SOSYOLOJİK DÜŞÜN
ISSN: e-ISSN: 2587-2699

Yıl : 10 Cilt: 10 Sayı : 1 Haziran 2025
Yayın Geliş Tarihi: 04.08.2024 Yayına Kabul Tarihi: 02.04.2025
DOI Numarası: https://doi.org/10.37991/sosdus.1528008
Makale Türü: Araştırma Makalesi / Research Article
Atıf/Citation: Karacan R, & Karacan, A. K. (2025). Can Investment in Housing be an Economic Illusion? A Review from the Perspective of Social Justice: The Example of Türkiye, *Sosyolojik Düşün*, 10 (1), 190-224.

CAN INVESTMENT IN HOUSING BE AN ECONOMIC ILLUSION? A REVIEW FROM THE PERSPECTIVE OF SOCIAL JUSTICE: THE EXAMPLE OF TÜRKİYE

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Abstract

In recent years, housing prices and rents in Turkey have surged beyond global and European standards, with a significant increase in construction targeting upper-income groups and foreign buyers rather than those in need. Despite this trend, there is a notable lack of literature documenting whether investments in housing drive these high prices and rent increases. This study addresses this gap by investigating whether housing purchases qualify as investments. Utilizing Granger cointegration analysis and the Toda-Yamamoto causality test, we examine the relationship between housing purchases and gross domestic product (GDP) in Turkey. The empirical analysis reveals no long-term cointegration or causal relationships between these variables. Our findings suggest that housing purchases do not qualify as traditional investments. These insights provide a basis for mitigating the adverse effects of housing investments in Turkey.

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Keywords: *Housing Investment, Social Justice, GDP, Turkey*

KONUT YATIRIMI EKONOMİK BİR YANILGI OLABİLİR Mİ? SOSYAL ADALET PERSPEKTİFİNDEN BİR İNCELEME: TÜRKİYE ÖRNEĞİ

Öz

Son yıllarda, Türkiye'deki konut fiyatları ve kiralar, küresel ve Avrupa standartlarının ötesinde artış göstermiştir. Bu artış, ihtiyacı olanlar yerine üst gelir gruplarına ve yabancı alıcılara yönelik inşaatların önemli ölçüde artmasıyla ilişkilidir. Bu trende rağmen, konut yatırımlarının bu yüksek fiyat ve kira artışlarını tetikleyip tetiklemediğini belgeleyen bir literatür eksikliği dikkat çekmektedir. Bu çalışma, konut alımlarının yatırım olarak kabul edilip edilemeyeceğini araştırarak bu boşluğu doldurmayı amaçlamaktadır. Granger eşbütünleşme analizi ve Toda-Yamamoto nedensellik testi kullanılarak, Türkiye'deki konut alımları ile gayri safi yurtiçi hasıla (GSYH) arasındaki ilişki incelenmiştir. Ampirik analiz, bu değişkenler arasında uzun vadeli bir eşbütünleşme veya nedensel ilişki bulunmadığını ortaya koymaktadır. Bulgularımız, konut alımlarının geleneksel yatırım olarak nitelendirilemeyeceğini öne sürmektedir. Bu bulgular, Türkiye'deki konut yatırımlarının olumsuz etkilerini hafifletmek için bir temel sağlamaktadır.

Anahtar Kelimeler: *Konut Yatırımı, Sosyal Adalet, GSYH, Türkiye*

1. Introduction

Eradicating homelessness is one of the most pressing challenges for efforts aimed at equality and social justice in the world (Sannino, 2020:45). While housing has long been a growing problem, academic publications and policy reports have focused on the importance of housing investment (Petrini and

Teixeira, 2023:112-115; Rogers and Power, 2020:76; Cocola-Gant and Gago, 2021:34-36; Francke and Korevaar, 2021:58; Berry, 2000:14-18; Coşkun et al., 2020:9-91). Compiled evidence on indicators that predict homelessness and recovery from homelessness can be used to inform policy makers and practitioners in their work to reduce homelessness-related problems (Nilsoon et al. 2019: 210-213).

Although housing is a central element for individual welfare, the distortions in access and distribution in this area contribute to social injustice (Ryan-Collins and Murray, 2023:1888-1917). In U.S. metropolitan areas, the construction of increasingly larger houses with numerous amenities has become a striking trend. This phenomenon reveals that new housing has been increasingly dominated by affluent groups and has led to greater stratification and social injustice by the end of the twentieth century. These changes may further exacerbate future inequality through opportunity structures linked to places of residence, particularly access to education and the accumulation of housing equity (Dwyer, 2007:23-46). The rediscovery of low-income or economically disadvantaged neighborhoods by wealthier individuals or groups leads to various social and economic changes. Due to increasing demand, housing prices and rents in the neighborhood rise. The growing financial burden in the area forces the current low-income residents to leave. This situation brings about issues such as social injustice and inequality of opportunity (Marcuse, 2015: 1263-69; Rodríguez and Storper, 2020: 223-248). The majority of homeowners belong to privileged classes, and this group's significant economic power, coupled with the use of housing portfolios for wealth accumulation, leads to greater inequalities in society. Furthermore, homeowners with larger property portfolios become wealthier, while smaller-scale homeowners are disproportionately represented in the upper classes, reinforcing the reproduction of social classes and hindering social mobility, thus creating

unequal opportunities. This situation limits the chances of lower-income and disadvantaged groups to acquire housing and wealth, contributing to social injustice (Hochstenbach, 2022:327-354).

Housing construction in Turkey has gained momentum, especially since the 2000s. It is possible that the great Marmara earthquake in 1999 was instrumental in this process. On the one hand, the increase in population and, on the other hand, the increase in migration, especially from Middle Eastern countries, has further increased the demand for housing. For this reason, from the point of view of individuals with an average income, being able to obtain housing in Turkey is an increasing problem. The share of the housing sector in gross domestic product (GDP) in Turkey has increased since 2000, with the share of the housing sector ranging between 5% and 8% between 2003 and 2017 (Yardımcı, 2021:123). Its share of GDP doubled from 2001 to 2016. Housing purchases significantly increased between 2011 and 2022, but the majority of these sales were made up of second-hand houses. As of October 2022, 1 million 113 thousand old houses changed hands in the last year, while new house sales were only 486 thousand (Arslan, 2022:45). As of May 2022, the demand for housing increased with mortgage loan interest packages. Housing sales increased by 40.2 percent in the second quarter of 2022 compared to the same period of the previous year due to the base effect created by the relatively low increase in sales in the second quarter of 2021 (SBB, 2022:67).

Economic reforms and rapid economic growth initiated in Turkey in the early 2000s created noticeable growth in the Turkish housing market, leading to a significant increase in house prices (Abioğlu, 2020:47). While it was expected that an increase in housing prices would reduce the demand for housing, the opposite situation would occur. The fact that housing sales have been high

despite price increases brings to mind the idea that different mechanisms are functioning behind it (Gökler, 2023:102). Notably, the price changes exhibit different characteristics according to the selected housing price index, the analysis period, the studied local market, and the selected price adjustment measure. This situation raises the necessity of critically evaluating the perception that house prices are increasing rapidly in Turkey; therefore, housing is a good investment instrument (Coşkun, 2016:85; Bolat and Şenol, 2020:67; Çınar, 2022:73). Several segments with surplus income in Turkey utilize their savings by purchasing housing. This keeps the demand alive.

The average annual house sales in Turkey are approximately 1.3 million (Ünlü, 2022:91). The number of first-hand house sales is also greater than the increase in the number of households. In 2002, 73.05% of those who used homes were homeowners, and 18.72% were renters, while the homeowner ratio decreased to 56.80% in 2021, and the renter ratio increased by 26.88% (Tanrvermş and Mendeş, 2023:134). However, despite this, the proportion of those who live in their own home is low. This situation indicates that those who already own a house are investing in housing. Turkey is the country with the greatest increase in housing prices in Europe. According to Central Bank data, house prices in Turkey have increased by 96 percent between February 2022 and February 2023 (Euronews, 2022:56).

Another reason for investing in housing in Turkey is to obtain a high rental income (Esra and Seven, 2021:54). Under current conditions, the prices of newly constructed houses increase exponentially due to the high profit margin of the contractor on the one hand and the high interest rates of the banks providing housing loans. In this context, individuals who cannot afford housing with their current income opportunities must compensate for their housing needs by renting a house. This leads to an increase in the demand for rental

housing. Taking advantage of this, the upper-income group sees housing as an investment tool to earn more rental income.

The main theme of our study is to reveal how ethical it is to see housing as an investment tool. Can housing, which is a basic need, truly be an investment tool? To what extent does housing acquisition fit the definition of investment in economic terms? In economic terms, is rent or social benefits more important in the long term? This study was carried out to answer these questions. The rest of the research study is organized as follows. The second section presents the theoretical foundations of the investment concept, and the third section presents the empirical results. The fourth section presents the conclusion of the study.

2. Theoretical Foundations of the Concept of Investment

This section explores basic investment theories to assess whether housing investments align with the economic definition of investment. Traditional and modern theories provide a framework for understanding resource allocation and its impact on economic growth. Housing investments are a contentious topic, as their dual role as consumption and investment goods blurs the definition of "real investment," typically linked to expenditures that enhance productive capacity and directly contribute to economic output. By examining the relationship between housing investments and GDP, this study evaluates their classification and significance within the context of economic development.

2.1.Traditional Investment Theories

2.1.1. Fisher's theory of investment

The net present value (NBD) criterion is behind most traditional investment theories. The negative relationship between the interest rate and investments derived from the net present value criterion also formed the basis for Fisher's investment theory (Güven, 2013:42). Fisher proposed the condition that investment in any given period should provide output only in the next period. For simplicity, let us assume a world with only two time periods, for example, t = 1, 2. In this case, investment in period 1 yields output in period 2. Fisher's investment equation is as follows:

Y = f (N, I1) Here, "I1" represents the investment in the first period, and "Y" represents the output in the second period (Fisher, 1930:128).

2.1.2. Neoclassical theory of investment

Kunt Wicksell, one of the proponents of Neoclassical Economics, considered interest to be monetary interest and natural interest. Monetary interest rates are determined by banks. Natural interest rates, on the other hand, are determined by the investment and savings decisions of economic units. In this context, if the interest rates determined by banks are lower than the natural interest rate, their investments increase due to their production. In other words, if natural interest rates are lower than market interest rates, investments will decrease (Wicksell, 1962:85). According to neoclassical theory, investment in an economy, that is, the addition to the capital stock, is determined by the marginal product of capital (MPC) and the user cost of capital, also called the real rental cost of capital (interest). The marginal product of capital (MPC) measures the contribution to production by using an additional

unit of capital, labor, and technology that remains constant (Mukher, 2023:112; Maksimovic and Phillips, 2007:198).

The Marginal Product of Capital

$$MPc = \Delta P / \Delta C \quad (1)$$

The Cost of Capital = C_c

$MP_c > C_c <p \Rightarrow$ The company invests

$MP_c < C_c \Rightarrow$ The company reduces its capital.

Profit will be maximized when it reaches the capital stock, where the marginal product of capital (MPc) is equal to the user cost of capital (Mukher, 2023:76).

$$K' = \propto \frac{P}{r} Y_1 \quad (2)$$

shows that the desired capital stock (K') depends on the size of the output (Y1) and the real cost of capital (r/p). Equation (2) reveals that the larger the expected output (Yt) is, the larger the desired capital stock. The determination of the desired capital stock is shown in Figure 1, where the capital stock is measured on the X-axis and the MPC and interest rates (r) are measured on the Y-axis. Equation (2) also reveals that the desired capital stock depends on the level of output (GDP). When the level of production or national income is expected to increase, the entire curve of the MPC will shift to the right, as shown in Figure 1 (Mukher, 2023:76).

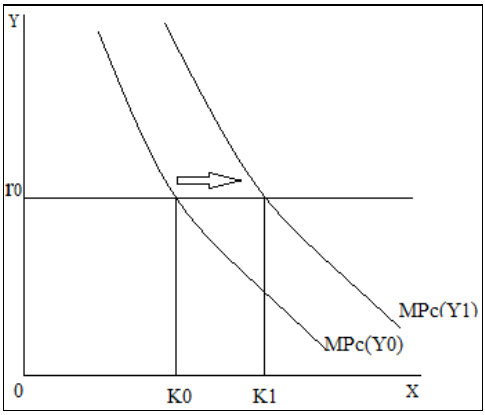

Figure 1. Desired Capital Stock and the Level of National Product

2.1.3. Tobin's "q" theory

According to Tobin, individuals care about both the return on capital and the risk factor when creating their portfolios. In this context, high return and low risk are the primary goals for individuals. For this purpose, individuals minimize the risk phenomenon by distributing their assets to different investment instruments (Tobin, 1958:45). Tobin described all financial, monetary, and real investment instruments as capital (Tobin, 1961:112). Tobin showed the relationship between the market value of capital and the cost of deconstructing capital with Q." According to Tobine, an increase in stock prices will affect the investment decisions of companies (Lindenberg and Ross, 1981:78). According to this,

Q > 1 company makes an investment

Q < 1 company does not invest.

Tobin defined the investment rate as the rate at which investors increase their capital stock. The LM curve in Figure 2 is drawn based on the assumption of constant marginal efficiency of capital R.

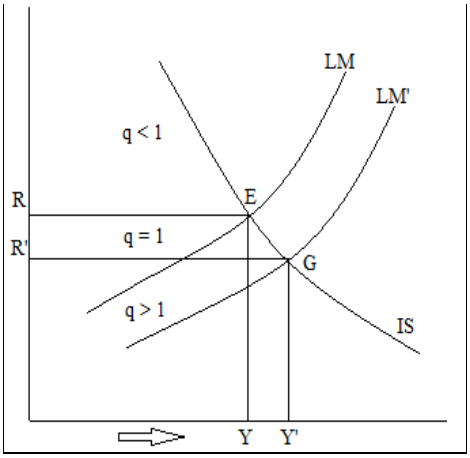

Figure 2. LM Curve Plotted with IS Curve

According to Tobin's q theory, expansionary monetary policy (LM'), by lowering interest rates (R'), causes the bond market to lose its attractiveness and increases demand for the equity market. An increase in demand raises stock prices and hence the q ratio. Thus, investment expenditures increase, and the production level of the economy increases (Mishkin, 2001:134).

2.1.4. Keynes' theory of investment

According to Keynes, as long as the interest rate is sufficiently flexible, savings are always converted into investments. However, individuals can still make privately rational investment decisions to understand how price expectations are formed, but these decisions lead to socially inefficient fluctuations in investment. If equity price expectations change the cost of equity capital

through portfolio substitutions and debt prices, regardless of firms' expectations and investment opportunities, fluctuations in investment will result and have the potential to destabilize output and employment. If expectations about the productivity of capital are equally unstable, these effects can cause share prices to fall, which in turn undermines the business community through demoralization. Therefore, expectations can be self-reinforcing (Johnson et al., 2001:89). According to Keynesian thinking, individuals prefer to keep their savings either completely in bonds or completely in money, depending on their interest rate expectations. It is very rare for individuals to split their assets between money and bonds. Generally, one of them is preferred. In real life, individuals prefer to maintain wealth between real and financial assets, such as real estate and buildings, land, bonds, stocks, treasury bills, funds, and similar securities, except for these two types of different investment vehicles (Paya, 2001:74). According to Keynes, the two main determinants of investment are the interest rate (r) and the marginal efficiency of capital (MEC). According to this,

$ME_C > r \Rightarrow$ The company makes an investment decision.

$ME_C < r \Rightarrow$ The company does not invest.

Keynes defines the marginal efficiency of capital as the expected rate of return to be obtained if money is invested in a produced asset (Keynes, 1936:112). The ME_C is calculated using the following formula:

$$C_0 = \frac{R_1}{(1+e)} + \frac{R_2}{(1+e)^2} + \cdots \frac{R_n}{(1+e)^n} \quad (3)$$

Here, Keynes defined C0 as the purchase price of an investment property in the base year. Accordingly, continuity is essential in investments. Similarly, Keynes

R1, R2, etc., defined it as the expected cash flows in capital goods in the first, second and subsequent years (Karı, 2023:58).

2.1.5. Jorgenson's neoclassical investment model

In the context of the neoclassical theory of investment behavior, investment refers to the accumulation of physical capital by firms, including decisions about capital formation and replacement. The Jorgenson discusses three key aspects of investment: (1) the elasticity of substitution between capital and labor, questioning whether it is different from unity; (2) the distributed lag function that links investment to its determinants, such as interest rates and capital costs; and (3) the issue of capital replacement, exploring whether it is proportional to the total capital stock. These factors influence firms' decisions on capital acquisition and maintenance, shaping the overall investment behavior within the economy (Jorgenson and Stephenson, 1969:346).

2.2. Modern Investment Theories

2.2.1. Hartman's Investment Theory

John Hartman is one of the pioneers of modern investment theories. Hartman argued that businesses base their investment levels not solely on interest rates but also on expectations of future income and uncertainties in market conditions. This theory suggests that psychological and behavioral factors may also influence investment decisions (Hartman, 1972:258-266).

2.2.2. Abel's investment theory

Abel, in his contributions to the *Handbook of Monetary Economics*, defines investment as the expenditure on additions to the stock of physical capital, such

as buildings, equipment, and infrastructure. Investment reflects the process of capital accumulation, which is critical for enhancing an economy's productive capacity. Abel emphasizes the role of adjustment costs, which are incurred when firms change their capital stock, as a central feature in modeling investment behavior (Abel, 1990:725-778).

2.2.3. Modigliani-Miller Theorem

This independence theorem, known as the **Modigliani-Miller Theorem**, implies that the value of a firm is determined solely by the profitability and risk of its investment projects, rather than its capital structure. Investment, in this context, is driven by the firm's assessment of the expected returns and the cost of capital, unaffected by whether the firm uses debt or equity to finance those investments (Miller and Modigliani, 1961:411-433).

2.2.4. Portfolio Selection and Markowitz Model

Harry Markowitz made one of the most significant contributions to the modern face of investment theory. Markowitz developed portfolio theory, which explains how portfolio diversification minimizes investment risk. This model enables investors to create the most optimal portfolio by balancing risk and return (Markowitz, 1952:77-91)

3. The Relationship between Investment and National Income

In mainstream economic theory, investment is generally defined as an addition to physical capital stock (Karaçay and Varol, 2016:102). Although there are different definitions of investment in the economic literature, it is possible to say that almost all of them are used in the same sense. Economically, the contribution of activities carried out for investment purposes to national income should be long-term, not one-time. In the literature, GDP calculations

are based on goods and services that are subject to sale for the first time. Buying and selling transactions in second-hand markets are not included in GDP calculations. This criterion applies to housing purchases. Therefore, housing purchases are included in the current year's GDP calculations. It is possible that there will be no contribution to national income in the following years. Figure (3-4) shows the contribution of investments to national income.

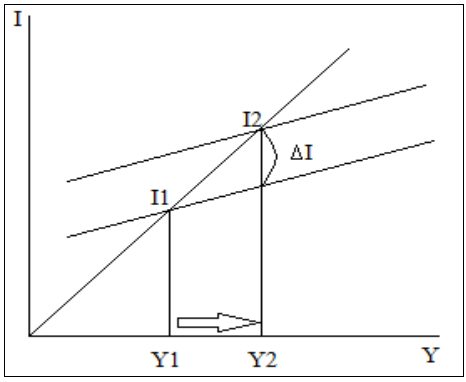

Figure 3. Investment National Income Relationship

As shown in Figure 3, as investments increase (I1 → I2), total national income increases in the same direction (Y1 → Y2).

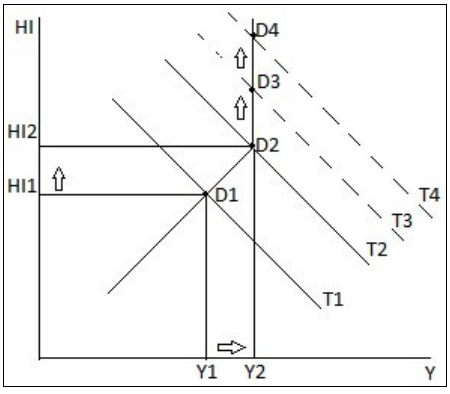

Figure 4. Relationship between Housing Investments and National Income

In Figure 4, while other variables affecting investment are fixed (ceteris paribus), only the year T1 in which housing investment is made will contribute to national income in December from equilibrium point D1 to equilibrium point D2. Thus, national income will reach the level of Y2. In the following years (T3, T4), there will be no contribution to increasing national income, and the national income equilibrium will not change. The fact that the housing purchased for investment purposes does not contribute to national income in the following years can be expressed as follows. As seen in the graph and as expressed in the economic literature, an increase in investment will have a positive impact on total national income. In this context, the increase in the rental income of the property owner who rents the house purchased for investment purposes is realized at the expense of the rental expenses of the household renting the house. In other words, income is shifted between the tenant (the income of the tenant is paid as rent) and the homeowner (the expense paid by the tenant as rent becomes the income of the homeowner). A similar situation applies to the purchase and sale of housing for speculative purposes.

4. Literature Review

The relationship between housing demand and economic growth (GDP) is a key area of study, influencing both national and global economies. This section will explore how changes in GDP impact housing demand in Turkey and worldwide, highlighting key trends and factors at play. Durkaya and Yamak (2004) investigated the demand side of the housing market in Turkey using time series data from 1964 to 1997. The results showed a positive and strong relationship between housing demand and per capita income. Kargı (2013) examined the relationship between economic growth and housing acquisition using growth

data from the last decade and selected factors related to the housing market. The study investigated correlation relationships, the extended Dickey-Fuller Unit Root Test, Granger Causality analysis, and multiple regression models based on quarterly data from the 2000-2012 period. The results supported the hypothesis that economic growth and housing acquisition are closely linked. Bayrak and Telatar (2021) researched the impact of the construction sector on economic growth in Turkey between 2005 and 2016. Using data from the "Construction Production Index" and GDP, they employed the Engle-Granger Cointegration Test and VAR Analysis. The findings indicated that the construction sector did not affect economic growth in the long run but showed a one-way causality relationship from economic growth to the construction sector in the short run. Yardımcı (2021) investigated the relationship between housing sales and economic growth in Turkey using econometric models. The analysis, conducted for the period from 2013Q1 to 2020Q4, found that the abolition of the reciprocity law in 2012, which led to an increase in property sales to foreigners, resulted in a long-term cointegration relationship between housing sales and economic growth. Green (1997), using U.S. data, found that housing investment triggers GDP growth, but GDP does not trigger housing investment. Chau and Zou (2000) examined the short- and long-term effects of both public and private housing investment on GDP in Hong Kong from 1973 to 1999. Their findings show that an increase in public housing investment positively affects long-term economic growth, while the impact of private housing investment is short-term. Choi, Goodman and Bai (2018) suggest that while housing investment has the potential to support economic growth, inefficiencies and mismatches in the housing market can dampen this contribution, particularly when affordability and supply issues persist. Chen and Zhu (2008) identified a bidirectional causal relationship between housing investment and GDP for China as a whole in both the short and long term.

However, the effects of housing investment on GDP vary significantly across the three sub-regions of China. Aizenman et al. (2008), using a quarterly dataset covering cross-country housing prices over forty years, found that housing price increases are positively correlated with economic growth, while the relationship between housing price depreciation and economic growth is highly non-linear, depending on country-specific characteristics. Kong et al. (2016) found that housing investment in China has a bidirectional effect on economic growth. Housing investments show simultaneous positive effects on economic growth at both the national and regional levels. However, it has also been found that housing investments exhibit negative lagged effects on economic growth over time. This finding suggests that while housing investments may initially stimulate growth, their long-term effects on economic growth may become more complex. Zhang et al. (2012) examined the relationship between real estate investment and GDP growth using panel data from 30 provinces in China between 1999 and 2007. According to their findings, in provinces with a per capita GDP below $1,000, real estate investments did not show a significant impact on economic growth. Hong (2014) predicted the dynamic relationship between real estate investment and economic growth using panel data from 284 cities in China from 1994 to 2010. He found that the positive effect of real estate investment on economic growth was stronger in the short term, while in the long term, it was negative.

5.Empirical Analysis

The primary purpose of conducting time series analyses on the relationship between housing investment and GDP is to evaluate this relationship not only from an economic perspective but also in terms of its social dimensions. If your analyses demonstrate that housing investments have limited or no contribution to GDP, they provide significant insights into the social justice implications of

the current economic system. For instance, such findings highlight how housing investments can threaten the housing rights of low-income groups and lead to the concentration of capital in non-productive sectors, thereby deepening social inequalities. Madsen (2002) tested the causality between investment and economic growth. According to the findings, economic growth is primarily driven by investments in machinery and equipment, while investments in non-residential buildings and structures are predominantly influenced by economic growth.

5.1. Data Set and Methodology

In this study, Granger cointegration analysis and the Toda-Yamamoto causality test, which are widely used in the literature, were employed to analyze long-term relationships and causal linkages in time series data. Granger cointegration analysis examines whether two or more time series variables share a long-term equilibrium relationship. However, if a linear combination of the variables is stationary, this condition is referred to as cointegration. This method helps determine whether the variables move together in the long term and whether the economic system maintains an equilibrium relationship.

The Toda-Yamamoto (1995) method, an extended version of the Granger causality test, was used to assess the causal relationship between the variables. Unlike traditional causality tests, this method provides reliable results even if the stationarity conditions of the variables are not met. For instance, variables may be stationary in their first differences (I(1)) or have different orders of integration (I(0), I(1)). The Toda-Yamamoto method overcomes these challenges by estimating the model in levels.

In the study, housing investment and GDP variables were used: Housing investment was considered as a factor representing inequality in access to housing sizes from a social justice perspective. Inequalities in access to the housing market may have adverse effects on unfavorable living conditions in society and can influence social justice. Therefore, housing investments should not only be profit-oriented but also approached from a perspective that considers societal benefits. GDP is generally used to represent the overall economic growth associated with a nation's prosperity. Social justice enables the realization of societal welfare and sustainable development. These are two concepts that document the relationship between economic growth and social justice. The empirical analysis evaluates whether housing purchases can be classified as investments and tests whether the housing market is directly linked to economic growth.

To reduce variability, normalize data distribution, and enable comparison between variables with different scales, natural logarithmic transformations were applied to both variables: LNGDP (the natural logarithm of Gross Domestic Product) and LNHP (the natural logarithm of Housing Purchases). LNGDP represents the natural logarithm of Turkey's Gross Domestic Product (GDP), adjusted for inflation and measured in constant prices, serving as a measure of economic growth. LNHP refers to the natural logarithm of housing purchases in Turkey, measured in monetary terms, capturing the scale of housing investments and their economic significance.

The data for these variables were obtained exclusively from reliable sources. Statista (European Statistics) provided comprehensive economic data relevant to the study, while the World Bank supplied global and country-specific GDP statistics. The Turkish Statistical Institute (TÜİK) offered detailed data on

housing purchases and other relevant national economic indicators, ensuring the accuracy and reliability of the dataset used in the analysis.

To ensure meaningful analysis, the study began with a descriptive statistical analysis of the variables. This step was essential to evaluate the adequacy, distribution, and normality of the data, ensuring that the variables were suitable for further econometric analyses. Measures such as mean, median, skewness, kurtosis, and the Jarque-Bera test were employed to assess the statistical properties of the variables.

Following this, the time series data were tested for stationarity, a crucial step in identifying genuine relationships between variables (MacKinnon, 1991; Gujarati, 1995). ADF (Augmented Dickey-Fuller) and PP (Phillips-Perron) unit root tests were applied to determine the stationarity of the variables. Non-stationary series were transformed into stationary ones by taking their first differences.

Next, the cointegration relationship between housing purchases and GDP was analyzed using the Engle–Granger cointegration approach. This method is particularly suitable for bivariate models, as it produces robust results in such cases. Finally, the Toda-Yamamoto causality test was conducted to explore the causal direction between the variables.

5.2. Engle–Granger cointegration test

Descriptive statistics regarding the variables used in the analyses are presented in Table 1.

Table 1. Descriptive Statistics

	LNGDP	LNHP
Mean	3.661600	3.338104
Median	3.928400	3.482374
Maximum	4.849684	7.090509
Minumum	1.686399	-0.293030
Std.Dev.	0.979903	2.175486
Skewness	-0.714873	0.053892
Kurtosis	2.371434	2.183031
Jarque-Bera	1.219634	2.183031
Probability	0.543450	0.843864

The descriptive statistics of the variables are given in the table. The fact that the skewness and kurtosis values receive positive expressions indicates that the variables show a right-skewed distribution and have a pointed structure. The fact that the skewness values are in the range of (-3, +3) and the kurtosis values are in the range of (-2, +2) indicates that there are no kurtosis or skewness problems in the variables and that there is a symmetric distribution (Brown, 2022:52). A Jarque–Bera probability greater than 0.05 indicates that the model has a normal distribution.

Table 2. Unit Root Test Results

LNGDP	**ADF**		**PP**	
	t-statistic	**Prob.**	**t-statistic**	**Prob.**
Level	-2.509902	0.1370	-2.466212	0.1463
First Difference	-2.567249	0.0157	-2.547136	0.0163
LNHP	**ADF**		**PP**	
	t-statistic	**Prob.**	**t-statistic**	**Prob.**
Level	-1.182007	0.6445	-0.928353	0.2944
First Difference	-3.239453	0.0041	-3.239453	0.0041

Table 2 shows that the first differences of all series within the two unit root tests are stationary at the 1% significance level. At this stage of the study, whether there is a long-term relationship between the variables was

investigated by the Engle-Granger (1987:215) cointegration test. Long-term model of the study:

$$GDP_t = \beta 0 + \beta 1\ HP_t + ut \quad (4)$$

Table 3. Results of the Engle–Granger Cointegration Test (Series: LNGDP LNHP)

Variables	t-Statistics	Prob*
LNGDP	-3.910679	0.526
LNHP	-3.373863	0.117

*MacKinnon 1996 p values

Table 3 shows the estimation of the coefficients related to the established model. When the p values were examined, the variables included in the model were not statistically significant. According to Table 3, if the absolute value of the critical value at the 5% significance level is greater than the absolute value of the test statistic, the hypothesis is not accepted. Accordingly, there is no decoupling relationship between the two variables.

5.3. Toda–Yamamoto causality test

The Toda –Yamamoto causality test does not consider the nonstationary of the series or the absence of a cointegration relationship. Due to this feature of Toda -Yamamoto, we have more information about the variables, and we can report better results. To apply the Toda –Yamamoto test, it is necessary to establish the VAR model and determine the appropriate delay length first. The following table contains the results for determining the appropriate delay length.

Table 4. Determination of the appropriate delay length with the VAR model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-129.445	NA*	8.9708	26.28906	26.34958	26.22267
1	-124.426	7.026340	7.5908*	26.08530	26.26685	25.88614
2	-119.748	4.678269	7.7708	25.94965	26.25223	25.61771
3	-114.563	3.110671	9.8308	25.71276*	26.13637*	25.24805*

*indicates the lag order selected by the criterion

According to the results in Table 4, the appropriate delay length was 3. Table 5 shows the autocorrelation test results for the model with a delay length of 3.

Table 5. Autocorrelation LM Test Results

Lag	LRE*stat	df	prob.	rao F-stat	df	prob.
1	5.195607	4	0.2678	1.826732	(4, 4.0)	0.2869
2	1.425149	4	0.8398	0.329802	(4, 4.0)	0.8460
3	4.087170	4	0.3943	1.264681	(4, 4.0)	0.4127

The hypotheses of the autocorrelation LM test are as follows:

H0: There is no autocorrelation.

Ha: There is an autocorrelation.

According to the results shown in Table 5, there is no autocorrelation problem in our model. In this context, the H0 hypothesis is accepted.

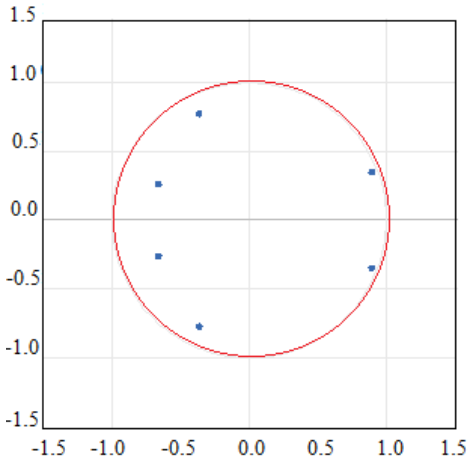

Figure 5. Inverse roots of AR characteristic polynomials

In Figure 5, the inverse roots of the AR characteristic polynomial are all inside the unit circle. Therefore, our model is stationary.

Table 6. Results of the Toda–Yamamoto Causality Test

Direction of Causality	Chi-square	Probability	Hypothesis
lngdp → lnhe	6.569214	2.1259	No causality
lnhe → lngdp	24.33544	0.0871	No causality

According to the results of the Toda–Yamamoto causality test in Table 6, no causal relationship was found between the lngdp variable and the lnhe variables.

6. Conclusion and Discussion

While housing investments have recently increased in Turkey, housing problems have also been increasing. Exorbitant increases in housing prices and rents have particularly affected lower- and middle-income groups. In this study, the effect

of housing investments on economic output is investigated both theoretically and empirically. First, studies based on the theoretical foundations of the investment concept (Fisher, 1930:58; Keynes, 1936:112; Wicksell, 1962:45; Tobin, 1958:67, Tobin, 1961:89) are analyzed. In the analyzed studies, while the real effect of investment on economic output is taken as a basis, it is seen that the view that this effect should be continuous rather than one-time is predominant. For the empirical analysis, housing investment and GDP data for the 2008–2022 period in Turkey were used. The Granger cointegration model and Todo–Yamamoto causality analysis were conducted to depict the implied relationships and heterogeneity between the variables. The results revealed that housing investments do not have any effect on economic output in the long term. These results can be interpreted as follows.

Housing investments are goods that are subject to sale for the first time and contribute to national income in the current year. Therefore, secondary sales of housing do not contribute to the net capital stock or real national income in the long term. In this context, presenting housing investments as ordinary investments becomes rent-seeking at the expense of the real needy. Therefore, while housing prices are increasing, rents are also increasing. This increase is a nominal (exorbitant) price increase above real prices. This adversely affects the purchasing power of middle- and lower-income group needy people in particular.

Housing is a basic need. In societies where there is a housing problem, the transformation of housing purchases into an investment tool undermines social justice. One of the main objectives of the social state is to ensure social and economic justice. In this context, deterrent taxes may be imposed on multiple-house purchases. The transfer of savings to more efficient investments can be

encouraged. Thus, both housing prices and rents will find their real levels, while the housing problem will disappear in the long term.

Conflict of Interest Statement:

The authors declare that there is no potential conflict of interest regarding the research, authorship, and/or publication of this article.

Funding Information:

The authors declare that they did not receive any financial support for the research, authorship, and/or publication of this article.

Ethics Committee Approval:

The authors declare that ethics committee approval was not required for this research.

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GENİŞLETİLMİŞ ÖZET

Giriş

Son yıllarda, Türkiye'deki konut fiyatları ve kiralar, küresel ve Avrupa standartlarının ötesinde artış göstermiştir. Bu artış, ihtiyacı olanlar yerine üst gelir gruplarına ve yabancı alıcılara yönelik inşaatların önemli ölçüde artmasıyla ilişkilidir. Konut fiyatlarındaki bu artış, özellikle düşük ve orta gelir gruplarını olumsuz etkilemiştir. Bu olumsuz etkiler arasında, ev sahipliği oranlarının düşmesi, kiracıların konut maliyetlerinin artması ve ekonomik eşitsizliklerin derinleşmesi bulunmaktadır. Ancak, bu trende rağmen, konut yatırımlarının bu yüksek fiyat ve kira artışlarını tetikleyip tetiklemediğini belgeleyen bir literatür eksikliği dikkat çekmektedir. Bu çalışma, konut alımlarının yatırım olarak kabul edilip edilemeyeceğini araştırarak bu boşluğu doldurmayı amaçlamaktadır.

Teorik Çerçeve

Konut yatırımlarının ekonomik etkilerini anlamak için, yatırım kavramının teorik temellerine göz atmak önemlidir. Yatırımın ekonomik çıktılar üzerindeki etkisi, tarihsel olarak birçok ekonomi teorisyeni tarafından incelenmiştir. Fisher (1930), Keynes (1936), Wicksell (1962) ve Tobin (1958, 1961) gibi ekonomistlerin çalışmalarında, yatırımın ekonomik çıktılar üzerindeki gerçek etkisi temel alınmaktadır. Bu çalışmalar, yatırımın sürekli bir etkisinin olması gerektiğini savunmaktadır. Ancak, konut yatırımları bu bağlamda nasıl değerlendirilebilir? Konut alımları, ekonomik çıktı üzerinde kalıcı bir etkiye sahip midir, yoksa sadece kısa vadeli bir etki mi yaratır?

Keynes'in yatırım teorisi, yatırımın ekonomik büyüme üzerindeki rolünü vurgular. Keynes, yatırımların toplam talep üzerindeki etkisini ve ekonomik dalgalanmaları nasıl etkilediğini açıklar. Ancak, konut yatırımları, geleneksel anlamda üretken bir yatırım olarak kabul edilmeyebilir. Fisher ve Tobin'in çalışmaları ise yatırımların finansal piyasalar üzerindeki etkilerini inceler. Bu bağlamda, konut yatırımlarının finansal piyasalar üzerindeki etkilerini anlamak da önemlidir.

Ampirik Analiz

Bu çalışmanın ampirik kısmında, Türkiye'deki konut yatırımları ile gayri safi yurtiçi hasıla (GSYH) arasındaki ilişki incelenmiştir. Analizde, 2008-2022 dönemi

için konut yatırımları ve GSYH verileri kullanılmıştır. Verilerin analizi için Granger eşbütünleşme modeli ve Toda-Yamamoto nedensellik testi uygulanmıştır. Bu yöntemler, değişkenler arasındaki ilişkiyi ve bu ilişkinin yönünü belirlemek için kullanılır. Granger eşbütünleşme modeli, iki veya daha fazla zaman serisi arasındaki uzun vadeli denge ilişkisini test etmek için kullanılan bir yöntemdir. Bu model, serilerin birlikte hareket edip etmediğini ve uzun vadede birbirlerini nasıl etkilediklerini belirler. Toda-Yamamoto nedensellik testi ise, serilerin entegrasyon derecelerinden bağımsız olarak nedensellik ilişkisini test etmeye imkan tanır. Bu test, serilerin durağan olup olmadığına bakılmaksızın uygulanabilir, bu da zaman serisi analizlerinde önemli bir avantaj sağlar.

Verilerin Durağanlık Testi

Zaman serisi analizinde, verilerin durağan olması gerekmektedir. Bu bağlamda, öncelikle seriler durağan hale getirilmiştir. Durağanlık araştırmasının en önemli avantajı, seriler arasındaki gerçek ilişkileri ortaya çıkarmasıdır (MacKinnon, 1991; Gujarati, 1995). Bu amaçla, serilere ADF (augmented Dickey-Fuller, 1981) ve PP (Phillips-Perron, 1988) birim kök testleri uygulanmıştır. Düzey değerleri durağan olmayan seriler, birinci derece farkları alınarak durağan hale getirilmiştir. Ardından, değişkenler arasındaki uzun vadeli ilişki, Engle-Granger eşbütünleşme testi çerçevesinde analiz edilmiştir. ADF ve PP testleri, zaman serilerinin durağan olup olmadığını belirlemek için kullanılan yaygın yöntemlerdir. ADF testi, serilerin otoregresif modellerle durağanlığını test ederken, PP testi, serilerin heteroskedastisitesi ve otokorelasyonuna karşı daha dayanıklıdır. Bu testler, serilerin durağan olup olmadığını belirlemek ve gerekli dönüşümleri yapmak için kullanılır.

Cointegration ve Nedensellik Testleri

Modelimiz ikili değişkenli olduğundan, Engle-Granger eşbütünleşme testi uygulanmıştır. Engle-Granger eşbütünleşme testi, ikili modellerde güçlü sonuçlar vermektedir. Bu test, serilerin uzun vadede birlikte hareket edip etmediğini belirler. Eğer seriler arasında uzun vadeli bir ilişki varsa, bu durum eşbütünleşme olarak adlandırılır ve serilerin birbirlerini uzun vadede etkilediğini gösterir. Son olarak, değişkenler arasındaki nedenselliği test etmek için Toda-Yamamoto testi uygulanmıştır. Toda-Yamamoto testi, serilerin entegrasyon derecelerinden bağımsız olarak nedensellik ilişkisini test etmeye imkan tanır. Bu test, geleneksel Granger nedensellik testinden farklı olarak, serilerin durağan olup olmadığını göz ardı ederek nedensellik ilişkisini belirler.

Bulgular

Yapılan analizler sonucunda, Türkiye'deki konut yatırımları ile GSYH arasında uzun vadeli bir eşbütünleşme veya nedensel ilişki bulunmadığı ortaya çıkmaktadır. Bu bulgular, konut alımlarının geleneksel yatırım olarak nitelendirilemeyeceğini öne sürmektedir. Konut yatırımlarının GSYH üzerinde kalıcı bir etkisinin olmadığı sonucuna varılmıştır. Bu sonuçlar, Türkiye'deki konut piyasasının dinamiklerini anlamak için önemlidir. Konut fiyatlarındaki ve kiralardaki artışların, ekonomik çıktı üzerinde beklenilen olumlu etkileri yaratmadığı görülmektedir. Bu durum, konut yatırımlarının ekonomik büyümeyi teşvik etmek yerine, var olan kaynakların yanlış yönlendirilmesine neden olabileceğini göstermektedir. Ayrıca, konut yatırımlarının ekonomik eşitsizlikleri artırabileceği ve sosyal adaleti olumsuz etkileyebileceği de bulgular arasında yer almaktadır.

Tartışma ve Sonuç

Bu çalışmanın bulguları, Türkiye'deki konut yatırımlarının ekonomik çıktı üzerindeki etkisini anlamak için önemli ipuçları sunmaktadır. Konut alımlarının geleneksel yatırım araçları gibi sürekli bir ekonomik katkı sağlamadığı görülmektedir. Bu durum, politika yapıcılar için önemli sonuçlar doğurabilir. Özellikle, konut yatırımlarının teşvik edilmesi yerine, ekonomik büyümeyi sürdürülebilir kılacak diğer yatırımlara yönelmek daha faydalı olabilir. Konut piyasasındaki mevcut durum, düşük ve orta gelir gruplarının konut erişimini zorlaştırmakta ve ekonomik eşitsizlikleri artırmaktadır. Bu nedenle, konut politikalarının yeniden gözden geçirilmesi ve daha kapsayıcı ve sürdürülebilir çözümler üretilmesi gerekmektedir. Bu çalışma, Türkiye'deki konut yatırımları ve ekonomik çıktı arasındaki ilişkiyi anlamak, hem akademik hem de pratik açıdan büyük önem taşımaktadır. Bu çalışma, konut piyasasındaki mevcut durumu anlamak ve gelecekteki politikalar için temel oluşturmak adına önemli bir adım niteliğindedir. Gelecekteki araştırmaların, bu bulguları daha geniş veri setleri ve farklı yöntemlerle test etmesi, konut yatırımlarının ekonomik etkilerini daha derinlemesine anlamamıza yardımcı olacaktır.