MUNICIPALITIES OF THE RUSSIAN BALTIC SEA REGION

THE MODERN ECONOMY OF RUSSIA'S BALTIC REGIONS IN THE MUNICIPAL CONTEXT

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This article analyses the differentiation of municipalities at the municipal and urban district levels in the Kaliningrad and Leningrad regions based on their economic development and the response of their economies to the crises of 2020 and 2022. Emphasis is placed on the possibilities of conducting such assessments by merging Rosstat statistics with publicly available accounting and tax reporting data from the Federal Tax Service. The contribution also assesses the role of small businesses in municipal economies and their effect on employment, income levels of the population, and business activities. It is shown that over the ten years from 2012 to 2021, municipalities in the Kaliningrad region became more homogeneous in terms of the level of taxable income for individuals and individual entrepreneurs. In contrast, in the Leningrad Region, the level of differentiation remained unchanged, albeit with diverse income trends across municipalities.
The study highlights municipalities' specialization as a factor influencing changes in local companies' revenue, particularly in 2022. The research illustrates that small businesses have a significantly smaller impact on the official income of the population compared to their role in employment. Furthermore, there are no discernible patterns in how municipalities differentiate based on the contribution of small businesses, as this can vary depending on the local economic development level and the ratio of urban to rural population. In particular, the decline of small businesses is noticeable in regions with high incomes and abundant employment opportunities at large organizations. This trend is also observed in economically challenged peripheral areas characterized by low demand for the products and services provided by small businesses.

Keywords:
municipalities, Kaliningrad region, Leningrad region, Rosstat statistics, accounting, tax reporting, state policy

Problem Statement

Traditionally, in Russia, the differences in the level and dynamics of the economic development of territories are considered for regions (constituent entities of the Russian Federation) and macroregions (usually federal districts). The stud-

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ies of the differences among smaller territorial units are much less common, and they focus mainly on demographic issues or the development of certain types of territories: agglomerations, single-industry towns, and rural areas.

The reasons are understandable: it is not only the laboriousness of working with municipalities but also,[1] to an even greater extent, the significant gap in regional and municipal statistical data that researchers are well aware of. However, the gap is gradually narrowing, especially by supplementing Rosstat statistics with information from other sources (including other public authorities). Moreover, municipal issues are growing in importance, including within the federal spatial development policy [1].

This article has two interrelated objectives. The first one is to emphasize the differences in the economic development among the municipalities in the Russian Baltic region (in the economic development level and the response of their economies to recent crises) to create a more accurate picture of the situation in this macroregion. The second one is to demonstrate the possibilities for conducting such assessments using the broadest possible range of open statistical data. We use publicly available data to suggest 'repeatable' methodological approaches that any researcher can apply to study any subject of the Russian Federation.

The objects of the analysis are the Kaliningrad and Leningrad regions (Russian Baltic regions), or rather their municipal areas (MAs), municipal districts (MDs), and urban districts (UDs). We do not consider St. Petersburg due to the specific nature of municipalities in the city of federal significance and the unity of the urban economy explaining the particular model of local self-government in the cities of federal significance. The period under consideration is 2018—2022 due to the availability of statistical data and the research logic. Although it is fairly short, this period still allows for assessing the differences among municipalities in their economic response to the COVID-19 pandemic and the dramatic changes in the geopolitical and geoeconomic situation in 2022.

The analyzed municipalities exhibit internal heterogeneity, particularly those encompassing both urban and rural areas or varying settlement sizes. It is essential to acknowledge that economic statistics are specifically reported for municipalities, primarily focusing on municipal areas/districts and urban districts. However, in the Kaliningrad region, there has been no settlement-level local self-government in recent years, and statistical data on settlements have not been available since 2018. Consequently, municipal statistics represent the sole official data upon which micro-level research can rely. Despite this, it is crucial to consider differences in municipality sizes and settlement systems when interpreting the results obtained, following a practice observed in economically developed countries that utilize territorial typologies for spatial development monitoring [2].

[1] In Russia, there are more than 2.3 thousand urban districts and municipal areas/districts (2,329 as of January 1, 2023, hereinafter, according to Rosstat statistics, unless otherwise indicated), not to mention settlements at the lower level of local self-government.

Literature Review

The theoretical basis of this article is quite broad. It includes the entire layer of scientific knowledge on the laws of spatial development, primarily centre-periphery relations, gradients along the city-countryside line, agglomeration processes, coastalisation (especially significant for the regions under consideration), and a set of factors of socio-economic development of territories. That also includes investigations into regional shock resistance, i.e., territories' resistance to various shocks ([3] provides a literature review on this topic), given the crisis nature of recent years.

The studies closest to the research topic are those directly related to the development of the Kaliningrad and Leningrad regions (recent large-scale research includes [4; 5]) and especially to the analysis of the socio-economic development of their municipalities. There is a plethora of such works, especially on the Kaliningrad region. As for the Leningrad region, the situation is more complex since a more 'acute' topic of the development of the St. Petersburg agglomeration (which includes only part of the Leningrad region) overshadows the analysis of the spatial structure of the entire region's economy and the differences across its municipalities. This covers the assessment of the scale of commuting within the agglomeration [6], the differentiation of St. Petersburg's outskirts [7; 8], the agglomeration's internal structure [9; 10], and cooperation between the two regions [11]. The most large-scale research is a monograph on St. Petersburg agglomeration [12]. According to it, in addition to St. Petersburg and its satellite towns and suburbs, the agglomeration includes the Sosnovy Bor UD, the Vsevolozhsky, Gatchina and Tosno MAs (the latter three have some exceptions), the Lomonosovsky and Kirovsky MAs (both without two settlements), three settlements of the Vyborg MA and one settlement of the Priozersky MA. The authors estimate the population of the St. Petersburg agglomeration at 6.5 million people, out of which 5.6 million people live in St. Petersburg. Since the total population of the Leningrad Region is more than 1.9 million people, it is easy to calculate that the agglomeration includes less than half of the residents of the Leningrad Region and, at least partially, only seven of the 17 municipal areas.

The Kaliningrad and Leningrad regions have different approaches to the territorial foundations of local self-government (LSG). The Kaliningrad region, from the very beginning of the formation of the current LSG system,[1] tried to minimize the role of the settlement level, creating only three municipal areas and 19 urban districts. Although, in 2009, there were 15 and seven, respectively, by 2017, they had returned to the original scenario, and by 2019, the three remaining areas had transformed into urban districts. By 2022, under the new federal regulations (2019 amendments to the law on LSG), only ten municipalities retained the status

[1] In accordance with the Federal Law of 06.10.2003 № 131-FZ 'On the General Principles of the Organization of Local Self-Government in the Russian Federation'.

of urban districts, while 12 became municipal districts.[1] As a result, research on the Kaliningrad region is limited by official statistics being available only for the 'upper' level of municipalities, especially in recent years, and there is a plethora of such studies. In the Leningrad region, there is only one urban district and 17 municipal areas in the Leningrad region. Therefore, there are statistics on the settlements available, which allows researchers to conduct larger-scale studies (there are papers on settlements in the Leningrad region [13; 14]), although some difficulties still arise (see below).

The choice of the object of research on municipalities is significantly influenced by the availability of statistical data, which is determined by the relative simplicity of data collection and the importance of developing specific sectors of the economy. Currently, the most detailed data is found in demographic statistics, with the population being the only indicator available for cities and towns, irrespective of their municipal structure. Numerous studies concentrate on the settlement systems of the two regions and the geodemographic characteristics of their municipalities [7; 15—20]. With the heightened state interest in ensuring food security, there are relatively detailed statistics available for the agriculture sector. This is the only segment of the municipal economy for which Rosstat publishes data for all enterprises, not just the large and medium ones. These statistics encompass production indices and non-monetary indicators such as acreage, yield, and livestock. Notably, there is fundamental research on agriculture and rural areas in the Kaliningrad region [21], and studies on the spatial development of agriculture in the Leningrad region [5; 22].

Another sector of the economy that has gained increased attention is tourism. A study [23] delves into the development of tourism in municipalities.

The location of regions on the coast of the Baltic Sea brings about research assessing the role of their geographic position in the socio-economic development of their municipalities, including the possibilities for cross-border relations [13; 24—27] and the shipbuilding specialization characteristic of coastal territories [28].

In the Kaliningrad region, the differences between coastal and inland, central and peripheral municipalities are very pronounced: a study [29] presents the typology of municipalities distinguishing between nearer and outer suburbs and periphery; another paper [30] shows the differences between the territories in living standards. Therefore, a separate issue for the Kaliningrad region is the development of its southeastern municipalities [31; 32]. In the Leningrad region, the location of industries is more complex (less related to its coastal position), while the issue of single-industry towns is more pronounced [33].

[1] At the same time, there was no drastic revision of the municipalities' boundaries, only their statuses. Thus, we can study the same time series of data for the Kaliningrad and Leningrad regions. We use the current names of the municipalities of the Kaliningrad region. In the Leningrad region, there have been no revisions of the territorial foundations of local self-government at the municipal level.

Among the works on the Kaliningrad region, studies concerning digitalization have significance in the current context (due to the COVID-19 pandemic). They focus on the differences across municipalities, their causes and consequences [34; 35].

The novelty of this research lies in the comprehensive analysis of a broader range of economic indicators than ever before, with a strong emphasis on the changes in the economies of municipalities in the context of the two most recent crises. While there are papers assessing the impact of both the COVID-19 pandemic and the events of 2022 on individual territories at a regional level [36; 37], this article adds value by providing a more in-depth understanding of the overall situation in the regions of North-West Russia.

An important aspect highlighted in this research is the higher dependence of these regions on international trade relations [38], particularly with European states that are currently referred to as unfriendly to Russia. Consequently, the situation in the North-West in 2022 was notably challenging.

Materials and Methods

The analysis of economic development at the municipal level warrants special attention, primarily due to the absence of data on the gross municipal product (GMP) in official statistics. Unlike the subjects within the Russian Federation, which can be assessed by a gross regional product (GRP) as a metric, researchers face the absence of a universally applicable unit of measurement for gauging the scale of a municipal economy. Various attempts have been made to develop methodological approaches for calculating GMP, with papers [1; 39] presenting examples. Notably, the study [39] proposes a new methodology for calculating gross value added.

It is essential to acknowledge that all existing approaches to calculating GMP are based on certain assumptions, which are not always accurate. More precise estimates, as demonstrated in [39], rely on large-scale primary information collection from enterprises and organizations. However, these estimates are often neither verifiable nor repeatable. Consequently, I will consider the aggregate of existing statistical indicators, recognizing that the gross product indicator alone does not provide a comprehensive description of an economy.

This study analyses the structure of municipal economy, its recent transformations, and the evolving contributions of municipalities to regional indicators. This approach facilitates a comparative assessment of economic dynamics across various territories. Notably, one of the key indicators employed for evaluating economic development is per capita. However, the widespread use of such indicators is constrained by varying reasons. In the Kaliningrad region, one impediment lies in the revision of population data at the municipal level based on the 2021 census. For instance, population growth was underestimated in the Guryevsk MD, a suburb of Kaliningrad, where, according to the statistics,

as of January 1, 2022, the number of residents was 146.6 % compared to that of January 1, 2021. In the Baltiysk UD, the situation was the opposite and the same indicator was 77.4 %. These are the most striking but not the only examples. In the Leningrad region, the current population registration data do not noticeably differ from census results. However, the municipal development in per capita indicators (especially in personal income tax accounted for by the place of work not residence) strongly depends on the scale of commuting to St. Petersburg, and here the differences are profound [6]. There are no accurate data on the number of commuters. As of the mid-2010s, estimates ranged from 21—47 % of the labour force in the region [6], in 2020, they were 18.3 % of the working-age population.[1]

In Rosstat statistics, the basis for analyzing the situation in municipalities is the Indicators of Municipalities (IM) database. It contains statistics on industrial shipping, retail turnover, employment and payroll by OKVED (Russian National Classifier of Types of Economic Activity) categories. The major limitation here is the lack of data on small businesses. Since the role of small businesses varies across industries and municipalities, it is impossible to gain a complete and objective understanding of the scale and structure of the economy of a territory. Apparently, realizing this problem, Rosstat has supplemented the IM database with a new Accounting Statements section. It presents data on the number of economic entities and net revenues from sales of goods, products, works, and services (excluding value added tax, excise taxes and other similar obligatory payments). The data on the total number of legal entities (that is, both large and medium-sized companies and small ones) are available for 2019—2021, while the data on the revenues are available only for 2021. However, private information agencies have been collecting data on companies' revenues from accounting statements for several years. For instance, at the time of preparation of this article, the SPARK-Interfax system had publicly available data on industries and municipalities for 2018—2022. There are examples of using data on companies' revenues in economic and economic-geographical studies (for instance, [12]).

As mentioned above, the data on companies' revenues include statistics on legal entities regardless of their size (which gives them a considerable advantage over the IM data). However, they do not have any information on sole proprietors (SPs) and do not reflect the activities conducted at the expense of state funds. The inclusion of data on revenue in the analysis gives a fuller (compared to the IM database), although not complete (due to the lack of accounting for SPs) picture of the commercial sector of municipalities, but does not allow finding the ratio between the public and private sectors. Strictly speaking, this is an unsolvable

Back and forth: Leningrad region becomes national leader in commuting, 24.09.2020, Delovoi Peterburg, URL: https://www.dp.ru/a/2020/09/23/tuda_sjuda_obratno (accessed 18.07.2023).

problem for municipalities. Even for regions, it can be estimated only approximately (part of the OKVED sections, such as health care, education, etc., is traditionally considered predominantly public, the other part — private, although this division is very rough). In addition, Accounting Statements data do not reflect the employment information.

In the analysis of territorial discrepancies, inaccuracies in revenue data emerge due to the apparent practice of accounting for branches of legal entities based on the place of the company's registration. An illustrative example among the regions under analysis is the Sosnovy Bor Urban District (UD) in the Leningrad Region. The major enterprise of the municipality is the Leningrad NPP, but since it is a branch of Rosenergoatom Concern JSC,[1] its activities are not reflected in the municipality's revenues.

Research on municipal issues tends to underutilize data from the Federal Tax Service (FTS), despite some papers incorporating them [8; 12; 40]. Specifically, I refer to reports on the tax base and the composition of tax accruals generated by Russian regions, as these reports also furnish data at the municipal level. The following indicators can be used to assess the economy of a municipality:

— the number of individuals receiving income and the total personal income (with SPs' data presented separately) broken down by income types or codes (in the reports on personal income tax (PIT));

— the number of taxpayers under the Simplified Tax System (STS) and the income received by these taxpayers divided into companies and SPs. The STS reports, unlike the register of sole proprietors, indicate how many SPs filed a non-zero tax return, allowing for the assessment of the number of active SPs;

— the number and total income of payers of the unified agricultural tax (UAT) divided into companies and sole proprietors;

— the number of sole proprietors under the patent taxation system (PTS) and the amount of annual potential income of SPs.

Thus, in the end, albeit with some errors,[2] the following information can be collected:

— the exact number of employees in a municipality by summing up the number of individuals who received income under code 2000 (remuneration received by taxpayers in return for employment, and payments to servicemen and equivalent categories of individuals), as well as all sole proprietors (paying PIT or using special tax regimes, such as STS, UAT or PTS). By comparing the obtained results with Rosstat data on employment in large and medium-sized enterprises, it is possible to assess the role of small businesses in the economy of municipalities;

[1] According to: Investment portal of the Leningrad region, URL: https://lenoblinvest.ru (accessed 19.07.2023).

[2] These errors occur because the same individuals can work simultaneously in different municipalities, thus, they are taken into account more than once. This does not distort the ratio of jobs by municipality.

— the income of sole proprietors not included in the revenue of companies (these are actual revenues under STS and UAT and potential ones under PTS, and this is another calculation error);

— personal income (including that of SPs) subject to PIT, with separate data on employment income and income from dividends, securities transactions, etc. In this study, the total gross payroll in the Kaliningrad region is the sum of earnings under the codes specified in form № 5-NDFL; the total gross payroll in the Leningrad region is income accrued under the employment or civil law contracts from form № 7-NDFL (due to the availability of data from the Federal Tax Service, no unified approach could be applied here). This amount does not include the income remaining at the personal disposal of SPs using special tax regimes.

Unfortunately, tax reporting data do not allow us to assess the sectoral structure of the economy of municipalities since reports on tax revenues by types of economic activity are published only for the subjects of the Russian Federation (regions). The problem of working with tax reports is that there is no consolidated form, data for different municipalities and different taxes are presented in separate files. In the case of the Leningrad region, the complexity of the work lies in the fact that information is not always summarized for municipal areas (data on individual settlements have to be summed up). Thus, the below analysis is more comprehensive for the Kaliningrad region.

It should be noted that Rosstat has begun to publish data on taxable personal income for municipalities (still only for the 'upper' level) (and in a convenient consolidated form). They have been available since the very beginning of the 2010s. The indicator uses the same tax as the one for calculating the personal income tax and income of SPs but expanded, for example, it includes interest on deposits and money transfers. To date, this is perhaps the most accurate description of the municipalities' economic development (for instance, the indicators of the Sosnovy Bor UD reflect the payroll of the Leningrad NPP). However, this indicator is not operational and is published with approximately the same lag as the GRP for the RF regions (for example, 2021 data were published only at the very end of March 2023). This is quite understandable since the final PIT data appear only after all tax refunds have been paid, which happens after the end of the tax year.

Thus, to analyze the level and long-term trends in municipal development, one can use Rosstat data on taxable personal income (the major income indicator), operational data available on employment, revenue, personal income and income of sole proprietors. At the same time, data on revenue and salaries have their peculiarities. The payroll data seem to show positive shifts in the economy (primarily in the commercial sector) since its significant increase is hardly possible without an actual increase in the production of goods and services. But this indicator reflects crisis phenomena less adequately, as it is common knowledge

that in all recent crises, management has tried to keep both employees and their salaries (because of the difficulties of finding qualified personnel later and some support from the authorities to maintain employment). The change in the number of employees in the municipalities, especially compared to the changes in gross payroll, clearly shows the flow of personnel between them. The companies' revenues seem to reflect the economic situation in the municipalities better, however, it is determined not only by actual changes in the scale of production of goods and services but also by market fluctuations. Therefore, it is better to use a set of available indicators.

Results and discussion

For a basic assessment of the municipalities by the level of their economic development, we use Rosstat data on taxable personal income and income of sole proprietors (Tables 1 and 2, with the data on the population added to characterize the territories). The regions differ markedly, one of the reasons is that the economic centre of the Leningrad region, St. Petersburg, is a separate subject of the Russian Federation. In addition, St. Petersburg includes the administrative centre of the Lomonosov district.

Table 1

Population and taxable personal income and the income of sole proprietors in the Kaliningrad region

Municipality	Population			Taxable income					
	Thousand people	Share, %	Urban, %	Share of the regional, %				% of the average	
	As of 01.01.2023			2012	2019	2020	2021	2012	2021
Kaliningrad	489.7	47.44	100.0	78.67	68.49	69.68	68.97	171.0	142,4
Bagrationovsk MD	32.9	3.19	19.4	0.93	1.24	1.25	1.26	26.1	39.2
Baltiysk UD	29.1	2.82	97.9	2.58	2.05	1.91	1.99	67.9	54.3
Gvardeysk MD	29.3	2.83	47.7	1.09	1.37	1.24	1.34	34.7	47.3
Guryevsk MD	107.4	10.4	25.8	2.96	6.73	6.7	6.37	51.6	89.6
Gusev UD	37.5	3.64	76.8	1.39	1.59	1.54	1.60	35.3	44.4
Zelenogradsk MD	39.2	3.80	43.7	1.38	2.50	2.59	2.51	40.4	63.7
Krasnoznamensk MD	11.0	1.07	30.6	0.25	0.29	0.28	0.31	18.9	28.1
Ladushkin UD	3.7	0.36	97.7	0.18	0.10	0.11	0.11	44.2	29.0
Mamonovo UD	8.5	0.82	97.5	0.26	0.30	0.26	0.32	30.0	39.1
Neman MD	15.4	1.50	59.7	0.69	0.63	0.64	0.71	32.9	39.9
Nesterov MD	11.8	1.14	28.3	0.48	0.48	0.46	0.50	28.4	34.6
Ozersk MD	12.7	1.23	34.1	0.26	0.42	0.39	0.43	16.2	34.1

The end of Table 1

Municipality	Population			Taxable income					
	Thousand people	Share, %	Urban, %	Share of the regional, %				% of the average	
	As of 01.01.2023			2012	2019	2020	2021	2012	2021
Pionersky UD	12.9	1.25	100.0	0.49	0.81	0.78	0.81	40.0	65.4
Polessk MD	17.1	1.66	40.6	0.45	0.97	0.78	0.92	22.3	52.0
Pravdinsk MD	18.2	1.76	21.6	0.45	0.69	0.70	0.74	22.3	41.2
Svetly UD	27.6	2.67	76.3	1.94	3.05	2.92	2.85	65.4	102.4
Svetlogorsk UD	20.7	2.01	80.8	1.05	2.20	1.82	2.18	66.0	105.6
Slavsk MD	15.8	1.53	25.5	0.45	0.55	0.54	0.59	20.7	32.4
Sovetsk UD	38.6	3.74	100.0	1.89	2.21	2.12	2.19	43.0	58.1
Chernyakhovsk MD	45.9	4.44	77.8	1.92	2.91	2.90	2.89	36.30	64.20
Yantarny UD	7.2	0.70	90.8	0.22	0.44	0.40	0.40	32.9	62.5
Total	1032.3	100.0	76.6	100.0	100.0	100.0	100.0	100.0	100.0

Source: Rosstat municipal database and the author's calculations.

In the Kaliningrad region, its administrative centre, Kaliningrad, is predictably the economic leader in the share in the total and per capita incomes. At the same time, the long-term (since 2012) trend in the indicator under consideration is the reduction of intermunicipal differences. Over the past years, the Guryevsk MD has assumed growing importance in the region's economy. This area in the suburbs of Kaliningrad has been the leader in housing development since 2010, with over 50 % of the total regional volume in 2015—2016. From the beginning of 2012 to the end of 2022, the population of the Guryevsk MD almost doubled, while the total region's population grew by 9 %.[1] The Svetlogorsk and Svetly UDs show incomes higher than the regional average. The former is a popular Baltic resort, while the latter is a home for the region's largest (by revenue) company — the Sodruzhestvo agro-industrial complex. Over the past decade, only two municipalities, namely Baltiysk and Ladushkin (the latter being the smallest in terms of population), have lagged behind the regional average. In 2020, the year marked by the COVID-19 pandemic, there was a shift in the municipalities' contribution to the regional indicators. However, the scale of the changes roughly corresponds to the annual fluctuations, so they cannot be explained only by the pandemic crisis. At the same time, 2020 saw a fall in absolute taxable income only in the Svetlogorsk UD (due to understandable problems with the influx of holiday-makers) and the agricultural Polessk MD — by 2 and 4 %, respectively.

[1] The paper [41] gives special attention to the provision of housing in the municipalities of the Kaliningrad region.

Table 2

Population and taxable personal income and income of sole proprietors in the Leningrad region

Municipality	Population			Taxable income					
	Thousand people	Share, %	Urban, %	Share of the regional, %				% of the average	
	As of 01.01.2023			2012	2019	2020	2021	2012	2021
Boksitogorsk MA	51.0	2.52	77.0	2.44	2.40	2.33	2.08	77.7	80.1
Volosovo MA	50.2	2.48	23.2	1.80	1.47	1.45	2.98	60.0	106.1
Volkhov MA	79.4	3.92	72.5	4.60	3.82	3.56	3.50	81.2	74.3
Vsevolozhsk MA	554.3	27.39	71.0	18.77	24.71	27.54	27.42	116.2	102.7
Vyborg MA	195.4	9.65	64.6	14.47	11.90	12.08	10.30	118.0	97.0
Gatchina MA	261.9	12.94	59.2	11.03	11.19	11.21	12.30	77.1	97.5
Kingisepp MA	83.8	4.14	70.0	6.68	8.69	7.79	8.29	141.3	208.2
Kirishi MA	59.9	2.96	88.3	7.16	4.83	4.50	3.99	185.4	121.2
Kirovsk MA	108.5	5.36	89.4	5.78	5.35	4.94	5.48	93.5	95.4
Lodeynoye Pole MA	27.5	1.36	71.1	1.48	1.04	1.02	1.00	82.1	66.8
Lomonosov MA	85.3	4.22	23.1	5.10	5.75	5.83	6.05	121.8	138.7
Luga MA	75.3	3.72	53.6	3.44	2.65	2.53	2.45	74.4	65.7
Podporozhye MA	25.5	1.26	89.5	1.77	1.03	1.01	1.05	94.7	72.1
Priozersk MA	57.0	2.82	39.3	3.12	2.47	2.36	2.27	83.2	69.8
Slantsy MA	45.2	2.23	75.5	1.67	1.37	1.35	1.39	64.20	60.9
Tikhvin MA	66.3	3.27	81.9	4.41	4.91	4.27	3.57	104.1	96.3
Tosno MA	133.1	6.58	65.9	6.27	6.44	6.23	5.87	82.3	88.2
Sosnovy Bor UD	64.1	3.17	100.0	7.78	7.22	6.92	6.00	194.5	165.7
Total	2,023.8	100.0	67.2	100.0	100.0	100.0	100.0	100.0	100.0

Source: Rosstat municipal database and the author's calculations.

In the Leningrad region, the scale of municipal differences in per capita income did not change dramatically in 2012—2021 (Table 2), while the positions of individual municipalities changed. Only six of them improved their relative positions, while for 11, they worsened. In recent years, the Vsevolozhsk MA has been the regional leader in the scale of the economy. Its population more than doubled from the beginning of 2012 to the end of 2022. This St. Petersburg suburb has a metro station, and throughout the considered period, it ranked first in housing development with a maximum share in total regional volumes in 2017 (69 %). However, the per capita income is only slightly higher than the regional

average (due to commuting and the lack of highly profitable industries). The margin in the Sosnovy Bor UD's per capita income slightly narrowed. The Kingisepp MA, with its large industrial enterprises and Ust-Luga port, overtook this leader. In general, the positions of municipalities are determined by their industrial specialization[1] and can change every year due to changes in a particular industry. It is worth noting that the positions of the Vyborg MA, mostly oriented towards cross-border cooperation with Finland, had deteriorated since 2014 while the region's major agricultural district, the Volosovo MA, enjoyed a sharp increase in income. They grew only in 2021 by almost 2.4 times in absolute terms, most probably due to major industrial investment projects in the area. The impact of the coronavirus crisis on the municipalities of the Leningrad region is not observable. Absolute income grew almost everywhere. Only two municipalities saw a fall (in actual prices): the Vyborg MA in 2021 (by 2 %) and the Tikhvin MA for two consecutive years (by 1.5 % in 2020 and by almost 4 % in 2021).

The companies' revenues, as mentioned above, were more 'sensitive' to economic changes. These data are available for 2022 (Table 3, 4). When comparing the two crises, the 2020 COVID-19 pandemic and the 'sanctions' crisis of 2022, it becomes evident that the Kaliningrad region experienced a decline in revenue only in 2022, whereas the Leningrad region faced a decline solely in 2020. The common feature is the fact, that throughout the years, the economic changes in municipalities were multidirectional and often unstable (this can partially be explained by the uneven distribution of revenue by year with relatively stable production).

Table 3

Revenue of companies of all industries by municipalities of the Kaliningrad region

Municipality	Share of the total regional revenue, %				Year-on-year growth, %			
	2019	2020	2021	2022	2019	2020	2021	2022
Kaliningrad	68.02	72.01	74.38	66.24	111.4	127.2	147.6	68.1
Bagrationovsk MD	0.88	0.90	0.65	0.84	121.1	123.2	102.5	99.4
Baltiysk UD	0.42	0.35	0.26	0.23	90.8	100.5	106.2	65.5
Gvardeysk MD	0.87	0.91	0.53	0.78	115.6	125.5	82.5	113.0
Guryevsk MD	9.86	5.96	4.65	6.46	162.6	72.6	111.6	106.2
Gusev UD	0.53	0.44	0.40	0.57	66.1	99.4	132.3	107.1
Zelenogradsk MD	1.66	1.34	1.12	1.37	109.2	97.0	119.8	93.7
Krasnoznamensk MD	0.08	0.05	0.05	0.05	109.3	76.7	129.0	76.1

[1] Single-industry towns and municipal districts of the Leningrad region, *Investment portal of the Leningrad region,* URL: https://lenoblinvest.ru/o-regione/monogoroda_i_rajony/ (accessed 19.07.2023).

The end of Table 3

Municipality	Share of the total regional revenue, %				Year-on-year growth, %			
	2019	2020	2021	2022	2019	2020	2021	2022
Ladushkin UD	0.07	0.06	0.04	0.06	99.3	99.2	87.4	135.2
Mamonovo UD	0.16	0.09	0.04	0.05	133.0	68.9	66.5	82.0
Neman MD	0.16	0.16	0.09	0.17	148.7	120.4	85.7	142.2
Nesterov MD	0.17	0.16	0.09	0.10	110.5	114.3	82.0	82.7
Ozersk MD	0.11	0.14	0.10	0.11	117.0	149.0	97.1	86.0
Pionersky UD	0.28	0.23	0.18	0.18	109.9	98.6	112.4	78.0
Polessk MD	0.29	0.29	0.28	0.49	89.3	120.0	138.1	134.9
Pravdinsk MD	0.56	0.58	0.62	1.23	83.3	123.5	152.8	152.0
Svetly UD	11.07	12.15	13.17	16.73	90.0	131.9	154.8	97.2
Svetlogorsk UD	0.44	0.36	0.33	0.51	106.3	97.8	131.2	119.8
Slavsk MD	0.29	0.25	0.24	0.32	133.4	103.1	141.1	99.7
Sovetsk UD	1.84	1.57	1.31	1.69	113.7	102.8	119.0	99.1
Chernyakhovsk MD	2.00	1.81	1.30	1.59	109.3	108.6	102.9	93.3
Yantarny UD	0.25	0.19	0.17	0.24	108.6	91.6	126.4	105.7
Total	100.0	100.0	100.0	100.0	111.3	120.1	142.9	76.5

Source: author's calculations based on SPARK-Interfax data.[1]

In the Kaliningrad region, Kaliningrad is a leader in revenues in all sectors of the economy (more than 50 %) except for agriculture. There are several reasons for that. The first one is the traditional concentration of the service sector in the region's administrative centre (both social public institutions and commercial companies). The second is the registration of companies operating both in the city and beyond. For instance, Kaliningrad accounts for about 75—80 % of the revenue from mining in different years (Lukoil's offshore oil production), more than 90 % of the revenue from fishing and fish farming, and all revenue from financial and insurance activities. The third reason is the presence of large industrial enterprises, for instance, the Avtotor car assembly enterprise, one of the biggest companies in the region, Kaliningrad TPP (Kaliningrad's share in energy revenue is 85—90 %). Specialization in the automotive industry was one of the contributors to a significant (by more than 50 %) drop in manufacturing revenue in 2022.

The structure of revenue varies significantly among municipalities, reflecting their specific characteristics, and is subject to fluctuations. The Ozersk MD takes the lead in the share of agriculture, exceeding 75 % in 2020—2021. Additionally, in certain years, the Nesterov, Polessk, Pravdinsk, and Slavsk MDs reported figures of over 50 %. Mining has a significant role in the revenue structure only in the Yantarny UD, where amber is mined. Manufacturing industries occupy the largest share (more than two-thirds of revenue) in the Bagrationovsk MD

[1] Statistics, *SPARK-Interfax,* URL: https://spark-interfax.ru/statistics (accessed 16.07.2023).

and the Sovetsk UD, the smallest in the Yantarny (about 2 % in the last three years), slightly higher in the Krasnoznamensk and Ozersk MDs (6.3—6.4 % in 2022). The largest share of transportation and storage in revenue was predictably in the Baltiysk UD (20—25 %), substantial in the Ladushkin UD and the Chernyakhovsk MD (in 2022 — 15—16 %). In the Baltiysk UD, the worst revenue dynamics was in 2022, it was associated with the decline both in this sector (by almost 50 %) and in the manufacturing industry (by almost 70 %), as the largest production enterprise of the municipality is a shipyard). Its share in the Baltiysk UD's revenue had already decreased from 45 % in 2018 to 39 % in 2021, but in 2022 the fall was dramatic — to 18 %.

A characteristic specific to the Kaliningrad region was a notable upsurge in the revenue share of finance and insurance in 2020 (reaching 16.0 %) and 2021 (rising to 25.5 %), followed by a decline in 2022 (falling to 14.2 %). This shift can likely be attributed to the increased role of the Special Administrative Region (SAR) established in 2018 on Oktyabrsky Island within the city of Kaliningrad. In Kaliningrad, the share of these activities in revenue in 2020 and 2022 was about 22 %, which fully compensated for the 4 % decline in the manufacturing industry in the Covid year and mitigated the production decline in the 'sanctions' year. Another similar example, although of local significance, is the gradual increase in the revenue share of culture and sports (from 16.3 % in 2018 to 34.5 % in 2022) in the Zelenogradsk MD, home of one of the four Russian gambling zones.

In the Kaliningrad region, the emergence of the Special Administrative Region (SAR) and the challenges encountered in 2022, more pronounced for the exclave than for any other Russian region, resulted in a progressive decline in the revenue share of manufacturing industries. This share dwindled from 40 % in 2018 to 26.5 % in 2022. Notably, last year, there was a noteworthy surge in the trade sector, registering a substantial increase of 10 percentage points and reaching 33.4 %. It is noteworthy that the figure for 2021 represented the minimum within the five-year period under consideration. In the Kaliningrad region, the shares of municipalities in the total revenue roughly correspond to their shares in the income (Table 1, 3). In the Leningrad region, the discrepancies are much more marked (Table 2, 4). This is most likely a consequence of the diversity in the territories' specialization: with highly profitable enterprises (mainly raw materials industries), the share of a municipality in revenue significantly exceeds its share in personal income, while with the dominance of low-yielding ones, the situation is the opposite. For instance, the Kingisepp MA (that has the highest per capita income and at the same time occupies the 4th place in the region in the share of income and the 2nd place in revenue) the largest companies in revenue are Novatek-Ust-Luga, Phosphorite, Ust-Luga Oil, Eurochem North-West; in the Lomonosov MA, the largest is the Philip Morris Izhora tobacco company.

Table 4

Revenue of companies of all industries by municipalities of the Leningrad region

Municipality	Share of the total regional revenue, %				Year-on-year growth, %			
	2019	2020	2021	2022	2019	2020	2021	2022
Boksitogorsk MA	1.43	1.45	1.11	0.36	101.7	94.0	91.9	36.2
Volosovo MA	0.61	0.78	0.72	0.71	115.8	118.5	111.9	109.4
Volkhov MA	1.18	1.33	1.10	0.75	85.4	104.0	99.5	76.2
Vsevolozhsk MA	23.30	25.18	24.10	24.26	96.4	99.9	114.8	112.0
Vyborg MA	7.39	7.48	7.66	7.87	104.2	93.7	122.7	114.4
Gatchina MA	11.74	11.58	12.20	14.32	119.9	91.2	126.4	130.6
Kingisepp MA	15.37	13.06	18.22	19.91	103.1	78.6	167.2	121.6
Kirishi MA	4.22	4.29	2.60	2.68	76.5	94.0	72.8	114.6
Kirovsk MA	5.22	5.66	5.18	4.89	100.3	100.4	109.7	105.0
Lodeynoye Pole MA	0.24	0.28	0.30	0.27	99.6	109.2	128.2	100.9
Lomonosov MA	12.54	14.27	14.01	12.46	102.8	105.3	117.7	99.0
Luga MA	1.07	1.26	0.82	0.87	98.5	109.7	78.0	117.3
Podporozhye MA	0.55	0.53	0.62	0.27	110.9	88.6	140.3	48.1
Priozersk MA	1.36	1.23	1.25	1.37	98.0	83.6	121.4	122.3
Slantsy MA	0.68	0.84	0.98	1.17	89.0	114.6	140.0	131.9
Tikhvin MA	4.68	3.96	3.52	2.25	112.2	78.2	106.5	71.1
Tosno MA	6.40	4.72	4.15	4.36	91.4	68.1	105.4	117.1
Sosnovy Bor UD	2.02	2.09	1.45	1.23	114.5	96.1	82.9	94.4
Total	100.0	100.0	100.0	100.0	100.9	92.5	119.9	111.3

Source: author's calculations based on SPARK-Interfax data.[1]

The Leningrad region is more industrial than the Kaliningrad region. The share of processing industries in the revenue was about 48—50 % in 2018—2021, with a slight decrease (to 47 %) in 2022. The leaders in this indicator are the Tikhvin MR (its largest enterprise is the Tikhvin Carriage Works), where the share of processing industries, even against the background of a noticeable decline, remained above 80 % in 2022 (and before reached 85.5 %) and the Boksitogorsk MR (here the well-known single-industry town of Pikalyovo is located), where the figure was even higher (88—89 %) in 2020—2021 but decreased to 63 % in 2022. In the Kingisepp MA, the share of processing industries in the revenue increased to 77—78 % in the last two years, while in the Lomonosov MA, it remained at the level of about 65 %.

The share of mining in the Leningrad region, as well as in the Kaliningrad region, is small. It is significant only in the Priozersk MA (increasing from 32 % in 2020—2021 to 41 % in 2022), with resources for the construction materials

[1] Statistics, *SPARK-Interfax,* URL: https://spark-interfax.ru/statistics (accessed 16.07.2023).

industry, and the Podporozhye MA (6 and 17 % in the same years). The share of processing industries in the Priozersk MA is minimal — less than 10 % in 2022 and 14—17 % in the previous four years.

In both regions, the most peripheral municipalities, with a low level of economic development, the Krasnoznamensk MD and the Podporozhye MA, were among those suffering the most substantial drop in revenue in both 2020 (the pandemic year) and 2022 (sanctions year).

To assess the role of small businesses in the economy of municipalities (Table 5, 6), as mentioned above, we combine Rosstat data on large and medium-sized enterprises and tax reporting. At the same time, we need to allow for the fact that the share of small businesses in the payroll will be somewhat underestimated due to the impossibility of taking into account the personal income of sole proprietors using special tax regimes. However, as the data provided shows, the share of such sole proprietors in total employment is small — an average of 6—7 %, with a maximum of less than 10 % in individual municipalities.

Table 5

The role of small business in the economy of the municipalities of the Kaliningrad region

Municipality	Share of small business in employment*, %		Share of small business in the total payroll*, %		Share of SP using special tax regimes in employment, %		The ratio of income of SP using special tax regimes to the companies' income and revenues, %	
	2021	2022	2021	2022	2021	2022	2021	2022
Kaliningrad	58.6	57.3	31.0	28.7	6.4	7.0	5.1	8.0
Bagrationovsk MD	61.1	59.6	31.5	29.2	5.1	4.9	11.8	11.7
Baltiysk UD	30.7	32.9	3.8	5.6	4.6	5.1	20.0	26.5
Gvardeysk MD	66.7	69.5	42.4	42.3	4.8	5.3	12.5	13.3
Guryevsk MD	70.0	72.8	39.4	41.5	8.2	7.7	12.6	12.7
Gusev UD	49.8	52.6	26.2	26.3	5.5	4.8	12.6	15.5
Zelenogradsk MD	66.8	65.5	35.9	33.5	7.6	8.2	15.7	18.8
Krasnoznamensk MD	68.3	64.7	39.3	21.7	6.9	6.6	20.4	28.6
Ladushkin UD	69.2	72.4	42.6	46.0	8.3	7.1	15.9	13.7
Mamonovo UD	64.9	64.1	39.6	41.7	8.0	8.5	22.7	36.4
Neman MD	59.7	60.5	27.9	25.9	6.5	6.4	23.3	23.9
Nesterov MD	60.2	59.6	30.0	29.7	4.5	4.4	23.5	28.5
Ozersk MD	51.2	52.9	20.3	21.8	4.1	3.7	15.9	17.0
Pionersky UD	51.7	53.6	17.3	18.9	6.9	7.2	20.1	31.0
Polessk MD	70.4	69.7	52.5	50.3	6.0	6.0	12.1	10.9
Pravdinsk MD	46.9	42.5	2.4	<0	5.9	5.5	6.4	4.9
Svetly UD	59.8	61.7	29.6	27.4	3.5	3.5	0.8	0.9

The end of Table 5

Municipality	Share of small business in employment*, %		Share of small business in the total payroll*, %		Share of SP using special tax regimes in employment, %		The ratio of income of SP using special tax regimes to the companies' income and revenues, %	
	2021	2022	2021	2022	2021	2022	2021	2022
Svetlogorsk UD	62.2	65.1	28.8	29.4	7.5	8.0	24.6	23.4
Slavsk MD	61.0	63.0	37.9	39.2	5.7	5.7	12.5	14.7
Sovetsk UD	53.3	55.0	24.8	24.4	6.0	5.6	7.2	7.4
Chernyakhovsk MD	63.5	64.3	43.7	41.0	5.8	5.6	6.7	8.9
Yantarny UD	51.4	55.5	14.4	21.3	3.5	7.2	11.3	14.6
Total	59.2	59.1	31.1	29.5	6.3	6.7	5.5	7.8

Note: * For our purposes, small business was defined as the difference between the data of the Federal Tax Service for all taxpayers and the data of Rosstat for large and medium-sized enterprises.

Source: the author's calculations based on the Rosstat municipal data and the Federal Tax Service data

Table 6

Role of small business in the economy of municipalities of the Leningrad Region, 2022

Municipality	Share of small business in employment*, %	Share of small business in the total payroll*, %	Share of SP using special tax regimes in employment, %	The ratio of income of SP using special tax regimes to the companies' income and revenues, %
Boksitogorsk MA	48.3	19.0	4.3	31.8
Volosovo MA	58.8	29.6	6.1	20.6
Volkhov MA	47.1	18.9	3.9	21.2
Vsevolozhsk MA	65.8	33.6	6.8	12.2
Vyborg MA	52.6	21.7	5.8	7.9
Gatchina MA	47.7	7.0	6.7	7.3
Kingisepp MA	60.2	21.6	3.6	1.6
Kirishi MA	41.2	15.9	4.2	5.8
Kirovsk MA	52.7	15.9	9.8	8.2
Lodeynoye Pole MA	53.4	29.1	5.7	22.8
Lomonosov MA	61.6	28.0	4.8	4.1

Municipality	Share of small business in employment*, %	Share of small business in the total payroll*, %	Share of SP using special tax regimes in employment, %	The ratio of income of SP using special tax regimes to the companies' income and revenues, %
Luga MA	58.5	45.4	6.0	20.1
Podporozhye MA	64.1	42.3	5.0	23.9
Priozersk MA	57.6	30.2	5.1	14.4
Slantsy MA	66.6	21.9	4.9	12.6
Tikhvin MA	43.2	15.3	4.4	8.9
Tosno MA	54.7	26.8	4.7	8.3
Sosnovy Bor UD	52.0	5.9	2.4	15.2
Total	56.1	22.8	5.6	8.1

Note: * For our purposes, small business was defined as the difference between the data of the Federal Tax Service for all taxpayers and the data of Rosstat for large and medium-sized enterprises.

Source: the author's calculations based on the Rosstat municipal data and the Federal Tax Service data.

The findings lead to several conclusions. First of all, Rosstat's municipal statistics for large and medium-sized enterprises show numbers less than half of the employed, which differs from the existing estimates of the role of small businesses in the Russian economy (although also ambiguous). In this case, the errors are related to Rosstats accounting since the number of employees based on the Federal Tax Service's data is close to the figures published for the regions under consideration as subjects of the Russian Federation. At the same time, Rosstat data reflect employment in the public sector. For instance, in the Baltiysk UD (the base of the Russian Navy fleet), the 'Public administration and military security; social security' in 2019—2022 accounted for 51—52 % of employees of large and medium-sized enterprises. In Kaliningrad, the same section accounts for about 16 % of the employed, education and health care for 12—13 % each. The higher share of small business employees (per the author's calculations) in the Kaliningrad region than in the Leningrad region can be explained by a higher share of the service sector. We can assume that the quality of Rosstat statistics on municipalities is essentially the same.

According to statistics, there is a significant imbalance between the role of small businesses in employment and payroll (data on employment and payroll are comparable since they include the same enterprises). In the Leningrad region, this imbalance is more pronounced, and it is not related to underestimating the income of SPs using special tax regimes. There are two possible explanations. The first is the large informal sector in small business. The second is markedly

lower incomes, which may indicate that small business in Russia is more of a way to survive when no other jobs are available than a progressive sector of the economy. Most probably, that is a combination of both.

It is not easy to identify conclusive patterns in the differentiation of municipalities by the role of small businesses in their economy (most likely due to differences in the character of small businesses). In municipalities with a higher level of economic development, the importance of small businesses can be either higher or lower. It is higher when a small business is developing, as there is demand for its products or services. It is lower when there are not many workers available due to the high share of employment in large organizations (or due to their specific activities far from being entrepreneurial, as is most likely in the case of the Baltiysk or Sosnovy Bor UDs). The situation is similar in the municipalities with a lower level of economic development. There, the importance of small businesses can be higher if it has a compensatory role, creating jobs in the absence of large prosperous enterprises. It can be lower when the low personal income does not allow for developing businesses designed to serve the local population.

The ratio of the dynamics of revenue and income of sole proprietors confirms this. There is data on the income of sole proprietors using 'simplified tax' available for the Kaliningrad region. Here, the income of such SPs grew faster than revenue in 2019—2022, the growth was also observed in 2022, meaning that small business acted as a stabilizer. However, the situation was different across municipalities. For instance, in Kaliningrad, there was also an increase in the income of SPs in 2022, while the Baltiysk UD showed the most significant decline among the municipalities (by more than 15 %).

The connection between small business development and the ratio of cities and rural areas is also ambiguous. On the one hand, Kaliningrad, as the regional 'capital', does not stand out from other municipalities in the importance of small business. On the other hand, it is higher in the largest suburban municipalities of both regions (the Guryevsk MD and the Vsevolozhsk MA). In the Kaliningrad region, a higher share of SPs in employment is still characteristic of urban districts, while in the Leningrad region — of suburban municipalities: not only the Vsevolozhsk, but even more so the Kirovsk and the Gatchina MAs.

Conclusions

The study shows that currently assessing a municipality's economic development is quite possible as accounting and tax reporting data provide a considerable amount of information supplementing Rosstat data. However, federal agencies do not consolidate tax reporting data, and researchers have to undertake a very time-consuming task of aggregating them. There are some positive developments. Rosstat started publishing accounting data, and the Federal Tax Service began to calculate integral data for municipal districts (at least in the Leningrad Region) although, as of now, they are very limited and do not include all the major indi-

cators. Thus, there is a need for further advances in this direction, including in the interests of the public authorities, since the aggregation and synthesis of data from various sources will at least increase their reliability.

Practically speaking, greater opportunities for analyzing the economic development of municipalities can provide the information basis for both the federal (the need for this was mentioned in [1]) and regional spatial policy. As the paper [42] shows, current socio-economic development strategies adopted in the constituent entities of the Russian Federation consider spatial problems mainly from the point of view of ensuring the development of the regions rather than their municipalities.

The conducted analysis confirms that the state economic policy should consider the individual features of municipalities since their development is uneven and the impact of a crisis is often local. In addition, the analysis of the municipalities provides a better understanding of economic development patterns, particularly, in small businesses.

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