Cadastral land valuation in the system of organizational and economic measures regulating land and property relations

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Abstract. The article deals with the practice of calculating the cadastral value of land plots based on the land surveying and property registration costs in the Russian Federation in 2018–2019. The empirical research base is 29 reports on the results of the state cadastral valuation provided by the State Cadastral Valuation Data Fund. The study revealed a lack of uniformity in calculating land surveying and property registration costs. It is necessary to make a federal decision on the minimum cost of land plots which can be used in regulating land and property relations.

1. Introduction
Regulation of land and property relations is carried out using tools that make up the organizational and economic mechanism. This mechanism consists of legal and economic institutions, economic structures, forms and methods. It regulates land-property relations in the process of reproduction [1].

The need to determine the tax base for real estate objects requires the cadastral valuation which is an element of the property-based tax system. This axiom is the basis for scientific works of foreign and Russian researchers [2–6]; It is enshrined in international standards for mass valuation of real estate objects for ad valorem taxation. To create a system for assessing real estate for taxation purposes, international and national projects were implemented [7].

In terms of the institutional economic theory, the cadastral valuation is studied by economic agents. Municipalities, legislative and executive authorities, public services, self-regulatory organizations of appraisers, courts, pre-trial dispute resolution commissions, taxpayers and their representatives are involved in the process.

“Modern methods are not perfect, and their application does not always ensure the correct and fair land valuation” [8]. The variability of the methodological, informational and staffing support for the assessment of the cadastral value under radical changes reinforces the problems of instability and continuity of cadastral valuation results. The influence of changes in methodology on the land valuation is the minimum cost of a land plot equal to one ruble [9] or land surveying and land registration costs [10].

“Researchers are developing new methods for determining land cost …” [11]. With the approval of the Methodological Instructions on the State Cadastral Assessment (SCA) [10], the method of determining the cadastral value of land plots based on the land surveying and registration costs has been applied.
This method is applied if the use of comparative and (or) profitable “approaches creates a cadastral value which is less than the cost of land surveying and land registration” [10], as well as for evaluating land of protected natural areas and landscaping facilities.

In fact, the compulsory nature of the method caused a lot of questions and difficulties for employees of state budget institutions vested with powers to determine the cadastral value.

The lack of a wide analysis of particularities of the practice of determining the cadastral value of land plots on the basis of land surveying and registration costs can lead to errors in making decisions on improving methodological guidelines for the cadastral valuation. The purpose of this study is to analyze the ways in which state budgetary institutions can apply the method.

2. Information base of the research
The information base of the study was 29 reports on the results of the state cadastral valuation compiled in 2018–2019 and the data on the state cadastral valuation posted on the official website of the Federal Service for State Registration, Cadastre and Cartography (Rosreestra).

3. Results and discussion
The results of the analysis are shown in Tables 1 and 2.

As can be seen from Table 1, despite the fact that each state budget institution solved the problem of implementing the method relying on various information bases, there are eight main methods for calculating the costs of surveying:

1. Calculation of land surveying costs (rubles), depending on the number of turning points and the length of land plot boundaries (perimeter).
2. Calculation of land surveying costs (rubles) using the regression equation.
3. Calculation of land surveying costs (rubles per plot), regardless of the ranges of the area.
4. Calculation of land surveying costs (rubles per plot) depending on the ranges of the area.
5. Calculation of land surveying costs (rubles per plot and rubles per sq.m.) regardless of the ranges of the area.
6. Calculation of land surveying costs (rubles per plot and rubles per sq.m.) depending on the ranges of the area.
7. Calculation of land surveying costs (rubles / sq.) regardless of the ranges of the area.
8. Calculation of land surveying costs (rubles / sq.) depending on the ranges of the area.

After analyzing some reports on the results of the state cadastral valuation compiled in 2018–2019, it became apparent that the principle of unity of the methodology for determining the cadastral value had been violated, which is the first in the list of principles cited in Article 4 of the Federal Law of 03.07.2016 No. 237-ФЗ “On the State Cadastral Valuation” [12].

The methods specified in paragraphs 3–8 of the above list of methods are similar to each other. They involve collecting and summarizing data (responses to requests from organizations engaged in land surveying; materials from open sources; data provided by the Department of Property and Land Relations of the regions of the Russian Federation and other information) in a single table to calculate the average cost of surveying and registration. However, they are different by units of measurement (rubles for the whole plot or rubles per m²) and depend on whether the calculation was made by ranges of the area or costs of surveying. These differences are another example of the lack of unity of the methodology for determining the cadastral value.
Table 1. Ways to implement the method of land surveying and land property registration costs when conducting the state cadastral valuation in the Russian Federation in 2018–2019 (in the sample studied)

| No | Region               | Types of real estate valueda | Simplified description for implementing the method |
|----|----------------------|------------------------------|--------------------------------------------------|
| 1  | Volgograd region     | W                            | on the number of turning points and the length of land boundaries (perimeter) |
|    | Krasnodar region     | W, F                         | on the number of turning points and the length of land boundaries (perimeter) |
|    | Kursk region         | F, A                         | on the number of turning points and the length of land boundaries (perimeter) |
|    | Saint Petersburg     | S, CCF                       | on the number of turning points and the length of land boundaries (perimeter) |
| 2  | Irkutsk region       | IND                          | regression, on the area; refusal to use the method for the sector “Forest use”, rubles per plot |
|    | Republic of Bashorstan| SPA, IND                     | regression, on the area;                          |
|    | Republic of Komi     | F                            | regression, on the area;                          |
|    |                      |                              |                                                   |
| 3  | Karachay-Cherkess Republic | SPA, IND, A, CCF        |                                                 |
|    | Novgorod region      | W, OOT                       | rubles per plot                                  |
|    | Republic of Komi     | A                            | rubles per plot                                  |
|    | Republic of Tatarstan| A                            | rubles per plot                                  |
| 4  | Astrakhan region     | SPA                          | rubles per plot, depending on the ranges of land area |
|    | Kirov region         | SPA                          | rubles per plot, depending on the ranges of land area |
|    | Republic of Ingushetia| S                           | rubles per plot, depending on the ranges of land area |
|    | Saratov region       | S, SPA                       | rubles per plot, depending on the ranges of land area |
|    | Sevastopol           | W, F, S, SPA, IND, A         | rubles per plot, depending on the ranges of land area |
|    | Tambov region        | S, IND                       | rubles per plot, depending on the ranges of land area |
| 5  | Belgorod region      | A                            | rubles per plot and rubles / sq.m. depending on the ranges of land area |
| 6  | Ryazan region        | W                            | rubles per plot and rubles / sq.m. depending on the ranges of land area |
|    |                      |                              |                                                   |
| 7  | Kaluga region        | S                            | rubles per plot, depending on the ranges of land area |
|    | Moscow               | S, CCF                       | rubles / sq.m.                                   |
|    | Republic of Karelia  | S, SPA                       | rubles / sq.m.                                   |
|    | Republic of North Ossetia| A                         | rubles / sq.m.                                   |
|    | Khanty-Mansi AD      | W, SPA                       | rubles / sq.m.                                   |
| 8  | Kaliningrad region   | IND                          | rubles per plot, depending on the ranges of land area |
|    | Moscow region        | W, S, SPA, IND, A, CCF       | rubles per plot, depending on the ranges of land area |
|    | Murmansk region      | SPA                          | rubles per plot, depending on the ranges of land area |
|    | Perm region          | S                            | refusal to use the method                         |

IND – lands of industry and other special lands; L – agricultural land; S – lands of settlements; SPA – lands of specially protected territories and objects; CCF – capital construction facilities; F – lands of the forest fund; VF – lands of the water fund

As can be seen from Table 2, the methods for determining the costs of registration were not uniform. This conclusion is based on the following facts: firstly, budget institutions used only the values of land surveying as the minimum possible cadastral value of land plots, but they did not determine the registration costs; secondly, in some regions, employees of budgetary institutions did not take into account the types of land use in determining the costs of registration; thirdly, budgetary institutions applied the maximum value of the state registration fee (22,000 rubles) (based on the assumption that the owner is a legal entity), while others use the minimum value (2 000 rubles) (based on the assumption that the owner is an individual).
Table 2. Analysis of accounting for the fee for state registration of land property rights using the method of land surveying and registration costs when conducting the state cadastral valuation in the Russian Federation in 2018–2019 (in the sample studied)

| Region                | Types of real estate valued | Did state registration fees apply? | The fee taken into account when applying the method |
|-----------------------|-----------------------------|-----------------------------------|-----------------------------------------------|
| Volgograd region      | W                           | no                                | -                                             |
| Krasnoyarsk region    | W, F                        | yes                               | 350 (for personal subsidiary plots, summer cottages, gardening, horticulture, individual garage or individual housing construction, rubles) and 2000 (other land plots, rubles) |
| Kursk region          | F, A                        | yes                               | 350 (for personal subsidiary plots, summer cottages, gardening, horticulture, individual garage or individual housing construction, rubles) and 2000 (other land plots, rubles) |
| Saint Petersburg      | S, CCF                      | yes                               | 350 (for personal subsidiary plots, summer cottages, gardening, horticulture, individual garage or individual housing construction, rubles) and 2000 (other land plots, rubles) |
| Perm region           | S                           | refusal to use the method         | refusal to use the method                     |
| Republic of Komi      | F                           | no                                | -                                             |
| Irkutsk region        | IND                         | yes                               | 2 000                                          |
| Republic of Bashkorstan | SPA, IND                  | yes                               | 22 000                                          |
| Karachay-Cherkess Republic | SPA, IND, A, CCF           | yes                               | No data. The duty is included in the total land surveying and registration costs |
| Novgorod region       | W, SPA                      | yes                               | 12 000                                          |
| Republic of Komi      | A                           | yes                               | 350                                            |
| Republic of Tatarstan | A                           | yes                               | 350                                            |
| Astrakhan region      | SPA                         | no                                | -                                              |
| Kirov region          | SPA                         | yes                               | 350 (for personal subsidiary plots, summer cottages, gardening, horticulture, individual garage or individual housing construction, rubles) and 2000 (other land plots, rubles) |
| Republic of Ingushetia | S                          | no                                | -                                              |
| Saratov region        | S, SPA                      | yes                               | 22 000                                          |
| Sevastopol            | W, F, S, SPA, IND, A        | yes                               | No data. The duty is included in the total land surveying and registration costs |
| Tambov region         | S, IND                      | no                                | -                                              |
| Belgorod region       | A                           | yes                               | 350                                            |
| Ryazan region         | W                           | yes                               | 22 000                                          |
| Ryazan region         | S                           | yes                               | 22 000                                          |
| Kaluga region         | S                           | no                                | -                                              |
| Moscow                | S, CCF                      | no                                | -                                              |
| Republic of Karelia   | S, SPA                      | yes                               | 350                                            |
| Republic of North Ossetia | A                        | no                                | -                                              |
| Khanty-Mansi AD       | W, SPA                      | yes                               | No data. The duty is included in the total land surveying and registration costs |
| Kaliningrad region    | IND                         | yes                               | No data. The duty is included in the total land surveying and registration costs |
| Moscow region         | W, S, SPA, IND, A, CCF      | yes                               | No data. The duty is included in the total land surveying and registration costs |
| Murmansk region       | SPA                         | yes                               | No data. The duty is included in the total land surveying and registration costs |

*IND – lands of industry and other special lands; L – agricultural land; S – lands of settlements; SPA – lands of specially protected territories and objects; CCF – capital construction facilities; F – lands of the forest fund; VF – lands of the water fund.

Due to the fact that the Guidelines No. 226 do not contain specific recommendations how to apply the method, state budgetary institutions were forced to independently search for ways to solve the following problems:
1. The problem of choosing a source of information on the cost of land surveying, the problem of analysis and generalization of the collected data.

2. The problem of choosing a method for implementing the t method for determining surveying and registration costs.

3. The problem of choosing a method for accounting for state registration fees.

4. The problem of analyzing the ratios of minimum, average and maximum specific indicators of the cadastral value.

At the stage of quality control of the results, land areas determined using the cost-effective approach differed greatly from areas determined using other approaches.

Employees of budgetary institutions indicated this problem in reports on the results of the state cadastral valuation. The most striking manifestation of the problem is the report on determining the cadastral value of land plots as part of agricultural lands located in the Republic of Tatarstan: “After applying the cost of land surveying and registration, objects of valuation with small areas had large values. For example, a land plot with a cadastral number 16: 15: 000000: 299 has an area of 0.01 m². Estimated value was 3 rubles per m², estimated cadastral value was 0.03 rubles. Since the estimated cadastral value is less than the cost of land surveying and registration, the total cadastral value is 5,350 rubles. Based on this amount, the final value is 535,000 rubles per 1 m²”.

4. Conclusion

The land surveying cost depends on a large number of factors (area, number of turning points, location, category, purpose, data entered in the Unified State Register of Real Estate, additional services, legal services, etc.). It is established individually for each land plot, while within the mass valuation, it is impossible to take into account all these factors. If the costs of land surveying are minimum, in order to ensure uniformity of the method for determining land surveying and registration costs, it is necessary to amend the Methodological Instructions. It is important to answer a number of questions: what data to use as an information base in calculating the surveying costs; whether to use data on the length of borders and the number of turning points (how to calculate the value for land plots for which there is no information on the borders; what units should be used (rubles per plot, rubles per sq.m. plot, etc.)); what state fees for land property registration should be applied when implementing the method; how to solve the problem of analyzing the ratios of minimum, average and maximum specific indicators of the cadastral value.

A group of contradictions caused by violations of the logical structure of activities aimed at assessing the cadastral value of land plots, the lack of a hierarchical structure of goals and objectives manifests itself in a mixture of tasks at the federal, regional and municipal levels. Internal contradictions are evident and result from the discrepancy between the levels of tasks.

Calculation of the minimum value of a land plot is a federal task. The decision on the minimum cost of land should be made. Cadastral activities are quite developed, and this kind of information should be collected, analyzed, summarized and approved at the federal level. The result of such an analysis may be recommended ranges of values of the minimum cost of land in the context of functional applications introduced in the Guidelines. This will ensure the convergence of results and stability of activities / system, when the minimum costs of comparable plots in the regions with the same level of socio-economic development will not differ.

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