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## Transformation of the Spatial Organization of Retail Trade in Arkhangelsk

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**Abstract.** The article compares the spatial organization of retail food trade in Arkhangelsk in 1988 and 2022 in order to identify the changes that have occurred in the post-Soviet period. Its transformation was facilitated by the closure of industrial enterprises, most of them were located in settlements in outskirts, a change in the solvency of residents, and a reduction in the number of potential buyers. The internal heterogeneity of the conditions for the development of trade in different parts of the city, differences in the provision of retail outlets for residents, the prevailing trade formats that are typical for central and outlying areas are revealed. Compliance of the principle of equidistance of shops from residential buildings was checked. We also conducted a content analysis of customer reviews about various formats of retail outlets. We determined that in 2022 the number of stores in Arkhangelsk increased by 3 times compared to 1988. However, their distribution throughout the city is extremely heterogeneous. There is a clear competitive advantage of the central districts of the city (Oktyabrskiy, Lomonosovskiy), where the number of stores has increased by 4–5 times, over the outskirts, where the growth is less than 2 times (Maimaksanskiy, Isakogorskiy, Tsiglomenskiy districts). The most common form of trade organization in Arkhangelsk is a discount store, which is associated with the low solvency of the city population. Most of them belong to federal retailers. Their expansion in Arkhangelsk mainly affected the central districts and bedroom suburbs close to them. The least number of stores of federal and local retail chains has been opened in the outlying districts; there aren't any shops on the islands without bridges (Brevennik, Linskiy Priluk, Khabarka, Kegostrov). For outlying areas, the most common stores are those that do not belong to chain retailers, these are small pavilions and kiosks. Most customers' reviews of such stores are negative and the overall rating of their work is lower than that of chain stores.


**Keywords:** *transformation, retail, trade organization, urban environment*

### Introduction

The tertiary sector of the economy, of which trade (retail) is a part, is particularly sensitive to changes in economic and political realities. In turn, retail is one of the important actors changing the urban environment [1, Musil J.]. The transformations taking place in its branches influence the formation of urban space and the quality of the urban environment. In the USSR, the impetus for the transformation of trade was its liberalization. The processes of transformation of the post-Soviet economy, when the principle of spatial competition replaced the spatial monopoly, changed the factors of trade objects location within the city. As a result, there are clear spatial differences in the availability of trade services in different parts of the city with different competitive potential. The economy of the city is influenced not only by its geographical location, but also by

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its intra-territorial organization, placement of residential areas, industrial zones, the most important linear and nodal elements of the road network [2, Semina I.A.]. In turn, this affects the formation of urban environment quality. The availability of shops in close proximity to the place of residence makes the urban environment more comfortable.

The development of any city is associated with the transformation of its functions and economic restructuring. The processes of transformation of urban space are natural, as they are associated with the dying out of industries and activities that have become obsolete and do not generate income. Changes in production spaces, closure of enterprises affect the functioning of the associated residential spaces.

The transformation of the space of a post-Soviet and post-industrial city has common features and individual geographical characteristics. In a post-industrial city, the transformation of trade passes through a number of consecutive stages, the emergence of which is caused by changes in the consumer behavior of its residents, stratification of society by income and purchasing power. Both universality and uniqueness can be observed in such transformation processes [3, Aksenov K.E., p. 23].

The purpose of our study is to analyze the features of transformation and location of post-Soviet food retail, the spatial expansion of federal and local retail chains in the territory of Arkhangelsk.

### ***Materials and methods***

The works of foreign and domestic scientists of various specialties are focused on the study of transformation processes in post-socialist and post-industrial cities. There are three types of transformation of a post-socialist city: institutional (economy and politics), social practices and morphology of urban space [4, Sykora L., Bouzarovski S.]. The transformation of trade (retail) is usually considered as one of the components of the institutional type of transformation of a post-socialist city (changes in the tertiary sector of the economy) [5, Aksenov K.E., p. 40].

The articles by Russian scientists deal with the changes that have occurred in the forms of trade organization, highlighting the periods of their liberalization, stabilization and standardization, associated with the weakening and strengthening of control over trading enterprises [6, Zhelnina A.A.; 7, Radaev V.V.]. The transformation of consumer behavior of city residents and the emergence of associated store formats, as well as their redistribution within the urban space in accordance with the desire to gain a competitive advantage are analyzed [5; 8, Aksenov K.E.].

The studies cover mainly large cities. Thus, K.E. Aksenov examines the transformation processes of trade in St. Petersburg, an innovator in a number of stages and processes of transformation of the tertiary sector of the economy, a leader in the transformation of retail among the largest Russian cities [5; 8]. In the Russian city, he distinguishes the spatial organization of retail in the transformation and post-transformation periods.

The transformation period begins in the post-Soviet liberalization of trade and is characterized by the spatial saturation of the city with goods and services. It was completed by the early

2000s, accompanied by the formation of a new system of tertiary sector enterprises location, when numerous kiosks, tents, pavilions, markets (non-store forms of trade), intercepting customers along their daily commute, on the main transport flows, near bus stops and metro stations (“transformational type of shopping”) became an alternative to stationary stores of the Soviet model, located relatively equidistant from all residential buildings in micro-districts.

The post-transformational type of shopping started with attempts to redistribute the market in conditions of saturated demand; it is associated with the stabilization and standardization of trade. In St. Petersburg, this stage was formed by 2009 [5, Aksenov K.E.]. Representatives of large retail businesses entered the market, and chain stores were developing. The stratification of society by income level required the creation of retail outlets with different price levels. The emergence of consumers with above-average incomes stimulated the creation of large shopping centers and hypermarkets, usually located at the entrance to the city, where buyers arrive by car once or twice a week and make large purchases. This is the manner of middle class consumer behavior in developed countries. St. Petersburg is characterized by the location of hypermarkets inside the city, making them accessible to buyers without a car. Over time, this “post-transformational large-format” type of shopping was pushed out by “small-format” type, when “near-home” stores became more popular, and purchases were increasingly made on a daily basis in small volumes. At the same time, “hard discounter” stores with minimal markups and an appropriate level of service are oriented towards low-income customers.

As noted by K.E. Aksenov, A.S. Zinoviev and K.A. Moracheskaya, in the areas of mass residential development of the Soviet period of St. Petersburg, retail facilities (convenience stores of various specializations) were actively placed on the ground floors of residential buildings, especially in the “façade” parts of micro-districts, on the routes from public transport stops, as well as inside the blocks. Retail became subject to the principle of spatial competition [9].

A similar spatial structure of retail has developed in other cities with a million-plus population. Thus, N.S. Bulinina, who studied the retail distribution in Nizhny Novgorod, notes that as a result of the post-Soviet transformation, trade and service zones were rapidly developing in some residential areas, and small retail outlets created “kiosk agglomerations” near transport hubs. In the post-transformation period, the spatial organization of trade became more orderly; chaotic and spontaneous markets were eliminated and replaced by trade pavilions; agglomerations of kiosks were removed, “convenience stores” appeared, occupying the first floors of residential buildings. Hypermarkets, large shopping and entertainment centers, located in all areas of the city near transport hubs, as well as outside the city, have been widely developed. Social stores and discounters have appeared, located mainly in the outskirts [10, Bulinina N.S.].

The situation in the spatial organization of trade in cities with smaller populations is different. I.V. Vinogradov notes that in Tver, since the early 1990s, the concentration of trade and service enterprises in the central part of the city has increased, which negatively affects their development in the outskirts of the city. He attributes this to competition for a more favorable location

of enterprises. The bulk of them are concentrated within large nodal and linear elements of the street and road network [11, Vinogradov I.V.].

In Saransk, according to the research of I.A. Semina, large shopping centers are located in the city center, which is classified by her as a zone with high commercial activity. The zone with low commercial activity is located away from the center in low-density neighborhoods, where there is no active development [12]. This is to a certain extent consistent with the concept of “unfinished urbanization” of post-Soviet cities, according to which they differ from classical cities by low population density and development, especially on the outskirts, and subordination to “socialist” planning [13, Szelenyi L.].

It can be stated that in any post-socialist city, instead of equidistance from residential buildings, market relations and the struggle for customers become the main factors in the location of trade enterprises, so they gravitate towards the main transport lines and nodes within the city. In dead-end districts, poorly connected to the center, trade and service enterprises develop more slowly; in disadvantaged neighborhoods, owners of federal and local retail chains are less likely to open their shops; independent non-network retail outlets operate there without competition. A common feature of large cities is the poor representation of grocery stores in the central areas [3, Aksenov K.E.; 9, Aksenov K.E., Zinoviev A.S., Morachevskaya K.A.].

The specificity of Arkhangelsk as a northern city is related to the fact that its population growth was dependent on the industrialization of the 20th century, although it was not justified geographically, as the territory where it is located has always been sparsely populated. After the city's enterprises began to close in the post-Soviet period, the population began to outflow and redistribute within the city. A similar trend is observed in many northern Russian cities, their space is shrinking. Naturally, this also affects the reduction in the number of potential buyers, especially in some problematic urban areas. In order to identify the changes that have occurred in the territorial structure of Arkhangelsk trade in the post-Soviet period, we compared the number of grocery stores and their location in 1988 and 2022. The sources of information were address data from the telephone directory of Arkhangelsk users for 1988, lists of store addresses from the official websites of retail chains currently represented in the city. We studied the current distribution of chain and independent grocery stores using the electronic Yandex map of the city. The same information sources allowed us to differentiate retail outlets in modern Arkhangelsk by format. For a territorial analysis of the qualitative composition of retail outlets, we divided all stores into groups depending on their affiliation and format (federal or local retail chains, independent stores, hypermarkets, discounters, supermarkets, kiosks and pavilions). Data was also collected using a field survey of the city. Using the standards of urban planning SNiP 2.07.01-89, taken into account when organizing trade in the USSR, according to which the service radius of retail facilities should be no more than 500 m to any house in a micro-district (the “equidistance” rule), we assessed the compliance of Arkhangelsk shops location with them as of 1988 and 2022 [14]. This made it possible to estimate the provision of residents of different parts of the city with stores from the stand-

point of comfort for shoppers. Despite the fact that in the post-Soviet period many mandatory standards, norms and rules that served as a management tool in the planned economy were transformed from mandatory to advisory, some SNiPs have retained their relevance. Thus, SNiP 2.07.01-89 (Urban development, planning and construction of urban and rural settlements) was revised and updated in 2017. The radius of service of the population by retail enterprises, equal to 500 m (in multi-storey urban development) was retained in this edition, since the comfort of the urban environment depends on it<sup>1</sup>. Since the administrative division of Arkhangelsk underwent changes in the post-Soviet period and 9 administrative districts appeared instead of 4 ones, we presented the data by districts for comparison. We also conducted a content analysis of customers' reviews in the Yandex Maps review service for stores based on a random sample.

### **Results and discussion**

In the USSR, the industrialization process was accompanied by the creation of residential areas near production zones. Residential micro-districts (settlements) with the necessary infrastructure for life were formed there. It was assumed that their residents should have the opportunity to receive all types of services at their place of residence [9, Aksenov K.E., Zinoviev A.S., Morachevskaya K.A.]. According to the standards for providing the population of micro-districts with consumer services and trade enterprises, which were reflected in the "Construction norms and regulations", service facilities in residential areas "must be located closer to places of residence or work" [14, Construction norms and regulations].

The peculiarities of the socio-economic development of Arkhangelsk in the Soviet period were expressed in the creation of a powerful timber industry complex along the banks of the Northern Dvina River, mainly on the islands. New enterprises appeared due to industrialization, settlements were built near timber factories, the totality of which formed industrial and residential zones adjacent to the city from the north and south, which later became part of the city limits. At the same time, they did not form a continuous space, the population density there was low; as a result, the city stretched along the Northern Dvina River from north to south for 32 kilometers. This geographical feature of Arkhangelsk, as well as its dead-end position on the main highways, affected the spatial organization of trade in Soviet and post-Soviet times.

Elongation is a specific feature of the configuration of many administrative districts of Arkhangelsk. This is especially typical for the northern Maimaksanskiy and left-bank Isakogorskiy districts, consisting of separate factory settlements. In addition, the Maimaksanskiy district includes large island territories without bridges. The central districts are Lomonosovskiy and Oktyabrskiy (which also includes the island territory of Kegostrov). The residential areas near the center are part of the Mayskaya Gorka and Solombalskiy districts (located on islands connected by bridges, except for Khabarka Island). Remote "bedroom suburbs" are located in the Varavino-Faktoriya and

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<sup>1</sup> Code of Regulations. Urban planning. Planning and building of urban and rural settlements. Updated edition. SNiP 2.07.01-89. URL: <https://gostassistent.ru/doc/51d365e4-e5e0-4e01-a843-62e78f9832fa> (accessed 15 July 2023).

Severny districts (Pervye Pyatiletki micro-district). The most compact residential areas are located in the Severny, Solombalskiy and Lomonosovskiy districts.

It was difficult to follow SNiP standards when placing retail outlets in Arkhangelsk during the Soviet period due to the elongation and geographical disunity of industrial and residential areas. However, due to state regulation of trade, each district of the city had a full range of enterprises providing retail services. Specialized stores were located hierarchically depending on the daily demand. Food stores were located in each residential micro-district, and shops with occasional demand served several micro-districts. Each enlarged district had a department store or a trading house, the prototype of a modern shopping center. The shops were located in specially constructed facilities, separate, attached or built into residential or administrative buildings made of stone or wood.

The crisis of the city-forming industries in Arkhangelsk, which began in the mid-1990s, coincided with the transformational stage of trade development; it led to disproportions in the location of trade enterprises. In the post-Soviet period, the territorial entities “timber plant – settlement”, which made up all the outskirts of the city, faced the problem of closure of district-forming enterprises. This especially affected the island territories, which are not connected to the city by bridges, and the outlying districts (Maimaksanskiy, Isakogorskiy, Tsiglomenskiy). This circumstance caused changes in the spatial behavior of local residents. Part of the population from the timber plant settlements Brevennik, Maimaksa, Levy Bereg, Kegostrov, Khabarka found work in other districts. The daily necessity of commuting from home to work and back has changed the shopping habits of these people. As a result, they make purchases on the way home from work in stores in other areas of the city; the number of potential customers in the former timber plant settlements (especially island ones) has sharply decreased, which has affected their profitability, quantity and format. Local shops are mainly visited by pensioners. Due to the low quality of the urban environment and isolation from the main territory of the city, these areas have become unattractive for living and investing in housing construction, development of the tertiary sector of the economy. Many residents have moved to other districts of Arkhangelsk or beyond, as evidenced by the decline in the city’s population. The population of Arkhangelsk decreased by 27.6% from 1989 to 2020 (from 415.9 thousand to 301.2 thousand people according to the census data)<sup>2</sup>. After the closure of city-forming enterprises on the island territories of Arkhangelsk, their “deurbanization” began. According to A.L. Strizoe, deurbanization is not only the outflow of population from cities, but also qualitative changes in the urban environment, degradation of urban infrastructure institutions and urban lifestyle [15]. In the course of deurbanization, urban environment is replaced by settlement, village-suburban environment, which is now observed in the outlying settlements of Arkhangelsk.

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<sup>2</sup> Results of the All-Russian population census 2020. Website of the Department of the Federal State Statistics Service for the Arkhangelsk Oblast and the Nenets Autonomous Okrug. URL: <https://arhangelskstat.gks.ru/folder/56873> (accessed 10 August 2023).

The post-Soviet period of spatial development of trade in Arkhangelsk repeated the same stages that researchers identified in other cities of the country. After the liberalization of trade in the first half of the 1990s, new retail outlets appeared, many of which were temporary. These were often spontaneous street trading near large shops, railway stations, public transport stops, on the main routes of population movement. During this period, new clothing and food markets appeared in different areas of the city (the markets “On Nagornaya” and “On Dynamo” with still existing pavilions). Spontaneous street trading was replaced by kiosks, the concentration of which was especially noticeable at large transport junctions and public transport stops in the center. All this corresponded to the transformational type of shopping. It should be noted that the store premises that had existed since Soviet times were rented out in parts by different tenants, food shops could sell non-food items as well. This is evidence of the deterioration of the Soviet centralized trade, which, due to a shortage of goods, could not meet consumer demand, as a result of which large retail spaces were not filled and did not generate income. This was the beginning of the formation of department stores, which replaced them.

In the late 1990s, stores of a new format began to appear in Arkhangelsk — universal chain supermarkets of self-service. The first were local retail chains, whose owners started with kiosk trade (supermarkets “Sezon”). The post-transformation stage of trade development began, which was finally shaped with the appearance of federal retail chain stores in the early 2010s. Federal chain stores gradually pushed out independent stores and created competition for local retail chains. At the same time, there were significant spatial disproportions in their location, associated with the desire to occupy the most advantageous locations in the central areas and ignoring outlying settlements with insolvent population (Brevennik, Kegostrov, Khabarka).

A very small number of federal chain stores have been opened in outlying residential areas (Maimaksa, Levy Bereg, Bakaritsa, Zaton, Damba, Tsiglomen). Therefore, independent private stores have survived there, which differ little from the kiosks of the 1990s in the absence of competition. Independent shops have survived in all urban districts as an echo of the transformation period of trade organization. They are mainly small pavilions or kiosks located at intersections or inside large residential areas with the organization of trade “via the counter”. Such shops are exclusively characteristic of island territories, not connected by bridges to the main part of Arkhangelsk. Local residents do not have the opportunity to choose goods and trade organizations in their micro-districts.

The appearance of hypermarkets in Arkhangelsk was not as large-scale as in big cities. The first universal hypermarket was located on the Okruzhnoe Highway near wholesale warehouses. But basically, city’s hypermarkets are located in the central part and in the residential areas close to the center, since the transport mobility of city residents is less than in cities with a million-plus population. There are no hypermarkets in the outlying areas, in the former settlements of timber plants. A similar trend in the location of hypermarkets and large shopping centers is observed in other regional centers of Russia with a population of up to 500 thousand people [11, Vinogradov

I.V., 12, Semina I.A.]. The zone of the greatest commercial activity there is the city center; the suburbs are less attractive for retailers.

Another difference in the spatial location of retail outlets in Arkhangelsk and in cities with a million-plus population is the lack of complete transformation of the ground floors of residential buildings into shops. Currently, the ground floors of new residential buildings are designed specifically for commerce.

The principle of location of retail outlets has also changed as a result of the post-Soviet transformation. Whereas in the Soviet period there was an approximately equal amount of shops both inside residential areas and near the main highways, now the most in-demand spaces are located near the main traffic flows and routes of potential customers.

As of 2022, supermarkets of large federal and local chains predominate in Arkhangelsk.

According to marketing expert N. Mchelidze, the number of federal chain stores in the Arkhangelsk Oblast has increased by 273 over 3 years (as of January 2023), and their share is 46.2%, but in terms of turnover structure they are superior to regional chains, the number of stores of which has decreased by 190 over 3 years<sup>3</sup>.

In terms of income, the population of the Arkhangelsk Oblast is stratified into two groups with a large gap between them. The middle class is almost absent, so there is a demand either for high-priced goods or for cheap ones, and the latter is more popular. That is why discounters of federal chains (“Magnit”, “Pyatyorochka”) have become the main format of shops in Arkhangelsk. The network of “hard discounters” with low prices (“Svetofor”, “Souz”) is expanding. Among the supermarkets, there are local chains (“Petrovskiy”, “Afanasiy”, “Garant”) and regional ones (“Maxi”). Some of them also operate in the hypermarket format and are located in central districts and residential areas closest to the center. The federal hypermarkets in Arkhangelsk include “Lenta” (in the residential areas closest to the center) and “Metro” (the only hypermarket located at the entrance to the city). Among the high-priced supermarkets in the central districts, there are stores of the “VkusVill” chain. Shops of federal alcohol chains are the most widespread; they are opened even in areas where there are no grocery shops (except for island territories without bridges).

We calculated the number of universal grocery shops within the boundaries of modern administrative districts, checked it for compliance with SNiP norms as of 1988 and compared it with the data for 2022 (Table 1). According to the theory of central places by W. Christaller, the ideal shape of the service area of a social infrastructure enterprise (in our case — a grocery store) is a hexagon [16, Lipets Yu.G., Pulyarkin V.A., Shlikhter S.B., p. 65]. Using the principle of equidistance (SNiP 2.07.01-89), according to which the distance to the nearest grocery store, located in the center of the proposed hexagon, should not exceed 500 m, we determined the number of food shops to serve the territorial districts of Arkhangelsk at such a norm, and compared the real

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<sup>3</sup> Mnenie eksperta: nastoyashchee i budushchee riteyla v Arkhangel'skoy oblasti [Expert opinion: the present and future of retail in the Arkhangelsk Oblast]. URL: <https://bclass.ru/biznes/torgovlya/mnenie-eksperta-nastoyashchee-i-budushchee-riteyla-v-arkhangel'skoy-oblasti/> (accessed 20 August 2023).



and ideal provision of food shops (norm according to SNiP). For this purpose, we calculated the approximate area of the service zone of a grocery store. It was 0.649 m<sup>2</sup> (the area of a hexagon inscribed in a circle with a radius of 500 m) (Table 1).

Table 1

*Location of food shops by territorial districts of Arkhangelsk as of 1988 and 2022*<sup>4,5</sup>

District	Area, km <sup>2</sup>	SNiP norm	Number of shops		Provision of shops per 1 km <sup>2</sup>	
			1988	2022	1988	2022
Oktyabrskiy	31.9	49	32	125	1	3.9
Lomonosovskiy	11.4	17	19	98	1.6	8.6
Solombalskiy	28.0	43	18	43	0.6	1.5
Severny	9.1	14	13	28	1.4	3.1
Maimaksanskiy	117	180	24	33	0.2	0.3
Mayskaya Gorka	19.4	29	9	40	0.5	2.1
Varavino-Faktoria	19.2	29	10	50	0.5	2.6
Isakogorskiy	38.3	59	21	37	0.5	0.9
Tsiglomenskiy	19.7	30	12	17	0.6	0.8
Total	294	450	161	471	0.5	1.6

As the table data shows, the norms of provision of shops according to SNiP in 1988 were almost met only in the Lomonosovskiy and Severny districts (the current boundaries). These are relatively small territories with a compact configuration of residential areas, where it is easier to organize uniform distribution of shops. As of 2022, the total number of stores in the city has increased by almost 3 times, in the Oktyabrskiy and Mayskaya Gorka districts — by 4 times, and in the Lomonosovskiy and Varavino-Faktoriya districts — by 5 times. The sharp increase in the number of food shops in the Mayskaya Gorka district, adjacent to the central area of the city from the south, the main “bedroom suburb”, is explained by mass housing construction. It is also worth noting the increase in the number of stores in the Varavino-Faktoria district on the southern outskirts of the city, where the population is also increasing, as social housing is being built there to resettle people from dilapidated houses. The least increase in the number of shops was seen in the outlying Isakogorskiy, Tsiglomenskiy and Maimaksanskiy districts (less than 2 times), but the population and the number of potential customers has decreased significantly there. Compliance with the above norms has been achieved in the Solombalskiy district, and is maintained in the Severny district. In the central Lomonosovskiy and Oktyabrskiy districts, the norms are significantly exceeded, which indicates that they are oversaturated with shops and that the main factor in the current location of retail outlets is the principle of spatial competition, as the population and potential customers are the largest here. Preservation of lagging behind the norms in other districts (Maimaksanskiy, Isakogorskiy, Tsiglomenskiy) is connected not only with the fact that there are few shops there, but also with the circumstance that most of their area is industrial zones, while residential areas occupy a significantly smaller area. It can be assumed that the number of stores

<sup>4</sup> Telephone directory. List of users of Arkhangelsk city telephone exchange (institutions, organisations, associations, enterprises). Arkhangelsk, 1988.

<sup>5</sup> [https://yandex.ru/maps/20/arhangelsk/category/grocery\\_store/184108031/?ll=40.541409%2C64.551829&sl=40.541410%2C64.551795&z=11](https://yandex.ru/maps/20/arhangelsk/category/grocery_store/184108031/?ll=40.541409%2C64.551829&sl=40.541410%2C64.551795&z=11) (accessed 25 August 2023).

may correspond to the norms relative to residential areas. The highest number of shops per 1 km<sup>2</sup> is still in the Lomonosovskiy district (a compact area in the city center with a large population), the lowest — in the Maymaksanskiy district (a vast, sparsely populated area with islands).

We also analyzed the composition of food retail outlets in the Arkhangelsk districts according to their belonging to different retail chains and the form of trade organization (Table 2).

The data in Table 2 show that the largest number of federal chain outlets (food discounters, hard discounters, hypermarkets, alcohol shops) is located in the central Oktyabrskiy and Lomonosovskiy districts. In the Isakogorskiy district, there are more local chain stores than federal ones. In the outlying Tsiglomenskiy and Maymaksanskiy districts, there are more independent non-chain stores selling “via the counter” than federal and local food chain outlets. This indicates a low competitive advantage of these territories, which is also explained by their territorial dead-end.

Table 2

*Qualitative composition of food shops in Arkhangelsk by districts as of 2022*

District	Total number	Self-service chain shops			Independent shops with “via the counter” sales	
		federal	local	alcohol	Total	including kiosks
Isakogorskiy	37	6	10	6	15	6
Tsiglomenskiy	17	3	1	1	12	3
Maimaksanskiy	33	7	3	8	15	6
Severny	28	11	4	6	7	2
Solombalskiy	43	14	5	10	14	10
Mayskaya Gorka	40	14	8	12	6	5
Varavino-Faktoria	50	16	9	9	16	11
Lomonosovskiy	98	37	12	37	12	9
Oktyabrskiy	125	43	22	41	19	11
Total	471	151	74	130	116	63

The Maimaksanskiy, Isakogorskiy, and Tsiglomenskiy districts have experienced the largest population decrease among the districts of Arkhangelsk over the last 30 years (by 37–43%), which is why there are fewer potential buyers than in other areas. There are no major highways with heavy traffic running through the Tsiglomenskiy district, which could ensure its transit position and attract additional potential buyers. The Maimaksanskiy district is located at the end of a highway and is also not a transit district. In addition, part of the district is located on islands that are not connected to the city by land highways, which is why retailers are not interested in them. The island territories of Brevennik and Linskiy Priluk deserve special mention. As of 1988, there were 12 grocery shops, 2 city fruit and vegetable shops, 6 manufactured goods shops, and 2 bookstores in the workers’ settlements of these islands. The state stores created during the Soviet period have closed. In 2022, there were no federal or local chain stores there. Currently, trade on the islands is represented by independent rural-type stores with “via the counter” trade, with higher prices than in the center and a poor assortment of goods. They are concentrated near the main roads leading from the passenger ship berths to residential areas. The situation is the same on

other urban islands — Kegostrov (Oktyabrskiy district) and Khabarka (Solombalskiy district). Many independent retail outlets are located in small pavilions, which was typical for the beginning of the post-transformation stage of trade development.

We conducted a content analysis of customer reviews of independent and chain food shops posted on the Internet. First of all, we identified negative reviews. There were fewer of them about independent stores located on islands without bridges (from 0 to 20% depending on shop). Many local residents have no other options for making purchases. In other areas, there are more negative reviews about such stores (33–45%). We analyzed the main customer complaints about private independent shops. There are complaints about higher prices compared to the city center and discount stores of federal chains (15–35% of reviews), small assortment of goods (30–38% of reviews), expired or spoiled goods due to violation of the temperature regime during transportation and storage (30–35% of reviews). Many independent retail outlets in the “land” part of the city are open 24 hours a day, in reviews they are usually referred to as places of illegal sale of alcohol at night (15–55% of reviews about different outlets). The main advantage of such stores, according to buyers, is their proximity to home. This indicates the demand of city residents for the “near home” store format, which corresponds to the modern trend of store placement. In general, independent retail outlets have fewer reviews than chain shops, and their average score is lower (3 points compared to 3.9 points for federal and local chain shops and 4.7 points for hypermarkets). The least number of such retail outlets are in new building areas in the Mayskaya Gorka district.

Negative reviews about federal and local chain stores range from 9% to 25% of the total, depending on the store, and usually include poor quality of goods, lack of staff, irrelevant price tags, and disorder in the sales area.

### **Conclusion**

Thus, the main transformational processes that took place in the organization of post-Soviet trade led to a significant increase in the number of retail outlets in Arkhangelsk (3 times in 2022 compared to 1988). However, there are disproportions in their location. We have identified 3 groups of administrative districts, differing in the change in the number of food retail outlets. The largest increase in the number of stores is observed in the central districts of the city (4–5 times), which can be explained by their greater competitive advantage, despite the fact that the population in these areas has decreased as well as in the whole city (Oktyabrskiy and Lomonosovskiy districts). A significant increase in the number of shops is also noted in the Mayskaya Gorka and Varavino-Faktoria districts (4–5 times), which are places of mass housing development. The smallest increase in the number of stores is in the outlying districts of the city, which were settlements near large industrial enterprises, after the closure of which the population decreased significantly (Maimaksanskiy, Tsiglomenskiy, Isakogorsky districts). Due to the reduction in the purchasing power of the population and its number in these territories, entrepreneurs do not open modern

stores there. The post-transformation period of trade development did not affect the island territories (Kegostrov, Khabarka, Brevennik, Linskiy Priluk), where not a single chain grocery store was opened, their trade development remained at the level of the transformation period and the creation of grocery pavilions and kiosks. The trade niche there was occupied by individual entrepreneurs, small pavilions with a limited assortment and high prices replaced the Soviet stores. The intermediate position between these groups of districts is occupied by the Solombalskiy and Severny districts, where the number of grocery stores increased by 2–3 times (Fig. 1).

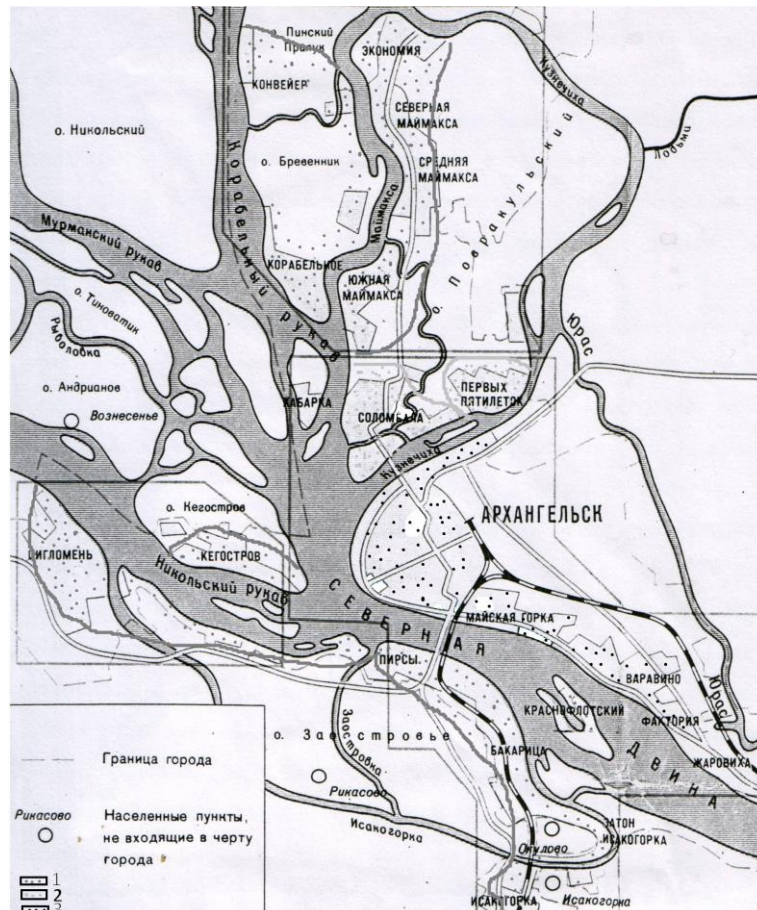


Fig. 1. Increase in the number of grocery stores in Arkhangelsk in 2022 compared to 1988<sup>6</sup>. The numbers in the figure indicate areas with an increase in the number of stores: (1) — by less than 2 times; (2) — by 2–3 times; (3) — by 4–5 times.

With the closure of factories in the city's outlying districts, the quality of the urban environment has deteriorated dramatically. As a result of the reduction in the number of potential buyers, as well as due to the location, which excludes the possible transit of buyers along roads with heavy traffic, such areas are also of little interest to large chain retailers. Retail outlets of modern format were opened there less actively. The smallest number of shops of federal and local retail chains operates here. In the Maymaksanskiy and Tsiglomenskiy districts, the number of independent non-chain stores prevails over the chain stores. Content analysis of customer feedback showed that independent shops have the largest number of negative reviews and the lowest average rating across the city. Although there are fewer negative reviews regarding shops on the is-

<sup>6</sup> Arkhangelsk. Scheme of passenger transport. Moscow, GUGK, 1987.

lands, this is due to the lack of alternatives for local buyers. The range of goods there is poor and prices are high.

The territories of the outlying districts of Arkhangelsk, especially the island ones, which in the Soviet period were characterized by unfinished urbanization and low density of construction, are “deurbanized” after the deprivation of the main functions of “factory settlements” (in the northern part of the city — Maimaksanskiy district, in the left-bank part of the city — Isakogorskiy and Tsiglomenskiy districts, but especially the islands of Brevennik, Linskiy Priluk, Kegostrov and Khabarka). The institutions of urban lifestyle are degrading there; in fact, they have turned into rural territories.

The most attractive for the location of shops of different formats in Arkhangelsk are the central districts and the adjacent “bedroom suburb”, where new housing is being built (Oktyabrskiy, Lomonosovskiy, Mayskaya Gorka, Solombalskiy districts). All trade formats from “convenience stores” and “hard discounters” to hypermarkets are represented there. There are no hypermarkets in the outskirts (Maimaksanskiy, Severny, Tsiglomenskiy, Isakogorskiy districts).

Thus, the main feature of the spatial organization of food (grocery) trade in Arkhangelsk is the concentration of shops in the city center and the reduction of their number in the suburbs. The most common trade format in Arkhangelsk is “discounter”, which is due to the large number of population with low incomes that do not allow them to make purchases in supermarkets of a higher price category. The few hypermarkets also tend to be located in the center, as there are more customers, although in large cities they are usually located on the outskirts. The same pattern of trade location is observed in other Russian cities with a population of up to 500 thousand people. The principle of “equidistance” of shops from residential buildings is most often observed in compact residential areas (Severny, Solombalskiy, Lomonosovskiy districts). In the post-Soviet period, the main factor of retail outlets location has changed, the location on the main routes of potential customers’ movement became decisive instead of the “equidistance” principle. In Arkhangelsk, as in other cities, shops are more often opened near the most important highways, and less often — inside residential areas. There is a growing interest in the “convenience store” format.

Improvement of the urban environment in Arkhangelsk requires increasing the number of geographically accessible shops in the areas of new development (the Mayskaya Gorka and Varavino-Faktoria districts) and providing modern quality of trade services to the residents of the islands. As a marketing idea, we can propose the creation of a shopping center with stores of different price categories and service enterprises on the Levy Bereg, at the intersection of highways connecting the cities of the Arkhangelsk agglomeration, on the route of potential buyers. This center can compensate for the lack of stores with a wide range of goods in the settlements of the left-bank part of Arkhangelsk and suburban villages, making the local environment more comfortable, smooth out territorial disproportions, become a growth pole of infrastructural development of the peripheral territory. According to the General Plan of the Municipal Formation “City of Arkhangelsk” for the estimated period up to 2040, residential development is planned in this area, as

there are vacant lands and good transport accessibility<sup>7</sup>. The advanced creation of infrastructure will make the territory more attractive for the city residents.

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<sup>7</sup> General plan of the municipal formation "City of Arkhangelsk" for the estimated period up to 2040. URL: <https://www.arhcit.ru/?page=1374/1> (accessed 21 August 23).