

# **Housing Market Characteristics and Estimation of Housing Wealth in Turkey**

**by**

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## **Abstract**

Home ownership is one of the most preferred forms of wealth accumulation for households in Turkey. Given the important functions performed by the housing asset, this paper provides a comprehensive look at the housing market characteristics during the 1987-2006 period in Turkey. On the basis of these characteristics, the paper develops an estimation of quarterly housing wealth series using primary sources on housing stock, residential construction and average floor area prices obtained from building census, construction and occupancy permit statistics. Unlike the previous literature using the total number of households in the population, the housing wealth is estimated using urban dwellings with occupancy permits in order to capture the collateral channel, through which home owners can borrow from the financial institutions using their legally documented homes as collateral. Since there is a substantial undocumented and unauthorized dwelling stock in Turkey, using this methodology to measure the housing wealth will avoid the potential problems associated with identifying the extent of illegal housing. The movements of the estimated housing wealth series are consistent with the developments in the construction sector, and therefore it can be successfully used in econometric models analyzing the relationship between the housing wealth and consumption behaviour of households in Turkey.

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## **I. Introduction**

Home ownership is one of the most preferred forms of wealth accumulation for households in Turkey. Ownership of house not only provides a service in the form of accommodation, but also households can earn actual as well as imputed rental incomes from the consumption of housing services. Households often have a bequest motive that favor holding the appreciated real estate assets until death and may view the accumulation of housing wealth as a hedge against life's uncertainties as well as a means for long-term savings and investment. This type of perception differentiates the housing asset from many other forms of financial wealth (see Case, Quigley, and Shiller, 2005).

One important channel, through which the accumulated housing wealth may affect households, is the increase in borrowing capacity in financial markets. Housing asset constitutes the most important form of collateral because they are often less concentrated among certain segments of the population compared to other financial assets. Because of the widespread distribution, a change in the housing wealth may potentially have strong effects on consumption behaviour of liquidity constrained households, which may otherwise not have access to uncollateralized consumer credit.

Given the important functions performed by the housing asset, this paper provides a comprehensive look at the housing market characteristics in Turkey. The analysis in this paper shows that home ownership rate in Turkey is very high although the existing housing stock is unevenly distributed across income groups. Furthermore, as a consequence of high population growth, declining household sizes, massive urbanization, and internal migration from rural to metropolitan areas, the rate of housing construction has not been able to match the rate of household formation, and this has created an excessive demand for affordable housing in Turkey.

Residential construction is an important driver of the gross fixed capital formation and is highly sensitive to the cyclical conditions of the Turkish economy. Private sector is the dominant player in the residential construction. Home ownership is predominantly financed through household savings. Because the public sector and financial institutions such as mortgage markets have been unable to facilitate affordable housing due to unfavorable macroeconomic climate resulting from high inflation and high interest rates, and lack of institutional infrastructure, the demand for housing in Turkey has been met by the construction of unauthorized dwellings in squatter settlements. The supply of high quality and licensed housing for middle and low income households, and the rehabilitation as well as legalization of these squatter settlements are the major issues shaping the housing policies in Turkey.

On the basis of these characteristics, this paper develops an estimation of the housing wealth in Turkey using primary sources on housing stock, residential construction figures and average floor area prices obtained from the building census, construction and occupancy permit statistics. Unlike the previous literature approximating the housing wealth using total number of households in the population,

this paper estimates the urban and legal housing wealth associated with the dwellings with occupancy permits. The main reason for concentrating on authorized housing is that the constructed housing wealth series will be used in the estimation of the housing wealth effect on consumption of durables and non-durables in Turkey.

The housing wealth can affect consumption through the collateral channel, which allows the home owners to borrow from the financial institutions using their homes as collateral. However for this to be effective, the property ownership must be legally documented and the real estate must possess all the necessary construction and occupancy permits as well as technical standards to be eligible for real estate transactions in the financial system. Since there is a substantial undocumented and unauthorized dwelling stock in Turkey, using the total number of households to estimate the housing wealth would include the illegal housing, which is not recognized as an asset in the formal economic system.

The movements of the estimated housing wealth series are consistent with the developments in the construction sector during the late 1990s. The decline in the housing wealth coincides with the slump in the housing sector after 1997. On the other hand, consistent with the general improvement in the macroeconomic outlook and the revitalization of residential construction sector after 2003, the housing wealth has started to increase. In conclusion it can be said that this measure successfully captures the housing wealth movements in Turkey.

The rest of the chapter is organized as follows: Section II will discuss the home ownership patterns in Turkey. Section III will highlight the main determinants of the housing demand in Turkey in reference to the characteristics of the housing stock. Section IV will discuss the importance of the residential construction sector in GDP and highlight the role of private sector in the provision of housing. This section will also discuss the important macroeconomic events that have affected the construction industry by using data on construction and occupancy permits. Section V will look at the existing forms of housing finance through the governmental institutions and financial markets. This section will elaborate on the macroeconomic and institutional environment, in which mortgage markets operate in Turkey. Section VI will discuss the prevalence of squatter settlements and the reasons behind commercialization of the squatter housing. Section VII finally discusses the data sources and the methodology that are used in the housing wealth estimation. The final section concludes.

## II. Home Ownership Patterns in Turkey

Home ownership in Turkey is historically very high. Table 1 shows that the households not paying rent as a percentage of total urban households have increased from 61 percent in 1965 to 68 percent in 2000. The study on homeownership patterns conducted by the Undersecretariat of Housing (2003) reveals that in 2000, 59.8 percent of the total urban households (10,373,863) are homeowners, 2.2 percent live in housing provided by the employer, and 5.5 percent are not homeowners but pay no rent. 31.6 percent of the urban households (3,282,853) pay rent.

One of the main benefits derived from the housing investment is that home owners gain real and imputed rental incomes. Data from expenditures on the gross domestic product (GDP) reveals in Figure 1 that income from ownership of dwellings or expenditure for housing services account for 6 percent of GDP until 2001 and has declined to slightly more than 4 percent of GDP in 2006. Overall income from or expenditures for housing services constitute 7-8 percent of private final consumption expenditures.

Another way to analyze the benefits of home ownership is to look at the results of the Households' Income and Consumption Expenditures Surveys in Table 2. When the incomes derived from the property holdings are examined, it can be seen that the real estate income in the form of actual rent constitutes 5 percent while the imputed rent of home owners constitutes 6.6 percent of the disposable income in 1994. In the following surveys, the actual rental income declined to 3-4 percent of the household disposable income. This trend is consistent with the movement of the share of expenditures for the ownership of dwellings in GDP as displayed in Figure 1. Nevertheless, the income from real estate property has a significant share within the household disposable income and exceeds the income from financial assets.

As can be seen in Table 3, income is distributed relatively unequally in Turkey where the wealthiest 20 percent of households receive over 40 percent of the income generated. Although the rate of homeownership is very high, the existing housing stock is not shared evenly.

According to the 1994 household income and consumption survey, Kayıket (2003) shows that the distribution of property wealth income between income groups is highly skewed assuming that the households' total property wealth includes both the value of the housing owned and settled, and the rental income earned from the property ownership. In Figure 2, while the highest income group owns 56 percent of all property wealth, the lowest income group owns only 5 percent. Since, the property wealth is unevenly distributed between the income groups, it can be concluded that the property wealth is one of the factors causing social inequality in the urban areas.

A skewed distribution in the share of rental income in total household income is also observed when income groups are analyzed separately. Kayıket (2003) finds that according to the survey in 1994, rental income constitutes 35 percent of the total income of the households in the highest 20<sup>th</sup> percentile. The share of rental income in the total income of 3<sup>rd</sup> and 4<sup>th</sup> percentile is roughly 26 percent. The percentage is 22.3 percent in the lowest 20<sup>th</sup> percentile.

Additionally, distribution of property wealth by age groups shows that the household heads that are 50 and above hold 73 percent of the housing wealth. Kayıket (2003) finds that every year about one percent of the households (30,000 people) pass their property wealth to 102,000 successors i.e. surviving spouse and/or children after death. Increases in the number of people at retirement age indicate that there will be a substantial property transfer via inheritance in the future. Moreover, decreases in the household size over the years imply that the inherited property will be concentrated in the hands of fewer people and this shift of wealth will likely to cause an increase in the social divide based on wealth.

### **III. Housing Demand Characteristics in Turkey**

During the past half century, the population of Turkey has almost tripled and reached 72 million in 2005. As can be seen in Table 4, the population growth stayed over 2 percent per annum during the 1960-1990 period although it gradually declined to 1.29 percent in 2005. There has been a dramatic increase in the total number of households in Turkey since 1960 from about 5 million to 15 million with the average size of the household declining from 5.7 persons to 4.5 persons. From 1960-1980, population with 15-64 years of age constituted over 50 percent of the population. Due to the declining population growth rates over time, share of the population younger than 14 years of age gradually declined to less than 30 percent of the total population by 2005, while the share of population with 15-64 years of age has increased to 66 percent. This growing segment also corresponds to the labor force of the economy. Increasing number of married couples and a large percentage of young population willing to live apart from their families in this cohort increased the number of household formation over time.

Another important phenomenon occurring in Turkey has been the rapid pace of urbanization and the declining share of rural population in the country. The urbanization process has been accompanied by immigration from rural to urban areas at unprecedented rates. Table 5 shows that the share of urban population increased from 31.5 percent in 1960 to over 67 percent by 2005. The urban population growth reached a peak of 5.8 percent in 1985 and gradually declined to 2 percent by year 2005. However as a consequence of this rapid urban expansion and net migration from rural areas to cities, the population in urban agglomerations greater than one million people increased from 11 percent of the population in 1960 to over 25 percent of the population by 2005. In particular, Istanbul received the highest migration from the rest of the country with the size of the city increasing from 1.5 million in 1960 to 9.7 million in 2005.

As a consequence of the multitude of factors such as young population, high rates of household formation and rapid urbanization, demand for housing in Turkey has been very high. Several studies attempted to estimate the current demand for housing in Turkey. According to the research conducted for the 8th Five Year Development Plan by the State Planning Organization (2004), between 2000 and 2005, housing demand stemming from urbanization, population growth, renewal and natural disasters was estimated to be 3,075,000 dwellings in settlements with a population of 20,000 or more.

A recent study on housing demand in Turkey between 2000-2010 shows interesting results regarding the characteristics of the existing housing stock and the demand for housing in Turkey (see Çanga and others, 2002).

According to the 2000 building census results displayed in Table 6, there are 3,212 municipalities in Turkey in 2000 and the total number of buildings in those municipalities has reached to 7,838,675. The same figure was 4,387,971 buildings in 1,699 municipalities according to the last building census in year 1984. Census results show that the total number of dwellings increased dramatically within 15 years from 7,096,277 units to 16,235,830 units in 2000. Out of this total, 13,597,676 dwelling units exist in cities and towns in 2000. This dwelling stock consists of all available dwelling units regardless of the quality and technical standards as well as the existence of proper construction and occupancy permits.

Around 11 percent of the total building stock (869,444) and 21 percent of the dwelling stock (3,393,077) is in Istanbul according to Table 7. Dwellings in other metropolitan areas like Izmir, Ankara, Bursa and Adana combined constitute around 20 percent of the total dwelling stock. When average age of the buildings are examined in five big cities, it can be observed that it is less than 25 years with Istanbul having a relatively younger building stock of 18 years of age in comparison to Izmir and Ankara with 23 and 22 years of age respectively. When the distribution of total dwelling stock in cities are examined by the date of construction in Figure 3, as of 2000, 30 percent of the dwellings are constructed after 1990, 28 percent between 1980 and 1989, and 20 percent between 1970 and 1979. In other words, 78 percent of the dwelling stock is less than 30 years of age in Turkey.

According to the Turkish Construction Law No.3194, in order to start the housing construction on a legally owned land, the owners of the construction needs to obtain construction permits from the municipalities in compliance with the urban zoning restrictions. In order to start residence in the completed and partially completed new dwellings, an occupancy permit needs to be obtained as an indication that the dwelling unit has the satisfactory technical quality standards for residential use.

When the permits of the existing urban residential dwelling stock in 2000 are analyzed, out of the total dwellings in cities and towns, only 61.5 percent (8,366,428) have the required construction permits while only 33.27 percent (4,524,170) have the occupancy permits. In other words, 67 out of 100 dwellings are unlicensed and unauthorized for residential use in Turkey.

Although obtaining the construction permit is a necessary requirement, it is a known fact that many newly constructed dwelling units are resided by households without obtaining the required occupancy permits. When the share of occupancy permits are examined within the total dwelling stock with construction permits, only 54 percent has obtained the occupancy permits.

The present condition put forward by this analysis has important implications for the estimation of housing need in Turkey. Çanga and others (2002) estimated that by taking into account the growth of population and the declining trend in household size, the housing need is calculated as 10,906,368 in 2000. Given the available 13,597,676 dwelling units, there is a housing excess of 2,691,308 units in Turkey. However when the dwelling units that have at least the construction permit are considered, the housing deficit becomes 2,539,939 units, and when dwelling units with occupancy permits are considered, the deficit reaches to 6,382,197 units. These results evidently imply that the housing need in Turkey is met by unauthorized housing provision. In other words, the housing problem in Turkey is not related with the quantity but quality of the housing production.

Çanga and others (2002) calculate that the housing need in Turkey by 2010 will reach to 13,766,711 dwelling units, which indicates that 2,869,343 additional housing units will be needed. The way the future housing supply can satisfy this need depends entirely on how the authorized and unauthorized housing stock will develop until 2010.

According to the assumption that there will be no further unauthorized housing construction and the existing authorized and unauthorized housing stock in 2000 is increased by the average trend growth rate of the construction permits during 2000-2010, there will be an excess housing supply of 6,126,971 dwelling units. On the other hand, according to the assumption that the housing need will be met by only authorized housing, the housing deficit reaches to 1,577,663 in 2010 if the authorized housing provision evolves according to the trend growth rate. These two findings clearly show that, when unauthorized housing stock is excluded from the total housing stock, the supply of quality and licensed housing becomes an important problem in shaping the housing policy in Turkey.

#### **IV. Residential Construction Sector in the Economy**

Given the continuous economic growth and increasing demand for housing, the construction activity has been one of the locomotive sectors of the Turkish economy over the last decades. When building construction is examined in Figure 4, it can be seen that during the 1986-1995 period, the share of private sector construction was 9-11 percent of GDP. During the 1996-2003 period however, it continuously declined from 11 percent to 4.8 percent. Since 2003, share of private sector construction has started to increase and reached 7.3 percent in 2006. The public sector construction however constitutes only 1-2 percent of GDP during the 1987-2006 period.

The building construction is also an important driver of the gross fixed capital formation in Turkey. During the 1987-1994 period, both public and private building construction constituted 40-50 percent of the total gross fixed capital formation while private sector constituted 50-65 percent of the private gross fixed capital formation. The share of building construction in total capital formation has started to decline following the 1994 financial crisis and dropped to 25 percent after the 2001 economic crisis. Since 2003, there has been an improvement in investment in the construction sector.

Table 8 and Table 9 give a clear picture on the dominant role of the private sector in building construction in Turkey.<sup>1</sup> When the number of new buildings according to the construction permits is examined throughout the 1954-2005 period, it can be seen that on the average, the private sector accounts for over 85 percent of the total new building construction. When the completed buildings according to the occupancy permits are examined, the private sector accounts for more than 90 percent from 1964 until the end of 1990s. In particular, private sector plays a dominant role in residential building construction in Turkey. As of 2005, 91 percent of the housing starts with construction permits and 77 percent of the residential buildings with occupancy permits come from the private sector.

The evolution of construction and occupancy permits for residential dwelling units give a clear picture of the state of the construction industry over time. In Figure 10, from 1958-1968, the small number of construction permits reflects the low levels of urbanization in the country. After 1966 until 1980, construction permits each year continuously increased. Following the military coup in 1980 until 1984, there was a decline in the housing starts. However following the transition to the democratic rule in 1984, and liberalization of the economy, there was a boom in the housing starts for a decade, which coincided with the rapid urbanization and mass migration from rural areas. From 1984-1994, the cumulative number of construction permits obtained reached to 4,544,907. Except for the recession following the first Gulf War in Iraq during 1990-1991, on average over 400,000 dwelling units obtained construction permits every year during the 1984-1994 period.

Following the 1994 financial crisis until the end of 2002, Turkish economy experienced several negative shocks that adversely affected the construction sector. Table 12 shows that the private gross fixed capital formation in building construction declined from 1996 until 2003. The 1994 financial crisis followed by a sharp devaluation of the currency led to a contraction in GDP by 5.5 percent. In 1998 Russian default had a contagious effect on the Turkish financial markets and led to a capital outflow, which in turn increased the overall interest rates in the economy. The 1999 earthquake severely hit the industrial areas of İzmit and İstanbul. In that year, GDP decreased by 4.7 percent and the private investment in construction sector declined by 8.8 percent. In 2000 and 2001, Turkish economy experienced a severe economic crisis. The construction sector went into a slump afterwards until 2003.

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<sup>1</sup> The data presented in these tables can be analyzed graphically in Figures 8 and 9.

As displayed in Figure 6 and 7, following the IMF based disinflation program, with the fall of the interest rates to around 15 percent and decline in inflation to 10 percent, the demand for housing started to improve again after 2003.<sup>2</sup> The number of construction permits increased from 161,431 in 2002 to 510,080 in 2005. Between 2004 and 2006, the investment in construction sector grew by more than 25 percent. Falling interest rates after 2003 have increased the demand for housing and created an increase in house prices that is above the average growth of the consumer price index.<sup>3</sup>

When the evolution of occupancy permits for completed buildings are examined in Figure 11, we observe similar tendencies in the number of occupancy permits each year although it is less volatile compared to the construction permits data.

## **V. Housing Finance in Turkey**

Because of the inflationist economy, lack of housing policies on tenants, and the underdeveloped institutional housing finance to foster homeownership for low and middle income families, home ownership in Turkey is financed predominantly through family resources such as financial savings and inheritance. Private sector construction companies are the main providers of the housing. Despite the prevalence of self-financing of home ownership, housing development and finance through quasi-governmental institutions as well as the financial system still exist in Turkey.

### **V.I Housing Finance by the Government**

Housing finance through the quasi-governmental institutions in Turkey started with the provision of credits for low income families through the Ministry of Public Works and Settlement, which helped to construct more than 800,000 dwellings between 1966 and 1988. Between the years 1962-1992, the Social Security Organization (SSK), the Social Insurance Establishment for Tradesmen, Artisans and Other Independent Workers (BAĞ-KUR), and the Armed Forces Pension Fund (OYAK) provided funds for the housing construction and produced more than 300,000 dwellings (see Sarı, Ewing, and Aydın, 2007).

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<sup>2</sup> A study by Sarı, Ewing, and Aydın (2007) investigates the relation between the housing starts using construction permits and macroeconomic variables in Turkey from 1961 to 2000. Their results indicate that shocks to interest rates, output and prices have noticeable effects on changes in housing investment in Turkey. In the housing equation, the effects of prices, real national income and interest rates explain more than 22 percent, 14 percent and 12 percent of the variance in housing investment respectively. This paper highlights the discouraging effects of high inflation and interest rates on housing construction during the 1994-2001 period.

<sup>3</sup> Özsan and Karakaş (2005) attribute a significant portion of this increase to decreasing interest rates and more readily available housing loans. According to Oyak Konut market studies they cited, there is a marked rise of around 40 percent in house prices in selective high growth residential areas of Istanbul and Ankara. On the other hand, there are doubts as to whether a house price bubble currently exists (see Binay and Salman, 2008). House prices have merely reached the pre-crisis levels in real terms.

In order to solve the housing problem in a comprehensive manner and to increase the housing production at the national level, Turkish government passed the Housing Development Administration Fund Law No. 2487 in 1981. The basic goal in establishing the Housing Development Fund was to provide public support for housing through public revenues earmarked for this purpose and to achieve orderly urban development. In 1984, Housing Development Administration Law No. 2985 came into force to expand credit provision for housing and housing production on behalf of the Turkish government. In the same year a new legal entity, the Housing Development and Public Participation Administration, was established. In 1990, the Housing Development Administration (TOKİ) was transformed into a separate entity with the Governmental Decree No. 412.

As reflected in its mandate, Housing Development Administration (TOKİ) can be considered as the biggest housing developer in Turkey working on behalf of the government.

Some of the main duties of the Housing Development Administration (TOKİ) are the establishment of construction companies related with the housing sector or participating in those that have already been established; ensuring the participation of the banks in financing housing; providing banks with credit to this end; and granting individual and mass housing credits.

Turkey is known to have an underdeveloped private housing mortgage market. Public institutions and state-owned banks have been the main providers of housing and mortgage financing. In this regard, Housing Development Administration (TOKİ) manages the provision of mortgage financing on behalf of the government using two main methods:

#### **A. Real Estate Development on Housing Development Administration's Own Land**

For mass housing development projects produced on public land, the Housing Development Administration (TOKİ) has the target group of low and middle-income families (20-40 percent of the income distribution) comprised of poor citizens, widows, orphans, handicapped people, and the citizens who work for the public sector with considerably low prices, who are not able to own a housing unit within the existing market conditions in Turkey.<sup>4</sup> Between the years 1984 and 2003, TOKİ developed 43,145 housing units. From the beginning of 2003 until the end of 2004, projects for 100,000 housing units were initiated on the lands of the Housing Development Administration in 75 cities in Turkey.<sup>5</sup>

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<sup>4</sup> As a governmental agency, the Housing Development Administration has adopted a model to provide mortgage loans with long maturities and low yield. Through this method, the selling of the housing units takes place before the construction period. 10-40 percent of the cost of the house is initially collected as a down payment, depending on the affordability of the target population and the rest of the cost is spread over a maturity ranging from 75-240 months. The nominal balance of the house is indexed to the nominal interest rate equated to the rate of inflation and the repayments are indexed to the wage increases in the public sector in every six months. Erbaş and Nothaft (2005) mention that Mexico also designed a mortgage indexation scheme similar to Turkey. Among the mass houses provided by TOKİ, 31 percent of the housing credits has been used by workers, 30 percent of the housing credits has been used by civil servants, 7 percent by retired, 13 percent by middle tradesmen.

<sup>5</sup> See Tuhral (2005).

## B. Credit Applications

The Turkish residential mortgage market has a monopolistic structure with a few dominant players in the housing finance sector. To partially finance the private construction, the Housing Development Administration coordinates with the commercial banks in supplying credit to real estate developers. Initially, the Turkish government established the Mass Housing Fund in 1984 to mobilize resources through taxes, and then lend them through the Housing Development Administration (TOKİ) and its loan originator banks of Emlak Bank and Vakıf Bank to finance housing construction and long-term mortgage loans at low fixed interest rates.<sup>6</sup> However, the Housing Development Administration over time lost its monopoly as a housing finance institution because of the decreasing value of its fund under the weight of interest rate subsidies and its mortgage products with very low loan-to-value ratios.<sup>7</sup>

Currently, according to the protocols with the Housing Development Administration, in the condition that developers delay payment of the credits, banks act as guarantors and pay the loan to TOKİ and claim that from the developer. The repayment time period is between 5 and 10 years. The interest rate is the same as the average increase of the public sector wages.

Table 10 displays the total number of new dwelling units produced in each year according to the construction permits and data for the new dwelling units that obtained credit from the Housing Development Administration each year and the share in total number of dwellings. It can be seen from this table that the Housing Development Administration provided credit for a total number of 1,045,968 dwellings during 1984-2002 although the number of dwellings that obtained credit declined since the early 1990s. Table 11 shows that during the 1984-1999 period, 940,097 completed dwelling units that obtained occupancy permits were supported by credit from the Housing Development Administration. Among this number, 84 percent have been produced by housing contractors and construction cooperatives.

Although the share of the private sector in building construction has been over 90 percent until the 1980s, this share has declined by 20 percent during the 1980-2000 period due to the emerging share of construction cooperatives. As can be seen in Table 8, in 1989, the share of construction cooperatives constituted 30 percent of the new building construction. Since the 1990s, there has been a declining trend in the new building starts by the construction cooperatives. The share has dropped from 20 percent in

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<sup>6</sup> The funds to be distributed as housing credit by the Housing Development Administration were obtained from 26 percent of the fuel oil taxes, 18 percent of the import taxes, 28 percent of the revenues from the state monopoly products, and 6 percent of the taxes taken from the people traveling abroad.

<sup>7</sup> Due to increase in inflation and inability to raise tax revenues earmarked for the Mass Housing Fund, the designated funds became insufficient over time. The ratio of mortgage credits to the cost of house decreased from 15.58 percent in the 1990s to 0.12 percent in 2000s. The Housing Development Fund ceased to exist in 2001 with the Law No. 4684. Currently, revenues of the Housing Development Administration (TOKİ) are obtained from real estate assets, which are sold and leased by TOKİ through income-sharing projects on valuable lands in especially big cities, to be used in projects for the people with low incomes; repayments of loans which are lent to other real estate developers by TOKİ; shares from land costs of housing and office units that are built on the lands of the Ministry of Treasury (see Sarı, Ewing, and Aydın , 2007 and Demir, Kurt, and Çağdaş, 2003).

1996 to 6 percent of the new building construction by 2005. However as can be seen in Table 9, from 1990-2005, the share of building cooperatives in completed buildings increased to 18 percent on average and private sector share stayed around 80 percent.

Table 10 and Table 11 give a clear picture about the role of construction cooperatives in the residential dwelling construction. The availability of loans from the Housing Development Administration extended to the members of construction cooperatives created a housing finance solution for the middle-income households that are first-time homeowners. During the 1985-1989 period, the share of construction cooperatives constituted 30 percent of the licensed new building construction. From 1984-1994, the cumulative number of construction permits obtained reached up to 4,544,907, of which 1,258,907 was given to construction cooperatives and of which 910,431 got credit from the Housing Development Administration.

The Emlak Bank dominated the housing finance market since the mid-1980s. According to Erol and Patel (2004), the Emlak Bank in addition to retail banking, had the legal authority to act as a lender and developer institution in the residential construction business. The bank raised funds for mortgage lending through capital markets as well as funds from the sale of its own houses.

In the early 1990s, the long-term mortgages offered by the Emlak Bank were mainly foreign currency loans denominated in the Deutsche Mark and the U.S. Dollars. Following the devaluation of the Turkish Lira in April 1994, the Emlak Bank, ceased all its mortgage activity and in 1998 the bank introduced index-linked payment mortgages designed to cope with high inflation.

The Emlak Bank offered mortgages for the purchase of three types of housing units: those constructed by the Emlak Bank, those constructed by the joint venture construction businesses, in which Emlak Bank participated with builders or developers, and those constructed by any builder in the market. The market value of mortgages offered for Emlak Bank's own dwellings was 56 percent of its total mortgage loan portfolio. Between 1994 and 2000, the Emlak Bank supported the creation of over 90,000 apartments until the bank ceased its operations in 2001 due to insolvency (see Sarı, Ewing, and Aydın, 2007).

## **V.II Housing Finance by the Mortgage Markets**

The existence of a well-functioning mortgage market can play important roles in the achievement of redistributive and growth-enhancing policy objectives. As Erbaş and Nothaft (2005) argue, the widespread availability of affordable mortgages can enhance the wealth accumulation, promote savings and financial market development, and stimulate the investment and job creation in the housing sector. International experience suggests that widespread availability of home mortgages has a favorable impact on the poverty alleviation, quality of housing, infrastructure, and urbanization.

The mortgage markets can also play a pivotal role in influencing the business cycle through consumer spending by transmitting monetary policy changes to housing price movements. Changes in interest rates can influence household expenditures through associated movements in housing prices. As argued by Catte, Girouard, Price and André (2004), the capacity of the households to adjust their current spending in response to shifting housing prices is strongly dependent on the functioning of the mortgage markets, the level of mortgage debt in the economy, distribution of the housing wealth, housing transaction costs, and the extent to which homeowners have access to greater liquidity in financial markets through housing equity withdrawal. If mortgage markets allow homeowners to borrow easily against their housing equity, rising property values encourage households to increase their current spending.

Turkey, as a developing country, has a highly volatile inflationary environment, in which low- and middle-income households have had no or limited access to mortgage financing. For the last few years, as Turkey's economic stability increased, there has been an increasing interest in the emergence of a national housing finance mortgage system. For that purpose, the Turkish parliament recently enacted the mortgage market legislation in February 2007.

In summary, the law regulates the mortgage credit contracts with fixed or variable interest rates; authorizes and specifies the conditions governing the issuance of mortgage-backed securities and asset-backed securities; authorizes and specifies the conditions governing housing finance institutions, such as banks, that operate in the primary market to finance the purchase of eligible real estate property, and mortgage finance corporations that operate in the secondary market by buying home loans from housing finance institutions. The law allows only eligible housing units with valid permits to have access to mortgages (see Erdilek, 2007).

Historically, existing mortgage market has been very underdeveloped relative to other OECD countries and some emerging market economies. A comparative study by Warnock and Warnock (2008) provides information on the average size of the housing finance systems as a share of GDP for 62 countries during the 2001-2005 period.

According to Figure 12, emerging market economies generally have smaller housing finance systems than developed countries. Among the 38 emerging markets, housing finance averages 10 percent of GDP, with the largest housing finance system being between 20 and 30 percent of GDP in Malaysia, Taiwan, Korea, South Africa, Estonia, and Israel. In contrast, housing finance in the 24 developed countries averages 55 percent of GDP. Turkey, on the other hand, stays close to the bottom of the list with an average 0.3 percent mortgage debt to GDP ratio during the 2001-2005. Accordingly, only 3 percent of the population or less than 1 percent of the households had an outstanding mortgage balance (see Tuhral, 2005 and Özsan and Karakaş, 2005).

Several comparative international studies on mortgage markets have identified number of reasons behind the successful development of mortgage markets. First, countries with strong legal rights through collateral and bankruptcy laws; a more stable macroeconomic environment and factors that promote the mobilization of funds through stable capital markets are found to have more developed mortgage markets (see Warnock and Warnock, 2008 and Sanders, 2005).

Second, private mortgage markets must have well-functioning credit information systems on the creditworthiness of potential borrowers. If this condition is lacking, as in many developing countries, mortgage markets tend to have an ample supply of loans for high-income households but a shortage for low- and middle-income households (see Erbaş and Nothaft, 2005).

The mortgage finance has been inaccessible to a large portion of the population including low- and middle-income households in Turkey. Although the target market for mortgage lending activities is assumed to be the middle income families, outstanding mortgage loan amount per person suggests that they are mainly upper level income families (see Özsan and Karakaş, 2005). Large down payment, high interest rates and short-term loan repayment requirements have been the norm in available mortgages and consequently, the payment schedule offered by the commercial banks is not affordable for an average household (see Binay and Salman, 2008). This type of lending practices leaves a wide segment of the households underserved. As mentioned above, the middle income households are targeted by governmental agencies to a very limited extent and low income families are either tenants, live in a family-financed housing or in illegal dwellings.

Mortgage lending in Turkey has been mainly limited due to high inflation and interest rates. The high domestic debt requirement of the Turkish Treasury and high interest rates offered by the domestic debt instruments have indirectly affected the cost of funds available for mortgage lending and inhibited the growth of retail banking in general.

Mortgage lending has also been limited because lenders are funding mortgage loans from their deposit base, and have a fundamental mismatch between assets and liabilities. When the average term of savings deposits is less than two months, even mortgages with 5-8 years maturity create an enormous amount of risk load on balance sheets of banks (see Tuhral, 2005).

In addition, banks are limited to providing only fixed-rate mortgages under the Consumer Law (see Özsan and Karakaş, 2005). One consequence of this limitation under the inflationary environment is that lenders mainly originate short-term mortgages. The longest term for the existing residential loans has been 60 months for loans in Turkish Lira and 180 months for loans in foreign currencies, which makes it impossible to have loan installments as low as the rent.

Finally, since 40 percent of the existing dwelling stock has no construction license, many low income households are not able to apply for residential loans for unlicensed housing.

In the absence of a developed mortgage system, less than 5 percent of housing finance has been provided by commercial banks as part of their consumer lending activity in the 1990s (see Erbaş and Nothaft, 2005). Until the late 1990s banks in Turkey were able to earn high interest income by investing in high-yield government bonds. As can be seen in Figure 7, with sovereign borrowing rates going down from over 90 percent to around 15 percent following the IMF-based disinflation program, a primary income source for banks in Turkey declined in early 2000s. Furthermore, improving macroeconomic conditions increased the demand for durables such as automobiles as well as real estate investment. As a result, the mortgage market began to grow as banks started to increase their exposure to corporate and consumer debt.

When the allocation of household credit is examined in Figure 13 between the consumer credit for housing, automobiles as well as individual credit cards during the 2000-2006 period, it can be clearly seen that the total household credit increased from 4.5 million U.S. dollars in 2003 to 47.6 million U.S. dollars in 2006. The cumulative amount of consumer credit reached up to 442.5 million U.S. dollars during the 2000-2006 period, of which around 92 million U.S. dollars was allocated as the Turkish Lira based housing loans, 65 million U.S. dollars as Turkish Lira based automobile loans and 171 million U.S. dollars as Turkish Lira based individual credit cards.

When the consumer loan portfolio of the Turkish banking system is examined in detail in Figure 14, it can be clearly seen that the share of housing loans in Turkish Lira increased from less than 2 percent of the total credit before 2003 to 12 percent by the end of 2006. Figure 15 looks at the allocation of consumer credit itself. This figure clearly reveals that the housing loans constituted about 6 percent of the total household credit until the end of 2003 and the share increased to 32 percent by the end of 2006.

In 2006, most of the commercial banks extend Turkish Lira based housing loans with maturities varying from 12 to 300 months. Products with over 120 months of maturity have been introduced recently. When the maturity structure of the housing loans are examined in Figure 16, it can be clearly seen the Turkish Lira based loans with a maturity of 61-120 months constitute the largest share of 44 percent followed by loans with a maturity of 37-60 months with a share of 26 percent. Loans with 121-180 month make up 13 percent of the housing loans where as loans with 181-240 months and loans over 241 months make up 3 percent of the loans in total. Therefore in comparison to the maturity structure of mortgage markets in developed countries, housing loans with maturities that are longer than 10 years constitute a much smaller portion of the housing loan portfolio of the Turkish banks.

## VI. Squatter Settlements

As a consequence of the massive urbanization and internal migration from rural to metropolitan areas, the rate of housing construction has not been able to match the rate of population increase. Because the public sector and financial markets have been unable to facilitate affordable housing delivery through the market mechanism for a large number of households, who do not have the means to purchase or rent housing units within the legal housing stock, excessive demand for affordable housing for low-income households in Turkey has been met by the construction of unauthorized dwellings at substandard quality in squatter settlements.

The Turkish word for squatter housing, “gecekondu” literally means “landed overnight”. Legally, what is understood from the term is a dwelling erected on land, which does not belong to the builder, without the consent of the owner, and without observing the laws and regulations concerning construction and building (see Başlevent and Dayıoğlu, 2005). Gecekondus are usually found at the outskirts of the major cities, built on state property or on land belonging to the municipalities.

Gecekondu settlements provide an attractive alternative for housing for most households at the bottom of the income distribution. In 1987, the price of formal sector housing units in Istanbul ranged from 11,364 U.S. dollars to 113,636 U.S. dollars while a majority of the gecekondu dwellings were sold at prices below 1,364 U.S. dollars (see Pamuk, 1996). Besides providing shelter to the relatively poorer sections of the society, gecekondu constitute a source of unearned income for many low income families and imputed rent from residing in squatter housing has a non-negligible positive impact on the income distribution.<sup>8</sup>

Due to lack of reliable data, information about the illegal building stock is limited. According to 2002 estimates, 27 percent of Turkey’s urban population resides in gecekondu. While 22 percent of the urban population of Ankara was living in squatter settlements in 1955, it reached 62.5 percent in 2002. This figure is estimated to be over 50 percent in Istanbul and Izmir. For the country at large, the share increased from 5 percent in 1955 to 27 percent in 2002 (see Başlevent, and Dayıoğlu, 2005). This picture shows the gravity of the unplanned settlements in Turkey.

In earlier decades prior to the 1960s, the gecekondu settlers were tolerated by the public as poor individuals trying to escape from rural poverty. This has discouraged the authorities from making a serious attempt to curtail the invasion of public land. Over time, the urban poor in gecekondu settlements gained an important leverage as a large political constituency. Recognizing the voting potential of such groups, the political parties either ended up granting amnesties to gecekondu or legalized them through

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<sup>8</sup> Başlevent and Dayıoğlu (2005) find that home-ownership has an equalising effect on income distribution in the urban areas of Turkey. Data from the 1994 Household Income Survey showed that when imputed rent is included in household income, the Gini coefficient for the bottom 20 per cent goes down.

the extension of land titles to dwellers and upgrading of gecekondu neighborhoods. This process has unintentionally accelerated the invasion of public property and widespread land speculation.

Main consequences of these amnesty laws and formalization of gecekondu settlements have been the extension of development and sale rights to illegally occupied land; commercialization of unauthorized housing production; proliferation of rental housing markets, and corresponding densification in the gecekondu settlements (see Pamuk, 1996). Other important contributing factors to the commercialization of the gecekondu districts have been their increasing proximity to the city centers and provision of infrastructure and public utilities to these districts by municipalities.

Table 13 provides a clear evidence of the scale of the illegally built squatter houses that were legalized by the Amnesty Law No. 2805 in 1983, Law No. 2981 and Law No.3290 in 1984. From 1984-1989, the number of gecekondu dwellings that obtained construction permits under the amnesty law constituted about 40 percent of the dwelling units that obtained the construction permit under the Construction Law No.3194. After 1993, this ratio fell below 1 percent due to narrower scope of the amnesty.

The number of gecekondu dwellings that obtained occupancy permits under the amnesty law during 1984-1987 constituted on average 80 percent of the dwelling units that obtained occupancy permit under the Construction Law No. 3194. The number even reached 128 percent of the dwellings with occupancy permits obtained through legal channels in 1985.

As Pamuk (1996) describes in detail, the character of gecekondu construction changed considerably as a result of the amnesty in 1984. The law not only legalized the illegally built squatter houses, but also allowed the owners to add a maximum of four floors to their buildings. Some gecekondu dwellers have greatly benefited from newly gained development rights on the plots they have occupied. In this process, the land owners have turned over the land to small scale contractors for the construction of a multi-story apartment building and in return gained ownership rights for a previously agreed percentage of the apartment units. This type of housing development system emerged in the context of limited capital and lack of access to construction loans from the banks. Furthermore, the amnesty laws have activated the land and dwelling acquisition in quasi-formal real estate markets in gecekondu settlements based on expectations of legalization in the future. Even though gecekondu is often characterized as lacking official title to land, households in gecekondu areas have been undertaking housing investments that are economically significant and actively engaging in entrepreneurial real estate activities. The presence of different degrees of property rights outside of the legal system and informal arrangements have not discouraged the conduct of monetary transactions and the proliferation of professionals specializing in land and real estate sale in the gecekondu settlements.

Rental markets also constitute an important feature of commercialization of the gecekondu settlements. The increased demand for housing by urban poor, lack of new vacant public land to occupy, and construction of multi-story apartments increased the share of tenants among the gecekondu settlers dramatically. This process has increased the densities in gecekondu settlements and compounded the already serious urban infrastructure deficiencies.

Even though commercialization and quasi-legal property ownership exist in the gecekondu areas, several researchers like Başlevent and Dayıoğlu (2005) argue that ownership of squatter housing hardly gives the dweller complete control over the real estate wealth. For instance, it is argued in this paper that extralegal property such as squatter housing is a “dead capital” because it cannot be used as collateral in any formal transaction in financial institutions or transferred legally to next generations as bequest. This extralegality forces the gecekondu communities to operate in a different social environment and to respect the informal social contracts rather than the legal system. It is further argued that this extralegal setup causes poorer segments of the society to remain undercapitalized as their property is not recognized outside the informal system they have created.

## **VII. Estimation of the Housing Wealth**

Having identified the basic characteristics of the housing market in Turkey, in this section of the paper, an estimation approach for the housing wealth series will be developed.

Previous studies have used various methods to estimate the housing wealth in Turkey. Akkoyunlu (2002) developed a model, which identifies the initial housing stock by dividing the population at the initial year by family size indicating the total number of households at that year. In the calculation of housing wealth, she used initial value of the house price index determined by the ratio of initial nominal private housing investment and initial real private investment. The depreciation rate is the inverse of the average life of a house and she used various ranges from 100 years to 30 years for the average life of a house. Real private housing investment series is obtained by dividing the nominal private housing investment series by housing price index. The change in the housing price index was constructed by adding 2 -5 percent per annum growth rate over the change in prices of other goods and services.

Akkoyunlu (2002) uses various assumptions for the growth rate of housing prices, depreciation rate and initial housing stock in order to make the estimated series consistent with the published data. She assumes that housing lasts 50 years on average and the real price increases by 3.25 percent per annum.

This method relies on many ad hoc assumptions to estimate the housing wealth. The paper fails to substantiate how some of the parameter values are chosen and why they are preferred over the others. Comparison of annual overall inflation and housing price inflation data during the 1984-2006 period shows that there is no substantial difference in the average growth rate of prices as there are periods

housing prices rise faster or slower than the overall inflation. At the same time, average housing age, which is important for the depreciation rate, is not consistent with the evidence. Around 80 percent of the building stock in Turkey was below 30 years of age according to the 2000 building census.

Aydede (2007) on the other hand, attempted to use occupancy permits and the number of households in Turkey in order to estimate the housing stock. The number dwelling units are obtained from occupancy permits statistics together with the dwelling value. In order to find the total stock of the dwelling units for each year, Aydede (2007) divides the total population by 4.362 to find the total number of households in 1970 and the number of new dwelling units is added to this number for the subsequent years. The housing wealth is computed by multiplying the total number of dwellings derived from this estimation with the dwelling value obtained from the occupancy permit statistics. The nominal values are deflated with consumer price index in 1987 prices.

The number 4.362 was chosen to find the same number of households (9,730,018) as found by the population census in 1985. However the other check point for total number of households in 1990 (11,188,636) is not consistent with his estimation.

Aydede (2007) accounts for this discrepancy in the following way. He argues that the number of total occupancy permits is not a correct measure to find each year's added dwelling units due to the existence of illegal occupations and high rural population, for which there is no need for permit. Therefore his measure of total number of dwelling units underestimates the correct number each year. Furthermore he does not introduce any depreciation rate for the housing stock. He argues however that since the price of the newly added dwelling units is the average price of all dwelling units, the total value of dwelling units may overestimate the true value of housing wealth. Even though these two factors may offset each other, his measure cannot directly point out the correct magnitude of the housing wealth.

This paper follows a different approach for the estimation of the housing wealth in Turkey although the approximation procedure incorporates some elements from Aydede (2007) and Akkoyunlu (2002). Instead of estimating the total housing wealth in Turkey, the paper will focus on a measure for urban, legal and licensed housing wealth. The most important reason for concentrating on the authorized housing is that Turkish urban planning authorities have problems with estimating the actual magnitude as well as the value of the squatter settlements. The issue is further complicated by the existence of quasi-legal status gained by some squatter settlements through amnesties or title deeds granted by municipal authorities. Adding the legally completed new dwelling units over a mixed stock of legal and illegal housing at an arbitrary initial year will simply not capture the development of the housing stock and housing wealth accurately.

Another important reason for concentrating on authorized housing is that the constructed housing wealth series will be used in the estimation of the housing wealth effect on consumption of durables and non-durables in Turkey. One of the most important channels, through which the housing wealth can affect consumption behaviour in the economy, is the collateral channel that allows the homeowners to borrow from the financial institutions using their homes as collateral. However for this to happen, the property ownership must be legally documented and the property must possess all the necessary construction and occupancy permits as well as technical standards to be eligible for real estate transactions. Since there is a substantial undocumented and unauthorized dwelling stock in Turkey, using total number of households from population census to estimate the total housing stock simply mixes the legal and illegal housing.

In order to estimate the legal urban authorized housing wealth, I use the 2000 Building Census figures on total number of dwellings in urban areas (cities and towns), total number of dwellings in urban areas with construction permits and total number of dwellings in urban areas with occupancy permits as displayed in Table 6. The figures indicate that there are about 16.2 million dwellings in 2000, of which 13.6 million are in cities and towns. Rural construction is not subject to the same requirements for occupancy and construction permits as the urban housing. Of the urban dwellings, 4,524,170 dwelling units have occupancy permits in 2000. This corresponds to 33 percent of the urban housing stock in 2000.

In this study the housing wealth in urban areas is estimated based on the residential housing data with occupancy permits. Obviously, ignoring the illegal construction will grossly underestimate the overall housing wealth in Turkey, however it will also allow us to concentrate on the housing wealth that can be transferable to next generations as bequest as well as used as collateral in the financial and legal system.<sup>9</sup>

All of the series used in the wealth estimation contain information about floor area of dwelling units produced over time and the average price of one square meter each year on an annual as well as quarterly basis for legal licensed housing. Following data series are used:

a. Production of dwellings (m2)

Series were obtained on a quarterly basis for 1986-2006 from OECD Main Economic Indicators.

b. Completed or Partially Completed New Buildings and New Additions according to Occupancy Permits

-Number of Buildings

-Floor Area (m2)

-Value, Turkish Lira

-Number of Dwelling Units

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<sup>9</sup> On the other hand, one can also plausibly claim that the urban dwellings stock with occupancy permits in 2000 contain some of the legalized squatter settlements during 1984-1998 following the amnesty. This one time legalization of certain squatter settlements in particular during the 1984-1987 period will simply increase the level of the stock measure without affecting the year to year changes occurring as a result of legal construction.

Data on building construction statistics are collected from municipalities of provinces, districts and sub-districts. The occupancy permits must be obtained for completed buildings. Buildings without permits in sub-districts, villages and squatter houses in cities are excluded. The data is annual from 1965-2005 and obtained from Turkish Statistics Office (TÜİK).

c. Residential Construction According to Occupancy Permits

- Number of Residential Buildings
- Area m<sup>2</sup>
- Value, Turkish Lira

Data is obtained on a quarterly basis from 1993-2007 from State Planning Organization Main Economic Indicators Fixed Capital Investment series.

From the TÜİK residential construction with occupancy permits data, average dwelling price in 2000 can be obtained, which is 14,940,617,152 TL (23,897 U.S. dollars). 2000 is the base year, therefore this is the real value of the dwelling unit in Turkish Lira terms.

The number of dwellings (4,524,170) is multiplied with the average dwelling price in 2000 in order to get the value of the total dwellings. (67,593,891,902,435,800 TL) This figure is converted into total floor area in square meters because the flow of residential construction data is in terms of square meters in each quarter.

The real price of one square meter at 2000:Q4, which is 111,559,061 TL is from the State Planning Organization data. By dividing the real value of total dwellings with the real price of one square meter floor area, total floor area of the dwelling stock at the end of 2000 is obtained. (605,902,302 square meters).

Total square meter floor area of residential production according to the occupancy permits is available from 1993:Q1-2007:Q2 from the State Planning Organization (DPT) dataset. The TÜİK dataset provides total floor area of residential dwellings production on an annual basis from 1965-2005. The OECD quarterly floor area production of dwellings data is used to interpolate the annual data to quarterly series by using the quarterly growth rates from the OECD production figures before 1993. Total OECD production of dwellings is smaller than the TÜİK values, however quarterly percentage change of the floor area production is approximately same as the DPT dataset. For 1995 original quarterly data is reconstructed using the OECD growth rates in order to smooth the construction flow series.

In order to construct the floor area of dwelling stock each period, residential square meter construction (flow) each quarter is added (or subtracted for periods before 2000:Q4) to the stock of residential floor area using one percent quarterly depreciation (4 percent annualized). I use 2000:Q4 floor area measure as the fixed point in the calculation.

$$\text{Floor Area}_{t-1} \times (0.99) + \text{Residential Construction}_t = \text{Floor Area}_t$$

The choice of depreciation rate comes from the inverse of the average age of building stock in Turkey. According to findings of 2000 building census, 80 percent of the dwelling stock is less than 30 years of age and average age of buildings in 5 big cities is less than 25 years.

As the final step to compute the real value of housing stock, the total floor area is multiplied with the real price of one square meter for each quarter. Until 1993:Q1 the square meter values are available only on an annual basis, therefore the average price is assumed to be constant each quarter. After 1993:Q1, quarterly square meter price data is used. Nominal floor area prices are deflated with 2000 base year annual consumer price index before 1993:Q1 and with quarterly consumer price index after 1993:Q1. In order to smooth the price series for 1995, average annual price is used for each quarter.

The real value of housing stock is converted into new Turkish Lira. Per capita measures were obtained by dividing the real series with population. Population series were obtained on a quarterly basis from OECD Analytical Database for the period of 1987:Q1-2006:Q4. All of the series in the study are seasonally unadjusted.

Figure 17 shows the price per square meter floor area deflated with the consumer price index. Figure 18 shows the quarterly residential floor area construction that is added to the floor area measure of the housing stock figure obtained from 2000 building census. The construction figures refer to the quarterly additions to the legally licensed residential dwellings floor area and as mentioned, values before 1993:Q1 are interpolated using OECD quarterly growth rates. Figure 19 displays the stock of floor area of dwellings in square meters obtained after depreciation. The total floor area of dwellings in 2000:Q4 corresponds to the 2000 census figure. Figure 18 and Figure 19 successfully display the secular upward trend in the dwelling stock in Turkey during the 1987-2006 period together with the decline in the rate of residential construction following 2001 crisis and the increase after 2003 with the improvement in the economy.

Figure 20 shows the real per capita housing wealth series constructed using the real price per square meter floor area in Figure 17 and the dwelling stock in Figure 19. The movement of the series is consistent with the real prices per square meter floor area. The estimated housing wealth series gives a rich exposition of the quarterly cyclical developments in the residential construction sector during the 1987-2006 period.

As explained by the evolution of the occupancy permits for residential dwellings, following the transition to the democratic rule in 1984, and liberalization of the economy, there was a boom in the housing starts for a decade, which coincided with the rapid urbanization and mass migration from rural areas. In addition, the availability of loans from the Housing Development Administration (TOKİ) extended to the construction cooperatives, which are mainly founded by the middle-income households that are first-time homeowners, provided an additional impetus to the housing sector until the mid-1990s.

Therefore the estimated housing wealth series reflects the secular upward trend in the real floor area prices and dwelling stock during this period, which result from the strong supply and demand conditions in the housing sector.

Following the 1994 financial crisis until the end of 2002, Turkish economy experienced several negative shocks that adversely affected the construction sector. The 1994 financial crisis followed by a sharp devaluation of the currency led to a contraction in the economy. In 1998, the contagious effects of the Russian default led to a capital outflow from the financial markets, which in turn increased the overall interest rates in the economy. The 1999 earthquake severely hit the industrial areas of İzmit and İstanbul. In that year, GDP and the private investment in construction sector declined significantly. In 2000 and 2001, Turkish economy experienced a severe economic crisis. The construction sector went into a slump afterwards until 2003. The combined effect of the declining rate of growth in the number of occupancy permits as well as the falling floor area prices has been captured successful by the persistent fall in the estimated housing wealth series from 1994 until the second quarter of 2002 in Figure 20.

Following the IMF based disinflation program, the housing sector started to improve again. Between 2003 and 2006, the investment in construction sector grew rapidly following the fall in interest rates and inflation, the availability of housing loans from the banking industry, and the mass housing projects initiated by the Housing Development Administration (TOKİ). Consistent with the general improvement in the macroeconomic outlook and the revitalization of the residential construction sector, both floor area prices and the rate of growth in the housing stock have started to increase after 2003. The estimated housing wealth series reflect these cyclical developments although it can be concluded that the per capita housing wealth has not yet recovered to the pre-crisis level in 2001.

## **VIII. Conclusion**

This paper provides a comprehensive look at the housing market characteristics in Turkey. The analysis concludes that the home ownership in Turkey is very high although the existing housing stock is unevenly distributed across income groups. As a consequence of high population growth, declining household sizes, massive urbanization and internal migration from rural to metropolitan areas, the rate of housing construction falls behind the rate of household formation, which has created an excessive demand for affordable housing in Turkey. The public sector and financial institutions such as mortgage markets have been unable to facilitate affordable housing due to unfavorable macroeconomic climate and lack of institutional infrastructure. Therefore home ownership is mainly financed through private financial savings. The unmet demand by the low-income households in Turkey has resulted in the construction of unauthorized dwellings in squatter settlements.

On the basis of these characteristics, this paper develops an estimation of the housing wealth in Turkey using primary sources on housing stock, residential construction figures and average floor area prices obtained from building census, construction and occupancy permit statistics. Unlike the previous literature estimating the housing wealth using total number of households in the population, this paper estimates the housing wealth associated with the dwellings with occupancy permits in order to capture the collateral channel, through which home owners can borrow from the financial institutions using their legally documented homes as collateral. Since there is a substantial undocumented and unauthorized dwelling stock in Turkey, using this methodology to measure the housing wealth will potentially avoid the problems associated with identifying the extent of the illegal housing stock.

Another strength of this methodology in comparison to the previous studies is that quarterly data series are used in the estimation of the housing wealth. The movements of the housing wealth series are consistent with the developments in the residential construction sector in Turkey during the 1987-2006 period, which is highly sensitive to the cyclical conditions of the economy. The estimated downward trend in the housing wealth after 1997 is mainly driven by the decline in the real residential floor area prices as well as the fall in the rate of growth of the residential construction with occupancy permits as a consequence of the slump in the housing sector following the financial crises in 1994 and 1998, the earthquake in industrial centers in 1999 and the economic crisis in 2001. Consistent with the general improvement in the macroeconomic outlook after 2003, the housing wealth has started to increase. In conclusion, it can be argued that this measure successfully captures the cyclical fluctuations of the housing wealth in Turkey, which may not be adequately studied using solely the annual data, and therefore can be used in econometric analysis to estimate the relationship between the housing wealth and consumption behaviour of households.

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**Table 1: Rate of Homeownership in Urban Areas (in percent)**

	Households Not Paying Rent	Tenant Households
1965	61.34	38.66
1970	62.04	37.96
1975	63.86	36.14
1985	63.49	36.51
1990	58.92	41.08
2000	68.40	31.60
Homeowner	59.80	
Housing Provided by Employer	2.20	
Not Home Owner-No Rent	5.50	
Other	0.80	
Unknown	0.10	

Source: Data compiled from the population census cited by Kayıket (2003) and the study on home ownership in Turkey by the Undersecretariat of Housing (2003).

**Table 2: Distribution of Household Disposable Income (in percent)**

	1987	1994	2002	2003	2004	2005
Total Income	100.00	100.00	100.00	100.00	100.00	100.00
Wages, Salaries and Daily Wage	24.10	28.30	38.75	41.78	42.16	42.52
Entrepreneur Income	51.50	42.40	34.45	32.02	31.81	28.81
Agriculture	22.80	16.70	13.16	9.84	9.38	
Manufacturing		4.40	3.33	3.96	3.93	
Construction		1.70	1.30	1.32	1.22	
Commerce		14.40	9.76	10.46	10.19	
Services		5.20	6.90	6.44	7.08	
Property Income	13.60	19.30	9.25	6.22	4.85	5.63
Real Estate Income	11.80	11.60	4.11	3.59	2.65	2.92
Imputed Rent *		6.60				
Actual Rent		5.00	4.11	3.59	2.65	2.92
Income from Financial Assets	1.80	7.70	5.14	2.63	2.20	2.71
Transfer Income	10.80	10.00	17.54	19.98	21.19	23.05
From the Government		6.90	14.27	17.45	18.33	
From Abroad		1.40	0.89	0.60	0.85	
From Other Sources		1.70	2.38	1.93	2.01	

Source: TÜİK Household Income and Consumption Expenditures Surveys provided by Yükseler (2003), Yükseler (2004), and Yükseler and Türkan (2007). \*Imputed rent income is not included except for 1987 and 1994.

**Table 3: Income Distribution in Turkey**

	1963	1968	1973	1987	1994	2002	2003	2004	2005
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
First 20 % (Q1)	4.50	3.00	3.50	5.20	4.90	5.30	6.00	6.04	6.05
Second 20 % (Q2)	8.50	7.00	8.00	9.60	8.60	9.80	10.30	10.70	11.08
Third 20 % (Q3)	11.50	10.00	12.50	14.10	12.60	14.00	14.50	15.22	15.83
Fourth 20 % (Q4)	18.50	20.00	19.50	21.20	19.00	20.80	20.90	21.88	22.60
Fifth 20 % (Q5)	57.00	60.00	56.50	49.90	54.90	50.10	48.30	46.17	44.44

Source: Yükseler (2004) and Yükseler (2007)

**Table 4: Population Characteristics in Turkey**

Years	Total Population (in thousands)	Total Population Growth (%)	Total Number of Households (in thousands)	Average Size of Households (number of persons)	Distribution of Population by Age Groups (Percent)		
					0-14	15-64	65+
1960	27,509	2.52	4,885	5.68	42.36	54.19	3.45
1965	31,151	2.50	5,536	5.67	42.88	53.20	3.92
1970	35,321	2.58	6,262	5.69	41.55	54.17	4.28
1975	40,025	2.35	6,983	5.78	41.39	54.22	4.39
1980	44,484	2.26	8,522	5.25	40.42	55.03	4.56
1985	50,286	2.46	9,730	5.21	38.48	57.37	5.15
1990	56,154	2.28	11,189	5.05	35.75	60.25	4.00
1995	61,737	1.86		n.a.	33.00	62.47	4.53
2000	67,420	1.70	15,070	4.50	30.46	64.39	5.15
2005	72,065	1.29		n.a.	28.27	66.12	5.60

Source: World Development Indicators and Turkish Statistics Office (TÜİK).

**Table 5: Urban Population Characteristics in Turkey**

Years	Urban Population (in thousands)	Proportion of Urban Population (%)	Urban Population Growth (%)	Population in Istanbul (in thousands)	Population in urban	Population in urban
					agglomerations > 1 million (in thousands)	agglomerations > 1 million (% of total population)
1960	8,665	31.50	4.71	1,453	2,938	10.68
1965	10,654	34.20	4.06	2,001	4,157	13.35
1970	13,493	38.20	4.66	2,772	5,716	16.18
1975	16,650	41.60	3.97	3,600	7,171	17.92
1980	19,484	43.80	3.24	4,397	8,551	19.22
1985	26,350	52.40	5.77	5,407	10,460	20.80
1990	33,243	59.20	4.58	6,552	12,580	22.40
1995	38,339	62.10	2.78	7,665	14,465	23.43
2000	43,621	64.70	2.49	8,744	16,442	24.39
2005	48,500	67.30	2.05	9,712	18,431	25.58

Source: World Development Indicators

**Table 6: Characteristics of the Housing Stock in Turkey**

Building Census	1984	2000
Number of Municipalities	1,699	3,212
Number of Buildings	4,387,971	7,838,675
Number of Residential Buildings		6,735,813
Number of Dwellings	7,096,277	16,235,830
Number of Dwellings in Cities and Towns		13,597,676
Number of Construction Permits in Cities and Towns		8,366,428
Number of Occupancy Permits in Cities and Towns		4,524,170
Share of Construction Permits in Dwellings of Cities and Town (in percent)		61.53
Share of Occupancy Permits in Dwellings of Cities and Towns (in percent)		33.27
Share of Occupancy Permits in Construction Permits (in percent)		54.08

Notes: Dwelling Unit is defined as a separate and independent enclosure used for residence by a single person, a family, or a group of persons having a covered roof, a separate access to a street corridor or common place and door of its own.  
Source: 2000 Building Census Conducted by State Statistics Office (TÜİK)

**Table 7: Top Five Cities with the Largest Share in Building and Dwelling Stock in 2000**

	Building Stock	Dwelling Stock	Average Age of Building
Istanbul	869,444	3,393,077	18
Izmir	522,243	1,140,731	23
Ankara	384,489	1,128,625	22
Bursa	270,023	640,197	19
Adana	253,447	469,189	18

Source: 2000 Building Census

**Table 8: New Buildings and Additions  
According to the Construction Permits by Type of Investor**

	Total	Private Sector	%	Construction Cooperatives	%	Public Sector	%
1954	51,374	49,602	96.55			1,772	3.45
1955	54,224	53,178	98.07			1,046	1.93
1956	50,666	49,618	97.93			1,048	2.07
1957	49,284	48,521	98.45			763	1.55
1958	50,848	50,135	98.60			713	1.40
1959	46,557	44,944	96.54			1,613	3.46
1960	49,133	48,342	98.39			791	1.61
1961	45,875	45,276	98.69			599	1.31
1962	47,555	46,708	98.22			847	1.78
1963	45,031	44,063	97.85			968	2.15
1964	48,781	47,484	97.34			1,297	2.66
1965	60,420	58,888	97.46			1,532	2.54
1966	67,650	66,092	97.70			1,558	2.30
1967	64,433	63,337	98.30			1,096	1.70
1968	71,364	69,944	98.01			1,420	1.99
1969	74,600	73,085	97.97			1,515	2.03
1970	75,503	70,418	93.27	3,666	4.86	1,419	1.88
1971	74,473	69,880	93.83	3,601	4.84	992	1.33
1972	76,149	71,075	93.34	3,621	4.76	1,453	1.91
1973	85,730	76,845	89.64	6,229	7.27	2,656	3.10
1974	73,207	67,306	91.94	4,564	6.23	1,337	1.83
1975	77,852	74,138	95.23	2,539	3.26	1,175	1.51
1976	74,988	70,548	94.08	2,168	2.89	2,272	3.03
1977	73,192	66,229	90.49	4,714	6.44	2,249	3.07
1978	84,319	76,167	90.33	4,672	5.54	3,480	4.13
1979	87,371	80,971	92.67	4,981	5.70	1,419	1.62
1980	69,579	63,308	90.99	5,156	7.41	1,115	1.60
1981	58,103	50,720	87.29	5,913	10.18	1,470	2.53
1982	54,361	44,812	82.43	7,983	14.69	1,566	2.88
1983	58,968	47,935	81.29	7,785	13.20	3,248	5.51
1984	63,153	51,258	81.16	9,105	14.42	2,790	4.42
1985	71,844	55,459	77.19	13,740	19.12	2,645	3.68
1986	102,888	71,500	69.49	28,240	27.45	3,148	3.06
1987	138,155	96,198	69.63	37,303	27.00	4,654	3.37
1988	139,995	94,870	67.77	41,671	29.77	3,454	2.47
1989	136,015	95,519	70.23	37,724	27.74	2,772	2.04
1990	123,304	95,795	77.69	23,477	19.04	4,032	3.27
1991	121,486	95,819	78.87	23,066	18.99	2,601	2.14
1992	137,990	100,115	72.55	30,709	22.25	4,166	3.02
1993	147,033	110,858	75.40	31,200	21.22	4,975	3.38
1994	143,281	111,579	77.87	28,153	19.65	3,549	2.48
1995	137,905	114,232	82.83	21,761	15.78	1,912	1.39
1996	126,722	98,093	77.41	26,572	20.97	2,057	1.62
1997	126,956	96,164	75.75	28,714	22.62	2,078	1.64
1998	116,235	87,057	74.90	25,956	22.33	3,222	2.77
1999	92,469	76,791	83.05	13,898	15.03	1,780	1.92
2000	79,140	62,154	78.54	12,664	16.00	4,322	5.46
2001	77,430	65,235	84.25	8,649	11.17	3,546	4.58
2002	43,430	36,379	83.76	4,928	11.35	2,123	4.89
2003	50,140	42,972	85.70	4,911	9.79	2,257	4.50
2004	75,495	67,592	89.53	5,793	7.67	2,110	2.79
2005	106,664	95,456	89.49	6,758	6.34	4,450	4.17

Notes: The first column of the table displays the total number of new buildings and additions according to construction permits each year. Definition of buildings is composed of residential apartments and houses, commercial and industrial buildings, and buildings used for social, health care, cultural, religious, and administrative purposes. The second column displays the new buildings that are produced by the private sector, the fourth column provides data for the buildings that are produced by the construction cooperatives and the seventh column provides data for the buildings produced by the public sector. Shares of each sector in total are provided in adjacent columns.

Source: Turkish Statistics Office (TÜİK) Construction Statistics.

**Table 9: Completed and Partially Completed New Buildings and Additions According to the Occupancy Permits by Type of Investor**

	Total	Private Sector	%	Construction Cooperatives	%	Public Sector	%
1964	10,331	9,636	93.27	330	3.19	335	3.24
1965	19,371	18,324	94.60	711	3.67	336	1.73
1966	22,254	21,827	98.08			427	1.92
1967	29,443	28,745	97.63			698	2.37
1968	37,669	36,957	98.11			712	1.89
1969	39,744	39,211	98.66			533	1.34
1970	42,274	40,159	95.00	1,328	3.14	787	1.86
1971	42,242	41,017	97.10	969	2.29	456	1.08
1972	52,182	50,449	96.68	1,430	2.74	303	0.58
1973	52,560	48,705	92.67	1,958	3.73	1,897	3.61
1974	48,068	46,699	97.15	1,071	2.23	298	0.62
1975	55,314	53,138	96.07	1,815	3.28	361	0.65
1976	49,550	48,021	96.91	1,149	2.32	380	0.77
1977	58,028	55,769	96.11	1,784	3.07	475	0.82
1978	56,525	53,514	94.67	2,489	4.40	522	0.92
1979	57,351	54,044	94.23	2,644	4.61	663	1.16
1980	63,331	60,390	95.36	2,351	3.71	560	0.88
1981	57,232	54,368	95.00	2,002	3.50	862	1.51
1982	54,156	50,449	93.15	2,787	5.15	920	1.70
1983	54,532	50,556	92.71	2,853	5.23	1,123	2.06
1984	57,231	52,853	92.35	3,228	5.64	1,120	1.96
1985	52,183	48,715	93.35	2,861	5.48	607	1.16
1986	71,461	65,936	92.27	4,371	6.12	1,154	1.61
1987	83,523	72,881	87.26	6,431	7.70	1,208	1.45
1988	83,714	76,223	91.05	6,263	7.48	1,228	1.47
1989	94,799	81,990	86.49	11,198	11.81	1,611	1.70
1990	94,489	81,699	86.46	10,332	10.93	2,458	2.60
1991	92,388	79,654	86.22	11,838	12.81	896	0.97
1992	105,293	87,588	83.19	16,528	15.70	1,177	1.12
1993	101,712	82,314	80.93	17,437	17.14	1,961	1.93
1994	99,993	83,443	83.45	15,607	15.61	943	0.94
1995	96,661	80,297	83.07	14,753	15.26	1,611	1.67
1996	104,776	83,713	79.90	19,478	18.59	1,585	1.51
1997	106,436	87,731	82.43	17,409	16.36	1,266	1.19
1998	91,816	77,680	84.60	13,020	14.18	1,116	1.22
1999	86,777	68,655	79.12	16,661	19.20	1,461	1.68
2000	90,849	73,205	80.58	16,746	18.43	898	0.99
2001	86,155	63,870	74.13	18,812	21.84	3,473	4.03
2002	47,197	31,513	66.77	15,062	31.91	622	1.32
2003	41,342	28,584	69.14	10,797	26.12	1,961	4.74
2004	40,792	31,644	77.57	8,510	20.86	638	1.56
2005	61,091	45,009	73.68	15,220	24.91	862	1.41

Notes: The first column of the table displays the total number of completed and partially completed new buildings and additions according to occupancy permits each year. The second column displays the new buildings that are produced by the private sector, the fourth column provides data for the buildings that are completed by the construction cooperatives and the seventh column provides data for the buildings completed by the public sector. Shares of each sector in total are provided in adjacent columns. Source: Turkish Statistics Office (TÜİK) Construction Statistics.

**Table 10: New Dwelling Units According to the Construction Permits by Type of Investor**

Years	Total Number of New Dwelling Units According to Construction Permits	Number of New Dwelling Units According to Construction Permits by Construction Cooperatives	Share of Construction Cooperatives in Total (%)	Number of New Dwelling Units with Credit from Housing Development Administration (Including Personal Credits)	Share of New Dwelling Units with Credit from Housing Development Administration in Total (%)
1958	53,389	1,837	3.44		
1959	51,091	323	0.63		
1960	56,227	718	1.28		
1961	52,760	3,524	6.68		
1962	58,748	3,756	6.39		
1963	57,286	2,148	3.75		
1964	60,822	1,478	2.43		
1965	80,461	2,795	3.47		
1966	91,151	3,570	3.92		
1967	99,373	4,172	4.20		
1968	110,263	4,514	4.09		
1969	132,066	8,277	6.27		
1970	154,825	11,654	7.53		
1971	150,357	14,561	9.68		
1972	165,983	14,277	8.60		
1973	194,981	25,507	13.08		
1974	161,047	13,966	8.67		
1975	181,685	14,005	7.71		
1976	224,584	16,643	7.41		
1977	216,128	25,142	11.63		
1978	237,097	26,049	10.99		
1979	251,846	31,437	12.48		
1980	203,989	31,538	15.46		
1981	144,397	26,904	18.63		
1982	160,078	48,518	30.31		
1983	169,037	36,841	21.79		
1984	189,486	38,426	20.28	149,947	79.13
1985	259,187	76,563	29.54	87,865	33.90
1986	392,825	142,779	36.35	157,776	40.16
1987	497,674	163,863	32.93	157,420	31.63
1988	473,582	167,514	35.37	58,883	12.43
1989	413,004	131,504	31.84	29,765	7.21
1990	381,408	70,730	18.54	113,039	29.64
1991	393,000	77,068	19.61	83,298	21.20
1992	472,817	122,694	25.95	24,811	5.25
1993	548,130	136,012	24.81	17,053	3.11
1994	523,794	131,780	25.16	30,574	5.84
1995	518,236	111,106	21.44	26,570	5.13
1996	454,295	103,757	22.84	26,999	5.94
1997	464,117	119,320	25.71	22,559	4.86
1998	432,599	104,186	24.08	37,620	8.70
1999	339,446	70,323	20.72	15,601	4.60
2000	315,162	61,267	19.44	2,899	0.92
2001	279,616	40,469	14.47	3,289	1.18
2002	161,431	23,561	14.60		
2003	202,237	20,347	10.06		
2004	329,774	27,209	8.25		
2005	510,080	34,786	6.82		

Notes: The first column of the table displays the total number of new dwelling units produced in each year according to the construction permits under the Construction Law No.3194. The second and the third columns display the new dwelling units with construction permits that are produced by the construction cooperatives and the share of this construction in total respectively. The fourth and the fifth columns provide data for the new dwelling units that obtained credit from Housing Development Administration each year and the share in total number of dwellings respectively.

Source: State Planning Organization Special Commission Report on Housing 2001; Turkish Statistics Office (TÜİK) Data on New Dwelling Units According to the Construction Permits and Housing Development Administration (TOKİ)

**Table 11: New Dwelling Units According to the Occupancy Permits by Type of Investor**

Years	Total Number of New Dwelling Units According to Occupancy Permits	Number of New Dwelling Units According to Occupancy Permits by Construction Cooperatives	Share of Construction Cooperatives in Total (%)	Number of New Dwelling Units with Credit from Housing Development Administration (Including Personal Credits)	Share of New Dwelling Units with Credit from Housing Development Administration in Total (%)
1964	14,313	797	5.57		
1965	32,614	1,579	4.84		
1966	40,973	2,967	7.24		
1967	50,282	2,231	4.44		
1968	62,910	3,508	5.58		
1969	65,185	3,310	5.08		
1970	71,589	3,734	5.22		
1971	72,816	4,019	5.52		
1972	88,228	5,636	6.39		
1973	96,133	8,153	8.48		
1974	84,199	5,830	6.92		
1975	97,431	7,892	8.10		
1976	102,110	9,166	8.98		
1977	116,409	10,917	9.38		
1978	120,615	11,688	9.69		
1979	124,297	13,978	11.25		
1980	139,207	12,056	8.66		
1981	118,778	12,501	10.52		
1982	115,986	15,571	13.42		
1983	113,453	17,201	15.16		
1984	122,490	19,456	15.88	7,350	6.00
1985	118,205	21,273	18.00	46,672	39.48
1986	168,597	34,311	20.35	82,594	48.99
1987	191,109	41,931	21.94	35,038	18.33
1988	205,485	43,389	21.12	93,279	45.39
1989	250,480	67,140	26.80	126,221	50.39
1990	232,018	58,566	25.24	75,120	32.38
1991	227,570	61,842	27.17	78,134	34.33
1992	268,886	83,204	30.94	86,479	32.16
1993	269,694	83,421	30.93	85,901	31.85
1994	245,610	68,767	28.00	69,235	28.19
1995	248,946	68,799	27.64	47,702	19.16
1996	267,300	79,229	29.64	39,882	14.92
1997	277,026	76,541	27.63	45,302	16.35
1998	238,958	64,438	26.97	21,188	8.87
1999	215,613	64,997	30.15		
2000	245,155	78,799	32.14		
2001	243,464	84,576	34.74		
2002	161,374	51,610	31.98		
2003	162,781	51,941	31.91		
2004	164,734	46,528	28.24		
2005	240,269	53,247	22.16		

Notes: The first column of the table displays the total number of new dwelling units produced in each year according to the occupancy permits under the Construction Law No.3194. The second and the third columns display the new dwelling units with occupancy permits that are produced by the construction cooperatives and the share of this construction in total respectively. The fourth and the fifth columns provide data for the new dwelling units that obtained credit from Housing Development Administration each year and the share in total number of dwellings respectively.

Source: State Planning Organization Special Commission Report on Housing 2001; Turkish Statistics Office (TÜİK) Data on New Dwelling Units According to the Construction Permits and Housing Development Administration (TOKİ)

**Table 12: Annual Growth in Private Investment in Construction Sector and GDP**

	Gross Fixed Capital Formation in Building Construction (in percent)	GDP (in percent)
1987	n.a.	n.a.
1988	19.60	2.10
1989	3.40	0.30
1990	-3.20	9.30
1991	-0.40	0.90
1992	5.50	6.00
1993	13.70	8.00
1994	9.20	-5.50
1995	4.20	7.20
1996	-1.70	7.00
1997	-0.40	7.50
1998	-1.80	3.10
1999	-8.80	-4.70
2000	-9.70	7.40
2001	-8.00	-7.50
2002	-14.90	7.90
2003	-11.40	5.80
2004	15.30	8.90
2005	29.90	7.40
2006	26.40	6.10

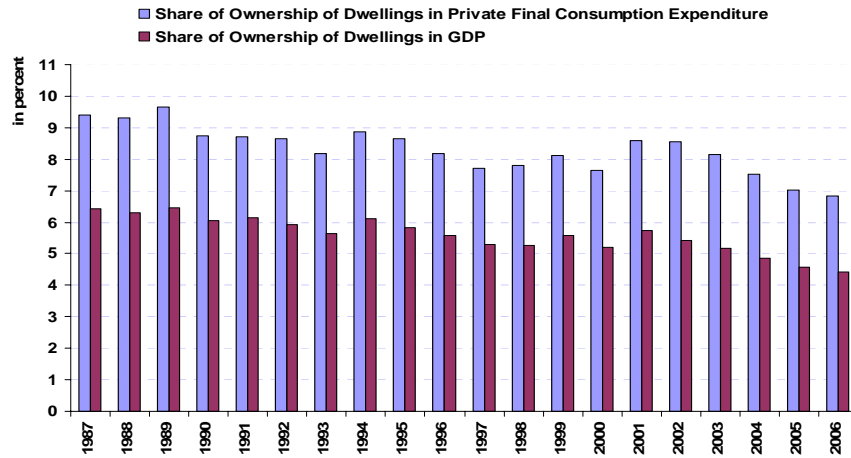
Notes: The series for annual private gross fixed capital formation in building construction and gross domestic product are obtained from the Turkish Statistics Office (TÜİK) data using expenditure on the gross domestic product during 1987-2006 at 1987 prices. Growth rates represent annual percentage changes. Source: Turkish Statistics Office (TÜİK)

**Table 13: New Dwelling Units According to Construction and Occupancy Permits under the Amnesty Law**

Years	(A)	(B)	B/A (%)	(C)	(D)	D/C (%)
	Total Number of New Dwelling Units According to Construction Permits under the Construction Law No. 3194	Total Number of New Dwelling Units According to Construction Permits under the Amnesty Law No. 2981 and No.3290		Total Number of New Dwelling Units According to Occupancy Permits under the Construction Law No. 3194	Total Number of New Dwelling Units According to Occupancy Permits under the Amnesty Law No. 2981 and No.3290	
1984	189,486	78,350	41.35	122,490	73,972	60.39
1985	259,187	114,911	44.34	118,205	151,814	128.43
1986	392,825	160,695	40.91	168,597	152,453	90.42
1987	497,674	219,916	44.19	191,109	189,263	99.03
1988	473,582	55,402	11.70	205,485	47,892	23.31
1989	413,004	49,871	12.08	250,480	49,871	19.91
1990	381,408	17,580	4.61	232,018	17,155	7.39
1991	393,000	10,712	2.73	227,570	10,124	4.45
1992	472,817	10,872	2.30	268,886	10,786	4.01
1993	548,130	2,600	0.47	269,694	3,234	1.20
1994	523,794	5,201	0.99	245,610	5,114	2.08
1995	518,236	2,148	0.41	248,946	2,630	1.06
1996	454,295	1,744	0.38	267,300	2,127	0.80
1997	464,117	915	0.20	277,026	1,001	0.36
1998	432,599	1,094	0.25	238,958	836	0.35

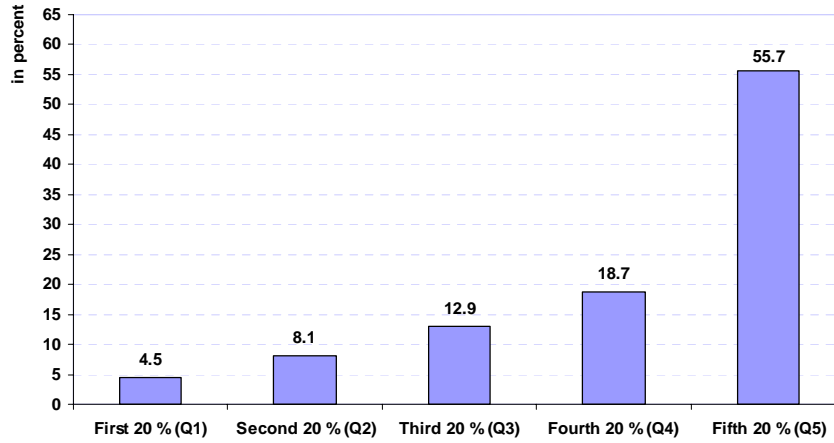
Source: Turkish Statistics Office (TÜİK) and State Planning Organization (DPT), 2001, "Special Commission Report on Housing (Konut Özel İhtisas Komisyonu Raporu)", 8<sup>th</sup> Five Year Development Plan, DPT 2594-ÖİK 606.

**Figure 1: Income from Ownership of Dwellings**



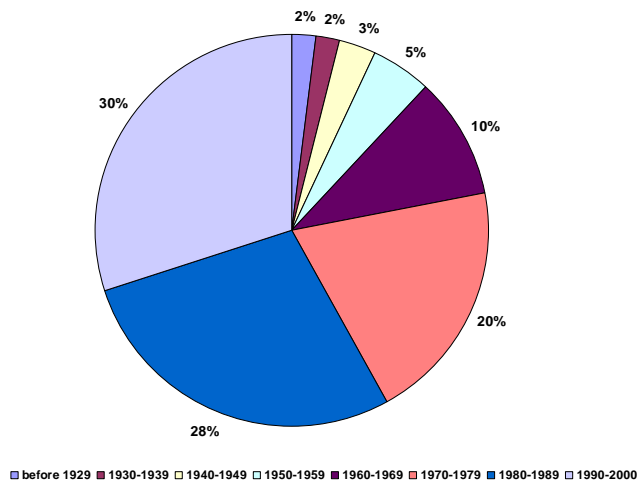
Sources: Turkish Statistics Office (TÜİK) Expenditures on the Gross Domestic Product at 1987 Prices.

**Figure 2: Distribution of Real and Imputed Mean Housing Wealth by Income Groups**



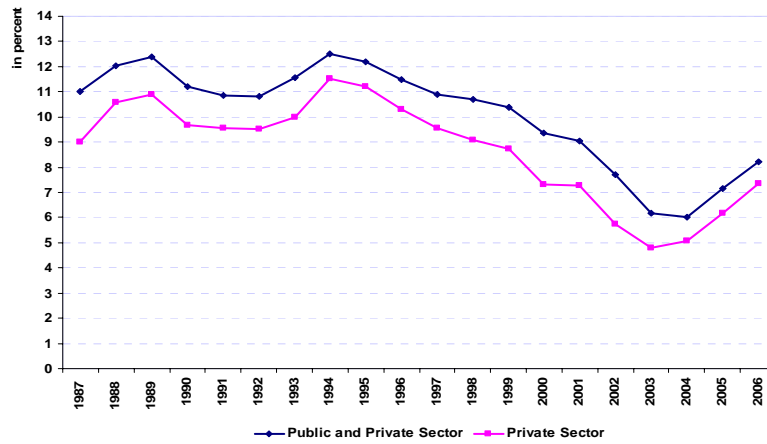
Source: 1994 Household Income and Consumption Expenditure Survey reported by Kayıket (2003)

**Figure 3: Distribution of Dwelling Stock in Cities by Date of Construction**

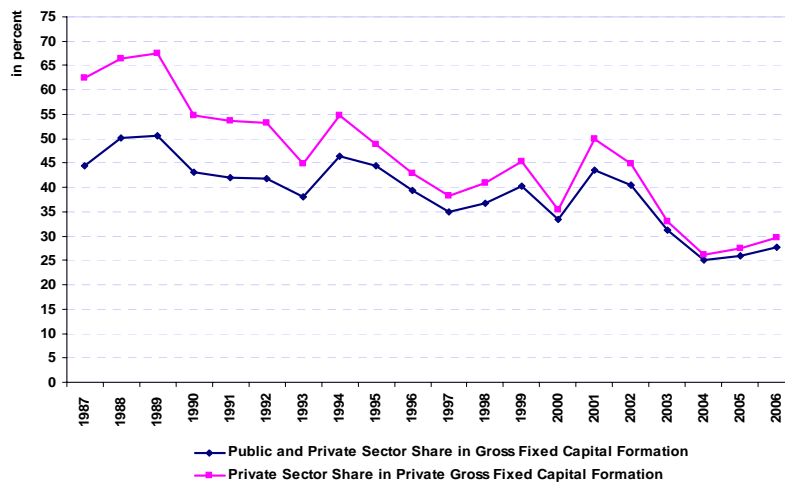


Source: Undersecretariat of Housing (2001)

**Figure 4: Share of Building Construction in GDP**

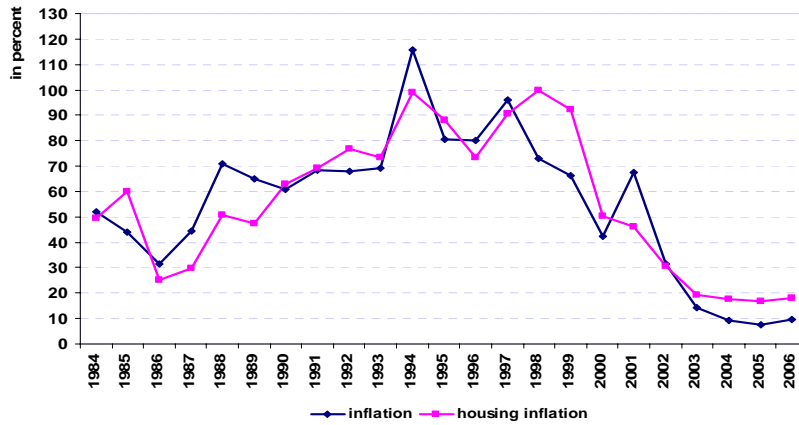


**Figure 5: Share of Building Construction by Public and Private Sector in Gross Fixed Capital Formation**



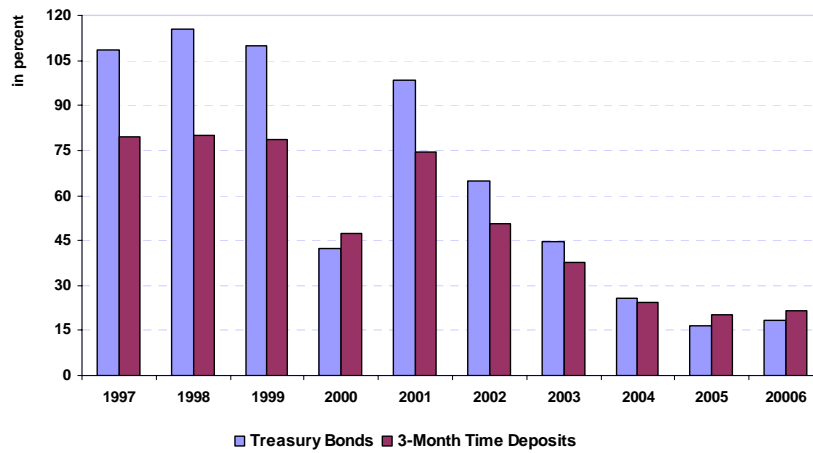
Sources: Turkish Statistics Office (TÜİK) Expenditures on the Gross Domestic Product at 1987 Prices.

**Figure 6: Annual Changes in Consumer Price Index for All Items and Housing**



Source: OECD Quarterly Main Economic Indicators

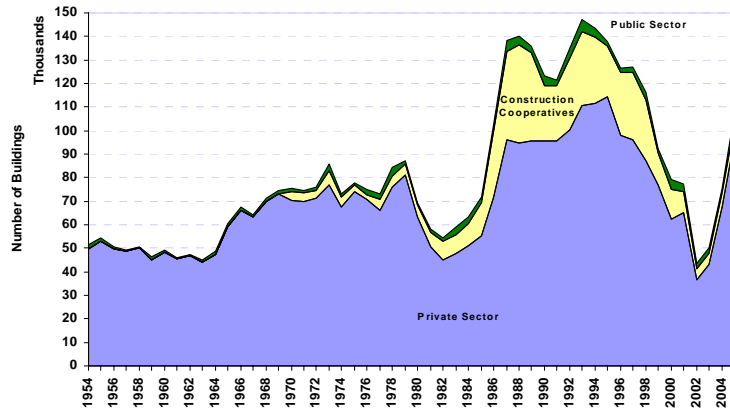
**Figure 7: Average Annual Interest Rates**



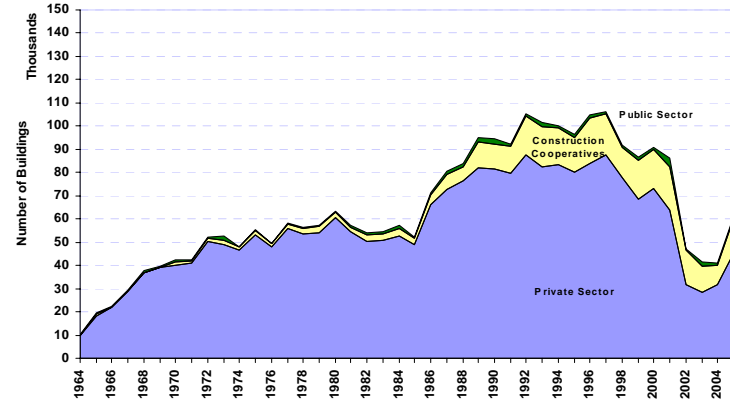
Notes: Average annual rates on Treasury Bonds (DIBS) are obtained by averaging the monthly compounded interest rate over the year. Average annual interest rates for 3-month time deposits were obtained by averaging the quarterly interest rates over the year. No treasury auction took place for December 1999.

Sources: State Planning Organization (DPT) and International Financial Statistics

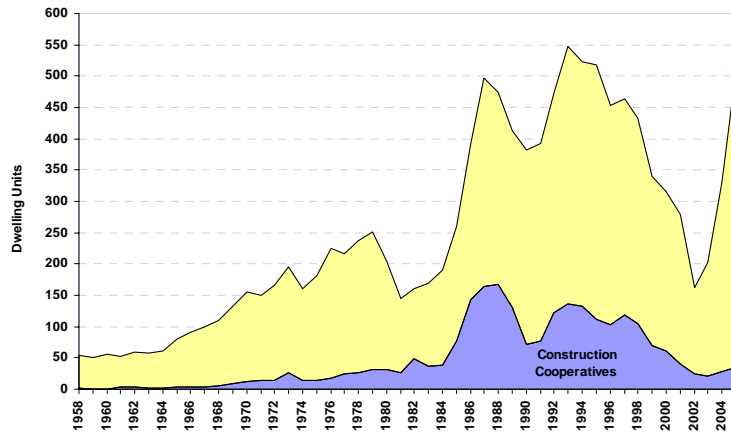
**Figure 8: New Buildings and Additions According to Construction Permits**



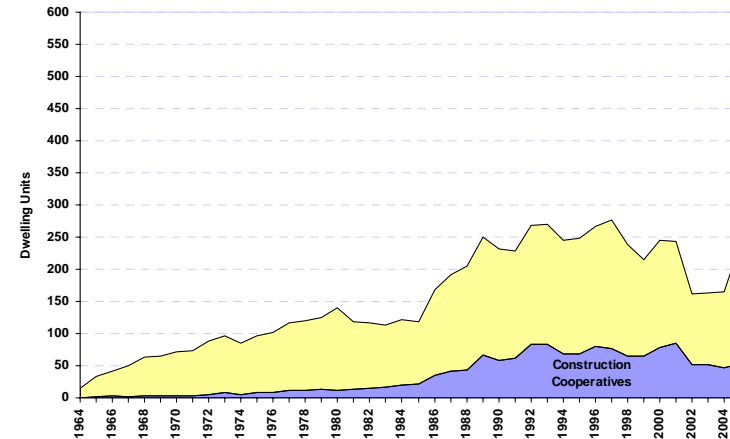
**Figure 9: Completed and Partially Completed New Buildings and Additions According to Occupancy Permits**



**Figure 10: New Dwelling Units According to Construction Permits**

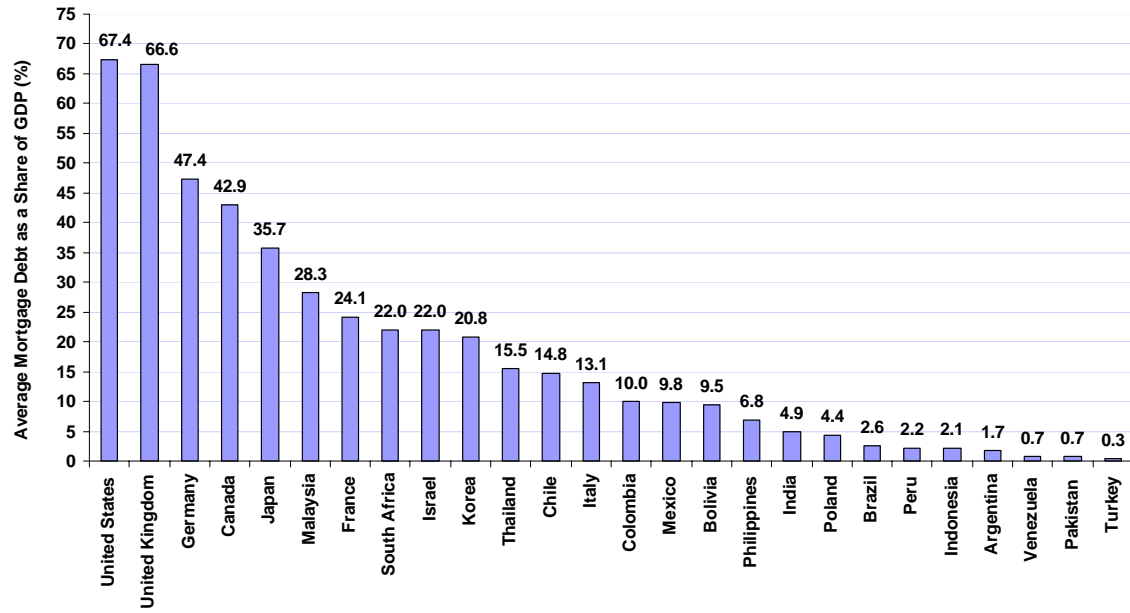


**Figure 11: New Dwelling Units According to Occupancy Permits**



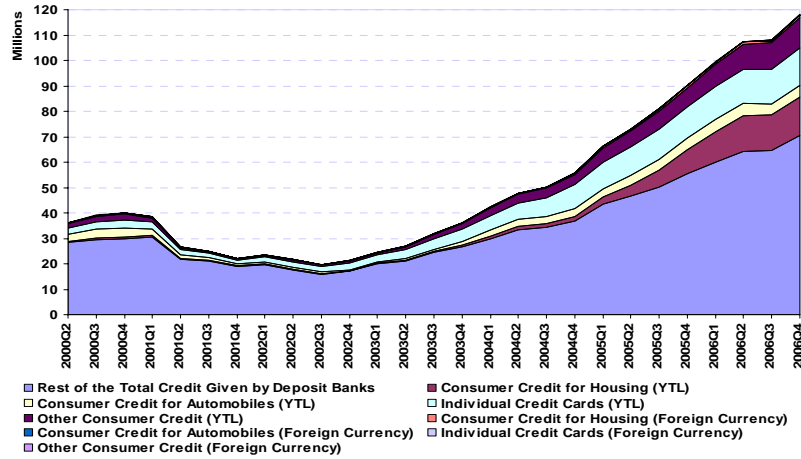
Sources: State Planning Organization 2001 Special Commission Report on Housing; Turkish Statistics Office (TÜİK) Data on New Buildings and Dwelling Units according to the Construction and Occupancy Permits, and Housing Development Administration (TOKİ).

**Figure 12: Average Mortgage Debt as a Share of GDP (in percent)  
(2001-2005)**

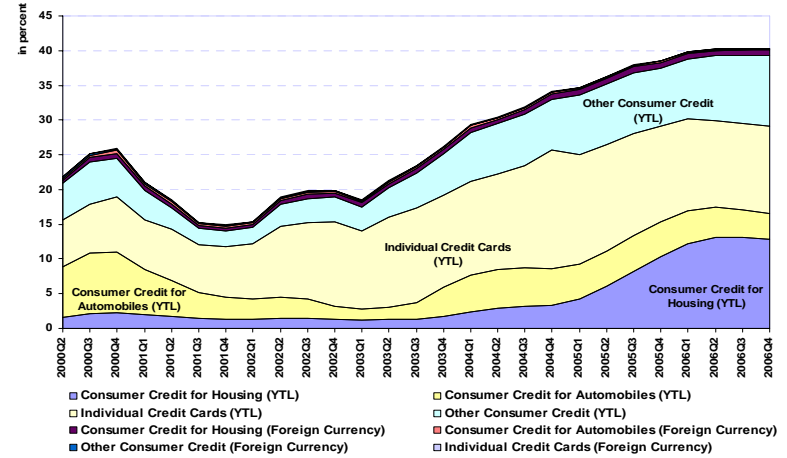


Source: Warnock and Warnock (2008).

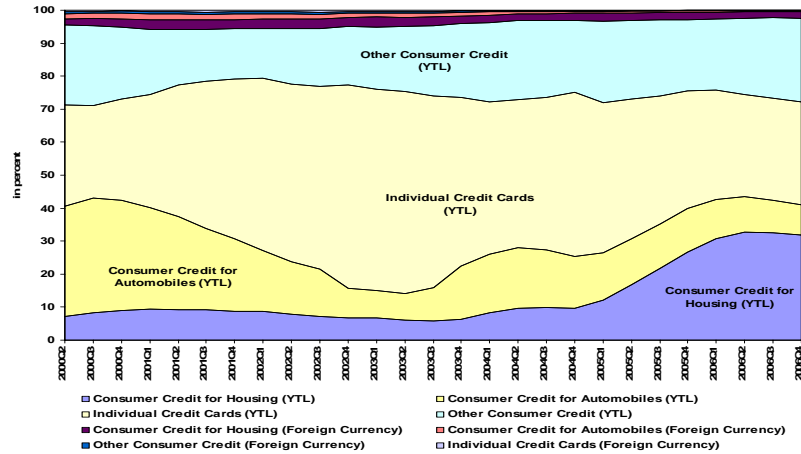
**Figure 13: Allocation of Total Credit Given by Deposit Banks**



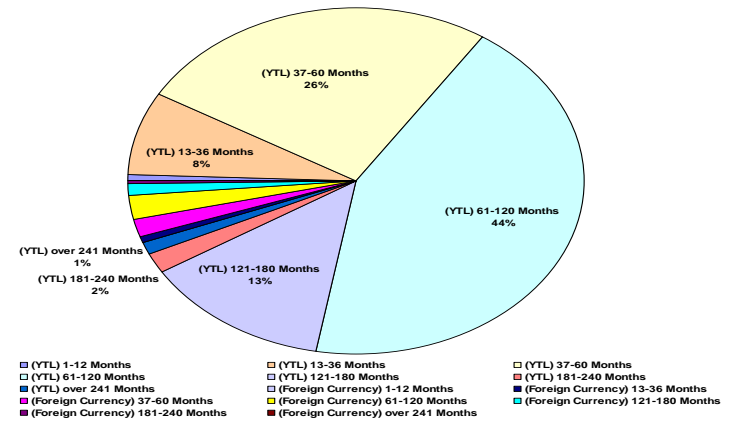
**Figure 14: Share of Household Credit in Total Credit Given by Deposit Banks**



**Figure 15: Allocation of Household Credit Given by Deposit Banks**

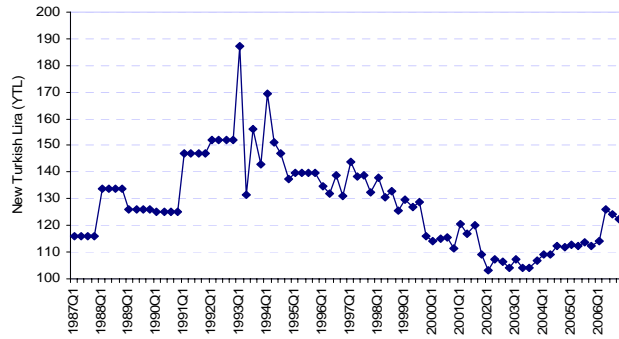


**Figure 16: Maturity of Consumer Credit for Housing in 2006**

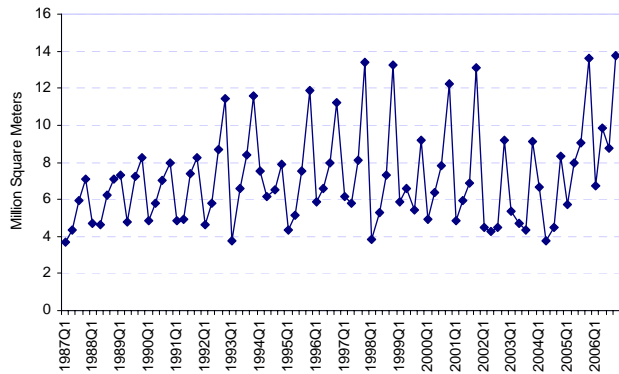


Sources: Central Bank of Republic of Turkey

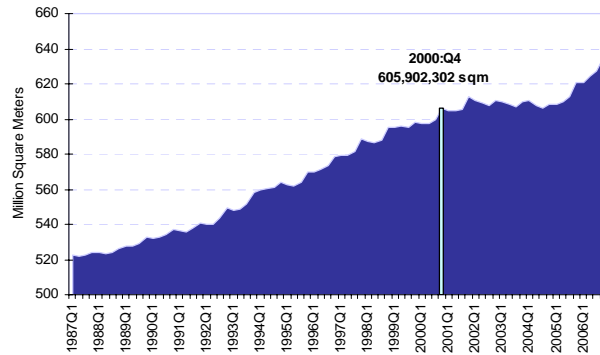
**Figure 17: Real Price Per Square Meter Floor Area**



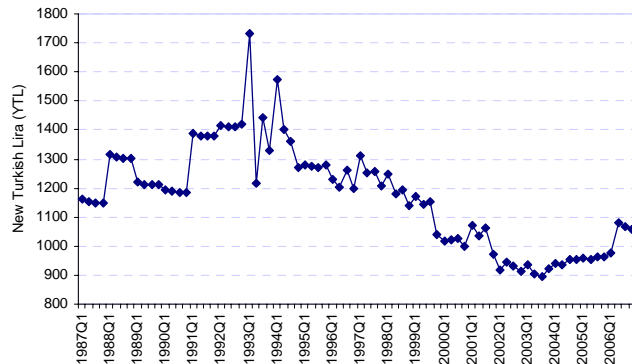
**Figure 18: Quarterly Residential Floor Area Construction in Square Meters**



**Figure 19: Stock of Floor Area of Dwellings in Square Meters After Depreciation**



**Figure 20: Real Per Capita Housing Wealth**



## Appendix I: Data Sources and Descriptions

<b>Consumer Credit for Housing in New Turkish Lira</b>	2000:Q2-2006:Q4 (Quarterly, Current Prices, New TL) Source: The Central Bank of Republic of Turkey, Electronic Data Delivery System TP.KM.J004.1 and TP.KM.J0040.1
<b>Consumer Credit for Automobiles in New Turkish Lira</b>	2000:Q2-2006:Q4 (Quarterly, Current Prices, New TL) Source: The Central Bank of Republic of Turkey, Electronic Data Delivery System TP.KM.J005.1
<b>Individual Credit Cards in New Turkish Lira</b>	2000:Q2-2006:Q4 (Quarterly, Current Prices, New TL) Source: The Central Bank of Republic of Turkey, Electronic Data Delivery System TP.KM.J012.1
<b>Other Consumer Credit in New Turkish Lira</b>	2000:Q2-2006:Q4 (Quarterly, Current Prices, New TL) Source: The Central Bank of Republic of Turkey, Electronic Data Delivery System TP.KM.J006.1
<b>Consumer Credit for Housing in Foreign Currency</b>	2000:Q2-2006:Q4 (Quarterly, Current Prices, New TL) Source: The Central Bank of Republic of Turkey, Electronic Data Delivery System TP.KM.J008.1 and TP.KM.J0080.1
<b>Consumer Credit for Automobile in Foreign Currency</b>	2000:Q2-2006:Q4 (Quarterly, Current Prices, New TL) Source: The Central Bank of Republic of Turkey, Electronic Data Delivery System TP.KM.J009.1
<b>Individual Credit Cards in Foreign Currency</b>	2000:Q2-2006:Q4 (Quarterly, Current Prices, New TL) Source: The Central Bank of Republic of Turkey, Electronic Data Delivery System TP.KM.J013.1
<b>Other Consumer Credit in Foreign Currency</b>	2000:Q2-2006:Q4 (Quarterly, Current Prices, New TL) Source: The Central Bank of Republic of Turkey, Electronic Data Delivery System TP.KM.J010.1
<b>New Turkish Lira per American Dollar Selling Rate</b>	1993:Q3-2006:Q4 Source: The Central Bank of Republic of Turkey, Electronic Data Delivery System TP.DK.USD.S.YTL.1
<b>Consumer Price Index</b>	1986:Q4-2006:Q4 (Quarterly) Index publication base \ 2000Y Source: OECD Main Economic Indicators 186.CPALTT01.IXOB

<p><b>Consumer Credit for Housing in New Turkish Lira</b></p>	<p>2006:M2-2006:M12 (Monthly, Current Prices, New TL)  Source: The Central Bank of Republic of Turkey, Electronic Data Delivery System  Maturities:  1-12 Months TP.VK03.1; 13-36 Months TP.VK04.1;  37-60 Months TP.VK05.1; 61-120 Months TP.VK06.1;  121-180 Months TP.VK07.1; 181-240 Months TP.VK08.1;  241 and over Months TP.VK09.1</p>
<p><b>Consumer Credit for Housing in Foreign Currency</b></p>	<p>2006:M2-2006:M12  Source: The Central Bank of Republic of Turkey, Electronic Data Delivery System  Maturities:  1-12 Months TP.VK24.1; 13-36 Months TP.VK25.1;  37-60 Months TP.VK26.1; 61-120 Months TP.VK27.1;  121-180 Months TP.VK28.1; 181-240 Months TP.VK29.1;  241 and over Months TP.VK30.</p>
<p><b>Completed or Partially Completed New Buildings and New Additions According to Occupancy Permits</b>  -Number of Buildings  -Floor Area (m2)  -Value, TL  -Number of Dwelling Units</p>	<p>1965-2005 (Annual)  Source: TÜİK (Turkish State Statistics Office)  Data pertaining to building construction statistics are collected from municipalities of provinces, districts and sub-districts. Occupancy permits must be obtained for completed buildings. Buildings without permits in sub-districts, villages and squatter houses in large cities are excluded.  <a href="http://www.die.gov.tr/TURKISH/SONIST/INSAAT/insaat.html">http://www.die.gov.tr/TURKISH/SONIST/INSAAT/insaat.html</a>  <a href="http://www.die.gov.tr/konularr/yapiRuhsati03.htm">http://www.die.gov.tr/konularr/yapiRuhsati03.htm</a>  <a href="http://www.die.gov.tr/TURKISH/SONIST/INSAAT/OZET/insozet.htm">http://www.die.gov.tr/TURKISH/SONIST/INSAAT/OZET/insozet.htm</a></p>
<p><b>Residential Construction According to Occupancy Permits</b>  - Number of Residential Buildings  - Area m2  - Value, TL</p>	<p>1993:Q1-2007:Q2 (Quarterly)  Source: DPT (State Planning Organization)  Main Economic Indicators: Fixed Capital Investment.  <a href="http://ekutup.dpt.gov.tr/tg/index.asp?yayin=teg&amp;yil=0&amp;ay=0">http://ekutup.dpt.gov.tr/tg/index.asp?yayin=teg&amp;yil=0&amp;ay=0</a></p>
<p><b>Total Number of Dwellings in 1984 and 2000</b>  - Total Number of Dwellings in Urban Areas (Cities and Towns) in 2000  -Total Number of Dwellings in Urban Areas with Construction Permits in 2000  -Total Number of Dwellings in Urban Areas with Occupancy Permits in 2000</p>	<p>1984 and 2000 Building Census  Source: TÜİK (Turkish State Statistics Office) and The Undersecretariat of Housing.</p>
<p><b>Production of dwellings (m2)</b></p>	<p>1986:Q4-2006:Q4 (Quarterly)  Source: OECD Main Economic Indicators  186.PRCNDW01.ML</p>
<p><b>Population</b></p>	<p>1987:Q1-2006:Q4 (Quarterly)  Source: OECD Analytical Database 186.POP</p>