

THE HOUSING PROBLEM IN THE REPUBLIC OF MOLDOVA AT THE BEGIN OF 2011

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Abstract: One of the main problems that a society has to deal with is the housing. The goal of this research consists in the examination of the dwelling stock in the Republic of Moldova, the development tendencies through the last decade and the estimation of the level of its affordability.

Keywords: dwelling stock, housing development, new trends in housing, housing affordability.

I. THE TERRITORIAL DEVELOPMENT OF DWELLINGS

The total surface of dwelling stock in the Republic of Moldova at the beginning of the 2010 year was 78,853,800 square meters, including 54,512,800 sq m of living area. Of this, around 62% was located in rural areas and 38% in urban areas. The private dwelling stock owned by citizens and legal persons had a share of 96% of the total dwelling stock of the Republic of Moldova. The average space owned by a resident was 22.1 sq m; this indicator was 20.4 sq m for urban areas and 23.4 sq m for rural areas.

Examining the new housing developed in the Republic of Moldova from the territorial point of view, it can be observed that approximately 70-80% of total constructed surface is located in Chisinau, 8-12% – in the northern districts, 7-10% in the central districts and only 3-5% in the south of the country (Fig.1).

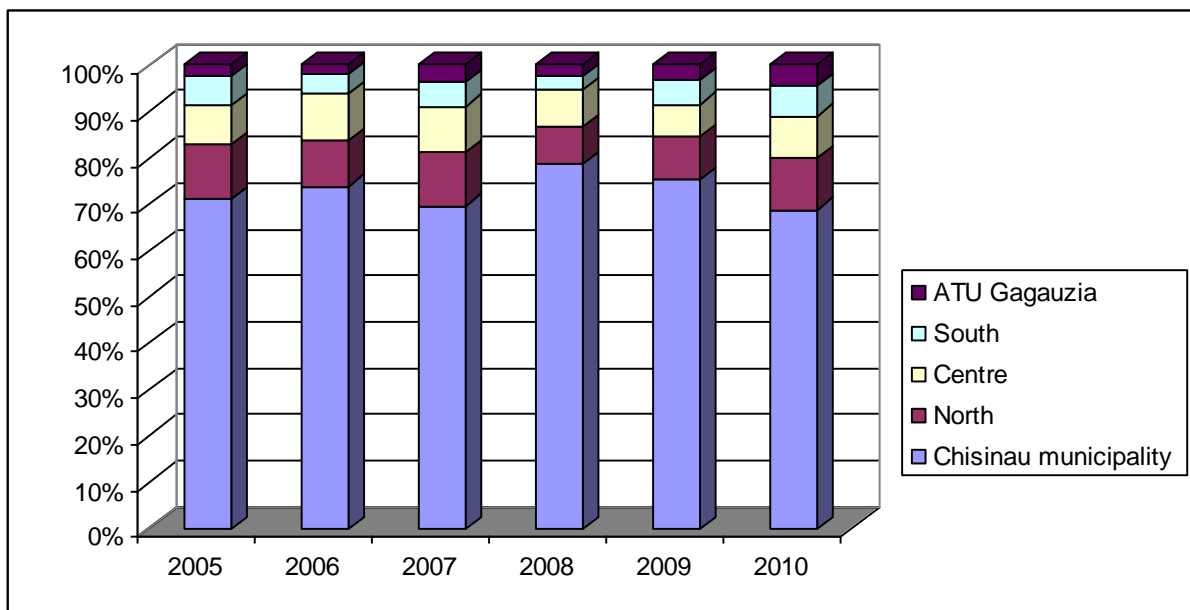


Figure 1. The territorial development of dwelling stock, 2005 - 2009

In the northern region of the country an obvious development is visualized only in Balti municipality (Fig. 2). Though Soroca and Drochia districts are slightly different compared with other districts, the northern region had an almost uniform development.

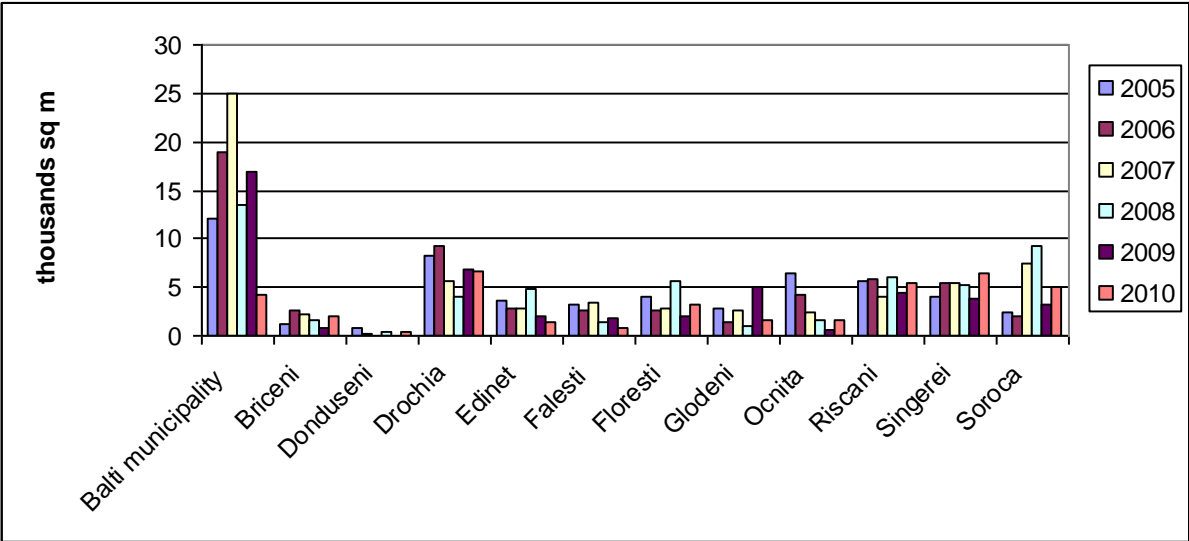


Figure 2. The development of dwelling stock in the northern region of the Republic of Moldova

The differences are more pronounced in the centre of the country. New development of dwellings in Ialoveni district was almost double compared to Hincesti and Straseni districts (Fig. 3).

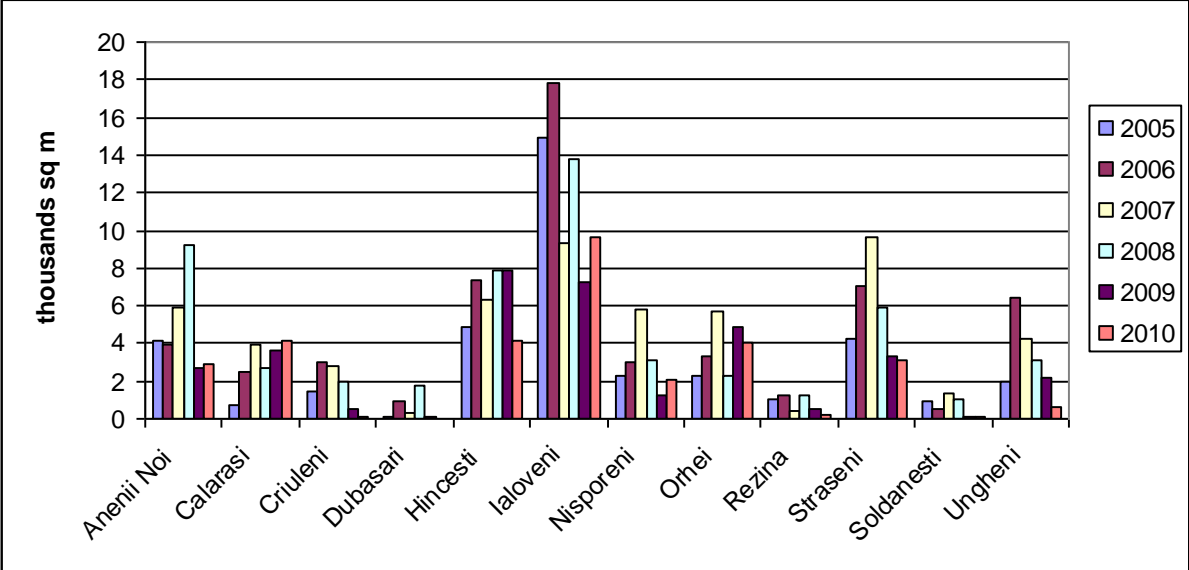


Figure 3. The development of dwelling stock in the central region of the Republic of Moldova

A relative development is observed in the southern region in Cimislia, Leova and Cahul districts (Fig. 4).

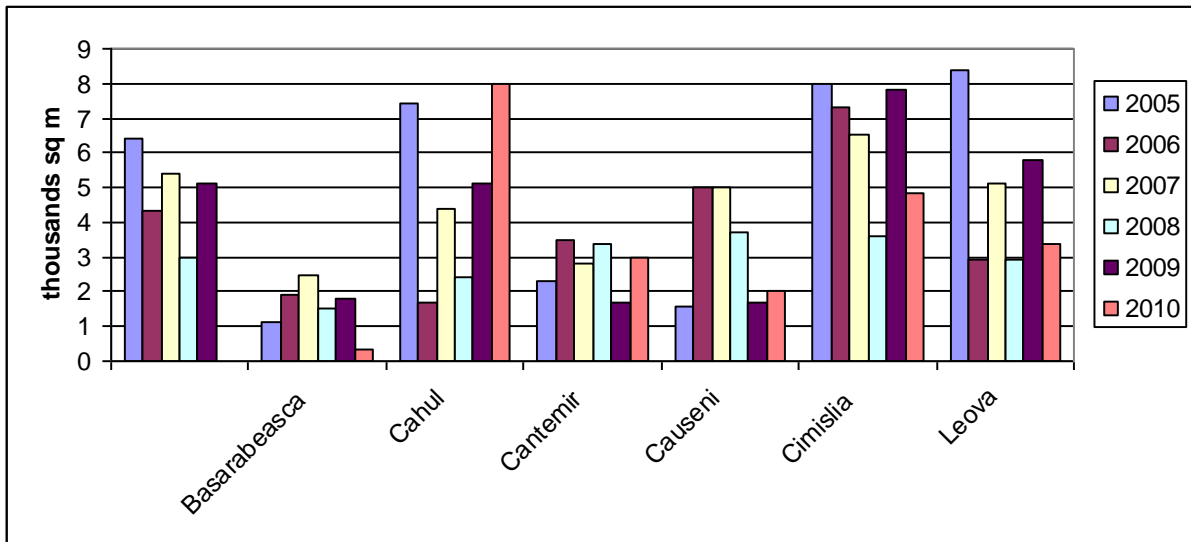


Figure 4. The development of dwelling stock in the southern region of the Republic of Moldova

II. NEW TRENDS IN HOUSING DEVELOPMENT IN THE REPUBLIC OF MOLDOVA

The number of apartments built between 2003 and 2008 increased sharply, from 2300 in the first year up to 6800 in the last year (Fig.5). In 2009 the number of apartments has dropped back down to the 2006 level. Mobilizing people's own resources became a common practice over this period, but statistical data indicates that the interest of population in investing was nearly constant, with a small increase in 2006.

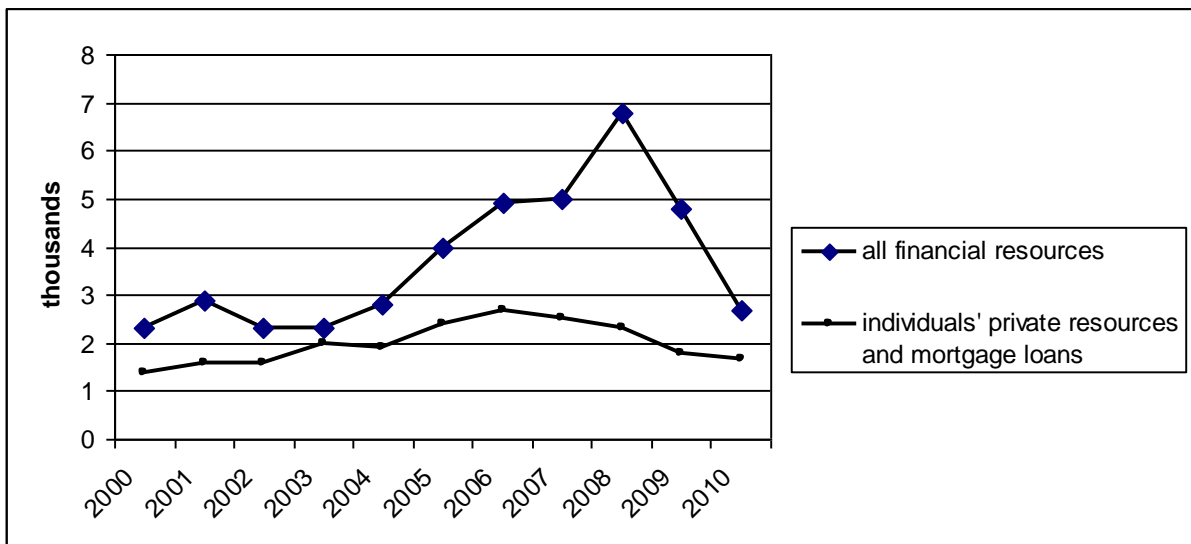


Figure 5. The number of built apartments in the Republic of Moldova, by source of finance

In recent years, the mortgage is broadly used for this purpose (Fig.6). Even in times of crisis there was a high incentive to borrow loans secured by real estate; the decrease of mortgages by 33% in 2009 was offset by the increase in 2010.

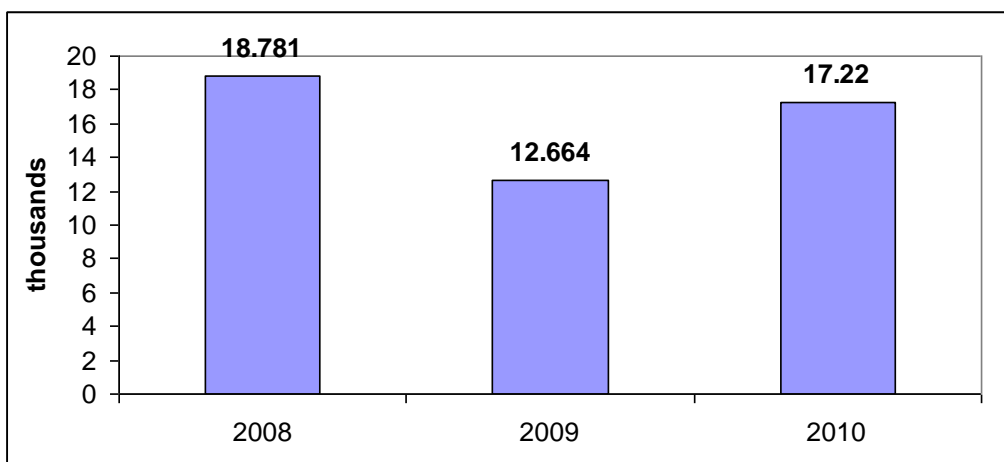


Fig. 6. The number of recorded mortgage loans in the Republic of Moldova

There is evidence for a trend towards increasing the area of apartments in the past 10 years. Thus, the country's average surface of apartments increased by about 10 sq m, while those financed by individuals' private resources by about 30 sq m (Fig.7).

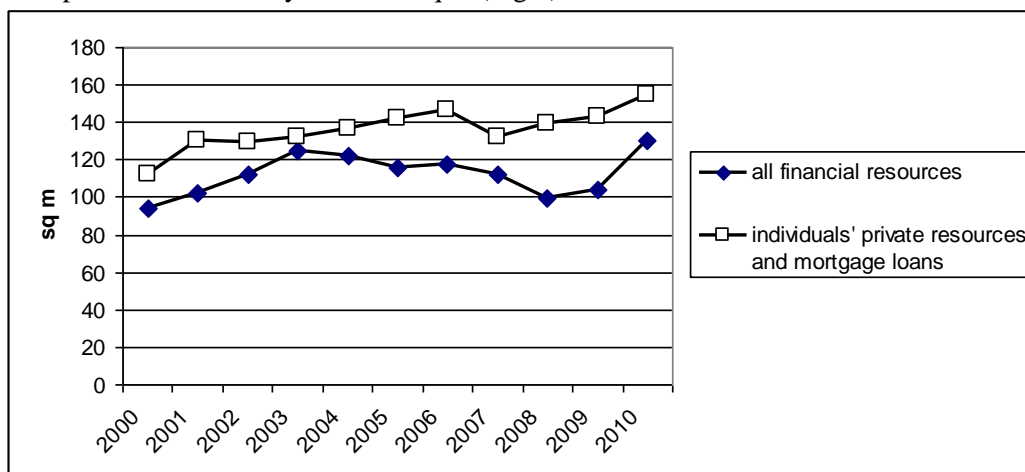


Figure 7. The average area of built apartments, by source of finance

The apartment's area increased, but at the same time the number of rooms in the apartment decreased. If in 2000 the one and two rooms' apartments constituted 4% and 11% of new housing (Fig.8), then in 2009 their share was 16% and 32% respectively (Fig.9), while the share of apartments with four or more rooms decreased about 2.5 times.

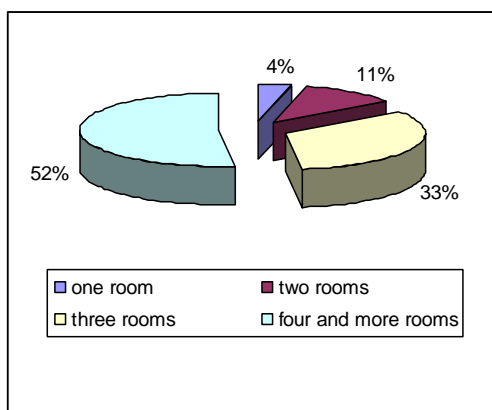


Figure 8. The distribution of dwelling by number of rooms in 2000

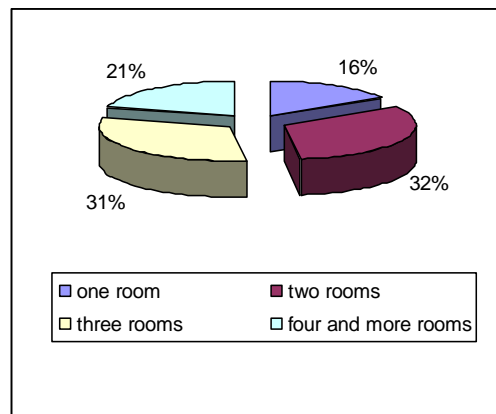


Figure 9. The distribution of dwellings by number of rooms in 2009

Over the last decade, the houses built of brick and stone, traditional for the Republic of Moldova, ceded their position to other construction materials (Fig.10). Simultaneously, the constructions of mass concrete structures nearly disappeared (from 1% – in 2006, decreased to almost none in 2007 – 2009).

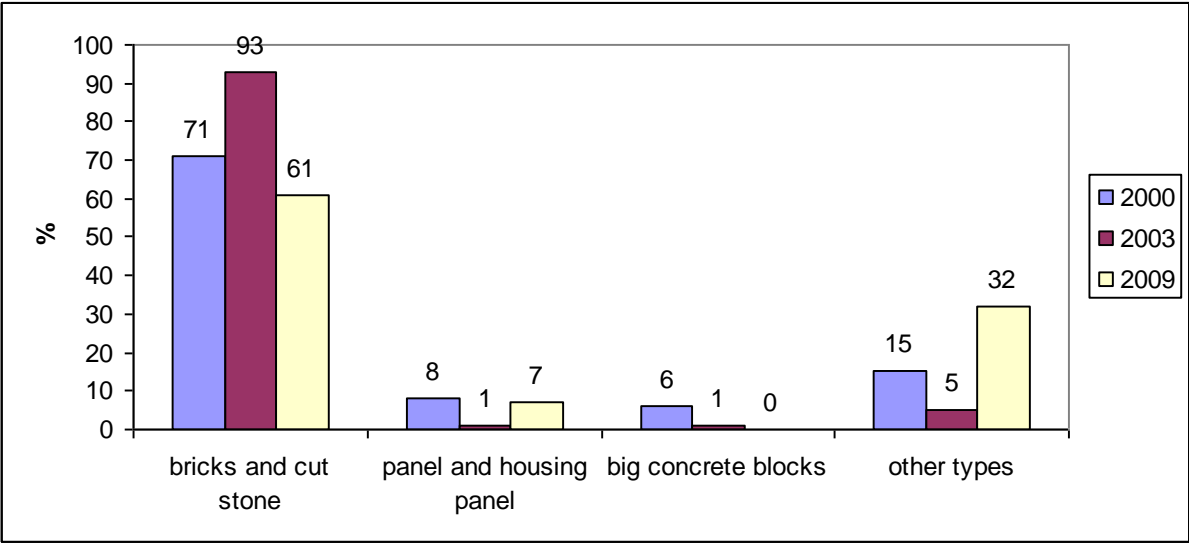


Figure 10. The distribution of dwellings by wall materials

The number of high-rise residential buildings significantly declined. Thus, if 33% of blocks built in 2000 had 12 or more storeys, then in 2009 they represented only 2% (Fig.11). Simultaneously, the share of buildings with 1-2 storeys increased about 3 times (from 16% in 2000 to 47% in 2009).

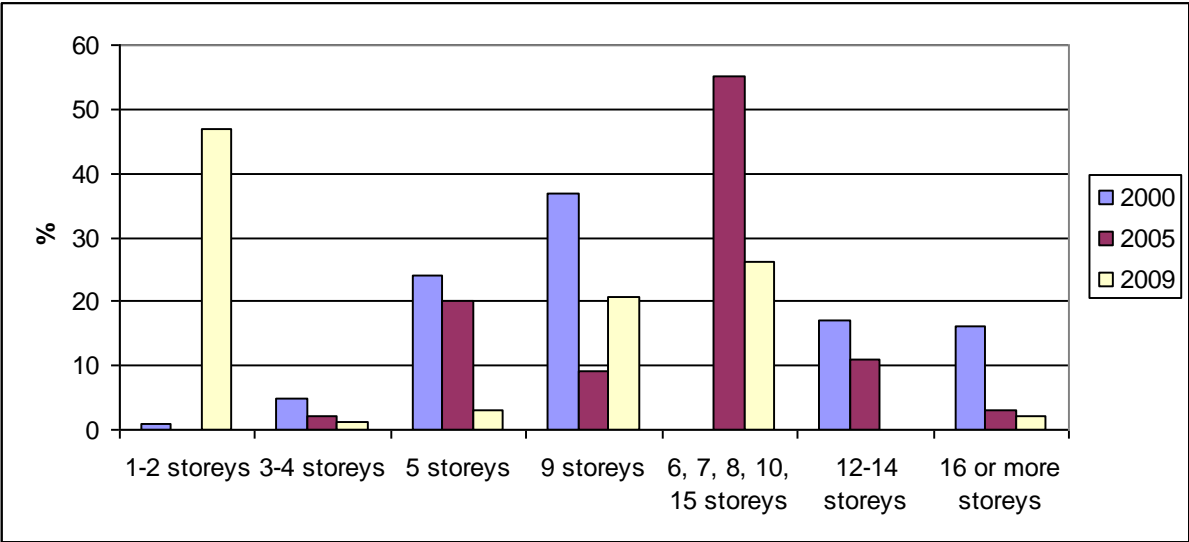


Fig.11. The distribution of dwellings by number of storeys

III. THE HOUSING AFFORDABILITY IN THE REPUBLIC OF MOLDOVA

The specialized literature suggests methodologies [1] for calculating *the coefficient of housing affordability*. This coefficient is calculated as the ratio of the average apartment price to the average annual family income, indicating the number of years during which a family could accumulate the amount needed to purchase the apartment.

$$K_a(V, I) = \frac{V}{I} = \frac{S \times P}{I} \quad (1)$$

Where: K_a – coefficient of housing affordability; V – average value of a standardized apartment; I – average annual family income; S – total surface of the apartment, sq m; P – price of a square meter of apartment.

In this article we will examine two situations: (1) the affordability of a dwelling with an average surface for a family of three persons (20.4 sq m the floor space of dwelling per person); (2) the affordability of a dwelling with a preferred medium surface for a family of four persons (143 sq m¹).

In fact, it will take 15 years for a family with one child to save sufficient funds to purchase an apartment with an area of 61.2 sq m under the current circumstances (chart 1).

CHART 1. THE COEFFICIENT OF HOUSING AFFORDABILITY FOR A FAMILY OF 3 MEMBERS

Year	Available average monthly income, per person MDL	Annual family income, MDL	Average price of supply in the primary real estate market, EUR / 1 sq m	Average price of apartment in the primary real estate market, EUR	Average exchange rate, EUR / MDL	Average price of apartment in the primary real estate market, MDL	K_a , years
2005	568.6	20469.6	450	27540.0	15.6978	432317.4	21.1
2006	839.6	30225.6	550	33660.0	16.4918	555114.0	18.4
2007	1018.7	36673.2	650	39780.0	16.5986	660292.3	18.0
2008	1188.6	42789.6	750	45900.0	15.2916	701884.4	16.4
2009	1166.1	41979.6	650	39780.0	15.5248	617576.5	14.7
2010	1273.7	45853.2	600	36720.0	16.3995	602189.6	13.1

For the family with two children the coefficient of housing affordability is 25.8 years (chart2). The examination of this result, through traditions and behavioural aspects of Moldovans, might explain the considerable number of people that have left the country.

CHART 2. THE COEFFICIENT OF HOUSING AFFORDABILITY FOR A FAMILY OF 4 MEMBERS

Year	Available average monthly income, per person, MDL	Annual family income, MDL	Average price of supply in the primary real estate market, EUR / 1 sq m	Average price of apartment in the primary real estate market, EUR	Average exchange rate, EUR / MDL	Average price of apartment in the primary real estate market, MDL	K_a , years
2005	568.6	27292.8	450	64350.0	15.6978	1010153.4	37.0
2006	839.6	40300.8	550	78650.0	16.4918	1297080.1	32.2
2007	1018.7	48897.6	650	92950.0	16.5986	1542839.9	31.6
2008	1188.6	57052.8	750	107250.0	15.2916	1640024.1	28.8
2009	1166.1	55972.8	650	92950.0	15.5248	1443030.2	25.8
2010	1273.7	61137.6	600	85800.0	16.3995	1407077.1	23.0

Over the last five years the coefficient of housing affordability decreased for the first category of families by nearly 6 years and for the second by 11 years (Fig.12).

¹ The average surface of apartments built on the individuals' private resources and mortgage loans in 2009.

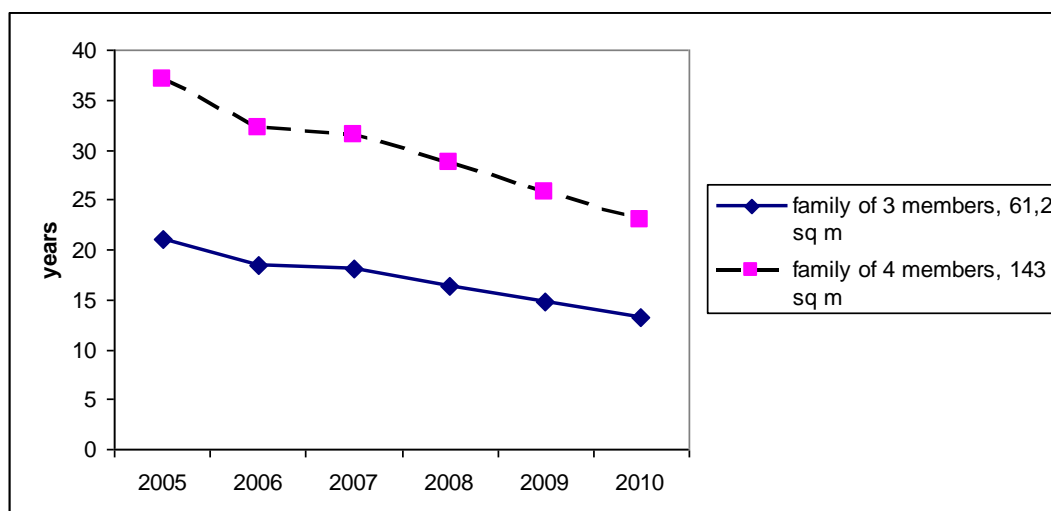


Figure 12. The coefficient of housing affordability in the Republic of Moldova

A more precise methodology was proposed by a non-governmental and non-profit organization “The Institute of Urban Economics”; it takes into account the current annual expenses of the family expressed by annual subsistence minimum.

The formula is:

$$K_a(V, I) = \frac{V}{I - MS} = \frac{S \times P}{I - MS} \quad (2)$$

Where: MS – subsistence minimum.

After analyzing the situation in the Republic of Moldova, it appears that housing is unaffordable for the population. The minimum subsistence expenditures exceed the average income of the family (chart 3). Although this difference has decreased over recent years, owning a house remains a dream for most people.

CHART 3. THE HOUSING UNAFFORDABILITY IN THE REPUBLIC OF MOLDOVA

Year	Available average monthly income, per person MDL	Family of three members (one child)			Family of four members (two children)		
		Annual family income, MDL	Family subsistence minimum, MDL / year	Potential savings, MDL / year	Annual family income, MDL	Family subsistence minimum, MDL / year	Potential savings, MDL / year
2005	568.6	20469.6	36596.4	-16126.8	27292.8	36596.4	-9303.6
2006	839.6	30225.6	33902.4	-3676.8	40300.8	44125.2	-3824.4
2007	1018.7	36673.2	39849.6	-3176.4	48897.6	51882	-2984.4
2008	1188.6	42789.6	49911.6	-7122	57052.8	65120.4	-8067.6
2009	1166.1	41979.6	43334.4	-1354.8	55972.8	56678.4	-705.6
2010	1273.7	45853.2	49442.4	-3589.2	61137.6	65923.2	-4785.6

Given the huge variety of mortgage loans on the Moldovan market and the interest of population in borrowing (Fig.13), we will determine the coefficient of housing affordability for the category of population whose income is equal or lower than the subsistence minimum.

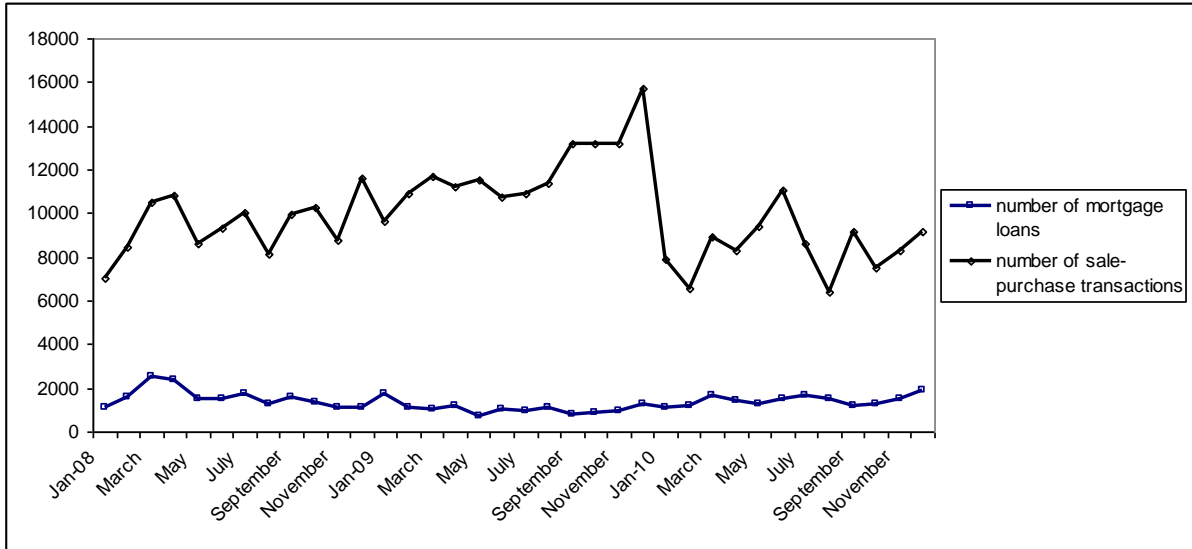


Figure 13. The number of transactions recorded in the Republic of Moldova in 2008-2010

The calculations model was developed by the Russian researcher Sternic G. M. and it represents a transformation of the formulas above.

$$\left\{ \begin{array}{l} K_a(S, P, I, \alpha_{CI}, \beta_{SS}, V_E, C_C, MS, MLR) = \frac{S \times P \times (\alpha_{CI} - \beta_{SS}) - V_E + C_C}{I - MS} \\ \text{when } -I > (MS + 12MLR(B_0, n, i - \gamma_{SS})) \\ \text{otherwise } -K_a \rightarrow \infty \end{array} \right. \quad (3)$$

$$MLR = \frac{B_0}{\frac{1 - (1 + j/m)^{-mn}}{j/m}} \quad (4)$$

Where: α_{CI} – the share of down payment of apartment price; β_{SS} – the share of state subsidies; V_E – the value of existing apartment at the time the loan was granted; C_C – expenses of the person applying for the loan; n – the duration of the loan, years; j – the bank interest rate; γ_{SS} – the number of percentage points of interest rate that are subsidized by the State; MLR – monthly amount for loan repayment; B_0 – the mortgage loan amount; m – the loan repayment periodicity ($m=12$).

Assuming that the hypothetical family of three persons does not own any real estate and their monthly income satisfies the condition set up in the second equation of the calculation model, we determine the coefficient of housing affordability (chart 4). The market average conditions are taken into consideration: the bank interest rate – the weighted average interest rates on mortgages, the duration of the loan – 7.5 years, the share financed by the bank – 60%, additional loan costs – 2% of the loan. State subsidies are not provided.

Thus, calculations show that for a family whose income is at least 9000 MDL, the coefficient of housing affordability is 7 years if using a mortgage loan and almost 12 years – if not.

The results are considerable different depending on the calculation method of the coefficient of housing affordability (Fig. 14 and 15), about 40-50% for the first examined situation – the family of three persons (1st case study) and 25-40% for the second situation – the family of four persons (2nd case study).

CHART 4. THE ESTIMATION OF HOUSING AFFORDABILITY COEFFICIENT IN THE REPUBLIC OF MOLDOVA BY STERNIC MODEL

Indicator	2007	2008	2009	2010
Desired apartment surface area, sq m	60.2	60.2	60.2	60.2
Average price, EUR/ sq m	650	750	650	600
Exchange rate, MDL/EUR	16.5986	15.2916	15.5248	16.3995
Average price of desired apartment, MDL	649 503	690 416	607 485	592 350
Share financed by the bank	0.6	0.6	0.6	0.6
Share of state subsidies	0	0	0	0
Value of existing apartment, MDL	0	0	0	0
Additional loan costs, MDL	7 794	8 285	7 290	7 108
Subsistence minimum (MS), MDL / Year	39 850	49 912	43 334	49 579
Bank interest rate, %	15.5	17.3	16.7	13.3
Percentage points of interest rate subsidized by the State	0	0	0	0
Interest rate to be paid %	15.5	17.3	16.7	13.3
Duration of the loan, years	7.5	7.5	7.5	7.5
Monthly amount for loan repayment (MLR), MDL	5 446	6 455	5 485	4 266
Family income, I=MS+12 MLR	105 199	127 375	109 149	100 776
Ka, years	6.08	5.45	5.65	7.08
Ka, years (according to the formula no. 1)	6.17	5.42	5.57	5.88
Ka, years (according to the formula no. 2)	9.94	8.91	9.23	11.57

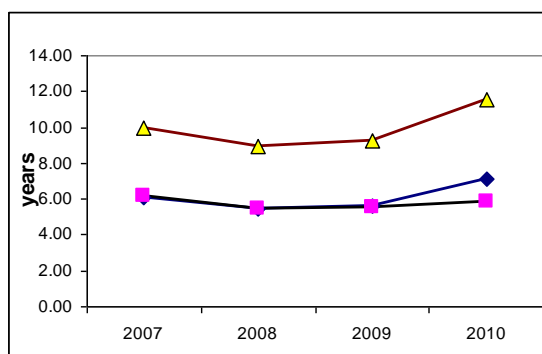


Figure 14. The housing affordability coefficient in the Republic of Moldova (1st case study)

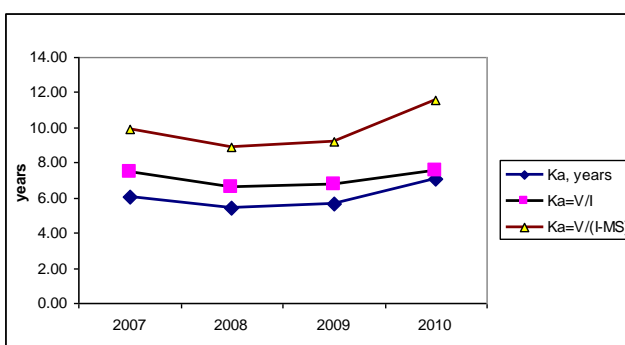


Figure 15. The housing affordability coefficient in the Republic of Moldova (2nd case study)

The results obtained by the formulas (1) and (3) are close to each other, while the values calculated by formula (2) are considerably higher.

IV. Conclusions

1. Regarding the construction of the new housing, an essential development was registered only in Chisinau municipality. 70-80% of new constructed dwellings are located in the capital.
2. The northern region of the country had an almost uniform development, while in the central part Ialoveni district advanced to the forefront, exceeding the country's northern capital Balti, in 2005 and 2008.
3. In the southern region, the largest residential areas have been put into operation in Cimişlia, about 33,000 sq m for five years, followed by Leova – about 25,000 sq m, and Cahul – about 21,000 sq m.
4. The practice of attracting population's resources for the dwelling construction is not develop in the Republic of Moldova, and was almost constant over the last decade. There are multiple

- causes, starting with the low income of population and finishing with the inaccessibility of the credit instruments offered by the commercial banks.
5. In the last decade has changed the structure of population preferences regarding the dwelling space, the number of rooms in apartment, the wall materials, the number of storeys of the house:
 - a) The apartments have a bigger surface area (on average by 30 sq m) while the number of rooms decreased (2 and 3 rooms are preferred);
 - b) The proportion of houses built of non-traditional materials for the Republic of Moldova, has increased; and the constructions of mass concrete structures, that from 1970s to 1990s of the last century progressed rapidly, nearly disappeared from the market.
 - c) The share of houses with 1-2 storeys increased in the structure of new housing about 3 times. Given that this increase relates in particular to urban areas, we found that people tend to move from apartments to private houses.
 6. The housing affordability is extremely low for the Moldovan population. A family with two children will have to accumulate their entire income for more than 18 years in order to buy a dwelling.
 7. After considering in the calculations the average necessary subsistence expenditure of a family, we found that housing became totally unaffordable. Consequently, the housing problems will remain a critical issue in the future as it was in the past.
 8. The possibility to solve the housing problem using mortgage loans is only affordable for families with a monthly income of over 10,000 MDL.

References

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