)	,642	1,075	,356	1	,551	1,899	,231	15,622
CODE (4)	,853	1,605	,282	1	,595	2,347	,101	54,577
CODE (5)	-1,741	1,565	1,236	1	,266	,175	,008	3,772
CODE (6)	,950	1,021	,865	1	,352	2,585	,349	19,114
CODE (7)	-,856	,690	1,537	1	,215	,425	,110	1,644
MARRIAGE			2,617	4	,624			
MARRIAGE (1)	-1,083	,834	1,687	1	,194	,339	,066	1,735
MARRIAGE (2)	-,316	,750	,178	1	,673	,729	,168	3,167
MARRIAGE (3)	-,122	,744	,027	1	,870	,885	,206	3,804
MARRIAGE (4)	-,228	,654	,122	1	,727	,796	,221	2,867
HOUSEHOLDS			20,013	7	,006			
HOUSEHOLDS (1)	,312	,975	,102	1	,749	1,366	,202	9,231
HOUSEHOLDS (2)	2,678	1,297	4,264	1	,039	14,560	1,146	185,008
HOUSEHOLDS (3)	,256	1,297	,039	1	,843	1,292	,102	16,422
HOUSEHOLDS (4)	-,030	1,507	,000	1	,984	,970	,051	18,622
HOUSEHOLDS (5)	-,161	1,548	,011	1	,917	,851	,041	17,688
HOUSEHOLDS (6)	1,081	1,695	,407	1	,524	2,946	,106	81,620
HOUSEHOLDS (7)	-4,720	228,452	,000	1	,984	,009	,000	2,564E192
EDUCATION_HEAD			16,699	3	,001			
EDUCATION_HEAD (1)	2,904	1,100	6,965	1	,008	18,255	2,112	157,805
EDUCATION_HEAD (2)	4,015	1,036	15,015	1	,000	55,419	7,273	422,282
EDUCATION_HEAD (3)	3,299	,999	10,910	1	,001	27,080	3,824	191,758

Table A.12 (Continued)

							95,0% CI for Exp(B)	
	B	SE	B	SE	B	SE	B	SE
EDUCATION_PARTNER			9,573	3	,023			
EDUCATION_PARTNER (1)	-3,329	1,632	4,162	1	,041	,036	,001	,877
EDUCATION_PARTNER (2)	-3,875	1,569	6,102	1	,013	,021	,001	,449
EDUCATION_PARTNER (3)	-2,744	1,483	3,425	1	,064	,064	,004	1,176
INCOME			8,372	6	,212			
INCOME (1)	-,090	,773	,014	1	,907	,914	,201	4,156
INCOME (2)	,422	,611	,477	1	,490	1,524	,460	5,047
INCOME (3)	-1,036	,636	2,649	1	,104	,355	,102	1,236
INCOME (4)	,161	,549	,086	1	,769	1,175	,401	3,448
INCOME (5)	-,115	,709	,026	1	,872	,892	,222	3,579
INCOME (6)	,085	,831	,010	1	,918	1,089	,213	5,554
ROOM			17,080	5	,004			
ROOM (1)	-5,647	2,316	5,944	1	,015	,004	,000	,330
ROOM (2)	-5,091	2,212	5,297	1	,021	,006	,000	,470
ROOM (3)	-5,123	2,338	4,803	1	,028	,006	,000	,582
ROOM 4)	-6,802	2,392	8,084	1	,004	,001	,000	,121
ROOM (5)	-8,556	2,628	10,596	1	,001	,000	,000	,033
CHILDREN			14,214	6	,027			
CHILDREN (1)	2,467	1,836	1,806	1	,179	11,787	,323	430,458
CHILDREN (2)	,167	1,389	,014	1	,904	1,182	,078	18,002
CHILDREN (3)	1,777	1,329	1,788	1	,181	5,912	,437	79,949
CHILDREN (4)	2,330	1,274	3,346	1	,067	10,277	,847	124,765
CHILDREN (5)	2,911	1,660	3,075	1	,079	18,382	,710	475,940
CHILDREN (6)	4,932	1,914	6,642	1	,010	138,680	3,258	5902,729
SCHOOL	,507	,523	,939	1	,333	1,660	,596	4,623
PREFERENCES			9,511	3	,023			
PREFERENCES (1)	-2,186	1,018	4,611	1	,032	,112	,015	,826
PREFERENCES (2)	-3,336	1,179	8,008	1	,005	,036	,004	,359
PREFERENCES (3)	-,754	1,834	,169	1	,681	,471	,013	17,139

Table A.13. Omnibus Tests of Model 7 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
667,791	81,073	48	,002	80,556	48	,002	80,556	48	,002

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.14. Cox Regression Analysis for Model 7

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,012	,006	3,263	1	,071	1,012	,999	1,024
EMPLOYMENT			5,833	2	,054			
EMPLOYMENT (1)	1,626	,685	5,639	1	,018	5,081	1,328	19,441
EMPLOYMENT (2)	,842	,567	2,206	1	,138	2,321	,764	7,053
CODE			18,250	7	,011			
CODE (1)	2,372	1,234	3,697	1	,055	10,720	,955	120,312
CODE (2)	1,956	1,217	2,584	1	,108	7,069	,651	76,727
CODE (3)	,696	1,078	,417	1	,519	2,006	,242	16,608
CODE (4)	,977	1,613	,367	1	,545	2,656	,113	62,668
CODE (5)	-1,715	1,569	1,195	1	,274	,180	,008	3,896
CODE (6)	1,008	1,022	,974	1	,324	2,740	,370	20,297
CODE (7)	-,806	,688	1,373	1	,241	,447	,116	1,720
MARRIAGE			2,191	4	,701			
MARRIAGE (1)	-,954	,814	1,373	1	,241	,385	,078	1,899
MARRIAGE (2)	-,319	,732	,190	1	,663	,727	,173	3,051
MARRIAGE (3)	-,121	,743	,027	1	,870	,886	,206	3,801
MARRIAGE (4)	-,190	,654	,084	1	,772	,827	,229	2,984

Table A.14 (Continued)

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
HOUSEHOLDS			19,684	7	,006			
HOUSEHOLDS (1)	,328	,974	,114	1	,736	1,389	,206	9,360
HOUSEHOLDS (2)	2,638	1,301	4,110	1	,043	13,985	1,091	179,196
HOUSEHOLDS (3)	,239	1,303	,034	1	,855	1,270	,099	16,315
HOUSEHOLDS (4)	-,050	1,507	,001	1	,974	,951	,050	18,234
HOUSEHOLDS (5)	-,211	1,542	,019	1	,891	,810	,039	16,615
HOUSEHOLDS (6)	1,150	1,694	,461	1	,497	3,157	,114	87,246
HOUSEHOLDS (7)	-4,642	228,704	,000	1	,984	,010	,000	4,536E192
EDUCATION_HEAD			17,418	3	,001			
EDUCATION_HEAD (1)	2,686	1,021	6,923	1	,009	14,667	1,984	108,432
EDUCATION_HEAD (2)	3,880	,981	15,630	1	,000	48,433	7,075	331,555
EDUCATION_HEAD (3)	3,096	,926	11,178	1	,001	22,109	3,600	135,762
EDUCATION_PARTNER			9,357	3	,025			
EDUCATION_PARTNER (1)	-3,147	1,546	4,144	1	,042	,043	,002	,889
EDUCATION_PARTNER (2)	-3,731	1,522	6,005	1	,014	,024	,001	,474
EDUCATION_PARTNER (3)	-2,605	1,443	3,260	1	,071	,074	,004	1,250
INCOME			8,532	6	,202			
INCOME (1)	-,174	,763	,052	1	,819	,840	,188	3,751
INCOME (2)	,342	,596	,329	1	,567	1,408	,437	4,529
INCOME (3)	-1,077	,629	2,937	1	,087	,341	,099	1,167
INCOME (4)	,131	,545	,058	1	,810	1,140	,391	3,321
INCOME (5)	-,136	,704	,037	1	,847	,873	,220	3,471
INCOME (6)	,374	,741	,255	1	,614	1,453	,340	6,206
ROOM			17,472	5	,004			
ROOM (1)	-5,830	2,299	6,430	1	,011	,003	,000	,266
ROOM (2)	-5,228	2,202	5,634	1	,018	,005	,000	,402
ROOM (3)	-5,301	2,318	5,230	1	,022	,005	,000	,469
ROOM 4)	-6,947	2,376	8,547	1	,003	,001	,000	,101
ROOM (5)	-8,618	2,613	10,879	1	,001	,000	,000	,030
CHILDREN			14,018	6	,029			
CHILDREN (1)	2,245	1,803	1,551	1	,213	9,439	,276	323,192
CHILDREN (2)	,060	1,382	,002	1	,965	1,062	,071	15,958
CHILDREN (3)	1,685	1,324	1,620	1	,203	5,391	,403	72,202
CHILDREN (4)	2,273	1,271	3,199	1	,074	9,704	,804	117,072
CHILDREN (5)	2,727	1,645	2,747	1	,097	15,280	,608	384,149
CHILDREN (6)	4,815	1,914	6,330	1	,012	123,299	2,898	5246,775

Table A.14 (Continued)

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	B
SCHOOL	,484	,517	,877	1	,349	1,622	,589	4,464
PREFERENCES			9,769	3	,021			
PREFERENCES (1)	-2,073	,988	4,405	1	,036	,126	,018	,872
PREFERENCES (2)	-3,153	1,123	7,885	1	,005	,043	,005	,386
PREFERENCES (3)	-,249	1,682	,022	1	,882	,780	,029	21,048

Model 8

Table A.15. Omnibus Tests of Model 8 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
669,937	79,446	44	,001	78,410	44	,001	78,410	44	,001

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.16. Cox Regression Analysis for Model 8

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,012	,006	3,829	1	,050	1,012	1,000	1,025
EMPLOYMENT			6,614	2	,037			
EMPLOYMENT (1)	1,714	,667	6,596	1	,010	5,552	1,501	20,536
EMPLOYMENT (2)	,605	,476	1,613	1	,204	1,831	,720	4,660

Table A.16 (Continued)

							95,0% CI	95,0% CI for
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
CODE			18,400	7	,010			
CODE (1)	2,657	1,197	4,926	1	,026	14,248	1,364	148,800
CODE (2)	2,278	1,191	3,660	1	,056	9,755	,946	100,623
CODE (3)	,993	1,038	,915	1	,339	2,700	,353	20,661
CODE (4)	1,276	1,580	,652	1	,419	3,582	,162	79,306
CODE (5)	-1,348	1,499	,808	1	,369	,260	,014	4,909
CODE (6)	1,279	,960	1,776	1	,183	3,594	,548	23,590
CODE (7)	-,608	,649	,878	1	,349	,544	,153	1,943
HOUSEHOLDS			19,400	7	,007			
HOUSEHOLDS (1)	,415	,940	,195	1	,658	1,515	,240	9,557
HOUSEHOLDS (2)	2,384	1,259	3,588	1	,058	10,851	,921	127,900
HOUSEHOLDS (3)	,015	1,259	,000	1	,991	1,015	,086	11,978
HOUSEHOLDS (4)	-,287	1,402	,042	1	,838	,751	,048	11,704
HOUSEHOLDS (5)	-,269	1,488	,033	1	,856	,764	,041	14,110
HOUSEHOLDS (6)	1,198	1,655	,524	1	,469	3,313	,129	84,896
HOUSEHOLDS (7)	-5,085	227,995	,000	1	,982	,006	,000	7,265E191
EDUCATION_HEAD			17,815	3	,000			
EDUCATION_HEAD (1)	2,600	,984	6,978	1	,008	13,461	1,956	92,646
EDUCATION_HEAD (2)	3,823	,973	15,429	1	,000	45,734	6,789	308,075
EDUCATION_HEAD (3)	2,923	,902	10,501	1	,001	18,606	3,175	109,043
EDUCATION_PARTNER			9,159	3	,027			
EDUCATION_PARTNER (1)	-2,979	1,506	3,913	1	,048	,051	,003	,973
EDUCATION_PARTNER (2)	-3,589	1,491	5,794	1	,016	,028	,001	,513
EDUCATION_PARTNER (3)	-2,545	1,417	3,225	1	,073	,078	,005	1,262
INCOME			8,361	6	,213			
INCOME (1)	-,148	,755	,038	1	,845	,863	,197	3,786
INCOME (2)	,342	,581	,347	1	,556	1,408	,451	4,397
INCOME (3)	-,914	,586	2,434	1	,119	,401	,127	1,264
INCOME (4)	,230	,538	,183	1	,669	1,258	,439	3,610
INCOME (5)	,230	,630	,133	1	,715	1,259	,366	4,325
INCOME (6)	,372	,726	,262	1	,609	1,450	,349	6,020
ROOM			17,310	5	,004			
ROOM (1)	-5,758	2,271	6,430	1	,011	,003	,000	,271
ROOM (2)	-5,168	2,173	5,654	1	,017	,006	,000	,403
ROOM (3)	-5,119	2,269	5,090	1	,024	,006	,000	,511
ROOM 4)	-6,767	2,308	8,599	1	,003	,001	,000	,106
ROOM (5)	-8,350	2,580	10,471	1	,001	,000	,000	,037

Table A.16 (Continued)

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
CHILDREN			18,354	6	,005			
CHILDREN (1)	1,358	1,647	,680	1	,410	3,889	,154	98,092
CHILDREN (2)	-,568	1,279	,198	1	,657	,566	,046	6,943
CHILDREN (3)	1,269	1,285	,974	1	,324	3,556	,286	44,159
CHILDREN (4)	1,999	1,256	2,534	1	,111	7,384	,630	86,555
CHILDREN (5)	2,191	1,586	1,909	1	,167	8,942	,400	200,074
CHILDREN (6)	4,386	1,866	5,524	1	,019	80,335	2,072	3115,040
SCHOOL	,089	,345	,066	1	,797	1,093	,556	2,149
PREFERENCES			8,014	3	,046			
PREFERENCES (1)	-1,680	,901	3,472	1	,062	,186	,032	1,091
PREFERENCES (2)	-2,491	,992	6,301	1	,012	,083	,012	,579
PREFERENCES (3)	,088	1,617	,003	1	,957	1,092	,046	25,986

Model 9

Table A.17. Omnibus Tests of Model 9 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
670,003	79,110	43	,001	78,344	43	,001	78,344	43	,001

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.18. Cox Regression Analysis for Model 9

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,012	,006	3,933	1	,047	1,013	1,000	1,025
EMPLOYMENT			7,532	2	,023			
EMPLOYMENT (1)	1,756	,644	7,443	1	,006	5,790	1,640	20,448
EMPLOYMENT (2)	,603	,473	1,626	1	,202	1,828	,723	4,617
CODE			18,613	7	,009			
CODE (1)	2,678	1,197	5,006	1	,025	14,549	1,394	151,856
CODE (2)	2,304	1,189	3,758	1	,053	10,014	,975	102,887
CODE (3)	1,000	1,040	,923	1	,337	2,717	,354	20,874
CODE (4)	1,302	1,586	,674	1	,412	3,676	,164	82,286
CODE (5)	-1,320	1,495	,780	1	,377	,267	,014	5,000
CODE (6)	1,310	,952	1,894	1	,169	3,707	,574	23,954
CODE (7)	-,604	,648	,869	1	,351	,547	,153	1,946
HOUSEHOLDS			21,564	7	,003			
HOUSEHOLDS (1)	,392	,936	,176	1	,675	1,481	,237	9,266
HOUSEHOLDS (2)	2,336	1,242	3,537	1	,060	10,335	,906	117,854
HOUSEHOLDS (3)	-,077	1,205	,004	1	,949	,926	,087	9,832
HOUSEHOLDS (4)	-,396	1,333	,088	1	,766	,673	,049	9,180
HOUSEHOLDS (5)	-,311	1,481	,044	1	,834	,733	,040	13,349
HOUSEHOLDS (6)	1,184	1,653	,513	1	,474	3,268	,128	83,506
HOUSEHOLDS (7)	-5,193	228,273	,001	1	,982	,006	,000	1,124E192
EDUCATION_HEAD			17,907	3	,000			
EDUCATION_HEAD (1)	2,594	,981	6,987	1	,008	13,386	1,955	91,627
EDUCATION_HEAD (2)	3,823	,971	15,499	1	,000	45,738	6,819	306,781
EDUCATION_HEAD (3)	2,920	,900	10,533	1	,001	18,535	3,179	108,074
EDUCATION_PARTNER			10,385	3	,016			
EDUCATION_PARTNER (1)	-3,041	1,488	4,177	1	,041	,048	,003	,883
EDUCATION_PARTNER (2)	-3,659	1,468	6,207	1	,013	,026	,001	,458
EDUCATION_PARTNER (3)	-2,578	1,412	3,333	1	,068	,076	,005	1,209
INCOME			8,961	6	,176			
INCOME (1)	-,124	,748	,028	1	,868	,883	,204	3,826
INCOME (2)	,377	,564	,446	1	,504	1,457	,482	4,405
INCOME (3)	-,906	,586	2,393	1	,122	,404	,128	1,274
INCOME (4)	,259	,526	,243	1	,622	1,296	,462	3,630
INCOME (5)	,231	,630	,135	1	,714	1,260	,366	4,336
INCOME (6)	,429	,689	,388	1	,533	1,536	,398	5,920

Table A.18 (Continued)

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
ROOM			17,276	5	,004			
ROOM (1)	-5,725	2,264	6,392	1	,011	,003	,000	,276
ROOM (2)	-5,125	2,166	5,600	1	,018	,006	,000	,415
ROOM (3)	-5,093	2,265	5,055	1	,025	,006	,000	,520
ROOM 4)	-6,726	2,300	8,549	1	,003	,001	,000	,109
ROOM (5)	-8,287	2,570	10,398	1	,001	,000	,000	,039
CHILDREN			18,638	6	,005			
CHILDREN (1)	1,322	1,639	,651	1	,420	3,752	,151	93,193
CHILDREN (2)	-,602	1,271	,224	1	,636	,548	,045	6,609
CHILDREN (3)	1,224	1,273	,924	1	,336	3,401	,280	41,234
CHILDREN (4)	1,972	1,251	2,484	1	,115	7,182	,619	83,381
CHILDREN (5)	2,130	1,565	1,853	1	,173	8,412	,392	180,591
CHILDREN (6)	4,359	1,866	5,455	1	,020	78,147	2,016	3029,321
PREFERENCES			8,014	3	,046			
PREFERENCES (1)	-1,709	,894	3,656	1	,056	,181	,031	1,044
PREFERENCES (2)	-2,505	,990	6,404	1	,011	,082	,012	,568
PREFERENCES (3)	,053	1,620	,001	1	,974	1,055	,044	25,261

Model 10

Table A.19. Omnibus Tests of Model 10 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
681,244	70,055	37	,001	67,693	37	,002	67,693	37	,002

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.20. Cox Regression Analysis for Model 10

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,011	,006	3,401	1	,065	1,011	,999	1,022
EMPLOYMENT			6,526	2	,038			
EMPLOYMENT (1)	1,432	,611	5,494	1	,019	4,187	1,264	13,865
EMPLOYMENT (2)	,211	,438	,232	1	,630	1,235	,523	2,914
CODE			18,413	7	,010			
CODE (1)	2,402	1,090	4,858	1	,028	11,046	1,305	93,510
CODE (2)	1,960	1,073	3,337	1	,068	7,102	,867	58,200
CODE (3)	,751	,948	,627	1	,429	2,118	,330	13,587
CODE (4)	,883	1,601	,304	1	,581	2,419	,105	55,805
CODE (5)	-1,302	1,449	,807	1	,369	,272	,016	4,657
CODE (6)	,441	,832	,281	1	,596	1,555	,304	7,948
CODE (7)	-,620	,602	1,059	1	,303	,538	,165	1,751
HOUSEHOLDS			15,292	7	,032			
HOUSEHOLDS (1)	-,054	,913	,004	1	,953	,947	,158	5,668
HOUSEHOLDS (2)	1,605	1,177	1,859	1	,173	4,977	,496	49,973
HOUSEHOLDS (3)	-,311	1,148	,073	1	,787	,733	,077	6,955
HOUSEHOLDS (4)	-,499	1,284	,151	1	,698	,607	,049	7,522
HOUSEHOLDS (5)	-,870	1,357	,411	1	,521	,419	,029	5,988
HOUSEHOLDS (6)	,414	1,619	,065	1	,798	1,513	,063	36,153
HOUSEHOLDS (7)	-5,588	230,717	,001	1	,981	,004	,000	9,110E193
EDUCATION_HEAD			13,566	3	,004			
EDUCATION_HEAD (1)	2,236	,892	6,282	1	,012	9,358	1,628	53,779
EDUCATION_HEAD (2)	3,078	,869	12,555	1	,000	21,708	3,956	119,114
EDUCATION_HEAD (3)	2,544	,832	9,354	1	,002	12,730	2,493	64,990
EDUCATION_PARTNER			10,255	3	,017			
EDUCATION_PARTNER (1)	-2,679	1,441	3,457	1	,063	,069	,004	1,156
EDUCATION_PARTNER (2)	-3,254	1,406	5,352	1	,021	,039	,002	,608
EDUCATION_PARTNER (3)	-2,308	1,359	2,882	1	,090	,099	,007	1,428
ROOM			13,677	5	,018			
ROOM (1)	-5,375	2,059	6,816	1	,009	,005	,000	,262
ROOM (2)	-4,910	1,973	6,193	1	,013	,007	,000	,352
ROOM (3)	-4,932	2,049	5,796	1	,016	,007	,000	,400
ROOM 4)	-6,208	2,133	8,467	1	,004	,002	,000	,132
ROOM (5)	-7,604	2,423	9,851	1	,002	,000	,000	,058

Table A.20 (Continued)

CHILDREN			15,741	6	,015			
CHILDREN (1)	1,545	1,522	1,030	1	,310	4,689	,237	92,656
CHILDREN (2)	-,251	1,161	,047	1	,829	,778	,080	7,570
CHILDREN (3)	1,453	1,178	1,521	1	,217	4,276	,425	43,040
CHILDREN (4)	2,035	1,175	3,000	1	,083	7,655	,765	76,596
CHILDREN (5)	2,426	1,495	2,633	1	,105	11,308	,604	211,780
CHILDREN (6)	4,153	1,889	4,836	1	,028	63,654	1,571	2579,447
PREFERENCES			6,117	3	,106			
PREFERENCES (1)	-1,767	,861	4,214	1	,040	,171	,032	,923
PREFERENCES (2)	-2,370	,993	5,689	1	,017	,094	,013	,655
PREFERENCES (3)	-,609	1,581	,148	1	,700	,544	,025	12,049

Model 11

Table A.21. Omnibus Tests of Model 11 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
686,366	64,160	34	,001	62,571	34	,002	62,571	34	,002

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.22. Cox Regression Analysis for Model 11

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,011	,006	3,579	1	,058	1,011	1,000	1,022
EMPLOYMENT			5,835	2	,054			
EMPLOYMENT (1)	1,334	,596	5,014	1	,025	3,797	1,181	12,205
EMPLOYMENT (2)	,246	,439	,315	1	,575	1,279	,541	3,023

Table A.22 (Continued)

							95,0% CI for Exp(B)	
	B	SE	B	SE	B	SE	B	SE
CODE			18,779	7	,009			
CODE (1)	2,667	1,033	6,666	1	,010	14,394	1,901	108,990
CODE (2)	2,242	1,012	4,908	1	,027	9,413	1,295	68,423
CODE (3)	1,057	,895	1,392	1	,238	2,876	,497	16,634
CODE (4)	1,530	1,560	,961	1	,327	4,616	,217	98,253
CODE (5)	-1,089	1,429	,581	1	,446	,337	,020	5,537
CODE (6)	,525	,794	,437	1	,509	1,690	,357	8,013
CODE (7)	-,345	,548	,397	1	,529	,708	,242	2,073
HOUSEHOLDS			13,230	7	,067			
HOUSEHOLDS (1)	-,230	,891	,067	1	,796	,795	,139	4,554
HOUSEHOLDS (2)	1,108	1,119	,980	1	,322	3,028	,338	27,161
HOUSEHOLDS (3)	-,617	1,116	,306	1	,580	,540	,061	4,810
HOUSEHOLDS (4)	-,775	1,250	,384	1	,535	,461	,040	5,335
HOUSEHOLDS (5)	-,746	1,338	,311	1	,577	,474	,034	6,531
HOUSEHOLDS (6)	,018	1,564	,000	1	,991	1,018	,047	21,852
HOUSEHOLDS (7)	-5,730	226,719	,001	1	,980	,003	,000	3,126E190
EDUCATION_HEAD			15,435	3	,001			
EDUCATION_HEAD (1)	2,002	,860	5,418	1	,020	7,404	1,372	39,955
EDUCATION_HEAD (2)	3,071	,843	13,270	1	,000	21,556	4,131	112,478
EDUCATION_HEAD (3)	2,534	,806	9,895	1	,002	12,608	2,599	61,159
EDUCATION_PARTNER			11,269	3	,010			
EDUCATION_PARTNER (1)	-2,485	1,399	3,152	1	,076	,083	,005	1,294
EDUCATION_PARTNER (2)	-3,127	1,363	5,261	1	,022	,044	,003	,634
EDUCATION_PARTNER (3)	-2,131	1,327	2,580	1	,108	,119	,009	1,599
ROOM			11,117	5	,049			
ROOM (1)	-5,063	2,009	6,350	1	,012	,006	,000	,325
ROOM (2)	-4,658	1,931	5,820	1	,016	,009	,000	,417
ROOM (3)	-4,642	1,999	5,393	1	,020	,010	,000	,485
ROOM 4)	-5,522	2,064	7,160	1	,007	,004	,000	,228
ROOM (5)	-6,626	2,234	8,801	1	,003	,001	,000	,106
CHILDREN			13,188	6	,040			
CHILDREN (1)	,752	1,447	,270	1	,603	2,121	,124	36,137
CHILDREN (2)	-,448	1,157	,150	1	,698	,639	,066	6,164
CHILDREN (3)	1,053	1,152	,835	1	,361	2,867	,300	27,431
CHILDREN (4)	1,573	1,124	1,960	1	,162	4,822	,533	43,639
CHILDREN (5)	1,726	1,423	1,471	1	,225	5,617	,345	91,359
CHILDREN (6)	3,397	1,826	3,461	1	,063	29,861	,834	1069,445

Table A.23. Omnibus Tests of Model 12 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
698,723	53,388	27	,002	50,214	27	,004	50,214	27	,004

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.24. Cox Regression Analysis for Model 12

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,011	,005	4,322	1	,038	1,011	1,001	1,022
EMPLOYMENT			4,984	2	,083			
EMPLOYMENT (1)	,764	,528	2,091	1	,148	2,146	,762	6,043
EMPLOYMENT (2)	-,284	,367	,596	1	,440	,753	,367	1,547
CODE			16,704	7	,019			
CODE (1)	2,809	,981	8,198	1	,004	16,590	2,426	113,465
CODE (2)	2,434	,970	6,299	1	,012	11,402	1,704	76,280
CODE (3)	1,302	,868	2,253	1	,133	3,677	,672	20,133
CODE (4)	2,142	1,374	2,430	1	,119	8,518	,576	125,923
CODE (5)	,324	1,233	,069	1	,793	1,383	,123	15,488
CODE (6)	,582	,743	,613	1	,434	1,790	,417	7,685
CODE (7)	-,071	,531	,018	1	,894	,932	,329	2,636
EDUCATION_HEAD			14,007	3	,003			
EDUCATION_HEAD (1)	1,697	,846	4,026	1	,045	5,460	1,040	28,659
EDUCATION_HEAD (2)	2,751	,834	10,873	1	,001	15,664	3,053	80,385
EDUCATION_HEAD (3)	2,255	,792	8,112	1	,004	9,539	2,021	45,032
EDUCATION_PARTNER			9,152	3	,027			
EDUCATION_PARTNER (1)	-2,262	1,381	2,685	1	,101	,104	,007	1,558
EDUCATION_PARTNER (2)	-2,828	1,353	4,367	1	,037	,059	,004	,839
EDUCATION_PARTNER (3)	-1,961	1,320	2,209	1	,137	,141	,011	1,869

Table A.24 (Continued)

							95,0% CI for Exp(B)	
	B	SE	B	SE	B	SE	B	SE
ROOM			8,858	5	,115			
ROOM (1)	-3,435	1,687	4,149	1	,042	,032	,001	,878
ROOM (2)	-3,057	1,594	3,676	1	,055	,047	,002	1,070
ROOM (3)	-3,488	1,682	4,300	1	,038	,031	,001	,826
ROOM 4)	-3,582	1,661	4,654	1	,031	,028	,001	,720
ROOM (5)	-4,846	1,874	6,689	1	,010	,008	,000	,309
CHILDREN			4,303	6	,636			
CHILDREN (1)	,013	1,140	,000	1	,991	1,013	,108	9,472
CHILDREN (2)	-,021	1,112	,000	1	,985	,979	,111	8,655
CHILDREN (3)	-,052	1,091	,002	1	,962	,949	,112	8,050
CHILDREN (4)	,523	1,113	,221	1	,638	1,687	,190	14,962
CHILDREN (5)	,602	1,144	,277	1	,598	1,827	,194	17,190
CHILDREN (6)	1,534	1,515	1,026	1	,311	4,638	,238	90,334

Model 13

Table A.25. Omnibus Tests of Model 13 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
702,815	48,363	21	,001	46,122	21	,001	46,122	21	,001

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.26. Cox Regression Analysis for Model 13

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,011	,005	4,187	1	,041	1,011	1,000	1,022
EMPLOYMENT			5,537	2	,063			
EMPLOYMENT (1)	,583	,508	1,314	1	,252	1,791	,661	4,849
EMPLOYMENT (2)	-,438	,339	1,661	1	,197	,646	,332	1,256
CODE			18,184	7	,011			
CODE (1)	2,595	,935	7,698	1	,006	13,401	2,143	83,824
CODE (2)	2,140	,918	5,437	1	,020	8,496	1,407	51,313
CODE (3)	1,148	,838	1,877	1	,171	3,153	,610	16,303
CODE (4)	2,702	1,083	6,228	1	,013	14,911	1,786	124,480
CODE (5)	,147	1,200	,015	1	,903	1,158	,110	12,169
CODE (6)	,460	,702	,429	1	,512	1,583	,400	6,262
CODE (7)	-,262	,494	,281	1	,596	,770	,292	2,027
EDUCATION_HEAD			12,736	3	,005			
EDUCATION_HEAD (1)	1,746	,840	4,322	1	,038	5,731	1,105	29,724
EDUCATION_HEAD (2)	2,639	,827	10,172	1	,001	13,999	2,766	70,864
EDUCATION_HEAD (3)	2,223	,777	8,185	1	,004	9,235	2,014	42,350
EDUCATION_PARTNER			9,179	3	,027			
EDUCATION_PARTNER (1)	-2,071	1,354	2,340	1	,126	,126	,009	1,791
EDUCATION_PARTNER (2)	-2,682	1,338	4,018	1	,045	,068	,005	,942
EDUCATION_PARTNER (3)	-1,842	1,297	2,016	1	,156	,158	,012	2,015
ROOM			11,694	5	,039			
ROOM (1)	-3,846	1,562	6,059	1	,014	,021	,001	,457
ROOM (2)	-3,595	1,501	5,736	1	,017	,027	,001	,520
ROOM (3)	-3,896	1,575	6,122	1	,013	,020	,001	,445
ROOM 4)	-4,172	1,569	7,068	1	,008	,015	,001	,334
ROOM (5)	-5,548	1,762	9,911	1	,002	,004	,000	,123

Table A.27. Omnibus Tests of Model 14 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
708,022	43,074	19	,001	40,915	19	,002	40,915	19	,002

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.28. Cox Regression Analysis for Model 14

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,011	,005	3,918	1	,048	1,011	1,000	1,021
CODE			15,208	7	,033			
CODE (1)	2,388	,924	6,674	1	,010	10,894	1,780	66,693
CODE (2)	1,914	,915	4,373	1	,037	6,780	1,127	40,769
CODE (3)	1,338	,839	2,542	1	,111	3,810	,736	19,729
CODE (4)	2,615	1,081	5,856	1	,016	13,669	1,644	113,651
CODE (5)	,074	1,197	,004	1	,951	1,077	,103	11,237
CODE (6)	,562	,689	,664	1	,415	1,754	,454	6,772
CODE (7)	-,211	,485	,190	1	,663	,810	,313	2,093
EDUCATION_HEAD			10,630	3	,014			
EDUCATION_HEAD (1)	1,820	,835	4,756	1	,029	6,175	1,203	31,707
EDUCATION_HEAD (2)	2,463	,815	9,128	1	,003	11,744	2,376	58,053
EDUCATION_HEAD (3)	2,049	,771	7,063	1	,008	7,761	1,713	35,173
EDUCATION_PARTNER			7,275	3	,064			
EDUCATION_PARTNER (1)	-1,873	1,333	1,976	1	,160	,154	,011	2,093
EDUCATION_PARTNER (2)	-2,387	1,325	3,244	1	,072	,092	,007	1,234
EDUCATION_PARTNER (3)	-1,641	1,292	1,614	1	,204	,194	,015	2,438
ROOM			9,844	5	,080			
ROOM (1)	-3,779	1,557	5,892	1	,015	,023	,001	,483
ROOM (2)	-3,479	1,499	5,384	1	,020	,031	,002	,583
ROOM (3)	-3,447	1,555	4,913	1	,027	,032	,002	,671
ROOM 4)	-4,042	1,571	6,622	1	,010	,018	,001	,382
ROOM (5)	-4,928	1,718	8,226	1	,004	,007	,000	,210

Table A.29. Omnibus Tests of Model 15 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
717,706	29,335	14	,009	31,231	14	,005	31,231	14	,005

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.30. Cox Regression Analysis for Model 15

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,010	,005	4,183	1	,041	1,010	1,000	1,020
CODE			13,518	7	,060			
CODE (1)	2,230	,889	6,290	1	,012	9,303	1,628	53,165
CODE (2)	1,817	,879	4,273	1	,039	6,154	1,099	34,466
CODE (3)	1,353	,803	2,836	1	,092	3,867	,801	18,667
CODE (4)	2,560	1,054	5,894	1	,015	12,936	1,638	102,172
CODE (5)	,801	,956	,701	1	,402	2,227	,342	14,508
CODE (6)	,142	,656	,047	1	,829	1,152	,318	4,172
CODE (7)	-,166	,478	,120	1	,729	,847	,332	2,163
EDUCATION_HEAD			9,346	3	,025			
EDUCATION_HEAD (1)	1,313	,815	2,599	1	,107	3,718	,753	18,359
EDUCATION_HEAD (2)	2,080	,799	6,768	1	,009	8,002	1,670	38,346
EDUCATION_HEAD (3)	1,710	,754	5,144	1	,023	5,530	1,261	24,239
EDUCATION_PARTNER			5,243	3	,155			
EDUCATION_PARTNER (1)	-1,160	1,257	,851	1	,356	,314	,027	3,685
EDUCATION_PARTNER (2)	-1,713	1,250	1,877	1	,171	,180	,016	2,091
EDUCATION_PARTNER (3)	-1,151	1,222	,887	1	,346	,316	,029	3,472

Model 16

Table A.31. Omnibus Tests of Model 16 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
814,358	23,053	11	,017	25,012	11	,009	25,012	11	,009

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.32. Cox Regression Analysis for Model 16

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,011	,005	5,405	1	,020	1,011	1,002	1,021
CODE			13,002	7	,072			
CODE (1)	2,217	,828	7,167	1	,007	9,178	1,811	46,516
CODE (2)	2,024	,817	6,133	1	,013	7,570	1,525	37,573
CODE (3)	1,716	,746	5,295	1	,021	5,564	1,290	24,000
CODE (4)	2,659	1,016	6,845	1	,009	14,280	1,948	104,666
CODE (5)	1,066	,927	1,322	1	,250	2,903	,472	17,851
CODE (6)	,394	,647	,372	1	,542	1,483	,418	5,267
CODE (7)	,045	,463	,010	1	,922	1,046	,422	2,592
EDUCATION_HEAD			4,344	3	,227			
EDUCATION_HEAD (1)	,607	,563	1,162	1	,281	1,834	,609	5,528
EDUCATION_HEAD (2)	1,040	,569	3,346	1	,067	2,831	,928	8,631
EDUCATION_HEAD (3)	,826	,557	2,200	1	,138	2,284	,767	6,804

Model 17

Table A.33. Omnibus Tests of Model 17 Coefficients

-2 Log	Overall (score)			Change From Previous Step			Change From Previous Block		
Likelihood	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square	df	Sig.
819,445	18,364	8	,019	20,127	8	,010	20,127	8	,010

a. Beginning Block Number 0, initial Log Likelihood function: -2 Log likelihood: 748,347

b. Beginning Block Number 1. Method = Enter

Table A.34. Cox Regression Analysis for Model 17

							95,0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
T_COV_	,013	,005	7,319	1	,007	1,013	1,004	1,022
CODE			14,158	7	,048			
CODE (1)	2,322	,832	7,795	1	,005	10,195	1,998	52,027
CODE (2)	1,978	,818	5,851	1	,016	7,229	1,455	35,907
CODE (3)	1,840	,748	6,049	1	,014	6,295	1,453	27,271
CODE (4)	2,570	1,008	6,506	1	,011	13,070	1,814	94,193
CODE (5)	1,093	,923	1,404	1	,236	2,984	,489	18,207
CODE (6)	,274	,627	,191	1	,662	1,315	,385	4,494
CODE (7)	,023	,462	,002	1	,961	1,023	,414	2,528

APPENDIX C

SAMPLE QUESTIONAIRE

X1. (ANKET NO)	X2. (SIRA NO)

ORTA DOĞU TEKNİK ÜNİVERSİTESİ

Mimarlık Fakültesi Şehir ve Bölge Planlama Bölümü

ANKARA'DA KONUT KULLANIM BİÇİMİ SEÇİMİ VE MÜLK-KONUT TALEBİ ARAŞTIRMASI

Bu çalışma Orta Doğu Teknik Üniversitesi Şehir ve Bölge Planlama Bölümü'nde yürütülmekte olan "Ankara'da Konut Kullanım Biçimi Seçimi ve Mülk-Konut Talebi" başlıklı doktora tezi kapsamında yapılmaktadır. Anketten elde edilen veriler, anket yapılan kişilerin isimleri ve adresleri belirtilmeden istatistiksel analizler yapmak için kullanılacak, başka hiç bir kişi veya kuruluşa verilmeyecektir.

Görüşülen Kişinin (Aile reisinin);

Adı Soyadı: ……..…… **Telefonu**: ……

Yaşı: [X3] .....

Görüşülen kişi apartman yöneticisi mi? [X4] 1( ) Evet 2( ) Hayır

Konutun Adres Bilgileri:

Mahalle: ..... / **Cadde**: ..... / **Sokak**: .....

Apartman Adı veya Numarası: ..... / **Daire No**: .....

Konut tipi: [X5]
1( ) Site içinde daire
2( ) Korunaklı site içinde daire
3( ) Bağımsız apartman dairesi---→**Bulunduğu kat**:[X6] … /**Binanın kat sayısı** :[X7]…
4( ) Müstakil (Dubleks)
5( ) Müstakil (Tripleks)

S1. Şu anda oturduğunuz bu konutun, toplam oda sayısını, evin net taban alanının kaç metrekare olduğunu ve konutun yaşını öğrenebilir miyim?

Oda Sayısı [X8] : 1( ) 3+1 2( ) 4+1 3( ) 5+1 4( ) 6+1 5( ) 7+1 6( ) 8+1

Net Taban Alanı (m²) [X9]: ..... (Apartmanın koridor, merdiven ve asansör alanları hariç)

Konutun Yaşı [X10]: .....

S2. Medeni durumunuz nedir? Eğer evli veya dul iseniz yıllarını öğrenebilir miyim? [X11]

1( ) Bekar
2( ) Evli -→ Yıl [X12]:.....
3( ) Dul -→ Yıl [X13]:.....
4( ) Boşanmış

S3. Hanede siz dahil, toplam kaç kişi yaşıyor? [X14] ..... kişi

S4. Çocuğunuz var ise, sayısını öğrenebilir miyim? [X16]

1( )Çocuğu yok --------→ **SORU 6'YA GEÇİNİZ**
2( )Çocuğu var -----→ **- Halen hanede bulunan çocuk sayısı** [X17] .....

- Haneden ayrılmış olan çocuk sayısı [X18] .....

S5. Çocuklarınızın doğum yıllarını, okuyorlar ise eğitim durumlarını ve çalışma konumlarını öğrenebilir miyim (Haneden ayrılan çocuklar da dahil olmak üzere)

		Doğum Yılı	Okuyor ise						Çalışıyor mu?	
			Okulu				Okul Türü			
			İlköğretim	Lise	Üniversite	Yüksek Lisans	Devlet	Özel	Evet	Hayır
[X19-22]	1. Çocuk		2( )	3( )	4( )	5( )	1( )	2( )	1( )	2( )
[X23-26]	2. Çocuk		2( )	3( )	4( )	5( )	1( )	2( )	1( )	2( )
[X27-30]	3. Çocuk		2( )	3( )	4( )	5( )	1( )	2( )	1( )	2( )
[X31-34]	4. Çocuk		2( )	3( )	4( )	5( )	1( )	2( )	1( )	2( )
[X35-38]	5. Çocuk		2( )	3( )	4( )	5( )	1( )	2( )	1( )	2( )
[X39-42]	6. Çocuk		2( )	3( )	4( )	5( )	1( )	2( )	1( )	2( )
[X43-46]	7. Çocuk		2( )	3( )	4( )	5( )	1( )	2( )	1( )	2( )

S6. Bu hanenin, aile reisinin ve eşinin eğitim düzeyini öğrenebilir miyim?

		İlkokul	Ortaokul	Lise	Üniversite	Lisansüstü
[X47]	**Aile reisi**	1( )	2( )	3( )	4( )	5( )
[X48]	**Eşi**	1( )	2( )	3( )	4( )	5( )

S7. Eğer çalışıyor ise, aile reisinin ve eşinin işyerleri nerede, hangi semtte?

		Mahalle/Cadde/Sokak	Semt
[X50]	**Aile reisi**		
[X51]	**Eşi**		

S8. Eğer emekli ise, aile reisinin ve eşinin emeklilik yıllarını öğrenebilir miyim?

		Emeklilik Yılı
[X52]	**Aile reisi**	
[X53]	**Eşi**	

S9. Maaş veya yaptığınız işten elde ettiğiniz haneye giren aylık ortalama gelirin aşağıdaki gruplardan hangisine girdiğini öğrenebilir miyim? [X54]

1 ( ) 1.000 YTL'ye kadar
2 ( ) 1.000-1.500 YTL
3 ( ) 1.500-2.000 YTL
4 ( ) 2.000-2.500 YTL
5 ( ) 2.500-3.000 YTL
6 ( ) 3.000-3.500 YTL
7 ( ) 3.500-4.000 YTL
8 ( ) 4.000-4.500 YTL
9 ( ) 4.500-5.000 YTL
10 ( ) 5.000-6,000 YTL
11 ( ) 6.000-7.500 YTL
12 ( ) 7.500-10.000 YTL
13 ( ) 10.000 YTL ve üzeri

S10. Haneye giren toplam taşınmaz kira geliri, banka mevduat faiz geliri, bono, tahvil, hisse senedi gelirleri gelirin aşağıdaki gruplardan hangisine girdiğini öğrenebilir miyim? [X55]

1 ( ) 1.000 YTL'ye kadar
2 ( ) 1.000-1.500 YTL
3 ( ) 1.500-2.000 YTL
4 ( ) 2.000-2.500 YTL
5 ( ) 2.500-3.000 YTL
6 ( ) 3.000-3.500 YTL
7 ( ) 3.500-4.000 YTL
8 ( ) 4.000-4.500 YTL
9 ( ) 4.500-5.000 YTL
10 ( ) 5.000-6,000 YTL
11 ( ) 6.000-7.500 YTL
12 ( ) 7.500-10.000 YTL
13 ( ) 10.000 YTL ve üzeri

S11. 1990 yılından itibaren ev reisinin ve eşinin iş değişikliği olduysa hangi yıllarda olduğunu belirtebilir misiniz?

		1. İş değişikliği Yılı	**2. İş değişikliği Yılı**	**3. İş değişikliği Yılı**	**4. İş değişikliği Yılı**	**5. İş değişikliği Yılı**	**6. İş değişikliği Yılı**
[X56-61]	**Aile reisi**						
[X62-67]	**Eşi**						

S.12. 1990 yılından itibaren aile reisi reisinin ve de eşinin maaşında % 10'un üzerinde bir değişiklik olduysa yıllarını ve ortalama maaş değişikliği oranlarını alabilir miyim?

	Aile reisi			**Eşi**	
	Yıl	**Oran**		**Yıl**	**Oran**
[X68-69]			[X96-97]		
[X70-71]			[X98-99]		
[X72-73]			[X100-101]		
[X74-75]			[X102-103]		
[X76-77]			[X104-105]		
[X78-79]			[X106-107]		
[X80-81]			[X108-109]		
[X82-83]			[X110-111]		
[X84-85]			[X112-113]		
[X86-87]			[X114-115]		
[X88-89]			[X116-117]		
[X90-91]			[X118-119]		
[X92-93]			[X120-121]		
[X94-95]			[X122-123]		

S13. Bu konutta ne kadar süredir yaşamaktasınız (Yıl ve ay olarak)? [X124] ..... yıl / ..... ay.

S14. Bu daire Ankara'da oturduğunuz ilk eviniz değil ise, daha önce Ankara'da hangi yıllar arası hangi semtlerde oturduğunuzu ve kiracı ya da ev sahibi olup olmadığınız belirtebilir misiniz? (En son taşındığınız evden başlamak üzere yanıtlayınız)

		Yıl Aralığı		İlçe	Semt	Mahalle	Ev Sahibi	Kiracı
[X126-131]	**1.**						1( )	2( )
[X132-137]	**2.**						1( )	2( )
[X138-143]	**3.**						1( )	2( )
[X144-149]	**4.**						1( )	2( )

S15. Yaşadığınız bu konut dışında sizin veya haneden birinin başka konutu var mı? [X150]

1( ) Yok ----→**S18'e GEÇİNİZ** 2( ) Var -----→ **Kaç tane?** [X151] ..... adet

S16. Diğer konutunuz/konutlarınız nerede bulunuyor? (Birden çok konut varsa, birden çok yanıt işaretleyiniz) [X152]

1( ) Bu apartmanda
2( ) Bu mahallede
3( ) Bu semtte
4( ) Ankara içinde, baska semtte---→**Hangi Semt**: [X153]…….
5( ) Başka sehirde

S17. Diğer konutunuzu/konutlarınızı nasıl kullanıyorsunuz? (Birden çok seçenek işaretleyebilirsiniz) [X154]

1( ) Kiraya verdik
2( ) Yazlık veya mevsimlik kullanıyoruz
3( ) Akraba ya da baskası kira vermeden oturuyor
4( ) Kullanmıyoruz, bos duruyor.
( ) Diğer, belirtiniz: .....….....

S18. Yaşadığınız bölgeden taşınmak istiyor musunuz, istiyorsanız nereye? [X155]

1( ) Hayır taşınmak istemiyoruz ---→ **S19'a GEÇİNİZ**
2( ) Evet taşınmak istiyoruz

S18a. Nereye Taşınmak istiyorsunuz? [X156]

1( ) Aynı semtte bir başka eve
2( ) Bir başka semte ---→**Hangi semt?** [X157] .....
3( ) Bir başka kente ---→**Hangi kent?** [X158] .....

S18b. Neden taşınmak istiyorsunuz, belirtiniz? [X159]

.....
.....

S19. Konutunuzu bu semtten satın alma/edinme nedenleriniz nedir? (Birden çok seçenek işaretleyebilirsiniz) [X160]

1( ) Bu semtin sosyal ve kültürel olanaklarını beğendiğiniz için
2( ) Komşuluk çevresinden memnun olduğunuz için
3( ) Ödeyebileceğiniz fiyatta konut bulduğunuz için
4( ) Semtte oturanların sosyal yapısı size uygun olduğu için
5( ) Aile reisin veya eşinin işine yakın olduğu için
6( ) Çocukların okullarına yakın olduğu için
7( ) Miras yoluyla bu semtte kaldığı için
8( ) Mevcut arsanızı kat karşılığı verdiğiniz için
( ) Diğer, belirtiniz: .....….....

S20. Ankara'da daha önce konut aldıysanız, ne zaman nereden aldığınızı ve halen mülkünüzde olup olmadığını belirtebilir misiniz?

		Yıl	İlçe	Semt	Mahalle	Konut hala müklünüzde mi?	
						Evet	Hayır
[X162-166]	**1.**					1( )	2( )
[X167-171]	**2.**					1( )	2( )
[X172-176]	**3.**					1( )	2( )
[X177-181]	**4.**					1( )	2( )

S21. Konut satın alırken Ankara'nın hangi bölgelerine baktınız? [X182]

……..……. ……..…….
……..……. ……..…….
……..……. ……..…….

S22. Bu semtte oturmayı tercih etmeniz, düşündüğünüz tipte konut alımınızı ne yönde etkiledi? [X183]

1( ) Düşündüğüm tipte konut satın alabildim
2( ) Düşündüğüm tip konuttan daha az özelliklere sahip konut satın alabildim
3( ) Düşündüğüm tip konuttan daha yüksek özelliklere sahip konut satın alabildim

S23.Genel olarak konut satın alırken oda sayısı ve konut tipi açısından aradığınız konutun özelliklerini belirtiniz?

Oda Sayısı: [X184] 1( ) 3+1 2( ) 4+1 3( ) 5+1 4( ) 6+1 5( ) 7+1 6( ) 8+1

Konutun tipi: [X185]
1( ) Site içinde daire
2( ) Korunaklı site içinde daire
3( ) 5 kat veya daha az katlı apartmanda bağımsız daire
4( ) 5 kattan daha fazla apartmanda daire
5( ) Müstakil/Dubleks/Tripleks

S24. Konut almada para sizin için hiç bir engel oluşturmasaydı hangi semt gruplarından birinde yaşamayı tercih ederdiniz? (Lütfen tek seçenek işaretleyiniz) [X186]

1( ) Angora Evleri-Yıldız-Bilkent-Mebusevleri
2( ) Çukurambar-Karakusunlar
3( ) Gaziosmanpaşa-Oran
4( ) Subay Evleri
5( ) Mesakoru-Konutkent-Çayyolu-Ümitköy-Yaşamkent
6( ) Batıkent, Eryaman
( ) Diğer, Belirtiniz: .....

S25. Konutunuza nasıl sahip oldunuz? (Tek seçenek işaratleyiniz) [X187]

1( ) Bitmiş bir konut olarak piyasadayken satın aldım
2( ) Müteahhit eliyle kendi arazim üzerine kat karşılığında yaptırdım
3( ) TOKİ evlerinden satın aldım
4( ) Kooperatife üye olarak aldım
5( ) Miras yada hediye yoluyla kazandım
( ) Diğer, Belirtiniz: …….

S26. Bu konutu satın alırken aşağıdakilerden hangileri etken oldu? (birden fazla seçenek işaretleyebilirsiniz) [X188]

1( ) Finansal durumunuzun iyileşmesi
2( ) Yeni bir işe girmeniz veya promosyon almanız
3( ) Aile reisinin veya eşinin iş yerinin değişmesi
4( ) Aileden miras yoluyla parasal kaynak edinmeniz
5( ) Evlenmeniz
6( ) Ailenizin genişlemesi
7( ) Ailenizin küçülmesi
8( ) Yeni bir semte taşınmak istemeniz
9( ) Sosyal yapınıza daha uygun bir semte taşınmak istemeniz
10( ) Önceki semttin fiziksel koşullarından (çevresel sorunlar, çarşı, pazar, okul, ve yeşil alan gibi hizmetlere erişim zorluğu, işe gidiş geliş zorluğu, vb.) şikayetçi olmanız
( ) Diğer, Belirtiniz:..... .....

S27. Konut satın alırken kullandığınız finansal kaynakları işaretleyiniz. (Birden fazla seçenek işaretleyebilirsiniz) [X189]

1( ) Tasarruflar
2( ) Sahip olunan başka bir konutun satışı
3( ) Sahip olunan konut harici başka malvarlıklarının satışı
4( ) Aile, akraba ya da yakın arkadaşlardan borç alma
5( ) Miras ya da hediye
6( ) Konut kredisi
7( ) Arsa karşılığı (Kat karşılığı)
( ) Diğer, Belirtiniz: .....

S28. Tasarruflarınıza aşağıdakilerden hangisi daha fazla kaynak sağlamaktadır? [X190]

1( ) Sürekli sabit gelir 2( ) Değişken ek gelirler

S29. Konutunuzun ödemesini vadeli yaptıysanız,

S29a. Peşinat toplam bedelin yüzde kaçını oluşturdu? [X192] % .....

S29b. Kaç ay taksit ödediniz veya ödeyeceksiniz? [X193] .....Ay

S30. (Anketör Dikkat: SORU 27'de Konut Kredisi Belirtildiyse Sorunuz) Ev almak için konut kredisinden faydalandıysanız, aşağıdaki soruları cevaplayabilir misiniz? (Faydalanmadıysanız, S.32.'ye geçiniz)

S30a. Aylık geri ödeme miktarınız gelirinizin yüzde kaçını oluşturuyor? [X194] % .....

S30b. Toplam kredi tutarı satın aldığınız evin fiyatının yüzde kaçını karşıladı? [X195] % .....

S30c. Konut kredisi geri ödeme süresinin toplam kaç yıl olduğunu belirtiniz? [X196] ……..

S31. Konut kredinizde peşinatın temel kaynağı hangileri oluşturmaktadır? (Birden fazla seçenek işaratleyebilirsiniz) [X197]

1( ) Daha önce sahip olunan konutun satışından elde edilen para
2( ) Tasarruflar
3( ) Sahip olunan başka malvarlıklarının satışı
4( ) Aile, akraba ya da yakın arkadaşlardan borç alma
5( ) Miras ya da hediye
( ) Diğer belirtiniz .....
98( ) Peşinat yok

S32. Konut satın almak için peşinat ödemede sıkıntı çektiniz mi? [X198]

1( ) Evet 2( ) Hayır

S33. (ANKETÖR DİKKAT: HERKESE SORULACAK) Uzun dönemli konut kredisine başvurmak sizi gelecek yaşamınız için kısıtlıyormuş gibi hissettirir mi / hissettiriyor mu? [X199]
1( ) Evet 2( ) Hayır

S34. Konut satın almada konutun ebeveynlerden çocuklara aktarılan bir yatırım aracı olması sizin için önemli midir? [X200]
1( ) Evet 2( ) Hayır

S35. (Anketör Dikkat: SORU 25 'de "Kooperatife üye olarak aldım" şıkkı işaretlendiyse sorunuz) Konutunuzu kooperatif yoluyla elde ettiyseniz:

S35a. Kooperatif inşaatının başlangıç yılı nedir? [X201] .....

S35b. Konut kredisi kullandınız mı? [X202] 1( ) Evet 2( ) Hayır

S35c. Kooperatif, konutu anahtar teslim mi kaba inşaat olarak mı teslim etti? [X203]
1( ) Anahtar teslim 2( ) Kaba inşaat

S35d. İnşaatın başlangıcında kooperatife üye değilseniz hangi yıl giriş yaptınız? [X204] .....

S36. Konut satın alırken aşağıdakilerden hangileri belirleyici önceliğiniz olmuştur? ***(Lütfen sizin için belirleyici olan üç özelliği 1,2,3 şeklinde numaralandırarak sıralayınız)***

[X205] ( ) Konutun fiziki özellikleri (Oda Sayısı, Büyüklüğü, Isınma, vb.)
[X206] ( ) Konutun bulunduğu semt
[X207] ( ) Konutun fiyatının uygunluğu
[X208] ( ) Aile reisi veya eşinin iş yerine yakınlığı
[X209] ( ) Konutun bulunduğu semtin akraba veya arkadaşlara yakınlığı)
[X210-211] ( ) Diğer, lütfen belirtiniz .....

S37. (ANKETÖR DİKKAT S36 DA "Konutun fiziksel özellikleri" ŞIKKINA NUMARA BELİRTİLDİYSE SORUNUZ) Bir önceki soruda eğer cevabınız konutun fiziki özellikleri ise, hangi özellikler temel belirleyici nedeniniz oldu? ***(Lütfen sizin için belirleyici olan üç özelliği 1,2,3 şeklinde numaralandırarak sıralayınız)***

[X213] ( ) Konutun büyüklüğü
[X214] ( ) Konutun yaşı
[X215] ( ) Konutun müstakil oluşu
[X216] ( ) Konutun site içinde olması
[X217] ( ) Konutun kaçıncı katta olduğu
[X218] ( ) Konutun bulunduğu apartmandaki kat sayısı
[X219] ( ) Konutun ısınma biçimi
[X220] ( ) Konutun bahçesinin olması
[X221] ( ) Konutun otopark olanağının olması
[X222] ( ) Spor/havuz olanaklarının bulunması
[X223] ( ) Güvenli oluşu
[X224-225] ( ) Diğer, lütfen belirtiniz .....

S38. Konutunuzu satın aldığınız bu semtin hangi özellikleri sizin için öncelikli seçim nedeni olmuştur? ***(Lütfen sizin için belirleyici olan üç özelliği 1,2,3 şeklinde numaralandırarak sıralayınız)***

[X226] ( ) Altyapı, ulaşım gibi fiziki çevre özellikleri

[X227] ( ) Bu semtte yaşayan kişilerin sosyo-ekonomik ve kültürel altyapıları

[X228] ( ) Bu semtte yer alan konutların fiyatlarının size uygun olması

[X229] ( ) Merkeze yakınlığı ve ulaşım kolaylığı

[X230] ( ) Aile fertlerinin iş yerlerine yakınlığı

[X231] ( ) Çocukların okullarına yakınlığı

[X232-233] ( ) Diğer, lütfen belirtiniz .....

Anketör adı ve soyadı: …….....…….....…….

Tarih: ..... / ..... / 2010

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PUBLICATIONS

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HOBBIES

Drawing, Painting