REGIONAL ECONOMY
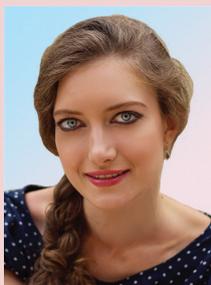
Regional Housing Construction Savings as a Tool for Improving Housing Affordability for the Population*

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Abstract. The article is devoted to the issue of housing affordability on the Russian market. Based on official statistics, the authors reveal the main trends of the regional housing market development. The article reviews government priorities in the housing policy and presents calculations of the housing affordability index in the Vologda Oblast according to several scenarios. The authors present the results of the ISEDT RAS population survey conducted in the Vologda Oblast concerning the level of people's satisfaction with their housing conditions. The results indicate that only 37% of the population are satisfied with their housing, 13% — rated their living conditions as bad. The authors research best practices of a number of constituent entities of the Russian Federation in order to address the shortage,

quality and affordability of housing. Numerous studies by Russian scientists indicate the necessity of forming and introducing new tools and mechanisms to improve housing affordability in the Russian practice. The researchers emphasize that overcoming the problems of the housing sector cannot be solved solely at the expense of budget or household funds. In this regard, the purpose for this paper is to study the mechanism of housing construction savings implying the pooling of resources of all stakeholders (public funds, household funds and funds of the banking system). The article discusses the practice of its functioning in Krasnodar Krai and the Republic of Bashkortostan. It has been calculated that at the initial stage of introducing housing construction savings in the Vologda oblast, 3489 of Vologda citizens will be able to participate; they will pay a monthly fee of 3.6–7.2 thousand rubles to the bank to accumulate down payment on the mortgage. The implementation of the program will require additional costs of the consolidated budget of the Vologda Oblast worth 51–74 million rubles, which amounts to 0.9–0.13% of own revenues. The article can be used by research associates as a framework for further research; and by management bodies in making administrative decisions and in the process of training bachelor, Ph.D., and post-graduate students.

Key words. Mortgage loan, saving and loan program, housing savings bank, increasing housing affordability, saving and loan tools, housing construction savings, public mortgage.

According to the Constitution, the social policy of the Russian Federation is aimed at creating conditions for a decent life; and providing housing is one of the main criteria characterizing population's welfare. Housing is one of the core values ensuring the citizens' economic stability and security, creating incentives for efficient labor performance and to a large extent shaping the citizens' attitude to the state as it guarantees the citizens' constitutional rights to housing.

The uniqueness of housing lies in the fact that, being the most expensive commodity purchased by a person during their life, it is also the product of vital necessity. In turn, the need to meet fundamental human needs for housing gives rise to acute social problems of its deficit, unaffordability and low quality, the solution to which depends largely on government regulations of the housing sector.

The first broad attempt to address the housing issue to an acceptable regulatory level was made in the USSR in the 1950s–1960s.

Mass industrial housebuilding resulting in the construction of five-storied dwelling houses made the housing crisis less acute and enabled about 30 million people to move from communal flats to relatively comfortable houses. In the next 70–80 years, the government was addressing the issue of expanding housebuilding to provide people with free housing by turn. As a result, in Russia at the beginning of the 21st century, the level of housing area on average per person amounted to 18 square meters, with the average European level of 35–40 square meters.

By 2017, per capita level of housing in Russia increased to 24.5 square meters, in the regional case – the Vologda Oblast – to 29.1 square meters (*Fig. 1*).

The observed increase occurred against the background of household differentiation by type and area of housing depending on the level of household income which was the result of spatial manifestation of the process of people's property stratification inherent in a market economy.

Figure 1. Average level of per capita housing, sq. m
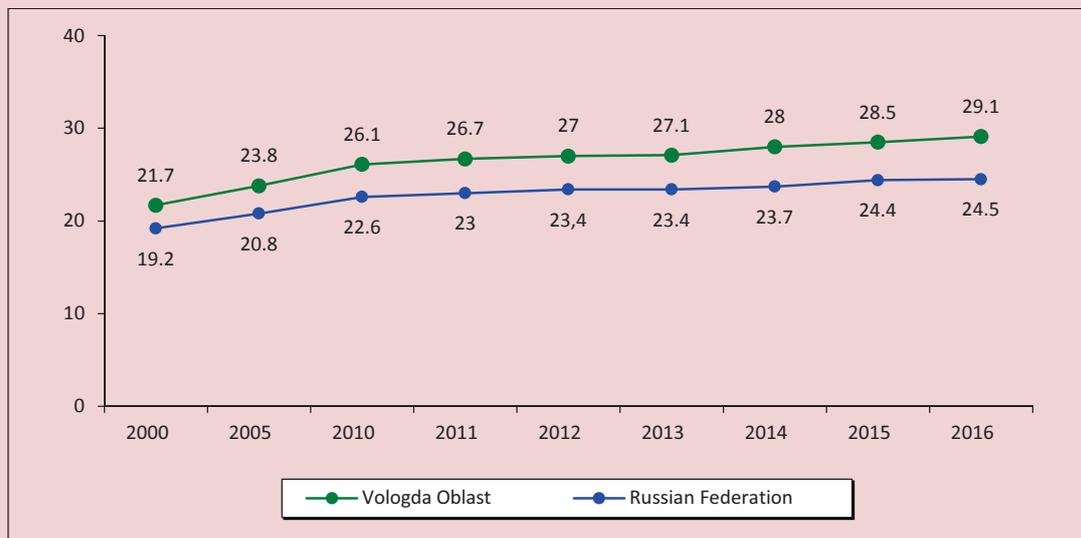
* Calculated by the authors according to Rosstat, Vologdastat.

However, the total area indicator of residential premises per resident in Russia in general and in the Vologda Oblast has not yet reached the UN standard under which the per capita indicator should comprise not less than 30 square meters. For example, in the EU, this figure comprises 30−40 square meters, in the U.S. it reached 70 square meters[1].

Despite the fact that the value of per capita housing commissioning in the Vologda Oblast per thousand people increased by 5.7% in 2016 compared to 2000 is higher than that in Russia and in the North-West, the current housing growth rate is not sufficient. The housing fund of the region increased by 20.7% in 15 years; and at the beginning of 2017 amounted to 34 million square meters of the total area, including urban − 22 million square meters,

rural − 12 million square meters. The share of dilapidated housing fund in the total housing area in 2016 amounted to 2.8% (*Tab. 1*).

Since 2010, the share of retired and dilapidated housing decreased more than twice: from 50.8 to 22.2 thousand square meters. However, the main share of the housing fund of the Vologda Oblast was built in the late 1940s−early 1990s, which is reflected in its consumer and operational properties. Thus, according to Vologdastat, about 40% of regional and 60% of rural housing funds have depreciation amounting to 31−65%. The results of a population survey conducted during the study indicated the average level of people's satisfaction with their housing conditions. Only 37% of people are satisfied with the apartment they live in, each third respondent is only partially satisfied, and 23% are not satisfied, 13% of people rated their living conditions as poor.

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[1] The level of per capita housing in Russia and some other countries. Available at: http://www.rusfact.ru/node/28

Table 1. Condition of the housing fund and dwelling housing commissioning in the Vologda Oblast*

Indicator	2000	2005	2010	2011	2012	2013	2014	2015	2016
Availability of housing fund for end of year, thousand square meters of the total area	28002	29400	31317	32029	32323	32286	33305	33821	33953
Total built, thousand square meters of the total area	205	293	410	434	389	576	774	864	904
For reference Russia	*30300*	*43560*	*58431*	*62265*	*65742*	*70485*	*84191*	*83810*	*85010*
For reference NWFD	*2453*	*3981*	*5555*	*5810*	*5835*	*6380*	*8370*	*9042*	*9987*
Dwelling housing commissioning, square meters of the total area per 1000 people	158	236	340	362	325	482	650	726	897
For reference Russia	*207*	*304*	*409*	*436*	*459*	*491*	*576*	*572*	*580*
For reference NWFD	*172*	*289*	*409*	*426*	*426*	*462*	*606*	*653*	*650*
Share of вес dilapidated housing fund in the total area of housing fund, %	1.9	5.0	4.8	4.7	4.7	2.9	2.9	2.9	2.8
For reference Russia	*2.4*	*3.2*	*3.1*	*3.0*	*3.0*	*2.8*	*2.7*	*2.7*	*2.7*
* Calculated by the authors according to Rosstat, Vologdastat.									

Figure 2. Housing affordability ratio in the Vologda Oblast in 2016
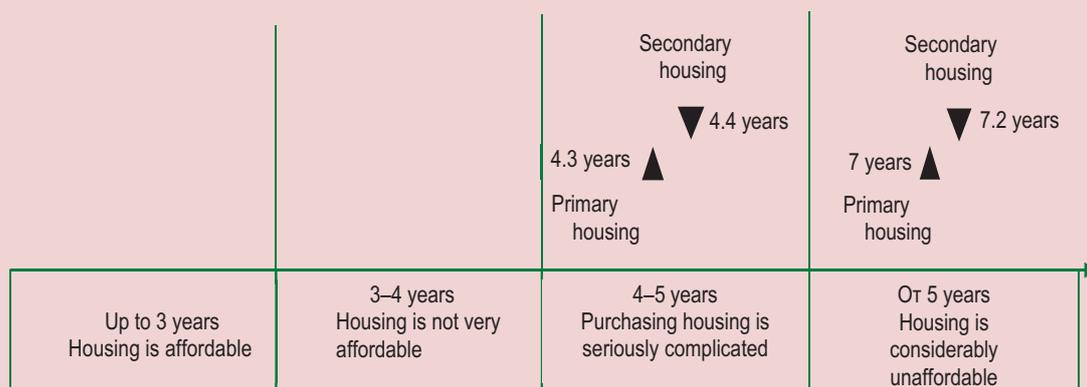
A key obstacle to displacing dilapidated housing and increasing population's housing per capita and their satisfaction with the quality of accommodation is low housing affordability. With the development of the national priority project "Affordable and comfortable housing – for the citizens of Russia" in 2005, the main indicator of the condition of the housing market from the point of view of population's ability to purchase housing was *housing availability ratio*. It is expressed as the number of years necessary for a family to save money necessary for purchasing housing from their current revenues. The value of housing affordability ratio depends on variables such as housing average price and size, total annual family income, number of family members. The higher the ratio value, the lower is housing affordability.

In the Vologda Oblast, the results of calculating housing affordability ratio predicted the development of the situation according to the following scenarios:

Scenario 1.

If a family of three people allocated all their incomes to purchasing housing, it would take them 4.3 years on the primary housing market, or 4.4 years on the secondary housing market, to purchase an apartment of 54 square meters.

Scenario 2.

If the income of a family of three people is deducted the amount of the living wage the accumulation period will increase to 7.0 and 7.2 years respectively.

To interpret the obtained values we present the international classification of housing markets by affordability[2]:

• up to 3 years − "housing is affordable";

• 3−4 years − "housing is not very affordable";

• 4−5 years − "purchasing housing is seriously complicated";

• more than 5 years − housing is considered is "substantially unaffordable".

The obtained results (*Fig. 2*) indicate lack of financial capacity of the population of the Vologda Oblast to meet their housing demands in a market economy.

The regional experience in solving the issue of shortage of housing, its quality and affordability to the population

In order to solve the acute housing issue at the regional level consistent steps are being taken to develop mechanisms for the development of regional housing markets.

The Sverdlovsk and Tyumen oblasts

To eliminate the deficit and the high cost of land in these regions a mechanism of land mortgage was introduced to develop land for social projects; in Perm Krai, differentiated payments for land were set.

The Republic of Bashkortostan

In order to increase the housing affordability to the population of the Republic an individual housing construction lending program was developed (providing 300 thousand rubles for 10 years at 8% per annum through the Housing Fund).

The Kemerovo Oblast

To solve the issue of increasing housing construction the experience in implementing a large-scale project on complex low-rise construction in the Kemerovo Oblast is enlightening. This region was one of the first in Russia to undertake construction of a Kemerovo satellite town "Lesnaya Polyana". The constructed housing is purchased by young families who received preferential loans from the regional budget (interest-free, without down payment for up to 20 years). Apartments are purchased by loan debtors at a fixed price which does not change during the entire payback period. An important feature of the satellite town is that its construction is carried out with the entire infrastructure.

Khanty-Mansi Autonomous Okrug

To accelerate mass housing construction Khanty-Mansi Autonomous Okrug introduced the practice of raising funds from institutional investors (in particular, the non-state pension fund of the district) to implement 19 projects related to both spot and complex land development.

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[2] Minchenko M.M., Nozdrina N.N. O metodakh otsenki dostupnosti zhil'ya dlya naseleniya: sravnitel'nyi analiz [On methods of evaluation the housing affordability to the population: comparative analysis]. *Nauchnye trudy: Institut narodnokhozyaistvennogo prognozirovaniya RAN* [Research papers: RAS Institute of Economic Forecasting], 2013. Vol. 11. Pp. 48−70.

To resolve the contradictions in housing matters, constituent entities of the Russian Federation assumed the responsibilities of providing social housing support for the most vulnerable population groups (the disabled, the retirees, orphans, etc.) and expanding construction and developing mechanisms to improve housing affordability among economically active population.

The Vologda Oblast

With the aim of stimulating individual housing construction in the region the oblast residents[3] are provided with reimbursement[4] for procurement of 200−300 m^3 of wood for construction, capital repairs and recon-struction of individual houses;

Economically active population of the Vologda Oblast (in particular public sector employees and young families) till 2014 was supported by a few subsidized (social) programs:

1) Preferential mortgage program for young professionals[5] working in the public sector (science, culture, health, public service) supported by OAO "Agency for Housing Mortgage Lending of the Vologda Oblast".

The main feature of the loan product was a preferential fixed interest rate of 10.6%[6].

2) Preferential mortgage program for young teachers for subsidizing the down payment of a mortgage loan[7]. It should be noted that subsidies were granted within funds approved in the budget act. Thus, in 2013, the allocation of 7.8 million rubles from the federal budget and 6.4 million rubles from the regional budget helped satisfy 58 applications from young teachers out of 2446.

3) Preferential mortgage program[8] for young families[9] aimed to provide subsidies worth 200,000 rubles (for families with children, the subsidy should be increased to 100 thousand rubles for each child) for a down payment on a mortgage or loan repayment at birth (adoption) of a child. In 2013, a subsidy worth only 100,000 rubles was received by 31 young families out of 1029 applicants.

However, since 2014, due to insufficient financing from the budget of the Vologda Oblast, preferential mortgage programs have

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[3] Compensation is provided to the following population groups: people with the total area per one family member below the accounting standard established by local authorities; victims of fire or natural disasters if their houses were the only place of permanent residence; people living in houses requiring demolition, major repairs or reconstruction (resolution of the Government of the Vologda Oblast no. 1865 dated 26.12.2007 "Regulations on compensation of citizens' expenses for the procurement of wood for construction, capital repairs and reconstruction of individual dwellings").

[4] According to the law of the Vologda Oblast no. 3436-OZ dated 14.10.2014 "On state support for specific population groups in the sphere of individual housing construction" and the Regulations on compensation of citizens' expenses for the procurement of wood for construction, capital repairs and reconstruction of individual houses approved by the resolution of the Government of the oblast no. 1865 sated 26.12.2007.

[5] Aged over 35 (inclusive) at the time of signing the loan agreement.

[6] Official website of the OAO "Agency for Housing Mortgage Lending of the Vologda Oblast". Available at: http://ipoteka-vologda.ru/programs/molodyie-uchenyie.html

[7] The Law of the Vologda Oblast no. 2884-OZ dated 25.10.2012 "On measures of state support on the payment of the down payment on a mortgage (loan) for young teachers from educational institutions in the region". The Law was adopted on the basis of the Decree of the RF Government no. 1177 dated 29.12.2011 "On the procedure for granting and distributing subsidies from the federal budget to the budgets of constituent entities of the Russian Federation for reimbursement of expenses in connection with providing teachers of educational institutions with mortgage loans".

[8] Implemented according to the Decree of the Govern-ment of the Vologda Oblast no. 1013 dated 23.08.2011 "On the implementation of the sub-program "Shelter provision for young families" of the federal target program "Housing" for 2011−2015"; the Decree of the Government of the Vologda Oblast no. 623 dated 21.06.2005 "On grants for young families for purchasing housing".

[9] A young family is a family in which the age of each spouse registered in the civil registry offices, or the age of a parent in a single parent family does not exceed 35.

been suspended. Moreover, the calculations show[10] that preferential mortgage programs operating in the Vologda Oblast include conditions which reduce the opportunities for young specialists. Such conditions include: payment of 30% of down payment (compared to 10% for conventional mortgage product of a commercial bank), the payment/income ratio does not exceed 45% (according to statistics, it did not exceed 54%).

The development of saving and loan tools as a promising area of improving housing affordability in the region

The main factors in increasing housing availability are affordable prices and the development of the loan system. In turn, the decline in housing prices can be achieved under low land cost and its developed infrastructure, increased number of dwellings, and establishing competitive prices, and relatively low cost of construction (materials, design services, administrative barriers). At the same time state support of the development of market loan mechanisms will help attract credit resources to meet the population's housing needs.

Referring to these factors, the international experience has a number of effective mechanisms to improve housing affordability, which have demonstrated positive outcomes in practice:

• Development of saving and co-operative tools;

• Introduction of new cheaper eco-friendly construction technologies;

• Development of rental housing funds.

Overcoming the problems in the housing sector cannot be solved only at the expense of budget or household funds. It is necessary to unite resources of all interested parties. In this case, the most effective result is possible when combining public funds (subsidies), household funds and funds of the banking system (by reducing interest rates for housing mortgage). An example of a mechanism for such kind of partnership in a number of foreign countries[11] and Russian regions is the so-called housing construction savings. For example, in Germany during the financial and economic crisis the number of investors on housing construction savings increased by 27%[12].

In 2011, the experiment on design and implementation of the project on housing construction savings "People's Mortgage" was launched in Russia in the Krasnodar Oblast. The project was implemented as a joint program of Sberbank and the Oblast's administration. For the first 18 months more than 4,000 investors[13] participated in the program. In 2012 a similar program was launched in the Rostov Oblast[14], the number of investors during the first two years amounted to 2000. Since April 2014 the Republic of Bashkortostan, in the framework of implementation of Presidential Decree "On measures to provide citizens

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[10] Pechenskaya, M.A. L'gotnye ipotechnye kredity v Vologodskoi oblasti: usloviya predostavleniya i vozmozhnosti uchastiya naseleniya [Preferential mortgage loans in the region: conditions for granting and opportunities for participation]. *Problemy razvitiya territorii* [Problems of territory's development], 2015, no. 2(76), pp. 135–145.

[11] Housing cooperatives exist in Austria, the UK, Belgium, Germany, Slovakia, France, Czech Republic and other European countries. [Polterovich V.M., Starkov O.M. *Formirovanie ipoteki v dogonyayushchikh ekonomikakh: problema transplantatsii institutov* [Establishment of mortgage in catching-up economies: the issue of transplantation of institutions]. Moscow: Nauka, 2007. 196 p.].

[12] Mortgage collapse. *"Domnam.ru" daily journal.* Available at: http://domnam.ru/1news/ipotechnyi-krakh

[13] People's Mortgage. *Official website of Krasnodar Krai Administration.* Available at: https://admkrai.krasnodar.ru/content/18/show/30163/

[14] People's mortgage in 2016. Available at: http://kreditipo.ru/narodnaya-ipoteka-v-rostove-na-donu-v-2016-godu/

with affordable and comfortable housing and improve the quality of housing and communal services" and "the Strategy of mortgage development in Russia up to 2020", has launched the practical implementation phase of the Republic's program of housing construction savings[15]. By June 2015, 8,250 new target long-term housing savings deposits totaling over 536 million rubles had been opened. Similar programs have been launched or are planned to be launched in the Republic of Tatarstan, Khanty-Mansi Autonomous okrug, the Sverdlovsk and Kaluga oblasts.

We note that, despite the successful start, the programs do not become effective. In Krasnodar, the number of participants during 2013–2016 almost was the same, remaining at the level of 4,000 participants. In Bashkortostan, after a successful start the number of new applications reduced by 30% (data are presented in *Table 7* below). This can be explained by different reasons. State support is represented at the federal level and, due to insufficient funding, the administration sought to narrow down the program to separate categories of citizens. In particular, for the Rostov Oblast and Krasnodar Krai a necessary condition for participation is the whole family's ownership of not more than one piece of residential property. In Bashkortostan, there were limitations during the first year, however, since February 2016, people on the affordable housing waiting list have the right to participate. Another constraining factor is bank restrictions (strict selection process, additional assessment of the borrower). There

is also the problem of affordable housing for program participants. The combination of these reasons amid crisis phenomena has led to the fact that in Krasnodar Krai since March 1, 2016, applications for participation are no longer accepted. However, despite all the problems, about 20,000 consumers took part in the housing construction savings project (HCS) in Russia; the government expects successful program continuation in two of the three regions described above[16].

The gist of the "People's Mortgage" housing construction savings project is the following algorithm:

1) During 1–6 years the depositor monthly accumulates funds in the project's partner bank at a 1–1.5% rate per annum for the down payment on the mortgage.

2) Citizens' savings are budgeted every month with a premium at the expense of the budget of a constituent entity of the Russian Federation in the amount of up to 30% of savings but not more than 3,000 rubles per month.

3) During 1–6 years after accumulating the required amount of money (not less than 30% from the cost of the flat) the investor receives a preferential mortgage loan at a 6–7% rate per annum from the project's partner bank for the period up to 30 years depending on the age, average monthly basic income and monthly payment.

Amid high interest rates on mortgage loans in commercial banks (from 8.6% in the first three years and 12.4 in subsequent years) the

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[15] Decree of the Government of the Republic of Bashkortostan no. 56 "On the Procedure for execution of activities aimed at financing housing development with the use of the system of housing construction savings at the territory of the Republic of Bashkortostan", dated 14.02.2014.

[16] Rustem Khamitov presented state awards of the Republic of Bashkortostan to the construction sector personnel (2016). Available at: http://www.bashinform.ru/news/ 882304-rustem-khamitov-vruchil-gosudarstvennye-nagrady-respubliki-bashkortostan-rabotnikam-stroitelnogo-kom

"People's Mortgage" project is of particular importance, providing an opportunity of receiving a loan at an unprecedented low rate for the Russian mortgage market, which, in the current economic situation, could be the only way to purchase housing for certain categories of citizens. In addition, the housing construction savings program has the potential to link with specific projects on low-income housing construction, whose volume of commissioning was ordered to be increased by the Decree of the President of the Russian Federation No. 600 "On measures to provide Russian citizens with affordable and comfortable housing and improve the quality of housing and communal services", dated May 7, 2012.

To study the performance of the project and implementation support a dynamic model of savings and loan programs of mortgage lending was developed [20]. It helps calculate the values of system parameters at the given exogenous parameters (influx of depositors, interest on foreign loans, reservation rate, frequency of accumulation schedule violations, likelihood of borrower default, allocation of borrowers' monthly payments, cost of preferred flats) and control variables (values of interest rates on deposits and loans, term of savings and loans, premium rate on savings, maximum level of a premium per month). Fixed values of control variables are called *pricing plans*. It has been demonstrated that with a wide range of parameters the pricing plans with a constant flow of depositors remain stable (i.e. at some point in time they issue contracts to customers using only program tools themselves).

Calculation of the feasibility of the project of housing construction savings "people's mortgage" on the territory of the Vologda Oblast

The implementation of the "People's Mortgage" project results involves several participants, so it is reasonable to determine the benefits of each participant party.

The benefit of investors as participants in the project is, first, in the increased initial capital by the amount of a regional subsidy; second, in lower interest rates on loans after the accumulation period. In turn, construction companies receive increased demand for housing under construction. As for benefits from participation of regional authorities and banking institutions, certain calculations are required.

Thus, the calculation is based on the available data on the implementation of the program of housing construction savings in the Republic of Bashkortostan and Krasnodar Krai. The initial material includes the following official statistics:

— distribution of households by income;

— number of residents in the region;

— average cost of one square meter of housing;

— number of program participants;

— distribution of program participants by contribution;

— parameters of the pricing plan of savings and loan mortgage programs.

Table 2. Deposit and loan interest rates under the program of housing construction savings in the Republic of Bashkortostan, in % per annum

Banking institution	Interest rate depending on the term of deposit				Interest rate depending on the term of loan			
	3 years	4 years	5 years	6 years	4.5 years	6 years	7.5 years	9 years
OAO Sberbank of Russia	1.0%	1.5%	1.5%	1.5%	7.0%	7.0%	7.0%	6.0%
OAO URALSIB	1.5%	1.5%	2.0%	1.5%	7.0%	7.0%	7.0%	6.0%

These data help calculate the following forecast parameters:

− the function of distribution of households by income;

− the average contribution of a program participant in the Vologda Oblast;

− the average number of square meters accumulated by a program participant;

− the expected number of residents who will participate in the program in the Vologda Oblast;

− the expected expenditure of the consolidated budget of the Vologda Oblast on funding the program.

The average contribution is calculated according to the data on the "People's Mortgage" housing construction savings project in the Republic of Bashkortostan (*Tab. 2*).

We assume that project participants ultimately tend to receive the same amount of square meters. To calculate this value, we fix the parameters of the pricing plan: deposit and loan interest rates, subsidies, term of savings and loans. The basic pricing plan is considered a six-year accumulation plan. It is possible to calculate the total contract for the consumer, i.e. the funds received (savings with subsidies and a loan).

Suppose K − the ratio of the total contract and the payment for a particular pricing plan. It can be expressed through parameters of the pricing plan according to formula 1:

$$K = ((1+p)^t − 1) \times (1+p) / p + s \times t + \\ + 1/c \times (1+c)^t − 1) / (1+c)^t \qquad (1)$$

where p − deposit interest rate;

c − loan interest rate;

s − subsidy percentage;

t − accumulation and loan term.

With a six-year accumulation plan, the total contract and payment ratio equals 180. The average value of the payment (V) according to Sberbank amounted to 6,191 rubles. Therefore, the consumer has an opportunity to accumulate 1,115 million rubles (6,191×180). According to statistics, the average cost of a square meter in the Republic of Bashkortostan equals 52,664 rubles, which means that the consumer receives (conditional) 21.16 square meters as a result of participation in the accumulation program.

Note through V_C the average contribution for a particular pricing plan in the regional center, through V_P − average contribution in the region excluding the regional centre. We assume that the number of consumers participating in the program in the regional centre and the region are correlated the same way as the total number of inhabitants. Then the first ratio is as follows:

$$\lambda_C \times V_C + \lambda_P \times V_P = V \qquad (2)$$

where λ_C, λ_P − the share of residents in the regional center and the region excluding the regional center respectively,

V − the average contribution for this pricing plan in the region.

With the contribution of V_C (or V_P), the participant receives K×V_C (Q×V_P) amount of funds. As participants receive the same number of square meters as a result of using the pricing plan, the second ratio is as follows:

$$K \times V_C / m_C = K \times V_P / m_P = 21.16 \qquad (3)$$

where m_C, m_P − cost of a square meter in the regional center and the region excluding the center respectively.

Table 3. Distribution of population by per capita monetary income in 2014

Group	Vologda Oblast	Republic of Bashkortostan	Krasnodar Krai
Less than 5 000,0	3.0	10.4	3.4
5 000,0 – 7 000	5.3		
7 000, 1 – 10 000, 0	11.1	10.6	4.7
10 000,1 – 14 000,0	16.1	14.1	9.1
14 000,1 – 19 000,0	17.5	15	13.0
19 000,1 – 27 000,0	19.3	17.1	14.6
27 000,1 – 45 000,0	18.7	19	17.5
45 000,1 – 60 000,0	5.1	6.5	20.9
More than 60 000,0	3.9	7.3	16.8

Table 4. Estimation of participants in Vologda based on the total number of participants in Bashkortostan

Region	Expected contribution	Per family income	Expected number of participants	Share of families able to participate
Vologda	6526	11253	1225	0.79
Cherepovets	7217	12444	1143	0.74
Vologda Oblast excluding city districts	3597	6202	981	0.97

Formula 3 helps calculate the average amount of the contribution in Vologda, Cherepovets and the Vologda Oblast as a whole:

$V_{VOLOGDA}$ = 5,727 rubles,

$V_{CHEREPOVETS}$ = 5,108 rubles,

V_{OBLAST} = 4,024 rubles.

On the other hand, the contributions are related to the average salary. If we assume that the contributions are proportional to consumers' average salary, we have the following values:

$V_{VOLOGDA}$ = 7,326 rubles,

$V_{CHEREPOVETS}$ = 9,326 rubles,

V_{OBLAST} = 3,170 rubles.

It is reasonable to consider the average value of contributions as the total value of contributions:

$V_{VOLOGDA}$ = 6,526 rubles,

$V_{CHEREPOVETS}$ = 7,217 rubles,

V_{OBLAST} = 3,597 rubles.

The next step requires calculation of the share of population participating in the housing construction program. To do this we approximate the distributions[17] using the lognormal distribution (*Tab. 3*).

We assume that the family consists of 2.9 people and is able to save 20% of their monthly income [21]. It follows that participation in the program requires average monthly income per family member in Vologda to be 11,253 rubles, in Cherepovets – 12,444 rubles, in municipal districts of the Vologda Oblast – 6,202 rubles. According to the calculations for housing construction savings program in the Republic of Bashkortostan, the share of program participants in the regional center amounted to 0.014, in the region excluding the center – 0.005. Using this distribution, it is possible to determine that 79% of households in Vologda, 74% – in Cherepovets and 97% in the Vologda Oblast excluding urban districts will be able to

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[17] The calculation method is given in [21].

Table 5. Calculation of the expected number of participants in Vologda

Parameter	April 2014 – April 2015	May 2014 – May 2015	June 2014 – June 2015	July 2014 – July 2015	August 2014 – August 2015	Krasnodar Krai
	Republic of Bashkortostan					
1. Number of program participants in the region per year, *people*	8360	7039	6113	5814	5750	3647
2. Number of program participants in the capital, *people*	3628	3054	2653	2523	2495	816
3. Average payment of a program participant in the region, *rubles*	6191					7500
4. Share of families able to accumulate the required amount of money for participation in the program, *%*	65 / 84					72 / 95
5. Share of residents using the program among those able to participate (regional center / region excluding the center), *%*	1.46 / 0.55	1.22 / 0.46	1.06 / 0.40	1.01 / 0.38	1.00 / 0.38	0.29 / 0.29
	Vologda Oblast					
6. Expected average payment in the Vologda Oblast (Vologda / Cherepovets / region excluding city districts), *rubles*	6526 / 7217 / 3597					9859 / 5408
7. Expected number of participants in the Vologda Oblast (Vologda / Cherepovets / region excluding city districts), *people*	1281 / 1187 / 1021	1079 / 999 / 859	937 / 868 / 747	892 / 826 / 710	882 / 817 / 702	155 / 138 / 476
8. Expected number of participants in the Vologda Oblast, *people*	3489	2937	2552	2428	2401	769
9. Expenditure of the consolidated budget per year, *million rubles*	74.1	62.4	54.2	51.6	51.0	21.45

participate in the housing construction savings program. Using data on the total number of participants in Bashkortostan (8,046), we can estimate the expected number of participants in the program. In Vologda, it will be 1,225, in Cherepovets – 1,143, in the remaining part of the region – 941 (*Tab. 4*).

An important part of the calculation is the determination of expenditure of the region's consolidated budget on the implementation of the housing construction savings program (*Tab. 5*). The calculations are presented in comparison with the program results in the Republic of Bashkortostan and Krasnodar Krai for the same period.

Thus, the calculations demonstrate that at the initial stage of the housing construction savings program implementation in the Vologda Oblast 3,489 Vologda residents can take part in it with monthly bank payments not less than 3.6–7.2 thousand rubles for the accumulation of the initial payment on the mortgage. In addition, the implementation of the program will require additional expenditure of the consolidated budget of the Vologda Oblast amounting to 51–74 million rubles per year, or 0.9 and 0.13% of tax and non-tax revenues.

Housing construction savings can be a tool for achieving the goal set out by the President

of the Russian Federation, i.e. creating affordable housing market in the Vologda Oblast by increasing the availability of housing loans, lowering the rates and increasing the volume of low-income housing construction. In turn, this will increase the population's assessment of the regional policy and active development of the housing market, and the banking system in the region will become the driving force of the growing regional economy as a whole. This is due to the fact that housing construction in the system of key factors for the socio-economic growth is not only a priority but also the most capital-intensive sector, the backbone of the state economy. Since, according to Rosstat, about 15% of people are employed in housing construction and maintenance, about 25% of the total investment is allocated to housing construction. The multiplier effect of investment in housing is manifested in logical relation with construction industries integrated into it, the results are manifested in more workplaces, higher salaries and, as a result, higher consumer demand.

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