# DYNAMICS OF THE SPATIAL STRUCTURE OF SUBURBAN SETTLEMENT SYSTEMS IN MODERN RUSSIA

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## ABSTRACT

One of the key modern trends in the process of transformation of rural areas is the growth of the suburban population against the background of depopulation of other non-urban territories. During the Soviet period, this process was held back by both institutional and socio-economic factors. Even different by their nature suburbs were still parts of the zonal types of rural areas. Over the past three decades, suburban areas of large cities have grown by more than 20% in terms of population while their share has exceeded a quarter of the entire rural population of Russia.

The center-peripheral processes of spatial differentiation of rural areas also have their own zonal features like the difference in the shifts in settlement patterns and dynamics of these processes. The population density in suburban and other rural municipalities already differs by several times in the majority of Russian regions. Changes in quantitative indicators are complemented by qualitative changes: the socio-economic inequality between suburban and other rural areas is growing. Suburban areas that are essentially less connected with the agricultural sector are becoming the leading type of rural area in many regions.

Regional specifics of the dynamics of suburban settlement systems in the post-Soviet period are studied on the basis of census and current population register data. The socio-economic situation in the suburban areas of key regions is analyzed on the municipal level by three indicators: the intensity of migration, the pace of residential construction and the salary level. The most typical scenarios of further development of suburban areas in the regions of Russia were identified.

**Keywords**: population geography, suburban zones, rural areas, spatial transformation, settlement system, deagrarianization, regions of Russia.

## INTRODUCTION

The size and spatial diversity of Russia determine significant scientific interest in the problems of rural areas. In the Soviet period, researches were focused on the study of zonal types of rural settlement systems. The population of rural settlements and the nature of rural employment, closely related to the geographical landscape of different territories, were the basis of developed zonal rural typology [8]. The suburban type of rural area was distinguished as the azonal one. It was considered rather as an additional type that has a more diverse set of functions and a more complex system of connections between rural settlements [7].

Over the past decades, the factors of the transformation of the rural settlement systems in many countries of the world and in Russia have changed a lot. The rapid deagrarianization

of rural areas, the increased volume and diversity of return migrations to rural areas have stimulated a rapid transformation of rural functions and the restructuring of rural settlement systems [2, 3, 10, and 14]. Meanwhile, the concentration of the population in suburban areas has accelerated - the suburban type of rural area quickly turned into one of the leading ones.

However, these processes have not been fully covered yet. The issues of further development of suburban areas in Russian studies are usually considered in two cases: during the analysis of the suburbanization problems (rural-urban fringe) or the discussion of the issues of so-called "Dachas" (recreational, mainly summer type of rural development) [4, 9, and 16].

The situation was developed in this way mostly because in the 1990s Russian rural researchers faced issues that had long been discussed by specialists in other countries. “What can become the basis for the allocation of different types of rural areas at the present stage of development of society? Traditional settlement characteristics or socio-economic?”. There are different points of view. For densely developed territories, the level of socio-economic development may be more [1]. For sparser and contrasting settlement systems, researchers suggest relying on parameters of density and average population of rural settlements [6, 15]. Furthermore, we can combine both approaches for countries with contrasting natural conditions [5, 11]. This option is the most adequate for Russia where distances and topology continue to play an important role in the spatial development of rural areas [13].

The growing influence of cities on the development of rural settlement systems and the increased return migrations and backward linkages between residents of urban and rural areas allow researchers to speak more confidently about models of the rural-urban continuum applied to developed countries. But still, the role of transition zones between urban and rural areas is one of the most complex and contradictory problems [17, 18]. This scientific approach allows us to take a fresh look at the problems of suburban rural areas but at the same time does not remove the relevance of studying the suburban settlement system as an independent unique and specific element of the settlement system.

**Research problem**. Low population density, sparsity and low connectivity of the settlement system, relatively low level of motorization, high transport tariffs and the condition of suburban transport against the background of low incomes of the population do not allow us to talk about the rural-urban continuum in Russia as a holistic and established system. The only exceptions are the suburbs of the two capitals. For other cases, we can say that the socio-economic distance and inequality of opportunities between urban and rural areas is only increasing.

Furthermore, differentiation processes occur within the rural areas themselves. The suburban type of rural areas is gaining more and more weight. Neither by the peculiarities of the lifestyle of the population nor by many socio-economic indicators this type can no longer be attributed neither to any zonal type of rural areas nor to the urban settlement system. The purpose of this study is to evaluate the rate of rural population overflow to suburban areas, to identify regional differences of this process and main socio-economic characteristics of this azonal type of rural settlement system.

**Materials and methods**. This research is based on the materials of censuses and current population count. The dynamics of the suburban population are considered on the regional level during the whole post-Soviet period. The features of the settlement system patterns are analyzed on individual settlements level based on the last published Population Census of 2010. The calculation of indicators of the socio-economic situation in suburban

municipalities of key regions was carried out based on the materials of the Rosstat Database of Indicators on Municipalities.

The existing problems of accounting for the suburban population in conditions of widespread labor and recreational migrations of various duration are minimal [12]. According to the field research data, the number of permanent residents in suburban municipalities is mostly stable. Moreover, its deviations from current population count data usually do not exceed 10-15%.

The distinctive obstacle to the analysis of the dynamics and socio-economic development of the suburban population and settlement system in Russia was the transition of Russian statistics to a municipal grid of data collection and provision. It does not allow to clearly distinguish rural population from urban and to define their characteristics. Formally, this brings Russian statistics closer to the practices of statistical accounting in developed countries, for example, the EU. It reminds local administrative units (LAU), built on the basis of municipalities and communes, which only in general terms takes into account the rural-urban structure of the population. However, in Russia`s conditions of a very sparse settlement system and a large area of many municipalities, this approach statistically combines elements of the settlement system that differ seriously in development. Therefore, it requires an additional selection of key municipalities when comparing indicators of the socio-economic situation.

In this article, **the suburban area** refers to rural municipalities that directly border the city limits of regional capitals and large cities (>200 thousand inhabitants) that are able to form a stable zone of attraction connected by regular commuter public transport as a suburban area. With the exception of two capitals, the zone of noticeable influence of most urban centers on the surrounding territory is usually limited to the neighboring municipalities. Outside of them and away from the main transport routes, the daily influence of cities on the rural population is rapidly weakening. Moreover, it should be noted that nowadays small urban settlements of modern Russia, in their turn, do not have the adequate resources to maintain municipal transport routes to the surrounding countryside and are also not attractive enough as the labor market or as the provider of services to the rural population.

## RESULTS

### Dynamics of suburban population.

In 2021 the share of rural residents living in suburban municipalities was more than 25% of the total rural population of Russia. Since the last Soviet population census conducted in 1989 it has increased by more than 7 percentage points. It is noticeably higher than the rate of urbanization in Russia. The growth rate of the absolute number of suburban population gradually increased and in 2010-2021 was slightly higher than in the previous two decades. The suburban population has grown by almost 20%, almost 1.5 million people, while the whole rural population has decreased since the last Soviet census.

Although the relative growth of the share of the suburban population is typical for almost all regions of the country, it follows two different scenarios. In some cases, it occurs against the background of an increase in the absolute number of residents of suburban areas and indicates the real development of suburban rural areas. These are cases of the largest, most developed cities of Russia. In other cases, the relative concentration is caused by a decrease in population. The second one is typical for peripheral, primarily Far Eastern and northern, regions.

The differentiation of regions by the share of the suburban population is significantly influenced by zonal natural factors. They significantly determine the pace of rural deagrarianization that manifests itself as the liquidation of large collective agricultural producers and the decline of the importance of personal subsidiary farming for rural residents. Therefore, in the more northern and eastern regions the rural population concentration in suburban areas is usually faster. Nowadays we can state that in some regions the share of the suburban population has already exceeded 40% (Fig. 1).

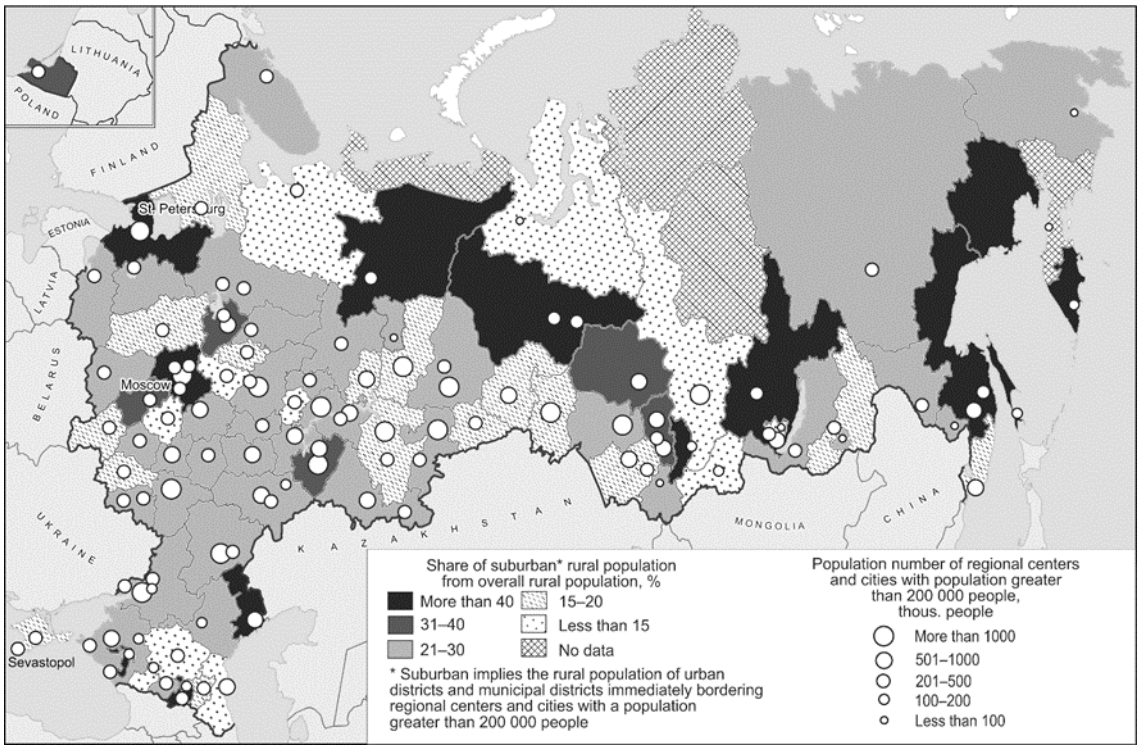


**Figure. 1**. Share of suburban population in Russian regions in 2021, % of the total rural population (Compiled based on Rosstat data).

The maximum **increase in the share of the suburban population** in the post-Soviet period was shown by the subjects of the Russian Federation with difficult and least comfortable natural geographical conditions and sparse settlement system (including some semi-peripheral regions of the Non-Chernozem zone of Russia). In the south, in the steppe and forest-steppe zones, the process of concentration of rural population in the suburbs is slower. The share of the suburban population in most southern regions is slightly lower than the national average.

The **political and administrative factor** has a multidirectional influence on the process of concentration of the suburban population. Expansion of administrative boundaries of regional centers leads either to an underestimation of the suburban population as a result of the "statistical" absorption of surrounding rural areas (cases of Voronezh Region and the Komi Republic) or to its overestimation as a result of an increase in the number of suburban municipalities (case of Kaluga). The size and **economic potential** of the regional capital, which determine its attractivity, as well as the development of the urban settlement system affect primarily in regions with large urban agglomerations.

**The density of the rural population** is a traditional indicator that characterizes the population and development of the territory in the first approximation. As a lower criterion for the inclusion of administrative units in the so-called Main Settlement Strip1

at the end of the Soviet period, the rural population density of 10 people per km2 was used (Alekseev). This value is several times lower than the average population density of ordinary Predominantly rural regions of the vast majority of Eastern European countries (Eurostat).

Besides it, Russia, which has a very sparse settlement system, is characterized also by strong intraregional differences in the population level. The density of residents in suburban and other rural areas of most regions differs by 3-5 times (Fig. 2).

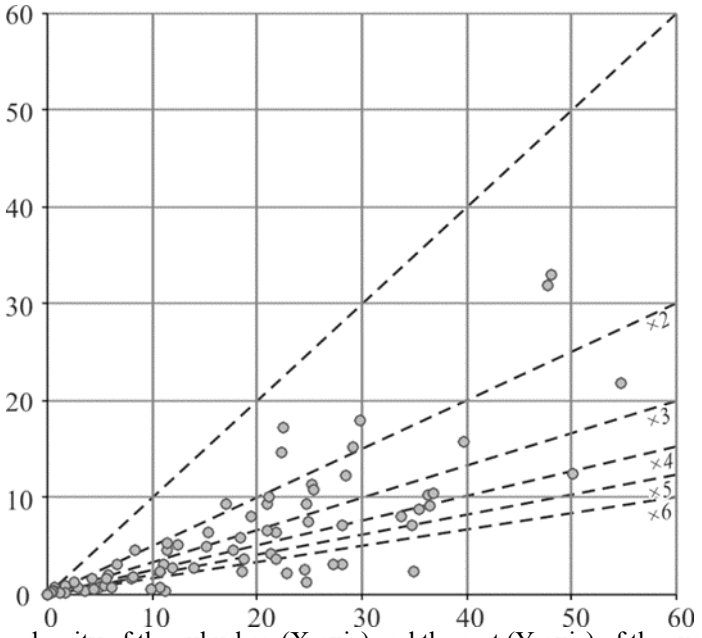


**Figure. 2.** The density of the suburban (X-axis) and the rest (Y-axis) of the rural population in the regions of Russia in 2021, people per km2 (Compiled based on Rosstat data).

Only suburban municipalities of the most developed regions of European Russia, usually with large urban agglomerations, are comparable in population density to rural areas of Eastern European countries. There are only five such subjects of the Russian Federation in the Asian part of the country: all of them are located in the steppe zone and have large urban agglomerations. If we proceed from the fact that the development of rural areas is unlikely with a low, and especially declining, population density, then of all the rural areas of Russia only suburban municipalities have any real prospects in terms of development among all shrinking rural areas.

The differences between suburban and the rest of rural areas, as a rule, are manifested in their **settlement structure**. The relatively large-scale populated suburban settlements are especially noticeable in the more urbanized regions of the European Center and the Volga region, where large urban centers form extensive zones of influence, attracting the rural population primarily by a more diverse labor market and high-quality social services, that greatly transform the lifestyle of rural residents (Fig. 3B, C).

Only in the south, primarily in the more traditionalist republics of the North Caucasus, the center-peripheral differences in the structure of rural settlement are not so noticeable. Small-sized regional capitals have less attractive power, so they significantly less transform rural settlement and do not create such strong contrasts in the lifestyle between urban and rural population. Moreover, good transport development and accessibility of urban service centers, as well as more agrarian employment structure and the desire to

live in one's own house as an indicator of a person`s status are additional factors of underdevelopment of suburban areas.

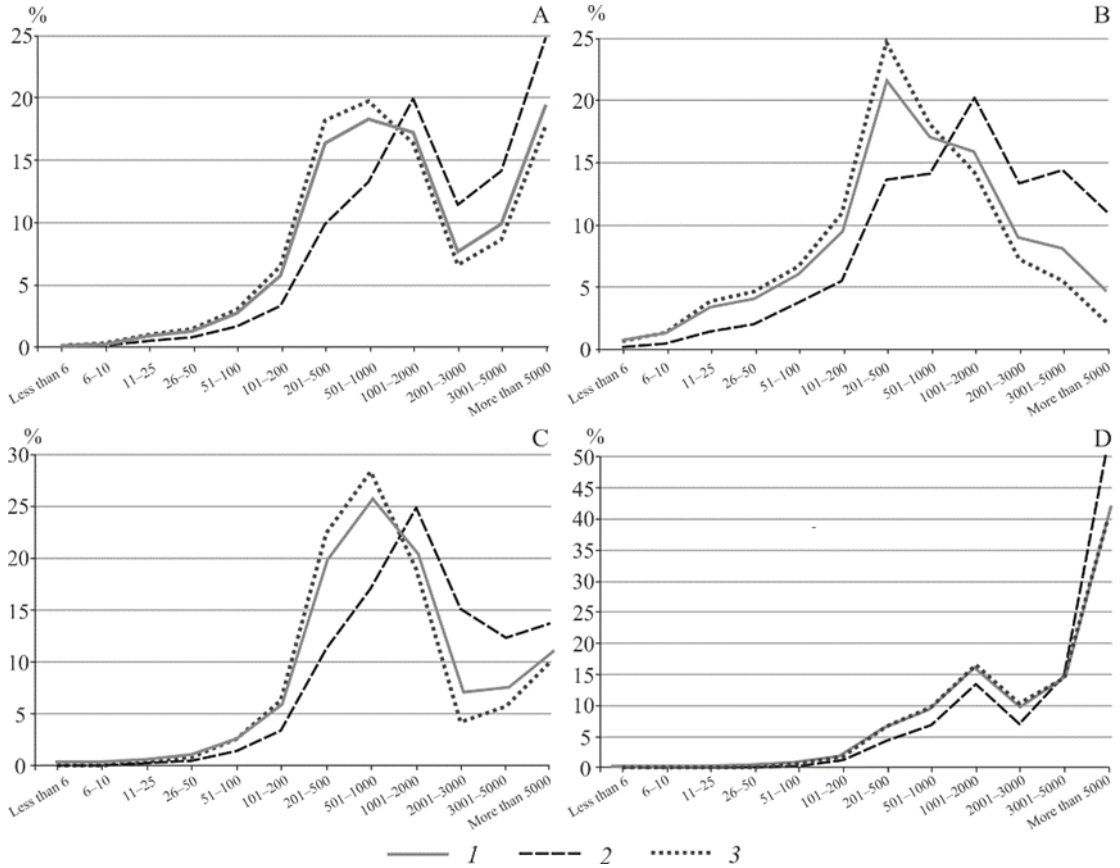


**Figure. 3**. The proportion of the population living in rural settlements of the corresponding population, % (rural population: 1 - in general, 2 - suburban, 3 - the rest; A - Russia; economic regions: B - Central, C - Volga, D - North Caucasus) (Compiled from: the microdata of 2010 population census [Available at: http://vpnmicrodata.gks.ru (accessed 12 January 2018)]).

**Socio-economic gradients**. The differences between suburban and other rural areas are shown up not only in the density of residents and the characteristics of settlement systems. In recent decades, the socio-economic differentiation of rural municipalities has been steadily increasing. As rural areas become deagrarianized, suburban rural areas receive unconditional advantages in terms of the diversity of the labor market and the availability of social services.

As an example, Table 1 shows data on three types of municipalities (regional centers, their suburban areas, other rural areas) of some regions of the steppe zone with similar characteristics of the zonal rural settlement system. The attractiveness of suburban municipalities is marked primarily by the positive balance of migration. In terms of per capita migration growth, they are ahead not only of the rural semi-periphery but in some cases also of regional capitals. Since the migration attractiveness of suburbs is largely related to the general situation in the region, the maximum values of the coefficient are typical for suburban areas of large interregional centers with a diversified economy.

Although suburban municipalities fall short of regional capitals in terms of salaries, and in weaker regions even to the average regional level, their advantage over the rest of rural areas is usually at least 20%. Additionally, it should be taken into account that a significant part of suburban residents work in cities and has the appropriate salary level.

In general, the stronger the region and its capital, the lower the gap in the level of nominal salaries with suburban municipalities is.

**Table 1**. Average annual indicators of the socio-economic situation of municipalities in some regions of Russia in 2017–2020.

| Region (oblast, republic, krai) | Migration growth rate, people per 1 thousand inhabitants | | | Average monthly salary, % of the regional average | | | Residential construction per capita, % to the average regional level | | |
|---|---|---|---|---|---|---|---|---|---|
| | Regional center | Rural municipalities | | Regional center | Rural municipalities | | Regional center | Rural municipalities | |
| | | Suburban | Other | | Suburban | Other | | Suburban | Other |
| Rostov oblast | 0,4 | 13,0 | -0,5 | 141 | 95 | 79 | 180 | 152 | 42 |
| Voronezh oblast | 5,2 | 1,6 | 0,0 | 125 | 103 | 86 | 142 | 240 | 25 |
| Samara oblast | -1,6 | 48,5 | -5,5 | 127 | 112 | 81 | 98 | 494 | 72 |
| Orenburg oblast | 4,2 | 15,6 | -11,1 | 132 | 124 | 82 | 163 | 355 | 44 |
| Resp. Bashkortostan | 2,5 | 21,5 | -8,8 | 138 | 116 | 84 | 105 | 292 | 89 |
| Chelyabinsk oblast | -1,2 | 23,1 | -6,5 | 118 | 98 | 76 | 126 | 574 | 57 |
| Tumen oblast | 17,1 | 20,3 | -6,3 | 131 | 85 | 76 | 115 | 236 | 44 |
| Omsk oblast | -5,6 | -0,8 | -6,5 | 121 | 88 | 76 | 110 | 275 | 56 |
| Novosibirsk oblast | 3,6 | 22,6 | -4,2 | 129 | 103 | 76 | 108 | 299 | 32 |
| Altay krai | 1,0 | -0,1 | -7,0 | 136 | 97 | 88 | 215 | 194 | 29 |

Compiled based on Database of municipalities.

The best available indicator of the processes of the rapid transformation of suburban rural areas is the per capita rate of residential construction. Almost everywhere values of it for suburban areas exceed values for the rest of rural areas by 3-6 times. The maximum values are typical for regional capitals, where due to the deficit of greenfield lands or the environmental situation part of the multi-apartment housing construction is carried out outside the city limits (Samara, Chelyabinsk). The minimum gap between suburban and typical rural municipalities is observed in the more demographically prosperous and less urbanized Bashkortostan.

The situation in suburban areas located around large cities that are not regional capitals looks significantly less optimistic. Many of these centers are among the industrial monocities. Their economic and environmental problems negatively affect suburban areas. If such centers are located relatively far from regional capitals, then their attractiveness is further reduced, and the potential of such a secondary city may not be enough to keep the population in suburban municipalities. Thus, at least two types of suburban municipalities are formed: the first is developing areas around large regional centers, and the second, less optimistic in terms of further development, is around other large industrial cities.

## CONCLUSIONS

Russian geography has traditionally focused on the zonal typologization of rural settlement systems. The territorial structure of zonal types of settlements was formed in the pre-industrial and industrial periods of the development of society primarily under the influence of natural geographical factors. However, since the 1990s, the azonal, suburban

type of rural settlement has become increasingly important. It stands out both in terms of growth rates and the number of inhabitants.
Suburban population is by far the most dynamic element of the Russian settlement system. In most Russian regions, the relative concentration of the rural population in the suburban area corresponds with an increase in its absolute number, which indirectly indicates the socio-economic development of this type of rural area.
Low and rapidly declining population density has become a serious problem for the functioning of social infrastructure in rural areas in recent decades. In most Russian regions, only suburban areas that exceed the rural semi-periphery by 3-5 times in terms of population density have a chance to maintain or increase their population. This fact seriously affects perspectives for further socio-economic development of vast shrinking, peripheral rural areas.
The biggest differences in the structure of suburban and rural settlement systems are noted in the regions of forest and forest-steppe zones. They are manifested primarily in the proportion of residents living in large rural settlements. As we move to the south of European Russia, certain differences remain but become less significant.
Socio-economic gradients between rural areas of suburban areas and other rural municipalities primarily appear in the pace of housing construction and income levels. The migration attractiveness of specific rural municipalities is additionally influenced by other local factors, primarily the level of accessibility to the central city, its specialization and the environmental situation.

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