Research Article

An Assessment Approach for Affordable Housing: The Case of Trabzon, Türkiye

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Abstract

Affordable Housing for low-income households has been considered an important issue in many countries' policy agendas across the world in the past two decades. However, the debate on affordable housing is still very new in Türkiye, and there have not been any official definitions and policies regarding this issue. TOKI (Housing Development Administration of Türkiye), the most active actor in Türkiye in house production for low-income families since 2000, has produced projects in this scope. Discussing these projects in terms of affordable housing is important in revealing the current state of Türkiye and directing the projects to be made in the future.

Within this context, the present study aims to question the affordability of the houses stated to be produced by TOKI for low-income households. The study was employed a two stage methodology consisting of a content analysis that obtained data by the semi-structured interview technique and affordability analysis. Initially parameters were defined to make an affordable housing query, and the affordability states of the houses in a sample area were questioned with the defined parameters.

Based on these findings, it can be concluded that affordability has a positive effect on satisfaction with housing. Increased transportation costs, which is one of the expenses that indirectly affect affordability. Residential areas where low-income households presently live and proximity to the city center and business areas should be considered determinant factors in location selection for affordable housing. Housing production for low-income households should not be considered solely to meet housing needs. Choosing a place for housing construction should be made by considering other living needs of individuals.

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1. Introduction

Homes are places where people's basic needs such as sleeping, nutrition, and protection required for their lives are met (Keleş, 1998). Within this context, the home has been recognized as a fundamental right both nationally and internationally. Universal Declaration of Human Rights, the European Union Charter of Fundamental Rights, the European Social Charter, and the International Covenant on Economic, Social, and Cultural Rights include the right to housing at the international level, while the 1982 Constitution defines housing as a right at national level (Balkır, 2010). Article 57 of the 1982 Constitution of the Republic of Türkiye deals with the state's approach in this field and provides that the state take the necessary measures to meet the housing need within the confines of a planning that takes into consideration the characteristics of the cities and environmental conditions and support mass housing enterprises. To this end, the housing needs of low-income households have been tried to be met with the policies developed by both national and local governments. It can be said that some solutions developed only to meet the need for sheltering are often independent of socio-economic factors required by social justice and social peace (Knapp, Bento&Lowe, 2008; Zhang, 2020).

The housing need of low-income households was first considered as a problem after the Industrial Revolution. During the industrialization process, which started in England and spread to Europe, the old liberal understanding in the economic sense primarily was influential. This understanding supported the development of an uncontrolled market system. In line with this understanding that was common in England in the late 18th and early 19th century, residential areas developed entirely outside the state control (Hayes, 2012). Housing production was mainly carried out by factory owners and investors. Capital owners created low-standard living environments for workers for maximum profit targets. The unhealthy living environments created during this period became a problem as they negatively affected the social order and physical life. From the end of the 19th century on, legal regulations were introduced by the central government regarding infrastructure systems for the unfavourable living conditions of workers. Constructing rental public houses/council houses, under the ownership of the local governments, at physical standards in the city peripheries for low-income households was subsidized (Lowe, 2011; Lund, 2011).

With the Great Depression experienced after the First World War (in 1929), the idea of government control of the money supply was accepted (Hayes, 2012). This idea was also implemented in the housing market. For example, in the United States, regulations called the "New Deal" consisted of innovative programs aimed at supporting low-income and disadvantaged groups. These programs included financial assistance in housing production for low-income families. In addition, in 1937, the central government authorized the local governments to build and operate public housing (Lund, 2011; Hayes, 2012).

After World War II, a period in which cities were rebuilt began especially in countries that joined the war. In this period, there were two different approaches to the housing market in Germany, where there were two different management styles (East and West). Housing was considered a priority issue in the post-war plans made in East Germany. The aim was to build houses for the accommodation of a dense population as quickly as possible. To this end, the state

constructed residential units that consisted of low square meter apartments. On the other hand, in West Germany, the view that the state should intervene in the housing sector due to the imbalance of supply and demand was accepted. Non-profit housing associations and cooperatives were supported by subsidies when they produced housing for low-income families to encourage house construction in the post-war period. House units constructed with these supports were named "public houses" (Lund, 2011). In the United States, house production during this period was mainly carried out by the market. The government supported low-income house acquisition with long-term and low-interest mortgage applications (Bardhan, Edelstein&Kroll, 2012; Hayes, 2012).

On the other hand, in this period, with the transition to mechanization in agriculture in Türkiye, an intense rural-to-urban migration started. As a result of migration, the housing problem came to the fore in cities. Aru (1970) stated that Türkiye did not have a social housing policy until the planned period (It started with the establishment of the State Planning Organization in the early 1960s). However, in the 1950s, constructing cheap houses for low-income households became a mandatory task of the municipalities. At the same time, municipalities were given the authority to allocate land to families with no homes. The Land Office, which was established in 1969 with Law No. 1164, was given the task of providing lands for housing. In terms of financial support, the state provided credit support to both individuals and cooperatives through public institutions that it established. With the introduction of the condominium act, houses for all segments were produced with both build-and-sell and cooperative practices. In the 5-Year Development Plans made between 1960 and 1980, although the construction of social houses and the state's need to intervene in this issue were clearly stated, priority was given to infrastructure and industrial investments.

From the late 1940s to the 1980s, financial support policies were carried out by the public institutions of the central government for the housing needs of low-income households. In addition, land allocation policies were developed by both the public institutions of the central government and local governments.

The houses produced through credit and cooperatives were intended to be social houses, and previously, loans were given for cheap and social houses with low square meter, but this has changed over time. With this change, the middle and upper class have benefited more from loan opportunities. This shows that policies have been insufficient in solving the housing problem of low-income households. As a result, low-income households tried to meet their housing needs through shanty settlements (Keleş, 2009; Çoban, 2012). The adoption of neo-liberal policies after the 1970s eliminated the direct intervention of the state. In addition, a period that also limited the indirect intervention of the state started. Following the United States, owning homes through the mortgage system was also encouraged in the United Kingdom. The social houses (council houses) produced in the previous periods were privatized in this period. By promoting private ownership, houses were also supported as an investment tool (Lund, 2011). Before 1980, in the mortgage system in the United States, the loans were provided by local units (local banks and savings); however, after 1980, loans were de-localized and standardized at the national level (Hayes, 2012). After the unification of East and West Germany, social residences and cooperative residences in East Germany started to be sold

to private investors and tenants in the 1990s. In West Germany, house construction in the private sector was encouraged by subsidies in the cities whose population density increased due to the immigration from the east. Following the dissolution of Czechoslovakia in the 1990s, the houses owned by the communist regime were transferred to local governments. Local governments adopted the policy of selling these houses to private real estate companies (Lund, 2011).

In Türkiye, parallel to the developments in the world in general, the foundations of the neo-liberal economy were laid with the decisions dated January 24, 1980, which were outward-oriented and foresaw the integration with capitalist economies. With the National Housing Policy adopted in this period, the aim was to make citizens from all strata own a house. To do this, the governments of the time aimed to prioritize mass housing construction and produce land for mass housing. The period between 1980 and 2000 was shaped by housing policies developed around this framework. The housing sector has been seen as a critical sector in the economy regarding both the employment opportunities it creates and its effects on the manufacturing industry that produces inputs for house construction. For this reason, legal regulations have been made to boost the housing market. With Mass Housing Law No. 2985 enacted in the early 1980s, a mass housing fund and a mass housing administration were established under the central government, especially for low-income households. Institutions, cooperatives, and builders, who would make investments, including the second house, were provided with loans. Until the 1990s, when the Mass Housing Fund was interrupted, housing cooperatives, municipalities, and their partnerships benefited from the fund to a large extent. With the interruption of the fund and the start of TOKI's (Housing Development Administration of the Republic of Türkiye) own house production, the loans given to the cooperatives were reduced, and the Mass Housing Fund support for the municipalities to acquire land was abolished. However, like in the previous period, the houses produced were not for low-income households but the middle and upper classes (Keleş, 2009; Çoban, 2012; Arsan, 2014).

From the 1980s on, the disruption of loan repayments in the functioning of the mortgage system spread throughout the world, affected various geographies, especially the USA, and caused economic crises. Low-income families, whose homes were seized in such developed countries as the United Kingdom and the USA, were provided with easy payment terms (subsidies, tax deductions, etc.) after the problem (Hayes, 2012; Lund, 2011; Springler& Wagner, 2010). In the recent period, states are not directly involved in house production. The production policies such as public housing and council housing for low-income families in the past periods have been replaced by policies that support and guide the private sector regarding "affordable housing." Apart from the current housing market, "affordable housing," a concept that envisages supplying houses to low-income and middle-income families according to the relationship between household income and house cost, has emerged as an essential housing policy and has been adopted by many countries. In countries such as Australia, the United States of America, England, and Portugal, the state has been encouraging the private sector to produce affordable houses for low-income and middle-income families (Aurand, 2014; Gabbe, 2018; Whitehead, 2007; Greenhalgh&Bosman, 2016; Gurran&Whitehead, 2011; Nouwelant, Davison, Gurran, Pinnegar&Randolph, 2015).

In Türkiye, the 1999 earthquake and 2001 crisis had an impact on housing policies in the 2000s. Within this context, some decisions were taken in the 8th five-year Development Plan to eliminate the effects of the earthquake. The legal regulations that were developed within the scope of housing policies after 2003 are important. With the amendments made in the Mass Housing Law, TOKI's powers and application areas were expanded, and its resources were increased. Since then TOKI, as the pioneer housing project builder, has had a great significance in the housing production of Türkiye. TOKI has been given such new tasks as establishing housing-related companies, going into a partnership with existing companies, providing personal loans and mortgage loans, providing loans for urban transformation projects, and performing such activities as building houses, infrastructure, and social infrastructure. In 2004, TOKI was also given the authority to implement urban transformation projects. While, in the process that started from the enactment of the Mass Housing Law until the amendments in 2003, the effect of cooperatives was effective, from 2003 on, TOKI and urban transformation practices have been effective (Keleş, 2009; Çoban, 2012). The strategy of TOKI is described as offering social housing for the low-income and middle-income groups and the necessary service units by completing their infrastructures. It has been stated that TOKI has produced 717,154 social houses until today. Although TOKI does not have a detailed definition of social housing, credit facilities are provided to low-income households by limiting the level of income in housing purchases in these projects. Under the housing title of the final development plan, providing access to affordable housing for everyone, especially those with low income, is stated as the goal. In addition, there is the target of producing 250 thousand social houses for low-income households and disadvantaged groups (11th Development Plan). Again, TOKI has introduced a project called "100 thousand Social Houses Every Year" for low-income households. All these show that TOKI is the most important actor in providing housing for low-income households. Therefore, it is important to evaluate TOKI houses produced for low-income households in terms of affordability, which is one of the aims of Türkiye's latest internationally accepted development plan.

1.1. Affordable Housing and Supply

Affordable housing means low-priced housing stock in the market (Gurran&Whitehead, 2011). Affordable house is appropriate for the needs of a range of very low- to moderate-income households and priced so that these households can also meet other basic living costs such as food, clothing, transport, medical care, and education. As a rule of thumb, housing is usually considered affordable if it costs less than 30% of gross household income (Internet 4). In a study conducted in Texas, the USA, Mueller (2010) defines the concept of affordable housing as the housing that low-income households (including families with children) can afford economically. On the other hand, Goetz (2008) defines the concept of affordable housing as a concept used to describe various housing options such as low-cost houses, flats, and elderly homes for people with different profiles (to varying stages of the life cycle, at different income levels, with different needs of housing). Government representatives in Australia describe affordable housing as that which suits low-income and middle-income families' needs and allows them to meet other basic living costs (Nouwelant, et al., 2015). There are two important criteria in the definitions for affordable housing. The first is a specific target group as low-

income and/or middle-income, and the second is the cost of housing that allows people to cover other basic living costs.

It can be seen that affordable housing criteria are addressed in different ways in different studies. For example, in a study conducted in London, Brighton, and Hove in the United Kingdom, it was found that those who earn less than the average income among the low-income working households (LIWH) that spend more than 30% of their income for housing costs suffer from financial difficulties (Walker&Niner, 2010; Lund, 2011). In the United Kingdom and Australia, the ratio of home expense to income is used in calculating affordable housing. If housing expenses are 30% or less of the total income, accepting that home as affordable also supports the previous study (Gurran&Whitehead, 2011). Similarly, in a study conducted in the USA, it was accepted that a house is not affordable when 30% or more of the income is spent on the house (Jun 2017). In a study comparing the affordable housing plans of London and New York, it was stated that affordable housing expenses should constitute less than 30% of the income (Marom&Carmon, 2015).

In a study by Aurand (2014), affordable housing is defined as low-cost housing for low-income households. In the study, the target population was limited to households earning less than 80 percent of the average income (Aurand, 2014). In Australia, Queensland Urban Land Development Authority has adopted two criteria when calculating affordable housing, namely target group, and income/housing cost ratio. First, low- and middle-income groups (annual income of 40-80 thousand dollars) were defined as the target group. Then, households in this target group that spend more than 30% of their gross income on rent or 35% of their gross income on buying houses were accepted as living in non-affordable houses (Greenhalgh&Bosman, 2016). Studies show that the target group is low- and middle-income people. Three definitions are made for these income groups: those who earn less than the average income, those who earn in this income range, and those who earn less than 80% of the average income. In terms of housing cost, one sees that 30% or less of the total income is considered affordable housing. Considering the studies carried out within this context, it can be stated that the houses for which low-income households spend 30% or less of their total income are regarded as affordable houses while the houses for which they spend more than 30% of their total income are considered non-affordable houses.

The concept of affordable housing is not limited to theoretical studies but is also supported by policies regulating its implementation and ensuring affordable house production. In this context, in such countries as Australia, the United States, and the United Kingdom, governments imposed the obligation that 15% of the houses be built in areas where housing projects will be realized by states and local governments to be affordable houses. In addition, to support affordable house production, incentives, such as increasing the construction area in urban design and urban transformation applications, were provided with the condition of producing this type of housing. In another practice, affordable housing was accepted as a public need. It became compulsory for investors to plan affordable housing and general uses such as open spaces and education facilities. At the basis of all the above-mentioned practices are there the principles of ensuring the continuity of existing living spaces of low-income households, protecting their commuting modes, and meeting their other living costs (Davison,

Gurran, Nouwelant, Pinnegar&Randolph, 2012; McGreevy, 2018; Beer, Baker, Wood&Raftery, 2011; Berry, 2003; Crook&Monk, 2011; Gurran&Whitehead, 2011; Paris, 2007; Rowley, James, Gilbert, Gurran, Ong, Phibbs, Rosen&Whitehead, 2016; Nouwelant et al., 2015).

Affordable house production for low-income households has come onto the agenda in our country with the latest development plan. However, the debate on affordable housing is still very new, and there have not been any official definitions and policies regarding this issue. One sees that TOKI, the most active actor in Türkiye in house production for low-income households since 2000, has produced projects in this scope. Discussing these projects in terms of affordable housing is important in revealing the current state in Türkiye and directing the projects to be made in the future. Within this context, the present study aims to question the affordability of the houses stated to be produced by TOKI for low-income households. For the study, (1) parameters were defined to make an affordable housing query, and (2) the affordability states of the houses in a sample area were questioned with the defined parameters.

2. Materials and Method

The study employed a semi-structured interview, which is a qualitative data collection tool. The purpose of using the semi-structured interview technique is to systematically conduct the interviews based on interview protocol that was previously prepared according to the purpose of the study. In this study, the interview was designed to achieve the research aim in questioning the concept of affordable housing using a qualitative research method.

2.1. Sample of the Study

The sample of this study consisted of low-income households, namely the target group of affordability studies. In this context, inquiries were made in this study on TOKI applications, prominent in housing production for low-income households in our country. This study employed the purposive sampling method, which is one of the non-probability sampling methods. In selecting the households to participate in this study, the primary criteria were that they should reside in TOKI houses and be tenants or paying loans. The study was conducted in Trabzon, Türkiye (Figure 1).
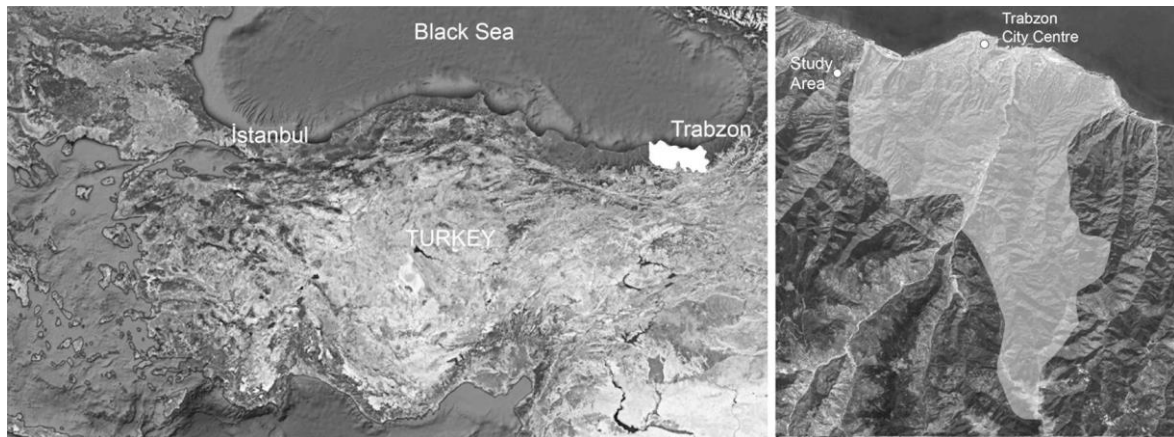

Figure 1. Study Area (Illustration: Authors).

There are 75 TOKI project implementations in Trabzon, of which 43 were completed, and 32 are ongoing. Thirty-seven of these projects include housing units. When the contents of the projects with housing units are examined, it can be seen that 4 of them contain the phrases 'housing for low-income households' and 'housing for the poor.' Furthermore, when these four projects are examined, one sees that they constitute the project in Yıldızlı Neighbourhood, Trabzon Province in the form of stages (Internet 5). The 1st stage consists of 288 flats, the 2nd stage 204 flats, the 3rd stage 258 flats, and the 4th stage 192 flats. The sample was determined as 88 out of 942 residential units with a 95% confidence interval and 10% margin of error. Face-to-face interviews were conducted with 88 households who resided in TOKI houses, paid rents or loans, and volunteered to participate in the study.

2.2. Data Collection

Following the purpose of the study, the necessary parameters for questioning the state of affordable housing were defined. To this end, for affordable housing to be a permanent solution to meet the housing needs of low-income households, the parameters of 'continuity and being economical' were also included in the evaluation. As a result of the definition, two parameters (1. Affordability, and 2. Continuity in housing) were determined. Accordingly, the first parameter includes the cost of housing, income, and other expenses (transportation); the second parameter consists of the moving and location sub-parameters (Table 1).

Table 1.   Affordability Query Parameters and Sub-Parameters in Housing.*

Parameter	Sub-parameter	Necessary Data
Affordability	Housing cost	Rent
		Dues
		Bills (All year)
		Heating expenses
	Income/Target Group	Income
	Other expenses (Transportation)	District and neighbourhood of workplace location
		Mode of transport to the workplace
		District and neighbourhood of the former place of residence.
		The former mode of transport to the workplace
Continuity in housing	Levels of cost	Level of housing cost
		Level of transport cost
	Satisfaction with the Housing	Level of satisfaction with the housing
		Has the house intervened? (Reason for intervention? Type of intervention?)
	Moving status	Desire for moving
		Reason for moving
		Where to?

An affordability analysis should be done to question the affordability of a house. In the literature, affordability is generally expressed as the cost of housing at a level that will not hinder meeting other basic life needs. Although there are many different acceptances in the studies on the quantitative questioning of this verbal expression, the formula that "the housing

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* This table was adapted from Sheridan, Manley, MacDonald & Flynn, 2002; Davison, Logacy, Liu & Darcy, 2016; Varady, 2006; Goering & Whitehead, 2017; Leviten-Reid & Lake, 2016; Shrestha & Taniguchi, 2003; Bratt & Vladeck, 2014; Knapp, Meck, Moore & Parker, 2007, and Paterson & Dunn, 2009.

expenses (rent + bills + dues) should be less than 30% of the total income", a frequently used formula in the definition of affordable housing, was used in the affordability analysis in this study. Given that the housing costs of affordable housing should be at a level that will allow meeting other living expenses, transportation costs that affect housing costs are also important. In this context, inquiries were made regarding transportation expenses, the relations of the old and new houses with the workplaces, and transportation modes. The information that is the basis for inquiries regarding the affordability of TOKI houses was obtained through an interview for the affordability of the houses that are said to be produced by TOKI for low-income households, consisting of 16 questions.

2.3. Data Analysis

After collecting the data for the research, the analysis and interpretation of the data were made. First, a content analysis was carried out for the data obtained by the semi-structured interview technique. The following steps were followed in the analysis of the data respectively: Coding the Data, Determining the Themes of the Encoded Data, Arranging the Code and Themes, Defining and Interpreting the Findings (Yıldırım & Şimşek, 2013). After coding the data, the responses to each question were divided into themes; then, the codes and themes were arranged, and lastly the findings were defined and interpreted.

3. Findings

The findings were discussed under two headings. The first is affordability, under which the target group was questioned, affordability analysis was carried out, and the findings on transportation costs were presented. The second is continuity in housing, under which findings of house satisfaction, cost (housing and transportation), and moving considerations were presented.

3.1. Affordability

The affordability analysis consists of the parameters of the target audience, income, and housing cost. The target audience should be low-income households. For this reason, the income levels of those living in TOKI Yıldızlı houses were analysed. All the participants in the study have an income below the poverty line in Türkiye (8,856 Turkish Liras) as of February 2021 (Internet 6). This indicates that all participants are from low-income households. In this context, the condition that 'affordable housing is for low-income households' is met in TOKI Yıldızlı housing.

3.2. Affordability Analysis

While conducting the affordability analysis, whether thirty percent (30%) of the monthly income was lower than the calculated housing cost (rent + dues + bills + fuel expenses) was questioned. It was found that there was a difference in the bills in the spring-summer and autumn-winter periods. For this reason, the affordability analysis was calculated for both periods. On the other hand, fuel expenses were added to the monthly expenses without any periodic difference by dividing the total annual amount into twelve, as lump-sum yearly payments are made in the central heating system. The inquiry results showed that the houses of 70.5% of the participants were not affordable in the spring-summer period and the houses

of 77% of participants in the autumn-winter period. Further, to evaluate affordability and its sub-parameters together, a general value was calculated by taking the average of the housing expenses in two periods. Accordingly, while housing is not affordable for 77% of the participants, it is affordable for 23% (Table 2). It was found that the affordability results did not change in the general evaluation due to the high bill expenses in the winter months.

Table 2.   Results of Affordability Analysis.

	Spring-Summer		Autumn-Winter		General	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Affordable	26	29.5	20	23	20	23
Non-affordable	62	70.5	68	77	68	77
Total	88	100	88	100	88	100

In addition to the affordability analysis, the distances between the houses and workplaces, and modes of transport, all of which affect other living costs of the participants, were also examined. Accordingly, the participants were asked about their current workplaces, the districts and neighbourhoods of the houses they used to live in, and the modes of transport. It was found that the workplaces of 57% of the participants are in the centre of the city, 20% of the participants are in Yıldızlı, 9% of the participants are in Kemerkaya, 7% of the participants are in Gülbaharhatun, and other neighbourhoods with smaller percentages. When the old living places of the participants were examined, it was found that only 14% of them (n=12) had lived in the Yıldızlı district. Apart from this, 18% of the participants (n=16) stated that they used to live in Ortahisar city centre, 9% (n=8) in Yenimahalle district, 7% (n=6) in Beşirli district, 7% (n=6) in Yeşiltepe district, 5% (n=4) in Erdoğdu district, 5% (n=4) in Gülbaharhatun district, 5% (n=4) in Söğütlü district, and with less percentages in other neighbourhoods. One can see that most of the participants resided in the neighbourhoods around the centre where their workplaces were before moving (Figure 2). As a result of the queries about the old home-work modes of transport, it was found that 45% (n=40) of the participants travelled by minibuses, 25% commuted on foot (n=23), 20% (n=18) travelled by their private cars and 15% (n=14) travelled by buses. As a result, it is possible to say that since the distance between home and work is short, minibus and pedestrian modes of transportation are mostly used (Figure 2).
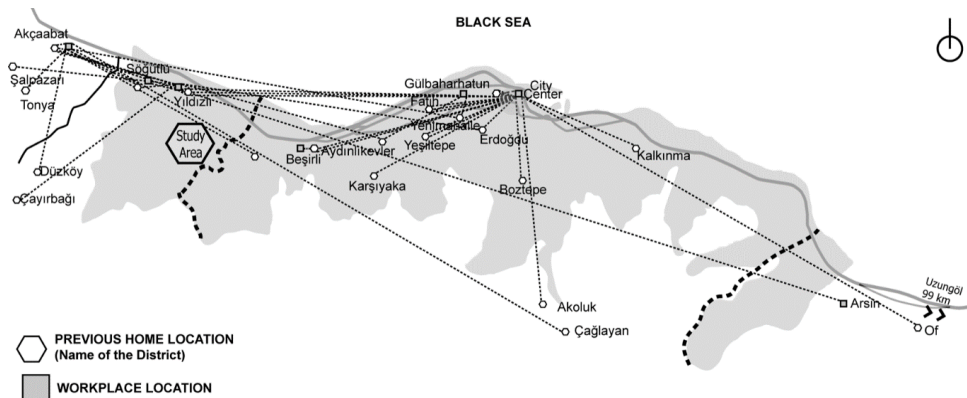

Figure 2.   The Distance and Mode of Transport Between the Workplace and the Former Neighbourhood of Residence (Illustration: Authors).

Considering the transportation relationship between TOKI Yıldızlı housing and workplaces, this distance is observed to increase. It was found that 52% of the participants who moved to TOKI Yıldızlı Residences moved away from their workplaces, 39% came closer to their workplaces, and 9% remained the same. In queries about new modes of transport, it was found that 41% of the participants (n=36) use private vehicles, 41% (n=36) use minibuses, 11% (n=10) use buses, and 8% (n=6) use pedestrian transport. One can see that moving away from the workplace also affects the mode of transport. It was found that 70% of those who used to go to the workplace on foot have started to go by private vehicles and 20% of them by buses (Figure 3).
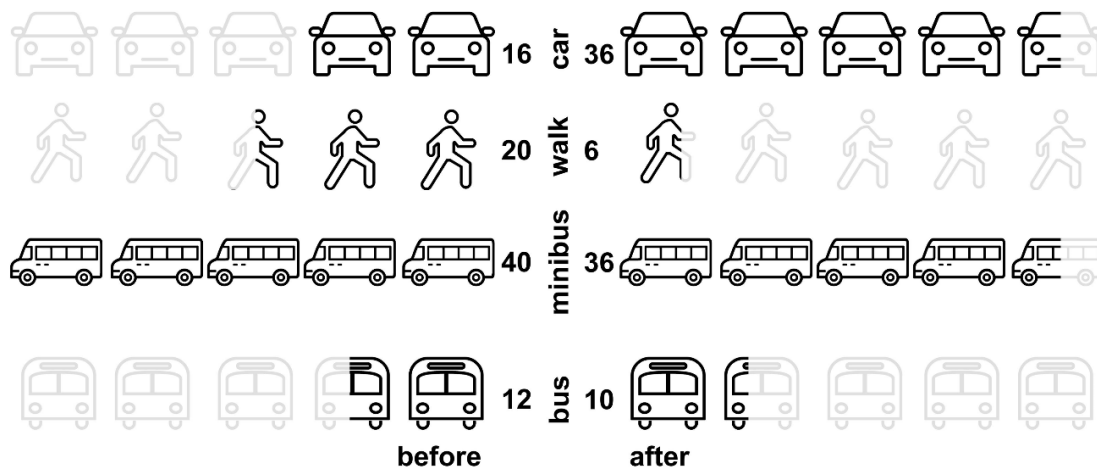

Figure 3.   Comparison of Old and New Modes of Transport (Illustration: Authors).

In addition, inquiries made for affordability show that for 82% of 46 households who have moved away from their workplaces, TOKI Yıldızlı houses are not affordable. This finding supports the idea that the location selection criterion in social housing production in TOKI projects is ignored.

3.3. Continuity in Housing

To find out about the continuity in the housing, findings of how the levels of cost of housing and transportation were found, satisfaction with the house, desire to move, and its reasons are included. When the participants' responses about the levels of cost of their housing are examined, it is seen that they find it low, medium, high, and very high. 71% of households defined the cost of housing as high and very high. They see the transportation cost level as high, medium, and low, respectively. Similar to their remark about the cost of housing, all participants stated that they found transportation costs medium and high (Table 3). The cost of housing that should be low in terms of affordability, and the medium and high transport costs that indirectly affect affordability may negatively affect the continuity of the housing.

Table 3. Levels of Housing and Transport Cost.

Level of Housing Cost	Frequency	Percent	Level of Transport Cost	Frequency	Percent
Very low	0	0	Very low	0	0
Low	4	4	Low	0	0
Medium	22	25	Medium	29	33
High	52	60	High	59	67
Very high	10	11	Very high	0	0
Total	88	100	Total	88	100

When the relationship between affordability and the level of housing cost is examined, it is found that 65% of those residing in unaffordable housing find their housing costs high, 20% medium, and 15% very high. On the other hand, 40% of those living in affordable houses stated that they find their housing costs high, 40% medium, and 20% low. While 80% of those who reside in unaffordable housing find their housing costs high and very high, this rate is 40% for those who live in affordable housing. All of those who find the cost of housing low reside in affordable housing, while those who find it too high live in houses that are not affordable. These findings support the inverse proportion between the level of housing cost and affordability. When the relationship between affordability and the level of transport cost is examined, it is found that 78% of those living in unaffordable housing find the level of transport cost high and 22% medium. On the other hand, 70% of those living in affordable houses stated that they find the transportation cost medium and 30% high. The fact that those who live in unaffordable housing find transport costs mostly high, and those who live in affordable housing mostly medium shows that the increase in transport costs affects affordability negatively.

When the participants were asked about their satisfaction with their housing, 48% responded that they were not satisfied. It was also found that 27% of the participants were satisfied, and 25% were undecided. When the relationship between affordability and level of satisfaction with housing was examined, it was found that 57% of those who live in unaffordable housing were not satisfied with their housing, 26% were undecided, and 17% were satisfied. On the other hand, it was found that 60% of those who live in affordable housing were satisfied, 20% were undecided, and 20% were not satisfied (Table 4).

Table 4. Levels of Satisfaction with the Housing in Terms of Affordability.

	Non-affordable		Affordable		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Not satisfied	39	57	4	20	42	48
Undecided	18	26	4	20	22	25
Satisfied	11	17	12	60	24	27
Total	68	100	20	100	88	100

Considering that more than half of those who live in unaffordable housing are not satisfied with their housing and that more than half of those who live in affordable housing are satisfied with their housing, it can be said that affordability affects the level of satisfaction with the housing. 80% of the participants did not physically intervene in their housing due to their being tenants. 20% of the respondents who physically intervened stated that mostly the material quality and malfunctions were the reasons for the intervention. While 65% of the participants did not want

to move, the remaining 35% wanted to move. 72% of those who wanted to move stated the transportation problems (distance to the centre, workplaces, and schools) as the reason. 48% of these participants indicated that they wanted to move to places close to their workplaces, and 32% to their old neighbourhoods. 60% of those who did not want to move stated that the reason for this was their financial inadequacies.

When the relationship between affordability and the desire to move was examined, it was found that 63% of those who live in unaffordable housing did not want to move, while 37% wanted to move. The reason stated by those who live in these housing for not wanting to move is generally residents' financial inadequacies. This finding shows that they are in an unsolvable situation. While 30% of the participants who live in affordable housing wanted to move, 70% did not want to move. The reason for wanting to move is mostly (80%) transport problems, and the reasons for not wanting to move are that they are satisfied with their housing and that they are close to their workplaces. The distance from the workplace is the most apparent reason for the desire to move. The fact that they generally desire to move to places close to the workplace also supports this finding. Based on these findings, the home-work distance and ease of access should be considered in choosing a location for continuity in housing.

4. Conclusion

In the present study, the historical development of the concept of affordable housing and its worldwide definitions were revealed by conducting the literature review first. A systematic analysis base consisting of parameters and sub-parameters was obtained to enquire about affordability. In parallel with this base, a semi-structured interview was prepared, and interviews were conducted. The study investigated the affordability and continuity of TOKI housing as social housing for low-income households in Türkiye. The target group of affordable housing is considered to be low-income households in the literature. The inquiry results showed that the houses of 70.5% of the participants were not affordable in the spring-summer period and the houses of 77% of participants in the autumn-winter period.

Based on the investigations made over the poverty line in Türkiye, it was concluded that the TOKI Yıldızlı Housing project meets the feature of being affordable housing for low-income households. However, when the affordability is calculated based on the formula (housing expenses should be below 30% of the total income), which is frequently used in the literature, it was found that the houses are primarily not affordable. Participants whose houses were found to be unaffordable as a result of calculations stated that housing costs were high. However, a small proportion of participants whose housing was found to be affordable found the housing cost low. These findings support the statement in the literature that "the high cost of housing affects affordability negatively." In addition, the fact that those who live in affordable housing also found the cost of housing as high shows that the regulations for tenants in TOKI projects are not sufficient. In TOKI projects where loan facilities are provided when buying a house, it is necessary to consider the tenants and have a plan for them as well.

In the related literature, affordable housing is frequently encountered in built-up areas, which shows that it is essential to protect home-work distance and sustainability of affordable housing. The present study's findings do not support this because most of the residents of

TOKI Yıldızlı Housing moved here from the city centre and its immediate surroundings that were close to their workplaces. Participants whose workplaces didn't change moved away from their workplaces after moving to TOKI Yıldızlı Housing, which is located far from the city centre and main transportation links. This moving away has also caused changes in transportation modes. Those who had commuted to and from their workplaces on foot before started to use vehicles, especially private vehicles. This increased the transportation cost, which is one of the expenses that indirectly affects affordability. In addition, the fact that the houses of those who moved away from their workplaces are, to a large extent, not affordable and that the participants generally find the transportation expenses high can be regarded as the indirect and direct adverse effects of choice of location, which is not in line with what is stated in the literature on affordability. In addition, choosing a location away from the main service areas in the city increases the transportation costs to the workplaces and the transportation costs to these areas. In this respect, it is essential to make location selection decisions that are integrated with the city allowing public transportation related to the facilities areas.

According to the findings of this study, almost half of the participants are not satisfied with their housing. And the majority of participants who are satisfied with their houses are living in unaffordable housing. It was found that more than half of those who live in affordable housing are satisfied with their housing. Based on these findings, it can be concluded that affordability has a positive effect on satisfaction with housing. Therefore, housing solutions for low-income households have a positive impact on the continuity of housing. When the participants' desire to move was analysed in the inquiry of sustainability, it was found that more than half of the participants did not want to move. When this was investigated, the majority of "financial insufficiency" responses were received especially from those who live in unaffordable housing. Considering that they cannot move to other houses due to financial inadequacy, although they currently do not live in affordable housing, it becomes necessary to seek different housing solutions for low-income households. Although the proportion of those who think of moving is not low, it is close to 1 in 3. The respondents stated that the reason for thinking about moving was the distance to the workplaces, and the majority of them indicated that they wanted to move to places close to their workplaces. This shows the importance of location selection in terms of affordable housing and the sustainability of housing. As stated in the literature, residential areas where low-income households presently live and proximity to the city centre and business areas should be considered determinant factors in location selection.

TOKI can try production models that offer rental opportunities as well as buying houses for low-income households. When producing solutions for rental housing, the thirty percent condition of affordability should be addressed as an essential criterion. The fact that TOKİ, which does projects in many different areas, is the sole authority in housing production for low-income households in our country does not coincide with practices worldwide. In this context, the state should follow policies that also encourage the private sector as well as TOKI to produce affordable housing for low-income households, as in the examples in foreign countries. Housing production for low-income households should not be considered solely to meet the housing need. Choosing a place for housing construction should be made by considering other living needs of individuals. In addition, as seen in the examples in the literature, projects that will make it possible for different income groups to live together should

be designed. In this context, as well as projects for low-income households, TOKI must include affordable housing also in other housing projects.

Declaration of Ethical Standards

This research was carried out with the permission of Karadeniz Technical University, Natural and Engineering Sciences Ethics Committee with the decision numbered 129639-1301, dated in 24/05/2021.

Conflict of Interest

There was no conflict of interest between the authors during the research process.

Authors' Contributions

All authors contributed equally to the article.

Declarations

The authors take full responsibility for the content and any modifications made during this process.

Originality Report

According to the originality report obtained from the iThenticate software, this article's similarity rate is 10%.

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