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Objectives:

- creation of an information platform to make public the results of studying socio-economic and other consequences of tax reforms and analysis of the effects of transformations of tax systems;
- growth of scientific and theoretical knowledge in the fields of public finance and taxation as a science aimed at searching new constructive solutions in the taxation sphere;
- development of practical, legal and organizational measures for increasing the efficiency and justness of taxation and tax reforms;
- international cooperation of representatives of the scientific community, the public, the business sector and government agencies in the improving the tax system.

Strategic tasks:

- comprehensive analysis of the national and the international experience in reforming tax systems;
- development of measures to prevent tax evasion;
- support of the inter-disciplinary approach to studying taxation and tax reforms;
- cooperation of scholars of various sciences (economics, mathematics, law, sociology and psychology) with the aim of improving taxation and tax systems.

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Административно-управленческие проблемы налоговых реформ

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Tax incentives for bond-oriented individual investors: evidence from the Russian Federation

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ABSTRACT

The paper addresses the specificities of tax incentives in the form of tax reliefs designated for individual investors, who invest in bonds in the Russian Federation. The need for the use of tax incentives to encourage individual investors to purchase bonds is regarded as an integral aspect of the bondization, announced by the Bank of Russia. The objective of this paper is to analyze the specific features of the investment tax relief implementation in the Russian Federation and to reveal issues that remain controversial and require particularization. It was found that stimulation of investment through tax is widely studied by foreign scientists; however, it is almost completely disregarded in Russia. The following tax innovations related to investments of individual Russian investors were analyzed: tax relief for coupon income, derived from corporate bonds; investment tax deductions (individual investment account and long-term capital gains exemption); long-term capital gains exemption for securities of the high-tech (innovation) sector of economy. Reconciliation schemes for the above-mentioned reliefs were identified. Insufficiency of quantitative data for the effectiveness evaluation of tax relief for individual investors was revealed, which was explained by the short validity period of this relief. The authors proved the absence of a uniform system tax relief instruments for individual investors and found that bond holders have more tax relief options, compared to share holders of other investment instruments. In this context, it was proposed to make amendments to the Tax Code of the Russian Federation in order to ensure tax equalization with relation to derivative instruments, designed on the basis of bonds, mutual fund units). In addition, it was recommended to adjust a number of technical aspects, connected with tax relief application and to evaluate the effectiveness of the reliefs under study.

KEYWORDS

Bond, coupon, individual income tax, tax relief, investment tax deduction, individual investment account, long-term securities holding, financial marketplace

JEL H24, D14, G11

HIGHLIGHTS

1. A tendency towards emergence of a tax relief system for individual investors is revealed in the context of the active development of the bond market in the Russian Federation
2. In the Russian Federation, there are a number of tax reliefs for bond holders, including coupon income exemption from tax and investment tax deductions, which are not bound into a uniform system
3. Reconciliation of tax reliefs for individual investors is possible; however, there are issues that remain controversial and require particularization
4. The current tax reliefs for individual investors require improvement. It is important to make certain amendments to the Tax Code of the Russian Federation and evaluate the effectiveness of tax reliefs

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Налоговое стимулирование инвестиций частных инвесторов в облигации в Российской Федерации

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АННОТАЦИЯ

Статья посвящена анализу особенностей налогового стимулирования инвестиций частных инвесторов в облигации в РФ. Необходимость налогового стимулирования приобретения облигаций частными инвесторами отмечена как составная часть стратегии бондизации, заявленной Банком России. Целью настоящей статьи является анализ специфики применения инвестиционных налоговых льгот в РФ, выявление спорных и требующих конкретизации вопросов. Отмечены широкое освещение темы налогового стимулирования инвестиций в иностранной периодической литературе и практически полное игнорирование данной тематики отечественными авторами. В статье проанализированы налоговые новации в области инвестиций российских частных инвесторов: льгота по купонному доходу корпоративных облигаций, инвестиционные налоговые вычеты (индивидуальные инвестиционные счета и льгота по долгосрочному владению ценными бумагами), льгота по долгосрочному владению ценными бумагами высокотехнологичного (инновационного) сектора экономики. Определены возможности совмещения вышеназванных льгот. Отмечен недостаток количественных данных для оценки эффективности налоговых льгот для частных инвесторов вследствие короткого периода их действия. Авторы пришли к

выводу относительно отсутствия единой системы предоставления льгот частным инвесторам и более широком льготировании облигаций в сравнении с прочими инструментами. Конкретным результатом работы можно считать констатацию необходимости внесения изменений в НК РФ с целью выравнивания налогообложения по производным инструментам, созданным на основе облигаций, паем паевых инвестиционных фондов и корректировки ряда технических моментов применения льгот, а также оценку эффективности описанных льгот.

КЛЮЧЕВЫЕ СЛОВА

Облигация, купон, НДС, налоговая льгота, инвестиционный налоговый вычет, индивидуальный инвестиционный счет, долгосрочное владение ценными бумагами, финансовый маркетплейс

ОСНОВНЫЕ ПОЛОЖЕНИЯ

1. Формирование системы налоговых льгот для частных инвесторов в РФ имеет место в рамках активного развития рынка облигаций
2. В РФ существует ряд налоговых льгот для владельцев облигаций, включая льготу по купонному доходу и инвестиционные налоговые вычеты, не связанных между собой единой системой
3. Совмещение налоговых льгот для частных инвесторов возможно, однако существуют спорные и требующие конкретизации вопросы
4. Логично реформирование системы налоговых льгот для частных инвесторов в РФ, включая необходимость внесения изменений в НК РФ и оценку эффективности льгот

Introduction

In 2016–2018, the new term “bondization”¹ (from English bond), which means activation and development of the bond market within the Russian financial market, was popularized. By “development”, the following phenomena are meant: an increase in the number and volume of bond issuances, liberalization of taxation, elimination of some organizational barriers, advancement of the infrastructure, and improvement of the individuals’ investment culture.

In the course of bondization and even before its official announcement (in 2015), new types of bonds appeared in the Russian Federation. Those bonds included both government and corporate ones, viz. inflation-linked federal loan bonds, federal bonds for individual investors, bonds issued under exchange-traded bonds programs, one-day bonds, infrastructure bonds, retail bond tranches

of banks. Simultaneously, an increase in trading activity within the segment of perpetual and subordinated bonds was registered; bonds of the Bank of Russia re-entered the securities market.

The emergence of the new types of domestic bonds in 2015 is explained by the fact that external capital markets were closed to Russian borrowers in that time; therefore, the borrowers aimed to raise the maximum amount of capital from the domestic market. In 2016–2017, the situation slightly improved, and Russian issuers could access more world markets. However, the new sanctions of 2018 made the domestic market more foreground and favorable. The effect of sanctions on the Russian bond market is also emphasized by other authors, e.g. T. Vandersteel [1, p. 14].

It should be noted that the trend towards bondization is typical of not only Russian market, but also of emerging markets in general, regardless of whether these markets are under sanctions or not. This trend is described in the works of J.D. Burger and F.E. Warnock [2]; J.D. Burger, F.E. Warnock, and V.C. Warnock [3]; D. Kidd [4]; and it is of significant interest to investors from developed markets. These authors focus on

¹ The term “bondization” was officially introduced by the Bank of Russia in an analytical note, titled “Bondization is the development of the bond market”, in July 2017; however, this term had been used by the market participants before (in 2014–2016) to indicate the active development of the bond market.

the importance of developing local currency bond markets in order to avoid the financial fragility associated with a currency mismatch.

One of the factors for the successful development of the Russian bond market consists in ensuring that Russian individual investors' investments in corporate bonds will be subject to the conditions that are similar to the conditions for investment in deposits and government bonds (e.g. income, derived from deposits and government bonds, is not subject to individual income tax). Some changes related to this issue have already occurred and will be considered in later chapters of this paper.

It should also be noted that the role of bonds in investment portfolios formation is gradually changing in the framework of the classical theory of investment. Previously, it was presumed that an investment portfolio was required to be dominated by shares as investment horizons increased in length. However, now bond-dominated portfolios or 50/50 portfolios in the long run are already considered by certain studies. P. Shen [5, p. 44] states that shares are safer compared to bonds, but this refers to long-term (over 25 years) investment in government bonds. Obviously, most investors regard such a long investment period as unrealistic. A. E. Abramov, A. D. Radygin, and M. I. Chernova substantiate the advantage of bond portfolios over share portfolios in the context of long-term investment and the need to ensure that bonds, issued by qualitative issuers, will represent a larger portion of asset allocation [6, p. 44].

Therefore, the objective of the paper is to investigate the implementation of investment tax reliefs in relation to individuals' bond investments in the Russian Federation and to determine areas for improvement.

Literature review

The impact of tax on investments has received much research attention in foreign studies. General studies address the relationship between tax and decision-making, investment volume, and a firm's value. In

particular, E. F. Fama and R. F. French [7] studied how a firm's value is related to dividends and debt, using cross-sectional regressions. R. Dammon and R. Green [8] designed a basic model under conditions of tax arbitrage and the existence of equilibrium prices for financial assets. R. E. Hall and D. W. Jorgenson [9] estimated the effects of change in tax policy on investment behavior for three major tax revisions in the post-war period in the USA. C. D. Romer and D. H. Romer [10] investigated the impact of tax change on economic activity, identifying the size, the timing, and the principal motivation for all the major post-war tax policy actions.

Taxes are also taken into account for the purpose of financial asset valuation models to ensure a more realist approach. For example, R. H. Litzenberger and K. Ramaswamy derived an after tax version of the Capital Asset Pricing Model [11]; O. Belomyttseva, L. Grinkevich, and A. Grinkevich [12] proposed a modification of the Gordon Growth Model with taxes.

Among studies on bond taxation, special emphasis should be placed publications of Professor R. C. Green from Carnegie Mellon University, who analyzed various aspects of bond taxation in different years. In particular, R. C. Green [13] performed an analysis of the anomalous behavior of the taxable and tax-exempt yield curves of municipal bonds in 1993. In 1997, together with B. A. Odegaard [14], he investigated the impact of the Tax Reform Act of 1986 on the relative pricing of U.S. Treasury bonds and supported the hypothesis that this event largely eliminated tax effects from the term structure. In 2007, R. C. Green, B. Hollifield, and N. Schurhoff [15], using a mixed-distribution model, quantified the losses that uninformed traders or issuers give up to broker-dealers on the municipal bond market. Sh. Liu, J. Shi, J. Wang, and Ch. Wu examined the effects of investors' taxes on the pricing of corporate bonds [16]. A. Ang, V. Bhansali, and Y. Xing [17] studied taxes on tax-exempt municipal bonds. A. Kalotay [18] analyzed the formation of optimal municipal bond portfolios for dynamic tax management, A. Kalotay and C. D. How-

ard [19] quantified the value of the tax option embedded in municipal bonds.

In the course of our study, publications on tax reliefs, linked to accounts that are similar to individual investment accounts, as well as the effectiveness of these reliefs were of significant interest. For example, we referred to M. Donnelly and A. Young [20], who had studied similar accounts in Canada and the UK; and O.P. Attanasio and T. DeLeire [21], who had debated the effect of individual retirement accounts on household consumption and national saving.

Among Russian publications, studies related to the above-mentioned issues are next to none. There are only some general studies. I.V. Karzanova [22] proposed a theoretical framework that can be used to evaluate the potential impact of the taxation system on the accumulation of physical capital in Russia. S.S. Lazaryan and M. A. Chernotalova [23] presented a good overview of foreign empirical studies that consider the impact of the tax system on investments.

As regards the bond market, Russian studies mainly address the bond market development issues with respect to issuance aspects, the market analytics, and development prospects. Surprisingly, we found no Russian studies directly related to bond taxation, viz. individual income tax on coupon income (coupon rate), analysis of the long-term capital gains exemption for securities of the high-tech (innovation) sector of economy, etc. This can be explained by the fact that tax re-

lief for coupon income is absolutely new, and long-term capital gains exemption is relatively new. Furthermore, no statistical data has been accumulated so far, which makes it impossible to evaluate their effectiveness. Nevertheless, from 2016 to 2018, in Russian periodicals, there appeared a large number of publications on individual investment accounts (hereinafter IIA) and bonds as a promising and effective instrument for investment with IIA (e.g. studies by U.V. Lakhno [24; 25], O.A. Grazhdankina and S.V. Shaposhnikova [26], M.A. Khloev [27], O.S. Belomytseva [28]).

The current tax reliefs for bond-oriented investors: a brief overview

Today, Russian bond investors are entitled to a number of tax reliefs. A classification of tax reliefs in effect is presented in Figure 1. All the reliefs, except for the exemption of coupon income on government bonds, are comparably new to the Russian market. Consequently, they are not fully known and exploited by investors.

The current tax reliefs are classified by the authors into tax exemptions of coupon income on various types of bonds; investment tax deductions; and other tax reliefs, e.g. long-term capital gains exemption, which is applied to income earned from securities of the high-tech (innovation) sector of economy (hereinafter LTCGE-IIM).

The coupon income tax exemption for corporate bonds was introduced in 2018 and applies only to corporate bond issuances that conform to certain requirements.

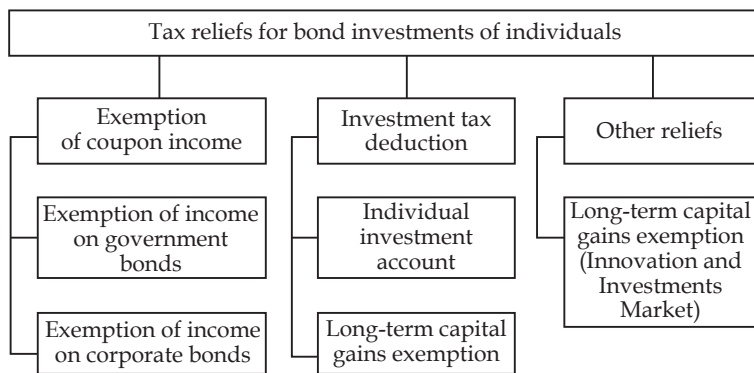


Figure 1. The current Russian tax reliefs for bond-oriented individual investors

At the end of 2013, the Tax Code of the Russian Federation was amended with the new concept “investment tax deduction”, directly related to bonds. This term has been in effect since 2015 and is interpreted as the taxpayer’s right for reduction of the tax base on the individual income tax in case of transactions with securities and under certain conditions. Article 219.1 of the Tax Code states 2 types of investment tax deductions:

- investment tax deduction related to the opening of individual investment accounts (hereinafter IIA);

- investment tax relief in the form of long-term capital gains exemption (LTCGE).

As regards LTCGE-IIM, this relief is presented by the Tax Code as a separate type of relief, without being related to LTCGE. All these reliefs are analyzed below.

Changes in the taxation of the individual income derived from corporate bond coupons

On 1 January 2018, the procedure of taxation of individual income gained in the form of interest on exchange-traded bonds of Russian organizations underwent changes. Article 214.2 of the Tax Code of the Russian Federation determines the following criteria for the exemption of corporate coupon income from individual income tax:

- bonds are issued by a Russian organization;

- bonds are nominated in Russian rubles;

- bonds are issued as from 1 January 2017.

- bonds are considered to be “exchange-traded” as described in article 214.1 of the Tax Code of the Russian Federation.

The most “ambiguous” of the outlined criteria is, undoubtedly, the date of issuance. According to the interpretation of the Ministry of Finance of the Russian Federation of 3 November 2017 No. 03-03-10/72515, the term “bonds issued from 1 January 2017 onwards” refers to bonds that were placed on the

securities market on a date within the specified period; the date is disclosed as stated in article 30 of the Federal Law “On the Securities Market” as well as clauses 5.3–5.6, 26.10 and 26.11 of the Regulations of the Central Bank of Russia of 30 December 2014 No. 454-R.

Regarding the admission of exchange-traded bonds (refers to bonds on the organized securities market), it should be noted that according to clauses 3 and 4 of article 241.1 of the Tax Code of the Russian Federation, exchange-traded bonds traded on the organized securities market include securities that conform to the following criteria:

- bonds must be admitted to trading on the Russian stock exchange;

- market quotation must be provided with respect to these bonds.

“Market quotation”, as stated by clause 4 of article 241.1 of the Tax Code of the Russian Federation, is the weighted average price of the bond settled as a result of transactions that were executed within one trading day on a stock exchange. In the absence of information on the weighted average price of the bond on the stock exchange, the market quotation is considered to be the weighted average price (the closing price) established on the date of the proximate trading, which took place prior to the date of the execution of a particular transaction, and if trading of these bonds had been held minimum once over the past three months.

Since corporate bonds are often purchased for the purpose of formation of a long term and high-yield portfolio, bond transactions can presumably occur sporadically. Therefore, in order to fulfill the requirement for the recognition of particular bonds as “exchange-traded”, it is sufficient to have minimum one weighted average price, calculated by the exchange over a period of three consecutive months preceding the date, on which the list was compiled (including the date of the list compilation). A similar view is presented by the Moscow Exchange in provided comments. The main issue that remains unclear is whether primary of-

fering transactions should be considered for the purpose of the calculation of the weighted average price of a bond. Since the Ministry of Finance of the Russian Federation has provided no comments on this issue, it seems to be impossible to include primary offering transactions in the calculation of the weighted average price of bonds.

In accordance with article 214.2 of the Tax Code of the Russian Federation, taxation of the coupon income (coupon rate) earned on corporate bonds, which were issued on 1 January 2017 and conform to the above-stated criteria, is performed as follows:

1. Coupon income on bonds at the rate of the key rate² of the Bank of Russia increased by 5% and valid through the coupon pay period is not subject to individual income tax.

2. In case the bond coupon rate exceeds the key rate of the Bank of Russia increased by 5% and valid through the coupon pay period; the tax base, subject to the tax rate of 35%, is considered to be an excess sum between coupon payments on bonds and the bond coupon interest rate, which is computed on the basis of the par value of bonds and the key rate of the Bank of Russia increased by 5% and valid through the coupon pay period.

In practical terms, introduction of the provision stated under clause 2 make sense only in limited number of cases due to the fact that there are not many recently issued 12.25%-yield bonds on the stock market.

The procedure for taxation of coupon income earned on bonds, which do not meet the above-stated criteria, remains unchanged. This relates to income on foreign-currency bonds or bonds issued before 1 January 2017 as well as to income earned by taxpayers from any mutual funds.

Therefore, it can be stated that individual income tax is imposed on coupon income earned from the corporate bonds of new issuances similarly to the way it is imposed on income received on bank de-

posits. Since the proportion of individual investors on the corporate bond market is small, these changes are expected to enhance the investment attractiveness of the exchange-traded bonds of Russian joint-stock companies and encourage the inflow of private investment into the economy of the Russian Federation.

The new provisions on the taxation of coupon income earned on corporate bonds are logical, expected and correspond to the general trend towards the liberalization of taxation of transactions in securities, which is considered in detail by O.S. Belomytseva [28; 29], and the activation of the stimulating function of taxation.

Foreign studies on the taxation of coupon income predominantly address the effect of the tax relief on the prices and the yields of bonds. According to M.H. Miller [30], there is an individual tax discount in the pricing of corporate interest payments that can eliminate the corporate tax benefit of debt. E.F. Fama and R.F. Kenneth [7] state that corporate bond yields are higher than nontaxable bond yields. Sh. Liu, J. Shi, J. Wang, and Ch. Wu [16] believe that taxes have a strong positive effect on corporate bond yields, which has been largely ignored in traditional term structure models of corporate bonds. R.C. Green and B.A. Odegaard [14] hypothesize that all bonds are priced so that they can be optimally held by a marginal investor with a zero tax rate. E. J. Elton and T. C. Green [31] hold the view that the lack of substantial tax and liquidity effects in the relative prices of bonds has important implications for investors deciding when to select bonds. Our stance corresponds to that of E. F. Fama and R. F. Kenneth [7], who suppose that investors in high tax brackets can rationally hold tax-free bonds at lower yields than taxable bonds, whatever the tax bracket implicit in the pricing of taxable interest.

In Russia, the taxation of coupon income has not been investigated so far. Studying the impact of tax reliefs on corporate bonds will be possible when a few years have passed since the introduction of the tax relief.

² At the date this manuscript was written, the key rate of the Bank of Russia was 7.25%.

Corporate bonds with a zero-percent individual income tax

The Moscow Exchange daily updates lists of bonds with coupon rate, on which individual income tax is imposed within the limits established by article 214.2 of the Tax Code of the Russian Federation. As of 18 May 2018, this list was composed of 319 bonds. Among the issuers of these bonds, there are such well-known joint-stock companies as MTS, Sberbank of Russia, Gazprombank, etc.; and less known issuers, who pay a higher yield, such as Russian Helicopters, Softline Trade, Verkhnebakansky Cement Plant, etc. (Table 1).

Table 1
The yield of some³ corporate bond issues, traded on the Moscow Exchange as of 18 May 2018

| Name of issuer | Security code | Yield, % |
|---------------------------------|---------------|----------|
| MTS | RU000A0ZYJ83 | 6.95 |
| Sberbank of Russia | RU000A0ZYUJ0 | 7.02 |
| Gazprombank | RU000A0ZYRY5 | 7.39 |
| Russian Railways | RU000A0ZYU05 | 7.44 |
| Alfa-Bank | RU000A0ZYGB6 | 7.46 |
| Russian Helicopters | RU000A0ZYMM1 | 8.59 |
| Softline Trade | RU000A0ZYLD2 | 11.28 |
| Verkhnebakansky Cement Plant | RU000A0ZYLK7 | 12.37 |
| GruzovichkoF-Center | RU000A0ZZ0R3 | 15.53 |
| Microfinance company "MoneyMan" | RU000A0ZYJX4 | 16.55 |

Source: Compiled by the using the Moscow Exchange data: List of exchange-traded ruble bonds, issued by Russian organizations, with the coupon income that is not subject to individual income tax within the established limits as of 18 May 2018. Available at: <http://www.moex.com/ru/markets/stock/privilegeindividuals.aspx> (accessed 18 May 2018).

Thus, there are numerous corporate bonds with different risk and yield rates, the coupon on which will not be subject to individual income tax. It should be noted that the list of exchange-traded ruble bonds, issued by Russian companies and generating coupon income (coupon rate),

³ Here we present data on the yields of randomly selected corporate bond issues. In fact, this list may contain several issues of bonds of one and the same company and have different yield rates.

which is not subject to individual income tax, is composed of predominantly exchange-traded bonds.

The yield of the MICEX corporate bond index (MICEXCBICP) as of 18 May 2018 amounted to 7.64%⁴. According to the data of the Bank of Russia, the base level of yield on deposits with a more than one-year⁵ amounted to 7.841%⁶ in May, 2018. This imbalance in yield is explained by the fact that the corporate bond market is entered mostly by known and well-reputed issuers of bonds, demonstrating good indicators of quality and period-to-maturity. Consequently, the yield on these bonds is relatively low. As regards the yield on deposits, it is computed for every single commercial bank.

The preferential tax treatment (i.e. corporate tax relief) of corporate income arising out of the purchase of Russian corporate bonds by legal entities has not received much consideration in scientific literature. Nevertheless, it should be noted that in accordance with clause 4 of article 284 of the Tax Code of the Russian Federation, a 15% corporate income tax is placed on interest income derived from a number of Russian bonds issued after 01 January 2017. The criteria that determine whether particular bonds are subject to this tax relief are generally similar to the criteria that are applied to corporate bonds purchased by individuals; however, these criteria have some distinctive features. Lists of bonds, issued by Russian organizations and generating interest income, which is subject to corporate income tax at the rate of 15%, are also compiled and updated by the Moscow Exchange on a daily basis.

⁴ Moscow Exchange. The MICEX corporate bond index (MICEXCBICP), 2011–2018. Available at: <https://www.moex.com/ru/index/MICEX-CBICP> (accessed 18 May 2018).

⁵ Since bonds normally have as a minimum three-to-five year term to maturity; for the purpose of comparison, we can refer only to interest rates on long-term deposits. According to the statistical data of the Bank of Russia, the longest deposit duration is over one year.

⁶ Bank of Russia. The base level of yield on deposits (in May 2018). Available at: http://www.cbr.ru/analytics/basic_level/files/budv_2018-05.pdf (accessed 18 May 2018).

Specificity of investment in bonds via individual investment accounts

Over the last few years, IIA, which were introduced in 2015, have gained much popularity, compared to other individual investor's forms of tax relief. This popularity of IIA, in our view, is associated with their "multipurposeness" (i.e. compatibility with a large number of instruments and suitability for various investors), wide availability, simplicity for understanding, promotion facilitated by a large number of the financial market participants, and a decrease in bank deposit rates. The specificity of opening and operating IIA is studied in detail by O.S. Belomytseva [28].

Bonds are an essential tool for investment with IIA of A-type because they enable working individuals to obtain higher yield, compared to the yield on deposits; and bondization in its turn offers a wide range of tools. According to the authors' observation, about 40% of investors using IIA are conservative and bond-oriented. As regards purchasing bonds via IIA, it should be mentioned that there some restrictions in effect. For instance, it is impossible for an individual to purchase securities of a foreign issuer, which are not admitted to trading on the Russian exchange, as well as federal loan bonds ("people's" OFZ).

On 31 December 2017 the first three-year moratorium on early closure of IIA expired. The main statistically significant results⁷ of the three-year use of IIA for the purposes of the bond segment of securities market as of 31 December 2017 were as follows:

1. The share of government bonds in IIA portfolios was 29.8%; the share of corporate bonds, 14.5% (Figure 2). Since the total assets on IIA reached 43.4 billion rubles at the end of 2017, the share of bonds amounted to 19.2 billion rubles, respectively.

⁷ Source of data: Moscow Exchange. NAUFOR. Report on IIA. Results of 2015–2017. Available at: <https://fs.moex.com/f/9254/iis-2015-2017.pdf> (accessed 20 April 2018).

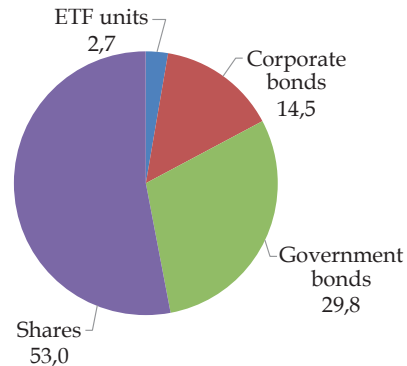


Figure 2. The structure of individual investment account portfolios as of 31 December, 2017, %

2. In the context of the bond investors' trading activity, transactions in government bonds constituted 5% of the trading volume; corporate bonds, 3% (Figure 3). The low share of bond trading in this case is explained by the fact that bond holders primarily purchase them and hold till redemption, which minimizing their trading activity.

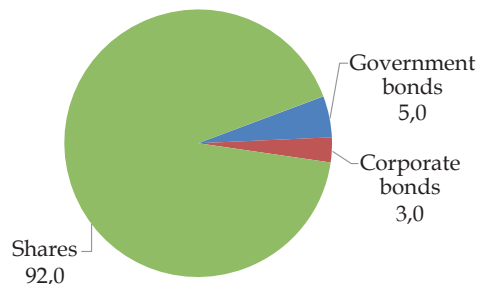


Figure 3. The trading activity of individual investment account holders at year-end 2017, %

3. According to data of the Federal Tax Service, the amount of tax deductions, granted to more than 21,000 IIA holders at year-end 2016, amounted to more than 6.6 billion rubles⁸. The share of bond deductions in this amount cannot be calculated without detailing.

We drew the following conclusions regarding the development of investment tax deduction, linked to the opening of IIA:

⁸ Data for 2015 and 2017 are not freely available.

1. During the first three-year period (period of the account closure-moratorium), IIA were successfully employed by numerous investors. Currently, IIA with B-type deduction prevails; however, in the future the active development of the domestic bond market will presumably shift investors' focus onto IIA with A-type deduction.

2. Introduction of protection (insurance) mechanisms for individuals' investments with IIA is expected to occur in the nearest future.

3. In the course of further development and use of IIA, a number of technical parameters are likely to be adjusted, which involves a possible increase in the amount of annual contribution, more flexible requirements for annual contribution, options for the withdrawal of funds under certain conditions.

Comparing the conclusions that are outlined above with the foreign practice, we should emphasize as follows:

1. In developed foreign countries, bonds are not the dominant instrument in the case of investing through accounts similar to IIA⁹ (Table 2); shares and equity funds prevail. The share of the latter varies from 51 to 54%, which corresponds to the current structure of IIA portfolios in the Russian Federation (Figure 2). The described situation, however, does not invalidate the authors' conclusions about the active role of bonds in investment using IIA. The small percentage of bonds in foreign portfolios can be explained by the fact that this type of investment accounts currently exists only in developed countries, where bond yield is rather low; so bonds are less attractive to investors.

2. IIA analogues are actively developing in other countries and are often modified in search of the optimum result. Issues related to these accounts are studied by O.P. Attanasio and T. DeLeire [21]; C. Cortese and J. Glynn [32]; M. Donnelly and A. Young [20]; etc.

⁹ Accounts that analogous to Russian IIA are as follows: IRA (USA), ISA (Great Britain), Superannuation (Australia), TFSA (Canada), NISA (Japan).

Table 2
The percentages of shares¹⁰ and bonds¹¹ in foreign investment portfolios, formed through accounts analogous to IIA

| Country | Name of account | Percentage of shares, % | Percentage of bonds, % |
|---------------|-----------------|-------------------------|------------------------|
| USA | IRA | 54 | 16 |
| Great Britain | ISA | 54 | – |
| Australia | Superannuation | 51 | 21 |

Source: Compiled by the using of data: Investment Company Institute. Ten Important Facts about IRAs, 2017. Available at: https://www.ici.org/pdf/ten_facts_iras.pdf (accessed 10 May 2018); HM Revenue and Customs. Individual Savings Account (ISA) Statistics, 2018. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/703782/Full_Statistic.

3. The effectiveness of the introduction of IIA analogues and contribution of these accounts to national saving are of significant interest to foreign economists, despite the fact that these issues are rather controversial. For example, J.G. Gravelle [33] found that "IRAs were not effective savings incentives". Likewise, E.M. Engen, W.G. Gale, and J.K. Scholz [34] arrived at the conclusion that the effect of these incentives on saving was next to zero. M. Feldstein, an adherent of the opposing viewpoint, believes that "some of the increase in personal saving raises the corporate capital stock, and this additional capital raises corporate tax payments" [35]. His position on the issue is supported by R.G. Hubbard and J.S. Skinner, who state that "saving incentives generate substantial net capital accumulation over time per dollar of forgone revenue" [36]. Some researchers, e.g. G. Ruggeri and M. Fougere [37], hold the intermediate opinion. Referring to the practice of the Russian Federation, the effectiveness using IIA remains undetermined due to the insufficiency of data on tax deductions linked to IIA.

¹⁰ "Shares" also means "equity funds".

¹¹ "Bonds" also means "bond funds".

Distinctive features of the long-term capital gains exemption

As of 1 January 2015, in accordance with article 219.1, Russian investors can be granted the so called LTCGE, which applies to securities that have been purchased since 2014. The right to receive this tax relief extends to the positive financial result, obtained (in a tax period) from the sale (redemption) of securities traded on the organized securities market and held by the taxpayer for more than three years. LTCGE also applies to securities transferred as a gift or inheritance, excluding the securities held for a period of less than three years due to their redemption or repurchasing.

According to clauses 1, 2, and 3 of article 214.1. of the Tax Code of the Russian Federation; for purposes of the computation of LTCGE and others, the term “exchange-traded securities” comprises:

- securities admitted to trading by the Russian organizer of trade on the securities market;
- units of open-ended mutual funds, managed by Russian asset management companies.

In the case of the sale of securities with the same holding period (N full years, N above or equal 3) the maximum amount of tax exemption will be equal to $N \times 3$ million rub. (Table 3). In the case of the sale of securities with different holding periods, the exemption is calculated with a special formula [28, p. 100].

Table 3

The limit on the long-term capital gains exemption

| Year of purchase of a security | Maximum income by the year of sale of the security | | |
|--------------------------------|--|-----------------|-----------------|
| | 2017 | 2018 | 2019 |
| 2014 | 9 million rub. | 12 million rub. | 15 million rub. |
| 2015 | - | 9 million rub. | 12 million rub. |
| 2016 | - | - | 9 million rub. |

Source: The amount of income was calculated by the authors with reference to article 219.1 of the Tax Code of the Russian Federation by multiplying the amount of years of holding by 3 million rub.

It should be noted that a similar relief was in effect until 2007. However, previously, the full amount gained from the sale of securities, held for more than three years, was tax-free. As regards LTCGE, it ensures a tax exemption only in the amount of the positive financial result, obtained from the sale of securities held for more than three years and purchased after 1 January 2014.

Hence, we can draw a number of inferences with regard to the application of LTCGE in Russia:

1. The tax relief is formulated in a logical, clear, and comprehensible way.

2. LTCGE is primarily aimed at shares as a more volatile, risk-related and profitable instrument; and, in the second place, it is designated for medium-term corporate bonds, so it obviously stimulates medium-term investments of individual investors.

3. Investors are encouraged to purchase bonds with a more than three years term to maturity, which are in ample supply on Russian securities market.

As regards the analysis of LTCGE in the context of comparison with the foreign practice and studies of foreign economists, we found as follows:

1. The terms and conditions of LTCGE are formulated similarly to those of analogous tax reliefs of developed countries, e.g. Great Britain, where such parameters as the holding period (3 years), prohibition of sales, and the requirement of exchange-traded instruments coincide with the parameters of the Russian LTCGE¹².

2. In foreign countries, studies of tax reliefs analogous to LTCGE are nearly absent; there are mostly studies of reliefs linked to shares, the effect of tax reliefs on the trading volume, investors' inclination towards investment, etc.

3. Some authors (e.g. D. Feenberg and L. Summers L. [38]) perform a financial and sociological analysis of capital gains tax reductions analogous to LTCGE, which calls into question the effectiveness of these tax reliefs.

¹² London Stock Exchange Group. A Guide to AIM Tax Benefits. Available at: <https://www.londonstockexchange.com/companies-and-advisors/aim/publications/aimuktaxguide.pdf> (accessed 10 May 2018).

The specificity of the long-term capital gains exemption (Innovation and Investment Market)

Since 2009, the Moscow Exchange has had Innovation and Investment Market (hereinafter IIM). There is even a special MICEX – Innovations Index (MICEX-INNOV), which is calculated as a market capitalization-weighted index of the shares of Russian companies, admitted to trading in the IIM sector.

At the end of 2015, the long-term capital gains exemption, which is applied to income earned from securities of the high-tech (innovation) sector of economy (hereinafter LTCGE-IIM), was introduced in the Russian Federation. The introduction LTCGE-IIM was intended to have a catalytic effect on the development of small and medium-sized enterprises of the innovation sector of Russian economy. This tax relief will be in effect up to 31 December 2022. According to article 284.2.1 of the Tax Code of the Russian Federation, a zero percent individual income tax rate applies to the tax base, generated by gains from the sale or any other disposal (including redemption) of shares, bonds of Russian companies and investment units of issuers of the high-tech (innovation) sector of economy. Here, it is important to note that LTCGE-IIM does not extend to bond coupons and dividends as well as does not imply restrictions on maximum income. The specific features of the implementation of LTCGE-IIM are presented in Table 4.

Table 4

Implementation of the long-term capital gains exemption (Innovation and Investment Market)

| Type of transaction/ income, earned from securities | Applicability of the tax relief, based on the holding period | |
|---|--|-------------------|
| | Up to 1 year | Above one year |
| Purchase/sale | Does not apply | Applies |
| Redemption | Does not apply | Applies |
| Depreciation | Does not apply | Applies |
| Coupons/divi- dends | Does not apply | Does not apply |

An investor is eligible for granting LTCGE-IIM if the following two conditions are contemporaneously respected¹³:

1. Shares, bonds, and investment units on the organized market of securities must be admitted to trading on the IIM.

Requirements for assigning the securities to IIM are as follows¹⁴:

– shares must be issued by a Russian issuer, and the capitalization of a company over the first trading week must not exceed 10 billion rubles¹⁵;

– bonds must be issued by a Russian company, and the company's revenue, excluding VAT for the sold goods (work, services) must not exceed 10 billion rubles¹⁶ per calendar year, preceding the year of inclusion in the IIM sector;

– the value of the net assets of the unit investment fund on the day of inclusion of investment units in the IIM sector must not exceed 10 billion rubles.

The exchange makes a decision regarding the inclusion of securities in the IIM sector upon the application of the issuer and in compliance with the Decree of the Government of the Russian Federation.

2. The investor must continuously hold securities for more than one year. In doing so, the securities must be included in the IIM sector at the time of sale (redemption).

As of 17 May 2018, 15 companies are listed among the issuers of the IIM sector of the Moscow Exchange. Three of companies are issuers of exchange-traded bonds;

¹³ The conditions are stated in accordance with article 284.2.1 of the Tax Code of the Russian Federation.

¹⁴ The requirements are formulated in accordance with the Decree of the Government of the Russian Federation of 22 February 2012 No. 156 "On Approval of Rules on Qualifying Shares and Bonds of Russian Organizations as well as Investment Units, Traded on the Organized Market of Securities, as Securities of the High-Technology (Innovation) Sector of Economy" (edn. 8 December 2016).

¹⁵ As authorized by the Decree of the Government of the Russian Federation of 30 March 2018 No. 356, this amount will be increased to 25 billion rubles on 1 January 2019.

¹⁶ As authorized by the Decree of the Government of the Russian Federation of 30 March 2018 No. 356, this amount will be increased to 25 billion rubles on 1 January 2019 as well.

two, issuers of units of unit investment funds; one, an issuer of units of ETF¹⁷. Nevertheless, the Moscow Exchange included shares of only 9 issuers¹⁸ in the list of securities of the high-tech (innovation) sector of economy for the purpose of claiming tax relief, which reveals the non-conformance of the securities of the other issuers to the above-stated conditions and requirements.

Hence, we can draw the following inferences in relation to the application of LTCGE-IIM:

1. The implementation aspects of the tax relief are formulated in a clear and comprehensible way; however, the existence of two side-by-side reliefs (LTCGE and LTCGE-IIM) in different articles of the Tax Code of the Russian Federation, from our perspective, is irrational. With this in mind, it can be recommended to consider LTCGE-IIM as the type of LTCGE, described above and applied under the article “Investment Tax Deductions” of the Tax Code. In fact, LTCGE-IIM, judging by the essence and the economic rationale of this phenomenon, appears to a type of investment tax deduction. Introduction of special IIA for the purchase of securities of the high-tech (innovation) sector of economy can serve as another approach towards the development of the IIM sector. Similar accounts (innovative finance ISA) have been used in Great Britain since 2008.

2. Theoretically, investors can apply for LTCGE-IIM on transactions with

¹⁷ Moscow Exchange. Issuers of the IIM sector, 2011–2018. Available at: <https://www.moex.com/s68> (accessed 17 May 2018).

¹⁸ Moscow Exchange. List of securities of the high-tech (innovation) sector of economy, which are eligible for tax relief, 2011–2018. Available at: <https://www.moex.com/ru/markets/rii/rii.aspx> (accessed 17 May 2018).

bonds, but there are no de facto bonds in the IIM sector. In the light of the current bond boom and widespread interest of Russian investors in bonds [28, p. 40], this situation is extraordinary and demonstrates the insufficiency of work of the Moscow Exchange and the Bank of Russia with issuers.

3. In case of the further development of the bond segment within the IIM, investors are encouraged to purchase bonds with a more than one year term to maturity.

4. In the IIM sector, there is an obvious lack of units of unit investment funds and ETF, which can be also based upon bonds.

5. The short LTCGE-IIM period as well as the underdevelopment of LTCGE-IIM impede the evaluation of the effect of its implementation or even contribute to the fact that this effect is considered unsatisfactory.

6 The validity period of the tax relief expires in 2022, which generates an illusion of the temporariness of this relief and may lead to the fact that investors will not perceive this tool as a long-term one.

The possibility of reconciliation of the tax reliefs for individual investors

Table 5 presents possible ways of tax relief reconciliation for individual investors.

Here, IIA and LTCGE are regarded as mutually exclusive, since they appear to be varieties of the same investment tax deduction in accordance with article 219.1. Moreover, law does not prohibit the reconciliation of the relief on bond coupons and LTCGE-IIM with IIA. However, this situation does not stimulate purchases of securities of the IIM sector, which is explained by the absence of mass offering of these investment instruments. Ultimately,

Table 5

Reconciliation of the tax reliefs for individual investors on the basis of one investment instrument

| Investment instrument | IIA | LTCGE | LTCGE-IIM | Bond coupons |
|-----------------------|------------|------------------------------|------------------------------|--------------|
| IIA | - | Prohibited | Allowed | Allowed |
| LTCGE | Prohibited | - | Allowed, does not make sense | Allowed |
| LTCGE-IIM | Allowed | Allowed, does not make sense | - | Allowed |
| Bond coupons | Allowed | Allowed | Allowed | - |

the possibility of reconciliation of the coupon relief and IIA is a sign of the following tendencies:

- willful prioritization of the bond as an investment instrument over shares and other instruments;
- prospective domination of A-type deduction in relation to IIA.

A discussion on the status of exchange-traded securities with regard to the financial marketplace

In the context of individual income tax payment, to an individual investor, the most important point is determining the current status of securities, i.e. whether the securities are exchange-traded or not. At first sight, the criteria for the identification of securities as exchange-traded are clearly stated in the Tax Code of the Russian Federation¹⁹. However, the latest idea of marketplace creation entails significant uncertainty about this issue.

The project “Marketplace” was announced by the Bank of Russia at the end of 2017. The aim of the project is to create a system of (1) remote retail distribution of financial products/services and (2) registration of financial transactions. In the terminology of the Bank of Russia, “marketplace” is a system, which combines platforms for financial transactions, data marts to accumulate and present information on financial products (or services), and bots (specialized algorithmized consultants) for selection of products (or services) for final consumers (i.e. individuals). Inherently, it will be a platform offering (to individuals) a wide range of financial products and services, provided by banks, investment, and insurance companies on a competitive basis, with consulting services and registration of transactions being available. The key objective in this case is to ensure that consumers of financial services will have equal access to financial market regardless of geographi-

cal location and other attributes as well as to stimulate competition. Some financial instruments that are interesting to a retail investor (e.g. mutual fund units, ETF units, and structured products), but not traded on exchanges can become more accessible on the marketplace, where the procedure of listing will supposedly not be used. From the authors’ perspective, deposits and bonds are likely to hold the leading positions within the marketplace.

In foreign literature, issues related to the marketplace development are barely presented, which is explained by the fact that this phenomenon is currently at the initial stage of development. Nevertheless, B. Vallee and Ya. Zeng [39] already state that investors themselves will conduct tasks traditionally performed by banks.

In the context of taxation, the marketplace has an unclear and controversial status, being neither an exchange nor a broker, but performing some functions of these bodies. It is obvious that securities, including bonds, purchased via the marketplace, should be granted status similar to that of securities traded on organized securities market. This situation requires introduction of changes to article 214.1 of the Tax Code of the Russian Federation. Without these changes and in case of the absence of these securities trading on exchange, investors will not be entitled to claim a range of reliefs, in particular individual income tax exemption for coupon income on corporate bonds and LTCGE.

Conclusion

Thus, the bondization of Russian securities market corresponds to the overall tendency towards securitization of financial market, i.e. displacement of bank credit by securities. Liberalization of taxation of private investors’ transactions in bonds serves the purposes of the increasing securitization and savings stimulation.

There is no uniform system of tax reliefs for individuals (private investors) in the Russian Federation. For example, bond investors have more tax relief options, compared to individuals who invest in shares. In this context, the following issues, which are directly associated with

¹⁹ These criteria in relation to bonds are presented under the chapter *Changes in the taxation of the individual income derived from corporate bond coupons*; in relation to securities in general, under the chapter *Distinctive features of the long-term capital gains exemption*.

the taxation of individuals' investment, still remain unaddressed:

- equalization of taxation of the investment instruments that are based on bonds (e.g. bond mutual funds and structured products) that are not subject to tax relief;

- a possibility for individuals to apply for exemption from individual income tax payment in relation to income derived from the exchange rate difference occurring in sovereign Eurobond transactions;

- exemption of individuals from investing in units of any mutual funds, not only from investing in bond mutual funds.

Referring to our analysis of particular tax reliefs, it was found that certain technical aspects of IIA require adjustment

and improvement; and that an amendment, identifying LTCGE-IIM as a modification of LTCGE, should be made to the Tax Code of the Russian Federation. An alternative course of the IIM sector development can be associated with the introduction of a special type of IIA, i.e. with innovative finance. The project "Financial Marketplace", announced by the Bank of Russia, is also likely to require that some change should be introduced to the Tax Code of the Russian Federation. This change will consist in improving the definition of exchange-traded securities.

The issues of the effectiveness evaluation of tax reliefs for private investors in the Russian Federation still remain unstudied.

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Determinants of tax incentives for investment activity of enterprises

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ABSTRACT

The article is devoted to the problematic issues of tax incentives for Russian companies. The main prerequisite of the research is that the domestic practice of tax incentives does not meet the interests of the state, since it is in clear contradiction with the declared principles of economic development. The provided tax privileges should promote the investment activity of business. However, tax incentives are often offered to those enterprises that are not able to use them effectively. Justification of tax benefits requires identifying enterprise's investment activity factors, the level of which is largely determined by the corporate life cycle stage and industry specificity. Hypotheses about the importance of corporate age and economic activity, formulated for the purposes of this study, have been empirically confirmed. It was proved that the investment activity of Russian enterprises demonstrated different dynamics in the conditions of the economic crisis. In the manufacturing industry, in particular, most enterprises increased the volume of fixed assets, while in the spheres of petroleum products, dairy products, chemical products, communications on the basis of wire technologies, there was a decline in investment activity. The change in investment activity in the period under study was due to various factors for both enterprises of different industries and enterprises of the same industry characterized by different corporate ages. The results obtained let us conclude that a unified approach to tax incentives for enterprises' investment activity cannot be justified. In the opinion of the authors, "targeted" tools of tax incentives are more efficient.

KEYWORDS

Tax incentives, tax benefits, investment activity, investments, corporate life cycle

JEL H22, H25, G30, G31

HIGHLIGHTS

1. Tax incentives should meet the interests of the state, contributing to the development of the economy. However, in Russia it is increasingly reduced to tax benefits, which increase in volume, but do not bring the desired effect, including the fact that they do not contribute to the growth of investment activity of enterprises
2. It was revealed that the investment activity of the enterprise depends to a significant extent on the stage of the life cycle and industry specificity, which, in the opinion of the authors, should be considered as the determinants of tax incentives. Accordingly, the authors offer the hypotheses about the importance of the corporate age and the sphere of financial and economic activity in shaping the factors of Russian enterprise investment activity
3. Investment activity models for young, adult and old manufacturing enterprises, as well as companies for the manufacture of coke and refined petroleum products, dairy products, chemicals and chemical products, and communications based on wire

technologies have been constructed. It is shown that these models have independent significance, and the factors of investment activity really depend on the corporate age and industry specificity

4. Thus, it is argued that the system of tax incentives in Russia requires development: we should abandon unsystematic tax incentives in favor of target instruments that take into account the financial characteristics of the taxpayer more flexibly

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Детерминанты налогового стимулирования инвестиционной активности предприятий

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АННОТАЦИЯ

Статья посвящена проблемным вопросам налогового стимулирования российских предприятий. Главная предпосылка исследования заключается в том, что отечественная практика налогового стимулирования не отвечает интересам государства, поскольку вступает в явное противоречие с декларируемыми принципам экономического развития. Так, предоставляемые налоговые льготы должны способствовать инвестиционной активности бизнеса. Однако, налоговые льготы зачастую представляются тем предприятиям, которые не способны использовать их эффективным образом. Обоснование системы налоговых льгот требует выявления факторов инвестиционной активности предприятий, уровень которой во многом определяется стадией жизненного цикла и отраслевой спецификой. Гипотезы о значимости корпоративного возраста и сферы экономической деятельности, сформулированные в целях настоящего исследования, получили эмпирическое подтверждение. Было доказано, в условиях экономического кризиса инвестиционная активность российских предприятий демонстрировала разную динамику. В частности, в обрабатывающей промышленности большинство предприятий наращивало объем основных средств, тогда как в сферах производства кокса и нефтепродуктов, молочной продукции, химических веществ и химических продуктов, связи на базе проводных технологий наблюдался спад инвестиционной активности. В то же время изменение инвестиционной активности в исследуемом периоде объяснялось разными факторами как для предприятий разных отраслей, так и предприятий одной отрасли, характеризующихся разным корпоративным возрастом. Полученные результаты позволили сделать вывод о том, что унифицированный подход к налоговому стимулированию инвестиционной активности предприятий нельзя признать оправданным. По мнению авторов, более эффективны «целевые» инструменты налогового стимулирования. Рекомендации в этом отношении могут представлять интерес для отечественного законодателя и тех лиц, в сферу интересов которых входит мониторинг инвестиционного климата в Российской Федерации.

КЛЮЧЕВЫЕ СЛОВА

Налоговое стимулирование, налоговые льготы, инвестиционная активность, инвестиции, жизненный цикл организации

ОСНОВНЫЕ ПОЛОЖЕНИЯ

1. Налоговое стимулирование должно отвечать интересам государства, способствуя развитию экономики. Однако в России оно все больше сводится к налоговым льготам, которые увеличиваются в объемах, но не приносят желаемого эффекта, в том числе не способствуют росту инвестиционной активности предприятий

2. Выявлено, что инвестиционная активность предприятия в существенной степени зависит от стадии жизненного цикла и отраслевой специфики, которые, по мнению авторов, должны рассматриваться как детерминанты налогового стимулирования. Соответственно, сформулированы гипотезы о значимости корпоративного возраста и сферы финансово-хозяйственной деятельности в формировании факторов инвестиционной активности российских предприятий

3. Построены модели инвестиционной активности для молодых, зрелых и старых предприятий обрабатывающей промышленности, а также компаний по производству кокса и нефтепродуктов, молочной продукции, химических веществ и химических продуктов, связи на базе проводных технологий. Показано, что данные модели имеют самостоятельную значимость, а факторы инвестиционной активности действительно зависят от корпоративного возраста и отраслевой специфики

4. Таким образом, аргументировано, что система налогового стимулирования в России требует развития: следует отказаться от бессистемных налоговых льгот в пользу целевых инструментов, более гибко учитывающих финансовые особенности налогоплательщика

Introduction

Tax incentives as the most important direction of the tax policy include a set of measures to reduce the tax burden for taxpayers, encouraging them to “a certain model of behavior that meets the interests of the state” [1, p. 25]. Such a model for modern Russia is an innovation-investment model that provides high rates of labor productivity, outstripping the development of certain sectors of the national economy. Tax incentives are used as an instrument of tax policy for the model implementation. The Russian practice of tax incentives for investment activity of organizations indicates a significant increase in tax benefits provided both at the federal and regional levels (Table 1).

By the end of 2016, almost a third of the subjects of the Russian Federation received less than 10% of revenues from regional taxes and corporate profit tax (in the part to be credited to the regional budget)¹. In addition, despite the tasks

of gradual abolition of tax benefits at the federal level², the volume of falling revenues of regional budgets associated with the provision of benefits for regional taxes and corporate profit tax for 2016 increased compared to the same volume for 2015 in 57 subjects of the Russian Federation³. Until now, the Russian Federation lacks a unified system for monitoring tax benefits, assessing the effectiveness, which would allow making informed decisions as to the appropriateness of using them to stimulate investment activity of enterprises.

Tax incentives as a tool for stimulating investment activity

Tax benefits are a rather contradictory instrument of state regulation, the consequences of which are characterized by a high degree of uncertainty. The negative consequences are, in particular:

² See, for example, The main directions of the tax policy of the Russian Federation for 2016 and the planning period of 2017 and 2018. Available at: http://www.minfin.ru/common/upload/library/2015/07/main/ONNP_2016-2018.pdf/.

³ According to the Ministry of Finance of the Russian Federation, Analysis of tax privileges established by state authorities of the subjects of the Russian Federation for 2016. Available at: https://www.minfin.ru/document/?id_4=119647/.

¹ According to the report of the Ministry of Finance of the Russian Federation on the results of assessing the quality of regional finance management for 2016. Available at: https://www.minfin.ru/ru/performance/regions/monitoring_results/monitoring_finance/.

Table 1

Shortfall in profit tax, corporate property tax and transport tax in connection with the establishment of the appropriate tax benefits for 2006–2016 by the laws of the subjects of the Russian Federation

| Indicator / Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Revenue from profit tax in the budgets of the subjects of the Russian Federation, billion rubles* | 1,106 | 1,496 | 1,711 | 1,058 | 1,500 | 1,907 | 1,970 | 1,692 | 1,952 | 2,098 | 2,272 |
| Shortfall in profit tax due to the tax privileges by the laws of the subjects of the Russian Federation in accordance with Clause 1 of Article 284 of the Tax Code of the Russian Federation (excluding residents of special economic zones and participants of regional investment projects), billion rubles | 34.7 | 27.9 | 41.5 | 38.4 | 50.7 | 63.7 | 63.0 | 53.1 | 77.8 | 88.5 | 61.9 |
| Percentage of the amount of revenue, % ** | 3 | 2 | 2 | 4 | 3 | 3 | 3 | 3 | 4 | 4 | 3 |
| Revenue from corporate property tax in the budgets of the subjects of the Russian Federation, billion rubles* | 198.0 | 257.0 | 315.0 | 374.0 | 409.0 | 454.0 | 533.0 | 609.0 | 631.0 | 709.0 | 760.0 |
| Shortfall in the corporate property tax due to the establishment of tax privileges by the laws of the subjects of the Russian Federation in accordance with Clause 2 of Article 372 of the Tax Code of the Russian Federation, billion rubles | 93.7 | 120.0 | 122.9 | 116.2 | 122.3 | 131.5 | 137.0 | 152.0 | 151.0 | 156.0 | 173.1 |
| Percentage of the amount of revenue, % ** | 32 | 32 | 28 | 24 | 23 | 22 | 20 | 20 | 19 | 18 | 19 |
| Revenue from transport tax in the budgets of the subjects of the Russian Federation, billion rubles* | 24.7 | 36.4 | 45.9 | 49.1 | 56.0 | 66.2 | 82.3 | 99.0 | 113.2 | 135.0 | 135.4 |
| Shortage of the transport tax due to establishment of the tax privileges by the laws of the subjects of the Russian Federation in accordance with Art. 356 Tax Code, billion rubles | 4.7 | 4.6 | 5.1 | 6.0 | 6.2 | 6.6 | 7.3 | 7.7 | 8.7 | 10.5 | 10.6 |
| Percentage of the amount of revenue, % ** | 16 | 11 | 10 | 11 | 10 | 9 | 8 | 7 | 7 | 7 | 7 |
| TOTAL volume of tax benefits granted in accordance with the decisions of the state authorities of the subjects of the Russian Federation, billion rubles | 133.0 | 153.0 | 169.4 | 160.7 | 179.2 | 201.8 | 207.0 | 213.0 | 237.5 | 255.0 | 245.5 |

Notes:

* Only receipts included in the budgets of the subjects of the Russian Federation (different from receipts to the consolidated budgets of the subjects of the Russian Federation for the amount of revenues to local budgets) are taken into account.

** The share of the shortfall is calculated as the ratio of the amount of shortfall in taxes to the amount of received and underpaid taxes (a conditional value that expresses the amount of revenue in the absence of tax incentives).

Source: compiled by the authors according to the Russian Federal Tax Service.

- a decrease in the neutrality of the tax system [2];
- dilution of the tax base, which leads to limiting the possibility of reducing tax rates [3];
- the complexity of regular monitoring of tax incentive use [4];
- the possibility of legislative establishment of tax privileges in isolation from the budgetary process [5];
- distortion of market decisions adoption, including investment [6];
- generation of numerous schemes for avoiding taxes and abuses [7];
- transfer of tax burden from some categories of taxpayers to other categories [8] or, in other words, an unfair distribution effect.

We should note that in the Russian Federation the listed potentially negative effects of tax incentives are supplemented by an ambiguous interpretation of the concept of “tax privilege”. In the Tax Code of the Russian Federation “privileges on taxes and levies are recognized as the benefits provided to taxpayers and payers of fees by legislation on taxes and fees in comparison with other taxpayers or payers of fees, including the possibility not to pay tax or levy or pay them in less”⁴, which makes it difficult to separate tax benefits from other instruments of preferential tax policy. Indication of the Tax Code of the Russian Federation that “the norms of the legislation on taxes and fees, which determine the grounds, procedure and conditions for the application of tax and fee benefits, cannot be of an individual nature”⁵, raises a number of additional problems, among which there are the problems of stimulating investment activity corporate sector. The key question in this respect can be formulated as follows: how to ensure effective stimulation of investment activity, keeping to a solid approach to granting tax benefits?

Attempts to assess the consequences of tax incentives for companies’ investment activity have been made since the

⁴ Art. 56 of the first part of the Tax Code of the Russian Federation.

⁵ Art. 56 of the first part of the Tax Code of the Russian Federation.

second half of the 20th century both in the framework of theoretical studies, and with the use of empirical data. R. Hall and D. Jorgenson became one of the first authors who devoted their research to this problem in opposition to the existing position that “the effectiveness of tax policy in altering investment behavior is an article of faith among both policy makers and economists” [9, p. 391].

R. Hall and D. Jorgenson substantiated the positive impact of the tax policy on accelerating and increasing the volume of investments in the US using the case of tax breaks 1954-1962 in the context of the neoclassical approach. Theoretical studies of these phenomena have been widely developed [10-12, etc.] simultaneously with the widespread use of tax incentives to stimulate investment in developed countries. An empirical analysis of these benefits actual results has led to mixed conclusions. Macroeconomic estimations of changes in investment activity based on time series illustrated both the existence of a connection with tax changes and their absence (for more details see [13; 14]). Obviously, the definition of interconnection in this way is extremely complicated both by the need to highlight the impact on investment of precisely tax instruments, and the averaged substantial differences in the response to tax incentives of various economic subjects. These points were mitigated when assessing microeconomic data for individual companies.

Against the background of theoretical discussions, J. Cummins, K. Haset and R. Hubbard [15] considered the ongoing tax reforms in the US as a natural experiment. Based on the analysis of enterprises panel data, the authors showed a positive increase in investments based on the results of 13 episodes of tax reforms in 1962–1988, and the investment activity of companies was higher when they received larger tax breaks. Thus, the researchers made the conclusion about the impact of long-term changes in corporate taxation on the level of investment in fixed assets. The transfer of the methodology for assessing investment activity based on the results of tax breaks on tax reforms for the

period 1982–1992 in fourteen countries [16] has led researchers to not so unambiguous results: a statistically significant positive response to investment in tax incentives was identified only for twelve countries.

In the following decades, microeconomic studies of the reaction of companies' investment activity on tax incentives continued (a detailed review: [17]), but they got the greatest depth in recent years. If the study of the tax reform consequences in the US in 1962–1988 by J. Cummins, K. Haset and R. Hubbard [15] included from 251 to 1,294 companies (depending on the analyzed year), then similar estimations for 2001–2010 were obtained on the basis of panel data for 120,000 companies [18]. The authors differentiated the effectiveness of tax incentives to stimulate investment activity both in terms of the size of companies (for small and medium enterprises it was higher than for large ones) and by the nature of benefits (greater investment activity was ensured by benefits that implied earlier savings on tax).

The work of E. Ohrne [19] was devoted to the comparison of the consequences of various tax methods to stimulate investments in fixed assets. He compares the benefits associated with accelerating the write-off of the value of fixed assets, with a reduction in corporate profit tax rates for certain areas of US companies. E. Ohrne concluded that there is the same efficiency of both tax instruments to stimulate investment activity.

What difficulties do researchers face when measuring the relationship between tax incentives and business investment activity using empirical data? And why are their conclusions not always unambiguous? We are listing the main conclusions below:

- it is important to correctly determine the analyzed period, taking into account the variability of the tax policy⁶;

⁶ In particular, S. Mishchenko [20] writes that as a result of the financial crisis of 2008–2009, many countries temporarily limited tax incentives programs for their companies, including their investment activities, which, in the author's opinion, could adversely affect the pace of economic growth in the future.

- there are objective limitations related to the specifics of preparing and presenting financial statements as the main source of information about the analyzed companies;

- it is difficult to exclude distortion of data due to the growth of investment activity in the periods of tax incentives due to its artificial reduction on the eve of the introduction of benefits and the potential decrease after the abolition of benefits;

- certain external and internal conditions of the companies' activities are able to have a significant impact on their response to tax incentives, which also applies to investment activity;

- the behavior of decision-makers, including financial managers of companies, does not always correspond to theoretical assumptions based on the assumption of rationality.

In the second half of the twentieth century the analysis of taxation instruments is often supplemented by an assessment of their perceptions [21; 22], including taking into account national peculiarities [23] and economic conditions [24]. In 2008, J. Jolie [25] co-authored a survey of company executives that were subject to and not subject to a tax break stimulating investment and job creation in North Carolina, the United States. Most executives in both groups preferred a reduction in the overall corporate tax rate to the introduction of tax incentives; while only 30% of CEOs who were eligible for an investment tax credit were aware of it.

As for detailing the characteristics of companies to assess their response to tax incentives for increasing investment activity, as already indicated, a separate consideration of the investment behavior of small and large business representatives is common [18; 26]. Considering the remaining parameters is undertaken quite rarely.

In this regard, we shall note an attempt to include companies in the analysis according to the industries for which tax incentives are directed [19]. At the same time, theoretical conclusions about the different impact of tax incentives on investment activity, depending on the type of company activity, were made, in

particular by A. Auerbach and Jr. Hines [27]. E. Ohrne [19] also considers the influence of the company's age on changes in investment activity in connection with tax benefits: the performance of 25% of the oldest companies in the sample were found to be statistically significant (they showed an increase in investment activity due to a reduction in the general tax rate for profits, and less old companies reacted more to tax benefits).

In our opinion, the duration of company existence really matters to stimulate its investment in fixed assets. It is well known that enterprises are interested in increasing investment activity as long as the capital return grows. In the future their interest lies in maintaining the optimal level of capital intensity. Accordingly, the need for financial resources and appropriate sources to finance investment activity for both reaching the optimal level of capital intensity and maintaining it will vary significantly depending on the general state of the economy and, not least, on the stage of the enterprise's life cycle.

The origins of scientific ideas about the organizational life cycle (OLC) are traced in the ideas of organicism, the peak of interest in modern history falls on 1920–1930 [28]. The formation of the OLC concept occurs later – in the 1950–1960's, and since the 1980s the concept is widely used in corporate governance, forming one of the main directions of the theory of organizational change management.

The research of the OLC can be systematized in various ways [29], for instance according to the functions of corporate governance, including financial management. The most specific features of the OLC are presented in the context of strategic financial decisions. Thus, E. A. Fedorova and E. Yu. Persidskaya [30; 31] proved that corporate age⁷ is a significant determinant in capital structure management of Russian companies. This conclusion correlates with

⁷ For the purposes of the study, the corporate age will be considered as an evaluation of the enterprise's life cycle stage (respectively, young, adult or old). In this sense, the corporate age should be distinguished from the actual (the life of the enterprise from the moment of its foundation).

the results of studies by foreign authors testing factors that predetermine the capital structure of American and European companies [32–34, etc.]. Accordingly, the stage of the life cycle must be taken into account in the management of the firm's value, which in turn is confirmed by empirical studies [35; 36, etc.]

Despite a great number of works on the financial aspects of the OLC, this area has significant development potential, which fully relates to the issues under study. It is impossible not to note the obvious conventionality of financial models of corporate age estimation based on cash flows [34; 37] or on financial ratios [31; 36; 38]. In addition, the issues of tax regulation of company investment activity, taking into account the OLC, whose importance is mostly not questioned in the "management of the taxation of an economic entity", are still little studied [39, p. 173].

An important exception is the work of Yu. B. Ivanov, characterizing the tools of tax incentives depending on the stage of the life cycle of the innovation process (for example: [40, p. 499–507]). However, according to the authors, the issue of tax incentives can be put more widely. In particular, it is advisable to formulate and verify a number of hypotheses regarding the factors of investment activity in the stages of the OLC, which determined the methodology of the study.

Methodology

To reach the objectives of the research we offered the two hypotheses:

Hypothesis 1. The corporate age (the stage of the life cycle) is a significant factor in the level of investment activity of the enterprise.

Hypothesis 2. The effectiveness of tax incentives as a tool to stimulate investment depends on the corporate age of the enterprise.

The authors made a great number of calculations to find out the factors of company investment activity among the enterprises of various industries in 2011–2016 assuming the relevance of the OLC. In general, the following facts were revealed:

1. First, in many industries there has been a significant reduction in the number of investment-active enterprises⁸.

2. Secondly, many investment-passive enterprises experienced an increase in profit before tax compared with 2015, which may reflect the presence of external restrictions on investment activity. This conclusion is correlated with Federal State Statistics Service's data, according to which among the key factors limiting the investment activity of enterprises, the most significant in 2015–016 was the factor of economic situation uncertainty in the country (Table 2).

Table 2

**Distribution of organizations
in assessing the factors limiting
investment activity (as a percentage
of the total number of organizations)**

| Factors | 2000 | 2010 | 2014 | 2015 | 2016 |
|---|------|------|------|------|------|
| Insufficient demand for products | 10 | 19 | 23 | 28 | 27 |
| Lack of company's own funds | 41 | 67 | 60 | 61 | 61 |
| High percentage of commercial loans | 47 | 31 | 29 | 56 | 56 |
| A complex mechanism for obtaining loans for the implementation of investment projects | 39 | 15 | 16 | 42 | 46 |
| Investment risks | 35 | 23 | 30 | 60 | 50 |
| Unsatisfactory condition of the technical base | 18 | 5 | 7 | 18 | 22 |
| Low profitability of investments in fixed assets | 8 | 11 | 13 | 22 | 20 |
| Uncertainty of the economic situation in the country | 49 | 32 | 34 | 66 | 61 |
| Imperfect regulatory framework governing investment processes | 36 | 10 | 11 | 27 | 27 |

Source: Federal State Statistics Service of Russia.

⁸ For research purposes, investment-active enterprises are those that have had an increase in the value of fixed assets in the analyzed period. Enterprises demonstrating other dynamics of fixed assets are designated as investment-passive.

3. Thirdly, the economic crisis had a different effect on the investment activity of enterprises in certain industries. So, in 2016 in the manufacturing industry, over 60% of enterprises remained investment-active. At the same time, the share of similar companies in the spheres of manufacture of coke and refined petroleum products, dairy products, chemicals and chemical products, communications based on wire technologies did not exceed 40%.

The revealed differences correspond with the principles of sector rotation, according to which different industries react ambiguously to the dynamics of the business cycle (see, for example: [41]). Thus, the hypothesis that the tools of tax incentives for investments should be adjusted to the sectoral specifics was further considered (**Hypothesis 3**).

This hypothesis predetermined the principle of forming **industry models of investment activity**. At the same time, depending on the level of investment activity of the industry in the analyzed period, different models of corporate age scoring were used.

For investment-active industries (with a share of investment-active enterprises over 60% in the analyzed period), a corporate age assessment model was used, based on the assumption of a uniform distribution of the company population over the life cycle stages [42]. Thus, the characteristics "low" / "young" was assigned to the enterprises, where the value of the analyzed indicator corresponded to the interval up to the 33th percentile; the characteristics "middle" / "adult" corresponded to the interval from 33 to 66 percentile; "High" / "old" corresponded to the interval from the 66th percentile.

Further, by analogy with other Russian studies in the field of financial aspects of organizational change [31; 38], the authors distributed the analyzed companies by corporate age on the basis of three determinants (Table 3).

The score characteristics of the stages of the OLC is presented in Table 4.

Table 3

**Determinants
of enterprise's corporate age
in the investment-active industry**

| MRETA | MSG | AGE | Score |
|--------|--------|-------|-------|
| Low | High | Young | 1 |
| Middle | Middle | Adult | 2 |
| High | Low | Old | 3 |

Notes:

MRETA is the median of the ratio of retained earnings to total assets, MSG is the median of the growth rate of revenue, AGE is the actual age since the moment of foundation.

Median values were estimated over 3 years, including the year of the study.

Table 4

**Score characteristics
of enterprise's corporate age
in the investment-active industry**

| Score | 3-4 | 5 | 6 | 7 | 8-9 |
|---------------|--------|---|--------|---|----------|
| The OLC stage | Growth | - | Mature | - | Stagnant |

Investment activity was estimated as the growth rate of fixed assets:

$$CapEx_t = \frac{FA_t - FA_{t-1}}{FA_t},$$

where:

CapEx – capital expenditure reflecting investment activity;

FA – the book value of the company's fixed assets at the beginning (*t-1*) and the end (*t*) of the analyzed period, respectively.

One year is adopted for the base reporting period.

The most relevant indicators were used as explanatory variables, namely:

- capital intensity of the company – *CI*;
- capital productivity – *CapProd*;
- lag variable of investment activity – *CapEx_{t-1}*;
- level of debt – *Debt_t*.

$$CI_t = \frac{FA_t}{TA_t},$$

where:

TA – book value of total assets.

$$CapProd_t = \frac{Rev_t}{FA_t},$$

where:

Rev – revenue.

The presence of a lagged variable of investment activity will make it possible to conclude that there continuity is or lack of continuity in the implementation of investment activities.

$$CapEx_{t-1} = \frac{FA_{t-1} - FA_{t-2}}{FA_{t-1}},$$

$$Debt_t = \frac{LTD_t}{TA_t},$$

where:

LTD – long-term debt.

For investment-passive industries (with a share of investment-active enterprises of not more than 40%), the use of the above corporate age assessment model did not adequately distinguish the corporate age, since in the crisis conditions, the overall performance of the sample deteriorated significantly.

On the one hand, this result reflects an increased risk of premature termination of the organizational life cycle. On the other hand, to admit that most of them “grow old” during the crisis would not be completely correct. This circumstance led to a more detailed approach to the assessment of corporate age, abandoning the principle of uniform distribution, which is appropriate at other stages of the business cycle. Thus, the corporate age assessment model was revised on the updated principles:

- firstly, it was further confirmed that this model should not be limited to financial characteristics, so the actual age of the companies was still taken into account;

- secondly, the financial characteristics of the OLC stages was adjusted from the position of analyzed indicators' dynamics;

- thirdly, revenue and financial results indicators (and associated coefficients) were more irrelevant, more exposed to external factors than, for example, the book value of assets. Thus, the division of enterprises into the stages of the OLC was carried out as follows (Table 5).

Table 5
Determinants of the corporate age of enterprises in the investment-passive industry

| Growth of assets for 2016 | Actual age | Score |
|--|----------------------------|-------|
| More than 5% of the growth variation across the sample | From 1 year to 10 years | 1 |
| From 0 to 5% of the growth variation across the sample | From 10.5 year to 20 years | 2 |
| Negative growth | More than 20 years | 3 |

The score characteristics of the OLC stages is presented in Table 6.

Table 6
Score characteristics of enterprise's corporate age in the investment-passive industry

| Score | 2-3 | 4 | 5-6 |
|---------------|--------|--------|----------|
| The OLC stage | Growth | Mature | Stagnant |

The model of enterprises' investment activity at the second stage of the research was also modernized. As an indicator of investment activity, the indicator of "fixed assets growth" was used in 2016 as compared to 2015:

$$CapExInc_t = FA_t - FA_{t-1},$$

where:

$CapExInc$ – capital expenditure increase reflecting investment activity in the form of fixed assets growth.

The composition of the explanatory variables was also changed. For the increase in fixed assets the following explanatory factors were used:

- profit before tax for the current period – $Profit_t$;
- profit before tax for the previous period – $Profit_{t-1}$;
- long-term liabilities for the current period – $LTDebt_t$;
- long-term liabilities for the previous period – $LTDebt_{t-1}$;
- short-term liabilities for the current period – $STDebt_t$;
- short-term liabilities for the previous period – $STDebt_{t-1}$.

The development of models was done using the LSM method in the STATA software package.

At the first stage of the survey, the sample included manufacturing companies (hereinafter referred to as "Sample 1"). The sampling process was based on the following principles:

- we included enterprises with assets of more than 10 million rubles at the end of each reporting period (from 2011 to 2015);
- the date of registration of these enterprises should be no later than 2012;
- subsidiaries were excluded;
- enterprises with transitional stages of the life cycle (scores of 5 and 7, see le 4) were not taken into account.

Taking into account the adopted principles and assumptions, Sample 1 was 2,290 enterprises-years (Table 7).

Table 7
Distribution of enterprises in Sample 1

| Stage of the OLC | 2011 | 2012 | 2013 | 2014 | 2015 | Total number of enterprises |
|-----------------------------|------|------|------|------|------|-----------------------------|
| Growth | 151 | 123 | 124 | 128 | 124 | 650 |
| Mature | 205 | 157 | 180 | 160 | 171 | 873 |
| Stagnant | 162 | 148 | 159 | 153 | 145 | 767 |
| Total number of enterprises | 518 | 428 | 463 | 441 | 440 | 2,290 |

At the second stage of the study, the sample included companies from the following spheres of economic activity: manufacture of coke and refined petroleum products, dairy products, chemicals and chemical products, and also the companies in the field of communications based on wire technologies⁹.

Given the dramatic change in the external business environment in 2016, it was decided to abandon the principle of combining data by years in a continuous sample, as shown in Table 7.

In addition, only investment-active companies with a non-zero positive increase in the book value of fixed assets in

⁹ We emphasize that the industries that demonstrate a different degree of sensitivity to changes in the economic environment has been specially included into the sample. In particular, communication enterprises represented the growth sectors, petroleum and chemical industry enterprises – cyclical branches, dairy enterprises – protective industries (see the classification of industries, for example: [30]).

2016 as compared to 2015 were analyzed. Accordingly, the models of investment activity for the stages of the OLC were constructed according to the data of Sample 2 (Table 8).

The system of professional market analysis and companies "SPARK" was used as a source of information.

Results

Following the results of the first stage of the study, the following models were built.

The model of investment activity of the enterprises of Sample 1, explaining 75% of the dependence, at the growth stage was as follows:

$$CapEx_t = 0.492 - 1.099CI_{t-1} + 0.672Debt_{t-1},$$

where:

CapEx – capital expenditure;

CI – capital intensity;

Debt – level of debt.

From this equation one can see that for extractive industry enterprises that are at the growth stage, there is a basic level of investment activity provided by their own funds (growth rate of fixed assets is equal to 0.492), which is adjusted by indicators of the level of debt and capital intensity in the previous period.

Moreover, if the level of debt burden, which is primarily determined by the volume of long-term debt, positively affects the investment activity growth of the enterprise (increasing the share of debt in total assets by 1% leads to an increase in the growth rate of fixed assets by 0.672%), then the level of capital intensity is a deterrent. With the growth of capital intensity in the previous period, the pace of investment in fixed assets in the next period is declining.

At the stage of maturity, the model of investment activity of the analyzed enterprises changes:

$$CapEx_t = 0.086 + 0.1992CapEx_{t-1}.$$

From this formula one can see that at the stage of maturity, the level of growth in investment activity no longer depends on the level of the debt burden or on the capital intensity ratio. The basic level of investment activity growth is 8.6% and is adjusted mainly (at $R^2 = 56\%$) by the results of the previous period ($t - 1$).

$$CapEx_t = 0.049 + \\ + 0.18CapEx_{t-1} - 0.00095CapProd_{t-1},$$

where:

CapProd_{t-1} – capital productivity of the previous period.

Table 8

**Distribution of fixed assets growth in 2016 by 2015
by groups of sampling enterprises and stages of the OLC**

| The number of enterprises | Group number | | | |
|---|--------------|-------|-------|-------|
| | 1 | 2 | 3 | 4 |
| Total number of enterprises, units; including: | 262 | 1,464 | 3,084 | 3,809 |
| enterprises with a positive increase in fixed assets (Sample 2), units | 96 | 526 | 984 | 982 |
| Share of enterprises with positive growth of fixed assets, % | 37 | 36 | 32 | 26 |
| Number of enterprises according to the stages of the OLC in Sample 2, units | | | | |
| Growth | 36 | 197 | 349 | 414 |
| Mature | 42 | 165 | 391 | 401 |
| Stagnant | 18 | 164 | 244 | 167 |
| The share of enterprises in the stages of the OLC, Sample 2, % | | | | |
| Growth | 37 | 37 | 35 | 42 |
| Mature | 44 | 32 | 40 | 41 |
| Stagnant | 19 | 31 | 25 | 17 |

Note:

Group 1 – manufacture of coke and refined petroleum products.

Group 2 – manufacture of dairy products.

Group 3 – manufacture of chemicals and chemical products.

Group 4 – communications based on wire technologies.

Table 9

Dynamics of Selected Financial Indicators of Sample 2

| Average indicator increase in 2016, rubles / Industry | Communication on the basis of wire technologies | Manufacture of coke and refined petroleum products | Manufacture of dairy products | Manufacture of chemicals and chemical products |
|---|---|--|-------------------------------|--|
| Fixed assets | 25,533,481 | 2,491,212,833 | 31,506,502 | 62,829,375 |
| Revenue from sales | -3,050,146 | -663,101,281 | 7,180,017 | -40,534,055 |
| Profit before taxation | 43,934,299 | 886,997,104 | 2,756,053 | 67,517,084 |
| Long term liabilities | 33,821,561 | 1,595,209,948 | 4,406,825 | -95,950,303 |

As the stagnation phase begins, the basic level of investment activity of the sample enterprises decreases from 8.6% to 4.9%, the influence of the investment activity factor of the previous period (from 0.1992 to 0.18) reduces, and the return on capital ratio becomes the main deterrent to investment. In other words, the rate of decline in investment activity is proportional to the growth of capital productivity in the previous period.

Thus, getting more significant revenue, aging enterprises do not seek to invest it, being satisfied with the available fixed assets. The additional revenue, closely related to the increase in retained earnings, after covering all necessary expenses is used for other purposes.

In general, the first stage of the study confirms the main hypotheses. First, corporate age is important in the investment activity of enterprises, reflecting various significant factors. Secondly, the provision of tax incentives to enterprises at the stage of maturity and stagnation will not directly affect their investment activity, while at the growth stage it will reduce dependence on long-term borrowings and, thereby, improve financial stability.

In the second phase of the study, there were significant industrial differences in the available sources of investment financing (Table 9).

As one can see from table 9, the enterprises of the sample engaged in the manufacture of dairy products, as well as coke and refined petroleum products, had the growth in long-term liabilities which almost doubled the increase in profit before tax. Accordingly, the investment activity in the period under review was mainly dependent on long-term borrowings.

The situation is different with the investment activity of enterprises operating in the manufacture of chemicals and chemical products. There was a significant decrease in the volume of long-term liabilities, which significantly exceeded the growth of profit before tax.

These differences are demonstrated in the investment activity models summarized in Table 10.

As one can see from Table 10, different factors of investment activity are significant for different stages of the OLC and different industries. Thus, the first hypothesis on the importance of corporate age is confirmed¹⁰.

At the same time, different models of investment activity lead to the conclusion that tax incentives will have an ambiguous impact on the investment activity of enterprises of different corporate ages and different industries, which confirms the second and third hypotheses of this research.

Conclusions

The study showed that the system of tax incentives in Russia requires development taking into account the factors and conditions of enterprises' investment activity. Among the defining conditions for investment activity is the corporate age, which should be analyzed in the context of the industrial specifics and economic condition. In many cases, tax incentives will not bring the desired effect, contributing not to reinvestment, but to the withdrawal

¹⁰ It is noteworthy that the model of investment activity dependence on the identified financial determinants turns out to be insignificant throughout the sample without considering corporate age.

Table 10
Characteristics of models of investment activity

| Stage of the OLC | Model | Significant factors* | | | R ² , % |
|---|--|----------------------|-----------------------|------------------|--------------------|
| | | Profit _t | Profit _{t-1} | STD _t | |
| <i>Communications based on wire technologies</i> | | | | | |
| Growth | $CapExInc_t = 0.57Profit_t + 1.08LTD_{t-1} - 1.17LTD_{t-1} + 0.9STD_{t-1} - 0.92STD_{t-1}$ | | | | 95 |
| Mature | $CapExInc_t = 0.75Profit_t + 0.7Profit_{t-1} + 1LTD_{t-1} - 1.1LTD_{t-1} + 0.74STD_{t-1} - 1STD_{t-1}$ | | | | 87 |
| Stagnant | $CapExInc_t = 0.2Profit_t - 0.16Profit_{t-1} + 0.27LTD_{t-1} - 0.41LTD_{t-1} + 0.4STD_{t-1} - 0.22STD_{t-1}$ | | | | 80 |
| <i>Manufacture of coke and refined petroleum products</i> | | | | | |
| Growth | $CapExInc_t = 1.23Profit_t - 1.21Profit_{t-1} + 2.15LTD_{t-1} - 2.56LTD_{t-1} + 0.55STD_{t-1}$ | | | | 97 |
| Mature | $CapExInc_t = 1.4Profit_t - 0.44Profit_{t-1} + 0.35STD_{t-1}$ | | | | 95 |
| Stagnant | $CapExInc_t = 0.7Profit_t + 0.3LTD_{t-1} - 0.13LTD_{t-1} - 0.47STD_{t-1}$ | | | | 80 |
| <i>Manufacture of chemicals and chemical products</i> | | | | | |
| Growth | $CapExInc_t = 1.25Profit_t - 1.05Profit_{t-1} + 0.27LTD_{t-1} + 0.62STD_{t-1} - 0.65STD_{t-1}$ | | | | 99 |
| Mature | $CapExInc_t = -1.07Profit_{t-1} + 0.65LTD_{t-1} - 0.53LTD_{t-1} + 0.27STD_{t-1} - 0.22STD_{t-1}$ | | | | 90 |
| Stagnant | $CapExInc_t = -0.18Profit_t + 0.16Profit_{t-1} + 0.16LTD_{t-1} - 0.1LTD_{t-1} + 0.1STD_{t-1}$ | | | | 86 |
| <i>Manufacture of dairy products</i> | | | | | |
| Growth | $CapExInc_t = 1.25Profit_t - 1.05Profit_{t-1} + 0.27LTD_{t-1} + 0.62STD_{t-1} - 0.65STD_{t-1}$ | | | | 63 |
| Mature | $CapExInc_t = -1.07Profit_{t-1} + 0.65LTD_{t-1} - 0.53LTD_{t-1} + 0.27STD_{t-1} - 0.22STD_{t-1}$ | | | | 92 |
| Stagnant | $CapExInc_t = -0.18Profit_t + 0.16Profit_{t-1} + 0.16LTD_{t-1} - 0.1LTD_{t-1} + 0.1STD_{t-1}$ | | | | 21 |

Notes:

* Gray indicates the factors that are significant in the models at the 5% level.

CapExInc_t – capital expenditure increase; Profit_t – profit before tax for the current period; Profit_{t-1} – profit before tax for the previous period; LTD_t – 1 long-term liabilities for the current period; LTD_{t-1} – long-term liabilities for the previous period; STD_t – short-term liabilities for the current period; STD_{t-1} – short-term liabilities for the previous period.

of profits. In this regard, it is worth noting the extremely low investment activity of the analyzed enterprises in 2016. And this applies not only to enterprises that are in the stage of stagnation, but also to the companies at the stage of maturity and even growth.

Summarizing the foregoing, one should once again ask the principal question: how expedient is the use of tax incentives in current conditions to stimulate enterprises' investment activity, given that many need support?

In our opinion, the use of the "tax incentive" tool in the current business environment in Russia can hardly be considered justified to encourage the investment activity of enterprises. Here, "point" and "targeted" instruments of tax incentives are appropriate, such as:

- reduction of taxable profit by the amount of investment in fixed assets;
- tax holidays for profit tax, which is directly related to investment activities (for enterprises using their own sources of investment financing);
- postponement of payment of profit tax received as a result of implementation of investment projects;
- reduction of the taxable base for corporate property tax on fixed assets purchased in the current period.

Developing a system of tax incentives seems to be one of the most important factors for increasing the investment activity of Russian enterprises, which in

turn is a necessary prerequisite for intensive economic growth and ensuring national competitiveness. The obtained results develop the scope of using the OLC concept, which, according to the authors, should be more widely used in financial research, including the justification of methodological approaches to investment management and company taxation. This conclusion corresponds to the position of individual authors (see, for example: [39, p. 173; 40, p. 499–507]), which, however, is not currently widely accepted.

We also note that the findings of the survey as a whole do not contradict the results of the analysis of various tax policy instruments to stimulate the investment activity of the corporate sector in the United States [19]. However, it was revealed that the transformation of the enterprise's calendar age into a corporate one improves the evaluation methodology, allowing for more accurate results.

Author's model of assessing the corporate age of the organization contributes to the development of financial management, which overcomes the limitations of the simplest scoring model [30; 31; 38; 42]. The search for effective approaches to the financial evaluation of organization's corporate age, in turn, seems to be the most important prerequisite for further research on the determinants of tax incentives for enterprises' investment activity.

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ABSTRACT

Excessive consumption of strong spirits in today's Russia continues to generate a number of negative effects. This makes it highly relevant to change consumers' preferences so that they choose low-alcohol drinks, wine and beer. Beer is the most promising drink in terms of its capacity to replace strong alcohol in the structure of consumption. Russia's beer industry needs additional fiscal incentives. The purpose of this study is to analyze the taxation of beer in Russia and propose improvements to beer taxes. The authors proceed from a hypothesis that by improving the system of excise duties on alcoholic drinks in Russia by means of beer excise tax rates that vary based on alcohol content would make it possible to change the price structure of beer of various strengths. That would encourage consumers to shift their preferences in favor of lower-alcohol products. The research method includes the analysis of excise duty revenues in Russia as a percentage of total government revenue as well as the structure and dynamics of excise duty revenues in Russia by type of alcohol. Special attention has been paid to beverages with low alcohol content and beer. A comparative analysis has been conducted of beer tax rates in Russia and the EU. An unconventional market study has been done of beer sales points to get a picture of the beer sales structure by alcohol content.

KEYWORDS

Excise duties; alcoholic drinks; beer; alcohol content of beer; excise tax rate; price of beer; consumer preferences

JEL H20, H30

HIGHLIGHTS

1. The introduction of beer excise tax rates that vary based on alcohol content in Russia will bring down the price of lower-alcohol products and increase the price of higher strength beers
2. Price differentiation depending on alcohol content will encourage consumers to shift their preferences in favor of lower-alcohol beers
3. The proposed mechanism of calculating beer tax is more fair and rational both for brewers and consumers. From the state's perspective, the changes to beer taxes would result in lower tax revenue, but would help preserve public health and reduce healthcare expenditures thanks to a decrease in the consumption of beer with high alcohol content

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Анализ и совершенствование акцизного налогообложения пива в России

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АННОТАЦИЯ

Злоупотребление крепкой алкогольной продукцией в современной России продолжает приводить к формированию ряда негативных последствий. Кардинальное смещение потребительских предпочтений в сторону потребления слабоалкогольной продукции, вина и пива является крайне актуальной задачей. Наиболее перспективным напитком, имеющим шансы заместить потребление крепкого алкоголя, является пиво. Процесс пивоварения в России нуждается в дополнительных фискальных катализаторах. Целью данного исследования является анализ акцизного налогообложения пива в России и разработка предложений по его совершенствованию. Гипотеза исследования состоит в том, что совершенствование акцизного налогообложения алкогольной продукции в России посредством установления специфической ставки акциза на пиво в зависимости от содержания в нем этилового спирта позволит изменить ценовую структуру производства сортов пива, имеющих разную крепость. Это будет способствовать смещению потребительских предпочтений в пользу слабоалкогольных разновидностей пива. Методика исследования включала в себя изучение удельного веса поступлений акцизного налога в структуре доходов консолидированного бюджета России, а также структуры и динамики поступлений акцизов в бюджет Российской Федерации по видам алкогольной продукции. Особое внимание уделено слабоалкогольной продукции и пиву. Проведен сравнительный анализ видов ставок, применяемых при налогообложении алкогольной продукции в России и в странах Европейского Союза. Проведено оригинальное маркетинговое исследование мест реализации пивной продукции с целью получения структуры продаж пива в разрезе его крепости.

КЛЮЧЕВЫЕ СЛОВА

Акцизное налогообложение, алкогольная продукция, пиво, крепость пива, ставки акциза, цена пива, потребительские предпочтения

ОСНОВНЫЕ ПОЛОЖЕНИЯ

1. Введение в России специфической ставки акциза на пиво в зависимости от содержания в нем этилового спирта снизит цену слабоалкогольных сортов и повысит цену крепких сортов пива
2. Дифференциация цены на пиво в зависимости от содержания в нем этилового спирта будет способствовать смещению потребительских предпочтений в пользу слабоалкогольных разновидностей пива

3. Предлагаемый механизм исчисления акциза на пиво является более справедливым и рациональным для потребителей и производителей продукта

4. Изменение акцизного налогообложения пива приведет к снижению поступлений в бюджет, однако будет способствовать сохранению здоровья населения и сокращению расходов государства на здравоохранение за счет снижения потребления крепких сортов пива

1. Introduction

Excise taxes are a foolproof source of revenue for any government. Today, the need to have and levy excise taxes is driven not only by their fiscal role, but also by the goals of the state regulation of economic and social processes [1].

The alcoholic beverages market in Russia has a number of specific features, such as tough control over and government regulation of the production and sale of alcohol, established channels of the production and distribution of counterfeit alcohol, considerable restrictions on the sale of alcohol (a ban on advertising, limitations on the hours when and place where alcoholic beverages can be sold). The biggest problem of the Russian market is a distorted structure of alcohol consumption that is dominated by strong alcoholic drinks (around 60%), vodka above all.

In the past few years, there has been a decrease in the per capita consumption of alcohol and a gradual increase in the consumption levels of lower-alcohol drinks. However, Russian people's preference for strong alcohol is rather hard. Excessive consumption of strong spirits in today's Russia continues to generate a number of negative effects, including higher crime rates, social degradation, deteriorating health, early deaths etc. This makes it highly relevant to change consumers' preferences so that they choose low-alcohol drinks, wines, and beer. This will improve the demographic situation in the country, increase life expectancy and decrease death rates and encourage people to adopt a healthy lifestyle.

Beer is the most promising drink in terms of its capacity to replace strong alcohol in the structure of consumption [2]. A proof of that can be found in the experience of Nordic countries where hard liquors also used to dominate consumer preferences in the mid of the 20th century.

By the end of the century the Scandinavian countries managed to achieve a shift in consumer choice away from strong alcohol and to forge a healthier model of beer consumption. Generally speaking, the findings of the studies indicate a growing trend toward uniform alcohol consumption patterns across the world due to globalization: in southern regions people are now drinking less wine, while in northern countries the consumption of strong alcohol is down. At the same time, beer sales have been steadily growing in all countries [3; 4].

Russia's beer industry needs additional fiscal incentives. As we know, Europe's beer-brewing countries have been conducting a protectionist policy, offering various tax concessions and other benefits to the beer industry. They do not try to fight against the problem of alcoholism by imposing a ban on the consumption or production of alcoholic drinks. The countries use other anti-alcoholism measures [5]. National beer brewing traditions receive development support, beer festivals become a welcome event; the bar drinking culture is promoted. Additionally, pricing methods find a wide application. The introduction of differentiated excise duties on strong alcohol and beer makes it possible to effectively control consumer preferences. Moreover, even if excise duties on all kinds of alcohol increase equally, that leads to a drop in the consumption of strong liquors [6–8].

At present, excise taxes on alcohol vary by country and by type of drink. In the EU, Directive 92/83/EEC и Directive 92/84/EEC stipulate that Member States should apply a single rate per hectoliter of finished product to wine and other fermented beverages (e.g. cider) and to intermediate products, while beer and strong alcoholic drinks should be taxed on the basis of alcoholic volume [9]. A similar approach to al-

cohol taxation is exercised by other OECD member states outside the EU. Mexico and the Netherlands are exceptions to the general practice as beer there is taxed on the per-unit-of-volume basis.

In Russia, wine, sparkling wine and beer are taxed on the per-liter basis, while ethyl alcohol, strong drinks and low-alcohol beverages are taxed at a rate set per liter of pure alcohol. Therefore, the same tax rate (21 RUB per liter of beer in 2018) is applied in Russia to low-alcohol beer and strong beer with an absolute alcohol by volume (ABV) amounting to 8.6%.

The purpose of this study is to analyze the taxation of beer in Russia and propose improvements to beer taxes.

Hypothesis for research. By improving the system of excise duties on alcoholic drinks in Russia by means of beer excise tax rates that vary based on alcohol content should make it possible to change the price structure of beer of various strengths. That should encourage consumers to shift their preferences in favor of lower-alcohol products.

2. Literature review

Excise taxes on certain goods, including alcoholic drinks, are charged with the purpose of either restricting or controlling their consumption and in order to compensate for the external costs of consumption. Babor and Becker showed that alcohol is not an ordinary product as its consumption generates negative externalities such as antisocial behavior, growing crime rates, public health risks, and consequently results in higher public spending on healthcare [10; 11].

There is a sufficient number of studies that prove the importance of pricing regulation of alcohol products by means of excise taxes. For example, Seim argued that alcoholic drinks should be the focus of close attention of the state that seeks to regulate liquor production and consumption by making alcohol less accessible, as well as by implementing price-boosting policies [12]. Taxation is one of the tools for such regulation. By levying excise taxes, the government, on the one hand, seeks to reduce alcohol consumption and to mini-

mize damage caused by such consumption, to change the structure of such consumption by shifting demand from strong drinks to low-alcohol beverages with lower health risks. On the other hand, excise taxes on liquor are an effective way of earning additional revenues for the public purse that could be spent on rectifying the consequences of the consumption of harmful food products and on healthcare. The findings of a large corpus of studies show that a growth in alcohol prices driven by higher excise taxes leads to a considerable drop in alcohol sales and a reduction in problems associated with alcohol consumption [13–15]. Razvodovsky et al. prove that pricing regulation is an effective tool for the government's alcohol policy for mitigating problems associated with alcohol consumption [16–18].

Some studies argue that the production and sale of alcohol should be closely watched by the state. Alcohol consumption has both positive and negative impacts on the economy and the social sphere. On the positive side, alcohol satisfies people's needs and its production is a source of new jobs both in the industry itself and in related sectors. At the same time, heavy drinking can cause a higher rate of health problems, including alcoholism cirrhosis leads, coronary artery disease, and mortality from malicious damage, road accidents, accidental poisoning and other undiagnosed causes aggravated by alcohol. Alcohol abuse destroys families, leads to orphanhood, homicides, and suicides and require additional public expenditures on the provision of medical aid [19]. These factors have a negative effect on the economy.

There is a wealth of studies substantiating various aspects of the state regulation of alcohol production and consumption. On the one hand, the state takes various measures to decrease alcohol consumption. On the other hand, it seeks to increase public revenue. Striking a balance between the two goals requires an effective government policy in the field of alcohol production and sale. The state anti-alcohol policy is based on measures that are supposed to make alcohol less

affordable and accessible. That means making it more expensive by means of taxation and limiting physical access to it by reducing the number of points of sale, imposing limitations on the hours when it can be sold and raising the legal drinking age [20].

Some authors analyze the implications of exercising various policies of government control over the production and sale of alcoholic drinks [21]. There are several forms of government regulation of the production and sale of alcohol products in the world: total control (state monopoly), partial control (licensing system), or no control (anybody is allowed to make or sell alcoholic beverages). Most of the European countries elect to issue licenses to produce and sell alcohol. The state monopoly approach is only utilized in Finland, Norway (on alcoholic beverages over 4.7 percent by volume) and in Sweden (on alcoholic beverages over 3.4% by volume) [21].

State control over the production and sale of alcohol may envisage sale restrictions such as restrictions on hours, days and places of sale (healthcare and education facilities, government buildings, public transport, sporting and youth events etc.), and the density and location of outlets, restrictions on advertising [television, internet, print, billboards], the legal drinking age. The effectiveness of such restrictions in individual countries depends on numerous factors, including local customs, people's habits and Orthodox traditions [22; 23].

Over the past few decades, there has been a surge of studies investigating alcohol-induced behavioral reactions and the issues of alcohol dependency [11]. For example, Levy and Sheflin draw a distinction between the behavioral reactions typical of moderate drinking and of alcohol abuse [26]. The authors argue that a proactive tax policy influences the behavior of people consuming alcohol, but has no impact on the behavioral reactions of those abusing alcohol. The latter group will not change its behavior in favor of low-alcohol drinks if the price of their beverage of choice grows. There has also been plenty

of work on the fiscal impact of tax revenue from the production and sale of alcohol on various levels of government [27; 28].

The above-mentioned aspects appear to have been well investigated. The influence of tax rates on overall alcohol consumption has also been sufficiently researched. However, the influence of various excise tax rates on the interests of government revenue, producers and consumers remains understudied. Traditionally, strong alcohol is taxed per amount of ethanol, but there is no uniform approach to levying different tax rates on beer.

3. Methodology

The analysis of excise taxes on beer was performed within the framework of a general analysis of alcohol production in Russia in 2010–2016. The research method includes the analysis of excise duty revenues in Russia as a percentage of total government revenue as well as of the structure and dynamics of excise duty revenues in Russia by type of alcohol. Special attention has been paid to beverages with low alcohol content.

The market for low-alcohol products consists of a number of segments: beer, medovukha (a honey-based fermented drink), fortified beer, beer cocktails, cider, perry. The product range and structure change all the time, but the market share of beer never falls below 91%, hence the close attention to taxes on beer. Data on Russia's government revenue, revenues by type of taxable goods, including alcohol and the tax rates and alcohol consumption were retrieved from the website of the Federal State Statistics Service (Gks.ru) and the Federal Tax Service (Nalog.ru). Calculations of the percentage of excise tax revenues in Russia's total general government revenue take into account revenues from state extra-budgetary funds.

Excise tax revenues in Russia are received from taxes levied on the goods produced in Russia or imported into Russia. Taxable goods produced in the country account for the biggest share (93–95%) of the total excise tax revenues. For that reason, the analysis of the structure of excise tax revenues by type of alcohol was

performed with regard to alcohol drinks made in Russia.

For the purposes of the analysis, four major groups of alcohol products were distinguished: alcohol drinks with an ABV over 9%; beer, wine, and other drinks with an ABV equal or under 9%. Within the group of over 9% alcohol by volume that includes cognac, strong liquors, brandy, calvados, and vodka, the latter holds the biggest share. The beer group incorporates beers with an ABV over 0.5% and fortified beer-containing drinks and beer cocktails (between 2013 and 2016). Other low-alcohol drinks with an ABV under 9% are cider, medovukha, perry, champagne and sparkling wines.

The authors also studied the dynamics of alcohol consumption under the influence of changing tax rates and prices by type of alcoholic drink. A comparative analysis was conducted of the excise taxes on alcohol in Russia and the EU member states. Data on the effective tax rates on alcohol can be found on the website of the Federal State Statistics Service (Gks.ru) and the European Commission (Ec.europa.eu).

The main outcome is substantiation of the need to change the way beer is taxed in Russia by introducing some variation in rates across different ABV contents and the calculation of the fiscal impact of the proposed measure.

The calculations are based on a hypothesis that the structure of beer production and sales matches that of its consumption. The structure of beer consumption was determined by conducting a market study of retail points of beer sale.

The market study was aimed at mapping the sales structure of beer broken

down by strength. The study covered 15 major retail chains and four specialist beer shops in Yekaterinburg. The study was designed as a comprehensive observation survey conducted by the authors in May 2018. The retail outlets for the survey were picked by means of simple random sampling out of a population of stores that each sold over 15 kinds of beer. The beer sales were measured in each store by the number of the kinds of beer on sale broken down by 33 strength levels ranging from 3.2% to 12.2%.

The obtained structure of beer sales by strength provided the basis for mapping the structure of beer production by strength. The percentages of each kind of beer with different ABVs were multiplied by the annual beer production volume, yielding annual beer production volumes for beers with ABVs ranging from 3.2% to 12.2%.

The methodological and theoretical foundation for the research was formed by studies performed in Russia and abroad. The dataset for the study was retrieved from statutes and regulations, the Federal State Statistics Service (Gks.ru), the Federal Tax Service (Nalog.ru), and the European Commission (Ec.europa.eu), periodicals, online resources and the authors' own market study.

4. Results and Discussions

4.1. Analysis of excise taxes on alcohol in the Russian Federation.

The role and significance of excise taxes in Russia is indicated by their contribution to total government revenues in Russia (summarized in Table 1).

Table 1

Federal excise tax revenues as a share of total government revenues, %

| Indicators | Years | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| Excise taxes in consolidated budget of RF | 2.9 | 3.1 | 3.6 | 4.2 | 4.0 | 4.0 | 4.8 |
| Excise on goods manufactured in the territory of RF, in total excise tax revenues | 93.6 | 92.8 | 93.6 | 93.8 | 93.3 | 94.9 | 95.4 |
| Growth rate (to previous year) | 135.8 | 138.0 | 128.7 | 121.4 | 105.5 | 99.6 | 126.9 |
| Growth rate of consolidated budget revenues (to previous year) | 117.9 | 130.1 | 112.4 | 104.3 | 109.5 | 100.6 | 104.7 |

Source: author's calculations, Statistics Russia (2018). Reading allowed: Russian Statistics Annual Report. Available at: http://www.gks.ru/bgd/regl/b17_13/Main.htm

The analysis shows that from 2010 to 2016 the share of excise taxes in the structure of public revenue in Russia ranged between 2.9% and 4.8%. That share and the absolute volume of excise tax revenues grew annually, with the only exception being the years 2014–2015 when there was a slight decrease in revenue from the taxes in absolute terms and a decrease in their share by 0.2 percentage points. That was due to a drop in alcohol imports in 2015 amid an economic crisis and rouble devaluation.

Over the period of observation, revenue from excise taxes increased 190%, outpacing the growth in aggregate public revenues (175.8%). The prime reason is that tax rates for most taxable goods grew faster than inflation. The sum total of excise tax revenues is largely generated by taxes levied on goods produced in Russia. They account for 93–95% of excise tax revenues. That makes it appropriate to take a closer look at the structure of tax revenues from Russian-made products by type of alcohol (Table 2).

Over the reference period, excise taxes on alcohol accounted for 24.6% to 37% of

total excise tax revenues. At the same time, their contribution decreased by 12.4% despite the annual growth in absolute terms. Total excise tax revenues increased 190%, whereas revenue from alcohol taxes was up only 95%. This can be attributed to the fact that tax rates on other taxable goods (petroleum products and tobacco) grew faster and that the consumption of alcohol decreases under the influence of the government regulation of the alcohol market (Table 4).

Excise taxes on beer and strong alcohol with ABV over 9% (including vodka and cognac) made up the biggest share – 95 to 96% – of alcohol tax revenues. Vodka and cognac also top the sales and consumption charts. Over the reference period, the sales of vodka went down from 1,578m liters to 966m liters annually, while the sales of beer and beer-containing drinks fluctuated between 10,715m liters and 7,806m liters in various years. The share of other alcoholic drinks in excise tax revenues is insignificant (4–5%) due to much lower volumes of production, sales and consumption. This makes

Table 2

**Structure of excise tax revenue from Russian-made alcohol (by type of drink),
in billion roubles**

| Indicators | Years | | | | | | | Change from 2010 to 2016, % |
|--|-------|-------|-------|-------|--------|--------|--------|-----------------------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | |
| Tax revenue from goods produced in Russia | 441.4 | 603.9 | 783.6 | 952.5 | 1000.6 | 1014.4 | 1293.9 | 293.1 |
| including: | | | | | | | | |
| Liquor | 163.5 | 181.2 | 228.7 | 273.4 | 299.5 | 291.2 | 318.8 | 195.0 |
| as a percentage of total excise tax revenue | 37.0 | 30.0 | 29.2 | 28.7 | 29.9 | 28.7 | 24.6 | -12.4 |
| Beer | 82.0 | 93.7 | 110.4 | 126.6 | 142.3 | 130.2 | 147.6 | 180.0 |
| as a percentage of total excise tax revenue from alcohol | 50.2 | 51.7 | 48.3 | 46.3 | 47.5 | 44.7 | 46.3 | -3.9 |
| Alcoholic drinks with ABV over 9% | 72.9 | 78.5 | 106.0 | 133.5 | 144.5 | 149.3 | 158.4 | 217.3 |
| as a percentage of total excise tax revenue from alcohol | 44.6 | 43.4 | 46.4 | 48.8 | 48.3 | 51.3 | 49.7 | 5.1 |
| Wine | 5.3 | 5.9 | 8.8 | 7.0 | 7.8 | 8.6 | 9.4 | 177.4 |
| as a percentage of total excise tax revenue from alcohol | 3.3 | 3.3 | 3.8 | 2.6 | 2.6 | 3.0 | 2.9 | -0.4 |
| Other alcoholic drinks with ABV below 9% | 3.3 | 3.1 | 3.5 | 6.3 | 4.9 | 3.1 | 3.4 | 103.0 |
| as a percentage of total excise tax revenue from alcohol | 2.0 | 1.6 | 1.5 | 2.3 | 1.6 | 1.1 | 1.1 | -0.9 |

Source: author's calculations, Statistics Russia (2018). Reading allowed: Russian Statistics Annual Report. Available at: http://www.gks.ru/bgd/regl/b17_13/Main.htm

it expedient to place the emphasis on beer among other low-alcohol drinks and on vodka among strong alcoholic beverages when planning and implementing state regulation policies with regard to the alcohol market in Russia.

The absolute tax revenues from beer and strong alcoholic beverages did not vary much throughout the observation period, but revenues from the excise taxes on strong alcohol grew faster (up 120%) than on beer (up 80%). In 2010–2012, revenues from the beer tax exceeded those from the excise taxes on strong alcohol, but the situation reversed starting from 2013. That was due to the fact that beer sales and consumption volumes tended to grow up until 2013, but as of 2014 there

has been a decline in beer consumption, while the sales of strong alcohol showed a downward trend throughout the observation period (Table 4). At the same time, the excise tax rate for strong alcohol grew a little faster (by 138.1%) than that for beer with an ABV ranging from 0.5% to 8.6% (by 122.2%) (Table 3).

We shall analyze the dynamics of excise tax revenues by type of alcoholic drink with regard to changes in tax rates (Table 3) and consumption dynamics (Table 4).

Between 2010 and 2016, the alcohol tax rates grew by 120 and 160% for beer and strong alcohol and by up to 550% for champagne and sparkling wine. Yet revenues from the excise tax on alcohol were only up 95%. This leads one to a conclu-

Table 3

Tax rates on alcohol in Russia

| Indicators | Years | | | | | | | Growth rate (2016 to 2010), % | For reference | |
|------------------------------------|-------|------|------|------|------|------|------|-------------------------------|---------------|------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | | 2017 | 2018 |
| Tax rate, RUB per liter of ethanol | | | | | | | | | | |
| Ethanol | 30 | 33 | 37 | 59 | 74 | 93 | 102 | 334.4 | 107 | 107 |
| Alcohol with ABV over 9% | 210 | 231 | 300 | 400 | 500 | 500 | 500 | 238.1 | 523 | 523 |
| Alcohol with ABV under 9% | 158 | 190 | 270 | 320 | 400 | 400 | 400 | 253.2 | 418 | 418 |
| Tax rate, RUB/L | | | | | | | | | | |
| Wine | 3,5 | 5 | 6 | 7 | 8 | 8 | 9 | 257.1 | 18 | 18 |
| Champagne and sparkling wine | 4 | 8 | 22 | 24 | 25 | 25 | 26 | 650.0 | 36 | 36 |
| Beer with ABV from 0.5 to 8.6% | 9 | 10 | 12 | 15 | 18 | 18 | 20 | 222.2 | 21 | 21 |
| Beer with ABV over 8.6% | 14 | 17 | 21 | 26 | 31 | 31 | 37 | 264.3 | 39 | 39 |

Source: author's calculations, Federal Tax Service of the Russian Federation. Official site (2018). Available at: https://www.nalog.ru/rn66/related_activities/statistics_and_analytics/forms/

Table 4

Consumption of taxable liquor in Russia

| Indicators | Years | | | | | | | Decrease rate (2016 to 2010), % |
|--|-------|-------|-------|-------|-------|------|------|---------------------------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | |
| Alcohol consumption, liter per capita pure alcohol | 8.9 | 8.9 | 9.2 | 8.5 | 7.6 | 6.8 | 6.6 | 74.2 |
| Alcohol consumption percentage change year-on-year | 100.0 | 100.0 | 103.4 | 92.4 | 89.4 | 84.5 | 97.1 | 74.2 |
| Consumption dynamics by beverage, year-on-year percentage change | | | | | | | | |
| Liquor with ABV over 9% (including vodka, cognac) | 100.0 | 99.5 | 98.4 | 88.1 | 85.0 | 87.0 | 99.2 | 63.3 |
| Beer | 100.0 | 100.7 | 100.6 | 100.4 | 93.3 | 91.7 | 96.2 | 83.7 |
| Wine | 100,0 | 93,9 | 96,4 | 89,3 | 108,1 | 96,1 | 97,7 | 82,1 |
| Other alcohol containing beverages with under 9% | 100.0 | 98.5 | 94.5 | 92.4 | 86.7 | 76.0 | 91.7 | 52.0 |

Source: author's calculations, Statistics Russia (2018). Reading allowed: Russian Statistics Annual Report. Available at: http://www.gks.ru/bgd/regl/b17_13/Main.htm

sion the consumption of liquor in Russia decreased significantly – by 25.8%. The growth in tax rates for most types of liquor was put on hold in 2014–16 in order to stabilize the situation in the alcohol market, increase the share of legally distilled liquor and tackle bootlegging. One of the causes of the large share of bootleg alcohol on sale in Russia is the existence of grey import schemes for bringing alcohol from the Eurasian Economic Union member states (primarily from Belarus and Kazakhstan) where excise taxes and, consequently, selling prices are much lower. As of 2016, producers, wholesale traders and retailers are required to use the Unified Federal Automated Information System (UFAIS), which tracks production and turnover of ethyl spirit, alcohol, and spirit containing products. That has reduced the amount of unregistered bootleg alcohol in the market, and in 2017–2018 excise tax rates on liquor continued to grow.

Russia's alcohol consumption shrank from 8.9 liters per capita in 2010 to 6.6 liters per capita in 2016. The structure of consumption changed, too. Among the beverages that account for the biggest tax revenues, the biggest drop in consumption was observed for strong alcohol, including vodka and cognac (minus 27.6%). The consumption of beer was down 16.3%.

The analysis showed that the use of excise taxes on alcohol for fiscal purposes has been effective. It has also been possible to reduce the consumption of alcoholic beverages that are bad for health and to change the structure of drinking habits in favor of low-alcohol beverages. In other words, the regulatory function of taxation has been fulfilled as well. Consequently, alcohol consumption regulatory measures implemented by the Russian government using excise taxes and other tools (ads restrictions, introduction of the UFAIS) have proved effective.

4.2. Comparative analysis of excise tax rates for alcoholic beverages in Russia and the EU

As of 1993, excise taxes on alcohol in the EU member states are regulated by the European Council Directive 92/83/EEC

“On the harmonization of the structures of excise duties on alcohol and alcoholic beverages” and Directive 92/84/EEC “On approximation of the rates of excise duty on alcohol and alcoholic beverages” (European Commission. Taxation and customs union, 2018). Directive 92/83/EEC sets out the structures of excise duties on alcohol and alcoholic beverages, the categories of alcohol and alcoholic beverages subject to excise duty, and the basis on which the excise duty is calculated, and includes special provisions and reduced rates. Directive 92/84/EEC sets the minimum rates of excise duty to be applied to alcohol and alcoholic beverages. Any EU member state is allowed to set its own rates of excise duties on alcohol, but they must be above the established minimum level (Table 5).

Table 5

Minimum rates of excise duties in the EU

| Product | Rate expressed per: | Minimum Rate, € |
|---|---|-----------------|
| Beer | Hectoliter per degree alcohol (hL/°alc) | 1.87 |
| | Hectoliter per degree Plato (hL/°Plato) | 0.748 |
| Spirits | Hectoliter of pure alcohol | 550 |
| Wine (still and sparkling) | Hectoliter of volume | 0 |
| Intermediate Products (e.g. port, sherry) | Hectoliter of volume | 45 |

Source: author's calculations, European Commission. Taxation and customs union. (2016). *Tax information Communication database*. Available at: https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-alcohol/excise-duties-alcoholic-beverages_en

Both in the EU and in Russia, strong alcoholic drinks are taxed on the per-liter of pure alcohol basis, while wine and intermediate products are taxed on the per-liter (or hectoliter) of volume basis.

What differs is the types of excise rates. In the EU, the tax is levied in proportion to pure alcohol content in the finished product. In some European countries, the

density of beer is measured in degrees Plato: the higher the density, the higher alcoholic volume. In 15 EU member states, the duty on beer is set in EUR/hL/°alc, and the other 12 in EUR/hL/°Plato. In Portugal, both types of duties are applicable depending on the ABV of beer. In the Russian Federation, a different type of duty is applied. It is set in RUB per liter and varies for beer exceeding a 0.5% ABV and below 8.6%, and for beer over 8.6%. In other words, the tax rate is calculated on the basis of the volume of beer sold rather than its alcoholic content.

4.3. Prospects of improving beer taxation in Russia

We believe that the mechanism of levying excise duties on beer in Russia, which envisages the same tax rate on low-alcohol beer (over 0.5% ABV) and beer with high alcoholic volume (not exceeding 8.6% ABV) is unfair. For example, today the tax on beer over 0.6% but not exceeding 8.6% ABV is RUB21 per liter, i.e., the tax payments are identical provided that all else is equal. We share the view of the scholars [31; 32] arguing that a specific tax rate should be introduced for beer that should be based on its alcohol content. That would amend the situation when the duty on one liter of pure alcohol in stronger beer is lower than the duty on one liter of pure alcohol in beer with a lower ABV.

The excise duty on beer is proposed to be set at a rate of RUB418 per liter of ethanol, which is the current tax rate for other beverages not exceeding 9% ABV. For beers with an ABV over 8.6% the tax rate should be RUB523 per liter of ethanol, which is the rate for other alcoholic drinks with an ABV over 9%. If the proposal is implemented, beer producers will pay RUB13.38 per liter of 3.2% ABV beer (0.032×418) instead of RUB21 per liter that they pay today. Producers will pay RUB34.28 per liter of an 8.2% ABV beer (0.082×418) instead of RUB21. Our calculations show that the proposed mechanism of calculating beer tax sums is more fair and rational both from the producer's and consumer's perspective.

In 2017, the sales of beer within the standard ABV range of 0.5% to 8.6% amounted to 6.761bn liters; revenue from the excise tax on beer was RUB141.98bn, the tax rate sitting at RUB21 per liter. In 2017, some 460,000 liters of beer exceeding 8.6% ABV were sold in Russia, generating a public revenue of RUB17.94m. To estimate the effects of changing the mechanism of calculating the beer tax in Russia for tax payers (brewers) and the public purse, we shall calculate how the beer tax receipts would change if variable tax rates were applied (Table 6).

The calculations are based on a hypothesis that the structure of beer production and sales matches that of its consumption. The structure of beer consumption was determined by conducting a market study of retail points of beer sale. The structure of the production and consumption of beer with an ABV varying between 0.5% and 8.6% is not homogeneous. The biggest share (75.6%) is held by beer with 4-5% ABV beer. Beers with an ABV under 4% account for a mere 3.6-percent share of production and consumption. Stronger beers with an ABV of 5 to 8.6% make up a 20.8-percent in the structure of beer production. Under the proposed beer taxation mechanisms, brewers would pay a lower tax on beer with low alcohol content and a higher excise tax on stronger beers. Tax receipts generated by the strongest beer with an ABV over 8.6% would grow by 7.32m RUB, but because of its small share in total beer production volumes – only 0.6% – the increase would not have a significant impact on the dynamics of excise tax revenue. As beer production and consumption is dominated by beer with an ABV under 5%, aggregate tax payments of beer makers and, consequently, excise tax revenues would decrease by 3.552bn RUB a year, or by 2.5%.

We shall estimate the effect of the proposed novelties for consumers by calculate how prices per liter of beers of various strengths would change following the suggested excise tax and VAT adjustment as the excise tax is included in the tax base for VAT (Table 7). The calculations assume that VAT is set at 18%.

Table 6

**Estimated tax receipts from beers with various alcohol content
in case of variable tax rate**

| ABV, % | Annual beer production, million liters | Tax receipts at a 21RUB/liter rate (39RUB/liter for beer over 8.6 ABV), million RUB | Tax receipts at a 418RUB/liter of ethanol rate (53RUB/liter for beer over 8.6 ABV), million RUB | Difference in the amount of the tax to pay, million RUB |
|---------------------------------|--|---|---|---|
| <i>Beer with 0.5 to 8.6 ABV</i> | | | | |
| 3.2 | 34.332 | 720.972 | 459.225 | -261.747 |
| 3.5 | 68.760 | 1,443.960 | 1,005.959 | -438.001 |
| 3.7 | 91.670 | 1,925.070 | 1,417.768 | -507.302 |
| 3.8 | 45.840 | 962.640 | 728.123 | -234.517 |
| 4.0 | 572.990 | 12,032.790 | 9,580.393 | -2,452.397 |
| 4.1 | 240.690 | 5,054.490 | 4,124.945 | -929.545 |
| 4.2 | 252.180 | 5,295.780 | 4,427.272 | -868.508 |
| 4.3 | 194.780 | 4,090.380 | 3,500.976 | -589.404 |
| 4.4 | 103.105 | 2,165.205 | 1,896.307 | -268.898 |
| 4.5 | 733.360 | 15,400.560 | 13,794.502 | -1,606.058 |
| 4.6 | 515.660 | 10,828.860 | 9,915.110 | -913.750 |
| 4.7 | 744.855 | 15,641.955 | 14,633.421 | -1,008.534 |
| 4.8 | 515.660 | 10,828.860 | 10,346.202 | -482.658 |
| 4.9 | 481.380 | 10,108.980 | 9,859.625 | -249.355 |
| 5.0 | 756.280 | 15,881.880 | 15,806.252 | -75.628 |
| 5.1 | 34.345 | 721.245 | 732.167 | 10.922 |
| 5.2 | 148.945 | 3,127.845 | 3,267.469 | 109.624 |
| 5.3 | 183.360 | 3,850.560 | 4,062.157 | 211.597 |
| 5.4 | 217.700 | 4,571.700 | 4,913.924 | 342.224 |
| 5.5 | 126.030 | 2,646.630 | 2,897.430 | 250.800 |
| 6.0 | 57.265 | 1,202.565 | 1,436.206 | 233.641 |
| 6.5 | 148.945 | 3,127.845 | 4,046.836 | 918.991 |
| 6.6 | 57.265 | 1,202.565 | 1,579.827 | 377.262 |
| 6.8 | 80.260 | 1,685.460 | 2,281.310 | 595.850 |
| 7.0 | 22.990 | 482.790 | 672.687 | 189.897 |
| 7.2 | 22.990 | 482.790 | 691.907 | 209.117 |
| 7.7 | 34.345 | 721.245 | 1,105.428 | 384.183 |
| 8.0 | 137.520 | 2,887.920 | 4,598.669 | 1,710.749 |
| 8.1 | 103.110 | 2,165.310 | 3,491.098 | 1,325.788 |
| 8.2 | 34.350 | 721.350 | 1,177.381 | 456.031 |
| <i>Subtotal:</i> | 6,760.962 | 141,980.202 | 138,420.576 | -3,559.626 |
| <i>Beer with over 8.6% ABV</i> | | | | |
| 9.0 | 0.230 | 8.970 | 10.826 | 1.856 |
| 11.8 | 0.115 | 4.485 | 7.097 | 2.612 |
| 12.2 | 0.115 | 4.485 | 7.338 | 2.853 |
| <i>Subtotal:</i> | 0.460 | 17.940 | 25.261 | 7.321 |
| <i>Total:</i> | 6,761.422 | 141,998.142 | 138,440.766 | -3,552.305 |

Table 7

**Estimated price changes for one liter of beer
if the proposed excise tax mechanism is enacted**

| ABV, % | Price change per liter of beer after excise tax rate adjustment, RUB/liter | Price change per liter of beer after VAT adjustment, RUB/liter | Aggregate price change per liter of beer after excise tax and VAT adjustment, RUB/liter |
|-----------|--|--|---|
| 3.2 | -7.62 | -1.37 | -8.99 |
| 3.5 | -6.37 | -1.15 | -7.52 |
| 3.7 | -5.53 | -1.00 | -6.53 |
| 3.8 | -5.12 | -0.92 | -6.04 |
| 4.0 | -4.28 | -0.77 | -5.05 |
| 4.1 | -3.86 | -0.69 | -4.55 |
| 4.2 | -3.44 | -0.62 | -4.06 |
| 4.3 | -3.03 | -0.55 | -3.58 |
| 4.4 | -2.61 | -0.47 | -3.08 |
| 4.5 | -2.19 | -0.39 | -2.58 |
| 4.6 | -1.77 | -0.32 | -2.09 |
| 4.7 | -1.35 | -0.24 | -1.59 |
| 4.8 | -0.94 | -0.17 | -1.11 |
| 4.9 | -0.52 | -0.09 | -0.61 |
| 5.0 | -0.10 | -0.02 | -0.12 |
| 5.1 | 0.32 | 0.06 | 0.38 |
| 5.2 | 0.74 | 0.13 | 0.87 |
| 5.3 | 1.15 | 0.21 | 1.36 |
| 5.4 | 1.57 | 0.28 | 1.85 |
| 5.5 | 1.99 | 0.36 | 2.35 |
| 6.0 | 4.08 | 0.73 | 4.81 |
| 6.5 | 6.17 | 1.11 | 7.28 |
| 6.6 | 6.59 | 1.19 | 7.78 |
| 6.8 | 7.42 | 1.34 | 8.76 |
| 7.0 | 8.26 | 1.49 | 9.75 |
| 7.2 | 9.10 | 1.64 | 10.74 |
| 7.7 | 11.19 | 2.01 | 13.20 |
| 8.0 | 12.44 | 2.24 | 14.68 |
| 8.1 | 12.86 | 2.31 | 15.17 |
| 8.2 | 13.28 | 2.39 | 15.67 |
| 9.0 | 8.07 | 1.45 | 9.52 |
| 11.8 | 22.71 | 4.09 | 26.80 |
| 12.2 | 24.81 | 4.67 | 29.28 |

The calculations indicate that thanks to the excise tax and VAT adjustments the per-liter price could be lowered for beer with an ABV equal or under 5% and increase for stronger beers. With the average retail price of beer being 110.4 RUB/liter in 2017, the maximum price reduction could be 8.99 RUB (minus 8.1%) for 3.2% ABV beer, while the prices of strong beer could grow by as much as 29.28 RUB (plus 26.5%). That would encourage consumers to shift their preferences in favor of lower-

alcohol products. Expanding the segment of beer with low alcohol content is in line with the government's goal of reducing the harmful use of alcohol and a general trend towards a healthy lifestyle.

Considering the current beer production and consumption volumes, the proposed mechanism of beer taxation could result in a reduction in excise tax revenue in Russia to an amount of 3.552bn RUB (around 56.4 million dollars at the current exchange rate). However, the enactment

of the proposed measures would help reduce the consumption of strong beer, preserve people's health and save public money earmarked for healthcare thanks to a drop in the consumption of strong beer.

5. Conclusion

The analysis showed that in 2010–2016 revenue from excise taxes increased 190%, outpacing the growth rate of consolidated budget of RF (175.8%). The share of excise taxes in consolidated budget of RF grew from 2.9% to 4.8%. The prime reason is that tax rates for most taxable goods grew faster than inflation.

Over the reference period, excise taxes on alcohol accounted for 24.6% to 37% of total excise tax revenues. Excise taxes on beer and strong alcohol with an ABV over 9% (including vodka and cognac) made up the biggest share – 95 to 96% – of alcohol tax revenues. Vodka and cognac also top the sales and consumption charts. This makes it expedient to place the emphasis on beer among other low-alcohol drinks and on vodka among strong alcoholic beverages when planning and implementing state regulation policies with regard to the alcohol market in Russia.

Between 2010 and 2016, the alcohol tax rates grew by 120 and 160% for beer and strong alcohol respectively and by up to 550% for champagne and sparkling wine. Yet revenues from the excise tax on alcohol were only up 95%. This leads one to a conclusion the consumption of liquor in Russia decreased significantly from 8.9 liters per capita to 6.6 liters, or by 25.8%. This is a sign of the high efficiency of government regulation policies targeting the alcohol market in Russia. One can also draw a conclusion about the fiscal and regulatory effect of the excise taxes on alcohol in Russia.

There is, however, a need to change the way beer is taxed and by introducing a specific tax rate on beer that is pegged to its alcohol content. The implementation of the proposed measures could result in a decrease in tax revenues to an amount of 3.552bn RUB, or by 2.5 per cent. Nevertheless, that would make the system of beer taxation more effective as the tax rate would depend on the amount of pure alcohol in the beverage. Eventually, that would change the structure of beer consumption towards low-alcohol varieties that cause less harm to health.

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An integral approach to evaluating the effectiveness of tax incentives

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ABSTRACT

The article analyzes the prospects and opportunities for using integral indicators to evaluate the effectiveness of tax incentives. The following key indicators are selected: the integral index of 13 tax incentive indicators' growth rate; the multidimensional mean calculated on the basis of trade turnover of the Eurasian Economic Union; a complex rating evaluation of the effectiveness of regional tax incentives. Tax incentive indicators are understood as those indices that best reflect the economic performance of companies in a certain business sector. The goal of the article is to determine the priority areas of using tax incentives based on the comparative theoretical analysis of integral indicators for evaluating their effectiveness. Research methodology includes the analysis of tax incentives' indicators calculated on the basis of official statistics and characterizing budgetary, social and economic effectiveness. Besides, the authors use the instruments of the regression and correlation analysis. It is determined that the coefficient approach is best used to evaluate time oriented tax incentives, while the absolute approach –socially or spatially oriented tax incentives. The authors use their own methodology to prove that in 2011–2016 tax incentives for agriculture (from the industry-based perspective) and for research and development (from the target-based perspective) were effective. The use of the complex rating of tax incentives' effectiveness at the regional level showed that high effectiveness was achieved only in two subjects of the Russian Federation, while absolute effectiveness was not achieved in any of them. At the same time, most regions stayed in the range of sufficient and low effectiveness. Research results can be used by the Ministry of Finance and the Government of the Russian Federation when developing ways of improving the taxation policy.

KEYWORDS

Tax benefits, effectiveness criteria, tax incentives, multidimensional mean, integral index

JEL H21, C13

HIGHLIGHTS

1. The coefficient approach is most commonly used to evaluate tax incentives, although it is advisable to use the absolute approach through the calculation of the multidimensional mean for some social and territorial tax incentives
2. To analyze the effectiveness of tax incentives, the authors selected thirteen tax incentive indicators that reflect the social and economic development of an industry. They include budgetary revenues by tax type, the number of workplaces in the full-time equivalent, GVA, growth rate of investments in fixed assets, etc.
3. It is advisable to evaluate the effectiveness of the instruments of industry-based and target (specific) tax incentives by using the integral index of the tax incentive indicators' growth rate
4. It is suggested that the multidimensional mean should be used to evaluate the impact of reduced tax rates on VAT and excise duties on the volume of trans-border trade of the Eurasian Economic Union countries

5. The regional tax policy of stimulating production should be evaluated through the complex rating of the effectiveness of regional tax incentives by using the instruments of the regression and correlation analysis

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Интегральный подход к оценке эффективности налогового стимулирования

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АННОТАЦИЯ

Статья посвящена анализу перспектив и возможностей применения интегральных показателей для оценки эффективности налогового стимулирования. В качестве основных показателей выбраны: интегральный индекс темпов роста 13 индикаторов налоговых льгот; многомерная средняя, рассчитываемая на основе показателей товарооборота стран ЕАЭС; комплексная рейтинговая оценка эффективности региональных налоговых льгот. Под индикаторами налоговых льгот понимаются показатели, которые наилучшим образом отражают состояние хозяйственной деятельности предприятий, занятых в определенной отрасли. Цель статьи – на основе сравнительного теоретического анализа интегральных показателей эффективности налоговых льгот определить приоритетные направления их использования. Методика исследования включает в себя анализ индикаторов налоговых льгот, определяемых по данным официальной статистики и характеризующих бюджетную, социальную и экономическую эффективность; используются инструменты корреляционно-регрессионного анализа. Определено, что коэффициентный подход целесообразно использовать для оценки налоговых льгот, имеющих временную направленность; в то время как абсолютный подход для льгот, имеющих социальную или пространственную направленность. Доказано, что налоговое стимулирование сельского хозяйства (в отраслевом разрезе) и НИОКР (в целевом разрезе) в период с 2011 по 2016 г/ было эффективным. Применение авторской методики комплексной рейтинговой оценки эффективности налоговых стимулов в региональном разрезе показало, что высокая эффективность зафиксирована только в двух субъектах Российской Федерации, абсолютная эффективность не достигнута ни в одном из субъектов. В то же время большинство регионов находились в пределах достаточной и слабой эффективности. Результаты исследования могут быть использованы Министерством финансов и Правительством Российской Федерации при разработке направлений совершенствования налоговой политики.

КЛЮЧЕВЫЕ СЛОВА

Налоговые льготы, критерии эффективности, налоговое стимулирование, многомерная средняя, интегральный индекс

ОСНОВНЫЕ ПОЛОЖЕНИЯ

1. Коэффициентный подход наиболее часто используется при оценке налогового стимулирования, однако для ряда социальных и территориальных налоговых стимулов целесообразно использовать абсолютный подход через расчет многомерной средней

2. Для анализа эффективности налоговых стимулов отобрано 13 индикаторов налоговых льгот – показателей социально-экономического развития отрас-

ли. В их числе суммы поступлений в бюджет по видам налогов, число рабочих мест в эквиваленте полной занятости, ВДС, темп роста инвестиций в основной капитал и др.

3. Оценку эффективности инструментария отраслевого и целевого (направленного) налогового стимулирования целесообразно проводить с помощью интегрального индекса темпов роста индикаторов налоговых льгот

4. Многомерную среднюю предложено использовать при оценке влияния льготных налоговых ставок по НДС и акцизам на обороты трансграничной торговли в рамках стран ЕАЭС

5. Региональную налоговую политику в части стимулирования производственной деятельности следует оценивать с использованием комплексной рейтинговой характеристики эффективности региональных налоговых льгот путем применения инструментов корреляционно-регрессионного анализа

1. Introduction. The problem

Tax incentives are a vital instrument that allows the state to influence the financial and investment activities of companies, the development of social sphere, research and innovations. At the same time, reduced taxation does not always lead to the expansion of production or perspective development of business. In practice it is quite common for taxpayers to use tax incentives simply to minimize their tax liabilities. It destroys the multiplication effect from these incentives and reduces revenues to the budget. According to official statistics, tax incentives in 2016 resulted in reduced revenues to the budget in the amount of almost 2 bln. rubles (Table 1).

Table 1

Annual increase of tax expenditure of the consolidated budget of the Russian Federation in 2015–2016, by tax type

| Tax | 2015 | 2016 | Increase, % |
|--|--------|--------|-------------|
| Tax on business profits | 615.0 | 690.0 | +12.2 |
| VAT | 414.0 | 435.5 | +5.2 |
| Mineral extraction tax | 323.9 | 379.0 | +17.0 |
| Tax on the property of organizations | 365.6 | 347.1 | -5.1 |
| Tax on the property of natural persons | 18.2 | 21.4 | +17.6 |
| Transport tax | 7.7 | 8.2 | +6.5 |
| Land tax | 70.5 | 49.3 | -30.1 |
| <i>Total</i> | 1773.9 | 1930.5 | +8.8 |

Source: compiled by the authors based on data from the official site of the Russian Federal Tax Service.

At present it is not sufficient just to provide tax incentives, it is absolutely necessary to assess their effectiveness. The latest Directions of Tax Policy of Russia¹ for 2016–2018 state that the assessment of the effectiveness of new tax reductions should be an obligatory element of introducing tax incentives. This position is broadly supported by the research community as well as agencies and governments of different countries [1]. For example, the European Council publishes the report “Effectiveness of tax incentives for venture capital and business angels to foster the investment of SMEs and start-ups”².

The evaluation of effectiveness, as a rule, consists in comparing the result of some action with the costs involved in implementing it. The effects of providing tax incentives are compared with losses for the budget [2]. In this connection, it is necessary to state that tax incentives and tax expenditures should be interpreted as the denominator in the equation for assessing effectiveness. Within the context of this research, tax incentives and tax expenditures are the amount of revenue lost for the budget because certain tax preferences were provided for some types of activities or groups of taxpayers [3].

¹ Main Directions of Tax Policy in the Russian Federation in 2016 and plans for 2017 and 2018.

² Effectiveness of tax incentives for venture capital and business angels to foster the investment of SMEs and start-ups. Final Report. TAXUD/2015/DE/330. Available at: https://ec.europa.eu/taxation_customs/sites/taxation/files/final_report_2017_taxud_venture-capital_business-angels.pdf.

There is no unified system of evaluating the effectiveness of tax expenditures in the USA, but the practical experience in this sphere is developing through the legislative activity of the states. At present practically every state has at least one program of tax stimulation (in other words, tax incentives) and the methodology of evaluating tax expenditures from the viewpoint of the correlation expenditures-effectiveness³. In the UK the effectiveness analysis for tax incentives is carried out by both private companies and governmental agencies. A great role in this process is played by HM Treasury and HM Revenue and Customs. Besides, Office of Tax Simplification (OTS)⁴, created in 2010, has been actively involved in this work in recent years.

The issues of evaluating the effectiveness of tax incentives have been actively discussed in Russia in the past decade. In November 2010 the former Finance Minister A. Kudrin noted that it was necessary to reduce the number of tax incentives, which at that moment amounted to about 5% of Russia's GDP⁵. At the state level the question of systematizing tax incentives was first raised in the Budgetary Address of the President of the Russian Federation in 2010⁶. "Main Directions of Tax Policy in the Russian Federation in 2011–2013" for the first time set the task of a gradual abolition of federal incentives for regional and local taxes. Later each year these documents mentioned the issues of evaluating the effectiveness of tax incentives.

In 2018 the Russian Ministry of Finance developed a Project for Evaluating the Effectiveness of Tax Incentives. The effectiveness of incentives is determined based exclusively on the calculation of

financial costs for a region or a specific municipality. In the authors' opinion, this approach is not rational. For example, for social incentives it is necessary to take into account indicators that characterize their influence on the standard of living of the general population or some specific categories of taxpayers. The authors believe that it is advisable to use a complex approach to evaluating the effectiveness of incentives that should be based on several groups of indicators (characteristics) depending on the goal of introducing the incentive. In this aspect, the effectiveness of tax stimuli could be evaluated through integral indicators calculated with the use of the chosen characteristics.

In this research, the authors analyzed the existing approaches to using the integral indicators of tax incentives' effectiveness and determined the areas of using such indicators depending on the goals of incentives.

2. Literature review

At present the issues of using tax incentives are widely discussed in economists' research and practical work of tax agencies' employees, tax consultants and auditors. Tax incentives are one of the crucial mechanisms of the state's tax policy aimed at reaching social, economic, ecological and political goals [4]. The authors of [5] note that socio-economic development and modernization of the subjects of the Russian Federation directly depend on the development of effective tax regulation tools. This is the key condition for the creation of a favorable business climate, the stimulation of investment and innovations, for helping the financial independence and autonomy of the regions. According to V.G. Panskov, tax incentives are a vital instrument of implementing state tax policy [6]. The importance of studying the advantages and drawbacks of using tax incentives as well as the procedure of providing them and evaluating their effectiveness are stressed in the works by E.M. Zolt and A. Easson [7]. L.N. Lykova views tax incentives from the standpoint of evaluating the effectiveness of reducing the profit tax, the tax on the

³ For more details see the official site of the Joint Legislative Audit and Review Committee in Washington State, the USA. Available at: <http://leg.wa.gov/jlarc/Pages/aboutjlarc.aspx>.

⁴ Available at: <https://www.gov.uk/government/organisations/office-of-tax-simplification>.

⁵ Available at: https://www.minfin.ru/ru/press-center/?id_4=31928.

⁶ Budgetary Address of the President of the Russian Federation D. A. Medvedev of June 29, 2010 "On the Budgetary Policy in 2011–2013".

property of organizations and the transport tax in different regions of the Russian Federation [8]. Another work [9] evaluates the effectiveness of tax incentives aimed at stimulating investments. It is concluded that the reduction of tax burden resulting from the use of tax incentives leads to a considerable increase in own capital formation. The establishment of tax incentives in law and their use are based on the key principles of taxation formulated in the works of A. Smith [10].

A great role in the actual practical evaluation of the effectiveness of tax incentives is played not only by the existing normative and legal acts adopted at different levels, but also by authorial methodologies. The goal of such methodologies is to identify the drawbacks in the existing analytical algorithms of evaluating the effectiveness of incentives and to develop objective and precise approaches. These problems are discussed in a considerable number of publications by Russian economists. According to Yu. A. Ryumina, A. S. Balandina, K. A. Bannova, the following issues should be viewed as basic for the evaluation of the effectiveness of tax incentives:

- the issue of the scientific validation and legislative recognition of the concept of "tax incentives", because it is necessary to differentiate between a "tax incentive" and other concepts, such as tax preferences, relief, exemptions;

- the issue of setting the goal of introducing tax incentives and classifying them according to the tasks. When introducing an incentive and evaluating its effectiveness, the initiator of the incentive should define specific goals, take into account both economic and social effectiveness and differentiate the benefits;

- the issue of developing a system of universal criteria to evaluate the effectiveness of tax incentives, such as budgetary, economic and social effectiveness [11].

Although the value of stimulating investment in research and innovation cannot be doubted, the initiators of tax incentives should monitor the effectiveness of providing such stimuli. The following foreign authors [12; 13] pay special attention

to the evaluation of stimulating research and development activities through taxation. The authors of [12] examine the effectiveness of tax incentives in the sphere of research and development in China. The regression and correlation analysis based on data regarding the condition of the system of taxation in China allowed the authors to evaluate the impact that tax incentives have on the expenditures on research and development and to determine the role of institutional conditions in the creation of such effects. The authors conclude that tax incentives are effective stimuli for research and development and that the effectiveness of tax incentives can grow if entrepreneurship development is intensified and political rent is reduced.

In the work by Ch.-H. Yang, Ch.-H. Huang and T.Ch.-T. Hou the authors studied the influence of tax stimuli on research and development activities at the production enterprises in Taiwan. The authors used econometric tools to evaluate the effectiveness of various tax incentives and come to the following conclusions:

- the effectiveness of using tax incentives varies in different business sectors. Tax incentives aimed at increasing investment in research and development are most effective in the industrial sector;

- the most popular types of incentives for Taiwanese companies are tax benefits and preferences. The organizations should present proof of the effectiveness of tax credits for research and development;

- the study identified a considerable positive effect of tax incentives on innovations through the R&D credit. The effect of using these instruments is limited and the initiator of the incentive should conduct a thorough analysis of the effects' duration after the incentive is no longer active [13].

G. Crespi, D. Giuliadori et al. tried to evaluate the effectiveness of tax benefits for research and development using the example of the Argentinean tax system. The authors used structural models and concluded that tax incentives reduce the cost of capital for research and development. The reduction of the "cost" of innovations has a considerable influence on a company's decision to invest. The

effectiveness of tax incentives for research and development in Argentina is higher in those industries where the level of technological development is low [14].

The macroeconomic effect from such tax incentive tools as investment tax credit, reduced tax on capital growth, etc. was analyzed in the work by A.N. Houndonougbo, M. Mohsin. This research is based on the US tax system. The authors conclude that the investment tax credit has a strong positive effect on production and investment in agriculture. The budgetary effectiveness of investment tax credit is 85%. The reduction of the tax on capital growth is the least effective instrument in all the studied aspects. The analysis of the impact of tax incentives on macroeconomy over time shows that the prosperity of the country is growing [15].

Most researchers view tax incentives as an effective instrument for supporting the economy of the country as a whole as well as some specific industries and sectors. The work [16], based on the example of Spain, showed that tax benefits and state subsidies are ineffective instruments for stimulating investment in research and development. State resources spent on these instruments are greater than the amount of additional private investment. Although the effectiveness of tax incentives is low, they have a great importance for ensuring the growth and productivity of the economy [16].

A number of authors use the scenario approach to evaluating the effectiveness of tax benefits. It primarily refers to environmental fiscal payments. Thus, the EU experience is examined in the works by E. Shafiei, B. Davidsdottir et al. [17], G.C. Piciu, C.L. Trică [18]. E. Shafiei and B. Davidsdottir used scenario modeling for 2015–2050 to assess the consequences of fiscal regulation on the integrated energy and transport system in Iceland. Their models are based on scenarios with various combinations (taxes, subsidies, duties). R. Kok [19] analyzed Dutch experience of providing tax benefits for electric vehicles. This study determined that such tax incentives had the greatest impact on changes in consumer behavior. In

the period of 2007–2013 the Netherlands became the European leader in the lowest average annual CO² air emissions and the share of electric vehicles.

Most authors single out the integral method of evaluating tax incentives among the multitude of existing methodologies of effectiveness assessment, but the number of research works in this sphere is not large [20]. For example, L.L. Igonina and I.V. Mamonova analyzed the integral indicator of evaluation. This indicator is based on the values of social, budgetary and economic effectiveness [21]. The analytical method of L.L. Igonina and I.V. Mamonova differs from most regional and local methodologies in the statistical validity of obtained values.

A.P. Kireenko and E.N. Orlova developed an interesting approach to evaluating the effectiveness of tax benefits. They presented a methodology of evaluating budgetary and economic effectiveness of innovation benefits with the use of effectiveness coefficients [2]. The coefficient of budgetary effectiveness is calculated as a quotient:

- of the volume of increased tax revenues to the budget in the reporting period connected with the widening tax base;
- of the volume of tax expenditures (the amount of taxes not collected for the budget because of tax benefits) in the reporting fiscal year.

The coefficient of economic efficiency is similarly calculated as a quotient:

- of the growth (reduction) index of tax expenditure;
- of the growth (reduction) index of the following indicators of innovative activities of benefits' recipients: the volume of innovative goods (works, services), spending on technological innovations, value of fixed assets, investment in fixed assets, the number of valid patents.

The researchers used a combined ratio of effectiveness as an integral indicator. When testing this approach, the authors used only those indicators that are linked with the recipients of tax benefits. The conducted analysis showed that the provided tax benefits have a low effectiveness.

O.V. Mandroshchenko analyzed the effectiveness of tax benefits based on the

expediency of having them in the tax system. The author conducts the assessment with the use of the coefficient of tax incentives calculated as a ratio of net profit to the part of the newly created value [20].

The overview of research publications on the topic allowed the authors to determine that the instruments of statistical and econometric modeling are often used in practice in other countries to evaluate the effectiveness of tax incentives. This is a rather prospective research area. Equally interesting is the use of scenario approaches to evaluating the effectiveness of tax incentives. It should be noted that scenario approaches contain a share of subjectivity because any scenario reflects its author's view of the tax component in the activities of economic entities. The statistical approach is more objective as its results are solely based on empirical data.

Finally, the most commonly used instrument of evaluating the effectiveness of tax benefits is the integral coefficient. The analysis of publications shows that the methodologies of calculating such coefficients differ greatly. At present there is no system of universal criteria for evaluating the effectiveness of tax benefits which could be used as a basis for the calculation of integral coefficients. Besides, the coefficient approach is not always possible, for example, it is advisable to use the absolute approach though the calculation of the multidimensional mean for a number of social and territorial tax incentives. In this situation the effect of the tax incentive, not its effectiveness, takes center stage. The presented research attempts to differentiate between the spheres where different integral indicators of evaluating the effectiveness of tax incentives are used.

3. Methods

Integral evaluations as an instrument of analyzing the condition and development of the economic system could be used in the following methods:

- linear mean values (arithmetic, geometric and chronological, simple and weighted);
- multidimensional mean values;
- complex rating evaluations.

Nowadays integral indicators are used quite often because they are universal. It is possible to use them to carry out a simultaneous evaluation of various impacts that the characteristics of a certain factor have on the final result. Mean values are common characteristics of aggregates and could be used to evaluate any parameter. The method of multidimensional mean ranges multidimensional objects and, in most cases, breaks them into groups (segments). This fulfills the tasks set by the researcher and is the simplest and most effective method of processing the results of observations over multidimensional values.

Nevertheless, the above-mentioned characteristics could be used in different models of evaluation applied to the discussed problems of evaluating the effectiveness of tax incentives. The authors analyzed the existing methodologies of complex evaluation of the effectiveness of tax incentives using the example of different regions of the Russian Federation. The conducted research allowed them to determine key criteria of effectiveness: budgetary, economic and social. Both coefficient and absolute approaches can be used for such evaluation (Figure 1).

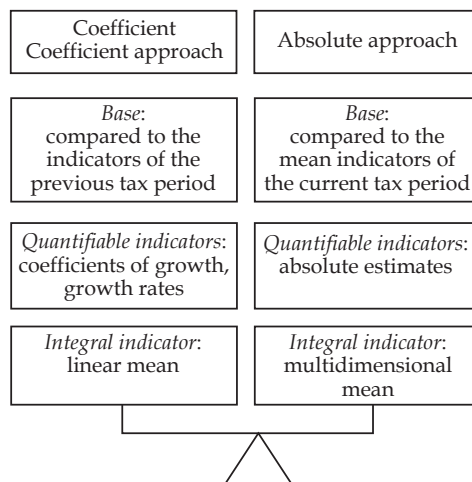


Figure 1. Key characteristics of integral approaches used to evaluate the effectiveness of tax incentives

The authors note that the coefficient approach is much more common in the analysis of different aspects of tax incentives' effectiveness. The goals of tax in-

centives primarily consist in changing the target indicators in dynamics (the growth of GDP and tax revenues to the budget, reduction of accounts payable, etc.). In this case, the calculation of mean coefficients is the best way as it evaluates the efficiency of tax incentives with sufficient objectivity. At the same time, it makes sense to evaluate the effect from social tax benefits at the regional level by comparing the values of regional characteristics with the average values in the country. For example, in the countries whose regions have wide powers in this sphere, it is possible to evaluate types of personal income as one of the indicators of the effectiveness of tax policy regarding the income tax. In the presented case, the authors calculated the multidimensional mean for different indicators of income because it is the most rational solution. At the same time, neither the first, nor the second option makes it possible to determine the net effect from tax incentives. This is quite objective and typical of evaluations used in most countries. The authors come to the conclusion that it is only possible to calcu-

late the “net” effect by conducting separate sample surveys and by a detailed evaluation of the parameters of the object of the study, which is virtually impossible at the level of the whole country.

4. Results

4.1. The use of the integral index of the industry-based evaluation of tax benefits’ effectiveness

Tax benefits included in the tax legislation are diverse and differentiated. It makes sense to evaluate the effectiveness of separate industries because the list of benefits provided to taxpayers is not uniform [22]. At the same time, it is necessary to evaluate the effectiveness of tax incentives for specific sectors of economy from the viewpoint of their effectiveness: economic, social and budgetary [23]. Consequently, the authors present a model of macroeconomic industry-based evaluation of the effectiveness of tax incentives’ instruments. The model presented in Figure 2 includes a system of indicators necessary for monitoring.

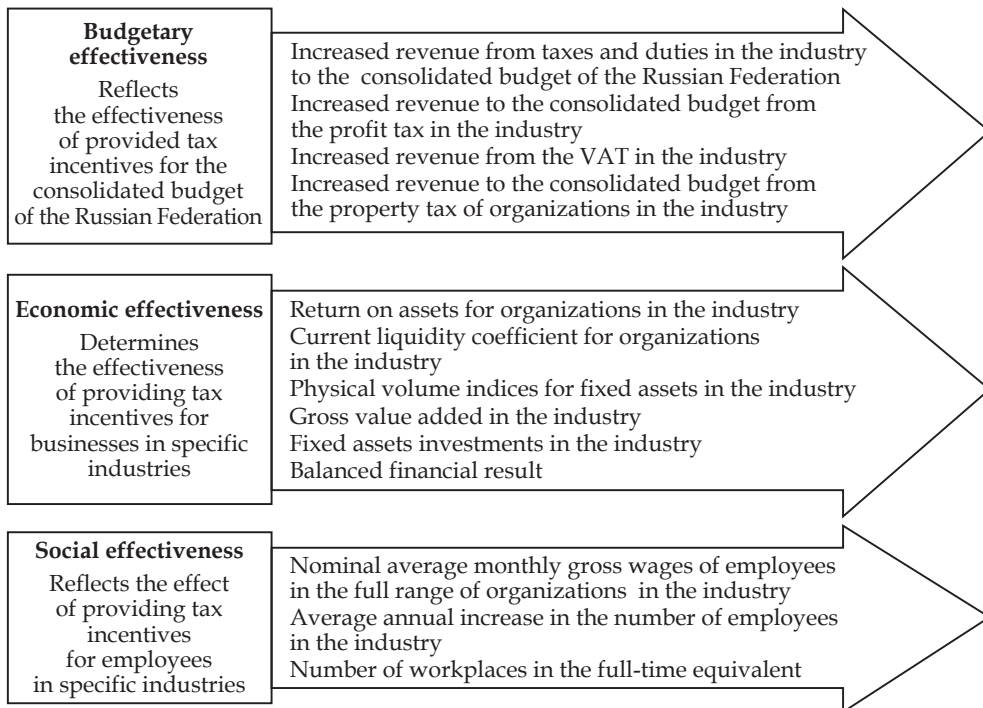


Figure 2. A model of evaluating the effectiveness of tax incentives’ instruments for industries

A methodology has been developed to evaluate the effectiveness of tax incentives' instruments. The methodology is based on the integral index (1) that is calculated as the product of geometric mean indicators of the model:

$$I_{HC} = \sqrt[n]{i_1 \cdot i_2 \cdot i_2 \dots i_n}, \quad (1)$$

where:

I_{HC} – the integral index of evaluating the effectiveness of tax incentives' instruments for the industries;

$i_1 \cdot i_2 \cdot i_2 \dots i_n$ – individual indices of specific indicators of effectiveness.

The model of industry-based evaluation of the effectiveness of tax incentives' instruments consists of a set of indicators. These indicators reflect the economic condition of companies working in a certain industry in the best way and can demonstrate the effectiveness of tax incentives. The calculation of the integrated index makes it possible to draw conclusions regarding the effectiveness of the mechanism used to stimulate different indus-

tries. The presented model is universal because it can be used to evaluate all sectors of economy. As an example, the authors used a model of industry-based evaluation of the effectiveness of tax incentives' instruments for the agricultural sector. Agricultural companies have an opportunity to use a considerable list of tax benefits for business profit tax and VAT. Companies could use the unified agricultural tax that considerably reduces the tax burden [24]. The main task of stimulating agriculture is to support the economic growth of companies in the sector that is a prioritized by the state. In Table 2, the authors present the calculated indicators of the effectiveness of tax incentives for agriculture. All individual basic indices are calculated as shares against the level of 2010.

The authors analyzed the effectiveness of tax incentives for agriculture and came to the conclusion that the growth rate of revenues from this industry to the consolidated budget has increased in the period under consideration. The growth

Table 2

Indicators of the model of tax incentive instruments' effectiveness in agriculture

| Indicator | Individual index | | | | | |
|---|------------------|-------|-------|-------|-------|-------|
| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| <i>Budgetary effectiveness</i> | | | | | | |
| Total tax revenues to the consolidated budget of the Russian Federation | 1.003 | 0.897 | 0.933 | 1.350 | 1.697 | 1.826 |
| Total revenues from the tax on business profit to the consolidated budget | 1.111 | 1.335 | 1.271 | 1.735 | 2.067 | 2.211 |
| Total revenues from the VAT to the consolidated budget | 1.430 | 2.578 | 2.774 | 1.409 | 0.831 | 1.529 |
| Total revenues from the tax on the property of organizations to the consolidated budget | 0.856 | 0.917 | 0.951 | 0.988 | 0.969 | 1.112 |
| <i>Social effectiveness</i> | | | | | | |
| Total number of people employed in agriculture: average annual number | 1.000 | 0.985 | 0.970 | 0.940 | 0.943 | 0.941 |
| Nominal gross wages of people employed in agriculture (monthly) | 1.168 | 1.325 | 1.474 | 1.661 | 1.824 | 1.983 |
| Number of workplaces in the full-time equivalent | 0.997 | 0.978 | 0.962 | 0.950 | 0.982 | 0.963 |
| <i>Economic effectiveness</i> | | | | | | |
| GVA | 1.368 | 1.364 | 1.500 | 1.670 | 2.007 | 2.166 |
| Growth rate of investment in fixed assets, physical volume | 1.513 | 1.133 | 1.166 | 1.053 | 1.014 | 1.325 |
| Profits in the industry | 1.553 | 1.784 | 0.846 | 2.636 | 4.455 | 4.625 |
| Indices of the physical volume of fixed assets | 1.006 | 1.004 | 1.010 | 1.007 | 0.997 | 1.204 |
| Current liquidity coefficient | 1.026 | 1.072 | 0.900 | 0.995 | 0.987 | 0.963 |
| Returns on assets | 1.379 | 1.379 | 0.724 | 1.620 | 2.447 | 2.412 |

Source: based on data from the Unified Interdepartmental Information and Statistics System (EMISS). Available at: <https://www.fedstat.ru/>

in 2014 was 44% compared to 2013. The growth rate of income tax and property tax increased in 2014 to 36.5% and 3.9%, correspondingly. In 2016 revenues from the VAT to the consolidated budget of the Russian Federation increased by 83% compared to 2015. The individual index of the average number of employees in agriculture, included in the index of social effectiveness, has a negative trend. The individual index decreased by 3.1% in 2014 compared to 2013. The next analyzed indicator is the average monthly nominal wages of people employed in agriculture, which shows a trend towards increasing by 12.7% in 2014 compared to the previous year. In 2015 total tax revenues and the profit tax demonstrated a positive trend. In 2015 the cumulative revenues from the tax on the property of organizations decreased compared to 2014, but in 2016 there was a considerable growth. The economic effectiveness section is represented by the greatest number of indicators. Returns on assets more than doubled in 2014 compared to 2013. The authors observed a considerable growth of the indicator “net financial result” – over 300%. The index of the physical volume of investment in fixed assets and the physical volume of the index of fixed assets decreased in 2014 in comparison with 2013. The use of the integral index allowed the authors to obtain the following values for agriculture (Figure 3).

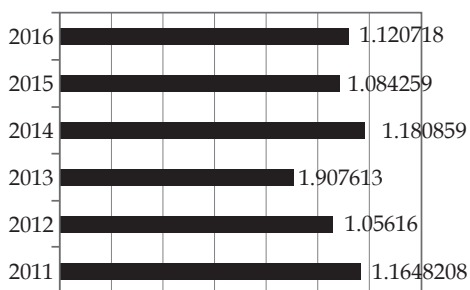


Figure 3. Values of the integral index of tax incentive instruments' effectiveness in agriculture in 2011–2016

The conducted analysis allows the authors to conclude that in the period under consideration tax incentives for

agriculture were effective. The value of the integral index was above 1, with the exception of 2013.

4.2. The use of the integral index of evaluating the effectiveness of targeted tax incentives

The evaluation of the industry-based effectiveness of tax incentives' instruments can be conducted using a system of indicators. These indicators are presented in Figure 2. Specific, rather than traditional, result indicators are used for some sectors, such as the growth of spending on technological innovations and the share of innovative goods (works, services) in the total amount of produced goods (provided work, services) [25]. The tax system of the Russian Federation provides a list of tax incentives that can only be used by companies involved in innovative activities, research and development work. The key goal of providing tax incentives in the sphere of research and development is to stimulate the innovative activities of companies, increase the share of knowledge-intensive production and reduce tax burden on companies working in this field. Based on this, the authors recommend evaluating the incentive indicators for this sector, presented in Table 3, separately, and use the integral index based on the calculation of the benchmark (2010 in the Table). Statistical tax reports do not include tax revenues from research and development activities to the consolidated budget. Official agencies do not calculate the specific weight of companies in different industries involved in research and development. For this reason, the authors used data on revenues to the consolidated budget of the Russian Federation from industries in general as an indicator of budgetary effectiveness.

Most specific indicators of innovations' effectiveness showed a positive trend in 2016 compared to 2015. The share of the products of hi tech and knowledge-intensive industries in GDP and the number of developed innovative production technologies is increasing. The obtained integral index values are presented in Figure 4.

Table 3

**Indicators of the model of industry-based tax incentives' effectiveness
in research and development**

| Indicator | Individual indices, % | | | | | |
|--|-----------------------|-------|-------|-------|-------|-------|
| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| <i>Budgetary effectiveness</i> | | | | | | |
| Total tax revenues to the consolidated budget of the Russian Federation | 0.850 | 1.114 | 0.835 | 0.927 | 0.992 | 1.041 |
| <i>Effectives of innovations</i> | | | | | | |
| Volume of internal expenditure on research and development in the structure of GDP | 0.970 | 1.009 | 1.009 | 0.968 | 1.007 | 0.987 |
| Share of hi tech and knowledge-intensive industries in GDP | 1.030 | 1.061 | 1.114 | 1.147 | 1.193 | 1.205 |
| Specific weight of innovative goods, works, services in the general volume of shipped goods, provided work and services | 1.310 | 1.664 | 1.913 | 1.818 | 1.763 | 1.781 |
| Specific weight of innovative goods, works, services in the general volume of shipped goods, provided work and services of industrial sector companies | 1.250 | 1.600 | 1.824 | 1.678 | 1.611 | 1.708 |
| Specific weight of innovative goods, works, services in the general volume of shipped goods, provided work and services of service sector companies | 2.090 | 2.404 | 2.812 | 3.206 | 3.238 | 2.979 |
| Technological innovations for production | 1.320 | 1.531 | 1.654 | 1.637 | 1.621 | 1.783 |
| Innovation activity of organizations (specific weight of companies involved in technological, organizational, marketing innovations in the reporting year in the total number of surveyed companies) | 1.090 | 1.079 | 1.079 | 1.058 | 0.994 | 0.895 |
| Expenditures on innovations in the sphere of technologies | 1.830 | 2.251 | 2.769 | 3.018 | 2.988 | 3.197 |

Source: based on data from the Unified Interdepartmental Information and Statistics System (EMISS). Available at: <https://www.fedstat.ru/>

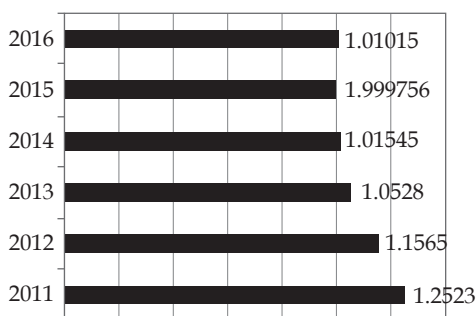


Figure 4. Values of the index of tax incentives' effectiveness in research and development in 2011–2016

The analysis allows the authors to conclude that the use of tax incentives' instruments in the sphere of research and development brings beneficial results because the integral index did not reach the threshold value of less than one.

4.3. The use of the multidimensional mean to evaluate the effectiveness of spatially oriented tax incentives

The spatially oriented tax incentives are fiscal stimuli aimed at equalizing specific socio-economic indicators within a state or integration units, or at promoting tax competition at the regional level. In this case, it is possible to use the multidimensional mean as the integral indicator of a tax incentive's effectiveness:

$$\bar{p}_i = \frac{1}{k} \sum_{j=1}^k \frac{x_{ij}}{\bar{x}_j},$$

where:

x_{ij} — the value of j attribute for i object;
 \bar{x}_j — the mean value of j attribute.

The advantage of using the multidimensional mean is the opportunity to evaluate the effectiveness of a tax benefit at the initial stages of providing it (there

is no necessity to use a dynamic set of indicators). In particular, the multidimensional mean can be used to evaluate the impact of preferential tax rates on the volumes of trans-border trade of the Eurasian Economic Union countries. In this case, the following components should be used to calculate the integral indicator:

- the volume of goods exported in trans-border trade and taxed at preferential rates (for each trade flow of the EEU member countries);
- the volume of goods imported in trans-border trade and taxed at preferential rates (for each trade flow of the EEU member countries);
- volumes of import VAT in the budget of the EEU member country;
- the share of products taxed at preferential VAT rates in the total trade volume of a country.

It is necessary to ensure a uniform methodology for calculating the indicators that form the multidimensional mean. This is the primary and the most important condition for using this method.

The general procedure of evaluating the effectiveness of tax incentives with the use of the multidimensional mean is as follows (Figure 5).

It is important to note that if the multidimensional mean is highly variable, the

method has a subjective component connected with the expert assessment of the target value. At the same time, if the variation is relatively low, this method makes it possible to evaluate the effectiveness of a tax incentive with a sufficiently high degree of reliability.

4.4. The use of the complex rating evaluation of the effectiveness of regional tax incentives

The current tax legislation gives the subjects of the Russian Federation powers to determine and introduce benefits on certain taxes [26]. Thus, the evaluation of the effectiveness of tax incentives in the RF subjects is an integral element of administrating [27]. The authors believe that comprehensive diagnostics of effectiveness at the regional level should be based on the following system of indicators:

1. Indicators of social effectiveness: have a dual value because they could act as an incentive (indicators of the dynamics of real monetary income of the population, % – x_2) and a disincentive (unemployment rate, % – x_1).

2. Indicators of budgetary effectiveness: also allow to evaluate the incentive and disincentive effect from tax benefits. For the first group of effects, the following indicators are used:

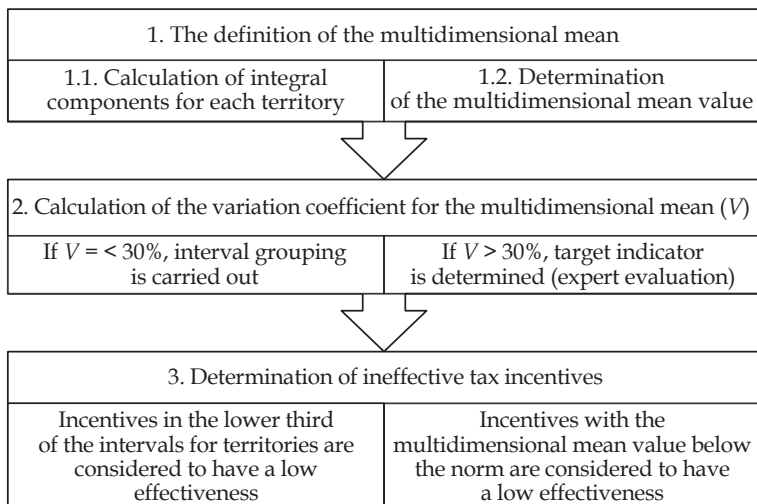


Figure 5. The methodology of evaluating the effectiveness of tax incentives by the multidimensional mean

- specific weight of increased revenues from the tax on business profits in the sum of lost revenues from providing benefits on this tax, % – x_3 ;

- specific weight of increased revenues from the tax on the property of organizations in the sum of lost revenues from providing benefits on this tax, % – x_4 ;

- specific weight of the shortfall of VAT in the sum of the imputed tax, % – x_5 ;

- specific weight of tax revenues of the consolidated budget of the RF subject in the gross regional product – x_6 .

For the second group, one indicator is used – specific weight of tax arrears in the gross regional product – x_7 .

3. Indicators of economic effectiveness act purely as incentives in the context of this research: the growth in total profits of all economic subjects, % – x_8 ; the level of innovative activity of organizations, % – x_9 ; increase of investments in fixed assets, % – x_{10} ; gross regional product per capita – x_{11} .

When building the model, the authors analyzed and calculated economic, budgetary and social indicators of activities for 85 regions of the Russian Federation. Inter-regional comparative analysis of tax incentives' effectiveness requires ranging the examined subjects of the Russian Federation. The authors used the score method which allowed them to assess sensitive values when building the regression equation. Table 4 presents the results of the systemic evaluation of regions from the standpoint of tax incentives' effectiveness and their ranging from the most to the least sustainable level.

The values of resulting indicators in systemic rating allowed the authors to conclude that tax incentives are most effective in Yamalo-Nenets Autonomous Okrug. The complex evaluation in this region is 43.99 points. The second place is held by the city of Sevastopol (39.04 points), the third – Khanty-Mansi Autonomous Okrug with 36.98 points. Regions with a low effectiveness of tax incentives include the Karachay-Cherkessia Republic with 18.96 points, Kemerovo Region with the result indicator of 16.87 points and the Ingush-

etia Republic with 15.55 points. There is a great gap in the level of tax incentives' effectiveness between different regions, it equals 28.44 points.

Table 4

Results of a complex evaluation of the level of tax incentives' effectiveness in the subjects of the Russian Federation

| Rating | Region | Complex evaluation |
|--------|---------------------------------------|--------------------|
| 1 | Yamalo-Nenets Autonomous Okrug | 43.99 |
| 2 | the city of Sevastopol | 39.04 |
| 3 | Khanty-Mansi Autonomous Okrug – Yugra | 36.98 |
| 4 | Penza Region | 36.25 |
| 5 | the Sakha Republic (Yakutia) | 35.58 |
| 6 | Moscow Region | 34.56 |
| 7 | Vologda Region | 33.77 |
| 8 | the city of Saint Petersburg | 32.93 |
| 9 | the Chuvashia Republic | 32.36 |
| 10 | the city of Moscow | 32.17 |
| 76 | the Khakassia Republic | 20.72 |
| 77 | the Tyva Republic | 20.56 |
| 78 | Volgograd Region | 20.33 |
| 79 | The Mari El Republic | 20.26 |
| 80 | Chukotka Autonomous Okrug | 20.12 |
| 81 | the Kalmykia Republic | 19.80 |
| 82 | the Altai Republic | 19.50 |
| 83 | the Karachay-Cherkessia Republic | 18.96 |
| 84 | Kemerovo Region | 16.87 |
| 85 | the Ingushetia Republic | 15.55 |

The objectivity and reliability of a complex score evaluation is supplemented by the regression and correlation dependence. The authors use indicators from Table 4 as a factor to build the regression equation, and the integral indicator of rating evaluation is used as the result indicator. The examined indicators were checked for multicollinearity ($R < 0,7$). The factors are not connected, which makes it possible to build a regression model (Table 5).

The connection between the independent and dependent variables could be expressed as a linear function. In this case,

Table 5

The matrix of paired correlation coefficients

| | x_1 | x_2 | x_3 | x_4 | x_5 | x_6 | x_7 | x_8 | x_9 | x_{10} | x_{11} |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|----------|
| x_1 | 1 | | | | | | | | | | |
| x_2 | -0.03 | 1.00 | | | | | | | | | |
| x_3 | 0.53 | -0.07 | 1.00 | | | | | | | | |
| x_4 | 0.25 | -0.04 | 0.01 | 1.00 | | | | | | | |
| x_5 | 0.01 | 0.33 | -0.07 | -0.08 | 1.00 | | | | | | |
| x_6 | -0.14 | -0.05 | -0.05 | 0.05 | -0.22 | 1.00 | | | | | |
| x_7 | 0.17 | 0.03 | -0.01 | -0.06 | -0.10 | -0.01 | 1.00 | | | | |
| x_8 | -0.21 | 0.03 | -0.10 | 0.08 | -0.14 | 0.12 | -0.03 | 1.00 | | | |
| x_9 | -0.53 | -0.05 | -0.21 | -0.21 | 0.04 | 0.00 | -0.15 | 0.23 | 1.00 | | |
| x_{10} | -0.03 | 0.40 | -0.13 | 0.11 | 0.14 | 0.06 | 0.04 | 0.04 | -0.09 | 1.00 | |
| x_{11} | -0.16 | -0.10 | -0.13 | 0.23 | -0.36 | 0.27 | -0.12 | 0.23 | 0.05 | 0.02 | 1.00 |

if the heteroscedasticity of residuals is absent, we get the following equation:

$$Y = (-10,99) + (-0,35)x_1 + 0,20x_2 + 0,0018x_3 + 0,0007x_4 + 0,23x_5 + 0,037x_6 + 0,879x_7 + 0,0083x_8 + 0,408x_9 + 0,096x_{10} + 0,000002x_{11}. \quad (3)$$

The values obtained in the regression equation allowed the authors to conclude that independent variables included in the model and the rating evaluation of tax incentives have backward and forward linkages. One of eleven indicators has a disincentive influence on the effectiveness of tax incentives. The analysis of the indicators of social effectiveness shows that the change of the unemployment rate by 1% on average will reduce the systemic evaluation by 0.35%, other things being equal.

Multiple linear regression is characterized by indicators of the closeness of the link, which are the coefficients of determination and multiple correlation. The value of the coefficient of multiple determination is close to 1. The variations of variables included in the regression equation by 99.9% determine the change in the final variable. The value of the multiple correlation coefficient shows a close link between independent and dependent variables. The evaluation of the significance of the regression equation as a whole was carried out using the Fisher criterion, whose actual value exceeds the table value several times. It is possible to conclude that

the significance of the regression equation has the probability of 95%. The probability of making a type I error is negligible. According to the dispersion analysis, the designed model of systemic evaluation is, on the whole, significant. Student’s t-test also shows the significance of the regression equation’s parameters. Thus, it is possible to claim with a high probability that the model is accurate and can be used.

Using the regression equation (3), it is possible to evaluate the effectiveness of tax incentives’ instruments of a RF subject without the calculations of the rating evaluation method. The presented model is universal and could be used for any RF subject with equal accuracy. To evaluate the effectiveness of tax incentives, it is possible to use the risk zones’ scale developed by the authors, where 100% means perfect effectiveness, and 0% is insufficient effectiveness (Figure 6).

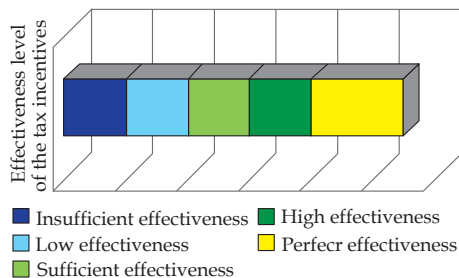


Figure 6. The scale of evaluating the efficiency of tax incentives’ instruments based on the method of systemic rating, %

It is possible to draw some conclusions based on the model of evaluating tax incentives' effectiveness developed by the authors. Eleven out of 85 analyzed regions of the Russian Federation show a low effectiveness of the tax incentives' mechanism, including Volgograd and Kemerovo Regions, the Altai Republic. Moscow and Vologda Regions, the Republic of Sakha (Yakutia) and the city of Moscow have a sufficient level of effectiveness of tax incentives. High effectiveness is observed in only two subjects of the Russian Federation: in Yamalo-Nenets Autonomous Okrug and in the city of Sevastopol. Perfect effectiveness of tax incentives was not achieved in any regions. The conducted research showed that in the period under consideration most subjects of the Russian Federation were within the sufficient and low effectiveness range.

5. Conclusion

The optimization of the introduction and evaluation of tax benefits means that it is necessary to provide the most effective tax incentives. Simultaneous analysis of the quality, economic feasibility of current preferences and the streamlining of tax administration will help compensate for the lost budgetary revenues in the initial period. The authors believe that the maximally objective and valid methodology of determining the effectiveness of tax incentives should include the definition of the integral indicator of effectiveness. This indicator should simultaneously take into account several factorial characteristics. The current study presents and tests the possibility of using several types of integral indicators. The authors also examine the specific characteristics of using integral indicators.

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A return to progressive personal income tax in the Russian Federation: some estimations

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ABSTRACT

This paper examines the possibility of reintroducing a progressive personal income tax in the Russian Federation and presents quantitative estimations of the possible outcomes of such a move. The main sources of statistical data for the analysis of distributions of taxpayers in terms of their income are considered (different resources of the Federal State Statistic Service and the Federal Tax Service statistics). The shortcomings of the existing statistical information were shown. Under the absence of officially published data on the distributions of taxpayers by income received, a lognormal distribution curve is simulated. The estimations of the distribution curve are based at the National Accounts data. Several systems of income tax brackets, rates and models of tax deductions are tested on these simulated data. The parameters of the tax burden shift onto the tenth decile of taxpayers and 1% of the highest-income taxpayers, a decrease in the decile ratio (in terms of disposable income) as well as changes in budget revenues according to tax scale options are estimated. The estimations show (1) none of the tested models of tax brackets, rates and deductions provides a principal reduction of the decile ratio (for disposable income); (2) a potentially significant reduction of the tax burden on the poorest groups of the population and the growth of the level of tax paid by high-income groups are possible; (3) it is possible to decrease the tax burden on the low income groups together with a rise of the budget revenue. The article concludes that it is necessary to test different variants of tax brackets, rates and deductions in real life circumstances and not on simulated data when progression in personal income tax is reinstated.

KEYWORDS

Personal income tax, progressive tax scale, flat rate, lognormal distribution of taxpayers, tax burden, tax deduction

JEL H20, H22, H24

HIGHLIGHTS

1. The lognormal distribution curve based at the National Accounts data is generated to evaluate the distribution of PIT (NDFL) taxpayers in terms of taxable income
2. Testing of the different progressive tax models (brackets, rates and deductions) based on this lognormal distribution curve allowed to make quantity assessments of the possible shift of the tax burden onto the tenth decile of taxpayers and to 1% of the highest-income taxpayers
3. It is demonstrated that the progressive tax rates make it possible to decrease the tax burden on the low income groups together with a rise of the budget revenue

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Возврат к прогрессивному налогу на доходы физических лиц в Российской Федерации: некоторые оценки

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АННОТАЦИЯ

В статье исследуется возможность возврата к прогрессивной модели налогообложения доходов физических лиц в Российской Федерации и представлены количественные оценки предполагаемых результатов. Рассмотрены основные источники статистических данных для анализа распределения налогоплательщиков по объему полученных доходов (различные ресурсы Росстата и данные Федеральной налоговой службы). Показаны недостатки существующих статистических данных. В условиях отсутствия официально публикуемых данных о распределении налогоплательщиков по объему доходов моделируется кривая логнормального распределения. Оценки кривой распределения базируются на данных Системы национальных счетов. На этих данных тестируются четыре варианта шкал прогрессии подоходного налога и различных вариантов налоговых вычетов. Оценены параметры смещения налогового бремени на налогоплательщиков десятого дециля, на 1% наиболее высокодоходных налогоплательщиков, снижение значения коэффициента фондов (по объему располагаемых доходов), а также изменение доходов бюджета по вариантам налоговых шкал. Показано, что (1) ни один из рассмотренных вариантов налоговых шкал и вычетов не дает принципиального снижения коэффициента фондов (по располагаемым доходам); (2) потенциально возможно существенное снижение налогового бремени на низкодоходные категории населения и смещение бремени на высокодоходные группы; (3) возможно снижение налоговой нагрузки на низкодоходные категории населения при росте доходов бюджета. В статье делается вывод о необходимости тестирования различных вариантов налоговых шкал и вычетов на реальных, а не на сгенерированных данных при возврате к прогрессии в налоге на доходы физических лиц.

КЛЮЧЕВЫЕ СЛОВА

Налог на доходы физических лиц, прогрессивная шкала налогообложения, плоская ставка, логнормальное распределение налогоплательщиков, налоговое бремя, налоговый вычет

ОСНОВНЫЕ ПОЛОЖЕНИЯ

1. Для оценки распределения налогоплательщиков НДФЛ по объему облагаемых доходов генерируется кривая логнормального распределения на базе данных системы национальных счетов
2. Тестирование различных моделей прогрессивного налогообложения (налоговых шкал и вычетов) на основе этой построенной кривой логнормального распределения позволило количественно оценить масштабы возможного смещения налогового бремени на налогоплательщиков десятого дециля и на 1% наиболее состоятельных налогоплательщиков
3. Показано, что использование прогрессивной шкалы налогообложения позволяет значительно понизить уровень налогообложения низкодоходных групп при одновременном увеличении доходов бюджета

Introduction

Seventeen years have passed since the Russian Federation abandoned a progressive income tax (PIT, or NDFL in the vernacular) and introduced a flat tax model in 2001. Only a few serious quantitative assessments of the efficiency of the both models have made and recorded in the Russian economic literature. The most comprehensive assessments of the consequences of the PIT reform are presented in the works of the Gaidar Institute. They show that tax revenue grew at an accelerated pace just after the reform [1]. Quantitative assessments of the consequences of the introduction of a flat income tax along with changes in social security taxes are given in [2–4]. A relatively small number of authors supported the view on the effectiveness of the flat rate model during the first post-reform years or several years later. Positive results of the PIT reform such as the accelerated tax revenue growth together with the rate reduction are mentioned in [5, p. 7–8].

There were several reasons for introducing a flat income tax rate. The first one was to streamline the tax administration and to improve its efficiency. The second one was to have an influence on the shadow economy as a flat tax rate was supposed to encourage the official reporting of wages, thus moving them out of the grey zone. Two more reasons for the flat tax were discussed in [6] – the fiscal role of the tax and tax neutrality. This paper examines the rate of achievement of the reforms goals and shows that the only aim reached was improved tax neutrality. The goal of improving the efficiency of tax administration was reached in part. But the problems of the shadow economy and boosting the fiscal role of income tax are as relevant as ever [6, p. 168–172].

Seventeen years on, all arguments for a flat tax are still relevant, but now we also have a few more acute problems such as tremendous and widening income gap; growing poverty rates; an escalation of social problems associated with social justice and some others. As a result, there is a number of papers that suggests bringing back a progressive income tax.

Problem definition

One of the main reasons for the reintroduction of a progressive income tax is the reduction of income inequality and, therefore, more social justice [7–10].

Thus in [9, p. 110] it is stressed that a tax system can be considered as fair only if it reduces inequality in the economic status of taxpayers. In the framework of the discussion of different aspects of tax equity under theoretical approaches in [11], the responsibility for socio-economic differentiation was partly placed at the existing flat rate tax.

The possibility (or opportunity) to collect much more tax revenue under the progressive income tax model or the anti-crisis role of the tax are not prioritized in the discussion in the economic literature [12–14]. The social justice argument and the prospects of higher tax revenue can, however, be complemented with economic efficiency reasoning based on the welfare function. A flat tax and avoidance of income redistribution create the necessity to use other means to support low income groups of people. The cost of such support mechanisms is higher for poor people, for rich people, as well as for society in general [15, p. 205] than the cost of tax methods of income redistribution.

The papers mentioned and some others focus at theoretical and qualitative approaches to the possibility of re-introducing a progressive income tax. There are no quantitative estimations of the possible consequences and the influence of the progressive tax implementation either on income differentiation or on public revenue.

The Russian economic literature mostly focuses on the necessity of a progressive income tax as an instrument of improving social justice and pays less attention to its implications for GDP growth, investment and the dynamics of the shadow economy. At the same time, researchers in the countries whose tax system uses a progressive income tax tend to criticize the progressivity of the tax and emphasize a trend towards having a flat rate [16; 17]. The last two decades of the 20th and the first decades of the 21st century show an expressed trend towards a decline in the top

statutory personal income tax rates and towards a reduction in the number of tax brackets in the western economies [18].

Several estimations of the redistributive effects of different tax models have been made based at the statistical data for the states and provinces of the US and Canada. Officially published statistical information in the two countries makes it possible to conduct extensive research of the impact of progressive and flat rate taxation on income redistribution [19–22]. “The North American discussion of the flat tax could be characterized as ‘nice theory, but not practical’” [20, p. 103]. Studies of the actual implementation of a flat rate tax in developing countries lead the authors to a decisive conclusion: “Today, progressive personal income tax rates make for a needlessly complex tax system. Increasingly, therefore, taxpayers ask if there is a realistic alternative to our wasteful, inefficient tax system. This chapter’s answer is a resounding yes” [20, p. 130]. At the same time, existing estimations of the redistributive potential of a transition from the flat rate to a progressive one shows a very minor impact on income redistribution [23].

It seems that the problem is to find a balance between a progressive tax with its tendency to promote the grey economy and a flat rate with its relatively high burden at low-income persons and the need for social transfers. In other words, to establish appropriate rates of progressive tax. Each country will look for its own balance of the rate of progressivity and the ‘degree’ of its flattening.

For the Russian Federation there are several questions concerning the choice between a flat and progressive tax rate. The first one is the level of the tax burden on low-income groups. Is it possible to decrease this level by adopting a progressive income tax and how much will it cost in terms of the public revenue? The next question is what influence of a progressive PIT will have on income inequality in our country. To answer these questions, it is necessary to have information about the distribution of personal income.

The present analysis is designed as an improvement on the previous literature in

several respects. First, it will show a possible approach to making quantitative estimations of before- and after-tax income distribution in the Russian Federation. Second, it will test various progressive tax rates and compare the results for taxpayers and budget revenue. And third, it will provide an answer as to whether it is possible in the case of Russia to essentially reduce income differentiation by introducing a progressive income tax.

Data sources

The problem of personal income distribution may be examined in terms of different but interrelated aspects as per the objectives of each study. For example, to study social problems (poverty, income inequality) one can use information about total income or disposable income distribution of the total population of the country. Under this approach, the total population of the country includes not only employed or self-employed people and entrepreneurs but also retired persons, children etc.

The second aspect presents a study of the level of wages and other similar payments to employees. In the framework of this aspect, the study includes only workers, employees, officials, and other groups of the workforce, but does not include persons who have passive taxable income (dividends, royalties, income from property etc.).

The third aspect concerns the study of the distribution of PIT payers according to the volume of taxable income received. The mix of taxpayers according to this approach is wider than the mix of employees and workers (under the second approach) because some of retired persons and children may be considered as taxpayers if they receive taxable income (dividends, royalties etc.). At the same time, the mix of taxpayers is narrower than in the first approach, because it does not include most of children and retired persons, if they receive only non-taxable income and social transfers.

Available open-source data allow one to examine – with different rates of authenticity and varying amount of detail – only the first and the second approaches

to the problem. The Federal State Statistic Service (FSSS) publishes data on cash income (monetary income) of the population¹, data on the distribution of employees by size of the salary (results of sample surveys)² and the information about the income according to the National Accounts³.

The Federal Tax Service has created a relatively standalone system of data sources presented in various forms of statistical tax reports. The information on the different types of taxpayers' income is contained in the different forms of statistical tax reporting such as 5NDFL, 7NDFL, 1DDK, 5ENVD, 5USN, 5ESHN, 1PATENT⁴.

¹ Cash income and expenses of the population. Statistical abstract. FSSS. Moscow, 2017. (In Russ.) Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/9416e1004017ce639c45fec7692f4691

² Data on the distribution of the number of employees by size of wages for April 2017. Statistical bulletin. Moscow, 2017. (In Russ.) Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/11c4980041c1bcbf9ee9fe27f9898572

³ National accounts of Russia in 2011–2016. Statistical abstract. FSSS. Moscow, 2017. 263 p. (In Russ.) Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1135087050375

⁴ Available at: https://www.nalog.ru/rn77/related_activities/statistics_and_analytics/forms/

Statistical tax reporting forms for NDFL (PIT) contain a considerable amount of information based on the provisions of Chapter 23 of the Tax Code of the Russian Federation. These reports are based on three main batches of information retrieved from tax agents' reports on PIT paid on behalf of employees, appendices to income tax returns and tax authorities' reports based on taxpayers' tax returns. Therefore, there occurs a substantial data overlap.

According to the FSSS, the number of the employed in the economy is 72.4 million; the size of the economically active population is 77.2 million, but tax agents paid different kinds of taxable incomes to more than 81 million persons. This means that approximately 10% of taxpayers have more than one source of income which they officially declare.

The main role in the total income of individuals is played by different kinds of income from employment (wages, salaries etc.) which is taxed at 13%. These earnings account for 69.61% of all taxable revenues before deductions and 78.14% taxable revenues after expenditure deductions. (Table 1).

The principal amount of deductions applied to the calculation of taxable in-

Table 1

Main types of income subject to taxation, 2015, bill. rub

| Item | Income | Deductions according to the kind of income | Income less expenditures | Income less expenditures as % of total |
|---|-----------|--|--------------------------|--|
| Incomes and expenditures – total | 30,076.54 | 5,337.26 | 24,739.64 | – |
| Wages and salaries | 19,741.59 | 0.00 | 19,741.59 | 79.80 |
| Income from civil law contracts | 307.43 | 3.16 | 304.27 | 1.23 |
| Author's fee | 14.42 | 0.74 | 13.68 | 0.06 |
| Dividends, interest | 838.55 | 20.76 | 817.78 | 3.31 |
| Capital gain, income from operations with securities and other stock assets | 6,470.56 | 4,784.35 | 1,686.22 | 6.82 |
| Material gain | 4.19 | 0.00 | 4.19 | 0.02 |
| Other incomes according to tax agents information | 982.19 | 0.00 | 982.19 | 3.97 |
| The total amount of income from business, law practice and private practice | 1,717.60 | 1.60 | 1,715.99 | 6.94 |
| For reference: | | | | |
| Other deductions not associated with type of income | – | 526.64 | – | – |

Source: forms 5NDFL, 1DDK at 2015. Available at: http://www.nalog.ru/rn77/related_activities/statistics_and_analytics/forms/

come relates to the income from operations with securities and other stock assets and capital gains (see Table 1). These deductions make up more than 89.6% of total amount of applied deductions in 2015. However, deductions related to income from transactions with securities are deductions on expenses directly related to this kind of taxable income.

Methods and estimations

The absence of officially published information on the distribution of taxpayers by received income raises the question of modeling (or constructing) this distribution.

There are several possible approaches to the modelling of this distribution:

- an approach based on the data on cash income and the distribution of the population by income size. In this case it is necessary to refine the indicators of cash income by excluding the non-taxable income – first of all, pensions and a significant number of the other social transfers that do not include in the tax base;

- an approach based on the value of wages and the distribution of employees by the size of this type of income. In this case it is necessary to refine this data by incorporating the information on other kinds of income (dividends and other income on securities, income on operations with securities, income from individual entrepreneurship etc.);

- based on the total potential taxable income estimated according to the National Accounts.

Each of the above approaches has both advantages and significant shortcomings. The distribution model based on each of the approaches will have more or less significant deviations from reality. In this study, we shall use the last approach and model taxpayers' distribution by using the National Accounts data.

In order to simulate the distribution of taxpayers according to (potentially) taxable income it is necessary to introduce the following prerequisites and conditions:

- the amount of the income of the population potentially subject to taxation was estimated based on data on wages

(including unreported payment of wages and net mixed income less social security contributions) and property income of the household sector according to the SNA;

- it is assumed that the distribution of taxpayers is a lognormal distribution. A lognormal distribution is traditionally used when we estimate the income of the population, the distribution of population by volume of deposits and some other indicators associated with the income of the population (see [24–28]);

- the number of PIT (NDFL) payers was estimated as the number of people employed in the economy. This approach has several disadvantages. Some of employed persons in the economy are not PIT payers, and some persons who are not formally “employed” are recognized as taxpayers under the current legislation. It was assumed that these groups partially offset each other, and their presence will not affect the final result;

- to plot the distribution curve, it is necessary to have two indicators – the indicator of average income and standard deviation. The average per capita income (potentially taxable income) of the employed population was estimated on the basis of the amount of income registered in the SNA and the number of people employed in the economy (see above);

- the standard deviation was estimated by selection. As the additional criterion the indicators of the share of revenue attributable to the first, ninth and tenth decile (according to wages distribution based on the data from sample surveys⁵) were used;

- the standard deduction is based on the number of children as at 1 January 2017 (32.238 million);

- income was assumed to be received evenly throughout the year;

- calculations were based on the average income in the group.

⁵ Sample survey of wages. See «Data on the distribution of the number of employees by the size of wages for April 2017. Statistical bulletin. Moscow, 2017. (In Russ.) Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/11c4980041c1bcbf9ee9fe27f9898572

Three series of hypothetical distribution of taxpayers by volume of potentially taxable income were estimated. The first series presents a distribution that most accurately factors in income in the first decile; the second series most accurately counts income in the tenth decile and the third series – income in the ninth and tenth deciles together. The differences between the three variants of the distribution of income are insignificant (Table 2). The average per capita income for all series was 475,922.6 rubles per annum.

Table 2

Indicators of the distribution series

| Series | Degree of approximation to the criterion (share of income in decile), % | Standard deviation (σ) |
|--------|---|---------------------------------|
| 1 | 95.6 | 0.822 |
| 2 | 91.8 | 0.804 |
| 3 | 101.0 | 0.848 |

In further calculations, the third series was used because from the point of view of public revenue this segment of distribution (the ninth and tenth deciles) is of the main interest. Another reason is that the most significant approximation to actual data is achieved in this series (see Table 2).

To estimate the tax burden distribution under the existing tax model (with a flat rate) and to test different variants of progressive tax scales, groups of taxpayers with an income gap of 100,000 rubles were formed. To measure income deciles, additional adjustment “borderline” groups were made. Tax calculations for the groups were made by the average indicators. The calculations assumed that 45% of taxpayers have two children, which approximately corresponds to the number of children in Russia. It was assumed that children are evenly distributed among taxpayers of all income groups.

When assessing the distribution of the tax burden under the current tax model only standard deductions for children were considered. Today, the children-related deduction exceeds 73% of the total value of deductions (without taking into account the deduction of securities transactions expenses). The results of the tax burden distribution under the existing PIT model are presented in Table 3.

Table 3

The distribution of taxpayers by volume of income received, results of calculations (initial situation), %

| Deciles | Share in gross income | Share in total tax paid | Average tax rate in the group of taxpayers |
|---------|-----------------------|-------------------------|--|
| First | 1.77 | 1.49 | 10.65 |
| Second | 3.29 | 3.03 | 11.71 |
| Third | 4.53 | 4.29 | 12.05 |
| Fourth | 5.61 | 5.43 | 12.29 |
| Fifth | 6.68 | 6.59 | 12.56 |
| Sixth | 8.10 | 8.09 | 12.71 |
| Seventh | 9.57 | 9.63 | 12.82 |
| Eighth | 13.24 | 13.40 | 12.90 |
| Ninth | 17.22 | 17.49 | 12.94 |
| Tenth | 29.99 | 30.57 | 12.99 |

The evaluation of the actual distribution of the tax burden among groups of taxpayers (deciles) based on the generated distribution indicates a very small shift of the tax burden onto taxpayers belonging to the tenth decile. Thus, their share of income being almost 30%, their share in the total amount of tax paid is 30.6%.

Different systems of tax rates: comparison of results

The transition to, or re-introduction of a progressive model of taxing the income of individuals (NDFL) should pursue the following goals:

1. The shift of the tax burden onto high-income categories of the population. In the framework of this study, the goal can be formulated as achieving a share of the tenth decile of 50% of the total income. As an intermediate goal, one could consider the achievement of this indicator's value at 44% (ten points higher than now). As an additional goal, one could consider having 1% of the highest income earners pay 20% of the total personal income tax.

2. Household income at the minimum subsistence level should not be subject to income tax. That means the necessity to introduce a non-taxable minimum income or a standard tax deduction amounting to the minimum subsistence income per each member of a household (taxpayer himself, his or her spouse, and children). In this study, deductions for children were considered at the existing level (1400 rub for

each child a month). A standard deduction for taxpayer was taken into account at the level of 10,000 rub per month and applied to taxpayers whose income is less than 500,000 rubles per annum. The introduction of the income threshold above which no deductions for children and the personal deduction are applied allows one to slightly increase the degree of taxation progressivity. This affects low and middle-income categories of taxpayers.

3. An increase in total PIT revenue compared to the baseline (the actual PIT revenue in 2015). As an intermediate result, we can consider the absence of a reduction in the amount of tax revenue compared to the basic indicators.

One of the problems encountered in the formulation of these goals is their com-

patibility and the hierarchy of each of the goals. In the study, various options and combinations of quantitative indicators for these goals were tested. Some results of testing on the data of the simulated distribution series of four variants of progression in the taxation of personal income are given below.

Let examine the four models of a progressive tax scale composition together with a system of deductions (see Tables 4–5): relatively radical, radical, conservative-radical and social-liberal models. The names of the models here are nominal and not bear much meaning.

A *relatively radical model* of tax rates allows for a 41%-shift of the total tax rates (total tax burden) onto the tenth decile. With a 30% share of income in the

Table 4

Parameters of tax rates and deductions (three models)

| Indicators | Relatively radical model | Radical model | Conservative-radical model |
|--|---|--|--|
| <i>Intervals of the annual taxable income, Rates, %</i> | | | |
| Less than 500 thousand rubles (40.66 thousand rubles a month) | 13 | 13 | 13 |
| 500,001 thousand – 1200 thousand rubles (40.66 – 100 thousand rubles a month) | 20 | 20 | 20 |
| 1200,001 thousand – 3200 thousand rubles (100 thousand – 250 thousand rubles a month) | 25 | 30 | 30 |
| 3200,001 thousand – 6000 thousand rubles (250 thousand – 416.60 thousand rubles a month) | 30 | 40 | 38 |
| More than 6000,001 thousand rubles (more than 500 thousand rubles a month) | 40 | 45 | 47 |
| <i>Other conditions</i> | | | |
| Children's deductions | 1.4 thousand rubles a month if the annual income less than 4200 thousand rubles a year | 1.4 thousand rubles a month if the annual income less than 4200 thousand rubles a year | 1.4 thousand rubles a month if the annual income less than 360* thousand rubles a year |
| Nontaxable minimum | 10 thousand rubles a month if the annual income less than 4200 thousand rubles a year** | 10 thousand rubles a month if the annual income less than 4200 thousand rubles a year | 7.5 thousand rubles a month if the annual income less than 360 thousand rubles a year |

* The annual average of the accrued salary in 2015.

** In 2015, for the working-age population, the subsistence minimum was 10,404 rubles, for pensioners – 7916 rubles.

tenth decile, the share of total tax here will be 41.1%. The average (effective) rate for this category of taxpayers will be 19.57%. In this case, 1% of the wealthiest taxpayers pay 10.22% of the total tax (bear the tax burden), and the average (effective) rate for these taxpayers will be 23.27%.

Under this model, it is possible to completely exempt taxpayers with the lowest level of income (less than 14,000 rubles per month) from taxation. This model makes it possible to increase budget tax revenues by 21.24% in comparison with the baseline version. The estimates (here and further on) do not take into account the possibility of tax arbitration and a potential increase in tax evasion.

In the framework of a *radical model*, the increased degree of the tax progressivity makes it possible to shift the tax burden onto the tenth decile 3 p.p. more, and to the ninth decile 1.9 p.p. more than in the relatively radical model. This variant of tax rates reduces the tax burden on the fifth, sixth and seventh deciles by 0.2–0.4 percentage points by changing the structure of rates. The burden on the first decile does not change, and on the second and third is slightly reduced (compared with the relatively radical model). The budget receives a tax revenue increase of almost 4% (without considering different risks).

Within the framework of a *conservative-radical model*, the amount of deductions was not as significant as in the first two. The application of these tax rates in conjunction with a system of deductions (see Table 4) has the potential to increase budget tax revenues by 26% compared to the initial situation. In this case, taxpayers within the first decile are not fully exempt from taxation, although the average rate for this group is less than 0.5%. However, in the second decile the average tax rate is close to the current one and is 11.7%.

This model makes it possible to shift almost 44% of the total tax burden onto taxpayers belong to the tenth decile. The average tax rate for this category of taxpayers is 21.09%. One percent of the richest taxpayers account for 11.21% of the total tax paid, and the average tax rate for this group exceeds 26%. When apply-

ing this model, only 30% of taxpayers will face an increase in the level of taxation (eighth-tenth decile). At the same time, for the eighth decile taxpayers, the increase in the tax burden will be only 1.68 p. p. and only 10% of taxpayers (the first decile) will experience a significant reduction in the tax burden.

Table 5
Parameters of tax brackets, rates and deductions for the social-liberal model (fourth model)⁶

| Indicators | Parameters |
|--|--|
| Intervals of the annual taxable income | Rates, % |
| Less than 1500 thousand rubles | 13 |
| 1500,001–2500,000 thousand rubles | 23 |
| 2500,001–3500,000 thousand rubles | 28 |
| 3500,001–4500,000 thousand rubles | 33 |
| 4500,001–5000,000 thousand rubles | 38 |
| more than 5000.000 thousand rubles | 13 |
| Children's deductions | 10 thousand rubles a month without any limit |
| Nontaxable minimum | 10 thousand rubles a month without any limit |

The most significant feature of a *social-liberal model* which makes it different from the first three is the tax rate of 13% applied to the highest income (more than 5 million rubles a year, see Table 5). This rate should support the investment activity of high-income groups of the population and reduce the effectiveness of tax evasion (according to the point of view in [25]).

The application of large-scale tax deductions in the amount of the subsistence minimum for the taxpayer and their children in combination with a progressive scale (Table 5) allows one to shift a sufficient part of the total tax burden onto the tenth decile (almost 50% of the total tax in this case falls on the last decile). But in this case, the total amount of tax revenue received by the budget system is reduced by

⁶ The explanation for the scale is given in [8].

20% compared to the initial situation. This tax model almost completely eliminates the tax burden for taxpayers in the first and second deciles. The effective tax rate becomes lower than the nominal rate for taxpayers belonging to the third-eighth deciles. For taxpayers of the ninth decile, the effective tax rate is almost equal to the nominal (13.07%). And only the tenth decile will “suffer” from an increase in the tax burden – the effective tax rate here will be at 15.24 (not much higher than it is now). In this case, only 10% of the population will feel an increase in the tax burden. For 90%, the tax burden will either decrease or remain at the same level.

The distribution of the tax burden (total tax) among taxpayers related to different deciles is shown in Figure 1.

The most significant redistribution of the total amount of tax (total tax burden) in favor of the tenth decile of taxpayers is provided by the “social-liberal” model of tax brackets. The “radical” model produces the second largest shift of the tax burden onto the highest-income categories of taxpayers. The “radical” model provides an increase in tax revenues compared to the initial situation by 25.3%, whereas the “socially-liberal” one results in a reduction in the total amount of tax by 20%.

The models of progressive personal income tax discussed above differ not only in the actual rates and deductions.

They also differ in terms of the resulting indicators for the revenues of the system of public funds, the disposable income of the population and differentiation of the latter by disposable income.

The most significant increase in public tax revenues compared to the initial situation is provided by a “conservative-radical” model (by 26.28%), which is only slightly more than by the “radical” one (25.23%). But the degree of the tax burden shift to the taxpayers of the tenth decile is slightly worse than in the “radical” model – 43.77% against 44.13% (see Table 6).

The closest approximation to the different goals mentioned above occurs in the various models considered (See Table 6). The most significant shift in the tax burden on taxpayers of the tenth decile takes place in the “social-liberal” version –almost 50%. A zero tax burden on the first decile of taxpayers is achieved in three models, and in the fourth this indicator is only slightly different from zero. We can therefore say that all four models discussed are satisfactory for this criterion. From the point of view of budget tax revenue dynamics, the most preferable model is the “conservative-radical” one as it provides a potential increase in revenues of 26%. The “radical” one, however, yields a value of the indicator that is only one percentage point less.

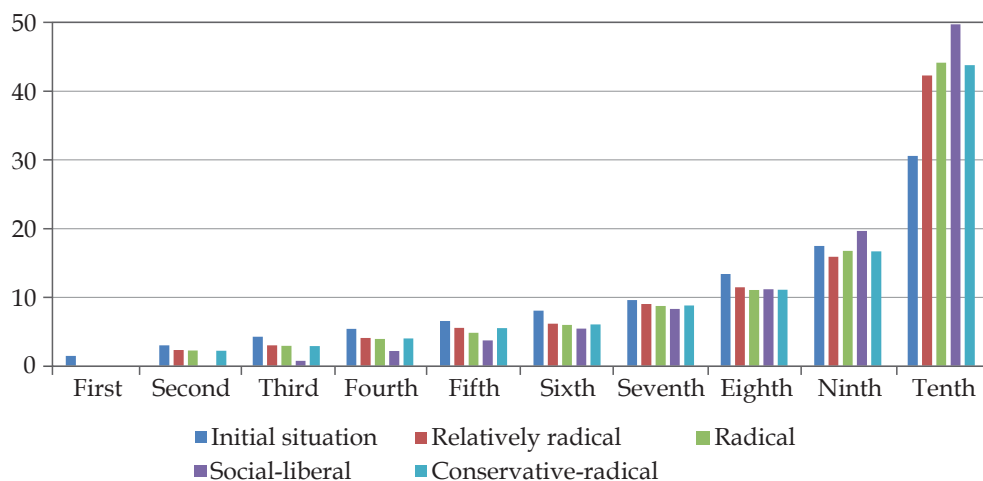


Figure 1. Distribution of the tax amount among taxpayers by deciles

Let's have a look at the decile ratio of the disposable income. If in the initial situation its value exceeds 20.3, then in all the simulated models the decile ratio is significantly lower (Figure 2 and Table 6). This means that the degree of the differentiation of taxpayers in terms of disposable income is reduced in the case of a system of deductions and a progressive tax. The most significant reduction of the scale of differentiation is achieved in the "radical" model – the decile ratio is reduced to 16.0 (this figure itself is quite high). The value of the decile ratio in the "radical-conservative" model is slightly higher – 16.1. The difference between these indicators in general is negligible

(particularly considering the total error of the estimates). The least significant decrease in the scale of differentiation is observed in the "social-liberal" model – the decile ratio is 17.2.

Considering the shift of the tax burden to 1% of the richest taxpayers, the most preferable is the "social-liberal" model, where the share of tax within this group is 12.7%. In other models, the share of tax, which falls on 1% of the richest taxpayers is 10 to 11%. At the same time, the estimated tax rate for the highest-income individuals in the framework of the "socially-liberal" model is the lowest – 19.15%. In all other models, the average tax rate for this group of taxpayers is sig-

Table 6

Some indicators of the models, %

| Item | Initial | Relatively radical | Radical | Social-liberal | Conservative-radical |
|--|---------|--------------------|---------|----------------|----------------------|
| First decile (share), % | 1.37 | 0.00 | 0.00 | 0.00 | 0.05 |
| Average rate in the 1 st decile, % | 10.65 | 0.00 | 0.00 | 0.00 | 0.46 |
| Tenth decile (share), % | 34.02 | 42.29 | 44.13 | 49.71 | 43.77 |
| Average rate in the 10 th decile, % | 12.98 | 19.57 | 21.09 | 15.24 | 21.09 |
| 1% of the most high income taxpayers (share), % | 6.92 | 10.22 | 10.22 | 12.70 | 11.21 |
| Average rate in the group of 1% of the most high income taxpayers, % | 13.00 | 23.27 | 23.27 | 19.15 | 26.58 |
| Decile dispersion ratio (fund ratio) of disposable income | 20.3291 | 16.351 | 16.042 | 17.231 | 16.114 |
| Budget tax receipts (% of initial situation), % | 100.00 | 121.24 | 125.23 | 80.32 | 126.28 |

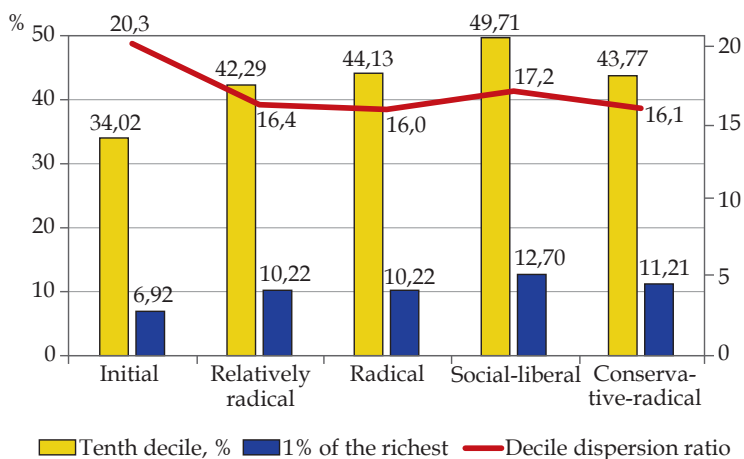


Figure 2. Tax burden on taxpayers in the tenth decile and the decile ratio of discussed models

nificantly higher and ranges from 23% to 26%. Such values of the indicators under the “social-liberal” model are largely the result of substantial tax deductions that the taxpayer and his children are eligible to without an income tax threshold to be applied. In other models, this threshold is applied. So, the wealthiest persons are effectively denied the right to use these deductions.

In general, the “radical” and “conservative-radical” models bear the most practical interest. The choice between them can be made depending on the priorities and the system of preferences: which one is more preferable – the reduction of the tax burden on the poor or a potential increase in tax revenues.

Conclusion

The analysis of systems of tax rates and the results of their application is based on the hypothesis about a log-normal distribution of taxpayers. This hypothesis can be confirmed or refuted only on the basis of actual taxpayers distribution data published by the Federal Tax Service. In the absence of such data, researchers are left to work with hypotheses.

The results obtained allow us to solidify the recognition in the Russian economic literature of the necessity to re-introduce a progressive income tax by performing quantitative estimations of its potential consequences.

Summing up the above, it should be noted that the transition to (or rather, the re-introduction of) a progressive model of personal income taxation in case an adequate version of tax brackets and rates in combination with deductions is selected is quite feasible. A potentially significant reduction of the tax burden on the poorest categories of the population and the growth of the tax burden on high-income groups along with an increase in tax revenues for the public purse are possible. The estimations show that none of the tested models of tax rates and deductions provides a principal reduction of the decile ratio (for disposable income). To develop a system of tax rates and a system of deductions, it is necessary to test them using actual rather than generated data. It is also necessary to develop a “function of tax evasion” on the basis of real data of the Russian Federation to estimate the potential scale of tax arbitration and tax evasion.

It should also be considered that the re-introduction of a progressive tax model will have a number of consequences. A reduction in the level of taxation of low-income categories of the population would deprive some regions of the Russian Federation of a significant part of their own revenue. The introduction of progression in the PIT (if the order of transferring tax receipts to regional budgets is not revised) will lead to a situation when regions with the wealthiest population get a significant advantage.

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1. Статья, представляемая для публикации, должна обладать новизной, быть самостоятельным, завершенным, характеризующимся внутренним единством исследованием актуальной проблемы, связанной с налоговыми реформами на международном и национальном уровнях.

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- 5–10 ключевых слов на русском и английском языках;
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2. В качестве ключевых слов могут использоваться как одиночные слова, так и словосочетания в единственном числе и именительном падеже. Количество слов внутри ключевой фразы (словосочетания) может быть не более трех.

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ках (ОАО «Иркутскэнерго» – Иркутскэнерго); слова с запятыми (факторы, определяющие качество – факторы качества, определение качества);

- каждое ключевое слово – это самостоятельный элемент. Ключевые слова должны иметь собственное значение (человеческий капитал, его оценка – человеческий капитал, оценка человеческого капитала).

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2. Ссылки на использованную литературу приводятся в тексте в квадратных скобках с указанием в них номера источника по Списку использованной литературы и страницы цитируемого фрагмента, напр.: [5, с. 115].

3. В оригинальной научной статье необходимо упоминание не менее 25–40 источников, имеющих автора, в научном обзоре – 50–80, в том числе не менее 50 % источников на иностранном языке. Редакционная коллегия рекомендует цитировать статьи из журналов, которые индексируются в международных базах данных (Scopus, Web of Science).

4. Электронные ресурсы, в которых не указан автор материала, статистические сборники, нормативно-правовые акты размещаются в постраничных сносках и в список использованной литературы не выносятся.

5. Самоцитирование автора допускается не более 20 % от количества источников в списке. Самоцитирование журнала (ссылки на статьи из данного журнала) не рекомендуется!!!

Пример оформления библиографических записей

1. Статьи в журналах:

Pimenov N. A. Fiscal risks in the system of tax security of businesses and State. *Nalogy = Taxes*, 2010, no. 4, pp. 10–13. (In Russ.).

Slemrod J. Lessons for Tax Policy in the Great Recession. *National Tax Journal*, 2009, vol. LXII, no. 3, pp. 387–397. Available at: http://webuser.bus.umich.edu/jslemrod/Great_Recession.pdf.

Jensen O. W. Transfer Pricing and output decisions: the dynamic interaction. *Decision Sciences*, 1986, vol. 17, pp. 428–436.

Börner K., Klavans R., Patek M., Zoss A. M., Biberstine J. R., Light R. P., Larivière V., Boyack K. W. Design and update of a classification system: The UCSD map of science. *PloS one*, 2012, vol. 7, no. 7, pp. 1–10. DOI: 10.1371/journal.pone.0039464.

2. Статьи из сборников научных трудов и материалов конференции:

Reingold I. I. The financial policy of NEP. In Sokolnikov G. Ya. (ed.) *Osnovy finansovoi sistemy SSSR* [Fundamentals of the financial system of the USSR]. Moscow, Gosfinizdat Publ., 1930, pp. 56–61. (In Russ.).

Atkinson A. B. Horizontal Equity and the Distribution of Tax Burden. In Aaron H., Boskin M. (eds.) *The Economics of Taxation*. Washington DC, Brookings Institution, 1980, pp. 3–18.

Börner K., Boyack K. W., Milojević S., Morris S. An introduction to modeling sci-ence: Basic model types, key definitions, and a general framework for the comparison of process models. In Scharnhorst A., Börner K., & van den Besselaar P. (eds.) *Models of Science Dynamics, Encounters Between Complexity Theory and Information Sciences*. Berlin, Springer, 2012, pp. 3–22.

Val'den P. I. The development of chemistry in Russia. *Dnevnik Vtorogo mende-leevskogo s»ezda po obshchei i prikladnoi khimii i fizike. Saint Petersburg, 21–28 dekabrya 1911 g.* [The Diary of Second Mendeleev Congress on General and Applied Chemistry and Physics. Saint Petersburg, December 21–28, 1911]. Saint Petersburg, 2011, no. 1, pp. 124–141. (In Russ.).

3. *Монографии, учебники, учебные пособия:*

Kormishkina L. A., Koroleva L. P. *Finansovaya bezopasnost* [Financial security]. Saransk, The National research Mordovia State University Publ., 2016, 200 p.

James S., Sawyer A., Budak T. (eds). *The Complexity of Tax Simplification: Experiences From Around the World*. London, Palgrave Macmillan, 2016. 273 p.

Taleb Nassim Nicholas. *The Black Swan. The Impact of the Highly Improbable*. Random House, 2007. 400 p. (Russ. ed.: Taleb Nassim Nikolai. *Chernyi lebed'*. Pod znakom nepredskazuemosti. Moscow, KoLibri Publ., 2009. 528 p.).

4. *Диссертации, авторефераты диссертаций:*

Gombozhapova S. V. *Sovershenstvovanie nalogovogo kontrolya s uchetom istoricheskogo opyta. Kand. Diss.* [Improving tax control in context of historical experience. Cand. Diss.]. Irkutsk, 2012. 241 p.

Urban I. *Redistributive effects of direct taxes and social benefits in Croatia. Doct. Diss.* Slovenia, 2010. 199 p.

5. *Электронные ресурсы, в которых указан автор материала:*

Ivanov A. *Krepkii rubl' i deshevye kredity. Naskol'ko deistvenny predlozheniya Sergeya Glaz'eva* [Strong ruble and cheap loans. How effective are the proposals of Sergei Glazyev]. Available at: <http://svpressa.ru/economy/article/156619/>. (In Russ.).

Feldstein Martin. *The Case for Fiscal Stimulus*. Available at: <https://www.project-syndicate.org/print/the-case-for-fiscal-stimulus>.

Предоставление сведений об авторе (ах) статьи

1. В статье в информации об авторах на русском и английском языках указываются следующие данные:

- фамилию, имя, отчество (полностью);
- ученую степень, ученое звание (полностью);
- занимаемую должность;
- рабочее подразделение (кафедра, факультет, институт и др.);
- место работы в соответствии с официальным названием организации;
- почтовый индекс организации – места работы (с указанием почтового индекса);
- адрес электронной почты (e-mail);
- ORCID (Open Researcher and Contributor ID) – уникальный идентификатор ученого, связывающий его исследовательскую деятельность и помогающий идентифицировать ссылки на его научные публикации в международных базах данных (Scopus, Web of Science) (если имеется).

2. Дополнительно указывается информация, которая служит для связи с автором и в журнале не публикуется:

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3. Фамилия и имя на английском языке указываются автором в соответствии с их написанием в ORCID или ранее опубликованным в зарубежных изданиях, входящих в международные базы данных (Scopus, Web of Science), либо указанным в заграничном паспорте.

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The requirements for the structure and content of the article

1. The article submitted for publication must contain novelty, must be an independent, complete and internally united research work on a current issue, related to tax reform at international and national levels.
2. The article should be structurally divided into sections with headings, reflecting:
 - relevance of the research;
 - background of a problem;
 - proposed research methods and their originality;
 - analysis of the study findings;
 - main conclusions, the results of the research and further discussion of them, or the problem solution.
3. The article should contain illustration material, showing the results of the research.

Format requirements

1. The manuscript files in Microsoft Word format should be converted to .docx. files
2. Technical format of the article has to comply with the following requirements:
 - the page size – A4;
 - font – Times New Roman; main text – 14-point, supplementary text (abstract, keywords, tables, figures, references) – 12-point, footnotes – 11-point;
 - line spacing – 1,0;
 - fit to the width;
 - indent – 1,25;
 - margins – 2.0 cm on all sides;
 - page numbers - at the bottom of the page;
3. Article should be 18–25 pages.
4. The article has to contain the following components drawn up in accordance with the journal's requirements (see the sample):
 - JEL classification;
 - title of the article;
 - information about the author;
 - abstract;
 - 5–10 key words;
 - the highlights of the article reflecting the key results of the study, theses of the article's main content, in the form of 3–5 items of the bulleted list;
 - the list of references;
 - the article should have reference notes given in square brackets provided according to the references.

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An Abstract is a source of information on your paper's content and findings.

1. An Abstract has the following functions:
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 - provides information on your paper and makes it unnecessary to read its full text version if it is of secondary interest to a reader;
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 - research methods/methodology;
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 - conclusions drawn from your study.
- the object, topic and purpose of the research (if they are not clear from the title of the paper);
- the research methods/methodology if they are original or of interest for this particular research. For papers concerned with experimental work describe your data sources and data process technique;
 - the results of research should be described as precisely and informatively as possible. Include your key theoretical and experimental results, factual information, revealed interconnections and patterns. Give special priority to new results and long-term impact data, important discoveries and verified findings that contradict previous theories as well as data that you think have practical value.
 - the sphere for implementation the results of the research;
 - conclusions could be associated with recommendations, estimations, suggestions, hypotheses described in the paper.
4. Use the language typical of research and technical documents to compile your abstract and avoid complex grammatical constructions. Information contained in the title should not be repeated in the abstract. The abstract should be concise and clear and reflect only the main information of the original paper. The text of the abstract should include key words of the paper

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 - be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.
 - each keyword should have its separate meaning.

Guidelines for Reference

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2. To associate the list of references with the text of the article, you should include a reference as a number (running number of the source from the list) and also the page number in square brackets: [5, c. 115].
3. In the original scientific paper must be not less than 25–40 references, in the scientific review – 50–80 references. The Editorial Board recommends to cite papers indexing in international databases (Scopus, Web of Science).

4. The electronic sources without an author, statistic and regulation materials should not be included in the list of reference, but preferably set as a footnotes at the end of the page.

5. Author's self-citations should not exceed 20 % of the number of sources in the list of references.

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- author's e-mail;
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