AN ANALYSIS OF HOMEOWNERSHIP PROFILE OF TURKEY

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ABSTRACT

AN ANALYSIS OF HOMEOWNERSHIP PROFILE OF TURKEY

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This thesis analyzes the tenure choice behavior of Turkish household heads over the period between 1985 and 2000, using a method of logit. The probability of owning the housing unit an individual lives in, is modeled by using demographic, labor market, migrational characteristics of the household head and the provincial differences as the explanatory variables. The results show that age and education of the household heads are positively correlated with probability of homeownership and they are the most influential factors determining the tenure choice of Turkish households and the discrepancy in the homeownership rates of the regions. The empirical analysis also displays that internal migrants have lower probabilities than natives and the length of stay matters the most for the tenure choice of internal migrants.

Keywords: Tenure choice, Homeownership, Internal Migration, Regional Differences, Logit

ÖZ

TÜRKİYE'NİN EV SAHİPLİĞİ PROFİLİ ANALİZİ

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Bu tez Türk hanehalkı reislerinin 1985 ve 2000 yılları arasında konut mülkiyeti kararını logit methodunu kullanarak inceler. Bu çalışmada, bir bireyin içinde yaşadığı haneye sahip olma olasılığı hanehalkı reisinin demografik özellikleri, iş gücü piyasasındaki yeri, göç durumu ve konut piyasalarındaki bölgesel farklılıklarla açıklanmaktadır. Sonuçlar, hanehalkı reisinin yaş ve eğitim özelliklerinin ev sahibi olma olasılığıyla pozitif bir şekilde ilişkili olduğunu ve bu faktörlerin Türk hanehalklarının konut mülkiyeti kararında ve ev sahipliği oranlarındaki bölgesel farklılıklarda en etkili belirleyiciler olduğunu söylemektedir. Ampirik inceleme aynı zamanda, Türkiye içerisinde göç eden bireylerin yerli halktan daha az ev sahibi olma olasılıkları olduğunu ve bir yerde ikamet etme süresinin göçmenlerin konut mülkiyeti kararında belirleyici olduğunu gösterir.

Anahtar Kelimeler: Konut Mülkiyeti Kararı, Ev Sahipliği, İç Göç, Bölgesel Farklılıklar, Logit

To My Father

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CHAPTER 1

INTRODUCTION

Housing is one of the important goods that are purchased due to both consumption and portfolio motives. Yet, it has unique characteristics that make it different from other consumption and investment goods. Basically, it is a necessity for humans to satisfy the need for a shelter. Moreover, it is one of the most important items in household consumption as the market value of a housing unit is generally several times a household's income. It is also the most durable of major commodities. The interaction of all these characteristics causes the operation of housing market, which is in its most popular definition can be described as the set of institutions related to the provision of housing services, to significantly differ from that of any market.

Nevertheless, what make housing market crucial for economic theory are not the unique characteristics but rather the strong links it has to the economic development of a country, both forward and backward. Although housing is an item that is present in the utility maximization problem for the household, it is also a policy tool for the governments and a leading indicator that gives signals describing the soundness of the economy. Thus, housing market can be seen as a link both between the microeconomic decisions and the macroeconomic fundamentals and between the financial and the real sectors of an economy.

While there are several aspects of the housing market that attracts researchers, tenure choice decision is one of the areas that is very popular among those who are interested in the demand-side of the operation of the housing markets. What is meant by tenure choice is the decision of the households between purchasing and renting a housing unit. In countries with developed financial markets, mortgage instruments are very common. Since these instruments enable households to obtain long-term credits, in the financially developed countries, the decision to own is more dominant.

However, in developing countries where households face borrowing constraints, this decision is affected significantly by the demographic, budgetary and labor market characteristics of the individuals in the households. [1] Some examples for the studies that show this relation between household characteristics and tenure choice in developing countries are Lim et al. (1980), Daniere (1992) and Arimah (1997).

Following the tenure choice literature in developing countries, the objective of this thesis is twofold. First of all, we try to find the determinants of the tenure choice decision of the households in Turkey. For this purpose, we model the probability of homeownership as a discrete-choice model and using logit as the estimation method, we try to analyze the factors that are common to the Turkish homeowners, using the micro data set of Turkish Census for the years 1985, 1990 and 2000. The main idea behind this attempt is to combine the different models used for other countries in the literature and apply it to Turkey. Since this is the first known research on the tenure choice decision of Turkish households, this attempt will help us analyze each factor that is expected to affect the probability of homeownership, in detail. Secondly and more specifically, we will focus on internal migration and evaluate how the tenure choice decision of the migrants is different from that of the native population. From this perspective, this research will be a contribution to the literature, since the link between migration and probability of homeownership has not been analyzed thoroughly, yet and the few studies that focus on this link actually considers migrants from other countries rather than internal migration. Therefore, for this study we want this channel between internal migration and tenure choice be seen clearly.

Internal migration is one of the major problems of Turkey. The lack of investment to the eastern part of the country, the terrorist attacks and manufacturing industries concentrated in the western provinces attract many households and led to a considerable amount of migration each year. However, it is well known that not all of these migrants are fortunate in finding jobs and settling in a new district. Most of them live in the enclaves formed by their fellow townsmen, and thus postpone the

[1] Bourassa (1995) shows the impact of borrowing constraints also in developed countries. However what is meant here is the lack of financial institutions to give household access to long-term credits.

tenure choice decision to later stages of their life cycle. Nevertheless, some of these migrants find a place in the economy similar to the native population. It is argued that the length of residence in a certain location is of great importance in both the economic performance and the tenure choice of these migrant households. [2] In order to capture this effect of length of residence in a certain location, in our analysis we take into account the new migrant population and the old migrant population separately. By doing so, we expect to show the differences in the performances of these two populations both in the housing market and in the economy as a whole.

One of the distinct characteristics of the Turkish housing market is the presence of squatter type of dwellings representing the informal side of the market. The occupants of these squatters do not own the land but build the cottage type houses on the land without permission. These squatters are most usually seen in the suburbs of big cities such as Istanbul and Ankara. However, starting with 1985, as a consequence of the populist policies implemented under the presidency of Turgut Özal, the Turkish government started to give certificate of ownership to the occupants of these squatters.[3] Although the Turkish Census in 1985 was surveyed in November, the share of the informal sector had already declined to nearly 1% of the whole market with this formalization of the housing market. For this reason, we cannot take the informal sector in the housing market into consideration.

The outline of this thesis is as follows: Chapter 2 explains the literature on tenure choice, in detail. In this chapter the literature is segregated into those considering the developed countries, those that focus on developing countries and those analyze the link between migration and tenure choice. This chapter will also give an insight for the *a priori* expectations for the results of the empirical analysis.

The data set used in this study will be explained in Chapter 3. In this chapter, a thorough analysis will be made considering not only the characteristics of the

[2] Census Brief (1997) issued by US Department of Commerce explains how the length of stay is an important indicator in the performance of immigrants.

[3] Tarık Şengül (2003) explains the periods of the urbanization of Turkey and the fragmentation of Turkish cities in different phases.

Turkish population, but also the demographic and labor market profiles of the homeowners. The regional disparities associated with the households' characteristics will also be presented in this chapter. In this context, we will look at the homeownership rates from the data, and we will try to provide an explanation to the factors that may have created the regional disparities regarding tenure choice. Finally, this chapter concludes by presenting the differences in the demographic and labor market characteristics of the old and new migrant populations.

The empirical analysis will be explained in Chapter 4. After describing the methodology, we will present several models to understand the determinants of tenure choice in Turkey. After the basic model, we will analyze how internal migration affects tenure choice. Since the regions and the population of the districts are also important factors in characterizing the local housing markets, we will construct separate models to see these effects.

Finally, the last chapter will present concluding remarks and a brief summary of the findings.

CHAPTER 2

TENURE CHOICE LITERATURE

Housing market analyses generally can be broadly separated into two categories. The literature that focuses on housing supply is linked both to operation of land markets and the organization of the construction industry. However, due to technical and data problems, models of this category of housing research has made relatively little progress compared to those that focus on demand.

The second category thus puts emphasis on housing demand. The analysis of housing demand started with the measurement of income and price elasticities. The purpose of these studies are mainly to explore which type of income definition gives the income elasticity closest to the general expectations that fit the economic theory; how income elasticities vary with level of income and how price elasticities vary across different attributes.

Tenure choice literature originated first as a branch of the housing demand but in time with the extensive research done in this area tenure choice has become a subject with a detailed and vast literature. In this context, the first section briefly describes the theoretical models regarding the households' choice between owning and renting. The second section explains the literature in the developed countries; and the third section describes the research done about the tenure choice developing countries. Finally, the fourth section gives a different insight about the literature in the sense that it gives details about the tenure choice literature linked to migration.

2.1 Theoretical Models on Tenure Choice Behavior

Although the applied research on probability of homeownership emerged before the theoretical models, still much of the research made in the literature base the choice of

factors explaining tenure choice on these models. For this reason, it may be useful to analyze these models as an introduction to the literature.

The first theoretic model known in the literature is constructed by Henderson and Ioannides in a 1983 paper. In this study, they explicitly analyze the differences between the opportunity cost of owning and renting. In doing so, they identify an externality associated with renting durables which is shown to be responsible for the attractiveness of homeownership. The results of the model suggest that if there is no uncertainty, in equilibrium owning housing stock is not different from holding any other asset. More importantly, they find that the equilibrium rate of utilization of housing stock for renters exceed that of owners, which are both independent of individual characteristics of households. Rather, the utilization rates are dependent on market prices, technology and maintenance costs.

Much of the research done in this area following Henderson and Ioannides failed to contribute significantly to the literature as the studies tried to expand that of Henderson and Ioannides by adding different characteristics to owners and renters. However starting with 2000, theoretical models have become popular again, and recently much of the literature is based on them. Some important examples of these models are as follows.

One of the first studies with in this new theoretical era is by Ortalo-Magné and Rady (2002). Their paper analyzes the tenure choice of households in an environment with uncertainty regarding household income and costs of different tenure types. With this approach, they highlight the role of homeownership as a hedge against adverse shocks to housing prices or income. According to their results, a decrease in the covariance between a household's earnings and rents as well as the expected duration of residence in the housing unit, increase the probability of homeownership.

Sinai and Souleles (2005) examine one particular benefit of homeownership as avoiding the uncertainty of renting. Constructing a simple model taking risk into consideration, they find that when the supply of owned housing is elastic, the probability of homeownership increases with the variance of rent and that the

premium that the risk-averse people are willing to pay for a house to own in order to avoid uncertainty in renting rises with the expected duration in the residence. Applying these finding to a probit model of homeownership using data from Current Population Survey, they discover that older households are more sensitive to rent risk, leading to a decrease in the probability of homeownership for these household especially in places with high rent variance. Linking the tenure choice decision to household consumption, they conclude that as homeowners tend to smooth the costs of housing over time, they have less variable consumption patterns than those of renters.

Being first to analyze the relation between housing tenure choice and the household mobility in a dynamic framework, Valladares (2007) constructs an empirical model of housing tenure choice considering new job offers, the tendency to move to a neighborhood with a better education system and the desire to move to a better house as the driving forces for mobility. The results in the paper tell that the probability of owning increases with the education of the head, with higher income, when individuals are married, by being white, by having at least one child and decreases with a self-employed household head, with low age to education ratio, with higher probability to move, with the increased education of the wife and with higher education of individuals.

2.2 The Literature on Developed Countries

Due to the relative ease of finding data, the tenure choice literature has progressed more in developed countries than in developing countries. These studies usually find income and stage in the life-cycle are important determinants of tenure choice as well as the relative cost of owning versus renting.

One of the earliest works on tenure choice is done by Kain and Quigley (1972) in which they measure the effects of spatial and racial discrimination on black and white homeownership decisions in St. Louis, Missouri. According to the results of

their research; blacks, single females, households with larger family size and households headed by women are less likely to own.

Criticizing the lack of studies in examining the link between income and tenure choice, Struyk (1974) analyzed the tenure choice of households in Pittsburg using the 1970 Census data. His study made a contribution to the literature as he disaggregated family types according to their racial and age groups unlike other studies. In his paper, he used both permanent and current income measures as explanatory variables, so as to understand whether transitory income is an important determinant of tenure choice. He also investigated if the number and the age of children in the household and the presence of an older generation in the household affect the tenure choice of households. Using the Ordinary Least Squares (OLS) method of estimation, he finds that the relation between income and probability of homeownership is nonlinear and generally positive with both current and permanent income measures being significant determinants for all household types. He also finds that there exists significant variation in the determinants of tenure choice for different household types.

Another early study by Li (1977) compares the tenure choice differences in Baltimore and Boston by estimating a logit model of homeownership. In his analysis, he specifies the criteria for the base household: the age of household head under 25, monthly income less than $5000, two-person, white husband and wife family. Then he tries to explain the tenure decision by using variables such as the age of head of household, monthly income, race of head and the family size. His results point out that in both areas age is the most important determinant, i.e. probability of homeownership increases as age of head increases. In Boston, income is the second important determinant for homeownership whereas in Baltimore race is the second. Lim also tests his additive model by the χ^2 test for logit specification and finds that the additive model does not fit the data statistically. He comments that the interactions between income and size, age and size, age and income should also be accounted for.

Comparing the effects of permanent and current income on tenure choice in their research, Chou and Shih (1995) investigates the tenure choice determinants in Hong Kong housing markets using data from 1991 Population Census. Although from the estimation results performed by logit, they find that the coefficients of permanent and transitory income are highly significant and positive as well as that of current income, from the values of likelihood functions for the two models they argue that the equation using permanent and transitory income is superior to the alternative using current income. Furthermore, their results tell that households including an elderly subfamily, households headed by an individual aged 50 or above and households of larger size are more likely to be owners than renters.

Another paper examining the Hong Kong housing market is by La Grange and Pretorius (2000). While trying to account for the trend of rising homeownership rates in Hong Kong, the authors disaggregate the factors affecting tenure choice as ontological and market related factors, by which they mean homeownership being a preferred tenure form of households and investment considerations, respectively. Although they expect the rising trend in the homeownership rates to be explained by the ontological motives, their findings suggest that the decision to buy is driven primarily by investment considerations.

There are also studies in the literature that examines the differences between blacks and whites regarding probability of homeownership. One example is the 1992 paper of Long and Caudill, which tries to identify the racial differences of housing choice in two dimensions, ownership and value. For the ownership differentials they estimate a logit model of homeownership that depends on the race of household head, household size, veteran status of the head, age and the labor market status of the head, permanent and transitory family income, assets of the household and income received form public assistance. Spatial characteristics are also controlled in this regression by using location variables. The authors find that the households headed by blacks are less likely to own houses whereas household size, permanent income, transitory income and age of head positively affect the probability of homeownership of both blacks and whites.

Some studies in the literature try to model the effect of borrowing and wealth constraints of households on their tenure choice. Bourassa in his 1995 article examines the particular effect of borrowing constraints on Australian households using 1990 Income and Housing Costs and Amenities Survey. Without considering the impacts of borrowing constraints he finds that expected and transitory income, household size and being in a female headed household positively affects probability of homeownership while relative cost of owning to renting, being in a household headed by a single or divorced individual and being in a household headed by an individual aged between 30 and 34 negatively affects probability of homeownership. However when the impact of borrowing constraint is taken into account, these factors have smaller effects so that the author concludes that in a standard model without borrowing constraints, the factors that affect homeownership probabilities are in fact proxies the impact of these constraints.

One other paper by Bourassa (2000), examines the homeownership rates for two different ethnic groups in New Zealand by estimating a series of logistic regressions of tenure choice models and decomposing the differences in these rates into endowment and residual effects, using Household Economic Survey conducted in 1993 and 1994. His results suggest that borrowing constraint measures based on current income and liquid assets are endogenous in tenure choice models. He also argues that much of the difference in the tenure choice behavior of the two ethnic groups is explained by household endowments when endogeneity is taken into account while the unexplained difference may be due to cultural or historical differences in these two ethnic groups.

Similarly, in a 1996 paper, Haurin, Hendershott and Wachter analyze the factors that determine the tenure choice of young adults that are aged between 20 and 33 during the period between 1985 and 1990 in the US, using the method of probit for estimation with a focus on wealth constraints of households. In their model, potential wage of households, cost of owning relative to renting, race and ethnicity, family size, marital status, expected length of tenancy and wealth constraint measures are expected to affect the probability of homeownership. The empirical analysis show

that, tenure choice among young adults is sensitive to household's earning capacity as well as the cost of owning relative to renting, age, marital status and the expected length of tenancy. Moreover, they find that if a household is constrained due to low income or wealth, then its probability of homeownership is considerably reduced.

A more recent paper by Bourassa et al. (1994), with a similar sample of young adults, analyzes the factors that affect the tenure choice of Australian youth using 1985 Australian Longitudinal Survey. Although their research primarily focuses on the choice of independent living of individuals aged 16 to 25, their empirical analysis also presents some conclusions about the tenure choice of these individuals. Accordingly, they find that the greater the predicted number of children in the household, the higher the probability of homeownership whereas the greater the number of siblings the less likely is the homeownership. However, as far as their results are concerned the unemployment rate has no effect on tenure choice.

One analysis for the UK housing markets by Rosser (1999) also restricts the sample to young university graduates and attempts to identify the factors that have significant effect on the probability of recent graduates' homeownership by using logit as the estimation method. In the paper, two models are considered one including estimates of permanent and transitory income and the other with a measure of household's current income. The results indicate that these two models are similar except the fact that permanent and transitory income estimates are not significant whereas current income measure has a significant effect on homeownership. Moreover, whether the head used student loans, age of head, gender of head and regional property price differences do not have a noteworthy impact on homeownership while living with a partner and the presence of children considerably affect the probability of homeownership.

Bourassa and Yin (2006) examined the differences in the homeownership rates between Australia and the US. They used the logit method in order to estimate their model for probability of homeownership which depends on the ratio of the annual cost of owning and renting in a metropolitan area, the magnitude between household's predicted house value and the maximum value it can afford and on

demographic variables such as marital status, age of head of household and number of dependent children in the household. They conclude that for the single country analysis, relative cost ratio and the number of dependent children have the largest effects, being negative and positive, respectively. However, the differences between the two countries' tenure choice decisions are not explained by the model and thus the differences are attributed to the variables that are not included in the model such as the structural differences that can't be modeled.

One of the papers that analyze the tenure choice for the whole country rather than a district on its own is by Seko and Sumita (2007). In their research, the authors estimated a conditional logit model to understand the Japanese household tenure choice behavior among three alternatives; namely owned housing, general rental housing and rental housing with fixed rental terms. As reported in the paper, relative prices of different tenures obtained by hedonic price regressions play an important role in the choice between these three alternatives, indicating that they are substitutes for each other. Moreover, households with a smaller number of family members and with an unmarried household head tend to select rental housing with fixed rental terms as well as the households that are planning to own housing in the near future.

Starting with late 1980s, the method for the tenure choice analysis started to evolve towards multinomial logit and nested multinomial logit, which allows for a separate analysis for housing with different attributes such as single detached house, apartment, townhouse etc. Tiwari and Hasegawa (2004), examined the tenure choice decisions in Tokyo using MNL and found that the hedonic index as a measure of unit cost is the most important determinant of probability of homeownership and Japanese respond highly to price changes in rental housing but less so in owner-occupied housing.

Börsch-Supan and Pitkin (1988) also estimated a multinomial logit and a nested multinomial logit model for New York; in which the probability of home ownership depends on out-of-pocket costs which are the current or operating costs of the housing unit, expected appreciation, opportunity costs of equity in the house and current income. The results show that income and out-of-pocket costs have a strong

influence on housing choices. Moreover, the authors argue that the hierarchical models of the nested multinomial logit method are essential and the independence of irrelevant alternatives assumption of MNL has been failed.

A final aspect of tenure choice literature in developed countries to consider is the tenure choice and its link with labor market outcomes. Coulson and Fischer (2002) with their research test the hypothesis that regional homeownership rates are positively correlated with regional unemployment rates using probit as a method for estimation. However, contrary to the hypothesis, their results suggest that homeowners have lower unemployment probabilities, shorter spells of unemployment and higher wages than renters.

2.3 The Literature on Developing Countries

Initiated with the study of Lim et al. (1980) the tenure choice literature for the developing countries started to expand. With the aim of presenting an empirical analysis of the determinants of homeownership in a developing country, Lim et al. differentiated their work from the others by dividing income to two specific components as permanent and current income, by taking long-run prices as an indicator of housing shortage to the household and including a measure of housing mobility in their model. They build up a model for probability of homeownership that depends on a measure of price per unit of housing services, an indicator of housing shortage, a measure of mobility, current income, consumption (proxy for permanent income), household size, age of household head, number of family members working, number of family members that are under 6, number of family members that are above 20, a dummy variable for the gender of the head and on an elderly subfamily dummy variable. In this analysis, unlike the others the OLS method is used for estimation. According to the results, most key variables are significant and have a priori expected signs. More specifically, both current and permanent income have positive signs, while the latter has more stronger effect than the other. Among all variables, household size is the most significant and it has the

strongest effect. While, being male decreases the probability, having an elderly subfamily in the household increases it.

Following Lim et al. Arimah (1997) conducts a similar analysis for Ibadan, Nigeria. He improves the research previously done by including an investment motive and market endowment factors such as price and location. He computes a value-rent ratio and owner-renter price ratio using hedonic price estimation so as to measure the relative prices. His results are very similar to those of Lim et al.

Another improvement in the literature is made by Daniere (1992). She presents the determinants of tenure choice not only for owners and renters but also for squatters in Cairo and Manila. More strikingly she believes that the squatters may live in squatter areas with an investment behavior similar to home-owners. The key variables in her model are the after-tax cost of capital, real permanent income, preferences and life-cycle factors. Similar to Arimah, she uses hedonic price estimation methods. The results show that with an increase in income, the probability of squatting increases and squatters are more similar to owners than renters also in terms of mobility. Moreover, she finds that the most important determinants of tenure choice are household size, income, education and mobility.

Analyzing the housing markets of a socialist economy, Huang and Clark (2002) inspect the effects of housing reforms of 1988 on tenure choice. For this study, they use 1996 National Survey and a method of random coefficient model so as to examine the decision to buy or rent. Rather than the socioeconomic and demographic approach generally utilized in housing literature, the authors employ a framework based on the relations between the agents in the housing market. The empirical results of the study indicate that older age, larger household size and higher income increases the probability to own while married people and households that are composed of workers are less likely to own. Moreover, they find that institutional variables characterizing the labor market conditions of the households also have significant effects on the tenure choice behavior of the households.

One of the few studies that distinguish between formal and informal housing markets is done by Morais and Cruz (2007) to inspect the determinants of tenure choice in Brazil, utilizing the 2005 National Household Survey microdata. Constructing different regression models to be estimated by logit and multinomial logit, the authors observe that wealth is a good predictor for formal ownership whereas current income has a small effect on tenure choice. Additionally, the results show that household size, age and marital status of the household head increase the probability of homeownership in the formal markets, while poor household headed by either blacks or single women have a higher probability to be in the informal sector. Interestingly, though the net impact on tenure choice is not clear, education raises the probability of being in the formal sector. Finally, the estimation results indicate that recent migrants have a lower probability of homeownership, though this adverse effect is eliminated through time.

The tenure choice literature in developing countries has also been influenced from the changing methods that are been used for developed country analyses. One example is the paper by Cho (1997) constructing joint model of tenure and dwelling type for the city of Chongju. While owner-occupied detached dwelling, owner-occupied multiple dwelling, rented detached dwelling and rented multiple dwelling are used as choice variables, the joint decision is tried to be explained by age and educational level of the household head, the presence of a school-age children in the household and the occupational category of the household head, for which all of these variables are found to have a strong influence. Furthermore, the regressions are done not only for the whole sample but also for the households living in high-quality and low-quality neighborhoods separately. While for the low-quality neighborhoods age and occupation of the head are important for tenure and dwelling choice, for the high-quality neighborhoods education of the head and the housing prices have also significant explanatory power.

2.4 Migration in the Tenure Choice Literature

Examining the differences in the homeownership rates between natives and immigrants is a recently emerged branch in the tenure choice literature. Although not thoroughly analyzed, the studies of this subject most commonly investigate the economic performance of the international immigrants and compare it to that of natives. Few studies also probe the tenure choice behavior of internal migrants.

Census Brief, issued by US Department of Commerce in December 1997, is the first report known on the homeownership of the foreign-born population in US. As stated by the report, the longer an immigrant remains in US, the more likely the probability of homeownership, while for the immigrants, who have the longest stay of duration in the date of this report, this argument fails to hold as the homeownership rates are lower than those of natives. As a result of the comparison made between the natives and immigrants, some similarities between these two groups also have been found. For example, marriage has a major positive influence on the decision to own or rent for both of these populations. As for the ethnic differences, Hispanic immigrants are more likely to own than the Hispanic natives while there is no difference between foreign-born and native Black population.

One other leading study of this subject is by Coulson (1998) in which he tries to give an explanation to the low homeownership rates of Hispanics and Asian-Americans. The results of a series of probit regressions tell us that being an immigrant has a substantial negative effect on probability of homeownership. Additionally, while the gap between Hispanics and other groups can be explained with differences in resources required for the costs of homeownership, the gap between Asians and other groups can be explained neither by resources nor by average income and college education of these individuals. Therefore, a puzzle still remains regarding the low homeownership rates of Asian-Americans.

In an attempt to compare recent movers and non-movers regarding homeownership behavior, Painter (2000) utilizes cross-sectional data from 1990 US Census and creates a sample of households residing in Los Angeles area. By employing probit

models, he tries to explain the probability of homeownership with economics and demographic factors. According to the results of the empirical analysis, for the whole sample permanent and transitory income increase the likelihood of homeownership while lacking a high school diploma lowers the probability. Moreover, while the major differences between the samples are for the variables regarding race and domestic migrant status; the impacts of income and education are found to be similar across the two samples. However, the positive age effect and the negative effect of being unmarried are reduced in the model for movers.

Similarly, in a 2002 paper, Borjas tries to address two questions by using 1980, 1990 Censuses and 1998-2000 Current Population Surveys: what are the trends in homeownership rates of the immigrant population for the period between 1980 and 2000 and which factors drive these trends. The results of this study show that immigrant households have lower homeownership rates than natives and only a small part of this gap can be attributed to background characteristics of these populations. However, the changing national origin mix of the population is found to explain a considerable for of this widening gap observed between 1980 and 2000. The author concludes that the growth of ethnic enclaves in major cities can be an essential factor for the demand for owner-occupied housing.[4]

One of the very few studies that are about internal migration is done by the Statistics Institute of New Zealand. According to the report, non-movers have higher probability of homeownership in regions that have more rural characteristics. Moreover, in New Zealand, homeownership is higher for non-movers than for movers in all age groups except for those aged under 30. Several ethnic groups that live in New Zealand are analyzed in terms of tenure choice behavior and the most important findings tell that for individuals that are of Pacific and Asian ethnicities, length of duration for more than five years significantly increases the probability of ownership. Interestingly, European non-movers and movers have homeownership rates higher than that of the whole New Zealand population.

[4] There are several other studies that are trying to model the homeownership disparities between natives and some immigrant ethnic groups. Sinning (2009) and Grover and Todd (2008) are examples of the more recent work.

There are certainly many other studies that are dealing with tenure choice decision of the households. However, the studies that are explained in this chapter are comprised of the most popular papers in the literature and of the most relevant ones regarding the aim of this study.

CHAPTER 3

DATA & TURKISH POPULATION

3.1 Data

All of the empirical analysis in this thesis is done by using data from the Turkish Census for the years 1985, 1990 and 2000, which is provided by the Turkish Statistical Institute. The representative unit of the census is the individual. Therefore, the data set includes information from every individual that was in Turkey at the time of the census[5]. The sample that is used in this research is a random sample generated from the Turkish census, which consists of 5 percent of the observations of the whole population, i.e. the census.

For the analysis throughout this thesis, only the observations that represent household heads are used. Since the objective of this research is to analyze the tenure choice of individuals, to avoid misinterpretation of the data the individuals that are in the same household has to be known. However, the data do not allow tracking the household unit that the individual belongs. Therefore, we restricted the sample only to the household heads assuming that they are the main decision makers for homeownership so that unit of observation in the sample is the household head. Another restriction of the sample is made through the ages of the household heads. The sample also includes household heads that are between 12 and 20 years old. Nevertheless, since it is not certainly known whether there is an adult in these households or whether these heads actually take part in the tenure choice decision process; the household heads that are less than 20 years old are not included in the sample. Lastly and most importantly, only the observations that are generated from the urban regions of Turkey are used in this analysis. The households in the rural part

[5] These individuals are not Turkish citizens solely. Everyone that is inside the country borders of Republic of Turkey on the day of the survey is included in the census while Turkish citizens that are outside the country borders on that day are excluded.

of Turkey generally work in the agricultural sector and they have the common characteristic to build their own houses in the form of a cottage or a barrack. Due to this characteristic, there is no decision making process regarding homeownership in the rural areas. In this analysis urban areas are defined as the districts with a population higher or equal to 20,000 people. Evidence from the data suggests that in 1985, 94.15 % of the individuals living in rural areas are homeowners. The statistic becomes 88.06 % in 1990 and 89.81 % in 2000.

The Turkish Census is one of the largest and the most detailed micro-level data sets presented in Turkey. It contains information not only about the tenure status but also dwelling types of the residences, labor market conditions, educational attainments, demographic characteristics, current locations and previous locations of the individuals. From this perspective the use of the census provides miscellaneous information so as to generate the variables that are commonly used in the literature as will be discussed in detail in the next chapter.

3.2 Socioeconomic Profiles of the Household Heads

To understand the composition of the data, it is useful to look at the demographic characteristics and labor market statuses of the household heads covered in the census. As mentioned above, in this analysis only the household heads that are above 20 years old, and live in urban areas are considered.

Figure 3.2.1 shows the age profile of the household heads across years. To give a clear illustration of the age profiles the household heads are grouped in such a way that those who age between 20 and 29 years are in the group 20-30, those who age between 30 and 39 years are in the group 30-40 and so on. The last group 70plus contains the household heads that are 70 years old or older. With this information the figure tells that the majority of the household heads included in the sample are between 30 and 40 years old. More specifically, almost 30 percent of the household heads are in the age group 30-40. Following that the 40-50 age group comes having the second largest share in the sample. Furthermore, the figure clearly illustrates the

aging of the Turkish population from 1985 to 2000. Although not all of the older age groups' share increase in the population, the 40-50 age group's, the 60-70 age group's and the 70plus age group's share increases approximately 3 or 4 percentage points. As a result of the aging of the population the younger age groups also contain less household heads in 2000 compared to 1985.

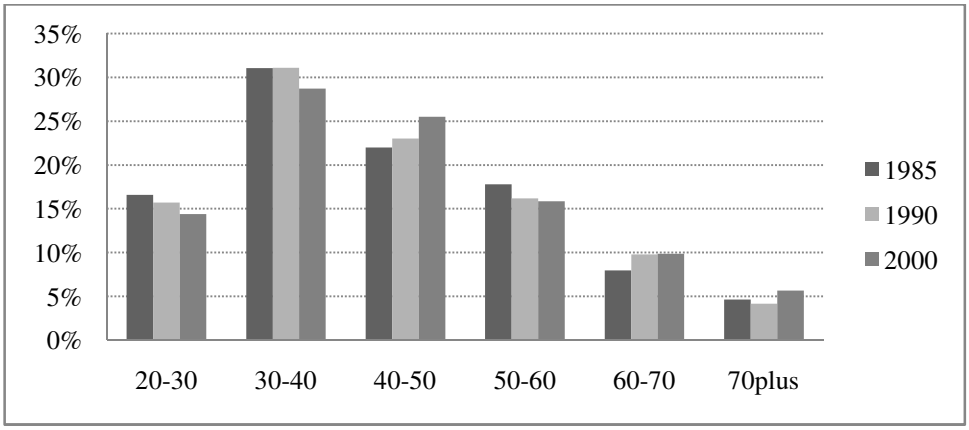

Figure 3.2.1: The Age Profiles of the Household Heads used in the Sample

Another informative illustration is given by Figure 3.2.2, which shows the sizes of the households living in the urban areas. According to the figure, the households most commonly have a size of 3 and 4, i.e. approximately 22 percent of the households are composed of 4 people and 20 percent of the households are composed of 3 people.

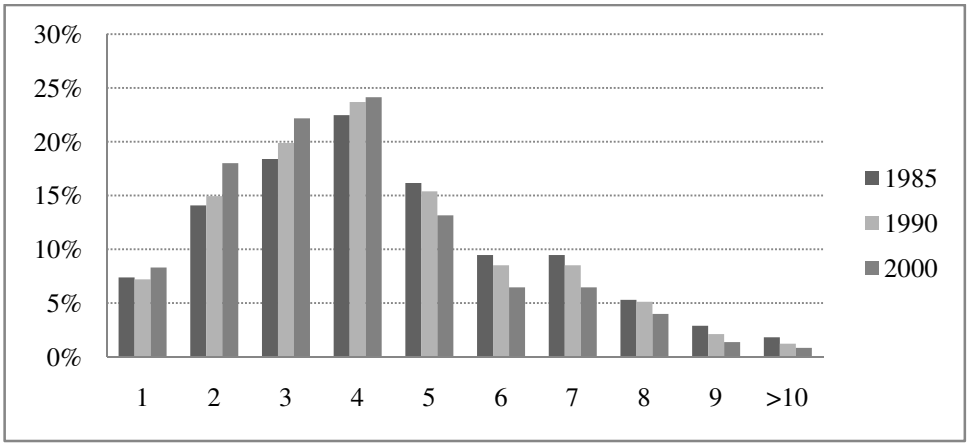

Figure 3.2.2: The Sizes of the Households Living in Urban Areas

An interesting fact that is presented by the figure is that from 1985 to 2000, there is a transition from large households to smaller ones. The reason for this is the migration from rural to urban areas throughout this time period. Since the rural areas of Turkey can be characterized households formed by large families that include several subfamilies, generally the household sizes in the rural areas are higher than those of urban areas. Without a doubt the large number of children even in the subfamily also contributes to large household sizes. However with the migration to urban regions, the nuclear family, i.e. the immediate family composed of parents and the children becomes more important. Therefore, the increase in the shares of the lower sized households and the decrease in the shares of the larger sized households can be explained with this transition process.

The household heads in the sample are mainly males. More specifically, in 1985 91.6 percent of the household heads are males while the number becomes 91.2 percent in 1990 and 88.5 percent in 2000. Although small, the increase in the share of females of household heads is also a result of the urbanization. In urban areas, the women are stronger in term of economic independence since they have the chance to actively join the labor market while the women in the rural areas usually work as nonpaid family workers either in the family's land or at home. Moreover, in the urban areas

women are supported more and more since late 1990s due to the regulations required by the European Union. For this reason, in the political arena or in the labor market more women can be seen day by day. Therefore, if the data from the 2007 were to be used, the ratio of the female household heads is expected to increase.

Besides being male, the majority of the Turkish household heads are married in the urban regions. If the household heads are decomposed with respect to marital status, in 1985 3.7 percent of the heads are single, 88.8 percent are married, 1.2 percent is divorced and 6.3 percent are widows. Although there is not much change in these percentages, if we look at 2000, 4.3 percent are single, 86.6 percent are married, 2 percent are divorced and 7 percent are widows. Hence, it can be said that the population is more or less stable regarding the marital status, even though there exists a slight decline in the share of married heads in the population and a slight increase in that of single, divorced and widow heads.

Important information that can be used to characterize the household heads in urban areas comes from the educational attainments of these heads. Figure 3.2.3 presents the level of education of heads by telling the level of school they are graduated from. Specifically, the heads are classified as: illiterate or not graduated from any school, primary school graduate, secondary school graduate, high school graduate and academy or university graduate. The first thing to notice from the figure is that there is an improvement in the educational levels of the heads. From 1985 to 2000, there has been a decrease in the number of illiterates and primary school graduates whereas the number of secondary school, high school and academy or university graduates has been rising. Despite the improvement in the educational attainments, still the majority of the household heads are primary school graduates, indicating a low level of education relative to the developed countries.

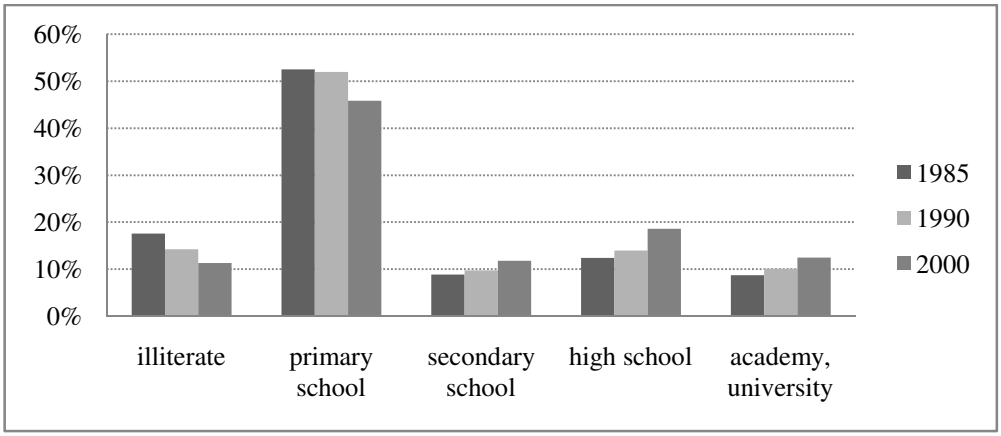

Figure 3.2.3: The Educational Attainments of the Household Heads used in the Sample

Another reason for the decrease in the primary school graduates is the law passed on 18 August 1997 stating that all individuals are required to take 8 years of nonstop education. After this 8 years of compulsory schooling, individuals are given an elementary education diploma. The reason that this law decreased the number of primary school graduates is that the duration of primary school in Turkey is 5 years and with this legislation, students now have to finish also the secondary school, which means 3 years of more education, to satisfy the requirement stated by the government. Therefore after 1997, there has been an increase in the share of secondary school graduates. However the increase in the share of the higher educational levels in the population is not due to any kind of legislation. Most probable reason for the improvement of the educational attainments of the heads is the urbanization caused by the internal migration in Turkey.

Labor market conditions give another perspective when looking at the household heads' profiles in Turkey. The main reason is that whether an individual is employed or whether the individual is employed as a paid worker or else can be used as a proxy for household income. Figure 3.2.4 presents the data on the labor market statuses of household heads living in the urban areas.

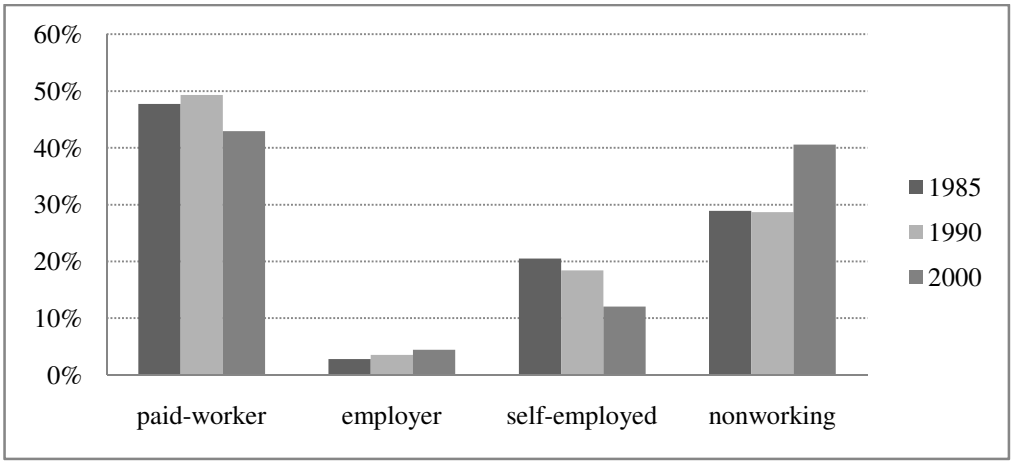

Figure 3.2.4: Labor Market Statuses of the Household Heads in Urban Areas

The most striking thing to notice from the figure is the rise in the number of nonworking individuals in 2000. The nonworking percentages illustrated in the figure display the household heads who are not working for more than a week and who are not connected in any way to a job. Therefore not all of these people are actually unemployed since all of the people who are not in the labor force are also included in this classification as nonworking. Nonetheless, Turkey experienced two crises during the period 1990 to 2000. The first one was in 1994 and the second one was in 1998. Although these crises were not as severe as the 2000-2001 financial crises, Turkey has gone through a painful transition period in this decade starting with the trade liberalization in 1989. Therefore, there has also been an increase in the percentage of unemployed mainly by the decrease in the percentage of self-employed and paid-worker household heads. In any case, almost 45 percent of the household heads are paid-workers whereas almost 5 percent of the heads are employers and 40 percent are non workers.

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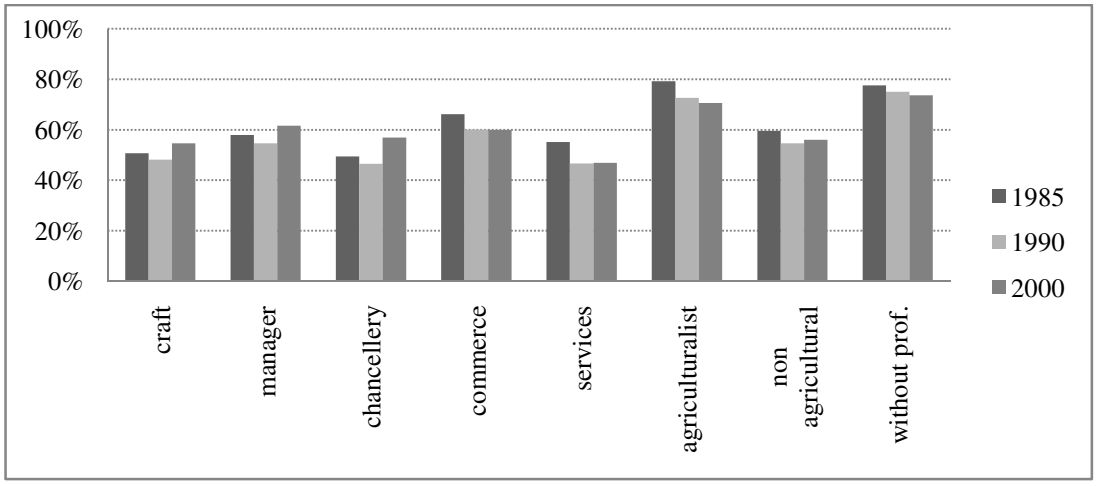

Figure 3.2.5: Professions of Household Heads living in the Urban Areas

Figure 3.2.5 presents the professions of the household heads that are used in the sample. The heads that are shown in the commerce group are specialized either in commerce or in retail. Similarly, the heads that are presented as agriculturalists in the figure are specialized in agricultural production or fishery whereas the heads that are presented in the non agricultural section are specialized either in non agricultural production or in transportation. According to the figure, 40 percent of the household heads are without professions meaning that they are working in jobs that do not require skills or they have worked in several different jobs that did not let them to specialize in a certain profession. In the professions there has not been a significant percentage change throughout the years from 1985 to 2000, but there is a slight increase in the share of heads that are specialized in crafts while there is a slight decline in the share of agriculturalists, in the share of heads specialized in commerce or retail and in the share of heads specialized in non agricultural production or transportation.

In order to present a complete profile, internal migration also has to be taken into account. In the sample used in this analysis, in 1985 12 percent of the heads are internal migrants while there share becomes 13 percent in 1990 and 10 percent in

2000. Internal migration is defined as moving from one province to another in the last five years before the census was surveyed. Therefore when a head is classified as migrant throughout this analysis, it would mean the head was living in another province 5 years before the census. However, a similar indicator can be constructed for older migrants, i.e. household heads that have migrated more than five years before the census data and that do not live where they were born at the year census was surveyed. The old migrants' percentage in the sample is 47.56 percent in 1985, 46.7 percent in 1990 and 47.6 percent in 2000. From these numbers it can be said that there hasn't been a drastic change in the number of new and old migrants.

Even though the sample is restricted to urban areas, still the households have to the choice of living in the central districts or else. Among the household heads living in urban areas, 80 percent was living in central districts in 1985 and this percentage has remained more or less stable throughout 1985 to 2000 as it becomes 79.2 percent in 1990 and 78.4 percent in 2000.

The focus of this analysis is tenure choice, thus the rate of homeownership is of great importance. Figure 3.2.6 presents the rates at which the household heads own the housing unit they live in, for the period 1985 to 2000.

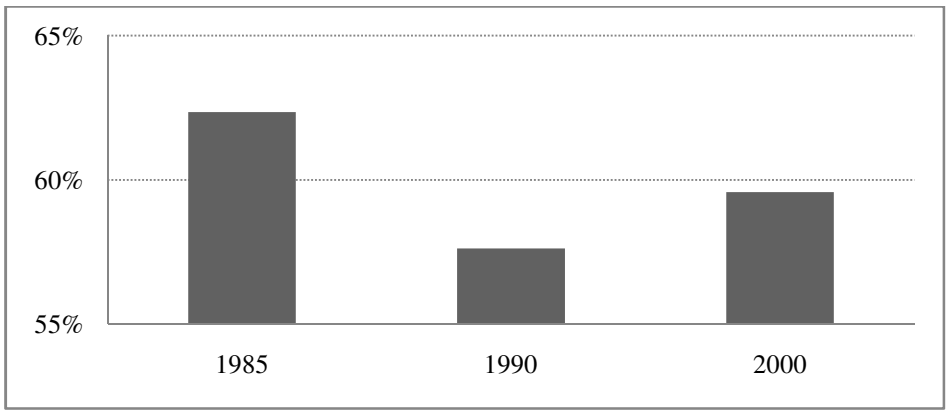

Figure 3.2.6: Homeownership Rates of Household Heads Living in Urban Areas

Similar to most developing countries, there has been a decrease in the average homeownership rates of household heads from 1985 to 2000, as the population move to bigger cities in this period. However more interestingly, there has been a decline in the average rate from 1985 to 1990 and then an increase from 1990 to 2000. It is argued in the literature that increasing homeownership rates is one of the major goals of governments since higher homeownership would facilitate savings and enable wealth accumulation for households. From this perspective, Turkey seems to have succeeded to reverse the declining trend in homeownership rates in the last decade. However whether this slight increase in the homeownership rates generated wealth accumulation for the households is out of the scope of this analysis. The next section will examine the characteristics of homeowners, in detail.

3.3 Homeownership Rates among Different Socioeconomic Groups

Analyzing the characteristics of the household heads that are homeowners, owners of the housing unit they live in, will give us an insight about the factors that affect tenure choice. For this reason, the interpretations done in this section will provide us the information on what to expect as a result from the empirical analysis.

Figure 3.3.1 shows the homeownership rates of different age groups. From the figure it can be easily seen that as the age of the household head increases the homeownership rates also increase though in a decreasing rate. Moreover, this age effect has been strengthened from 1985 to 2000, since the homeowners in the age group 20-30 decreased more than the homeowners in other age groups. Therefore expect to find a positive effect of age on probability of homeownership in the empirical analysis.

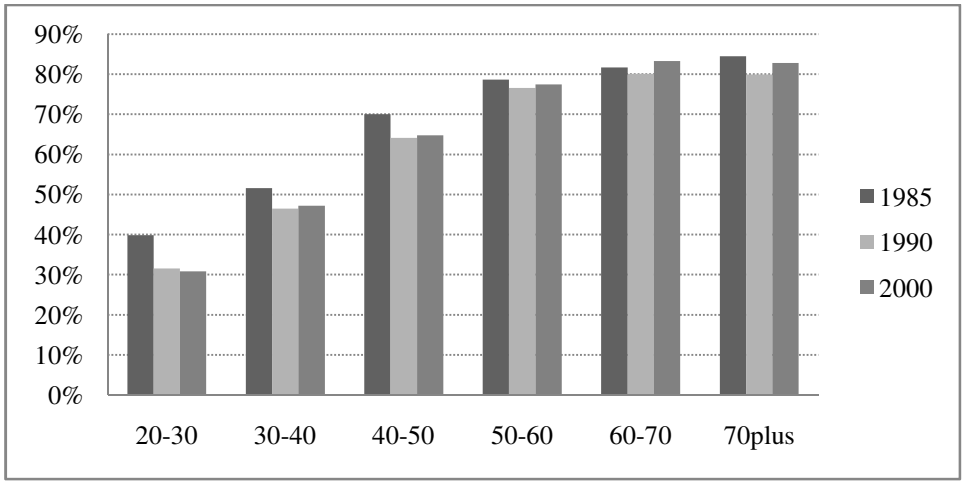

Figure 3.3.1: Homeownership Rates of Different Age Groups

Another characteristic of the households that has been found as a key parameter affecting tenure choice is the household size. In the previous section we have showed that there has been a decrease in the household sizes from 1985 to 2000, increasing the importance of the nuclear family. Figure 3.3.2 also shows some evidence on this issue. The figure illustrates that for the households with 3 or more person, homeownership rates increase as the size increases. However, overall the relation is expected to be nonlinear since households formed with one or two persons have higher homeownership rates than households formed with three or four persons. If we think of the urbanization process as causing the household sizes to shrink, we can see from the figure that nuclear family's importance increases since the homeownership rates of larger sized households fall more than those of the smaller sized households. More specifically, although the average homeownership rate of the households with a size of seven decreases from 74 percent to 69 percent, the average homeownership rate of the households with two persons decrease only from 61.09 percent to 61.06 percent in the period between 1985 and 2000.

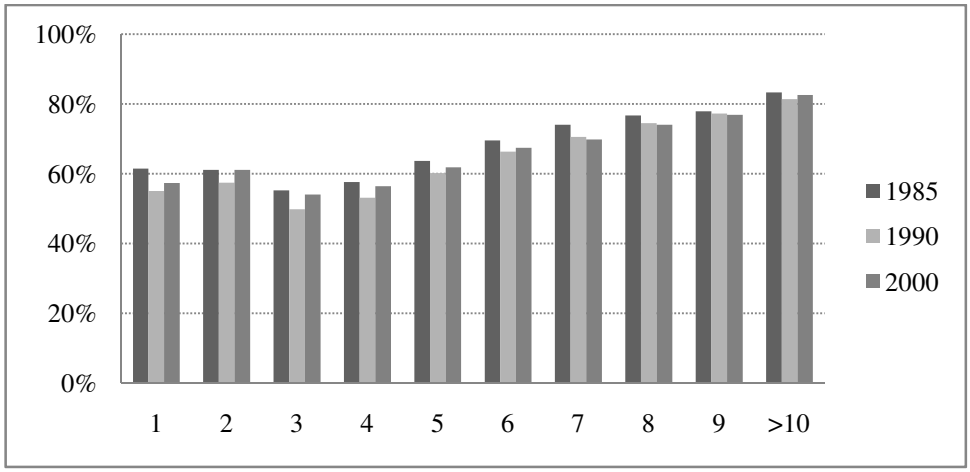

Figure 3.3.2: Homeownership Rates with respect to Household Sizes

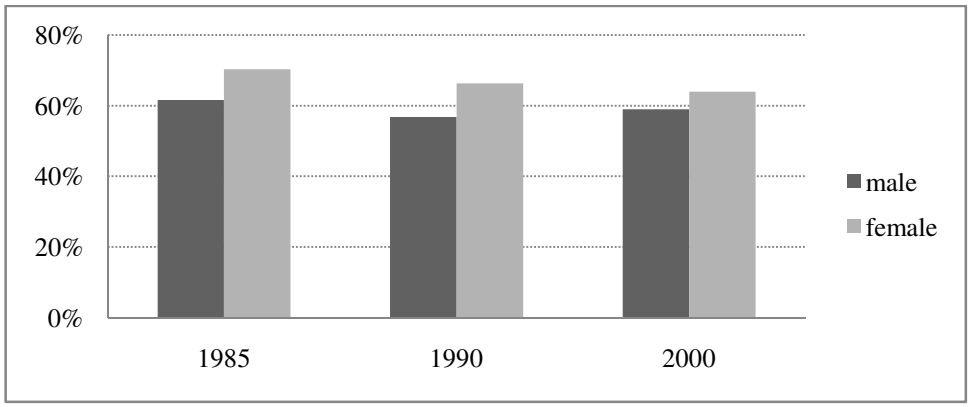

Figure 3.3.3: Homeownership Rates of Females and Males in the Sample

Even though more than 80 percent of the household heads living in urban areas are males, it may give some interesting information to compare the homeownership rates of the males and females in the sample. Figure 3.3.3 illustrates the homeownership rates of males and females for the years 1985, 1990 and 2000. Contrary to expectations, females' average homeownership rate is higher than that of males' for

all three years, though the gap between them has been seriously declined. This finding is surprising since in the literature for developing countries being a female or being in a female-headed household declines the probability of homeownership.

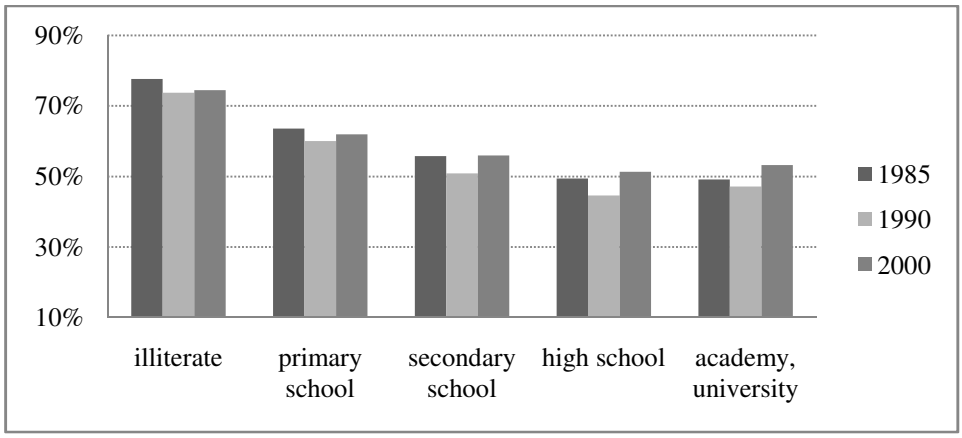

Figure 3.3.4: Homeownership Rates with respect to Educational Attainments

Another important characteristic of households that may have serious impacts on tenure choice is the educational attainments of the household heads. Figure 3.3.4 gives information about the relation between education levels and the homeownership rates of the household heads. Despite the common thinking that education increases the income level thus increases the homeownership rates; the figure tells us that in Turkey this line of thinking is not valid. However, from the data we are able to see that the highly educated household heads are younger than the other heads. This fact explains the low homeownership rates of heads with higher education levels. According to the figure, illiterates or the heads that didn't graduate from a school have the highest average homeownership rates while high school graduates have the lowest. The group with highest level educational attainment, i.e. academy or university graduates have average homeownership rates close to that of

high school graduates. This picture may be due to the high unemployment rates of the high school and university graduates and due to the fact that illiterates are usually members of older age groups which may enhance the homeownership rate for this group.

When we look at household heads grouped with respect to marital status, we see that the heads that are widows have the highest average homeownership rates, 77 percent in 1985, 73 percent in 1990 and 76 percent in 2000. Following widows, the married household heads have the second highest average homeownership rates for all three years. As can be expected, single household heads have the lowest homeownership rates; 48 percent in 1985, 42 percent in 1990 and 33 percent in 2000. According to these numbers, single household heads are the most affected ones from the decreasing homeownership rates from 1985 to 2000. Again if we assume that widows are generally in older age groups, the result becomes reasonable. Still to learn the actual effect of marital status on tenure choice, we need to control for age of the head of household.

Labor market characteristics are found to have great impact on tenure choice in literature. If we think the labor market conditions of the household heads as a proxy for the income they generate, these characteristics become even more essential. Figure 3.3.5 illustrates the homeownership rates with respect to labor market statuses of the household heads.

Figure 3.3.5: Homeownership Rates with respect to Labor Market Statuses

As can be seen from the figure the household heads that are classified as nonworking have the highest average homeownership rates for all years. The paid workers not only have the lowest homeownership rates, but also their owning rates decrease from 1985 to 2000. Therefore from the figure it can be inferred that either the labor market status is a bad proxy for income or the direct link between higher income and higher homeownership is broken for Turkey. However, if the nonworking group is ignored, the rates for employers and self-employed are as expected.

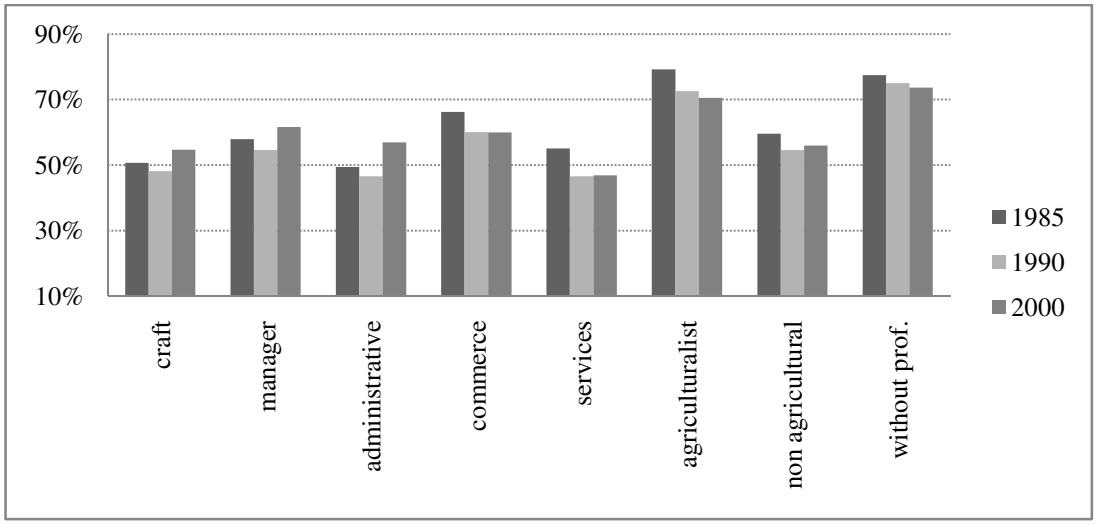

Figure 3.3.6: Homeownership Rates with respect to Professions

Figure 3.3.6 presents information on another labor market characteristic, professions. Similar to expectations, the household heads that are specialized in agriculture or fishery have one of the highest average homeownership rates, since in the agricultural areas people build their own houses with cheap material and thus their tenure decision is biased in this perspective. Analogous to the nonworking group, household heads without a profession has also one of the highest average homeownership rates for all three years. As previously mentioned, without controlling for other characteristics of the household heads, the net effect of professions on tenure choice cannot be understood; even though there seems to be no direct correlation for the time being.

Although the migrants' percentage in the population stay more or less the same, their homeownership rates decline significantly for the period between 1985 and 2000. However this is not the case for old migrants. Even though their owning rates are declining slightly, in absolute terms the average homeownership rates of old migrants are significantly higher than those of new migrants. With this information we can say that as the duration of stay in the migrated city increases, homeownership

rates increase. Figure 3.3.7 illustrates this case by comparing the average homeownership rates for old and new migrants.

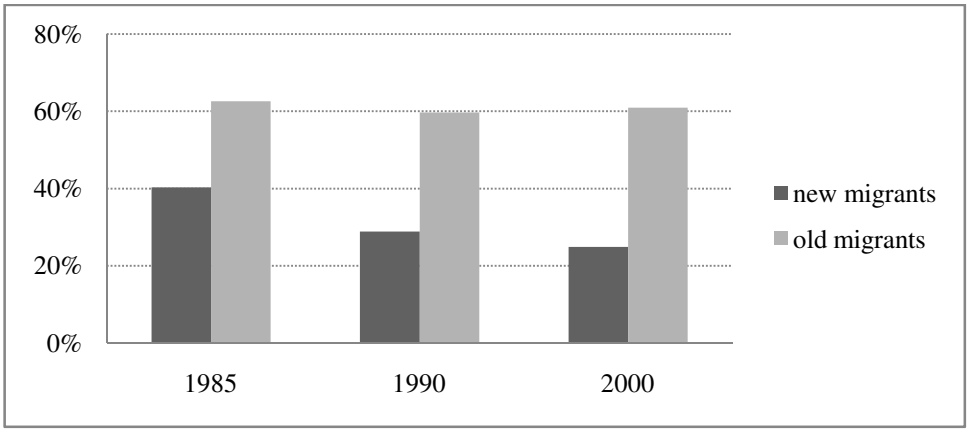

Figure 3.3.7: Homeownership Rates of Old and New Migrants

Lastly, the household heads living in central districts should be examined. According to the data, more than half of the there heads living in central districts are homeowners, although there has been a trivial decrease in the average homeownership rate in the period 1985 to 2000, from 61 percent to 58 percent. Thinking of the decrease of the share of household heads living in central districts in the sample and the ratio of homeowners among these household heads, we cannot make a clear inference as of the relation between living in central districts and owning a house.

In this section the homeownership rates of various socioeconomic groups have been analyzed. This analysis has been done for the whole sample. However there may be also regional disparities among household characteristics throughout Turkey. Next section will be dealing with this issue.

3.4 Regional Disparities

To examine the regional disparities in Turkey the following analysis is done using the 12 NUTS (the Nomenclature of Territorial Units for Statistics) Level-1 regions. The categorization of the NUTS Level-1 regions is given in Appendix A.

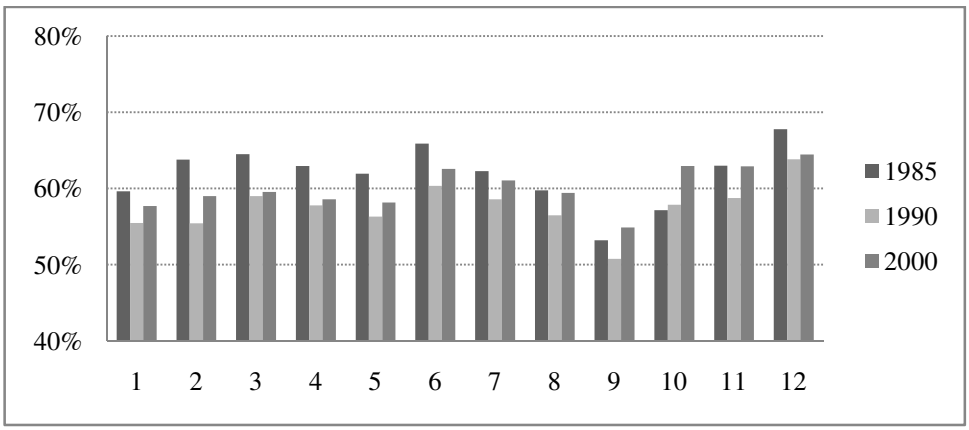

Figure 3.4.1: Average Homeownership Rates for NUTS Level-1 Regions

Figure 3.4.1 shows the average homeownership rates for 12 NUTS regions. From the figure it can be clearly seen that the homeownership rates are varying between regions. Most significantly, the ninth NUTS Level-1 which is the Eastern Black Sea region has the lowest average homeownership rates for all three census years. Similarly, the fourth and fifth regions which represent Eastern Marmara and Western Anatolia respectively show divergent behavior from the rest of the regions in terms of homeownership. In order to assess the reason why these regional disparities occur in terms of homeownership we need to examine the characteristics of the households that are believed to affect tenure choice.

The age profile of the NUTS Level-1 regions is illustrated in Figure 3.4.2. The divergent age characteristics can be evidently seen from the illustration. More specifically, regions 2, 3, 4 and 8 are composed of older household heads than the average. Namely, these regions are Marmara, Aegean, Eastern Marmara and Western Black Sea areas, respectively. Furthermore, the effect of internal migration shows its effects on the average ages in these regions. As can be seen from the figure from 1990 to 2000 there has been a drastic increase in the average ages in all of the regions except Istanbul and Southeastern Anatolia.

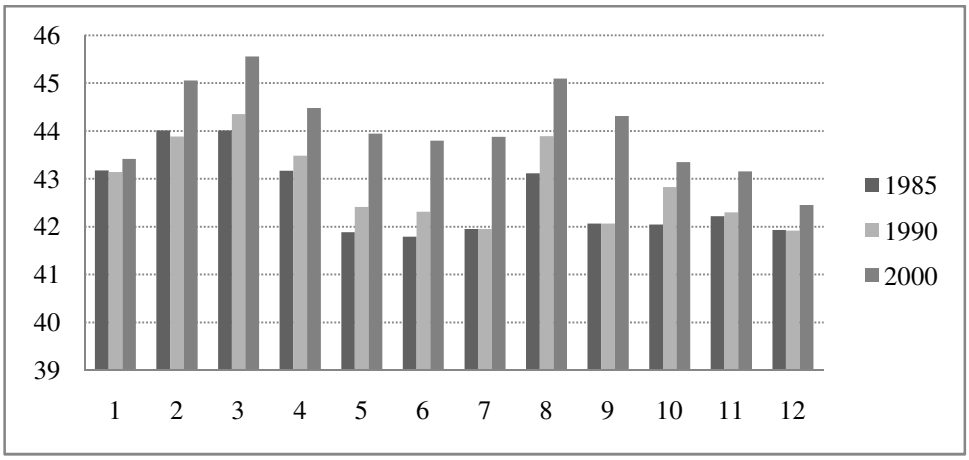

Figure 3.4.2: Average Ages in NUTS Level-1 Regions

When Figure 3.4.1 and figure 3.4.2 are analyzed together, it can be seen that the average ages and the average homeownership rates move parallel to each other for the first 4 regions. However after the fourth region, this movement becomes like a mirror image. That is to say, if the average age is higher in a region, the average homeownership rates are lower for the last 8 regions.

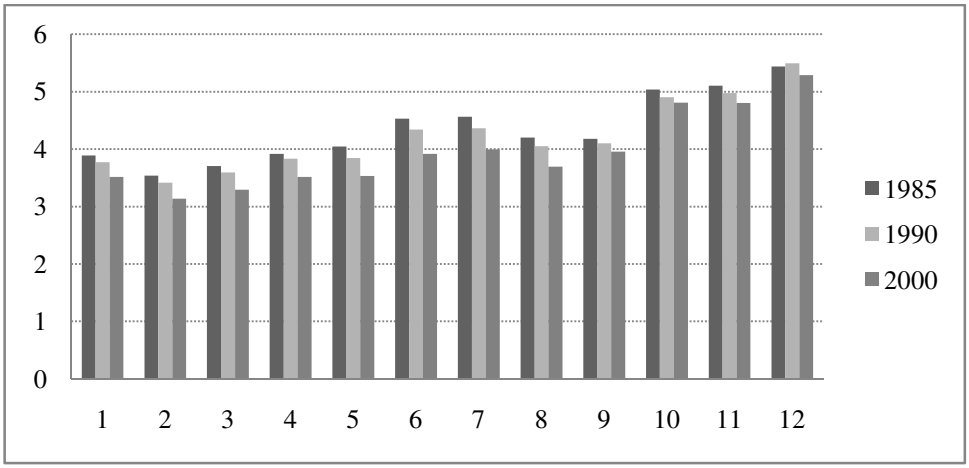

Figure 3.4.3: Average Household Sizes in NUTS Level-1 Regions

A further distinguishing factor is believed to be the average household size across NUTS Level-1 regions. If the average household sizes illustrated in Figure 3.4.3 are compared with the average homeownership rates presented in Figure 3.4.1, up until the fourth region, the areas with lower average household sizes have relatively higher average homeownership rates whereas starting with the fifth region this trend reverses and areas with relatively high household sizes have higher average homeownership rates than the other regions. Besides this information, Figure 3.4.3 also provides evidence that there exist regional differences in Turkey based on NUTS Level-1 regions regarding household sizes.

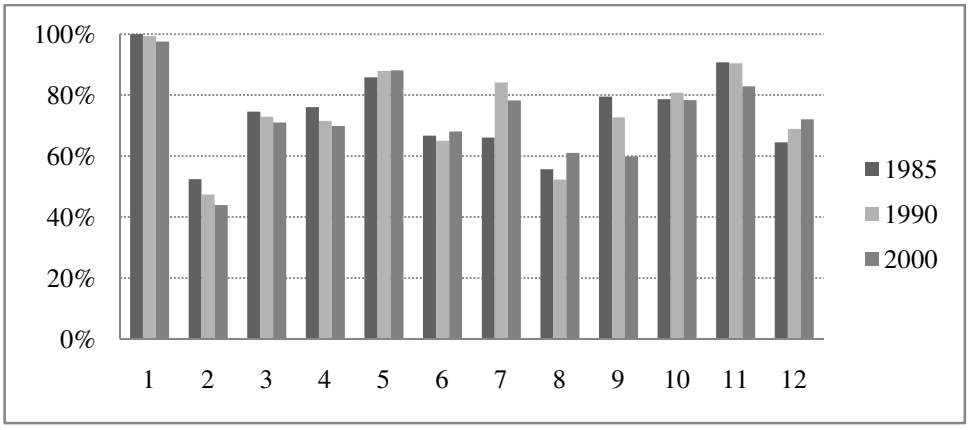

Figure 3.4.4: Percentage of Household Heads Living in Central Districts in NUTS Level-1 Regions

One of the possible determinants of tenure choice that has the largest discrepancy among NUTS Level-1 regions is whether the heads live in the central districts or not. Figure 3.4.4 pictures this divergence across regions. While almost all household heads in the urban areas of Istanbul live in central districts, the ratio declines to one half when Marmara is considered. However, interestingly if we ignore Istanbul and Southeastern Anatolian region, then the trend in differences between regions regarding living in central districts show almost perfect correlation with the trend in differences between regions regarding average homeownership rates.

With regards to educational attainment, regional disparities still exist except for the primary school graduates. The percentage of primary school graduates in NUTS Level-1 regions is more or less the same, being around fifty percent. However, the discrepancy in the education levels of the household heads living in different NUTS regions is generated mostly by the illiterates, high school graduates and the university graduates. Figures 3.4.5, 3.4.6 and 3.4.7 illustrate these discrepancies.

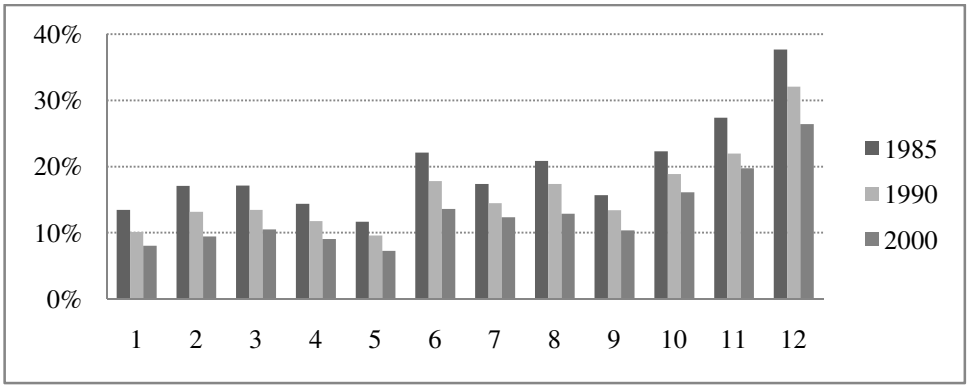

Figure 3.4.5: The Share of Illiterate or Not Graduated Household Heads in NUTS Level-1 Regions

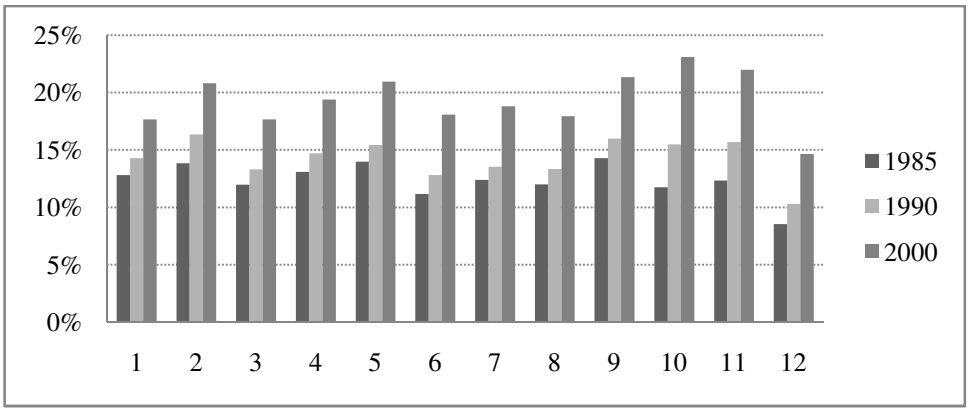

Figure 3.4.6: The Share of Household Heads that are Graduated from High School in NUTS Level-1 Regions

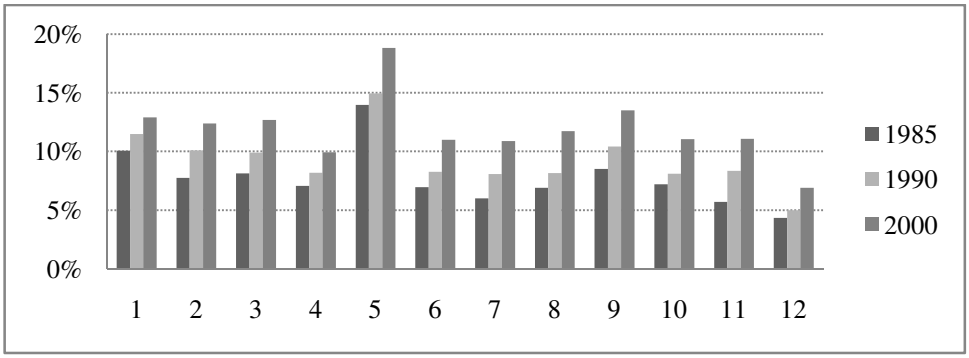

Figure 3.4.7: The Share of University-Graduate Household Heads in NUTS Level-1 Regions

When we look at Figure 3.4.5, it can be observed that the illiterates' share in the population increase from first region to the twelfth with the fifth and the ninth regions, Western Anatolia and Eastern Black Sea regions respectively, being exceptions. This figure therefore clearly illustrates the regional variation in among these regions, since Turkey's one of the biggest problems is the low literacy rates in mostly the east part of the country. Nevertheless, the high illiterate shares even in the eastern regions have declined significantly in the period between 1985 and 2000, although the gap between the regions has not been eliminated.

One other gladsome observation is that the number of high school graduates all over Turkey has been increased from 1985 to 2000. Although there is still some variation between the regions, if we ignore the Southeastern Anatolian region, this variation is less than five percent all around the country. Even though this variation is low, still with some modification we can see some similarities between this illustration and Figure 3.4.1 which presents average homeownership rates among NUTS Level-1 regions. More specifically, if we look at the trend in figure 3.4.6, we can see that the movement in the share of high school graduate household heads' shares from the third region onwards is like the mirror image of the movement in the average homeownership rates in the same regions.

Figure 3.4.7 presents the university or academy graduate household heads in NUTS Level-1 regions. It can be observed from this illustration that without taking into account the Western Anatolian region, the disparities among the regions do not exceed 7 percent. However, interestingly, Western Anatolia has university graduate household heads accounting to almost twenty percent of its population in 2000. This may be a result of the fact that Western Anatolia is one of the most crowded cities in terms of both universities and university students. This interpretation is validated also through the average homeownership rates in this region throughout late 1980s and 1990s. Since students are less expected to be homeowners, Western Anatolia has average homeownership rates that are below the average of the country, despite its high share of university graduates.

For the labor market characteristics of the household heads, we have previously examined whether these heads are employers, paid workers, self-employed or not working. When it comes to regional disparities, however, every NUTS Level-1 region has approximately the same share of paid workers in its population, being around 45 %. Nevertheless, the percentage of self-employed and employer heads vary significantly between these regions.

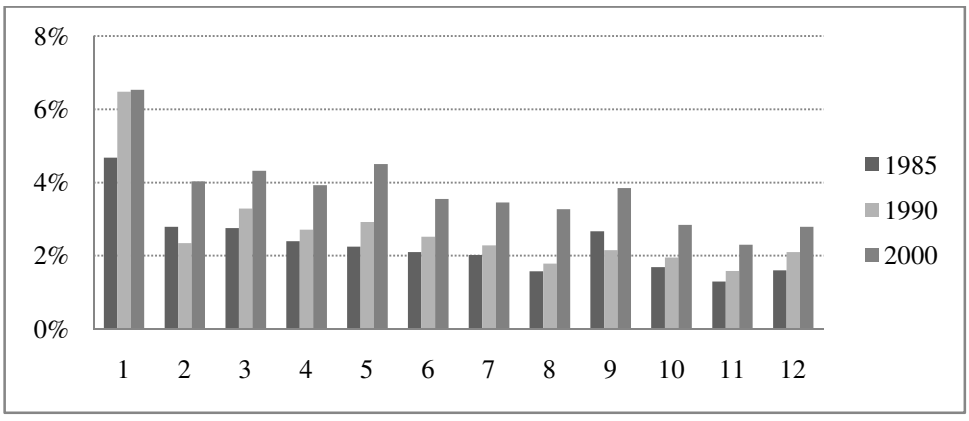

Figure 3.4.8: The Percentages of Employer Household Heads in NUTS Regions

As reported by Figure 3.4.8, the share of employer heads in Istanbul is considerably higher than those of other regions. Though there was a drastic gap between the regions in terms of employer heads, when we look at data from 2000 Census, it is observed that this gap has been drastically declined, Istanbul still having the largest employer population.

Contrary to what we observe in Figure 3.4.8, the shares of self-employed heads in NUTS regions have been radically declined in the period between 1985 and 2000. Northeastern and Southeastern Anatolia are the most crowded regions in terms of self-employed household heads. However, from 1985 to 2000, there has been almost a 10 percentage point decrease in the self-employed heads in all regions. This can be in line with the thinking that the crises of 1990s mostly affected the self-employed, as many of them became unemployed and the other started to work as paid workers. Still, if we take into account the first nine regions, Figure 3.4.9 almost completely represents the relative average homeownership rates in the regions, though for the last 4 regions there is no such relation.

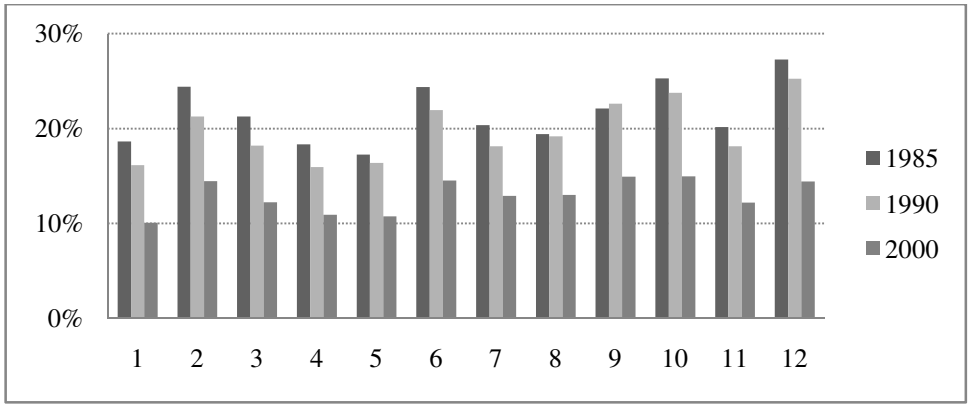

Figure 3.4.9: Percentages of Self-Employed Household Heads in NUTS Level-1 Regions

The final thing to look at is the old and new migrants' regional decomposition, which may be a source of the regional differences in Turkey. Figure 3.4.10 and 3.4.11 show the share of the old and new migrants in NUTS Level-1 regions' population, respectively. These figures are constructed in such a way that if a head is considered as a migrant in a region, it means that he/she has migrated to that region.

In accordance with Figure 3.4.10, apart from Istanbul, Marmara and Eastern Marmara regions, the new migrants have chosen other regions evenly, though there has been a decrease in the percentage of household heads that are new migrants all around Turkey except for Western and Eastern Black Sea. For this reason, there has been a significant convergence for NUTS Level-1 regions regarding the population shares of the household heads that are new migrants.

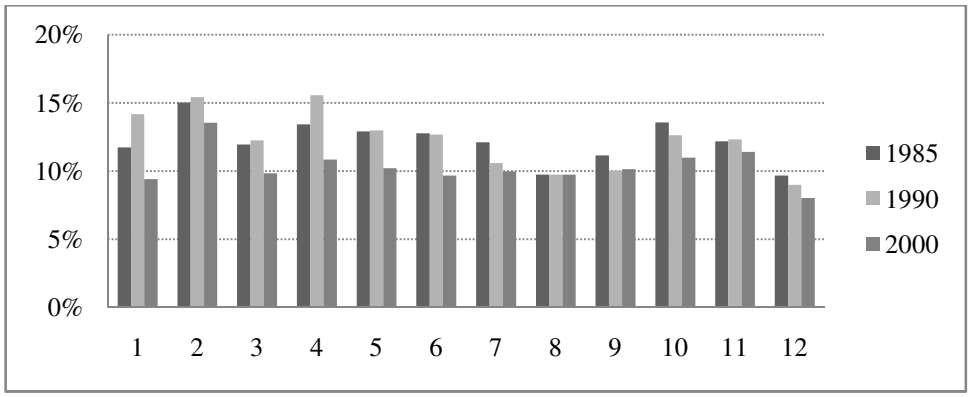

Figure 3.4.10: Percentage of New Migrants in NUTS Level-1 Regions

On the other hand, there is a wide gap between the percentages of the old migrants in these regions which has not been narrowed from 1985 to 2000, as can be seen from Figure 3.4.11. Though, there is no direct correlation of old migrants' population in each region with the average homeownership rates, the skills and education levels of

these migrants may have well contributed to each region's development and thus the tenure choices of the household heads. Therefore, to have a better understanding of the regional differences in tenure choice behavior, we need to take a closer look at the old and new migrants' characteristics, which will be done in the next section.

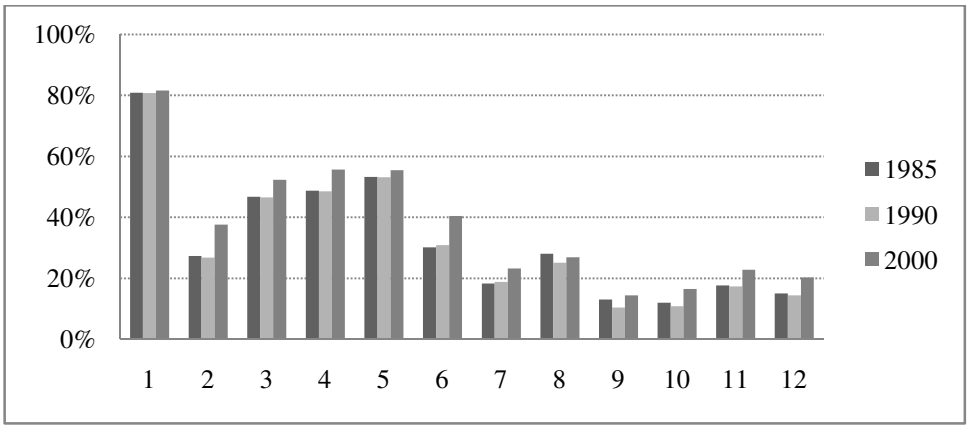

Figure 3.4.11: Percentage of Old Migrants in NUTS Level-1 Regions

3.5 Socioeconomic Profiles of Old and New Migrants

According to the literature on tenure choice behavior of migrants, length of duration is of great importance. The reason is that as an individual spends more time in a certain province or district, he/ she may be able to enter the labor market with increasing experience important for that region and after some time the migrant's characteristics converge to that of the native population residing in that region.

To see this effect, we shall first look at the differences between homeownership rates of old and new migrants. From Table 3.3.6, we can see that old migrants' homeownership rates are about 60 percent while those of new migrants are

decreasing from 40 percent to 20 percent during the period between 1985 and 2000. This may signal a dissimilarity between the 1985 migrants', 1990 migrants' and 2000 migrants' characteristics.

One of the reasons for the difference between old and new migrants may be of age profiles. Figures 3.5.1 and 3.5.2 display the age profiles of old and new migrants, respectively. One can immediately notice from these two illustrations that the old migrant population is older than new migrant population. More specifically, while most of the new migrants are in the 20-30 or 30-40 age groups, old migrants' larger share is a member of 30-40 or 40-50 age groups. As our a priori expectation is that age is a positive determinant for homeownership rates, part of the difference between these two groups can be explained by their age profiles.

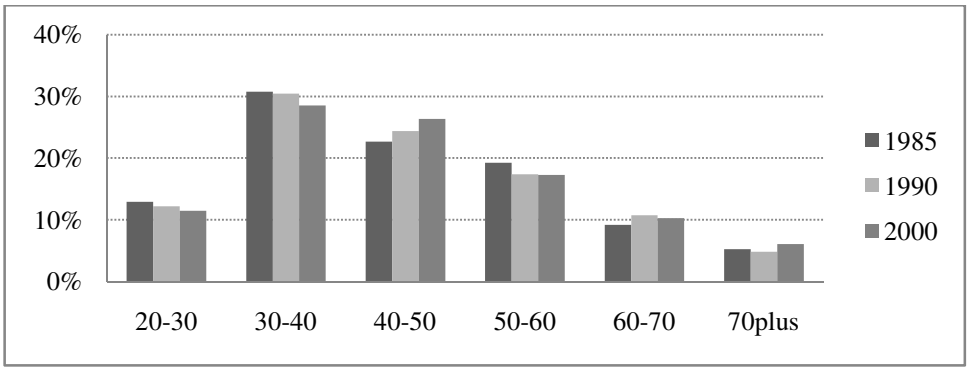

Figure 3.5.1: Age Profile of Old Migrants

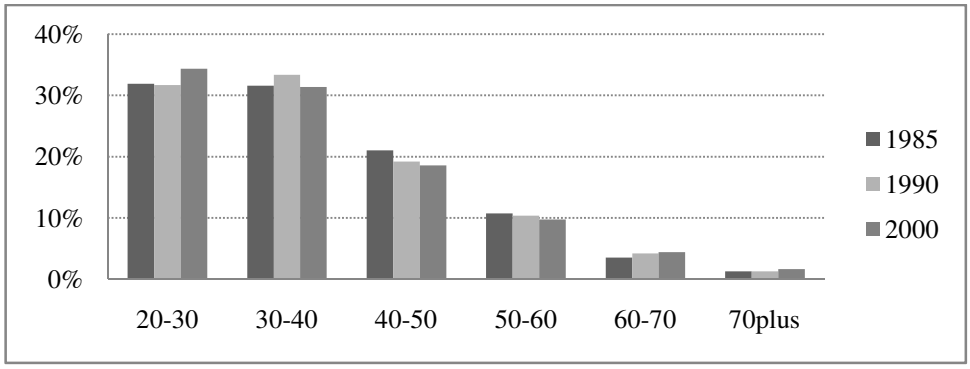

Figure 3.5.2: Age Profile of New Migrants

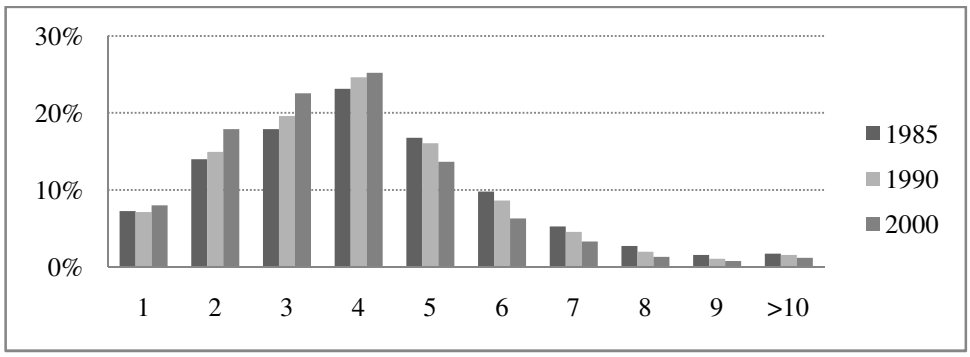

Table 3.5.3: Household Sizes for Old migrants Across Years

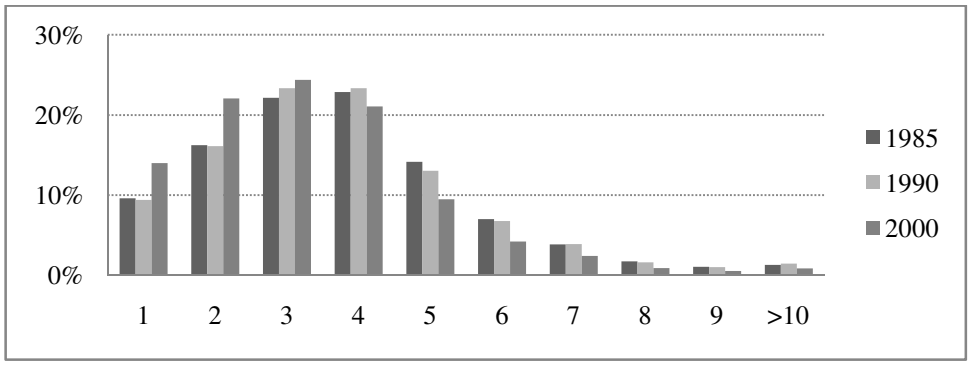

Figure 3.5.4: Household Sizes for New Migrants Across Years

Another important determinant for homeownership rates according to the literature is the household sizes. In the previous studies, it has been found that the probability of homeownership rises as household size increases. To see whether there is a disparity among the two populations in this respect, we present Figure 3.5.3 and 3.5.4 which illustrate the household size for old and new migrants, respectively. From the information that the figures display, we again find evidence for the higher homeownership rates of old migrants. While the mode of the distribution of household sizes for old migrants is four, the mode of the same distribution for new migrants is 3. Although this may seem a small difference, the higher household sizes are more common in old migrants than new migrants. Therefore, based on the a priori expectations of the effect of household size on tenure choice, it is reasonable for old migrants to have higher homeownership rates than new migrants.

The marital status and gender profiles are more or less the same among the two populations. Therefore, we do not expect these characteristics to have a significant impact on explaining the homeownership rate disparities among the two groups. However, labor market status and educational attainments of the household heads are of great importance in determining the homeownership rates as told by previous studies, hence they shall be analyzed in detail.

Figure 3.5.5 and 3.5.6 display the education levels of the household head that belong to old or new migrant population. From these figures, it can be observed that the new migrants are more educated than old migrants and these household heads are becoming even more educated than the latter between 1985 and 2000 as the university graduates are increasing and the illiterates are decreasing in this period. This result may signal that from the empirical analysis we may not get a positive impact of education on homeownership probabilities, as stated by the results of previous literature. Another explanation may be that if the effect of education on homeownership is positive, than this effect may be counterbalanced by an unobserved characteristic of these two populations. In either case, we cannot be sure without analyzing the empirical results.

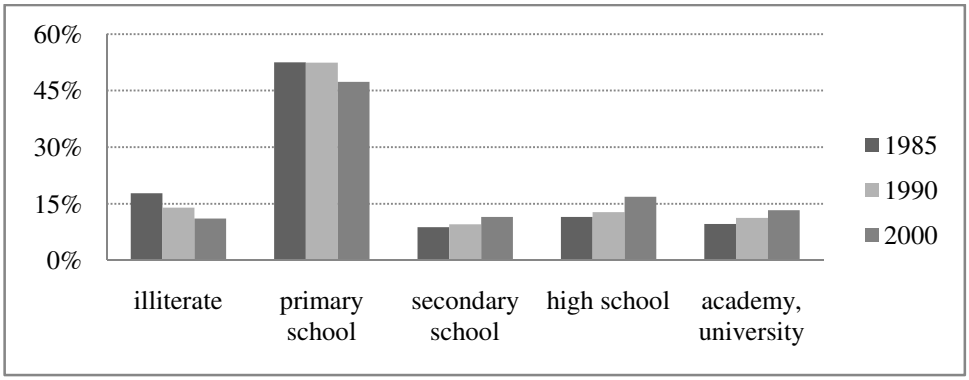

Figure 3.5.5: Educational Attainments of Old Migrant Household Heads

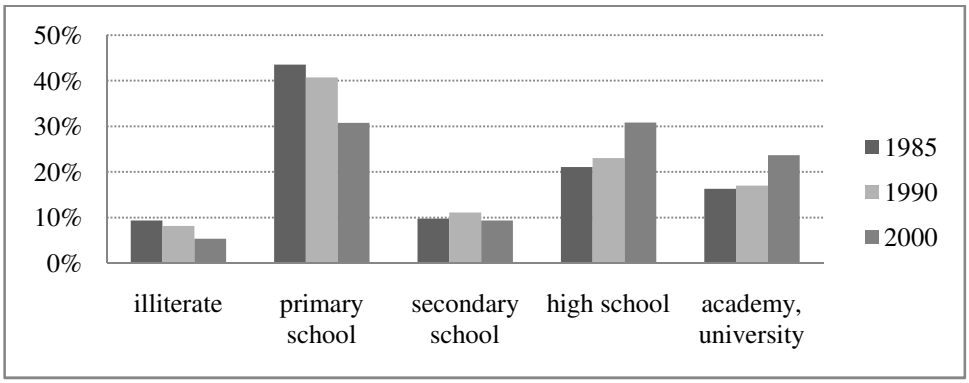

Figure 3.5.6: Educational Attainment of New Migrant Household Heads

As previously mentioned, labor market status may also have a great impact on homeownership rates. Not only due to income considerations, but also it gives an idea whether the individual is permanent where he lives. According to Figure 3.5.7 and 3.5.8, the shares of self-employed and non working heads are greater in old migrant population whereas paid workers' share is higher in new migrant population. Since in Turkey paid workers are usually of low or middle income classes, the old migrants' average income may be higher than that of new migrants. Even if this is

not the case, it is certain that old migrants have generated more wealth both due to their older ages compared to new migrants and the participation in the labor market more as employer and self-employed compared to new migrants.

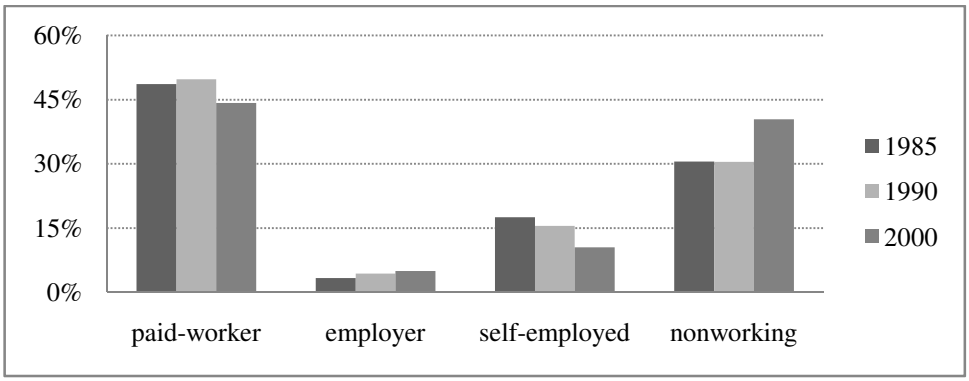

Figure 3.5.7: Labor Market Statuses of Old Migrant Household Heads

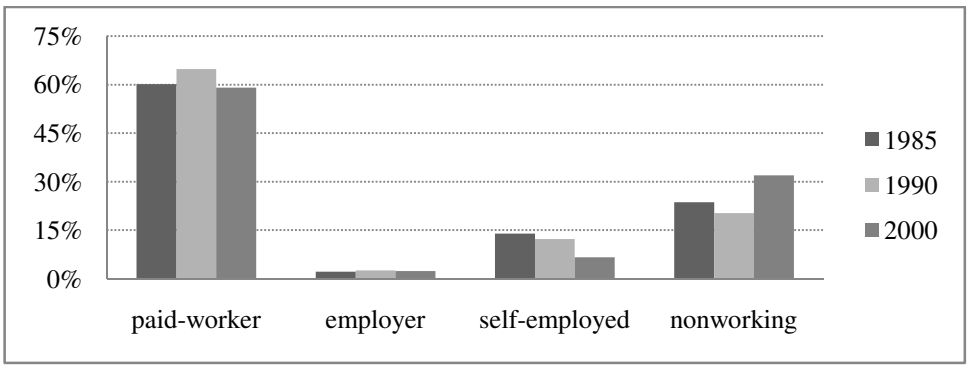

Figure 3.5.8: Labor Market Statuses of New Migrant Household Heads

However, the fact that there are more non working household heads as old migrants relative to new migrants is also controversial according to literature. Although there are debates on the impact of income on homeownership, employed people are generally expected to have higher homeownership rates than unemployed. Similar to educational attainments of household heads, the picture we see regarding not working heads may be either due to a counterbalancing unobserved characteristic or due to a difference in the effects of mostly used tenure choice determinants on probability of homeownership for Turkey. Only after the examining the empirical results we can make a decision on this issue.

In conclusion, the important differences between old and new migrants are as follows:

- New migrants are a younger population.
- They also have smaller families.
- The educational attainment levels of the household heads that are new migrants are higher than those of the old migrants.
- The new migrants are more likely to be from Western Black Sea, Northeastern Anatolian, Southeastern Anatolian regions.

CHAPTER 4

THE EMPIRICAL ANALYSIS

4.1 Methodology

4.1.1 The Model

Tenure choice models employed in this study are determined by the general household head characteristics. Although there will be several different specifications, the general properties of the model will be preserved in all of the alternative specifications. Accordingly, the basic tenure choice model is:

$$\Pr(OWN_i) = f(D_i, L_i, M_i, P_i) \tag{5.1.1}$$

where $\Pr(OWN)$ represents the probability of owning the housing unit the household head currently lives in, D_i is a vector of the demographic characteristics of the household heads, L_i is a vector of the labor market characteristics of the household heads, M_i is a vector describing the migration status of these heads and P stands for the control for provincial differences.

As explained in the preceding chapters, demographic and labor market characteristics of the households are considered to be the important determinants of tenure choice. Moreover, since the data set that we use for this study lacks the information about the income or wealth of the household members, the labor market characteristics and the education of the household heads may serve as proxies for the households' budgets. There may be other factors that are influential in the tenure choice decision of the Turkish households', yet all of the variables used in this empirical analysis are found to be important determinants of the probability of homeownership in both developed and developing countries. From this point on, when the phrase probability of

homeownership is used, what is meant is the probability of owning the housing unit the household head currently lives in.

In order to understand the model fully, we shall examine the variables included in each vector in Equation (5.1.1), separately. The demographic characteristics of the household heads used in this analysis, D_i, consist of the gender of the household head, the household size, marital status of the head, the educational attainment of the head, and the age group that the household head is in. Furthermore, with the vector of the labor market characteristics of the household heads,L_i the employment status, the profession and the labor market status of the household head is controlled in the empirical analysis. By the labor market status we mean whether the household head is employed as a paid worker or as an employer or in the form of self-employment. Finally, the migration characteristics of the household heads are defined by the vector M_i and this vector includes the information of whether the head has migrated in the last five years and whether the head had migrated earlier. The provincial dummies are used to control for the regional effects, however they also proxy for the price of housing in different local housing markets. In provinces where the price of owning is high, it may be the case that the rents are also high. Nevertheless, in such a case, the factor that will dominate the tenure choice would be the access of the household heads to borrowing. For this reason, we believe that with these provincial dummies we will be able to control for the differences in the local housing markets. Other proxies that can control for this effect like the seashore dummy or the population of the districts are also included in the models. The detailed explanation of each variable used in the empirical analysis can be found in Table 4.1.1.

Table 4.1.1: Definition of the Variables used in the Empirical Analysis

Variable	Definition
Homeowner	Homeownership dummy, equals 1 if the household head owns the house he/she lives in
Demographic Characteristics:	
Household size	Number of people residing in that household
Male	Equals 1 if the household head is male
Illiterate	Equals 1 if the household is illiterate or not graduated from any school
Primary School	Equals 1 if the household head is primary school graduate
Secondary School	Equals 1 if the household head is secondary school graduate
High School	Equals 1 if the household head is high school graduate
University	Equals 1 if the household head is academy or university graduate
Age Group 20-29	Equals 1 if the household head age between 20 and 29
Age Group 30-39	Equals 1 if the household head age between 30 and 39
Age Group 40-49	Equals 1 if the household head age between 40 and 49
Age Group 50-59	Equals 1 if the household head age between 50 and 59
Age Group 60-69	Equals 1 if the household head age between 60 and 69
Age Group 70plus	Equals 1 if the household head age 70 or above
Single	Equals 1 if the household head is single
Married	Equals 1 if the household head is married
Divorced	Equals 1 if the household head is divorced
Widow	Equals 1 if the household head is a widow
Labor Market Characteristics:	
Employed	Equals 1 if the household head is employed, 0 if unemployed
Paid Worker	Equals 1 if the household head is employed as paid worker
Employer	Equals 1 if the household head is employed as employer
Self-employed	Equals 1 if the household head is employed as self-employed
Craft	Equals 1 if the household head is specialized in crafts
Manager	Equals 1 is the household head's profession is management
Chancellery	Equals 1 is the household head's profession is chancellery
Commerce	Equals 1 if the household head is specialized in commerce
Services	Equals 1 if the household head is specialized in service sector
Agriculturalist	Equals 1 if the household head's profession is agriculture or fishery
Nonagricultural production	Equals 1 if the household head's profession is nonagricultural production or transportation
No profession	Equals 1 if the household head has no profession
Migration Status:	
New Migrant	Equals 1 if the household head has migrated in the last five years before the census
Old Migrant	Equals 1 if the household head had migrated earlier than the last five years before the census
Provincial Controls	
Central District	Equals 1 if the household head lives in the central district of a province
Seashore	Equals 1 if the household head lives in a province that is located at a seashore
Population	Logarithm of the population of each district
Province Dummies	Dummies for each of the provinces of Turkey

Since most of the variables are included in the model based on the justification of previous studies, we have *a priori* expectations about the influences of these factors on probability of homeownership of Turkish household heads. To start with, age of the head is an indicator of the household head's stage in the life-cycle and it is expected that the later stages in the life-cycle increases the probability of homeownership. This can be argued on the basis that as age increases the household accumulates more wealth which in turn increases the probability to own. Household size is also expected to be positively related to the homeownership probability. When the household size is large it would mean either the number of children is high or there is an elder subfamily in the household. In both cases the size is expected to increase the ownership probability since in the former case the parents' are more willing to own with bequest motives considering their children and in the latter case the household lives most probably in the elder subfamily's house. In most of the developed and developing countries, education increases the probability to own, as higher educational attainment would mean higher permanent income for the household heads. Furthermore, all of the studies previously done show that males are more probable candidates for homeownership, thus we hypothesize that the variable "Male" will positively affect the probability of homeownership. Although, marital status has not been analyzed in a detailed format as this study does, we expect the married and widow household heads to have a higher probability than the single or divorced heads.

For the labor market characteristics, employment is expected to be positively related to homeownership rates. Employment means that the household head has a regular income and thus more accumulated wealth than the unemployed. Moreover, if the household head is an employed or self-employed he/she is predicted to have higher probability to own since in Turkey paid workers are of middle-income or low-income classes although they also have a regular income whereas employers and self-employed individuals have higher incomes even though the volatility in their incomes is also high in monthly basis. In earlier studies, the influence of professions is not examined in detail therefore we can only presume the agriculturalists to have higher homeownership rates since in the agricultural areas the owning a house is than

in big cities as building small houses to live in is very common in these districts. We are aware that the classification of professions is not very clear and the borders between these profession is somewhat blurred. However, we only have the chance to use the classification prepared by the Turkish Statistical Institute presented in the censuses.

To find how migration influences the probability of homeownership is one of the main aims of this study therefore the effects of the migration variables are of great importance. As in previous studies, we expect migrating in the last five years to be negatively related to the probability to own. However, since it is explained in the literature that as the duration of stay in the same area increases, the individuals begin to show native characteristics; the variable "Old Migrant" will presumably have a less negative effect than the variable "New Migrant".

The summary statistics for the variables explained above can be seen from Table 4.1.2 for the years 1985, 1990 and 2000.

Table 4.1.2: Summary Statistics for the Variables used in the Empirical Analysis

	1985		1990		2000	
Variables	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Homeowner	0.624	0.484	0.576	0.494	0.588	0.492
Household size	4.15	2.011	4.025	1.932	3.643	1.748
Male	0.916	0.277	0.913	0.282	0.88	0.325
Age Group 20-29	0.166	0.372	0.157	0.364	0.147	0.354
Age Group 30-39	0.31	0.463	0.311	0.463	0.288	0.453
Age Group 40-49	0.22	0.414	0.23	0.421	0.254	0.435
Age Group 50-59	0.178	0.383	0.162	0.368	0.159	0.365
Age Group 60-69	0.08	0.271	0.098	0.297	0.097	0.295
Age Group 70plus	0.046	0.21	0.042	0.2	0.056	0.23
Illiterate	0.175	0.38	0.142	0.349	0.104	0.305
Primary School	0.525	0.499	0.52	0.5	0.458	0.498
Secondary School	0.089	0.284	0.097	0.297	0.118	0.322
High School	0.124	0.33	0.14	0.347	0.188	0.391
University	0.087	0.282	0.101	0.301	0.132	0.339
Single	0.037	0.188	0.035	0.183	0.046	0.21
Married	0.888	0.315	0.889	0.314	0.859	0.348
Divorced	0.012	0.107	0.013	0.113	0.023	0.149
Widow	0.063	0.244	0.063	0.243	0.072	0.258

Table 4.1.2 (continued)

Employed	0.711	0.453	0.714	0.452	0.602	0.489
Paid Worker	0.477	0.499	0.493	0.5	0.444	0.497
Employer	0.028	0.166	0.036	0.185	0.048	0.214
Self-employed	0.205	0.404	0.185	0.388	0.11	0.313
Craft	0.11	0.312	0.109	0.312	0.135	0.342
Manager	0.013	0.115	0.016	0.124	0.017	0.128
Chancellery	0.055	0.228	0.06	0.237	0.057	0.232
Commerce	0.086	0.28	0.089	0.285	0.073	0.26
Services	0.098	0.297	0.097	0.296	0.091	0.287
Agriculturalist	0.057	0.233	0.057	0.232	0.027	0.162
Nonagricultural production	0.411	0.492	0.401	0.49	0.405	0.491
No profession	0.17	0.376	0.171	0.376	0.195	0.396
New Migrant	0.121	0.327	0.129	0.335	0.1	0.3
Old Migrant	0.411	0.492	0.402	0.490	0.484	0.500
Central District	0.796	0.403	0.792	0.406	0.936	0.244
Seashore	0.587	0.492	0.596	0.491	0.619	0.486
Population	13.190	1.859	13.283	1.922	14.112	1.617

4.1.2 Estimation Method

In the tenure choice literature, since the dependent variable is dichotomous most studies use logit regressions while some use ordinary least squares (OLS). Although OLS is mostly used due to its simplicity of calculation and interpretation, there are several problems inherited within this method. Firstly, previous studies have shown that there are some cases in which the predicted probabilities with OLS may fall outside the 0-1 interval. Moreover, heteroscedasticity present in the error term results in inefficient parameter estimates. However as argued by Li (1977), with logit estimation, heteroscedasticity due to a dichotomous dependent variable is avoided as the probability of homeownership is monotonically transformed from a range of (0, 1) to (-∞, ∞). Moreover, as stated by Lim et al. (1980), logit qualifies for the S-shaped true relationship between the probability of homeownership and its determinants.

For the reasons stated above, in this study logit regressions are used which are in the form of:

$$\log\left(\frac{p}{1-p}\right) = \alpha_0 + \alpha_i X_i \tag{4.1.2}$$

In Equation 4.1.2, p is the probability of homeownership and X_i is a vector of the determinant factors explained in the preceding section. Solving for p;

$$p = \frac{1}{1 + e^{-(\alpha_0 + \alpha_i X_i)}} \tag{4.1.3}$$

we obtain the cumulative logistic probability function.

The estimates for the logit model are obtained by the maximum likelihood estimation. According to Amemiya (1985), the likelihood function is globally concave and therefore the maximum likelihood estimates are unique as well as asymptotically normal, consistent and asymptotically efficient.

The probit regressions are also similar to logit when dichotomous dependent variables are in consideration. Although, the choice between the logit and probit models is theoretically indistinguishable, this study utilizes the logit model as it is more commonly used in the literature. However, it should be noted that the same analysis could have been done with probit and the results would not have changed except for the coefficients in absolute terms, since the interpretation will be done comparing the effects of different variables or comparing the effects of the same variables over years.

4.2 Tenure Choice Determinants for Turkish Household Heads

For the analysis in this study, the main focus is to explore the determinants of tenure choice of the household heads in Turkey. Consequently, the main model to analyze is the logit model of homeownership as explained in the previous sections.

To remind the reader once again, the model for the probability of homeownership in this section will question the explanatory power of age of head, household size, educational attainment and the labor market status of the head, migrant status, marital status and the profession of the head and living in central districts on the tenure choice of Turkish household heads living in urban areas. Moreover, the regional differences are controlled by adding province dummies to the model. The results from the estimation are presented in Table 4.2.1.

If we look at the variables separately, we can see that increasing household size has a positive impact on probability of homeownership, though this positive impact has declined from 1990 to 2000. Similar to the findings in tenure choice literature in developing countries, being male or in other words being in a household headed by a male makes the probability of homeownership 0.4 times greater than being a female, holding other variables at their mean levels. However, interestingly this advantage of being a male in terms of likeliness to own decreased significantly in the period between 1985 and 2000 which is similar to the findings for developed countries.

Table 4.2.1: The Results of the Logit Model of Tenure Choice[6]

Dependent Variable: homeowner or not	**1985**	**1990**	**2000**
Household size	0.106	0.127	0.082
	(0.003)**	(0.003)**	(0.003)**
Male	0.156	0.088	0.075
	(0.027)**	(0.024)**	(0.018)**
Seashore	-0.68	1.05	-0.682
	(0.232)**	(0.183)**	(0.123)**
Central District	-0.203	-0.165	-0.148
	(0.026)**	(0.021)**	(0.028)**
New Migrant	-0.875	-1.231	-1.422
	(0.015)**	(0.014)**	(0.015)**
Old Migrant	-0.294	-0.228	-0.195
	(0.012)**	(0.010)**	(0.009)**
Population	0.046	0.044	0.093
	(0.012)**	(0.009)**	(0.016)**
Employed	-0.427	-0.501	-0.393
	(0.016)**	(0.015)**	(0.011)**

[6] Numbers in brackets are standard errors. * indicates significance at %1 level and ** indicates significance at %5 level. Province dummies are omitted due to space considerations.

Table 4.2.1 (continued)

Employer	0.271	0.436	0.455
	(0.028)**	(0.022)**	(0.018)**
Self-employed	0.279	0.354	0.293
	(0.013)**	(0.012)**	(0.013)**
Married	-0.068	-0.177	0.08
	(0.026)**	(0.025)**	(0.021)**
Divorced	-0.505	-0.575	-0.61
	(0.050)**	(0.043)**	(0.031)**
Widow	-0.045	-0.206	-0.007
	(0.038)	(0.034)**	(0.028)
Primary school	-0.063	0.081	0.163
	(0.015)**	(0.014)**	(0.015)**
Secondary school	-0.247	-0.079	0.145
	(0.021)**	(0.019)**	(0.018)**
High school	-0.359	-0.136	0.2
	(0.020)**	(0.018)**	(0.017)**
University	-0.402	-0.165	0.186
	(0.026)**	(0.024)**	(0.022)**
Age group 30-40	0.323	0.453	0.519
	(0.014)**	(0.013)**	(0.012)**
Age group 40-50	1.001	1.086	1.191
	(0.015)**	(0.014)**	(0.013)**
Age group 50-60	1.343	1.57	1.734
	(0.018)**	(0.016)**	(0.015)**
Age group 60-70	1.501	1.746	2.076
	(0.024)**	(0.020)**	(0.019)**
Age group 70plus	1.674	1.761	2.058
	(0.032)**	(0.028)**	(0.023)**
Craft	-0.076	-0.015	-0.041
	(0.028)**	(0.025)	(0.020)*
Manager	-0.148	-0.11	-0.097
	(0.045)**	(0.037)**	(0.032)**
Chancellery	-0.214	-0.104	-0.027
	(0.028)**	(0.025)**	(0.021)
Commerce	-0.035	-0.01	-0.094
	(0.027)	(0.024)	(0.020)**
Services	-0.238	-0.295	-0.376
	(0.025)**	(0.022)**	(0.018)**
Agriculturalist	0.237	0.094	-0.112
	(0.030)**	(0.026)**	(0.027)**
Nonagricultural prod.	-0.11	-0.041	-0.162
	(0.021)**	(0.019)*	(0.014)**
Constant	0.146	-1.934	-1.305
	(0.247)	(0.194)**	(0.193)**

Contrary to expectations and the finding from previous studies, married household heads are more likely to rent compared to single households. This observation is reversed only for 2000, while the heads that have the least probability to own with respect to marital status are divorced heads for all three years that are considered in

the analysis. In almost all previous studies, being married increases the probability of homeownership, therefore from this perspective one can conclude that Turkey has a unique characteristic in terms of the marital status effects. However, this result may be due to the uncontrolled skill and demographic composition of the household heads that are married.

Educational attainment dummies provide us with some interesting results. Since the educational attainment levels of the households can be thought as a proxy for permanent income, this variable is of great importance. Figure 4.2.1 shows the education effects in the period between 1985 and 2000. In 1985, household heads that are graduated from a school in any level have less probability of homeownership compared to illiterates or non graduates. Nevertheless, from 1985 to 1990 this adverse effect of education in all levels has been declined, though the coefficients are still negative. When we look at 2000, we see that the adverse effect of education is totally eliminated and in fact, household heads with any school diploma are more likely to own compared to illiterates and non graduates. More specifically, there isn't a perfect trend as the educational attainment increases for homeownership probability but it is observed that high school graduates have the highest probability to own, followed by university and primary school graduates. Moreover, it can be seen that the gap between the household heads with different educational attainment levels has been eliminated from 1985 to 2000, as in 2000 having a school diploma affects the probability of homeownership positive regardless of the level of the school.

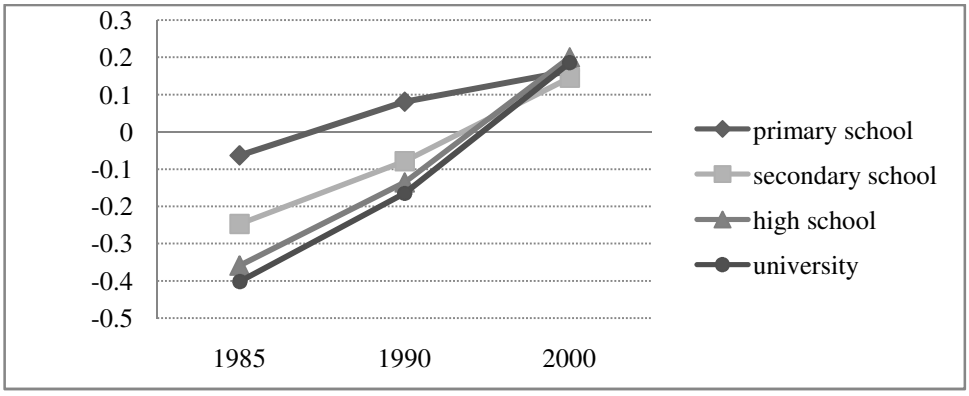

Figure 4.2.1: The Effect of Education on Tenure Choice from 1985 to 2000.

Figure 4.2.2 shows the affect of age on probability of homeownership in 1985, 1990 and 2000. Similar to expectations, age is positively related to the probability of homeownership. Moreover, across years this positive impact has grown considerably. For example, in 1985 for a household head in the age group of 70plus, the odds of owning a house is 5.4 times greater while in 1990 and 2000, this factor has increased to be 5.8 and 7.7, holding all other variables constant. From these numbers it can be seen that age has a drastic impact on tenure choice as older household heads are more likely to own, in fact even more in the most recent years. Nevertheless, the difference between the effect of younger age groups and the older age groups is still the same, after 2000.

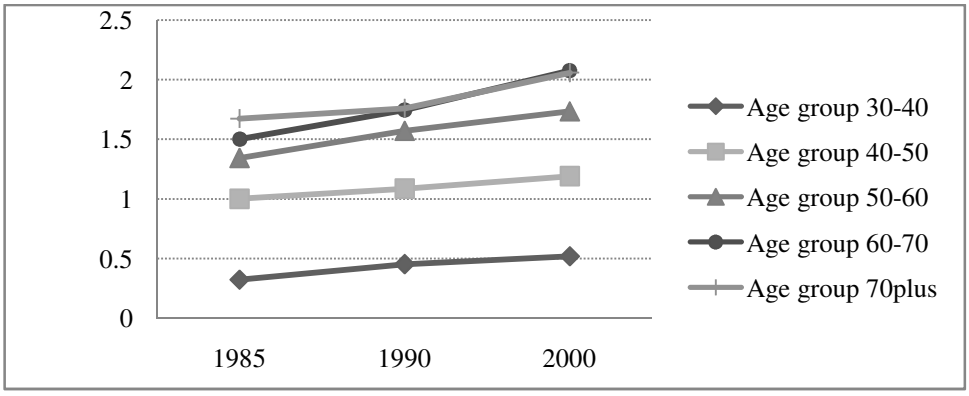

Figure 4.2.2: The Effect of Age on Tenure Choice from 1985 to 2000.

We have included very detail labor market characteristics of the household heads in the model. First of all, whether a head is employed or not is though as a determinants of tenure choice. Yet, the variable may also be thought as a proxy for current income of the head, it is observed from Table 4.1.1 that being employed is negatively related to the probability of homeownership. Although there is a small decline in this adverse effect from 1985 to 2000, still the odds of being a homeowner is decreased by a factor of 44 % for employed household heads even in 2000. This adverse effect of employment may be a result of temporary jobs. Canada Statistics Institute also report on a similar result for the effect of employment on tenure choice, though only for the young households[7]. However if we think that most employed people are of the 40-50 age group or lower, Turkey has a similar characteristic to that of Canada. According to the report, temporary jobs are described as an obstacle to homeownership since the individuals that are employed with these jobs are expected to have wide fluctuations in their income levels from one year to another. Other than this, there isn't much information in the literature so further research may be needed to find an answer to this puzzle. However, as far as this study is concerned, we can say that being employed may not be a good proxy for income or wealth for Turkish household heads.

[7] Retrieved from http://www.statcan.gc.ca/pub/11-008-x/2007005/10314-eng.htm#4.

If we examine the employed people in more detail, if a household head is acting in the labor market as an employer or self-employed, the probability of homeownership is higher, compared to that of paid workers. Despite having job security and less fluctuation in the income levels due to the wage bargaining process, paid workers in Turkey are generally members of middle-income or low-income classes. Therefore the results for self-employed and employer household heads just visualize this picture as a solid fact based on the empirical analysis.

The different profession dummies do not present a lot of information. What can be seen from the table is that only agriculturalists and fishermen have a higher probability of homeownership compared to heads with no profession, though valid for only 1985 and 1990. On the other hand, household heads that are working in the service sector are in the worst situation in terms of odds of owning versus renting for all years considered. Nevertheless, we think that the results for the profession groups may be due to the uncontrolled characteristics of specific to each group, affecting their tenure choice decision significantly. Still, it is observed that except for agriculturalists, service sector workers and agents of non agricultural production, this "adverse" effect of having a profession is being reduced from 1985 to 2000 compared to the heads with no professions.

Household heads living in central districts are found to have less likelihood to own than those who are not. More specifically, living in central districts decreases the probability to own a house by a factor of 0.02 in 1985 and this rate decreases only by a slight amount if we look at 2000. The reason for this may be due to the high population of central districts and thus higher prices of houses as a result of the high demand. If we had a chance to look at the 2007 census, most probably we would have seen a decline in this negative effect since recently people living in central districts buy houses from the suburbs to avoid the noise and air pollution of the center, especially in the major cities of Turkey.

In order to control for the differences in the local housing markets of the provinces, we have included a dummy indicating whether the province has a shore to the sea and the logarithm of the population of the districts. If we look at the coefficients of

the “Seashore” variable, we can see that in 1985 and 2000, the effect of living in a province at the sea level is negatively related to the probability to own and the effects are nearly the same for the two years. However, there is a jump in this effect for 1990, so that the coefficient becomes positive. This may reflect an uncontrolled change in the common characteristics of these cities. On the contrary, when we look at the “Population” variable, we observe that being in a more populated district increases the probability to own, and this effect also increases over time.

One of the most essential information, considering the aims of this study, comes from the migration variables, which capture the unfavorable impacts of internal migration. The “New Migrant” variable specifies the household heads that have migrated from one part of Turkey to another one in the last five years before the census was surveyed, whereas the “Old Migrant” variable specifies the household heads that are not living where they were born and that have not migrated in the last five years. From the results, it can be calculated that being a new migrant decreases the odds of homeownership by 47 % in 1985, 64 % in 1990 and 72 % in 2000 while being an old migrant lowers the odds of homeownership by 34 % in 1985, 27 % in 1990 and 26 % in 2000, holding all other variables constant. From these percentages, one can understand that the length of duration in a certain province is undoubtedly positively related to the probability of homeownership. Since the old migrants have higher homeownership rates than new migrants as shown in the third chapter, the adverse effect is lower for this variable. The effect of length of duration can also be seen from the decrease in the negative effect of heads that are not living at their birth places across years. As from 1985 to 2000, their length of duration increase, so that the probability of homeownership is less affected form their migrant status.

In order to analyze the effect of migration in more detail, another specification of this model is also estimated. The results are presented in Table 4.1.2. The difference of this model from the first one is the addition of the “New Migrant” variable interacted with NUTS Level-1 regions. Explicitly, we have the migration variable interacted with the NUTS region the head was living before migration so as to see which regions’ migrants are most disadvantageous.

Compared to the first specification, the variables' effects have not changed much, according to the results presented in Table 4.2.2. As for migration, in 1985 households that are migrated from Western, Southeastern and Mideastern Anatolia in the last five years before the census have the lowest probabilities of homeownership among other migrants, respectively. More specifically, being migrated from Western Anatolia decreases the odds of being a homeowner by 67 %, migration from Southeastern Anatolia decreases the odds by 65 % and migration from Mideastern Anatolia decreases the odds by 64 % in 1985, holding all other variables constant.

Table 4.2.2: The Results of the Alternative Tenure Choice Model[8]

Dependent Variable: homeowner or not	1985	1990	2000
Household size	0.108	0.129	0.086
	(0.003)**	(0.003)**	(0.003)**
Male	0.152	0.08	0.066
	(0.027)**	(0.024)**	(0.018)**
Central District	-0.204	-0.17	-0.149
	(0.026)**	(0.021)**	(0.028)**
Seashore	-0.149	1.052	-0.704
	(0.159)	(0.183)**	(0.124)**
Migrated from NUTS-1=1	-1.168	-1.204	-1.375
	(0.051)**	(0.045)**	(0.045)**
Migrated from NUTS-1=2	-1.118	-1.123	-1.62
	(0.060)**	(0.056)**	(0.065)**
Migrated from NUTS-1=3	-1.246	-1.358	-1.637
	(0.047)**	(0.045)**	(0.044)**
Migrated from NUTS-1=4	-1.039	-2.009	-1.742
	(0.051)**	(0.045)**	(0.047)**
Migrated from NUTS-1=5	-1.37	-1.541	-1.564
	(0.047)**	(0.046)**	(0.047)**
Migrated from NUTS-1=6	-1.19	-1.471	-1.633
	(0.051)**	(0.047)**	(0.044)**
Migrated from NUTS-1=7	-1.17	-1.482	-1.534
	(0.055)**	(0.045)**	(0.050)**

[8] Numbers in brackets are standard errors. * indicates significance at %1 level and ** indicates significance at %5 level. Province dummies are omitted due to space considerations.

Table 4.2.2 (continued)

Migrated from NUTS-1=8	-1.103	-1.396	-1.509
	(0.048)**	(0.041)**	(0.043)**
Migrated from NUTS-1=9	-1.114	-1.351	-1.501
	(0.062)**	(0.051)**	(0.061)**
Migrated from NUTS-1=10	0.078	-1.29	-1.39
	(0.032)*	(0.045)**	(0.059)**
Migrated from NUTS-1=11	-1.3	-1.422	-1.482
	(0.061)**	(0.052)**	(0.055)**
Migrated from NUTS-1=12	-1.341	-0.619	-1.532
	(0.054)**	(0.034)**	(0.047)**
Old Migrant	-0.291	-0.235	-0.2
	(0.012)**	(0.010)**	(0.009)**
Population	0.046	0.047	0.095
	(0.012)**	(0.009)**	(0.016)**
Employed	-0.408	-0.493	-0.392
	(0.017)**	(0.015)**	(0.011)**
Employer	0.269	0.43	0.452
	(0.028)**	(0.023)**	(0.018)**
Self-employed	0.273	0.351	0.293
	(0.014)**	(0.012)**	(0.013)**
Married	-0.093	-0.188	0.067
	(0.027)**	(0.025)**	(0.021)**
Divorced	-0.528	-0.589	-0.634
	(0.050)**	(0.043)**	(0.032)**
Widow	-0.059	-0.216	-0.01
	(0.038)	(0.034)**	(0.028)
Primary school	-0.072	0.078	0.161
	(0.015)**	(0.014)**	(0.015)**
Secondary school	-0.245	-0.067	0.15
	(0.021)**	(0.019)**	(0.018)**
High school	-0.34	-0.113	0.215
	(0.020)**	(0.018)**	(0.017)**
University	-0.36	-0.137	0.21
	(0.027)**	(0.024)**	(0.022)**
Age group 30-40	0.301	0.442	0.51
	(0.014)**	(0.013)**	(0.012)**
Age group 40-50	0.959	1.073	1.184
	(0.015)**	(0.014)**	(0.013)**
Age group 50-60	1.321	1.561	1.721
	(0.018)**	(0.016)**	(0.015)**
Age group 60-70	1.497	1.747	2.049
	(0.024)**	(0.020)**	(0.019)**
Age group 70plus	1.67	1.765	2.053
	(0.032)**	(0.028)**	(0.023)**
Craft	-0.09	-0.025	-0.048
	(0.028)**	(0.025)	(0.020)*
Manager	-0.15	-0.115	-0.092
	(0.045)**	(0.038)**	(0.032)**
Chancellery	-0.219	-0.11	-0.026
	(0.029)**	(0.025)**	(0.021)
Commerce	-0.041	-0.014	-0.093
	(0.027)	(0.024)	(0.020)**

Table 4.2.2 (continued)

Services	-0.233	-0.29	-0.373
	(0.025)**	(0.022)**	(0.018)**
Agriculturalist	0.226	0.093	-0.106
	(0.031)**	(0.026)**	(0.027)**
Nonagricultural production	-0.132	-0.048	-0.164
	(0.021)**	(0.019)**	(0.014)**
Constant	-0.356	-1.944	-1.299
	(0.183)	(0.195)**	(0.194)**

In 1990, the odds are decreased the most by being migrated from Eastern Marmara, Western Anatolia and Mediterranean regions. This finding is actually unexpected since Mediterranean region is one of the regions that have relatively higher income and education levels relative to other parts of Turkey. However, since the source regions of the migrants those have comparably less homeownership probabilities change every year, these effects may be due to same significant changes occurring in those years. Moreover, the changing composition of the household heads that have migrated in the last five years before each census as shown in Chapter 3 may also cause this effect. Finally when we look at the results for 2000, we observe that similar to the previous model, migrants' probabilities have worsened as a whole. The odds of being an owner decreases the most for the migrants from Eastern Marmara by 79 %, later for migrants from Mediterranean by 77 % and thirdly by 76 % for migrants from Aegean region, holding all other variables constant.

In conclusion, the most important findings of this section are as follows:

- The effect of education on probability of homeownership increases over time form negative to positive values and the gap between the less educated and the more educated household heads is closed in 2000.
- Older household heads have greater probability to own, while the impact of age increases over time.

- Contrary to expectations, employment has a negative effect on probability of homeownership.
- Migrants have less probability of homeownership, yet the length of stay definitely matters as the old migrants are in a less adverse position compared to new migrants. Moreover, while the unpleasant effect of being an old migrant declines over time, being a new migrant more adversely affect the probability of homeownership in 2000 compared to 1985.

Similar studies in the literature find that household size, permanent income, education and mobility to be the important determinants of tenure choice for developing countries. (Daniere, 1992; Lim et al., 1980) From this perspective, our model for Turkey generates results common to other developing countries. Moreover, Morais and Cruz (2007) find that recent migrants have a lower probability of homeownership in Brazil, though the effect is eliminated through time. From the above results, we see that the situation is the same for the recent migrants in Turkey. Although this adverse effect is not totally eliminated through time, from the effects of being an old migrant, we see that it considerably declines.

It might be the case that these trends on the effects of certain variables on tenure choice for the whole country may be dominated by some populated districts. In order to analyze this relation, next section will examine the tenure choice model for districts that belong to different population groups, separately.

4.3 The Effects of District Populations on Tenure Choice

For the second analysis, we will examine how the effects of demographic, labor market and migration characteristics change according to the populations of the places of residence. In order to do this, we list each districts real population in 1985 and take the districts with a population higher than 50,000 individuals. Then, we group these districts as those with populations higher than 5,000,000, between 1,000,000 and 5,000,000, between 100,000 and 1,000,000 and lastly between 50,000 and 100,000. This classification has been chosen after several trials and thus, this is

the one with the highest explanatory power. The descriptive statistics for the key variables used in this analysis are presented in Appendix 2. After choosing the classification, we estimate the main tenure choice model we have specified previously by using each of these districts as different samples. Tables 4.3.1, 4.3.2 and 4.3.3 present the estimation results while the list of populations for the districts can be found in Appendix 3 and the name of each district code can be found in Appendix 4.

Table 4.3.1: Estimation Results for Districts Grouped with respect to their Populations for the year 1985[9]

Dependent Variable: homeowner or not	**>5000000**	**>1000000 <5000000**	**>100000 <1000000**	**>50000 <100000**
Household size	0.093	0.12	0.112	0.103
	(0.006)**	(0.007)**	(0.005)**	(0.006)**
Male	0.139	0.112	0.178	0.173
	(0.049)**	(0.061)	(0.051)**	(0.059)**
Seashore		0.023	0.962	0.042
		(0.024)	(0.236)**	(0.138)
Central District			-0.189	-0.042
			(0.068)**	(0.069)
New Migrant	-0.68	-0.692	-0.931	-0.816
	(0.034)**	(0.036)**	(0.026)**	(0.031)**
Old Migrant	-0.137	-0.118	-0.328	-0.312
	(0.025)**	(0.025)**	(0.020)**	(0.025)**
Population		0.018	-0.477	0.089
		(0.025)	(0.111)**	(0.026)**
Employed	-0.44	-0.419	-0.385	-0.409
	(0.033)**	(0.039)**	(0.029)**	(0.035)**
Employer	0.157	0.08	0.365	0.328
	(0.044)**	(0.066)	(0.057)**	(0.067)**
Self-employed	0.077	0.186	0.306	0.357
	(0.025)**	(0.034)**	(0.024)**	(0.030)**
Married	0.071	0.159	-0.132	-0.01
	-0.047	(0.055)**	(0.052)*	(0.053)
Divorced	-0.377	-0.374	-0.634	-0.409
	(0.081)**	(0.100)**	(0.106)**	(0.108)**
Widow	0.005	0.145	-0.085	0.03
	(0.067)	(0.082)	(0.073)	(0.079)
Primary school	0.039	0.085	-0.071	-0.101
	(0.030)	(0.041)*	(0.026)**	(0.035)**

[9] Numbers in brackets are standard errors. * indicates significance at %1 level and ** indicates significance at %5 level. Province dummies are omitted due to space considerations.

Table 4.3.1 (continued)

Secondary school	-0.085	-0.123	-0.247	-0.321
	(0.039)*	(0.052)*	(0.037)**	(0.047)**
High school	-0.135	-0.256	-0.372	-0.453
	(0.039)**	(0.049)**	(0.036)**	(0.045)**
University	0.052	-0.267	-0.587	-0.537
	(0.050)	(0.059)**	(0.050)**	(0.056)**
Age group 30-40	0.303	0.381	0.296	0.369
	(0.027)**	(0.032)**	(0.024)**	(0.029)**
Age group 40-50	0.971	1.055	0.947	1.081
	(0.030)**	(0.036)**	(0.027)**	(0.032)**
Age group 50-60	1.239	1.371	1.305	1.414
	(0.033)**	(0.041)**	(0.032)**	(0.037)**
Age group 60-70	1.368	1.561	1.417	1.654
	(0.045)**	(0.057)**	(0.045)**	(0.053)**
Age group 70plus	1.46	1.666	1.684	1.811
	(0.057)**	(0.077)**	(0.061)**	(0.072)**
Craft	-0.094	-0.051	-0.039	-0.1
	(0.053)	(0.062)	(0.051)	(0.058)
Manager	-0.122	-0.018	-0.238	-0.045
	(0.078)	(0.099)	(0.088)**	(0.095)
Chancellery	-0.214	-0.066	-0.274	-0.175
	(0.056)**	(0.062)	(0.052)**	(0.058)**
Commerce	-0.141	0.003	-0.007	-0.007
	(0.049)**	(0.065)	(0.049)	(0.060)
Services	-0.204	-0.082	-0.316	-0.182
	(0.048)**	(0.057)	(0.045)**	(0.053)**
Agriculturalist	-0.127	0.147	0.087	0.255
	(0.075)	(0.086)	(0.052)	(0.064)**
Nonagricultural production	-0.208	-0.074	-0.066	-0.119
	(0.040)**	(0.049)	(0.038)	(0.045)**
Constant	-0.206	-0.696	5.837	-1.533
	(0.070)**	(0.373)	(1.258)**	(0.318)**

Table 4.3.2: Estimation Results for Districts Grouped with respect to their Populations for the year 1990[10]

Dependent Variable: homeowner or not	**>5000000**	**>1000000 <5000000**	**>100000 <1000000**	**>50000 <100000**
Household size	0.11	0.129	0.14	0.118
	(0.005)**	(0.007)**	(0.005)**	(0.006)**
Male	-0.014	0.008	0.21	0.133
	(0.042)	(0.056)	(0.046)**	(0.053)*
Seashore		-0.005	0.08	-0.968
		(0.020)	(0.280)	(0.127)**
Central District			0.479	-0.142
			(0.217)*	(0.061)*

[10] Numbers in brackets are standard errors. * indicates significance at %1 level and ** indicates significance at %5 level. Province dummies are omitted due to space considerations.

Table 4.3.2 (continued)

New Migrant	-1.133	-1.037	-1.263	-1.182
	(0.030)**	(0.034)**	(0.026)**	(0.031)**
Old Migrant	-0.102	-0.078	-0.233	-0.251
	(0.022)**	(0.023)**	(0.018)**	(0.022)**
Population			-0.971	0.183
			(0.233)**	(0.029)**
Employed	-0.585	-0.528	-0.448	-0.488
	(0.030)**	(0.036)**	(0.026)**	(0.032)**
Employer	0.395	0.326	0.408	0.548
	(0.034)**	(0.055)**	(0.047)**	(0.055)**
Self-employed	0.284	0.278	0.317	0.426
	(0.024)**	(0.032)**	(0.023)**	(0.027)**
Married	0.02	0.005	-0.305	-0.208
	(0.041)	(0.057)	(0.049)**	(0.056)**
Divorced	-0.392	-0.543	-0.749	-0.67
	(0.069)**	(0.092)**	(0.091)**	(0.096)**
Widow	-0.094	-0.171	-0.232	-0.252
	(0.059)	(0.077)*	(0.067)**	(0.074)**
Primary school	0.191	0.27	0.084	0.088
	(0.030)**	(0.040)**	(0.025)**	(0.033)**
Secondary school	0.115	0.078	-0.056	-0.167
	(0.037)**	(0.049)	(0.034)	(0.042)**
High school	0.106	-0.046	-0.147	-0.243
	(0.037)**	(0.047)	(0.033)**	(0.041)**
University	0.229	-0.107	-0.283	-0.316
	(0.046)**	(0.055)	(0.045)**	(0.051)**
Age group 30-40	0.413	0.464	0.505	0.475
	(0.025)**	(0.031)**	(0.023)**	(0.028)**
Age group 40-50	0.969	1.142	1.119	1.183
	(0.027)**	(0.034)**	(0.025)**	(0.030)**
Age group 50-60	1.375	1.587	1.631	1.665
	(0.031)**	(0.039)**	(0.030)**	(0.035)**
Age group 60-70	1.522	1.795	1.759	1.929
	(0.039)**	(0.049)**	(0.038)**	(0.045)**
Age group 70plus	1.55	1.799	1.757	1.946
	(0.052)**	(0.068)**	(0.054)**	(0.062)**
Craft	0.049	0.002	-0.06	0
	(0.048)	(0.056)	(0.047)	(0.053)
Manager	0.066	-0.13	-0.238	-0.165
	(0.063)	(0.085)	(0.076)**	(0.082)*
Chancellery	0.04	0.012	-0.235	-0.059
	(0.048)	(0.056)	(0.047)**	(0.053)
Commerce	0.036	-0.17	-0.036	-0.052
	(0.044)	(0.058)**	(0.044)	(0.054)
Services	-0.209	-0.303	-0.372	-0.317
	(0.043)**	(0.052)**	(0.041)**	(0.048)**
Agriculturalist	-0.193	-0.127	0.021	0.011
	(0.066)**	(0.076)	(0.046)	(0.055)
Nonagricultural production	-0.01	-0.091	-0.088	-0.061
	(0.036)	(0.045)*	(0.034)*	(0.042)
Constant	-0.511	-0.602	12.426	-1.769
	(0.062)**	(0.081)**	(2.731)**	(0.351)**

Table 4.3.3: Estimation Results for Districts Grouped with respect to their Populations for the year 2000[11]

Dependent Variable: homeowner or not	>5000000	>1000000 <5000000	>100000 <1000000	>50000 <100000
Household size	0.053	0.071	0.104	0.085
	(0.005)**	(0.007)**	(0.004)**	(0.006)**
Male	0.021	0.078	0.113	0.063
	(0.030)	(0.039)*	(0.031)**	(0.038)
Seashore		0.03	1.004	0.344
		(0.017)	(0.421)*	(0.123)**
Central District			0.532	-0.16
			(0.229)*	(0.049)**
New Migrant	-1.527	-1.197	-1.397	-1.368
	(0.029)**	(0.033)**	(0.024)**	(0.029)**
Old Migrant	-0.175	-0.089	-0.236	-0.248
	(0.018)**	(0.019)**	(0.015)**	(0.018)**
Population			-0.677	0.107
			(0.233)**	(0.022)**
Employed	-0.353	-0.461	-0.372	-0.467
	(0.019)**	(0.025)**	(0.018)**	(0.023)**
Employer	0.421	0.442	0.463	0.524
	(0.028)**	(0.040)**	(0.033)**	(0.039)**
Self-employed	0.212	0.237	0.326	0.374
	(0.023)**	(0.030)**	(0.021)**	(0.025)**
Married	0.14	0.159	0.031	0.097
	(0.033)**	(0.045)**	(0.039)	(0.045)*
Divorced	-0.526	-0.606	-0.695	-0.578
	(0.050)**	(0.062)**	(0.062)**	(0.067)**
Widow	-0.003	0.092	-0.006	0.048
	(0.046)	(0.059)	(0.050)	(0.058)
Primary school	0.223	0.289	0.093	0.215
	(0.028)**	(0.037)**	(0.023)**	(0.032)**
Secondary school	0.212	0.31	0.072	0.184
	(0.033)**	(0.043)**	(0.029)*	(0.038)**
High school	0.254	0.451	0.091	0.277
	(0.032)**	(0.042)**	(0.028)**	(0.037)**
University	0.269	0.404	0.072	0.167
	(0.040)**	(0.048)**	(0.037)	(0.044)**
Age group 30-40	0.404	0.598	0.56	0.614
	(0.021)**	(0.029)**	(0.020)**	(0.025)**
Age group 40-50	1.002	1.282	1.288	1.291
	(0.022)**	(0.030)**	(0.021)**	(0.026)**
Age group 50-60	1.492	1.838	1.85	1.888
	(0.026)**	(0.035)**	(0.025)**	(0.031)**
Age group 60-70	1.847	2.153	2.182	2.247
	(0.034)**	(0.043)**	(0.032)**	(0.039)**
Age group 70plus	1.828	2.17	2.121	2.26
	(0.041)**	(0.052)**	(0.040)**	(0.048)**
Craft	-0.065	-0.05	-0.044	0.053
	(0.037)	(0.043)	(0.035)	(0.040)
Manager	0.072	-0.136	-0.154	-0.174
	(0.058)	(0.065)*	(0.056)**	(0.059)**

[11] Numbers in brackets are standard errors. * indicates significance at %1 level and ** indicates significance at %5 level. Province dummies are omitted due to space considerations.

Table 4.3.3 (continued)

Chancellery	0.059	-0.008	-0.107	-0.002
	(0.038)	(0.044)	(0.036)**	(0.041)
Commerce	-0.026	-0.183	-0.085	-0.139
	(0.034)	(0.046)**	(0.034)*	(0.042)**
Services	-0.354	-0.32	-0.397	-0.356
	(0.033)**	(0.041)**	(0.031)**	(0.037)**
Agriculturalist	-0.303	-0.232	-0.14	-0.002
	(0.063)**	(0.072)**	(0.041)**	(0.050)
Nonagricultural production	-0.131	-0.18	-0.172	-0.143
	(0.026)**	(0.033)**	(0.024)**	(0.030)**
Constant	-0.511	-1.018	7.283	-2.113
	(0.048)**	(0.064)**	(2.469)**	(0.249)**

To start with, if we look at the effect of household size on tenure choice, the impact is positive for all districts and this effect increase as populations of the districts decline. Therefore, it can be said that household size is a more important factor that determines probabilities of homeownership in less populated areas. Moreover, it can be observed that the effect of household size is less effective on homeownership in 2000 compared to 1985 in more populated areas. As discussed in Chapter 3, the new migrants have are of smaller households and as they migrate to populated districts, the household size effect has declined from 1985 to 2000. We have also discussed this decrease in the effect of household size on probability of homeownership in the last section.

Similarly, the effect of being a male on tenure choice is higher in less populated areas though the effect declines a bit in 1990 and 2000 for the least populated group. Interestingly, the impact of the household head being a male even decreases the probability of homeownership for the populated districts in 1990.

If we continue with more important demographic characteristics of the household heads, we can observe from the tables that the effect of age and educational attainment levels change significantly from more populated to less populated districts. Although there exists some immaterial declines as population drops, the effect of age groups increase drastically when the most populated and the least

populated districts are compared. Moreover, this increase in the importance of age groups as districts get less crowded is a result for all the three years. Specifically, in 2000 being a household head of age above 60 increases the odds of homeownership by a factor of 6.16 for the central district of Istanbul, while the odds are increased by a factor of 9.31 for the group with the least populated districts, holding all other variables constant. Therefore, it can be concluded that in the smaller districts, age becomes an even more crucial factor for the homeownership behavior of the household heads. To see the age effects more clearly, the impact of each age group on probability of homeownership compared to the 20-30 age group for districts with different populations is displayed in Figure 4.3.1, 4.3.2 and 4.3.3 for all years.

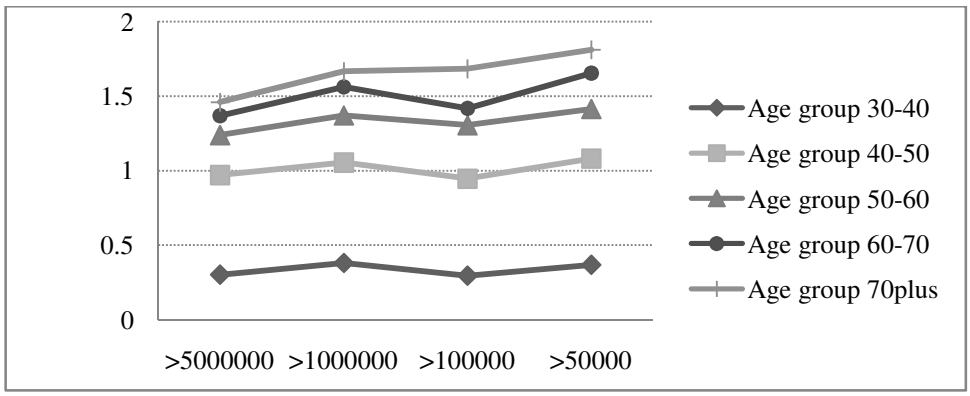

Figure 4.3.1: Impact of Age for Different Population Groups in 1985

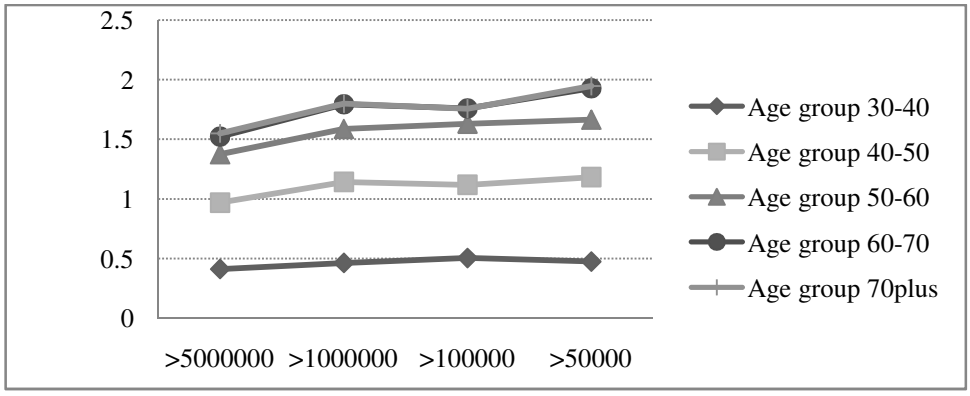

Figure 4.3.2: Impact of Age for Different Population Groups in 1990

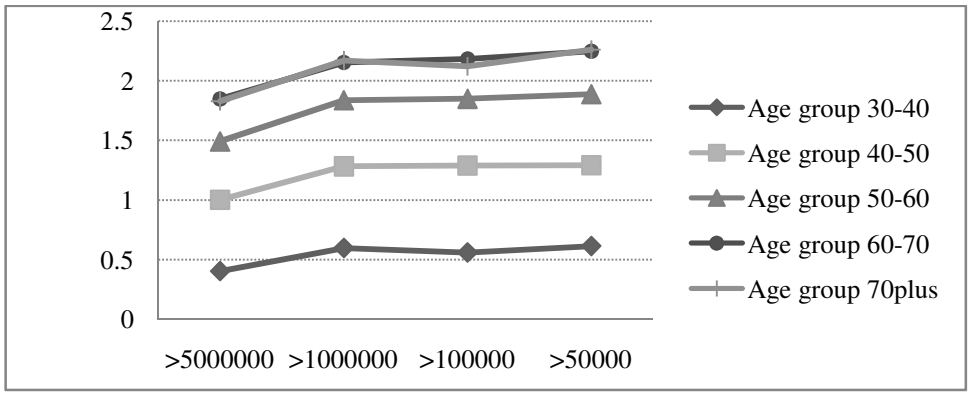

Figure 4.3.3: Impact of Age for Different Population Groups in 2000

In Section 4.2 we have found out that from 1985 to 2000, the effect of each age group on homeownership probability increases over time compared to being in the 20-30 age group. Therefore, we can say that as the migrants from less populated areas move to more populated districts, the age gains importance in determining the probability of homeownership. Moreover, since the new migrants are of 20-30 age group, the impact of all other age groups' on homeownership increase in the larger districts placing the new migrants in a more disadvantageous position regarding homeownership.

On the opposite, the impact of education decreases even more in smaller districts. In 1985, even the effect of being a primary school graduate is negative for the least populated districts. However, starting with 1990 this situation changes and the effect of education on probability of homeownership improves for all population groups. More importantly, while in 1985 for the districts with populations between 100,000 and 50,000 the household heads with the highest probabilities were illiterates; in 2000 the household heads with the highest probabilities happen to be the high school graduates. Another striking result from these tables comes from the third population group, i.e. the districts with population between 1,000,000 and 100,000. In 2000, this group has the lowest coefficients for all education groups meaning that being educated is less advantageous for the household heads living in these districts compared to other groups. The effect of education groups compared to illiterates are displayed in Figure 4.3.4, 4.3.5 and 4.3.6 for the years 1985, 1990 and 2000, respectively.

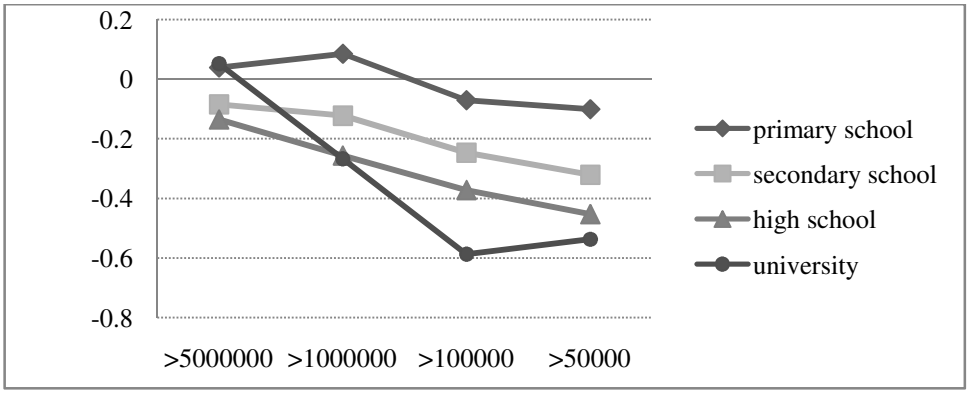

Figure 4.3.4: The Effects of Different Education Groups on Homeownership in 1985

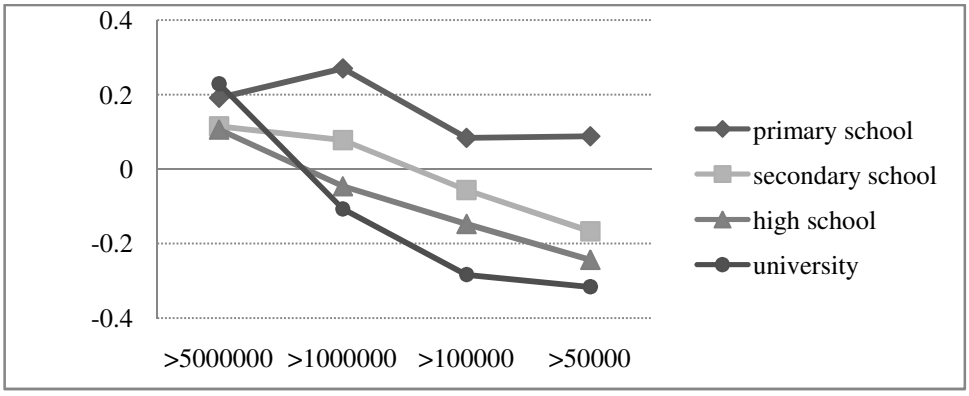

Figure 4.3.5: The Effects of Different Education Groups on Homeownership in 1990

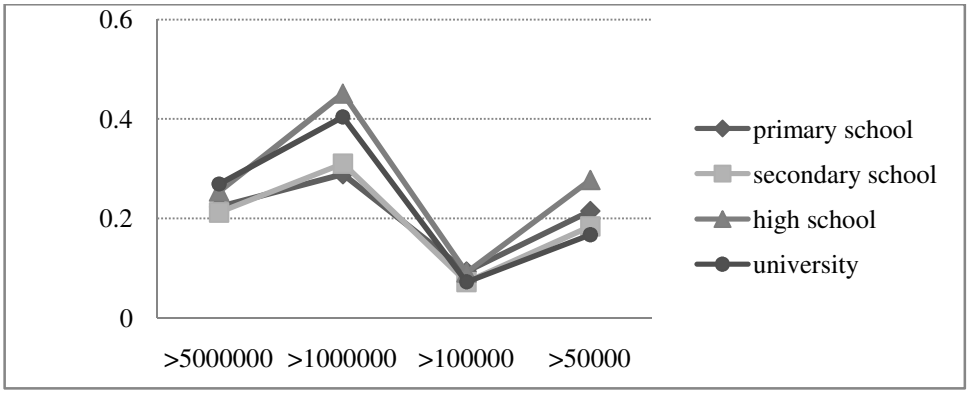

Figure 4.3.6: The Effects of Different Education Groups on Homeownership in 2000

From the previous section, we also know that the effect of all education groups on probability of homeownership compared to being illiterate increase over time. Based on the above findings, the increasing trend in education for the country as a whole can be interpreted also as the effect of internal migration. As the population moves to more populated districts, education plays a key for the household heads that want to buy a housing unit. Since the new migrants are more educated than the average of the native population, it can be said that the effect of education acts in the favor of those new migrants.

For labor market characteristics, the most important information comes from the variable “Employed”. Previously, we have found for the whole country that being an employed household head is negatively related to the probability of homeownership. This result is confirmed for all districts with different populations from the above tables. However, the interesting result is that in 1985 and 1990, this negative effects decline for the smaller districts. Since employed household heads in less populated districts are less likely to be temporarily employed, this results may be interpreted as the impact of temporary employment. For 2000, this effect increases when the most populated and the least populated districts are compared, and this time the first and the third group behave more similarly while the second and the least populated group behave more similarly regarding the importance of employment.

Though the professions of the household heads do not have significant effects on homeownership for all years, whether the head is a paid worker or self-employed gives us some valuable insight. For all three years, it can be observed that being a self-employed household head becomes more important for homeownership for the less populated areas. In fact, there is a perfect trend without volatility in this relation between being self-employed and homeownership probabilities. Similarly, for employers when the central district of Istanbul and districts with population between 100,000 and 50,000 are compared, it can be seen that being an employer in the least populated districts is positively related to the probability of homeownership even more. However, for 1985 and 1990 the second population group becomes an exception since the effect of being an employer is the lowest for the heads living in these districts. Nevertheless, when we consider 2000, there is again a perfect trend in the relation between population and the effect of being an employer on probability of homeownership.

Finally, for migration characteristics we analyze the effects of being a new and an old migrant on probability of homeownership, separately. As for the variable “New Migrant”, there is no perfect trend between the populations and the effect of migration. Yet, we observe that while in 1985 and 1990 the new migrants are more adversely affected regarding homeownership in less populated districts, in 2000 this

situation changes and being a new migrant in the central districts of Istanbul more adversely affects homeownership than being a new migrant in less populated districts. Furthermore, it should be noticed that the adverse effect of migration on probability of homeownership increases significantly from 1985 to 2000 and this increase is valid for all districts regardless of the population group they belong to.

When we look at the coefficients of the "Old Migrant" variable, it is observed that being born in another district is more negatively related to the homeownership probabilities when the population drops. Although the effect of being an old migrant shows a similarity between the districts of the first and second population group, there is a drastic jump in the size of the effect when population drops below 1,000,000. For instance, in 2000, while the odds of being a homeowner decreases by 22 % for the household heads that are old migrants for the districts of the second population group, the rate becomes 38% for the districts of the third population group. Since there also exists a similarity between the third and the fourth population groups, it can be said that population size of 1,000,000 is the borderline for the effect of being an old migrant, for all three years.

To sum up, we observe that

- For less populated areas, age is more positively related to homeownership,
- Education which is also thought to be a signal of permanent income becomes more important for more populated districts,
- The adverse effect of being employed declines as population decreases,
- Being an old migrant is more negatively related to the probability of homeownership in districts with less population.

The findings of this section are of great importance, since in the literature no known research has been done to analyze the differing effects of household head characteristic conditioned on population. Without considering the population differences, Li (1977) compared the differences in the tenure choice decisions in Baltimore and Boston. His results show that while age and income are important determinants for homeownership in the more populated city, Boston, age and race

are the crucial factors for tenure choice in Baltimore. From this perspective, our findings match with the literature since we also find that age is important regardless of population, though more important in less populated districts and permanent income proxied by education is more important for more populated districts.

Although, the results we find in this section may be unique to Turkey, if developing countries that have regional differences in the sense of development, and internal migration were to be analyzed, the results might be similar.

In the previous analyses, we have found that being a migrant negatively affects homeownership. However, the source and the receiver regions of these migrants may also have an impact on these probabilities. To examine this subject in detail, next section presents an analysis considering the effects of migration on tenure choice.

4.4 Migration and Tenure Choice

4.4.1 Differing Effects of Source and Receiver Regions

Since the regions that the household heads migrated to as well as the regions they are migrated from are important, we estimate two different specifications to see the effects of different source and receiver regions. For this reason, firstly the basic model is estimated for the years 1985, 1990 and 2000; however, this time the interacted dummy variables are created for old migrants rather than the new migrants. The reason behind this attempt is to be able to track the same heads across years, as if a head is classified as an old migrant in 1985, he/she will be an old migrant in 1990 and 2000, as well. Undoubtedly, more household heads will be in the old migrant group as time passes, but most of the heads we are analyzing will be the same.

The samples are restricted to the heads living in the West, East, Central, South and North districts at the time of the census, respectively to see whether there is a region

effect on the negative impact of being a migrant on homeownership. The classification of these districts is made as follows: the districts of the first, second, third and fourth NUTS Level-1 regions are grouped as West, the fifth and sixth regions are grouped as Central, Mediterranean region is taken as South, the eighth and ninth regions are grouped as North and finally, Northeastern, Mideastern and Southeastern Anatolian regions are grouped as East. These estimation results for all years are given in Tables 4.4.1, 4.4.2, 4.4.3 for years 1985, 1990 and 2000, respectively.

Table 4.4.1: The Source Region Effect of Migration on Tenure Choice in 1985[12]

From/ To	West	Central	South	North	East
West	-0.182	-0.375	-0.604	-1.022	-1.135
	(0.020)**	(0.045)**	(0.145)**	(0.142)**	(0.231)**
Central	-0.475	-0.476	-1.23	-1.238	-0.746
	(0.033)**	(0.043)**	(0.172)**	(0.204)**	(0.125)**
South	-0.2	-0.25	-0.363	-0.459	-0.753
	(0.032)**	(0.036)**	(0.082)**	(0.148)**	(0.233)**
North	-0.164	-0.26	-0.354	-0.368	-0.47
	(0.022)**	(0.037)**	(0.133)**	(0.054)**	(0.148)**
East	-0.395	-0.468	-0.481	-0.71	-0.362
	(0.024)**	(0.034)**	(0.126)**	(0.134)**	(0.051)**

Table 4.4.2: The Source Region Effect of Migration on Tenure Choice in 1990

From/ To	West	Central	South	North	East
West	-0.246	-0.342	-1.187	-0.883	-0.839
	(0.019)**	(0.043)**	(0.217)**	(0.143)**	(0.206)**
Central	-0.363	-0.345	-0.722	-1.032	-0.607
	(0.029)**	(0.037)**	(0.128)**	(0.191)**	(0.113)**
South	-0.141	-0.162	-0.275	-0.384	-0.886
	(0.028)**	(0.031)**	(0.069)**	(0.129)**	(0.206)**

[12] Numbers in brackets are standard errors. * indicates significance at %1 level and ** indicates significance at %5 level. In the model all the demographic, migration, labor market and province controls are used.

Table 4.4.2 (continued)

North	-0.127	-0.207	-0.488	-0.246	-0.858
	(0.019)**	(0.034)**	(0.127)**	(0.049)**	(0.154)**
East	-0.254	-0.318	-0.331	-0.705	-0.238
	(0.021)**	(0.030)**	(0.117)**	(0.108)**	(0.042)**

Table 4.4.3: The Source Region Effect of Migration on Tenure Choice in 2000

From/ To	**West**	**Central**	**South**	**North**	**East**
West	-0.222	-0.41	-1.437	-0.658	-1.035
	(0.017)**	(0.037)**	(0.246)**	(0.130)**	(0.190)**
Central	-0.371	-0.308	-0.579	-0.905	-0.579
	(0.024)**	(0.030)**	(0.115)**	(0.166)**	(0.083)**
South	-0.09	-0.136	-0.214	-0.488	-1.026
	(0.023)**	(0.026)**	(0.070)**	(0.131)**	(0.168)**
North	-0.135	-0.203	-0.669	-0.192	-0.91
	(0.016)**	(0.028)**	(0.160)**	(0.048)**	(0.139)**
East	-0.148	-0.238	-0.202	-0.387	-0.219
	(0.016)**	(0.025)**	(0.100)*	(0.111)**	(0.036)**

From the estimation results, it can be observed that central part of the country is the source region that generates migrants that are in the most adverse position in the housing market, for all the years. More specifically, except for the household living in the eastern part of the country, the migrants from central districts have the least probability to own. This result can be interpreted with the obligatory service of the civil servants. Central part of the country is the most populated areas in terms of civil servants, and as they migrate to different parts of the country for their obligatory service, it is expected for them not to be able to purchase housing units as they will be moving to another place sooner or later. Also as these heads are paid workers they have relatively lower incomes and thus lower probability to own relative to other heads. Moreover, we know that even these heads are migrants; they have not been migrating in the last 5 years before the date of the census. From this it can be argues that, among the heads that migrating due to their obligatory service, some may have reached their permanent destination. However, as these heads will be the ones with the least length of stay in their current regions compared to other old migrants, they

will, nevertheless, be in a more adverse situation considering homeownership probabilities.

Furthermore, interestingly the more developed part of the country, that is the western regions, also lead to migrants that have relatively lower probabilities to own. If we look at the results, it can be seen that the migrants from western regions have the lowest probabilities to own in eastern districts of the country in 1985, in southern and eastern districts of the country in 1990 and in central, southern and eastern districts in 2000. Moreover, the effect of migration within regions is also worth considering. Specifically, for 1985 and 1990 it can be observed that among the heads that live in the central districts of the country, the migrant heads that again come from districts that are in the central region are in the worst position in terms of homeownership probabilities. Although this may be a result of the uncontrolled characteristics central districts have, nevertheless, it can be said that for migrants to have lower probabilities to own, it does not have to be the case for them to move to different regions.

Since the western region includes Istanbul and Eastern Marmara which are major receiver areas for migrants, we shall look at the migrants that currently live in western districts more closely. Although, the heads from the central districts have the lowest probability to own, those from the eastern part of the country come second regarding low homeownership probabilities. This result is expected as the heads migrating from the eastern parts of the country have fewer skills and they migrate at the early stages of their life-cycle due to the unfavorable conditions in those areas created by both terrorist attacks and less investment made to area by the government.

While interpreting the above results, it should be noticed that these tables also show the effect of repeat migration. The *a priori* expectation was to have the eastern part of the country as the region that generated migrants with the lowest homeownership probabilities, as it is well known that the migration from east to west creates household heads that are unemployed and that are in an adverse condition regarding both the economic and the social life. However, the first destinations of the household heads that have migrated from the eastern districts, most probably, were

not the regions they currently live in. The fact that these heads migrated first to another region, may have well enabled them to get used to some of the common characteristics that the receiver regions have. Moreover, in their temporary settlement they may have created additional income so that in the next migration they are in a better position than the other old migrants regarding probabilities of homeownership. Since the data set we use in this empirical analysis only gives information about the final destination of these migrants, we can not analyze this phenomenon in more detail. However, from the results it can be inferred that the effect of repeat migration is of great importance for the homeownership probabilities of the old migrants.

Previously, in section 4.2 we have found that the unfortunate effect of being an old migrant decreases in the period between 1985 and 2000. However, when we look at the tables above, we see that this fact is not true for all the household heads that are old regions. The heads that migrated from the eastern part of the country are those who most significantly reduced their disadvantage in homeownership probabilities across years, compared to the all other household heads. This may be due to the anticipated positive effect of repeat migration, or the fact that the migrants from the eastern districts do so at an early stage of their life-cycle leading to an increase in their length of stay in a certain region.

From the above interpretations it can be concluded that the adverse effect of migration is diversified among the NUTS Level-1 regions and the major determinants of these regional effects are repeat migration and employment or more specifically, temporary employment.

A similar analysis can be done by restricting the sample to the household heads that were born in Western, Central, Southern, Northern and Eastern, respectively. Shifting the specification of the model by changing the migration variables to interaction of the "Old Migrant" variable with the regions the heads are living at the time of the census, we will be able to observe the differing effects of the receiver regions. Moreover, the heads that were born in the rural areas are also added to the sample so as to present a more complete analysis. Tables 4.4.4, 4.4.5 and 4.4.6

present the estimation results for the migration variables for years 1985, 1990 and 2000, respectively.

Table 4.4.4: The Receiver Region Effect of Migration on Tenure Choice in 1985

To/From	West	Central	South	North	East
West	-0.314	-0.277	0.003	-0.296	-0.254
	(0.019)**	(0.060)**	(0.065)	(0.037)**	(0.047)**
Central	-0.346	-0.649	0.169	0.009	-0.154
	(0.048)**	(0.040)**	(0.047)**	(0.055)	(0.044)**
South	-0.498	-1.069	-0.832	-0.242	-0.369
	(0.188)**	(0.143)**	(0.062)**	(0.174)	(0.122)**
North	-1.125	-1.175	-0.626	-0.692	-0.685
	(0.109)**	(0.162)**	(0.130)**	(0.041)**	(0.108)**
East	-1.079	-0.848	-0.868	-0.13	-0.653
	(0.185)**	(0.113)**	(0.209)**	(0.127)	(0.044)**

Table 4.4.5: The Receiver Region Effect of Migration on Tenure Choice in 1990

To/From	West	Central	South	North	East
West	-0.26	-0.242	-0.084	-0.154	-0.281
	(0.017)**	(0.054)**	(0.059)	(0.033)**	(0.040)**
Central	-0.274	-0.552	-0.225	0.215	-0.275
	(0.043)**	(0.033)**	(0.043)**	(0.051)**	(0.038)**
South	-0.805	-0.746	-0.61	-0.079	-0.498
	(0.155)**	(0.111)**	(0.063)**	(0.120)	(0.101)**
North	-1.246	-1.245	-0.889	-0.545	-0.933
	(0.103)**	(0.153)**	(0.116)**	(0.038)**	(0.089)**
East	-1.037	-0.771	-1.289	-0.428	-0.49
	(0.171)**	(0.102)**	(0.187)**	(0.125)**	(0.037)**

Table 4.4.6: The Receiver Region Effect of Migration on Tenure Choice in 2000

To/From	West	Central	South	North	East
West	-0.413	-0.345	-0.259	-0.288	-0.346
	(0.015)**	(0.046)**	(0.052)**	(0.027)**	(0.033)**
Central	-0.5	-0.564	-0.362	-0.137	-0.406
	(0.036)**	(0.026)**	(0.036)**	(0.040)**	(0.031)**
South	-1.397	-0.824	-0.407	-0.436	-0.739
	(0.172)**	(0.086)**	(0.053)**	(0.103)**	(0.079)**
North	-1.275	-1.025	-0.991	-0.559	-0.893
	(0.091)**	(0.128)**	(0.102)**	(0.034)**	(0.082)**
East	-1.198	-0.801	-1.444	-0.781	-0.447
	(0.154)**	(0.073)**	(0.149)**	(0.112)**	(0.029)**

For all three census years, north and east are the receiver regions of the migrants that have relatively lower homeownership probabilities. From the graphs presented in Chapter 3, we have observed that the household heads that currently live in Eastern Black Sea region have the lowest average homeownership rates. Though some of this divergence in probabilities can be explained by education or age differences of the household heads that live there, there is an unexplained part left. This unexplained difference for the northern districts is due to either uncontrolled characteristics unique to the migrants heading towards north regions or to the difference in housing prices or rents in these regions. As for the eastern part of the country, this region including Northeastern and Mideastern Anatolia is the part of the country with the lowest investment to infrastructure and housing due to the political and social instability in these areas. This is also another fact affecting the probability of homeownership in these areas.

When we look at the results of this alternative specification, the importance of the intra-regional migration effects on tenure choice is evident. In 1985 and 1990, among the household heads that were born in northern districts, those who have the lowest probability of homeownership are the migrant heads that headed to again northern districts. Therefore, we can once again argue that for migration to have an adverse effect on homeownership, moving from one region to another is not crucial.

Since eastern part of the country is a major source for the migrants, the homeownership probabilities of the heads that are from eastern districts should be more thoroughly analyzed. From the results of 1985, the household heads that migrated from the east of the country have the lowest homeownership probabilities if they migrated to the northern districts. However, it is important to notice that while in 1985 there is a strongly adverse intra-regional migration effect in this region, across years this unfavorable effect considerably declined. Nevertheless, if we look at the household heads that migrated from eastern part of the country to the major receiver regions for the migrants, such as the west and the center, it can be seen that those heads' homeownership probabilities decline in the period between 1985 to 2000, compared to other migrant heads that were born in the eastern part of the country.

With this alternative specification we have identified the receiver regions for the migrants with lower homeownership probabilities. However, it should be noted that with more detailed information about the characteristics of these household heads and reasons for migration, alternative factors affecting the homeownership rates can be found. Nevertheless, with the data present for Turkey the interpretations can only go this far.

To sum up, we have identified the source and receiver regions of these migrants that lead to lower homeownership probabilities. The most crucial findings of this section are:

- Central part of Turkey is identified as the source region for the household heads with the lowest probabilities of homeownership.
- The explanation of the differences between the source regions is argued to be the temporary employment of civil servants in different parts of the country and the repeat migration phenomenon.
- Northern part of Turkey is the receiver region for the old migrant household heads with the lowest probabilities to own.
- While the homeownership probabilities' of the migrants from the eastern part of the country have increased compared to other household heads, whether

migrant or not; their position have worsened compared to other old migrants that were born in eastern districts.

However the differences in the characteristics of the old and new migrant populations may also explain the adverse effect of being a migrant on homeownership, as found in previous estimations. For this reason, next sections will be analyzing each of these aspects in detail.

4.4.2 Differences in Old and New Migrants

In the main model of tenure choice used in this study, we have included two different variables representing two different definitions for migration. The first one is whether the household head was living in a different province five years before the date of the census and the second one is whether the household head was born in a different province than he lives at the date of the census. From the results of the estimation of the main model, we observed that household heads that were born in a different province than they live during the census are less negatively affected than the heads that are migrated in five years time in terms of homeownership. For this reason, we expect to find a difference between those who migrated more than five years ago and those who migrated within the five years before the census dates, i.e. old and new migrants, in terms of probability of homeownership. Moreover, the factors explaining this difference between the two groups may help us in terms of policy recommendations.

In order to understand the factors explaining the difference between old and new migrants we estimate five different specifications. Firstly using a logit method, we try to explain probability of homeownership by using a dummy for new migrants and a dummy for old migrants. With this specification, we will see the difference between these two group regarding probability of homeownership. In the second specification, in addition to these migration dummies, we control for age groups and see how the gap between old and new migrants changes. Next, for the third specification we use the migration dummies and control for educational attainments

of the heads. Then, we control for labor market characteristics used in previous models while again using the two migration dummies. Lastly, we control for all the characteristics we had for the main model and try to understand how the difference between old and new migrants change. In all these five specifications, provincial dummies are used so as to eliminate regional differences. The estimation results are presented in Tables 4.4.7, 4.4.8 and 4.4.9 for the years 1985, 1990 and 2000, respectively. The tables only present the coefficients for the new migrant and old migrant dummies since these are the only variables that are under consideration.

Table 4.4.7: Old and New Migrant Differences for 1985

	without controls	**with only age**	**with only education**	**with only labor market characteristics**	**with all controls**
New mig	-1.136	-0.955	-1.027	-1.047	-0.872
	(0.014)**	(0.015)**	(0.014)**	(0.014)**	(0.015)**
Old mig.	-0.22	-0.3	-0.244	-0.194	-0.289
	(0.011)**	(0.011)**	(0.011)**	(0.011)**	(0.012)**

Table 4.4.8: Old and New Migrant Differences for 1990

	without controls	**with only age**	**with only education**	**with only labor market characteristics**	**with all controls**
New mig.	-1.473	-1.279	-1.391	-1.37	-1.226
	(0.013)**	(0.014)**	(0.013)**	(0.013)**	(0.014)**
Old mig.	-0.168	-0.235	-0.183	-0.137	-0.222
	(0.009)**	(0.010)**	(0.009)**	(0.010)**	(0.010)**

Table 4.4.9: Old and New Migrant Differences for 2000

	without controls	with only age	with only education	with only labor market characteristics	with all controls
New mig	-1.673	-1.434	-1.634	-1.638	-1.418
	(0.013)**	(0.014)**	(0.014)**	(0.014)**	(0.015)**
Old mig.	-0.103	-0.178	-0.129	-0.104	-0.191
	(0.008)**	(0.009)**	(0.008)**	(0.008)**	(0.009)**

The first thing to notice is the increasing gap between old and new migrants from 1985 to 2000. While being a new migrant decreases the odds of owning a house 68% in 1985, this number becomes 78% in 1990 and 82% in 2000. Meanwhile, being an old migrant decreases the odds of homeownership by 20% in 1985, 16% in 1990 and 10% in 2000. Therefore, as the adverse effect of being a new migrant increases between 1985 and 2000, that of being an old migrant decreases at a similar rate. With this information, we can argue that the effect of length of duration on tenure choice has become more crucial during the last decade.

To examine which factors explain this gap the most, we should analyze the other specifications presented in the tables above. Firstly, if we control for the age of the household heads it can be seen that the gap between old and new migrants decline for all three years. That is if the household heads that are old or new migrants were of the same age, then the new migrants would have had a higher probability to own while the new migrants would have had a lower probability. With this observation, it can be understood that one of the factors that is essential in explaining the divergence between the probabilities of homeownership of old and new migrants is the age distribution of the household heads. Since the old migrants are generally older, as shown in Chapter 3, the odds of owning a house for them is higher. Therefore one of the major disadvantages of new migrants is their young age.

Second specification controls for the educational attainment levels of the household heads. Although not as strong as age controls do, controlling for education also narrows the disparity between the probabilities of homeownership for old and new

migrants. Since probability of owning increases with higher educational attainment, the results presented imply that if the new and old migrants were to have the same education levels, the adverse effect of being a new migrant would have been declined. Though there isn't a clear trend in the relationship between homeownership and educational attainment, from the results of the main tenure choice model it can be seen that high school and university graduates have less probability to own compared to primary school or secondary school graduates, except for 2000. Nevertheless, the descriptive statistics presented in Chapter 3 showed that the new migrant population has a higher average educational attainment level than the old migrants. While discussing the different effects of source and receiver regions on the new migrants' homeownership probabilities we argued that the civil servants' obligatory service is a major determinant. The fact that new migrants have higher average education levels confirms our argument as civil servants are usually of more educated individuals.

From the fourth columns of Table 4.4.7, 4.4.8 and 4.4.9, we can identify the outcome of controlling for labor market characteristics such as labor market statuses and professions of the household heads. Unlike age and education controls, when labor market characteristics are taken into consideration, not only new migrants' probabilities but also the old migrants' probabilities of homeownership increase, except for the year 2000. Nevertheless, since the rate of increase in new migrants' probabilities is higher than those of old migrants the gap is declined when labor market characteristics are controlled for. To see this effect, we need to compare the first and fourth columns of the tables, that is, we shall compare the specification without controls and the specification with only labor market controls.

Finally, the last columns of the above tables show the gap between old and new migrants' homeownership probabilities when household size, gender, age, education and labor market characteristics are taken into consideration. From the results, it can be observed that compared to the specification without any controls, the discrepancy between the homeownership probabilities of old and new migrants has significantly declined, though not eliminated. However, combining the information from the other

results of Tables 4.4.7, 4.4.8 and 4.4.9 it can be said that households being of the same size and household heads being of the same gender, only slightly explains the gap between these two population in terms of homeownership. That is to say, new migrant household heads are in an adverse condition relative to old migrants mostly due to their age composition and education, while labor market characteristics and other demographic variables also have some limited explanatory power for this disparity.

In the literature, the studies that link migration and tenure choice generally try to find the reasons of the gap between natives' and migrants' homeownership probabilities. (Painter, 2000; US Department of Commerce, 1997). Nevertheless, these studies emphasize the importance of age and length of duration in explaining this gap. In a similar context, we find that:

- Age differences explain the major part of the gap between the homeownership probabilities of old and new migrants.
- Education is also another crucial factor, though less powerful than age differences.
- The effect of length of duration definitely matters in tenure choice and this effect becomes more important in the period between 1985 and 2000.

4.5 Tenure Choice and Regional Disparities

We have shown that there exists regional variation in migrants' probabilities of homeownership across Turkey. However, this variation may as well be due to the regional disparities or in other words due to the distinct characteristics of NUTS Level-1 regions. In order to understand these characteristics and how they affect the tenure choice behavior in each region, we use a similar method to that of the last section. For this reason we estimate five different specifications of the main tenure choice model of this study to understand the tenure choice behavior in each region. For the first specification, again using a method of logit, we estimate the variable

"Homeowner" on dummies for NUTS Level-1 regions. From these results, we expect to see the raw differences in each region in terms of homeownership. Secondly, we estimate the same model, but by adding age controls. Therefore, this model will present the age effects in each region; that is to say the model will show the effect of different age compositions of the household heads in each region on homeownership probabilities. As for the third specification, we again try to explain the probability of homeownership with NUTS Level-1 dummies but this time controlling for education. Similarly, the results of this estimation will show the educational differences in household heads living in different regions and how this educational variation effects the tenure choice decision. For the fourth model, with the same focus we control for migration variables used in the main model of this study. More specifically, we control for migration and for being born elsewhere. Finally, for the last specification probability of homeownership is tried to be explained by NUTS Level-1 dummies and all demographic, labor market and migration controls specified for the main tenure choice model. For all the five models, Istanbul is used as a base region and thus the results demonstrate only the coefficients for the other eleven regions. Tables 4.5.1, 4.5.2 and 4.5.3 illustrate the estimation results only for the NUTS Level-1 dummies for the years 1985, 1990 and 2000, respectively.

Table 4.5.1: Regional Disparities in 1985

	without controls	**with only age**	**with only education**	**with only migration**	**with all controls**
nuts1=2	0.176	0.164	0.147	0.114	0.164
	(0.024)**	(0.026)**	(0.025)**	(0.025)**	(0.036)**
nuts1=3	0.206	0.192	0.168	0.148	0.167
	(0.014)**	(0.015)**	(0.014)**	(0.014)**	(0.021)**
nuts1=4	0.144	0.162	0.123	0.101	0.164
	(0.017)**	(0.018)**	(0.017)**	(0.017)**	(0.025)**
nuts1=5	0.102	0.177	0.144	0.065	0.159
	(0.014)**	(0.015)**	(0.014)**	(0.014)**	(0.023)**
nuts1=6	0.267	0.359	0.186	0.185	0.19
	(0.015)**	(0.016)**	(0.016)**	(0.016)**	(0.024)**

Table 4.5.1 (continued)

nuts1=7	0.097	0.163	0.042	-0.022	-0.033
	(0.020)**	(0.022)**	(0.021)*	(0.022)	(0.031)
nuts1=8	0.004	0.003	-0.075	-0.134	-0.14
	(0.020)	(0.021)	(0.020)**	(0.021)**	(0.031)**
nuts1=9	-0.262	-0.23	-0.287	-0.413	-0.34
	(0.032)**	(0.034)**	(0.032)**	(0.033)**	(0.044)**
nuts1=10	-0.103	-0.078	-0.185	-0.223	-0.309
	(0.031)**	(0.033)*	(0.032)**	(0.032)**	(0.042)**
nuts1=11	0.142	0.18	0.028	0.026	-0.022
	(0.028)**	(0.029)**	(0.028)	(0.029)	(0.039)
nuts1=12	0.353	0.44	0.139	0.202	0.064
	(0.019)**	(0.021)**	(0.020)**	(0.021)**	(0.030)*

Table 4.5.2: Regional disparities in 1990

	without controls	**with only age**	**with only education**	**with only migration**	**with all controls**
nuts1=2	-0.002	-0.039	-0.021	-0.059	0.08
	(0.020)	(0.022)	(0.020)	(0.021)**	(0.031)**
nuts1=3	0.144	0.095	0.107	0.08	0.13
	(0.012)**	(0.013)**	(0.012)**	(0.013)**	(0.018)**
nuts1=4	0.093	0.077	0.069	0.101	0.172
	(0.014)**	(0.015)**	(0.014)**	(0.015)**	(0.021)**
nuts1=5	0.033	0.07	0.058	-0.017	0.044
	(0.012)**	(0.013)**	(0.013)**	-0.013	(0.020)*
nuts1=6	0.199	0.259	0.126	0.16	0.207
	(0.013)**	(0.014)**	(0.013)**	(0.014)**	(0.021)**
nuts1=7	0.127	0.161	0.077	0.001	0.065
	(0.019)**	(0.020)**	(0.019)**	(0.020)	(0.029)*
nuts1=8	0.041	-0.014	-0.031	-0.01	-0.006
	(0.017)*	(0.018)	(0.017)	(0.018)	(0.027)
nuts1=9	-0.19	-0.204	-0.213	-0.347	-0.218
	(0.027)**	(0.029)**	(0.028)**	(0.028)**	(0.038)**
nuts1=10	0.097	0.098	0.04	-0.013	-0.025
	(0.029)**	(0.031)**	(0.029)	(0.030)	(0.039)
nuts1=11	0.133	0.177	0.058	0.029	0.06
	(0.024)**	(0.025)**	(0.024)*	(0.025)	(0.034)
nuts1=12	0.348	0.45	0.161	0.251	0.14
	(0.016)**	(0.018)**	(0.017)**	(0.018)**	(0.026)**

Table 4.5.3: Regional Disparities in 2000

	without controls	with only age	with only education	with only migration	with all controls
nuts1=2	0.049	-0.013	0.065	0.081	0.124
	(0.022)*	(0.023)	(0.022)**	(0.023)**	(0.033)**
nuts1=3	0.073	-0.038	0.06	0.056	0.021
	(0.011)**	(0.012)**	(0.011)**	(0.011)**	(0.017)
nuts1=4	0.021	-0.036	0.019	0.02	0.03
	(0.012)	(0.013)**	(0.012)	(0.013)	(0.020)
nuts1=5	0.013	-0.021	0.05	0.008	-0.008
	(0.011)	(0.011)	(0.011)**	(0.011)	(0.018)
nuts1=6	0.208	0.204	0.178	0.192	0.207
	(0.012)**	(0.013)**	(0.012)**	(0.012)**	(0.021)**
nuts1=7	0.053	0.052	0.032	0.024	0.043
	(0.019)**	(0.020)**	(0.019)	(0.020)	(0.028)
nuts1=8	0.028	-0.067	0.009	-0.021	-0.049
	(0.018)	(0.019)**	(0.018)	(0.019)	(0.029)
nuts1=9	-0.222	-0.307	-0.206	-0.277	-0.28
	(0.029)**	(0.031)**	(0.029)**	(0.030)**	(0.041)**
nuts1=10	0.057	0.068	0.065	0.03	0.004
	(0.027)*	(0.029)*	(0.027)*	(0.028)	(0.037)
nuts1=11	0.217	0.24	0.185	0.201	0.174
	(0.022)**	(0.023)**	(0.022)**	(0.023)**	(0.030)**
nuts1=12	0.19	0.308	0.09	0.128	0.145
	(0.015)**	(0.016)**	(0.015)**	(0.016)**	(0.024)**

From the results for all years, it can be observed from the tables that only Eastern Black Sea and Northeastern Anatolia in 1985, Western Black Sea in 1990 and Eastern Black Sea in 2000 have lower probabilities of homeownership relative to Istanbul when none of the characteristics are controlled for. Among the regions with positive homeownership probabilities when Istanbul is taken as the base region, Southeastern Anatolia has the highest probability in 1985 and 1990, while Mideastern Anatolia is the region with the highest probability of homeownership for 2000. However when age groups are controlled, the results change significantly and Southeastern Anatolia becomes the region with household heads that have the greatest homeownership probabilities for all years. More specifically, if all regions were to have the same age composition, then the regions with younger household heads in reality would have higher probabilities of homeownership. That is to say, age characteristics are proven to be of great importance for tenure choice decisions once again. Having a relatively old population, Eastern Black Sea would have been

the region with the lowest probabilities of homeownership compared to Istanbul if all household heads across the country were to be of similar age groups.

When educational attainment levels of the household heads are taken into account, the results are more varying. The reason for this kind of a result can be found in the estimation results for the main model. Previously, we have explained that in 1985, being illiterate or non-graduate, in 1990 being a primary school graduate and in 2000 being a high school graduate increases the homeownership probabilities the most. Therefore in Table 4.5.1, when education controls are used, the gap between Istanbul and the regions with a population of lower literacy rates declines. Mediterranean, Mideastern Anatolian and Southeastern Anatolian regions are examples for this. Since Eastern Black Sea and Northeastern Anatolia also have significantly higher illiterate population than Istanbul, the homeownership probabilities in these regions also fall but due to negative coefficients of these regions, the gap between the probabilities generated by being in Istanbul and being in Eastern Black Sea or Northeastern Anatolia increases. With the same focus, it we look at Table 4.5.2, the coefficients of the regions with a higher primary school graduate population than Istanbul decreases significantly. In other words, if the household heads in each region had the same education levels, then being a resident of Eastern Marmara and Mid-Anatolian regions would have a lower positive impact on probability of homeownership. Finally, for 2000, the regions with higher high school graduate population than Istanbul are Northeastern Anatolia and Mideastern Anatolia and as a result, being a household head in each of the regions have a lower positive impact on probability of homeownership than before, compared to being in Istanbul. From the above reasoning, it can be stated that educational attainment levels of the household heads living in different regions are of great importance in explaining the variance between the effects of living in different NUTS Level-1 regions.

The fourth columns of the above tables show the impact of controlling for migration characteristics of the household heads that live in different regions. It can be easily seen from the graphs that either the impacts of all regions with a positive effect on homeownership declines or the impacts decline for the regions with a negative effect

compared to first NUTS Level-1 region, Istanbul. This is due to the fact that Istanbul being the most populated migrant region. Although Marmara also has a great amount of migrant population, the coefficients of this region also decline and this decline may be due to the uncontrolled characteristics of the migrants that come to this region. For this reason, migration is once again proven to have a crucial role in explaining the differences in the tenure choice behavior of household heads living in different regions.

If the last and the first columns of the above tables are compared, it can be seen that although living in almost of the regions have a favorable effect on homeownership probabilities compared to Istanbul when no characteristics of the household heads are taken into account. However, when all demographic, labor market, migration and provincial characteristics are controlled, the last columns display that contrarily this time living in most of the regions have an adverse effect on homeownership compared to living in Istanbul. Moreover, it can be observed that although the differences between Istanbul and other central or western regions diminish when all controls are used, for the NUTS Level-1 regions from seventh to twelfth this situation is just the opposite. From the results, it can be seen that after controlling for the characteristics of the household heads and the districts, the difference in the probability of homeownerships between these regions and Istanbul increase even more.

The most influential factors in explaining the regional disparities is the age composition, educational attainment levels and migration characteristics of the household heads living in different regions. As reported by the estimation results with controls, a significant portion of the discrepancy regarding homeownership between the regions could not be explained. The most probable reason for this is the different characteristics of the household heads of different regions that we could not see with the data set used in this study. Nevertheless, the analysis provides some valuable results regarding the differing homeownership probabilities of household heads living in different NUTS Level-1 regions.

From the above interpretations, the main findings of this section can be outlined as follows:

- If all household heads from different regions were of the same age, the household heads that live in Southeastern Anatolia, a region with the youngest household heads, were to have the highest homeownership probabilities.
- Educational attainment of the household heads is of great importance in explaining the regional disparities in tenure choice. However, there is no clear trend, since the education group that most positively affects tenure choice changes every census year.
- Migration is the factor that creates the largest variation in regional homeownership rates. When migration is controlled for, most of the regions with households that have higher probabilities of homeownership lose their advantage compared to Istanbul, as Istanbul is the most crowded city regarding migrant population.
- When all controls are used, the difference between Istanbul and the regions that lie in the eastern part of the country increase even more.
- Age, education and migration profiles of the heads are the most crucial factors in explaining the regional disparities regarding homeownership probabilities.

CHAPTER 5

CONCLUSION

This thesis examines the factors that determine the tenure choice decision of Turkish household heads. In order to do so, we utilize the micro level data sets of the Turkish Censuses for the years 1985, 1990 and 2000 and use logit as the method of estimation. Moreover, as there are few studies in the literature that analyzes the effects of migration on tenure choice, we attempt to understand the reasons behind the differences between the tenure choice decisions of migrant and native household heads.

From the results of our basic tenure choice model, we find out that the most crucial factors affecting the probabilities of homeownership of Turkish household heads are age, education and migration. Age is found to have a positive impact on homeownership and this impact gets stronger through time. Although the household heads with high levels of education have lower probabilities to own in 1985, in 2000 education becomes more important and probability of homeownership increases as the education level of the head increases. Furthermore, being a migrant reduces the probability to own a housing unit, whereas there is a considerable difference in this effect between the heads that migrated in the last five years before the census and the heads that migrated even before. We also capture from the empirical analysis for the basic tenure choice model, being employed decreases the probability of homeownership, which we think is the outcome of temporary employment issues.

As a second analysis, we investigated how the basic tenure choice model we use gives different results for districts that are grouped with respect to their populations. The estimation results tell us that while age is a more crucial factor enhancing homeownership probability in less populated regions, education has a more powerful positive effect on probability to own in more populated regions. Moreover, the low probabilities to own for the old migrant household heads declines even more as the population decreases.

To inspect the effect migration has on tenure choice in more detail, we identified the source and receiver regions that the household heads with relatively lower probabilities to own live in. It is observed from the analysis that the central part of the country is the source region whereas the northern part of the country is the receiver region for the migrant household heads with lower homeownership probabilities. Furthermore, we argue that the differences in these source and receiver regions regarding probability to own a housing unit can be explained by the obligatory services of the civil servants and the repeat migration issue. In addition, we explore the factors that explain the gap between the probabilities of homeownership of new and old migrants and once again find that age, education and duration of stay at a certain location are most important factors that explain this difference.

Finally, after seeing that there exists a regional diversity in the tenure choice decision of the household heads, we investigated which factors are most influential in explaining this diversity. According to the results, age, education and migration are the most influential factors in explaining regional disparities and when all the controls are used, the differences in the homeownership probabilities of heads living in Istanbul and eastern part of the country increase.

Based on the findings of this study, it is necessary to implement subsidization programs to internal migrants so as to ease the difficulties they face in the economic life. Most importantly, education programs may be offered to those households that will increase their permanent incomes in the long run. As another step, the mortgage instruments that enable the household heads to obtain long-term credit shall be more common, for the probabilities of homeownership to increase.

This research can be developed in several ways. First of all, a theoretical model can be constructed, which will show the opportunity costs of buying and renting more specifically. In fact, this model may be constructed by differentiating between the tenure choice decisions of migrants' and natives. Furthermore, the negative effect of employment on homeownership probabilities can be analyzed more thoroughly. However, in order to do this, more detailed information is needed in the data set for

the employment conditions of the household heads. In fact, if one can obtain the income characteristics of these household heads, the importance of the current and permanent income for the Turkish household heads for their tenure choice decision can be examined. Lastly, the average homeownership rates of the Turkish household heads can be composed as age, cohort and year effects, which will be a major step in understanding the tenure choice behavior of the Turkish population across years.

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APPENDIX A
12 NUTS Level-1 Regions

İstanbul		**Mediterranean**		**Eastern Black Sea**	
	İstanbul		Antalya		Trabzon
Western Marmara			Isparta		Ordu
	Tekirdağ		Burdur		Giresun
	Edirne		Adana		Rize
	Kırklarerli		Mersin		Artvin
	Balıkesir		Hatay		Gümüşhane
	Çanakkale		Kahramanmaraş	**Northeastern Anatolian**	
Aegean			Osmaniye		Erzurum
	İzmir	**Mid-Anatolian**			Erzincan
	Aydın		Kırıkkale		Bayburt
	Denizli		Aksaray		Ağrı
	Muğla		Niğde		Kars
	Manisa		Nevşehir		Iğdır
	Afyon		Kırşehir		Ardahan
	Kütahya		Kayseri	**Mideastern Anatolian**	
	Uşak		Sivas		Malatya
Eastern Marmara			Yozgat		Elazığ
	Bursa	**Western Black Sea**			Bingöl
	Eskişehir		Zonguldak		Tunceli
	Bilecik		Karabük		Van
	Kocaeli		Bartın		Muş
	Sakarya		Kastamonu		Bitlis
	Düzce		Çankırı		Hakkari
	Bolu		Sinop	**Southeastern Anatolian**	
	Yalova		Samsun		Gaziantep
Western Anatolian			Tokat		Adıyaman
	Ankara		Çorum		Kilis
	Konya		Amasya		Şanlıurfa
	Karaman				Diyarbakır
					Mardin
					Batman
					Şırnak
					Siirt

APPENDIX B

The descriptive statistics for the key variables among different populations is as follows:

Table B.1: Descriptive Statistics of Variables among Different Populations for 1985

1985							
	>5000000		>1000000		>100000		>50000
Variable	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Std. Dev.**
Homeowner	0.596	0.491	0.617	0.486	0.626	0.484	0.486
Household size	3.89	1.84	3.822	1.775	4.403	2.088	1.938
Male	0.904	0.295	0.908	0.289	0.927	0.26	0.276
Central District	1	0	0.987	0.113	0.916	0.278	0.461
Seashore	1	0	0.417	0.493	0.467	0.499	0.419
New Migrant	0.117	0.322	0.138	0.344	0.12	0.324	0.337
Old Migrant	0.714	0.452	0.585	0.493	0.263	0.44	0.484
Population	15.527	0	14.415	0.454	12.583	0.593	1.751
Employed	0.706	0.456	0.709	0.454	0.714	0.452	0.448
Employer	0.047	0.211	0.028	0.164	0.023	0.149	0.146
Self-employed	0.187	0.39	0.148	0.355	0.204	0.403	0.393
Illiterate	0.134	0.341	0.121	0.326	0.196	0.397	0.365
Primary School	0.537	0.499	0.503	0.5	0.528	0.499	0.5
Secondary School	0.1	0.299	0.093	0.291	0.086	0.28	0.282
High School	0.128	0.334	0.144	0.351	0.121	0.326	0.338
University	0.101	0.301	0.139	0.346	0.069	0.253	0.315
Age Group 20-29	0.161	0.368	0.168	0.374	0.173	0.378	0.377
Age Group 30-39	0.307	0.461	0.308	0.462	0.321	0.467	0.464
Age Group 40-49	0.217	0.413	0.218	0.413	0.221	0.415	0.413
Age Group 50-59	0.181	0.385	0.182	0.386	0.172	0.377	0.382
Age Group 60-69	0.083	0.277	0.083	0.275	0.071	0.257	0.268
Age Group 70plus	0.05	0.217	0.041	0.197	0.041	0.197	0.202

Table B.2: Descriptive Statistics of Variables among Different Populations for 1990

1990								
	>5000000		>1000000		>100000		>50000	
Variable	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Homeowner	0.555	0.497	0.562	0.496	0.583	0.493	0.564	0.496
Household size	3.774	1.769	3.651	1.661	4.259	2.025	3.9	1.805
Male	0.903	0.297	0.901	0.299	0.922	0.268	0.913	0.282
Central District	1	0	1	0	0.966	0.182	0.723	0.447
Seashore	1	0	0.423	0.494	0.483	0.5	0.249	0.432
New Migrant	0.142	0.349	0.143	0.35	0.133	0.339	0.171	0.376
Old Migrant	0.694	0.461	0.58	0.494	0.269	0.443	0.374	0.484
Population	15.718	0	14.612	0.185	12.804	0.637	12.872	1.726
Employed	0.718	0.45	0.709	0.454	0.708	0.455	0.725	0.446
Employer	0.065	0.246	0.034	0.181	0.027	0.161	0.027	0.163
Self-employed	0.161	0.367	0.133	0.34	0.181	0.385	0.18	0.384
Illiterate	0.101	0.301	0.098	0.297	0.163	0.37	0.126	0.332
Primary School	0.533	0.499	0.491	0.5	0.525	0.499	0.503	0.5
Secondary School	0.108	0.311	0.104	0.305	0.092	0.289	0.098	0.297
High School	0.143	0.35	0.158	0.365	0.136	0.342	0.151	0.358
University	0.115	0.319	0.148	0.355	0.084	0.278	0.123	0.328
Age Group 20-29	0.161	0.367	0.161	0.368	0.162	0.369	0.162	0.369
Age Group 30-39	0.309	0.462	0.303	0.46	0.316	0.465	0.313	0.464
Age Group 40-49	0.227	0.419	0.232	0.422	0.234	0.423	0.23	0.421
Age Group 50-59	0.16	0.367	0.162	0.369	0.162	0.368	0.16	0.366
Age Group 60-69	0.1	0.3	0.101	0.301	0.089	0.285	0.096	0.294
Age Group 70plus	0.043	0.204	0.041	0.198	0.036	0.188	0.04	0.195

Table B.3: Descriptive Statistics of Variables among Different Populations for 2000

2000								
	>5000000		>1000000		>100000		>50000	
Variable	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Homeowner	0.575	0.494	0.579	0.494	0.603	0.489	0.581	0.493
Household size	3.5	1.631	3.326	1.514	3.911	1.902	3.562	1.66
Male	0.873	0.333	0.864	0.343	0.89	0.312	0.884	0.321
Central District	1	0	1	0	0.98	0.139	0.772	0.419
Seashore	1	0	0.425	0.494	0.475	0.499	0.245	0.43
New Migrant	0.093	0.291	0.104	0.305	0.099	0.299	0.108	0.31

Table B.3 (continued)

Old Migrant	0.727	0.446	0.605	0.489	0.303	0.46	0.413	0.492
Population	16.005	0	14.845	0.18	13.102	0.656	13.138	1.709
Employed	0.629	0.483	0.607	0.488	0.581	0.493	0.616	0.486
Employer	0.066	0.248	0.047	0.211	0.039	0.194	0.04	0.196
Self-employed	0.1	0.3	0.087	0.282	0.118	0.323	0.116	0.321
Illiterate	0.08	0.272	0.077	0.267	0.13	0.337	0.097	0.296
Primary School	0.49	0.5	0.405	0.491	0.456	0.498	0.419	0.493
Secondary School	0.121	0.327	0.124	0.329	0.114	0.317	0.121	0.326
High School	0.178	0.382	0.208	0.406	0.187	0.39	0.204	0.403
University	0.131	0.337	0.187	0.39	0.113	0.316	0.16	0.367
Age Group 20-30	0.158	0.365	0.133	0.34	0.148	0.355	0.138	0.345
Age Group 30-40	0.296	0.456	0.274	0.446	0.29	0.454	0.284	0.451
Age Group 40-50	0.245	0.43	0.257	0.437	0.257	0.437	0.261	0.439
Age Group 50-60	0.154	0.361	0.169	0.375	0.158	0.364	0.159	0.366
Age Group 60-70	0.09	0.287	0.103	0.304	0.096	0.294	0.099	0.299
Age Group 70plus	0.056	0.23	0.064	0.244	0.051	0.22	0.058	0.233

APPENDIX C

The district codes are calculated as "(1000*city code) + (10*town code)". The last digits of the codes are all 1, indicating the districts are in urban areas.

Population Group	District Code	Population
1	34001	5539260
2	6001	2271940
2	35001	1503660
3	1001	793100
3	16001	622000
3	27001	486960
3	42001	445660
3	38001	381340
3	26001	372840
3	33001	318400
3	21001	312920
3	7001	262540
3	55001	247560
3	44001	244280
3	25001	243840
3	41001	235820
3	46001	211800
3	6181	207160
3	58001	203980
3	63001	194240
3	23001	184720
3	20001	170700
3	54001	156960
3	31041	153600
3	10001	153440
3	33091	150780
3	61001	146460
3	45001	128200
3	67001	120320
3	43001	119460
3	72001	113420
3	65001	110660
3	31001	110180
3	80001	104820
3	32001	103620
4	78001	97600
4	19001	97600
4	41011	95120
4	64001	92000

Population Group	District Code	Population
4	9001	91940
4	22001	86880
4	3001	86260
4	24001	85440
4	68001	83360
4	52001	82080
4	9131	79560
4	60001	75080
4	1041	73980
4	45021	71900
4	42171	71460
4	10031	69720
4	45151	69180
4	42121	67960
4	2001	67480
4	40001	67160
4	45071	64600
4	59001	64320
4	36001	64100
4	60091	62640
4	79001	60940
4	59021	60400
4	28001	57000
4	16081	57000
4	41021	55980
4	67041	55600
4	55041	55580
4	6231	55160
4	77001	54580
4	5001	53860
4	31071	53380
4	15001	53380
4	56001	52880
4	13061	52600
4	6001	52420
4	1091	52360
4	14001	52040
4	4001	51700
4	50001	50620
4	51001	50420