Forecast of budget revenues from taxes in the context of economy digitalization

Maria N. Koniagina1*

1 The North-West Institute of Management, The Russian Presidential Academy of National Economy and Public Administration
*E-mail: a070278@yandex.ru

Abstract. Issues of tax planning and forecasting have become increasingly important given the current development of digital technology. Digitalization allows the lowering of tax administration costs and increases the speed of information collection and accuracy of its processing. Though the level of digitalization of Russian fiscal bodies is quite high, there are still many problems that require the application of modern tools to be resolved. The article presents the results of the research, conclusions and recommendations which shall be helpful in developing a universal algorithm for the application of digital tools in forecasting tax revenues in the Russian Federation. The author has studied digital tools applied by fiscal bodies, defined the role of these instruments in forecasting regional tax revenues, identified problems and developed measures to improve the system of planning and forecasting tax revenues in the budget of constituent entities of the Russian Federation. The article will be of interest for theoreticians and practitioners studying the work of Russian tax bodies as a basis for further research and review.

Key words: budget, tax forecasting, digital economy, digital forecast tools

1. Introduction

While the innovative economy is developing fast, the main task of the state is to provide adequate planning and distribution of financial resources. Tax forecasting and planning within the system of public revenue administration not only provides data for the analysis and assessment of tax revenues and determines the tax policy and financial system of the country, but also specifies the sources of public revenues and areas of their spending and correct revenue and expenditure items. Within their powers, fiscal and tax bodies provide the forecast of tax revenues, the accuracy of which affects funding of targeted programmes of social and economic development, including planning of tax revenues to ensure the stability of the tax system and coordination of economic processes in accordance with the targets of industrial development, as well as its influence on public economic regulation.

The major problems in this area are the inconsistencies between the applied tax forecasting methods and modern requirements for the development of the national economy and the absence of a single universal method of forecasting tax revenues in the constituent entities of the Russian Federation. In many regions of Russia, forecasting of tax revenues is based on former performance, which is rarely justified and requires serious improvement. The purpose of the article, therefore, is to develop recommendations for a universal algorithm of applying digital instruments to forecasting tax
revenues in the regions of the Russian Federation. Regarding that, the following tasks were identified during the research: to study the digital instruments used by the fiscal authorities; identify their role in predicting tax revenues of the region; find out problems and develop approaches to improve the system of planning and forecasting tax revenues to the budget of the constituent entities of the Russian Federation.

There are a significant number of works devoted to the research on the formation of the tax system in Russia. This topic was covered in the works of A.V. Bryzgalin [1], E.S. Vylkova [2], N.G. Ivanova [3], S.D. Shatalov [4], I.A. Zhuravleva [5], N.A. Shibaeva [6] and other authors, who review the organization of taxation during a transition period of reforming tax system in Russia, without considering modern aspects of its improvement.

Some authors [7, 8] proved that most of the taxes have a positive impact on GDP growth; it is also shown that not all taxes have the same impact on economic growth. N. Kuzmynchuk, et al. [9] paid attention to the problem of “shadowing” at the emerging markets in the crisis period. The others [10] investigate the effect of the new tax on the forecasting capacity and affirm its robust to the choice of forecasting measure, the choice of forecasting interval, and the choice of race type, which should be checked repeatedly.

Works of M.V. Vasilieva [11], I.A. Maslova [12], D.Y. Fedotov [13] on forecasting and research conducted by other authors, even though they devote insufficient attention to the digital tools of budget planning and forecasting, are of great importance. A number of provisions on assessing tax potential have been developed in the publications of L.M. Arkhiptseva [14], A.L. Kolomeets [15], E.A. Suglobova [16], who also mostly focus on the theoretical aspects of the problem.

Many Russian economists draw attention in their works to methodological and practical questions of regional development management, e.g. E.B. Bukharova [17], Z. Lukpanova [18], T.V. Panasenkova [19], V.M. Razumovskiy [20], N.I. Sidorova [21], V.M. Khodachev [22], S.D. Shatalov [4]. At the same time, there are few authors, such as F.S. Aguzarova [23], E. Dedkova [24], G. Isatayeva [25], B. Panshin [26], E.S. Vylkova [2], Y. Khochlov [27], who consider issues of innovative development of regional tax systems in Russia. However, it only emphasises the importance and relevance of discussing development of digital tools for the forecast of tax revenues.

2. Methods

The information on the application of digital tools for tax revenue forecasting was processed using a set of economic research methods, united by a common systematic approach to studying problems of state tax planning. At different stages of research, the author applied methods of expert assessments, observation, comparison, generalization, and synthesis.

At the first research phase, all secondary sources of information on digital tools for planning and forecasting tax revenues to the different levels of budget used in Russia were studied. The second step was dedicated to the systematization, as well as monitoring the practice of using the described tools at the level of the district tax inspectorates and the regional Committee of finance. As part of the third research phase, expert opinions were collected in the form of an interview about the quality of the tools for collecting information, planning, and forecasting tax revenues to the budget, as well as about general problems of the existing mechanism for planning and forecasting tax revenues, their systematization and generalization. At the last stage of the study, the author proposed and substantiated solutions to the problems identified. In the article, attention is mainly paid to the problems of the functioning of the investigated mechanism, then to the individual tools for planning and forecasting tax revenues to the budget.

3. Results and Discussion

Taxes are a significant source to supplement budgets at different levels. They amount to almost 90% of all budget revenues in the Russian Federation, enhancing the role of tax planning and forecasting in the budgeting process. In 2017, the Government of the Russian
Federation approved the Russian Digital Economy Programme, which provides for significant changes in the field of legal regulation of digital technologies, improvement of training and retraining of personnel, as well as the education system as a whole. The emphasis is on the formation of digital infrastructure. Even though the World Bank and the Institute of the Information Society find it to be underdeveloped, it is still in better condition than many other aspects (Fig. 1). Attention is also drawn to creating the environment that ensures the highest level of information security (Fig. 2). However, it does not secure the confidence of taxpayers.

Fig. 1 – Digital Economy Readiness Assessment of the Russian Federation [27]
Online transactions and Internet technologies help the authorities to create a taxpayer database for paying taxes and levies in real time [26]. On July 1, 2019 the amendments to the Methodology of forecasting consolidated budget revenues of the Russian Federation for the next financial year and planning period have come into effect (orders of the Ministry of Finance of the Russian Federation № 90н of June 20, 2016, № 230н of December 07, 2016, № 35н of February 28, 2018, the order № MMB-7-1/457 of 18.07.2018).

Mostly the changes concerned forecasting of corporate income tax, income tax, tax paid through the simplified tax system and involved the introduction of new budget classification codes. The adapted mechanisms of property tax receipts take into consideration changes in tax rates and tax relief accepted in the regions.

The software allows tax authorities to receive, process and accumulate documents both in paper, and in electronic form. Software makes it possible for citizens and enterprises to access tax information resources via the Internet, obtaining not only necessary information, but also a number of services in electronic form. Software implements a broad spectrum of technological functions, ensuring functioning of communication equipment: telephone exchanges, data transmission networks, computer equipment, monitoring systems, and management of buildings. The automation technologies for tax authorities in Russia are developed and serviced on a centralised basis.

The regions use the automated data system (AIS) “Registration”, software package “the Uniform State Register of Legal Entities”, software package “State monopoly”, "Region", “Otvet” (“Response”), automated data system “Nalog 2 Moscow” (“Tax 2 Moscow”), software package “VAT”. Data processing software includes various database management systems (DMS): FoxPro, Clipper, MS of SQL Server, Access, Informix, Oracle, Pick and other systemic and applied software packages, distributed by the State Tax Service of the Russian Federation on a centralized basis.

The IT system applied by the tax authorities is a set of IT solutions and information software ensuring functioning of the State Tax Service of the Russian Federation, which is part of public administration accountable to the President and the Government of the Russian Federation. The main purpose of this system is to ensure tax compliance, correct calculation and timely payment of taxes.
and other payments to the budgets. To serve this purpose there was developed the system “Nalog” (“Tax”). It is a layered system which consists of a large number of subsystems and solutions. The specialists of the IT Directorate of the Federal Tax Service of the Russian Federation (FTS) are responsible for the development and software maintenance, which ensures automated processing of taxpayers’ obligations to the state. Software is provided to taxpayers free of charge at the official website of the Federal Tax Service of the Russian Federation1.

Modern digital tools supporting the tax administration should, therefore, be integrated into the system functioning on the basis of the interface principles general for all subsystems and should include the following interconnected elements:
- general database;
- uniform regulatory and reference information;
- general administration tools for all applied subsystems;
- single management system of internal document flow.

Development of the relevant information processing system in the regional tax inspections allows the full automation of the processing of tax information at regional levels and ensures its transfer to the federal level. Informatisation of tax authorities, according to this concept, assumes development of the following areas for legal entities and individuals: 1) personal account; 2) desk audit; 3) documentary tax audit; 4) national register; 5) accountability; 6) information transfer to the federal level.

Nowadays, many functions that the Russian tax authorities execute within the framework of their activities are automated, including reception, processing, data and information analysis, creation of a database for the tax authorities containing statistical data and information necessary to support managerial decisions of the Federal Tax Service and provide information to outside consumers. At the regional level, it is possible to identify the following basic functions of the Automatic Information System:
- preparation of standard accountability forms;
- oversite activities;
- legal, auditing and methodological activities;
- analytical activities of the regional inspections of the Federal Tax Service;
- solving internal tasks.

All subsystems operate in an interconnected manner and are constantly improved to meet changing specifications and user requests based on feedback and error statistics.

Planning and forecasting of tax revenues to the national budget and budgets of constituent entities of the country is an important part of the implementation of the state tax policy and requires detailed analysis of the results and prospects of social and economic development of the country and its regions in particular.

4. Conclusions
The process of planning and forecasting of tax revenues in the Russian Federation is not without problems resulting from the lack of stability of the tax legislation, which should ensure the invariance of fundamental tax institutions and payment of taxes in the long term.

Tax revenue planning is a process of developing an economically reasonable amount of tax to be paid by taxpayers and administered by tax authorities. The purpose of planning is achieving the highest level of mobilization of taxes and levies. Forecasting is viewed as a process of developing a forecast – a system of scientifically substantiated judgments based on the development potential and future changes in the state of an object or process, alternative ways and means of their implementation. Undoubtedly, the processes of tax planning and tax forecasting are closely intertwined.

1 Federal Tax Service of the Russian Federation: official website. URL: http://www.nalog.ru (accessed: 01.08.2019).
Tax forecasting is a basis for tax planning and decision-making. During the implementation of the plan, target tax indicators can be adjusted in accordance with a new forecast. The tax forecast is usually divided into optimistic and pessimistic scenarios, sometimes including a compromise one. The process of tax planning and forecasting cannot be limited to mechanical specification of the amount of the forthcoming revenues to the budgets of appropriate levels. On the contrary, it is a creative process of identification and mobilisation of a solution bank for the issues that affect the state as a whole, and specific industries in the near future and in the long term. It should rely on clear algorithms and a uniform method of calculation and take into consideration the uncertainty factor. The technique should draw on a relevant database, providing for the numerous external and internal factors affecting the amount of tax revenues in the region. It is the lack of consideration for the unique regional factors that presents a major problem for the existing system of planning and forecasting tax revenues in the budget. As there is no automatic system, which would minimize errors, manual calculations complicate the process even more.

Thus, currently, despite the existence of the methodological provisions enshrined in normative documents, there is no single automatic tax planning and forecasting technique the Russian Federation that would be suitable for the regions, be based on the relevant database and consider numerous external and internal factors affecting the amount of tax revenues. It is unlikely that creation of such a tool will be easy. There are a lot of preparations that have to be made and a number of problems that require solutions (see Table 1). For example, in order to calculate the tax capacity of the region it is necessary to develop a system of indicators, or a database, including:

1) position and significance of the constituent entity of the Russian Federation in national economy;
2) main types of economic and industrial activities of the region;
3) gross regional product;
4) population of the specific territory.

| Problems impeding the implementation of a universal automatic forecasting and planning algorithm | Possible solutions leading to creation of a universal digital tool for tax forecasting and planning |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Tax planning and forecasting are viewed as separate processes | Viewing planning and forecasting as a single adaptive process with interconnected elements |
| Absence of a single tax planning and forecasting tool, integrated into the consolidated planning and forecasting system, for regional and local levels | Development of a universal technique for planning and forecasting that would take into account external, internal and uncertainty factors (probability value) |
| Inaccuracy of projected and planned indicators | Accumulation of "good data": extension, systematisation and adjustment of the data considering changes in external and internal factors. Use of qualitative data in forecasting. Forecasting on the basis of economic and mathematical models. |
| Tax system subject to frequent changes | Preservation of the general tax calculation and payment conditions, nomenclatures of main taxes and levies, |
Problems impeding the implementation of a universal automatic forecasting and planning algorithm | Possible solutions leading to creation of a universal digital tool for tax forecasting and planning
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1 | Increase the efficiency of the tax system by improving the quality of administration and cutting costs, as well as waiver of taxes whose administration is inefficient.
Absence of clear criteria and efficiency assessment for tax planning and forecasting operations | Main assessment criterium for forecasting efficiency is its accuracy. It is necessary to develop and introduce a system of indicators which would help to identify reasons for deviations from the developed plans and forecasts.

It is also necessary to keep account of industrial, investment, natural, labor, and financial resources of the region to conduct quality analysis of the tax capacity of the area.

The most accurate forecast is based on calculations applying mathematical models which, however, require so-called "good data". In our case it means a large array of time series of relevant and detailed data on each type of which is not yet feasible in practice. It is for this reason that different regions of the country conduct tax forecasting and planning on the basis of the individual techniques, developed in these regions. All these factors affect and reduce the accuracy of forecasting and planning at the regional and consolidated level.

In order to improve the accuracy of calculations, tax planning and forecasting should be implemented in the form of a summary, containing automated calculations, specific formulas and indexes with a probability factor, and time scales, which would provide information on the dynamic ranks with regard to the types of tax, the level of rates, the amounts of tax payments, and other forecast indicators. It will allow to carry out effective monitoring of previous and current indicators and to build forecasts.

The principle of uniform methodological provision should be implemented taking into account the following conditions:
- maximum coverage of taxable objects;
- nature of the economy of the region;
- reliability of data;
- consideration of an uncertainty factor and variable probability function in the forecast;
- seasonal nature of revenues.

Another important problem is the high cost of tax planning and forecasting. One of the most notable cost items is the ongoing monitoring of changes in tax law. It is necessary to acquire a wide range of normative sources, resort frequently to expert advice, collect and systematise special literature. There are high costs of registration and re-registration of companies, highly paid workforce, and a diversion of financial flows. Tax legislation is complex not when there is a large body of legislation governing tax matters, but when regulations are uncertain and laws, regulations and rules of taxation are continuously revised.

Frequent changes in tax laws do not enhance the accuracy of tax revenue planning. Radical changes do not increase tax revenues to the budget, but rather lead to losses of revenue sources, as tax instability forces many taxpayers to “withdraw into the shadows”.

Implementation of the proposed solutions should lead to the formation of “good data”, the quality of which will be ensured by the stability of the main parameters of the tax system, and therefore will be comparable for medium-term (over a year) forecasting and applicable for planning. The increase in non-cash operations in the monetary system of the country, which in 2018 exceeded half of the total
monetary turnover, will also contribute to the accuracy of information. At the same time, according to the Bank of Russia, non-cash trade turnover in the country increased from 36% to 43% in 2018. Under such conditions, the activities of business structures become significantly more transparent, and therefore lead to an increase in tax collection. Tax revenues to the budget have grown faster in recent years than the economy as a whole, although core tax rates have remained unchanged until early 2019. This was made possible due to the improvements in tax administration and application of digital technologies.

In order to build an effective tax forecasting and planning system, it is necessary to establish and maintain a set of conditions: 1) to improve regulatory and legal acts governing tax planning and to fix basic tax regulations; 2) to apply positive foreign experience of planning and forecasting tax revenues to the budgets; 3) to develop a system of indicators describing tax revenues that would respond to changes in revenue structure; 4) to treat tax revenue planning and forecasting as integrated processes; 5) to develop and launch a program for collecting and processing relevant and accurate data on taxpayers and their payments to form “good data”; 6) on the basis of automatic processing of accumulated data, to build an economic and mathematical model for forecasting tax revenues of the region, taking into account the uncertainty factor and probability value.

The Federal Tax Service of the Russian Federation has already begun to develop a methodology for forecasting revenues for all types of taxes for the next fiscal year and for the planning period. The methodology is developed to create a unified approach to forecasting budgets at all levels of the budget system and is based on key social and economic indicators in Russia, the structure of the tax base, and the dynamics of actual revenues over several years. The application of such methodology by the territorial tax and fiscal bodies of the constituent entities of the Russian Federation will make it possible to develop concerted and justified decisions on the annual assessment of regional budget revenues.

The tax planning and forecasting model is necessary for the effective analysis of tax revenues in the budget. A qualitative plan and forecast directly affect the efficiency of tax policy. Improvements shall be more indicative if stated at the regional level and the experience obtained shall later be extended to the formation of budgets at another level. It might also improve the investment climate, the importance of which was stressed by the head of the Bank of Russia at the International Financial Congress in 2019.

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