The Segmentation of the Residential Real Estate Market on the Affordability Criterion: Methodical Aspect

P A Muller[1], K V Chepeleva[2], Zh N Shmeleva[2]

[1]Siberian federal university, Krasnoyarsk, Russia
[2]Krasnoyarsk state agrarian university, Krasnoyarsk, Russia

E-mail: kristychepeleva@mail.ru

Abstract. The article investigates the methodological problems of assessing the affordability of housing. Particular attention is given to the consideration of modern methods for assessing the affordability of residential real estate described in domestic and foreign literature, in official documents. The development of market segmentation methods, in accordance with the directions presented in the article, will allow to assess the real affordability of residential real estate in the studied market segments, taking into account the affordability of objects in the market and the financial possibility of their acquisition or lease. The implementation of the algorithm for improving the segmentation of the residential real estate market according to the criterion of affordability will improve the accuracy of calculations, obtain information completeness of the assessment of housing affordability for the population, which will allow to develop and evaluate the effectiveness of federal and regional housing strategies, taking into account the desired structure of the housing stock for different groups of the population. Based on the results, the territorial authorities and developers will have an understanding of the current situation in the region regarding the affordability and demand for residential premises, which in the complex will allow to more accurately allocate the target audience and for it to create and promote appropriate residential real estate, will ensure the effective development of the housing sector and the construction industry, improving the quality of life of the population.

1. Introduction

The housing market is one of the most important sectors of the market economy. On the one hand, housing is an important indicator of the life quality for each individual citizen; on the other hand, the processes in the residential real estate market are important for the economic development of the state as a whole. The real estate market is at the intersection of the interests of a whole range of entities: investors (both individuals and legal entities), developers, realtors, insurers, bankers, lawyers, etc.

The specificity of the Russian housing market model is due to both the characteristics of its social orientation, which consists of satisfying the need for housing and its affordability, and economic efficiency, determined by the purchase-sale relations.

Functioning in the conditions of a large number of consumer behavior different factors leads to the presence of complex and hidden relationships between supply and demand and requires the search for optimal methods for the analysis of the situation prevailing in the market, as well as effective methods of forecasting its development [1]. In this regard, the issue of residential real estate market segment according to the affordability criterion is the most acute in the socio-economic sphere of any region.

In the current conditions, there are no clear boundaries between the segments of the housing market, based on the criterion of affordability [2]. Independent segmentation of housing by developers in new buildings is often a thoughtful marketing move that allows to influence the demand for apartments and their price - the higher the category of apartments, the greater the benefit of the developer [3]. In this regard, the issue of a unified approach to the segmentation of the housing market by the affordability criterion becomes particularly relevant.

Consequently, there is an obvious necessity to complement the existing methodological approaches by research that is approbating segmentation by the criterion of housing affordability in the conditions of local markets with specific factors that affect the conditions of housing affordability for different citizens' categories.

The purpose of the research is to substantiate the improvement of methodological approaches to market segmentation by the criterion of housing affordability for consumers as an indicator of the residential real estate market development.

The object of research is the residential real estate market of the Krasnoyarsk territory.

2. Literature review

2.1. Definitions of the "housing affordability" concept and approaches to its assessment
When forming methodological approaches to assessing the affordability of residential real estate, it is necessary, first of all, to determine the concept "affordable housing".

The term "affordable housing" came into existence in the United States in the last century. The acute shortage of housing caused by the "great depression" of 1930's for people who lost their jobs forced the government to quickly look for ways to solve this problem. Affordable housing in the United States and Canada refers to housing that can be purchased or rented by a middle-income family at a price not exceeding 30% of the total income of all family members [4]. And the price of the house includes taxes, insurance and payment of housing and communal services. In the US and Canada, the concept of "affordable" is not unambiguous, it can vary depending on a number of related factors. For example, the notion of "affordable" often includes or is associated with the notion of "transport accessibility", since for many groups this element of accessibility is often crucial. And the affordability depends on some other factors, including the location and prestige of the area, the type and number of storeys in the building. According to the standards of modern developed countries, the concept of "affordable housing" means that about 80% of working people have a real opportunity to buy or rent housing. The main mechanisms for the acquisition of housing are based on credit and savings schemes [5].

Based on the system analysis, it can be concluded that today in the foreign and domestic practice of the real estate economy there are several classical approaches to the assessment of this key characteristic of the housing market [6]:

1. One of the simplest measures of housing affordability is the purchasing power of wages in the housing market, which is determined by the ratio of the average monthly nominal accrued wages of workers to the average market value of 1 square meter of housing. This approach is implemented through the following indicators: the amount of living space that can be purchased by an individual for one month's salary; the coefficient of housing affordability, years; the modified coefficient of housing affordability, years; the index of housing affordability with a loan; the proportion of families who have the opportunity to purchase housing that meets social standards, using their own and borrowed funds).

2. Another approach to assessing the housing affordability involves determining the period of time (number of years) that the household will need to accumulate funds for the purchase of housing, provided that all its income is saved. In this approach, the housing affordability ratio is calculated as the ratio of the current average market value of a standard quarter to the average annual income of a family consisting of three members.

3. The above-mentioned approaches do not take into account one important factor that can significantly adjust the perception of housing affordability for the population - the possibility of purchasing

housing with mortgage loans. The housing affordability index shows credit income ratio medium non-aggregate household income required to purchase a standard apartment with a mortgage loan, given on standard terms. This indicator of socio-economic efficiency of the market, called the "housing affordability index with credit", is widely used in the US and European countries, characterized by a developed system of mortgage lending [7, 8, 9, 10, 11, 12].

The notion of affordability is closely linked to the improvement of housing conditions. At the same time, the analyzed approaches take into account only one way to improve housing conditions – the purchase of housing. However, living conditions can be improved not only through the purchase of housing. The acquisition of own housing may lead to a deterioration in the living conditions of the whole household, increasing the share of mandatory housing maintenance costs in the household budget [13].

To form a new approach to the concept of housing affordability, we will consider the affordability of housing, based on the methods of acquisition and methods of financing of housing in the presence of actual (within one year) need to improve housing conditions.

For a multi-person household, there are three options for purchasing housing [4]:

1. The purchase of housing by parents or the ownership obtaining in the inheritance. The most attractive and simple, from a financial point of view, option.

2. Purchase of own housing; the implementation of this option is possible in two ways: either to accumulate funds for the purchase of an apartment, or take a mortgage. From a financial point of view, savings are required for the initial payment (30 % of the value of the purchased property). For household finance, mortgages are extreme finances, as they take 40% of family income out of the budget. For a long period (15 – 20 years) the family will have to save a lot to ensure timely mortgage payments. Emergencies in the family (divorce, illness, loss of work, reduction of income, death of household members, etc.) make mortgage payments impossible.

3. Rent of housing, so the family becomes tenants. An increasing number of households are choosing rent as the main way to improve living conditions. It should be noted that the property is a huge responsibility for their property and the need for constant efforts to preserve its value. It hinders the mobility of a person, prevents his free movement. Renting an apartment in all countries of the world is one of the most affordable ways to get a roof over your head. It is hiring, and not buying own homes, that is sometimes the only possible solution to the housing problem [14].

It should also be mentioned that the issue of housing affordability is relevant to be considered from the point of view of the housing stock affordability (sufficient supply): its qualitative parameters, the level of livability and comfort, the age of the housing available in the area, employment opportunities in close proximity to the accommodation facilities, affordability of facilities of educational, health, medical, social, recreational and other infrastructure, transport and communications.

2.2. The segmentation of the real estate market on the comfort classes

The Housing Development Fund of Russia and the Russian Guild of realtors proposed the classification of the residential real estate market segments, as well as the main criteria for classifying housing to a particular class of objects [15]. Currently, the majority of professional market participants use this classification.

The basic criteria for the division of residential premises according to categories, in accordance with this classification are [15]:

- architecture;
- wall material;
- space-planning solutions;
- interior decoration of public areas;
- total area of apartments;
- engineering support;
- local area and security;
- infrastructure of the house;

• parking options.

Also, there are a number of additional criteria.

Based on these factors, there are two main categories of apartments – mass demand and increased comfort. These types of housing also have a division. Apartments for the mass buyer include economical and comfort class, and residential complexes of the second type include business and elite class.

Thus, on the level of Federal legislation, social norms of the total housing area are calculated as follows: if there is one tenant living alone – he is given an area of 33 sq. m., 42 sq. m. is the required minimum for two people. If the family consists of three people, each of them should receive at least 18 sq. meters. But in any case they should get at least 16 squares at the disposal.

At the same time, according to official statistics, at the end of 2018, the average area of residential premises per 1 resident of Russia was 25.8 sq. m., which already exceeds the social norm by 39 [16]. At the same time, the standard area of 25.2 square meters per person corresponds to the business class housing in the above classification, which does not correspond to the existing reality. Moreover, the analysis of the structure of the Russian population in terms of housing provision shows that about 70% of the population live in conditions that do not meet the social norms adopted in the Russian Federation and need to improve them, more than 90% of the population live in conditions that do not meet the standards adopted in the developed countries. About 25% of the population live in very cramped conditions – less than 12 sq. m. /person. Despite some differentiation by cities, in general, the housing conditions of the population in the Russian Federation can be considered to be extremely unfavorable [17].

In this regard, to clarify the criteria for making management decisions in the housing sector, it seems appropriate to consider international norms and criteria for segmenting the residential real estate market by degree of affordability.

For example, in Germany the rate of housing is 35 sq. m. /person, in Sweden, Norway, and Canada – 40 sq. m., in the United States – 70 sq. m. At the level of the largest cities in the European countries, housing affordability is in the range of 30-50 sq. m /person [18].

At the same time, the international standard of living, developed by the UN and UNESCO, provides that each resident should have at least 30 sq. m. of the total area of housing, that each household should have a separate housing of the traditional type; that each member of the household needs one individual room plus at least two rooms intended for joint stay [19].

The analysis of the world experience in the residential real estate market segmentation by comfort and affordability classes shows that the main difference between housing classes depends on, first of all, on the habitat created by the developer.

The main criteria for classifying a residential property to a particular class of comfort in the world market include:

1. Development maturity of business, entertainment, social and transport infrastructure in the area of development. The construction should be compact and the maximum number of useful objects should be at a distance of maximum accessibility. The more comfortable the housing is, the closer to it the office and business premises, areas under the distribution of harmless eco-friendly industries, shops, kindergartens, schools, fitness clubs, clinics, cafes, restaurants, etc. should be located. Travel outside of the district must not be required to solve everyday common tasks, but, for example, to create a variety of cultural events. Such an approach to the development of residential real estate is aimed at solving the current problem of transport congestion.

2. Space-planning solutions. Apartments of a higher comfort class are characterized by ergonomic organization of space and functionality. The internal layout provides for the full use of each square meter to eliminate the possibility of "empty zones". However, the standard layout of the Russian apartment involves the division into separate rooms, which are connected by corridors. In many apartments in the starting layout there is no pantry or dressing room. The presence of such layouts leads to a decrease in the efficiency of living space use, and a low level of comfort of housing, even despite the formal affordability of the necessary area. At the same time, the future owner of such an apartment has to pay for the extra area, which will not be used in the future. Another feature of high-

comfort housing in the world is the presence of a common space in the apartment; usually this function is performed by the living room combined with the kitchen. The number of rooms in the apartment is usually considered by the number of bedrooms, the total space is not taken into account.

3. The use of energy-saving technologies and environmentally friendly materials in the construction of residential facilities.

Construction of energy-efficient houses, i.e. buildings with extremely low energy consumption involves, first of all, the quality of work associated with the construction of fencing structures, the use of modern, better energy-efficient materials and design solutions in the field of thermal insulation (especially junctions and joints), ventilation systems, glazing, electricity, lighting and other engineering systems of the house, favorable orientation of the building on the ground.

Accommodation in buildings with improved energy efficiency is more comfortable than the operation of standard residential buildings, as the quality of construction and materials used in such facilities is much higher than in standard housing, and the operating costs for the maintenance and service of the object associated with the use of energy resources are much lower.

Also, it should be noted that an important factor that ensures the comfort of operation of the residential property, belonging to a particular class of housing, is the environmental friendliness of construction materials used in the construction of fencing structures and decoration. This factor is becoming increasingly important in connection with the formed demand of citizens, especially large cities, for a healthy lifestyle, proper nutrition, prevention of chronic diseases, improving the quality of life.

4. A set of criteria related to the use of vehicles: the presence of vehicles in the local area, the organization of parking spaces, ease of maneuvering, etc.

In this case, we mean not just the organization of parking on the territory of the housing construction object. Reducing the number of cars in the vicinity of residential buildings provides more comfortable accommodation and operation of the local area. The underground organization of transport and logistic streams is used on the objects of higher level of comfort, when intra district territories are completely exempted from presence of cars and given to pedestrians.

In addition, parking solutions are used that allow more efficient use of space. For example, it is possible to equip a parking space with a parking system when two cars are placed one above the other.

5. The presence of additional areas for domestic use in the complex.

The affordability of storage space in the local area or in the object of housing construction – whether it is a storage room in the basement or a detached building, also increases the comfort of operation of residential real estate and, in our opinion, determines the class of the object. Such places are placed, for example, in the parking area. Residents can purchase a "personal warehouse" and solve the problem of storage. Most often, the room for storage is offered for sale at a significantly lower price per square meter than in apartments.

Increasingly, developers offer other ways to improve the comfort of living in an apartment, bringing the necessary elements in everyday life in public areas. For example, halls with billiard tables are planned in the entrances, children's complexes, winter gardens, sports equipment, etc.

Thus, the criteria proposed by the Housing Development Fund of Russia and the Russian Guild of realtors for segmentation of the residential real estate market in terms of affordability in order to ensure the comfortable living of the population are superficial and do not correspond to current global trends.

The discrepancy is manifested in both quantitative (area) and qualitative characteristics (principles and criteria for classifying housing to a particular class of comfort and affordability). In addition, a large number of basic and additional criteria for classifying housing to a particular class greatly complicate the application of this classification in practice.

It should be noted that due to the identified inconsistencies, segmentation of the residential real estate market according to the criterion of affordability based on the existing social norms, and the use of these criteria in making management decisions will slow down the development of the housing sector, will not allow to achieve the desired results to improve the quality of life of the population and the development of the residential real estate market.

The process of improving the segmentation of the residential real estate market by the criterion of affordability is associated with two methodological areas of work:

- the allocation of segments of the real estate market for the classes of comfort;
- analysis of the affordability of these housing classes for the population.

2.3. Materials and methods

In the domestic and foreign theory, different approaches to determining the level of housing affordability are determined, but the solution to the problem of providing the population with housing depends primarily on the solvency of consumers in the housing market. The solvency of consumers, in turn, is determined by the ratio and dynamics of the income level of the population and housing prices. The ratio between prices in the housing market and incomes of the population is characterized by the affordability of housing and can be calculated as an indicator of affordability, which determines the ability of the population to purchase housing.

Various social indicators are used abroad to assess the housing affordability, including the housing affordability factor. The largest Numbeo database contains the most extensive information on housing indicators in different countries and cities. The main indicator of this base is the housing affordability ratio – Price to Income Ratio.

It refers to the efficiency indicators of national projects implementation in Russia, in particular, in the Program "Housing", adopted in Russia for 2002-2010. Other indicators are additional. Indicators Mortgage as Percentage of Income (the share of mortgage payment in family income) and Loan Affordability Index (the coefficient of affordability of mortgage credit) are associated with mortgage lending. As for Price to Rent Ratio (gross rent multiplier) and Gross Rental Yield (capitalization rate), these indicators are related to rental housing. In Russia, this area is not developed and has no legislative basis.

The housing policy of the Russian Federation is based on the UN-HABITAT methodology, in which the housing affordability index (HAI) is determined by the number of years the average family needs to accumulate funds for the purchase of average housing, provided that all household income is directed to these purposes.

According to the international classification of housing markets according to the criterion of affordability, housing is considered to be practically unavailable for more than 5 years, from 4 to 5 years – its acquisition is seriously complicated, from 3 to 4 years – "not very affordable". The most favorable are the values of the affordability factor, not exceeding three years. In practice, this means that the average family can buy a standard apartment for no more than 10 years, paying for it no more than a third of the total family income per year.

At the same time, in order to calculate the coefficients of housing affordability in different segments of the Krasnoyarsk market, we consider it appropriate to adjust this technique:

- in terms of determining the total area of housing and its average cost in accordance with the actual average performance cost of 1 sq. m. of housing and the average area of one-bedroom apartments, depending on the considered segment. Table 1 shows the average cost of a two-room apartment by segments of the residential real estate market in Krasnoyarsk, necessary for the calculation of the housing affordability coefficient.
- regarding calculation of average annual level of the household income, namely to calculate such income for each of Krasnoyarsk inhabitants' categories with different monthly average per capita income.

On the basis of statistical data and adjusted methodology UN-HABITAT we will build a matrix of housing affordability in the Krasnoyarsk market depending on the market segment and the level of income in 2018 (table 1).

Table 1. Matrix of housing affordability in the Krasnoyarsk market depending on the market segment and the level of the population income.

Monthly average per capita income of the population, RUB	Share of total population, %	The possibility of acquiring /Segments of the real estate market			
		Economical	Improved	Business	Elite
Less than 7000	6,6	Unaffordable	Unaffordable	Unaffordable	Unaffordable
7000,1 to 10 000,0	8,7	Unaffordable	Unaffordable	Unaffordable	Unaffordable
from 10 000,1 to 14 000,0	13,2	Unaffordable	Unaffordable	Unaffordable	Unaffordable
from 14 000,1 to 19 000,0	15,3	Complicated	Unaffordable	Unaffordable	Unaffordable
from 19 000,1 to 27 000,0	18,7	Possible	Very complicated	Unaffordable	Unaffordable
from 27 000,1 to 45 000,0	21,9	Possible	Possible	Complicated	Unaffordable
from 45 000,1 to 60 000,0	7,5	Possible	Possible	Possible	Complicated
over 60 000,0	8,1	Possible	Possible	Possible	Possible

Based on the data presented, the following conclusions can be drawn.

As of 2018, the value of the housing affordability coefficient for Krasnoyarsk averaged 2.74, on the basis of which it would be possible to draw a conclusion about the favorable situation in the Krasnoyarsk residential real estate market and a satisfactory degree of housing affordability for Krasnoyarsk residents. At the same time, considering the housing market of Krasnoyarsk for affordability in more detail, in the context of the structure of the population income, as well as the identified segments of the market, it is possible to identify the following trends.

For 43.8% of the city residents, the acquisition of any housing is practically impossible due to their low income.

In addition, 18.7% of residents can afford only economy class housing. As noted above, these are apartments in the houses of the first mass construction, low-rise buildings (including 5-storey houses). These houses are small in size apartments, with low quality building materials, worn communications, uncomfortable layouts (often designed as apartments hotel (corridor) type with kitchen and facilities on the floor), with a limited set of utilities (not having at least one of the following types of utilities: water supply, sewerage, central heating, hot water). This housing cannot be considered comfortable, meeting modern requirements.

The share of residents who are able to purchase housing of "Comfort" class is 21.9%.

Elite housing and business class apartments are available to only 15.6% of the city residents.

The analysis of the calculating methods of the affordability coefficient showed that the affordability coefficient gives a general idea of the real housing affordability. The existing methods do not sufficiently take into account the development dynamics and peculiarities of regional economic and demographic trends. This requires further improvement of the objectivity of calculations based on official statistics. The undoubted advantage of the coefficient is the possibility of territorial comparisons, as well as the ability to assess trends in the situation change.

To ensure the effective development of the housing sector and the construction industry, improving the quality of life of the population, it is necessary to revise the principles and approaches to segmentation of the residential real estate market by the criterion of affordability.

In our opinion, the main criteria for classifying the object of residential real estate to a particular class of comfort and affordability should be as follows:

1. Development of business, entertainment, social and transport infrastructure in the area of development;

2. Space-planning solutions as part of the total area of the residential property, as well as the functional organization of living space;

3. Affordability of energy-saving technologies and environmental friendliness of building materials.

4. Ease of vehicle use.

5. Affordability of areas for household use.

Another direction of improving the methodology of segmentation of the residential real estate market by the criterion of affordability is the analysis of affordability of different housing classes for the population.

3. Results

The analysis showed that the development of new approaches to assessing the affordability of residential real estate objects should take place both in terms of the population income and the ability to purchase housing, using various mechanisms (rent, purchase), and in terms of physical affordability of residential objects with quality characteristics demanded by the population.

Figure 1 shows the factors influencing the characteristics of the affordability of residential real estate objects from the point of view of the development of classical approaches to this concept, analyzed above.
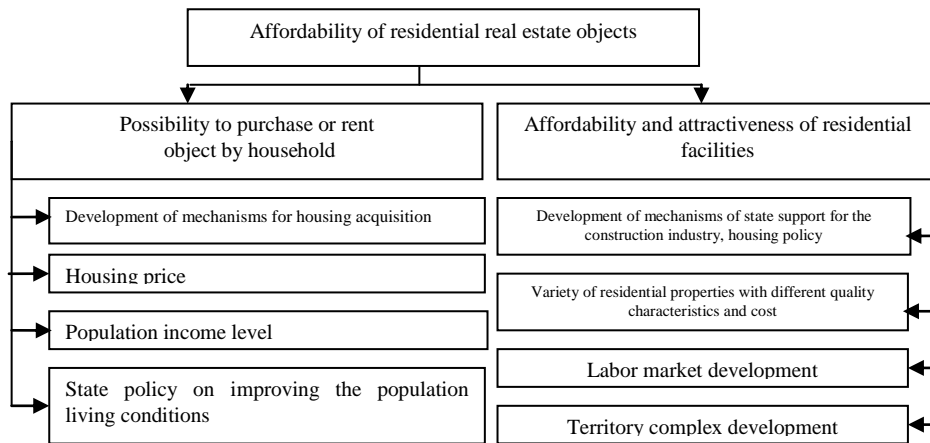
Figure 1. Factors affecting the characteristics of the affordability of residential real estate.

As a result of the conducted research, it can be concluded that the improvement of segmentation of the residential real estate market by the criterion of affordability to assess the real affordability of residential real estate of different comfort classes taking into account the affordability of objects on the market and the financial possibility of their acquisition or lease, should occur simultaneously in the following areas (Figure 1):

1. Assessment of the possibility of purchasing or renting an object by the household.

2. Assessment of the affordability and attractiveness of residential real estate, both in terms of rent and in terms of the object acquisition for property.

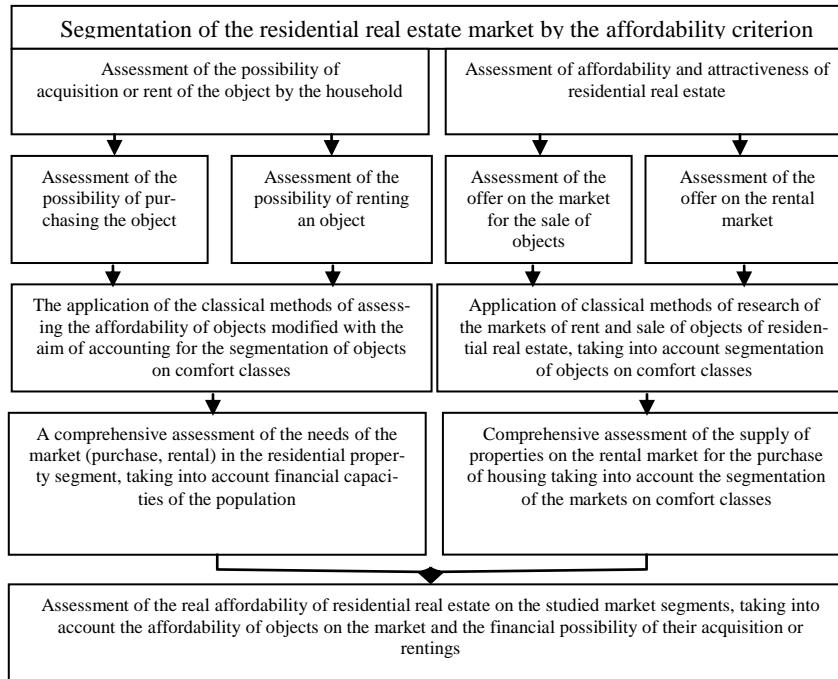| Segmentation of the residential real estate market by the affordability criterion	
Assessment of the possibility of acquisition or rent of the object by the household	Assessment of affordability and attractiveness of residential real estate

Assessment of the possibility of purchasing the object	Assessment of the possibility of renting an object	Assessment of the offer on the market for the sale of objects	Assessment of the offer on the rental market

The application of the classical methods of assessing the affordability of objects modified with the aim of accounting for the segmentation of objects on comfort classes	Application of classical methods of research of the markets of rent and sale of objects of residential real estate, taking into account segmentation of objects on comfort classes
A comprehensive assessment of the needs of the market (purchase, rental) in the residential property segment, taking into account financial capacities of the population	Comprehensive assessment of the supply of properties on the rental market for the purchase of housing taking into account the segmentation of the markets on comfort classes

Assessment of the real affordability of residential real estate on the studied market segments, taking into account the affordability of objects on the market and the financial possibility of their acquisition or rentings

Figure 2. Algorithm for improving the segmentation of the residential real estate market by the criterion of affordability.

In the process of improving the segmentation of the residential real estate market by the criterion of affordability, it is necessary to take into account that the amount of demand for housing is influenced by a number of factors that must be taken into account:

Household size. With the growth of this indicator, there is a need for additional square meters of living space, with a decrease (for example, adult children leave their parents) - the need for additional square meters of housing decreases;

Price expectations. To a greater extent, inflation expectations affect the deferred demand, because the population presenting insolvent demand is not able to invest money in some housing in anticipation of inflation, because they don't still have enough of it to buy something. According to G. M. Sternik, "there is an inverse relationship with price changes: price expectations are inertial, and with the growth of prices, buyers are in a hurry to realize the purchase, increasing the volume of demand and stimulating prices, with a decrease – they leave the market, expecting an even greater decline in prices, thereby reducing demand and increasing the rate of decline in prices" [4];

Tastes and preferences of consumers are an important factor of demand [20], however within any real estate market it is rather difficult to catch changes in preferences and tastes of consumers. Preferences and tastes are highly subjective, so they are very difficult to quantify and predict, often matter within the local housing market (for example, city) preferred area, wall material, number of rooms, layout, affordability of underground parking, etc.

The value of supply in the housing market is influenced by the following non-price factors:

1) Affordability of resources - equipment, personnel, technologies to increase the volume of construction. The deficit of resources appears at low prices in the conditions of investment insufficiency for the development. The affordability of the necessary resources has an impact on the cost, investment cost of construction and the volume of housing input, and through them - on prices in the long term and sometimes in the medium term [13];

2) State regulation of the industry (taxes, conditions for the provision of land, subsidies). The supply of housing depends largely on the balance of land in the city, region, land prices, the policy of federal, regional and local authorities for the development of housing construction and its engineering

and infrastructure, the degree of bureaucracy and corruption of the process of obtaining permits, etc. [13]. Additional procedures and delays in the construction process contribute to a reduction in the volume of supply;

3) Affordability of alternative investment objects. The company in the market seeks to maximize its profits. If at some point in time it is possible to get the maximum profit in the field of housing construction, companies will build more housing, increasing the volume of supply, if the profit begins to decline, it becomes more profitable to invest in the construction of other facilities or even leave the construction industry;

4) Conditions for entering the industry. Such an industry as housing construction involves quite high barriers to entry - the cost of land, necessary equipment, building materials, established by law minimum size of own funds in the implementation of construction, administrative barriers. The need to meet such high requirements makes it difficult for new companies to enter the market, which limits the volume of supply.

The development of methodological approaches to market segmentation, in accordance with the algorithm presented in Fig. 2, will assess the real affordability of residential real estate in the studied market segments, taking into account the affordability of objects in the market and the financial possibility of their purchase or renting.

4. Summary and conclusions

On the basis of the results obtained, the territorial authorities and construction companies will have an understanding of the current situation in the region regarding the affordability and demand for residential premises, which in the complex will allow to more accurately allocate the target audience and to create and promote appropriate residential premises for it.

In addition, the development of methodological approaches to market segmentation will allow:

• in the framework of measures for the development of rental housing to allocate a special priority – support for affordable rental housing (under the contract of social hiring without the right of privatization, hired houses of social use, etc.);

• to increase the efficiency of the limited budget funds use to subsidize housing affordability – increase the share of funds to support low-and low-income families (below the median level);

• to more effectively apply the tools of urban planning regulation in order to implement housing policy, including the creation of affordable housing;

• to prepare an information basis for the introduction of methods of urban development incentives for developers to create affordable housing;

• to give municipalities more power in urban planning and affordable housing, including the right to receive part of the land rent in the form of special fees/contributions (for infrastructure development, for construction permits or other purposes).

References

[1] The process of product market segmentation Market segmentation in marketing: concept, essence, goals and objectives http://powerbranding.ru/segmentirovanie/rynoktovara

[2] Saenko I A, Chepeleva K V, Pukhova V V, Kachina E V 2018 Methods of calculation of the coefficient of housing affordability in Russia: problems and prospects of use 7th International conference on Changes in social and business environment 125-134 Lithuania

[3] Chepeleva K V, Pukhova V V, Kachina E V Socio-economic aspects of the formation of the affordability of residential real estate International Scientific Conference «Investment, Construction, Real Estate: New Technologies and Special-Purpose Development Priorities» (Irkutsk)   https://www.matec conferences.org/articles/matecconf/pdf/2018/71/matecconf_icre2018_03003.pdf

[4] Sternik G M 2012 Development of the "Unified method of classification of apartment buildings – new buildings by consumer quality (class) of the project" *Mechanization of construction* **6** 32–40

[5]   Cherepovich A V 2013 Modern methods of measuring housing affordability *Financial analytics: problems and solutions* **7(145)** 39-49

[6]   Baranik V P, Vlasenko T V 2014 The use of automated information system in the evaluation of the property *Economy and ecology of territorial formations* **2** 18-24

[7]   Gan Q, Hill R J 2008 Measuring housing affordability: looking beyond the median Australian School of Business Sydney The University of New South Wales 17-25

[8]   Hill R J 2011 Hedonic price indexes for Housing. Austria: University of Graz Statistics Working Papers OECD http://www.oecd.org

[9]   Kauffman S U Housing Affordability Index reaches new record high World property channel *North America residential news* http://www. worldpropertychannel.com

[10]   Kroll C A, Wyant J 2009 Housing affordability in California Fisher Center for Real Estate and Urban Economics Haas School of Business University of California Berkeley

[11]   The Social Report Economic standard of living: Ministry of Social Development www. socialreport. msd. govt. nz

[12]   Kovalenko E G 2005 Regional economics and management Peter (St. Petersburg)

[13]   Rozova S V 2012 Principles of formation of the mechanism of management of the affordable housing market *Bulletin of MSSU* **4** 214–219

[14]   Vlasenko T V 2012 Typology of real estate Rostov state construction university (Rostov-on-Don)

[15]   Sternik G M 2012 Unified method of classification of residential facilities by consumer quality (class) (Moskow)

[16]   Regions of Russia. Main socio-economic indicators of cities Federal state statistics service http://www.gks.ru/wps/wcm/connect/rosstat_main/rossat/ru/statistics/publications/catalog/doc_ 1138631758

[17]   Grinenko S V 2004 Real estate economics *Publishing house of TRTU* (Taganrog)

[18]   Market segmentation from A to Z. Market segmentation in marketing: concept, essence, goals and objectives http://powerbranding.ru/segmentirovanie/

[19]   Kormina L V 2010 Problems and prospects of construction of rental housing in Russia *Construction economics* **5** 44–48

[20]   Sergiyko O A 2012 Review of the primary real estate market of Chelyabinsk Trade and economic problems of the regional business space: Proceedings of X int scien.-pract. conf. 11–12 *Publishing center SUSU* (Chelyabinsk)