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TAXATION OF R&D: REVIEW OF PRACTICES

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In recent years R&D tax incentives have been characterized by increasing scale and spread on innovation activity. Approaches to integrated R&D tax incentives into "recipes" for long-term growth and competitiveness were developed and tested in many countries. For example, only 12 OECD members employed R&D tax incentives in 1995, but 27 members do so in 2013 (as well as Brazil, China, India, Russia and other countries). And their share of total government expenditure on R&D (direct and tax) by OECD member countries reached at least a third. These trends have accompanied the development and testing of approaches to estimate the costs of tax support for R&D (including tax expenditures) and its effects and to ensure that they are internationally compatible.

As for Russia, there are no officially accepted estimates of the scale and effectiveness of R&D and innovation tax support yet, though efforts to calculate them have been under way since 2010. This paper includes the current state of empirical research of tax support for R&D and innovation in the Russian Federation, as well as a survey of the demand for its tools from research institutes, universities performing R&D, and manufacturing enterprises, which was conducted in 2012-2013. The results obtained demonstrate the power of empirical analysis and optimization of R&D and innovation tax incentives in the Russian Federation, against the background of the field's best practices and current trends.

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Keywords: R&D, innovation, tax incentives, tax expenditures, demand for R&D and innovation tax incentives.

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Introduction

The interest in R&D and innovation tax incentives in Russia and abroad (for example, see [OECD, 2003; OECD, 2011b; OECD, 2010d; OECD, 2013c]) is largely the result of a combination of two global factors. One of them is the widely accepted fact of the increased contribution of R&D and innovation to the competitiveness of nations and the achievement of its strategic objectives [OECD, 2013c]. Other factors are the sharp rise in the cost of R&D and innovation activity as well as the increased complexity and interdisciplinary nature, risks, etc., which forces companies and countries to cooperate in this field [Kotsemir, Meissner 2013]. Moreover increased support for R&D and innovation often clashes with the objective limitations of budgetary and other resources which leads to tougher requirements on the efficient use of these resources.

In Russia these questions became more central recently in course of last decade's policy declarations on technological modernization, innovative development, and the nation's competitiveness, as well as the absence of any perceptible shift in the right direction in these areas [Kutsenko, Meissner 2013; Gokhberg, Meissner 2013]. Despite a three-fold increase in expenditures on technological innovation in 1995-2012 (in constant prices), the maximum combined level of innovative activity in the 2000s was reached in 2012 (10.4%), while Germany achieves 79.9%, Finland 52.2%, France 50.2%, and Eastern Europe countries vary between 24.3% (Latvia) to 56.4% (Estonia) [HSE, 2014a]. Accordingly Russia's share of global high-tech markets is estimated at 0.23–0.26%, China 22.7% and the United States – 9.5%) [HSE estimates].

Russia's increased R&D expenditure 2000-2012 - showing a 1.8x increase in constant prices - was largely achieved through direct government support, which grew in this period by a factor of 3.8 (in constant prices) [HSE, 2014b]. As a percentage of GDP, these expenditures (1.12% in 2012) put Russia in 33rd place, falling behind the United States (2.9%), China (1.77%), Germany (2.88%), and a number of other countries. In absolute terms Russia lags behind the United States, China, and Germany, which are 17th, 5th, and 4th, respectively; in terms of the amount of direct government support for R&D, Russia is at the level of France and Italy, outperforming Great Britain and Canada. However, in the distribution of nations by the number of publications in scientific journals indexed in SCOPUS, Russia moved in 1996 from 8th to 16th place. In the same period, China managed to climb from 12th to 2nd place and substantially close its gap behind the United States (16.74 and 22.77%, respectively) [HSE, 2014b].

Results of an comparative analysis of the dynamics of Russia's R&D expenditures and innovation support the need to measure budget expenditures on R&D and innovation, to assess the effectiveness of these expenditures and to prepare evidence based recommendations on how to improve R&D and innovation support in practice. However the resolution of these challenges

for direct government support currently conflicts with Russian Federation's budget's which lacks a special section that integrates expenditure for non-military research and their inclusion of not only expenses on R&D as such but also expenditure for other purposes (maintenance of government institutions in the field, its regulatory and financing agencies, etc.), which does not comply with the relevant international standards [Gohberg (science editor), 2012; OECD, 2002a; Gohberg, 2003]. There is also no official data about the federal budget's direct expenditures on innovative activity.[2]

Information about indirect support for R&D and innovation (including about the corresponding tax expenditures in the Russian Federation's budget[3]) is given in the only existing public estimate of the Russian Federation's tax expenditures on innovative activity (12.2 billion RUB in 2010) [The Ministry of Finance, 2013].

Thus far empirical studies have been limited to including individual questions about R&D and innovation tax incentives in surveys, which, as a rule, have been dedicated to investigating more general problems (for example, see [HSE, Interdepartmental Analytical Center, March 2009; Gracheva, Kuznetsova et al., 2012; Kuznetsova, Rud, 2011; Inoprom Barometer; Ivanov, Kuzyk, Simachev, 2012; Proskuryakova et al 2014; RSPP, 2011; RSPP, 2012; RSPP, 2013]).

Despite the uncertainty of the actual scale and effects of tax support for R&D and innovation in the Russian Federation, recently a number of proposals for its expansion have been discussed and/or implemented (in particular, in 2013 a set of tax incentives for innovative development of the Far East were introduced).

Accordingly, the main purpose of investigating tax support for R&D and innovation in the Russian Federation, which was carried out in 2012-2013[4] was to evaluate the demand for this measure. The first part of this paper is devoted to a review of current trends related to this sup-

[2] Individual attempts to calculate them (see [Government Committee, 2010a] raise a number of questions and objections about the methodology. In particular, including the expenses of high-tech medical assistance, higher education, and assistance for the development of high-tech industries, which were made outside the scope of the corresponding federal targeted programs, clearly does not comply with the international standards for defining innovative activities [OECD, Eurostat, 2005].

3 The concept of "tax expenditures" is associated with the name Stanley S. Surrey), who coined the term at the turn of the 1960-70s for the analysis of incentives and other preferences in effect for income tax in the United States (Surrey, McDaniel, 1985). The development of the concept of tax expenditures was accompanied by changes to its meaning due to the inclusion of not only income tax, but other taxes, discussions of the expediency of tax incentives, their positive and negative effects, quantitative assessments, and other questions (for example, see [IMF, 2007; Weisbach, 2006; Burman, Geissler, Toder, 2008; Rogers, Toder, 2011]). Essentially, tax expenditures may be defined as the tax system's "deviations" (preferences) in favor of specific industries, types of activities, or segments of the population [Anderson, 2008]. However, while some experts propose including in tax expenditures only those "deviations" (preferences) that can be "transformed" into corresponding government programs (i.e. direct government support) [OECD, 2010d], others oppose this [Burman, 2003; IMF, 2007; Malinina, 2010].

[4] A survey of tools of government regulation of scientific and innovative activities in the Russian Federation in 2012-2013 as part of a massive project implemented by the ISSEK at HSE at the order of Russia's Ministry of Education and Science in 2011-2013. The sample size was 1.669 organizations (519 research institutes, 299 universities performing R&D, and 851 manufacturing enterprises). The executives of the surveyed organizations were polled using questionnaires developed for each of the three groups of organizations. The questionnaires included three sections of questions: organizational characteristics essential to the analysis of the survey results; tools of direct support and tools of tax support. The survey was conducted by Autonomous Non-Profit Organization Informatsionno-Izdatelskiy Tsentr Statistika Rossii [Publishing Center Statistics of Russia] (ANO IITs Statistika Rossii) at the order of the ISSEK at HSE.

port measure and its areas of research. In the second part, we present the main properties and results of our research. In the conclusion we offer proposals to improve R&D and innovation tax incentives in the Russian Federation as well as areas for further research.

Tax Support for R&D: Practice and Research

Status in Government Policy and Basic Tools

The popularity of tax incentives for companies investing in R&D has grown remarkably in the past decade. If only 12 members of OECD employed them in 1995, 18 members did in 2008 and 27 out of 34 do in 2013, as well as Brazil, China, India, Russia, and other countries. At the same time, some countries have not resorted to using tax incentives to stimulate R&D, preferring to create a favorable tax climate in general (for example, Estonia, Luxembourg, Sweden, Switzerland). Others have debated the wisdom of introducing tax incentives (Germany and Finland, which introduced them in 2013). By contrast, a third group has recently discarded them (Mexico, New Zealand) . [OECD, 2010c; OECD, 2011a; OECD, 2011b; OECD, 2013c; OECD, 2013a].

Expanding R&D tax incentives is accompanied by growth in their scale and their share of total government support for R&D: up to one third in OECD countries [5] [OECD, 2013c; OECD, 2013a]. For example, from 2006 to 2011 its share grew in France from 37.5% to nearly 70% and in Turkey from 29% to 52%, while in Hungary, Italy, the United States, and Japan, it decreased (for example, from 49% to 9% in Italy). Nevertheless, the relationship between direct and indirect government support for science varies widely from nation to nation.

The list of basic tools for tax support for R&D, a combination of which are used by most countries (for example, see [OECD, 2002b; Köhler, Larédo, Rammer, 2012; Palazzi, 2011; OECD 2011b; *OECD*, 2012; OECD, 2013e]) includes:

- tax credits that make it possible to exclude R&D expenses from tax liabilities;
- accelerated depreciation of the fixed assets used to conduct R&D (machines and equipment, buildings and structures, and/or intangible assets);
- exclusion of R&D expenses from taxable income (including more than 100% of these expenses);

[5] The data presented may somewhat understate the actual scale of R&D tax incentives: first, due to the curtailment of tax incentives during the 2008-2009 global economic crisis; second, due to significant amounts of direct government support for R&D in the United States (excluding which, at OECD two thirds of total government support for R&D in 2011 went to tax tools); and finally, third, due to the incompleteness of the data necessary for such calculations, problems with data compatibility, and certain reservations about the methods employed [OECD, 2013a; OECD, 2013c].

- incentives on income and/or social taxes for personnel who conduct R&D, which are designed to reduce expenditures on salaries;
- favorable taxation of income obtained from the use of the results of R&D.

Reasons for Use

The reasons for government support for R&D have traditionally been tied to market failures. They are particularly evident in the utter inadequacy of the return on private investments in R&D, because the ability to block the distribution of the results of R&D is objectively limited by the nature of scientific knowledge, which is also accountable to the interests of society as a whole (for example, see [OECD, 2002b; Köhler, Larédo, Rammer, 2012; OECD, 2011b; Meissner et al 2013, Meissner et al 2013a; Palazzi, 2011]). That is, direct or indirect support for private R&D and the protection of intellectual property rights are designed to "compensate" knowledge producers for revenues not received due to market failures and to stimulate increased investments in R&D.

At the same time, arguments for direct or indirect government support for private R&D such as the following are also advanced:

- attracting external financing is difficult and has high costs (especially for small and young innovative companies) [*OECD*, 2011b];
- R&D fulfills government purposes in areas such as defense, security, public health, energy, telecommunications, etc. [6] [Köhler, Larédo, Rammer, 2012];
- there is a need to facilitate cooperation amongst producers of knowledge as well as between them and consumers of knowledge [OECD, 2002c; Köhler, Larédo, Rammer, 2012];
- investments in R&D are recognized as a key factor in national competitiveness and long-term growth, while companies' ability to attract borrowed or other external resources for these purposes is limited [Köhler, Larédo, Rammer, 2012].

The choice between direct and indirect support or the balance between them is made with consideration of the potential costs and effects of said support and other factors.

[6] For example, by the beginning of the 21st century in the United States nearly 90% of direct government support for science and roughly 75% of overall government support, direct and indirect (tax), went to R&D associated with fulfilling government purposes.

Advantages VS Disadvantages

The advantages of tax support for R&D (including in comparison with direct government support), with some reservations, may be divided into traditional advantages and relatively new advantages that have appeared in the last several years (for example, see [OECD, 2002b; Köhler, Larédo, Rammer, 2012; OECD, 2013a; OECD 2010a; Palazzi, 2011]). Traditionally advantages are generally recognized to include:

- market-based implementation, i.e. no interference with market mechanisms and relations;
- availability to all companies and relative neutrality with respect to the areas and fields of R&D, campaign parameters, etc.;
- more efficient selection of R&D for financing, because it is done by a business;
- an "overlay" on top of the existing system of corporate taxes, which reduces the costs to the government and businesses when introducing R&D incentives;
- independent from the budgeting process, which simplifies decision making.

In recent years, features of indirect support for R&D have been identified, such as the following:

- the lack of any restrictions on R&D tax incentives in international organizations (agreements), i.e. including WTO and EU, which allows countries to avoid charges of protectionism;
- the ability to use it to attract research units from transnational (foreign) companies to the country;
- the relative insensitivity to fluctuations in the economic situation and the ability to use it to overcome the resulting negative effects which specifically happened in the global crisis of 2008-2009.

However, rejecting tax support for R&D is also not without justification. First, introducing tax support is accompanied by an unpredictable increase in costs to the government. In order to avoid this, countries resort to incremental incentives, i.e. incentives that depend on increased expenditure on R&D and establish minimum levels of R&D expenditure necessary to qualify for the incentives or a maximum level of tax support granted to a single company.

Second, the effect of tax incentives is limited to industry and does not encompass the services sector [Brussels, 2009], whose role in the economies of developed nations has grown considerably in the recent decades. Moreover, it has all but been decided to include intellectual services in international standards for measuring and accounting for R&D [OECD, 2002a].

Third, the main beneficiary of tax support for R&D turns out to be not independent national enterprises but major transnational companies that dominate the private sector's R&D expenditure (1500 of these companies account for roughly 90% of global R&D expenditure [*OECD*, 2013a]).

Fourth, costs and complexity of administering R&D tax incentives under the conditions of globalization including to the movements of transnational companies' profits between their subdivisions in different tax jurisdictions are increasing considerably [Brussels, 2009; OECD, 2013a].

Finally, the lack of any reliable and generally accepted estimate of the amount and effectiveness of tax expenditures on R&D and innovative activity, despite the efforts undertaken in recent years to develop corresponding international standards (for example, see [*OECD*, 2010b; *OECD*, 2011a; *OECD*, 2012; *OECD*, 2013c]).

The merits and shortcomings of R&D tax incentives are evident when they are used to achieve various objectives.

Objectives

Objectives of R&D tax incentives are gradually expanding, but their contribution to the realization of those objectives is ambiguous. Nevertheless, the growth of private companies' R&D expenditure remains the tax incentives' primary objective, and the evidence of the incentives' effect on this growth is more convincing than that for other objectives (for example, see [OECD, 2002b; Köhler, Larédo, Rammer, 2012; OECD, 2010a; KPMG, 2012; OECD, 2013a]).

In the last ten years, the anticipated effects of tax support for R&D have been linked with solving problems that are of immediate significance for most countries [OECD, 2002c]:

- ensuring the long-term economic growth and competitiveness of the national economy;
- raising the innovative activity of companies, labor productivity, and public well-being;
- causing structural shifts in the national innovation system (in particular, by creating favorable conditions for small and young innovative companies);
- promoting cooperation between the producers of knowledge and other participants in the national innovative system;
- attracting foreign investments in R&D and innovation.

This list reflects national practices that, on one hand, may surpass research in the field of tax support for R&D and affect the direction it takes, but on the other hand - may account for the results of this research, which may be divided into two groups: one group is about measure-

ments and international comparisons of this support; the second is about identifying and assessing its positive effects.

Research into measurements and international comparisons

Research into measurements and international comparisons of tax support for R&D has to do with either its strength or the associated expenditure (R&D tax expenditure). Measurements and international comparisons of tax support for R&D by private companies are generally made using the B-index method[7] (for example, see [Warda, 1996], [Warda, 1997], [Warda, 2001], [Warda, 2006]). In essence, the B-index, which can take a value from 0 to 1, estimates the amount of pre-tax income that would let a company break even given 1 dollar of R&D expenditure. That is, all things being equal, the more tax incentives for R&D, the lower the B-index should be; the difference between 1 and the index serves as an estimate of the size of these incentives.

For a number of years the B-index was practically the only indicator of the strength of R&D tax incentives and the only tool for comparing nations and regions i.e. from 1999 to 2009 and in 2013[8] it was included in the OECD Science, Technology and Industry Scoreboard[9].

The appearance of the indicator " R&D tax expenditure" [OECD, 2007; OECD, 2011a; OECD, 2013c] was accompanied by the development of international standards for their measurement, the testing of tools to gather the required information, and the implementation of corresponding international comparisons[10] [OECD, 2010c]

Research into measurements and international comparisons of tax support for R&D reflects not only tax support for R&D properly, e.g.in accordance with the international definition of R&D [OECD, 2002a], but also tax support for operations with intellectual property, software development, researchers salaries, private-public partnership and cooperation in R&D, other activities, and groups of companies (for example, small and/or medium-sized businesses), etc. [OECD, 2012; OECD, 2010d]. That is, with respect to tax incentives, the scope of R&D is grad-

[7] It was developed and tested back in the 1980s, but it was it continues to be improved to this day, which in large part makes this methodology relevant and broadens its use (for example, see [OECD, 2002b; Brussels,2008; OECD, 2013c; Palazzi, 2011; OECD, 2007; OECD, 2009]). The utter incompleteness of the references to publications about the B-index is explained by their growth in numbers and diversity over the course of nearly 30 years.

[8] The 2007 and 2011 reports mention tax expenditures on R&D, the information about which was obtained through special OECD surveys, while the 2013 report mentions both tax expenditures and the B-index [OECD, 2007; OECD, 2011a; OECD, 2013c].

[9] The first issue of the OECD STI Scoreboard, which appeared in 1999 [OECD,1999] as an appendix to an OECD forecast in the field of science, technology, and industry, contained B-index calculations for 22 OECD member nations and methodological explanations of the same. Subsequent issues of this report, which was prepared every two years, reflect both development of the B-index methodology and an expansion of the circle of nations involved in the comparison of the strength of R&D tax incentives.

[10] As of today, OECD has conducted 4 rounds of surveys to collect data about R&D tax incentive schemes and their implementation costs (2007, 2009, 2011, and 2013). The questionnaires used included necessary explanations and comments (for example, [OECD,a], and the results obtained have been given in a number of regular reports and other OECD publications (for example, see [OECD, 2007; OECD, 2011a , OECD, 2013c; OECD, 2012]).

ually expanding to include innovative and other activities, which in turn indicates that a number of countries have transitioned from stimulating private companies' R&D proper to stimulating their innovative activities.

Research into the effects of tax support for R&D

Research into the positive effects of tax support for R&D, which has been carried out for more than 30 years, is extremely abundant and diverse, and pertains primarily to the manufacturing industry (for example, see [OECD, 2002b; OECD, 2010a; Köhler, Larédo, Rammer, 2012; Vartia, 2008; Palazzi, 2011]). Most of the research was conducted based on data from the 1980-1990s, when only individual countries resorted to R&D tax incentives, and the list of tax tools, which included several items, was stable for a number of years.

In particular, the results obtained have confirmed the direct influence of tax support for R&D on the growth of expenditures on them in the short-term (for example, see [Bernstein, 1986; Mansfield, 1986; Mansfield, Switzer, 1985]), as well as the considerable variability of this influence, depending on how the support is organized (amount-based or incremental), its tools, the countries using the methods, and other research variables. In particular, it has been shown that R&D tax incentives are more effective for profitable and/or high-tech industries, and their influence on the total productivity of the factors of production and innovative activities as a whole is insignificant and may be evident only in the long-term. Nevertheless, they are a key factor in the development of R&D (including due to aiding the influx of foreign investments into R&D) [OECD, 2002b; Taxand, 2011-2012].

Recently the emphasis of research of tax support for R&D has shifted from assessing its effects with respect to individual indicators to searching for ways to integrate the support into "recipes" for steady growth and competitiveness, which are vigorously sought by most countries (for example, see [OECD, 2013a–d]). The current state and direction of related research is characterized by:

- an emphasis on the effects of R&D tax incentives under conditions of globalization (above all, on the geography of transnational companies' R&D investments);
- recommendations to reduce/limit incentives for transnational companies and to give strategic support to R&D by independent national companies that lack the ability to choose the optimal tax jurisdiction;
- the designing of R&D tax incentives that make it possible to avoid the combination of tax incentive growth and budget revenue decline without "compensation" by increasing companies R&D expenditures and/or income from the commercialization of R&D results;

- the search for a balance between direct and indirect support for private R&D, accounting for young companies' needs for primarily direct support (due to the lack of funds for financing R&D and innovative design) and the need to allocate it competitively.

Concerning today's extremely relevant hypotheses about the positive effects of tax support for R&D for companies' innovation activities, labor productivity, public well-being, economic growth, a nation's competitiveness, the influx of "science-related/innovation-related" foreign investments, and other benchmarks of growth, the rate of which largely determines the growth and expansion of this support, these effects have not been possible to be measured, nor have these hypotheses yet been confirmed or refuted on the basis of empirical data.

Tax Support for R&D and Innovation in Russia: Experience in Evaluation and Empirical Research

Measurements of scale and effectiveness

Attempts to assess the scale and effectiveness of R&D and innovation tax incentives, which have been undertaken in the past several years in the Russian Federation, have in one way or another been related to a 2010 decision to monitor the effectiveness of tax incentives for innovative activity [Government Committee, 2010c]. However, the implementation of the decision ran up against a number of methodological, informational, and other limitations. [11]

During 2009-2010 an analysis of tax incentives to stimulate innovative activity [Accounts Chamber, 2011], in particular, demonstrated a lack of the necessary information, methodology and methods, criteria for determining that tax incentives "belong" to innovative activity and other conditions, which largely predetermined the fragmented nature of the results obtained.[12]

According to the first public estimate of the Russian Federation's tax expenditures on innovative activities [The Ministry of Finance, 2014], in 2010 they amounted to just 12.2 billion RUB, 8.2 billion RUB of which were the result of VAT exemption for operations with exclusive rights to the results of intellectual activity. The relevance of these figures is largely diminished

[11] In the absence of official public data about direct and indirect expenditures from the federal budget on innovative activity, the published estimates of these expenditures are controversial for the method of calculation and its ambiguity, fragmented nature, the significant variation in values, etc. For example, in 2010 Russia's Ministry of Economic Development estimated the expenditures on innovation from the Russian Federation's federal budget in 2009-2012 to be approximately 1 trillion RUB per year, having included in this sum items that do not qualify as expenditures on innovative activity according to international standards for defining this activity. This raises a number of questions and objections [Government Committee, 2010a].

[12] As for the massive research on tax incentives for innovative activity, which was conducted by the Institute of World Economy and International Relations of the Russian Academy of Sciences [IMEMO RAN, 2009], it is primarily oriented toward foreign experience in this field and hardly touches on quantitatively assessing the scale and effects of indirect support for innovative activity.

by the ambiguity of the methods with which they were calculated, the lack of a set of the figures over time, and the inability to make international comparisons.[13]

The fragmented nature and diversity of estimates of the Russian Federation's tax expenditures on innovative activity, which in the last several years were obtained from tax statistics, largely explain the interest in empirically studying tax incentives for innovative activity and analyzing the research results.

Empirical research

Empirical research of tax incentives for innovative activity in the Russian Federation is extremely sparse and typically represented by individual snippets/questions from comprehensive surveys with more general purposes and objectives. For example, according to experts who participated in a survey in 2009 about the Government of the Russian Federation's anti-crisis policy in 2008-2009 [HSE, Interdepartmental Analytical Center, March 2009], the realization of the anti-crisis and/or stimulatory effects of the policy's tax tools (reducing income tax from 24% to 20%, introducing accelerated depreciation of specific groups of fixed assets, and eliminating VAT on the importation of technical equipment that has no counterpart manufactured in Russia) was largely hindered by the percentage of loss-generating enterprises, which has been consistently high in recent years (according to Rosstat: 2009 – 30.1%, 2012 – 25.9% and April 2013 – 34.1%), the non-transparency of the ways in which the list of equipment exempt from VAT upon import was created, and other barriers.

The results of another survey of the innovative activities of Russian industrial enterprises [Gracheva, Kuznetsova et al., 2012; Kuznetsova, Rud, 2011] are limited to the recognition that the tax incentives for innovative activity in effect are the most effective tool of government support for innovative activity in the Russian Federation, as indicated by 62% of more than 2000 respondents representing enterprises from 11 consolidated sectors of manufacturing while 40% of respondents indicated direct government support through government budget subsidies was most effective.

Obviously, this result can be explained by the fact that survey respondents were assessing the effectiveness of these incentives not in Russia as a whole and not for their own enterprises, but as an institution located in the proper external conditions (i.e. a favorable business climate, an effective legal system, guarantees of property rights, etc.).

[13] Things are no better with the estimation of the Russian Federation's tax expenditures as a whole [Malinina, 2010]. Obtaining that estimate is hindered by the utter incompleteness of and gaps in informational support, the lack of methods of calculation suitable for the tax system of the Russian Federation, as well as the government's lack of demand for such estimates.

Generally negative views about the effectiveness of tax incentives for innovative activity in the Russian Federation were found by a 2011 survey of more than 100 experts on the innovation climate in the Russian Federation [Inoprom Barometer]. Most of the respondents, who represented innovative and large businesses, the scientific community, development institutes, and government agencies, felt that, as a whole, existing tax law does not stimulate innovative activities (75.5%), and supporting the supply and demand for innovation is ineffective (64% and 58.6%, respectively).

Similar results were also obtained in research conducted in 2011-2012 on the factors of innovative activity of the industrial enterprises in the Russian Federation [Ivanov, Kuzyk, Simachev, 2012]. More than a quarter of respondents identified tax incentives for innovative activities in the Russian Federation as one of the main barriers to growing innovative activity (the fourth most significant barrier after the length of the payback period for innovation expenses, lack of financial resources, and lack of needed specialists). However, roughly 17-18% of respondents had experienced positive effects from accelerated depreciation of the fixed assets used solely for research activities and the VAT exemption on imports of technical equipment on the list approved by the Government of the Russian Federation, while approximately 13-14% had benefited from using the 1.5 multiplier on R&D expenses.

At the same time, half of the survey respondents (47%) noted that they do not take advantage of the incentives due to the vagueness of the conditions for using them and the extremely high probability of disputes with tax authorities, 37% did not use them in order to avoid attracting the attention of tax authorities (including in the form of extra audits), and nearly one-third (32%) did not use them in order to avoid incurring the cost of proving that they qualified to use them. In turn, tax incentive "consumers" exhibited dissatisfaction with their scale (18% of all respondents) and the rules for calculating them (25%).

Surveys of companies, which were conducted by the Russian Union of Industrialists and Entrepreneurs (hereinafter "RSPP") in 2011-2013 [*RSPP*, 2011; *RSPP*, 2012; *RSPP*, 2013], are notable for their limitation of the scope of tax support for companies including their innovative activities.

RSPP surveys

If the undeniable advantages of RSPP surveys [*RSPP*, 2011; *RSPP*, 2012; *RSPP*, 2013] include their timeliness, the analysis and publication of the results, and the gradual improvement in quality, then one of the main shortcomings is entirely incomplete information about the program and methodology.

Information from the 2011 survey [*RSPP*, 2011] is limited to an indication of whether the respondents belong to various types of economic activity. Its results are represented by the grouping of tax incentives in effect in the Russian Federation in 2008-2010, depending on business's demand for them, which was estimated by the percentage of respondents who used any given incentive.

The 2012 survey [*RSPP*, 2012] was only concerned with the 1.5 multiplier for the R&D expenses on the updated list that was approved by the Government of the Russian Federation in February 2012. Thirty major companies involved in various types of economic activities participated, of which only three used this incentive. The other respondents either didn't qualify for the incentive (generally the R&D list established by the Government of the Russian Federation) or didn't use the incentive to avoid difficulties (specifically, submission of reports about the R&D performed to tax authorities, expert reviews of the R&D, etc.). Moreover, it became apparent that business considered the incentive not as a stimulus to increase R&D expenditures, but rather as a way to save money.

The 2013 survey [RSPP, 2013] involved 24 tools of direct or indirect government support. More than half of the respondents (56.9%) were involved in manufacturing; roughly every tenth company (10.8%) was involved in transportation and communications, and so on. This survey made it possible to grade the tools of government support according to their effectiveness for business and discover the barriers to their use.

Despite the uncertainty of the methodology, the lack of information about the number of respondents, and other shortcomings, the RSPP surveys have demonstrated business's low overall demand for tax incentives for innovative activities. Against this background, the only things that stand out are VAT exemptions for R&D using government budget funds or funds from foundations that support R&D, and R&D performed by educational institutions or scientific organizations under business contracts, and for the importation of technical equipment on the list established by the Government of the Russian Federation: in the 2013 survey they were used by 29.7% and 15.6% of respondents, respectively [RSPP, 2013]. Variation in respondents' demand for the tax incentives, depending on the type of their economic activity, was manifest, for example, in the fact that, judging by the 2011 survey, companies in the fuel and energy industry did not use the VAT exemption on importation of technical equipment nor the 1.5 multiplier on R&D expenses [RSPP, 2011].

Although in most cases the reasons for not using the tax incentives resulted from not qualifying for them, respondents also cited the lack of information about the incentives, the costs of proving that they qualify to use them, and the insignificance of the benefits of using them.[14]

Empirical research on R&D and innovation tax incentives in the Russian Federation was considered in the preparation, execution, and analysis of the results of our 2012-2013 survey on the demand for tax incentives.

Demand for R&D and innovation tax incentives in Russia: survey methodology and results

Goals and objectives of the survey

The survey's objectives included, first, to assess the actual demand for R&D and innovation tax incentives in the Russian Federation, second, to identify the main factors the determine the level of demand, and third, to prepare recommendations to increase the effectiveness of these incentives. The purposes were achieved by solving substantive and organizational challenges, such as:

- choosing the set of respondents (three groups: scientific organizations; universities performing R&D; and manufacturing organizations) and taking a sample;
- determining the R&D and innovation tax incentives to be included in the survey[15], and developing a survey plan (for each group of organizations);
- conducting the survey, analyzing its results, and preparing conclusions and recommendations.

Description of the samples

The total number of surveyed organizations (1.669 organizations) included three independent samples: research institutes (519 institutes), universities performing R&D (299 universities), and manufacturing enterprises (851 enterprises).[16]

[14] This correlates with our research results, which will be presented below.

[15] The list of tax incentives included in the research based on an expert assessment of their "involvement" in supporting and stimulating R&D and innovative activity, which were performed in accordance with international standards for defining the content and scope of these activities [OECD, 2002a; OECD, Eurostat, 2005], while also accounting for the incentives' target audience. The need to account for the target audience of tax incentives for scientific and innovative activities in the Russian Federation is a result of the fact that they have been established not only for these activities, but also for specific groups of organizations (for example, for universities there is an income tax rate of zero, government research centers are exempt from property tax, etc.).

[16] The general population for these samples was formed based on corresponding impersonal data from a federal statistical survey of scientific and innovative activities, the methodology of which was harmonized with international standards in this field [OECD, 2002a; OECD, Eurostat, 2005]. Considering the fact that in 2011 research and development was conducted by 581 universities, 299 of which participated in the survey [HSE, 2014 b], the excessiveness of the size of this sample (and, admittedly, two others) is obvious. However, the size of these and the other two samples was dictated by the requirements that Russia's Ministry of Education and Science established for the project under which this survey was conducted.

The sample of research institutes (519 institutes) included organizations located within 25 regions of Russia, with R&D personnel of 51 or more people. Its representation of government academies of sciences,[17] government research centers (hereinafter GRCs), and Moscow is determined by the respective characteristics of the entire assembly.

The sample of universities performing R&D (299 organizations) represents 25 regions of Russia and the 29 national research universities of the Russian Federation (hereinafter "NIU"), the support for the development of which has been in recent years one of the strategic priorities of the government policy on science and technology.

The sample of research institutes and universities was represented by government-owned organizations (moreover, generally federally-owned), while private ownership dominated among manufacturer-respondents (64.8%). This sample (851 enterprises from 26 regions of Russia) was selected from among organizations that filled out a questionnaire for a federal statistical survey of innovative activity:[18] nearly three quarters of the organizations in the sample engaged in innovative activity (i.e. had expenditures on technological, marketing, and organizational innovation in 2011 [OECD, Eurostat, 2005]), while the remaining quarter did not.

Tools

The study was conducted as a survey of the organizations' executives using a questionnaire developed for each of the three groups of respondents. The questions on the questionnaire, which were arranged into several sections, had to do with the measures of support for R&D and innovation most significant to each group. The tax support sections included roughly 15 questions about the basic incentives for R&D and innovation provided for by the Tax Code of the Russian Federation, such as reducing the amount of taxable income by:

- ✓ excluding funds used to carry out specific scientific and technical programs/projects and innovative projects, which were obtained from foundations that support scientific, technical, and innovative activities that were created in accordance with the law on science [Federal Law, 1996];
- ✓ accelerating depreciation of the fixed assets used solely for scientific and technical activities (by using a special coefficient of no more than 3);

[17] Because the survey was conducted before the adoption of Federal Law No. 253 "On the Russian Academy of Sciences , Reorganization of Government Academies of Sciences, and Amending Specific Legal Acts of the Russian Federation" of September 27, 2013, hereinafter we mean organizations under the jurisdiction of government academies of sciences before the reorganization of the latter.

[18] The federal statistical survey of innovative activities is the sole source of consolidated, reliable, and comparable data about organizations of the Russian Federation that are engaged in innovative activities [Rosstat, 2012]. This data is received as a result of continuous annual surveys of legal entities that are not small businesses and that perform economic activities in manufacturing and other types of economic activities. The surveys are conducted using Form No. 4-Innovation, which consists of 12 sections, each of which has to do with different characteristics of the surveyed organizations and their innovative activities.

✓ using a 1.5 multiplier on R&D expenditure included on the list approved by the Government of the Russian Federation, etc.

The questionnaire also included questions about the use of VAT exemptions in patent and licensing operations[19] and R&D conducted using government budget funds and funds from foundations that support R&D, and R&D conducted by educational institutions and scientific organizations under business contracts, etc.

Findings: manufacturing enterprises

Against the background of the respondents' low overall actual demand for R&D and innovation tax incentives (Table 1) [20], the demand varied appreciably depending on the type of incentive and the enterprises' characteristics.

Table 1. Use of R&D and innovation tax incentives in 2011: manufacturing enterprises

Examples of incentives	Use (% of surveyed enterprises)
For income tax.	
Accelerated depreciation of fixed assets related to R&D and innovation (including those used solely for R&D; energy-efficient equipment, etc.)	23.1
Application of a coefficient of 1.5* to R&D expenses on the Government of the Russian Federation's list (including those that did not yield positive results)	7
Accounting for innovation-related expenditures among production/sales expenses**	8
For value-added tax (exemption/zero rate)	
Patent and licensing operations [21]	0.3
R&D using government budget funds	3.8
R&D using funds from the Russian Foundation for Basic Research and several off-budget funds.	0.6
R&D related to the creation of new products/technologies	0.8
R&D related to the improvement of products/technologies	0.5
Importation of equipment for which a counterpart is not manufactured in the Russian Federation (according to the Government of the Russian Federation's list)	2.8
For exportation of goods from the Russian Federation (customs export procedures, etc.)	67.8
Incentives established by regions of Russia	
Reduced income tax rate (specifically on profit that would be subject to transfer to the budget of the regions of Russia)[22]	10.6
Property tax incentives (on property without the incentives established by the Tax Code of Russia)	13.7

[19] The exercise of exclusive rights to inventions, useful models, industrial designs, software, databases, integrated circuit layouts, know-how, and the issuance of a license to use the mentioned results in the Russian Federation are exempt from VAT.

[20] The two exceptions to this rule (VAT incentives for exports from Russia (customs export procedures, etc.) and the accelerated depreciation of fixed assets) only confirm it, because, for example, accelerated depreciation is provided in Russia not only for energy-efficient equipment and R&D fixed assets, but also for fixed assets that are operated in a harsh environment, licensed, etc.

[21] According to the Tax Code of the Russian Federation, exercising exclusive rights to inventions, useful models, industrial designs, software, databases, integrated circuit layouts, know-how, and the issuance of a license to use the mentioned results are exempt from VAT.

[22] Because a region of Russia may, for specific categories of taxpayers, reduce income tax from the 18% specified by the Tax Code of the Russian Federation to 13.5%, these solutions may also be used to stimulate development of the region's R&D c and innovative activity.

*) Since 2012 this rate, which was also in effect in 2011, has been amplified by the list of expenses, which for tax purposes are R&D expenditures, and other innovations.

**) According to the Tax Code of Russia , the following innovation-related expenses may be included in other production/sales expenses: expenses on certification and standardization of products/services; informational, audit, consultative, and other similar services; education, training, and retraining of personnel; preparation and development of new plants/shops; royalty payments, etc.

Three categories of respondents used these incentives relatively actively: those who performed innovative activity in 2011 (i.e. had expenses on it in 2011); government-affiliated enterprises[23] and major enterprises (with more than 1000 employees).

For example, accelerated depreciation of R&D fixed assets was used by less than a quarter of all respondents (23.1%), but among the three categories mentioned above it was used by more than a third (36%, 37.4%, and 43%, respectively). Nearly one fourth of them used the 1.5 multiplier on R&D expenses from the Government of the Russian Federation's list (7% in overall sample). A similar relationship exists for virtually all of the items in Table 1. However, while such dominance is entirely logical and explainable for enterprises that performed innovative activity in 2011, for government-affiliated respondents and major organizations, it appears at least ambiguous.

The truth is that a review of the best practices and research on R&D tax incentives demonstrates that they are linked to an increase in corresponding expenses made by private companies and/or the achievement of other purposes, but not to support for the public (or quasi-public) sector of the economy. While in Russia nearly half of the economy is concentrated in the public sector, plans to cut it back are being carried out with significant delays [*Rodionov*, 2012; Strategy - 2020, 2013; *Guriev,* 2013], but government-affiliated companies are among the main beneficiaries of tax support for R&D and innovation.

Major companies' preeminent use of R&D and innovation tax incentives is in part explained by the fact that most of them are affiliated with the government, yet the target audience of the best practices in this area generally includes small, medium, young, and independent domestic companies [OECD, 2013d].

Two reasons account for this group's failure to use the R&D and innovation tax incentives:

- the excessive costs of proving that they qualify to use them (for example, this is why nearly every ninth respondent declined to use accelerated depreciation of R&D fixed assets);
- failure to qualify for the incentives, which is understood to mean the lack of grounds to use them as well as corresponding decisions from tax authorities. For example, 90% of respondents did not use the 1.5 multiplier for R&D expenses, and 92% did not include innovation-

[23] For the purposes of this survey, government affiliation was defined as a surveyed enterprises belonging to an integrated structure created by the government or with its involvement (including government corporations).

related expenses among other expenses because they did not make these expenses in 2011. Tax authorities frequently disagree about whether R&D or imported equipment is on the corresponding lists that have been approved by the Government of Russia.

Findings: research institutes

Although research institutes proved to be more active "users" of tax incentives for R&D and innovation (especially for R&D) than manufacturing enterprises, their demand for these incentives was also quite low.

Almost half of them had grants from science and innovation foundations (45.1%) and virtually all of these organizations used tax incentives for these grants (96.6%).[24]

The exemption from value-added tax (VAT) for patent and licensing operations was used by roughly a quarter of respondents (24.3%) in 2011, while others did not perform such operations, which in our view characterizes not only research institutes' demand for this incentive, but also the problems with their R&D output.

Finally, the overwhelming majority of research institutes (83%) used VAT exemptions provided for in the Tax Code of Russia in the performance of R&D. The main reasons that the remaining 17% of organizations did not take advantage of this opportunity are given in Table 2.

Table 2. Main reasons for not using VAT exemptions in R&D: research institutes (% of research institutes that did not use the indicated exemptions)

Reasons for not using VAT exemptions	%
Did not perform R&D using government budget funds	54.5
Did not perform R&D using grants of R&D and innovation foundations indicated in the Tax Code of Russia	38.6
Did not perform R&D on the basis of business contracts	12.5
Did not perform R&D related to the creation of new products/technologies	18.2
Did not perform R&D related to the improvement of existing products/technologies	10.2
To avoid disputes with tax authorities	19.3
Other	9.1

The ability to accelerate depreciation of R&D fixed assets was used by only 4% of research institutes. This is explained by both the lack thereof or the inability to identify said assets, and the aforementioned prevalence of government-financed establishments among them (57.8%), whose assets (except for assets acquired and used for business purposes) is not depreciable.

[24] True, in light of the declarations in the government policy on science and technology about the need to expand grant support for science, the grant coverage of research institutes is clearly inadequate. However, a more in-depth discussion of this indicator is beyond the scope of this article.

In the final analysis, research institutes did not use R&D and innovation tax incentives for the same reasons as manufacturing enterprises: failure to qualify for them and/or a desire to avoid disputes with tax authorities.

Findings: universities performing R&D

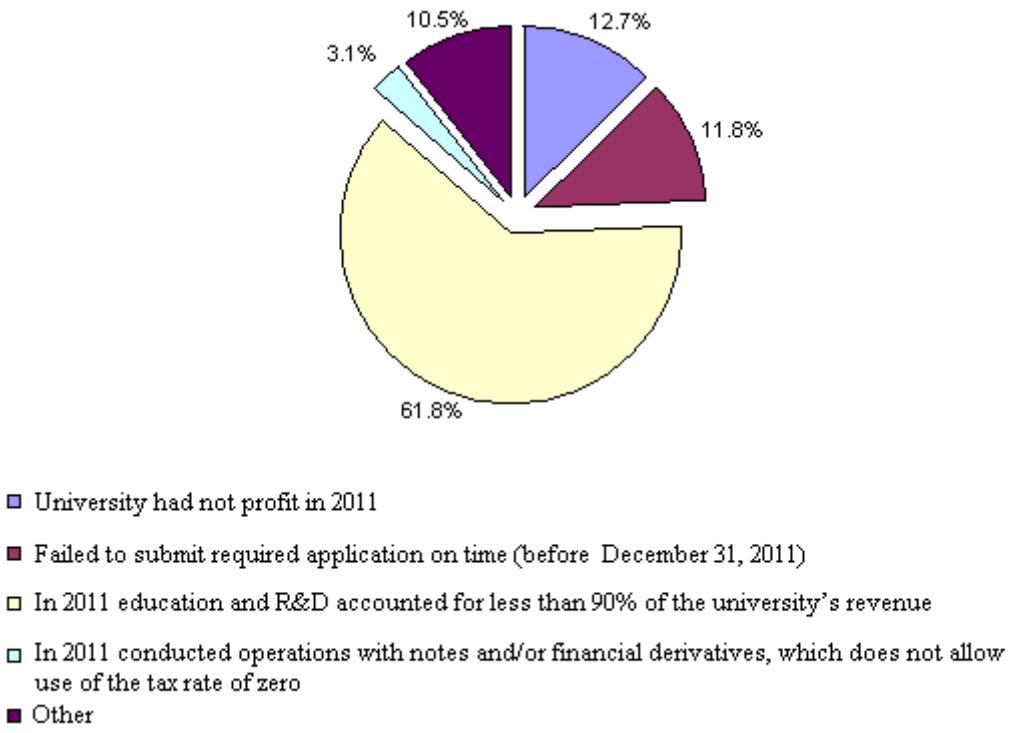
When assessing universities's demand for R&D and innovation tax incentives, it must be remembered that the scale of the higher education segment of R&D sector still remains insignificant (in 2012 - 8.2% of R&D personnel; 11.5% of researchers and 9.5% of gross domestic expenditure on R&D [HSE, 2014b]). Because the survey involved the participation of all 29 of Russia's national research universities (NRU), which are the driver of growth of the higher education segment of R&D sector, its results may overstate the universities demand on R&D and innovation tax incentives.

The survey results for universities are arranged in three sections: targeted tax incentives (i.e. those which were established only for universities and which have an indirect influence on their R&D and innovative activity); direct tax incentives for R&D and innovation (including institutional) and other innovation-related tools of indirect support.

Targeted tax support for universities is accomplished, for example, through a income tax rate of zero if the university satisfies specific requirements (in particular, education and R&D must provide no less than 90% of its revenues, etc.). In 2011 less than a quarter of respondents (23.7%) took advantage of this ability. Most of the others did not meet the requirement regarding the percentage of revenues from education and R&D (Figure 1).

Fig. 1. Reasons for universities not using the income tax rate of zero in 2011

(% of universities not using this incentive)



And, though a number of experts feel the criterion to qualify this incentive is unjustifiably excessive and ignores the strategic importance of developing both R&D and innovative activity at universities, there are no plans to reduce it (to, say, 70-75%). Thus, universities' demand for targeted (as the sense indicated above) tax incentives is largely dictated by the conditions to qualify for them.

Universities use of specific R&D tax incentives proved to be considerably higher than scientific organizations (and even more so for manufacturing organizations). In 2011 grants from foundations that support scientific, technical, and innovative activities had been received by almost two thirds of respondents (63.9%), the overwhelming majority of which (95.8%) took advantage of a tax incentive in the reporting of grant money.

The ability to accelerate depreciation of R&D fixed assets was used by only 7.4% of all universities surveyed. The others, as a rule, either did not have such funds or could not separate them from the total volume of their fixed assets (78.3% of respondents who did not use this incentive). However, if one considers the fact that virtually all of the universities surveyed (83.3%) - just like the research institutes examined above - are government-financed establishments (i.e. their assets, except for assets acquired and used for business purposes, are not depreciable), then their leading position in the use of this incentive appears entirely convincing.

Finally, universities' demand for incentive-related tax incentives, such as exempting patent and licensing operations from VAT, virtually matches that of research institutes: they were also used by roughly a quarter of the surveyed universities (24.3%). The others' passivity is explained by a lack of these operations, which demonstrates, on the one hand, the low overall performance of their R&D and innovative activity, and, on other the other hand, the ambiguity of the target audience of this incentive.

Findings: specifics of the demand for R&D and innovation tax incentives

The survey results indicate, first, the low overall demand of research institutes, universities performing R&D, and manufacturing enterprises for tax support for R&D and innovation, and, second, the focus of R&D support.

The government's presence among the "consumers" of R&D and innovation tax incentives (which distorts the purposes and effects of the support and is not in accordance with best practices) is characterized by both the government's ownership of the overwhelming majority of the surveyed research institutes and universities but also the relatively high demand for the incentives from government-affiliated manufacturing enterprises. That is, in Russia tax incentives for R&D and innovation act as a tool of support not only of private companies, and not so much for them as for government and quasi-government organizations.

The most popular tool of tax support for R&D and innovation (at least among research institutes and universities performing R&D) proved to be exempting grants from R&D and innovative activity foundations from the taxable base.[25] Moreover, universities performing R&D used this tool more actively than research institutes (63.9% and 45.1% of respondents, respectively). Furthermore, the majority of the other R&D and innovation tax incentives included in the survey also proved to be in more demand among them.

Thus, universities performing R&D lead in the use of R&D and innovation tax incentives, though they could have taken advantage of targeted tools of indirect support (income tax rate of zero, etc.) established in Russia for universities. For example, it is obvious that when using an income tax rate of zero (if the university qualifies for it, of course), a university will not use any other R&D and innovation tax incentives established in Russia with respect to income tax. However, the university will have to choose the most advantageous tools of indirect support and/or a combination thereof. Obviously, the need to make such a choice makes it significantly more complicated for universities to create tax strategies and tactics and to a degree may suppress their demand for R&D and innovation tax incentives.

[25] Because the Russian Science Foundation (RNF) was founded in 2013, i.e. after the survey was conducted, we here mean the Russian Foundation for Basic Research (RFFI) and the Russian Foundation for the Humanities (RGNF).

Conclusion

A comparison of the survey results with other studies of tax support for R&D and innovation in Russia and global trends of tax support [*Palazzi,* 2011; *OECD,* 2010a] makes it possible to evaluate the practice of providing this support and its development.

The particularities of how Russian science is organized, in which R&D is still concentrated in research institutes, may serve as a kind of guarantee of the reasonableness of these assessments and their accurate reflection of the actual state of affairs. If the recent acceleration of government support for universities (including indirect support) has been accompanied by growth in their R&D and innovative activity, then the positive effects of measures to "coerce" and stimulate business toward R&D and innovation are not yet obvious.[26] That is, in Russia research institutes, universities performing R&D, and manufacturing enterprises represent the core of the target audience for direct and indirect support for R&D and innovation.

At the same time, the tentative nature of the survey results and the possibility of a certain shift of their emphases are due to the fact that the survey included only some of the tax incentives provided for R&D and innovation, which in turn was dictated by the need to limit the size of the survey (questionnaire). Considering Russia's lack of any accepted list of tools of tax support for R&D and innovation or criteria to classify tax incentives tools as R&D and/or innovation-related, for the purposes of the survey they were selected based on an expert review of these tools (accounting for international standards for determining the scope and content of R&D and innovative activity [OECD, 2002a; OECD, Eurostat, 2005], as well as the trends and best practices of research on tax incentives for these activities[27]).

An analysis of the demand from research institutes, universities performing R&D, and manufacturing enterprises for some R&D and innovation tax incentives (Table 2) makes it possible to formulate several conclusions and recommendations.

Table 2. Demand from research institutes, universities performing R&D, and manufacturing enterprises for some R&D and innovation tax incentives (2011)

[26] In 2011 57% of R&D personnel of Russia was concentrated in independent research institutes, and 7.3% was in the higher education sector of R&D [HSE, 2014b]. As for the level of innovative activity of manufacturing enterprises, in 2011 it stood at 13.3%, while R&D share of these organizations' expenditure on technological innovation was 14.5% [*HSE*, 2014a].

[27] For example, OECD's research on R&D tax incentives are presented in a number of publications. For example, in 2003 a review was prepared of the main trends and design of R&D tax incentives in various countries. It also compared the strength of indirect stimulation of companies in OECD member nations [*OECD,* 2003]. In 2011 OECD again assessed the global experience in R&D tax incentives, their merits and shortcomings, strength in individuals nations, and other parameters [*OECD,* 2011b]. Not only does [*OECD,* 2010b] systematize the latest approaches to collecting, summarizing, and analyzing data about tax incentives for scientific and innovative activities and research and development, it also outlines the main areas for where they may be improved and corresponding international standards may be created.

*Indicators of demand	Research institutes	Universities performing R&D	Manufacturing enterprises
Organizations that in 2011 had grants from the Russian Foundation for Basic Research and/or the Russian Foundation for the Humanities (% of the total number of surveyed organizations)	45.1	63.9	0.6
Organizations that in 2011 did not have problems with tax incentives of grants from the Russian Foundation for Basic Research and/or the Russian Foundation for the Humanities (% of organizations that had these grants)	96.6	95.8	———— –
Organizations that in 2011 applied the accelerated depreciation of R&D fixed assets e surveyed organizations)	4.0	7.4	3.4
Organizations that in 2011 did not apply accelerated depreciation of R&D fixed assets due to a lack thereof or the inability to separate these fixed assets (% of organizations that did not apply accelerated depreciation of these assets in 2011)	48.4	78.3	———— –
Organizations that allowed for expenses on R&D performed using their own funds, for income tax purposes in 2011 (% of the surveyed organizations)	33.7	45.8	9.9
Organizations that in 2011 used a reduced income tax rate established by a region of Russia for that part of profit that would be subject to transfer to its budget (% of the surveyed organizations)	3.5	6.0	9.6
Organizations that in 2011 used VAT exemptions for patent and licensing operations (% of the surveyed organizations)	24.3	23.1	0.3
Organizations that did not conduct patent and licensing operations in 2011 (% of organizations that in 2011 did not use VAT exemptions for patent and licensing operations)	92.4	93.5	———— –
Organizations that in 2011 used VAT exemptions for R&D conducted based on business contracts (% of organizations that in 2011 used VAT exemptions provided for by the Tax Code of the Russian Federation in the performance of R&D)	52%	70.6%	———— –
Organizations that in 2011 used property tax incentives (% of surveyed organizations)	19.3 (includ clud-ing GRCs!)	25.0	13.7

First of all, considering the orientation of tools of tax support for R&D and innovation in Russia chiefly on R&D, manufacturing enterprises' relatively low demand for them is largely caused by the insignificant percentage of manufacturing enterprises that conduct innovative activity (13.3% in 2011) and R&D (5.5% in 2011) [*HSE*, 2014a].

Manufacturing enterprises' demand for innovation-related tax incentives in 2011 is also characterized by:

- a "neglection" of the VAT exemptions for patent and licensing operations, usually due to a lack thereof, which serves as an indirect indicator of the quality of these organizations' tech-

nological foundation, innovative activity, and potential for modernization.[28] Furthermore, although this incentive was used by roughly a quarter of the surveyed research institutes and universities performing R&D, the question of its target, main beneficiaries, and positive effects remains unanswered.

- a relatively greater use of regional incentives for income tax and property tax (see Table 3), which demonstrates not so much the manufacturing enterprises' demand for these incentives as much as the efforts of a number of regions to attract investments;
- a higher demand from some manufacturing enterprises for R&D and innovation tax incentives, namely those affiliated with the government or the largest manufacturing enterprises (with over 1000 employees).

In our view, the current situation does not meet the objectives of indirect support for R&D and innovation, neither globally or in Russia and deliberately limits the efficacy and positive effects of the that support. Thus, if the best practices of tax support for R&D and innovation include a focus on private companies (and increasing their expenditures on R&D as a whole and in specific industries and/or areas, groups of actors, etc.), then in Russia the target audience of this support is primarily represented by government and quasi-government organizations. In our view, this is evidence that it is expedient to take stock of R&D and innovation tax incentives in order to identify their recipients and assess their efficacy and other parameters necessary to optimize these incentives.

Second, against the backdrop of low overall demand for R&D and innovation tax incentives in Russia, the universities performing R&D used them most actively (Table 3). This specifically refers to income tax incentives for grants from R&D and innovation support foundations, accelerated depreciation of R&D fixed assets, and regional property tax incentives.

The combination of so-called targeted incentives at universities and the growth of direct government support for the higher education sector of R&D, which has accelerated in recent years, in our view, is evidence the emphasis of government support (both direct and indirect) of R&D in Russia has shifted toward universities. This concentration of government resources and efforts in R&D and innovation at universities, in turn require a reliable evaluation of the corresponding expenditures (direct and indirect, including tax expenditures), the effectiveness of their use, and the obtained results. One of the prerequisites to getting it (along with improving the Russian's tax statistics and other measures) is planning and conducting empirical research on tax support for universities.

[28] In the RSPP surveys examined above, this tool was used by 4.3% of all surveyed enterprises, which in effect does not contradict our results.

Third, although among research institutes the most "popular" tax incentive connected with grants from R&D and innovation support foundations, the percentage of organizations that used it is clearly insufficient (45.1% of all surveyed scientific organizations). In combination with the sizes of these grants, which have been insignificant in recent years (the average grant from the Russian Foundation for Basic Research (RFFI) and the Russian Foundation for the Humanities (RGHF) is 400,000-500,000 RUB), this doesn't make it possible to expect either the achievement of the highly ambitious goals of the government policy on science and technology[29] or positive shifts in the development or output of that policy.

In light of the short-term problem of tax incentives being including in the immediate agenda of the Russian's policy, the initiation of amending them in 2013, and the discussion of methods for assessing their effectiveness[30], the results of our research on the demand from research institutes, universities performing R&D, and manufacturing enterprises for R&D and innovation tax incentives confirm that there is the potential to optimize them and increase their output.

Realizing this potential requires defining a list of the R&D and innovation tax incentives in Russia and their recipients; calculating the Russian's tax expenditures on R&D and innovation in accordance with the international standards that have been created in this field, and preparing and conducting various empirical studies that will monitor the practice of tax support for R&D and innovation in Russia. The integration of the results obtained will make it possible to prepare balanced proposals to optimize and improve the output of R&D and innovation tax incentives in the Russian Federation.

[29] They are set in Decree of the President of the Russian Federation No. 599 "On Measures to Implement the Government Policy on Education and Science" of May 7, 2012, the "Development of Science and Technology" government program (Resolution of the Government of the Russian Federation No. 301 of April 15, 2014), Strategy for the Innovative Development of the Russian Federation through 2020 (Order of the Government of the Russian Federation No. 2227-r of December 8, 2011), and other policy documents of the Russian Federation's government policy on science and technology. For example, according to the previously mentioned Decree of the President of the Russian Federation, by 2015 domestic expenditures on R&D must grow to 1.77% of GDP (in 2012 they were 1.12%), the percentage of Russian publications in global scientific journals indexed in WEB of Science must rise to 2.44% (in 2012 it was 1.9%), and by 2018 the volume of funding of government scientific foundations must reach 25 billion RUB (in 2013 it was 10 billion RUB).

[30] Thus, according to estimates by the Chamber of Accounts, the economic effect of the overwhelming majority of tax incentives established in the Russian Federation has not been assessed. Meanwhile, they cause tax expenditures in the government budget and do not have a significant effect on business. For example, judging by the fact that only 117 out of 300 respondents in special economic zones are engaged in the activity, the applicable tax incentives do not product any perceptible stimulatory effects [Titov, 2013]. In 2014 Russia's Ministry of Economic Development and Trade developed a method to assess the effectiveness of tax incentives, whose implementation many experts believe may encounter serious problems (including due to its formality, extreme complexity, several methodological disagreements with the Ministry of Finance, etc.) [Titov, 2014].

References

Accounts Chamber (2011). Report on the results of oversight of "Proverka effecktivnosti mer nalogovo stimulirovaniya innovatsionnoy deyatelnosti za 2009-2010 gody" [Verification of the Effectiveness of Tax Incentives for Innovative Activity in 2009-2010] // Bulleltin of the Chamber of Accounts of the Russian Federation. No. 12 (168). p. 71-103.

Anderson B. (2008). Tax Expenditures in OECD Countries (5th Annual Meeting of OECD-Asia Senior Budget Officials). Bangkok. Accessed via: http://www.oecd.org/gov/budgeting/39944419.pdf (accessed on October 23, 2013).

Bernstein J. (1986) The Effect of Direct and Indirect Tax Incentives on Canadian Industrial R&D Expenditures," Canadian Public Policy, September 1986, pp. 438-48.

Brussels (2008) Comparing Practice in R&D Tax Incentives Evaluation. Final Report. Expert Group on R&D Tax Incentives Evaluation. Accessed via: http://ec.europa.eu/research/era/docs/en/investing-in-research-tax-incentives-expert-group-report-2008.pdf (accessed on September 4, 2013).

Brussels (2009) Design and Evaluation of Tax Incentives for Business Research and Development: Good practice and future developments. Expert Group on Impacts of R&D Tax Incentives. Final Report. Submitted to European Commission Directorate General – Research. Brussels. Accessed via: http://ec.europa.eu/invest-in-research/pdf/download_en/tax_expert_group_final_report_2009.pdf (accessed on September 13, 2013).

Burman L., Geissler C., Toder E. (2008) How Big Are Total Individual Income Tax Expenditures, and Who Benefits from Them? // The Urban Institute Discussion No.31. Washington. Accessed via: http://www.urban.org/UploadedPDF/1001234_tax_expenditures.pdf (accessed on October 9, 2013).

Burman L. (2003) Is the Tax Expenditure Concept Still Relevant? Georgetown University. Accessed via: http://www.urban.org/UploadedPDF/410813_NTA_Tax_Expenditure.pdf (accessed on October 11, 2013).

Federal Law (1996). "O nauke i gosudarstvennoy nauchno-tekhnicheskoy politikye" [On Science and the Government Scientific and Technical Policy] No. 127-FZ. Accessed via: http://www.consultant.ru/document/cons_doc_LAW_153964/ (accessed on September 27, 2013).

Gackstatter S., Kotzemir M. MeissnerD. (2014) Building an Innovation-driven Economy – the case of BRIC and GCC countries, Foresight. 2014. Vol. 16. No. 4

Gohberg L.M. (science editor) (2012). Ekonomika znaniy v terminakh statistiki: nauka, tekhnologii, innovatsii, obrazovaniye, informatsionnoye obshchestvo: slovar [Knowledge Economy in Statistical Terms: Science, Technologies, Innovation, Education, Information Society: Dictionary]. M.: Ekonomika [Economics].

Gohberg L.M. (2003). Statistika nauki [Statistics of Science]. M.: TEIS.

Gohberg. L.M., Kuznetsova T.E. (2011). Strategiya-2020: novyye kontury rossiyskoy innovatsionnoy politiki [Strategy 2020: New Contours of Russian Innovative Policy]. Foresight. Vol. 5. No. 4, p. 8-30.

Gokhberg L. M, Meissner D. (2013) Innovation: Superpowered invention, Nature. 2013. No. 501. P. 313-314.

Government Committee (2010a). Materialy k zasedaniyu Pravitelstvennoy komissii po vysokim tekhnologiyam i innovatsiyam 3 marta 2010 g. [Materials for the Meeting of the Government Committee on High Technology and Innovation of March 3, 2010]. Accessed via: http://www.economy.gov.ru/minec/activity/sections/innovations/development/doc20100303_04 (accessed on August 20, 2013).

Gracheva G.A., Kuznetsova T.E., Rud V.A., Suslov A.B. (2012). Innovatsionnoye povedeniye rossiyskikh predpriyatiy [Innovative Behavior of Russian Enterprises] / Edited by L.M. Gohberg. M.: HSE.

Guriev S.M. (2013). Novaya volna privatizatsii v Rossii [A New Wave of Privitization in Russia] (Proceedings of the Observo Analytical Center, No. 2, January 2013). Accessed via: http://www.lecourrierderussie.com/2013/01/24/novaya-volna-privatizatsii-v-rossii/ (accessed on November 23, 2013).

HSE (2014 b). Indikatory nauki: 2014 - Moskva: stat. sb. [Indicators of Science: 2014 - Moscow: Statistical Digest]. M.:HSE.

HSE (2014a). Indikatory innovatsionnoy deyatelnosti: 2014 [Indicators of Innovative Activity: 2014]. Statistical digest. M.: HSE.

HSE, Interdepartmental Analytical Center (March 2009). Otsenka antikrizisnykh mer po poderzhke realnogo sektora rossiyskoy ekonomiki [Assessment of Anti-Crisis Measures to Support the Real Sector of the Russian Economy]. Accessed via: http://www.hse.ru/data/943/184/1241/otsenka.pdf (accessed on June 17, 2014).

IMEMO RAN (2009). [Institute of World Economy and International Relations of the Russian Academy of Sciences] Nalogovoye stimulirovaniye innovatsionnykh protsessov [Tax Incentives for Innovative Processes] / Managing Editor N.I. Ivanova. M.: IMEMO RAN [Institute of World Economy and International Relations of the Russian Academy of Sciences].

IMF (2007). International Monetary Fund. Rukovodstvo po obespecheniyu prozrachnosti v byudzhetno-nalogovoy sfere [Guidebook for Ensuring Transparency in Budgeting and Taxes]. Accessed via: http://www.imf.org/external/np/fad/trans/rus/manualr.pdf (access on September 17, 2013).

Innoprom Barometer (2011). URL: http://www.slideshare.net/alyonapopova/ss-8634807 (last accessed May 20, 2014).

Ivanov D.S., Kuzyk M.G., Simachev Y.V. (2012). Stimulirovaniye innovatsionnoy deyatelnosti rossiyskikh proizvodstvennykh kompaniy: novyye vozmozhnosti i ogranicheniya [Stimulating the Innovative Activities of Russian Manufacturing Companies: New Opportunities and Limitations] // Foresight, Vol. 6, No. 2, p. 18-41.

Köhler C.. Larédo P., Rammer C. (2012) The Impact and Effectiveness of Fiscal Incentives for R&D. Compendium of Evidence on the Effectiveness of Innovation Policy Intervention. Manchester Institute of Innovation Research. Manchester Business School, University of Manchester. Accessed via: http://research.mbs.ac.uk/innovation/ (accessed on October 16, 2013).

Kotsemir M. N., Meissner D. (2013) Conceptualizing the innovation process – trends and outlook. Working papers by NRU HSE. Series Science, Technology, Innovation. 2013. No. 10/STI/2013

KPMG (2012). R&D incentives and services: adding value across the Americas. Accessed via: http://www.kpmg.com/Ca/en/IssuesAndInsights/ArticlesPublications/Documents/Tax-Incentive-Guide-FINAL-Web.pdf (accessed on September 16, 2013)

Kutsenko E. S., Meissner D. (2013) Key Features of the First Phase of the National Cluster Programme in Russia / Working papers by NRU Higher School of Economics. Series WP BRP "Science, Technology and Innovation". 2013. No. 11/STI/2013

Kuznetsova T.E., Rud V.A. (2011). Faktori effektivnosti i motivy innovatsionnoy deyatelnosti rossiyskykh promyshlennykh predpriyatiy [Factors of the Effectiveness and Motivation of the Innovative Activities of Russian Industrial Enterprises] // Foresight, Vol.5, No. 2, p. 34-47.

Malinina T.A. (2010). Otsenka nalogovykh lgot i osvobozhdeniy: zarubezhnyy opyt i rossiyskaya praktika [Assessment of Tax Incentives and Exemptions: Foreign Experience and Russian Practice]. Moscow (Scientific papers / Gaydar Institute of Economic Policy, No. 146R). Accessed via: http://www.cfin.ru/taxes/tax_expenditures_analysis.shtml (accessed on September 26, 2013).

Mansfield E. "The R&D Tax Credit and Other Technology Policy Issues," American Economic Review, May 1986, 190-94.

Mansfield E., and Switzer L. , "The Effects of R&D Tax Credits and Allowances in Canada," Research Policy, 1985, 14, pp. 97-107.

Meissner D., Roud V., Cervantes M. (2013) Innovation Policy or Policy for Innovation? – In Search of the Optimal Solution for Policy Approach and Organisation , in: D. Meissner, L. Gokhberg, A. Sokolov (edt), Science, Technology and Innovation Policy for the Future — Potentials and Limits of Foresight Studies Heidelberg/ New York/ Dordrecht/ London: Springer, 2013. P. 247-255

Meissner D., Gokhberg L., Sokolov A. (2013a) The Meaning of Foresight in Science Technology and Innovation Policy , in: Science, Technology and Innovation Policy for the Future — Potentials and Limits of Foresight Studies / Ed. by Meissner, Dirk, Gokhberg, Leonid, Sokolov, Alexander. Heidelberg/ New York/ Dordrecht/ London: Springer, 2013. P. 1-7

Meissner D. (2014) Approaches for Developing National STI Strategies. STI Policy Review_Vol. 5, No 1, p. 34-56

Ministry of Finance (2013). Osnovnyye naprovleniye nalogovoy politiki Rossiyskoy Federatsii na 2013 i na planoviy period 2014 i 2015 godov [Fundamental Areas of Tax Policy of the

Russian Federation for 2013 and the 2014-2015 Planning Period]. Accessed via: http://base.consultant.ru/cons/cgi/online.cgi?req=doc;base=LAW;n=129118 (accessed on September 9, 2013).

Ministry of Finance (2014). Osnovnyye naprovleniye nalogovoy politiki Rossiyskoy Federatsii na 2014 i na planoviy period 2015 i 2016 godov [Fundamental Areas of Tax Policy of the Russian Federation for 2014 and the 2015-2016 Planning Period] (approved by the Government of the Russian Federation on May 30, 2013). Accessed via: http://base.consultant.ru/cons/cgi/online.cgi?req=doc;base=LAW;n=147172;fld=134;dst=4294967295;rnd=0.7298165406899807 (accessed on September 21, 2013).

OECD (2002 a) Frascati Manual 2002: Proposed Standard Practice for Surveys on Research and Experimental Development, 6th edition. OECD Publishing.

OECD (2002 b) Science Technology Industry. Tax Incentives for Research and Development: Trends and Issues. Accessed via: http://www.oecd.org/science/inno/2498389.pdf (accessed on October 9, 2013).

OECD (2002 c) Entrepreneurship and Growth: Tax Issues. Paris: OECD. Directorate for Science, Technology and Industry. Accessed via: http://www.oecd.org/industry/ind/2079715.pdf (accessed on November 18, 2013).

OECD (2003) Tax Incentives for Research and Development: Trends and Issues. Accessed via: http://www.oecd.org/sti/inno/2498389.pdf (accessed on September 17, 2013).

OECD (2007) OECD Science, Technology and Industry Scoreboard. Paris: OECD.

OECD (2008) OECD Science, Technology and Industry Outlook. Paris: OECD.

OECD (2009) OECD Science, Technology and Industry Scoreboard. Paris: OECD.

OECD (2010 a) Tax Policy Reform and Economic Growth. OECD Tax Policy Studies No. 20. Paris: OECD Publishing. Accessed via: http://www.oecd.org/tax/tax-policy/46605695.pdf (accessed on June 17, 2013)

OECD (2010 c) R&D tax incentives: Rationale, design, evaluation. Accessed via: http://www.oecd.org/sti/ind/46352862.pdf (accessed on August 17, 2013).

OECD (2010 d) R&D Tax Incentives and Government Forgone Tax Revenue: A Cross-Country Comparison. Working Party of National Experts on Science and Technology Indicators. DSTI/EAS/STP/NESTI (2010)22. Paris: OECD.

OECD (2010b) Tax Expenditures in OECD Countries. Paris: OECD. Accessed via: http://www.oecd-ilibrary.org/content/book/9789264076907-en;jsessionid=ycf2scllei5.delta (accessed on September 18, 2013).

OECD (2011 b) The International experience with R&D tax incentives. Tax Reform Options: Incentives for Innovation. Testimony by the Organization for Economic Cooperation and Development United States Senate Committee on Finance. Accessed via: http://www.finance.senate.gov/imo/media/doc/OECD%20SFC%20Hearing%20testimony%209%2020%2011.pdf (accessed on October 3, 2013).

OECD (2011) OECD Science, Technology and Industry Scoreboard. Paris: OECD.

OECD (2012) OECD Science, Technology and Industry Outlook. Paris: OECD.

OECD (2013 c) OECD Science, Technology and Industry Scoreboard. Innovation for Growth. Paris: OECD.

OECD (2013 e) Main features of R&D tax incentives provisions in selected OECD and non-OECD countries, 2013. Measuring R&D Tax Incentives. Accessed via: http://www.oecd.org/sti/rd-tax-incentives-provisions.pdf (accessed on November 5, 2013).

OECD (2013a) Maximising the benefits of R&D incentives for innovation. Accessed via: http://www.oecd.org/sti/rd-tax-incentives-for-innovation.pdf (accessed on September 12, 2013).

OECD (2013d) Supporting Investment in Knowledge Capital, Growth and Innovation. Paris: OECD Publishing. Accessed via: http://dx.doi.org/10.1787/9789264193307-en (accessed on November 4, 2013).

OECD (a) OECD-NESTI data collection on tax incentive support for R&D expenditures. Accessed via: http://www.oecd.org/sti/oecd-nesti-data-collection-on-tax-incentive-support-for-rd-expenditures.pdf (accessed on October 8, 2013)

OECD OECD (1999) OECD Science, Technology and Industry Scoreboard. Paris: OECD. Accessed via: http://www.oecd-ilibrary.org/industry-and-services/oecd-science-technology-and-industry-scoreboard-1999_sti_scoreboard-1999-en (accessed on September 12, 2013).

OECD, Eurostat (2005) Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data (3rd edition). Paris: OECD.

Palazzi P. (2011) Taxation and Innovation // OECD, Taxation Working Papers. No. 9. Accessed via: http://dx.doi.org/10.1787/5kg3h0sf1336-en (accessed on June 15, 2013).

Proskuryakova L., Meissner D., Rudnik P. (2014) A Policy Perspective On The Russian Technology Platforms, Series: Science, Technology and Innovation, WP BRP 26/STI/2014

Rodionov D. (2012). Dolya ekonomiki: polovina pod gosudarstvom [Share of the Economy: Half Under the Government] // Ekonomika i zhizn [Economics and Life]. No. 44 (9460). Accessed via: http://www.eg-online.ru/article/194147/ (accessed on October 25, 2013).

Rogers A., Toder E. (2011) Trends in Tax Expenditures, 1985-2016. Tax Policy Center. Accessed via: http://www.taxpolicycenter.org/publications/url.cfm?ID=412404 (accessed on June 24, 2013).

Rosstat (2012). Order of Rosstat "On Approval of Statistical Tools for Organization of a Federal Statistical Survey of Preschool Educational Activities, Scientific and Innovative Activities, and Employment" of September 6, 2012. No. 481. Accessed via: http://www.consultant.ru/document/cons_doc_LAW_136073/ (accessed on September 13, 2013).

RSPP (2011). [Russian Union of Industrialists and Entrepreneurs] Survey results: "Osnovnyye mery nologovo stimulirovaniya, prinyatyye v period s 2008 po 2010 gg." [Basic Tax Incentives Employed in 2008-2010]. Accessed via: http://рспп.рф/library/view/73 (accessed on September 25, 2013).

RSPP (2012). [Russian Union of Industrialists and Entrepreneurs] Results of a quick questionnaire about the practice of using the taxpayer's right to include R&D expenses as other expenses when determining the taxable base. Accessed via: http://рспп.рф/library/view/73 (accessed on September 18, 2013).

RSPP (2013). [Russian Union of Industrialists and Entrepreneurs] Effectivnost instrumentov gosudarstvennoy podderzhki [Effectiveness of Tools of Government Support]. Quick survey of member companies of the Russian Union of Industrialists and Entrepreneurs. Accessed via: http://rspp.ru/library/view/75?s=7 (accessed on August 25, 2013).

Strategiya – 2020 (2013). [Strategy - 2020] Strategiya – 2020: Novaya model rosta [Strategy - 2020: New Growth Model]. Final report about the results of expert work on the pressing problems of Russia's socioeconomic strategy for the period through 2020. Book 2 / Science editor: V.A. May, Y.I. Kuzyminova. M.: Publishing House Delo RANKhiGS [Russian Presidential Academy of National Economy and Public Administration].

Strategy 2020. Informational site of expert groups working on Strategy 2020. Accessed via: http://2020strategy.ru/ (accessed on October 11, 2013).

Surrey S., McDaniel M. (1985). Tax Expenditures. Cambridge: MA: Harvard University Press, 1985, p. 3.

Taxand (2011-2012) Global Guide to R&D tax Incentives. Quality Tax Advice, Globally. Produced Alvarez & Marsal, Taxand. Accessed via: http://www.williamfry.ie/Libraries/test/Taxand-Global-Guide-to-R-D-Tax-Incentives-2011-2012.sflb.ashx (accessed on August 23, 2013).

Titov S. (2013). Pereotsenka lgot [Reassessment of Incentives]. Vedomosti. September 10, 2013. No. 165 (3427).

Titov S. (2014) Inventarizatsiya lgot [Taking Inventory of Incentives]. Vedomosti. May 8, 2014. No. 81 (3585).

Vartia, L. (2008) How Do Taxes Affect Investment and Productivity? – Industry Level Analysis of OECD Countries. OECD Economics Department Working Papers, No. 656. Paris: OECD Publishing. Accessed via: http://dx.doi.org/10.1787/230022721067 (accessed on September 13, 2013).

Warda J. (1997) R&D Treatment in Canada: a Provincial Comparison. A Report Prepared for The Science and Technology Redesign Project Statistics Canada. The Conference Board of Canada (ST-97-09). Accessed via: http://publications.gc.ca/collections/Collection/Statcan/88F0006X/88F0006XIE1997009.pdf (accessed on November 7, 2013).

Warda J. (1996) Measuring the Value of R&D Tax Provisions // Fiscal Measures to Promote R&D and Innovation. Paris. OCDE/GD (96)165, OECD. p. 9-22. Accessed via: http://www.oecd.org/science/inno/2101604.pdf (October 7, 2013)

Warda J. (2006) Tax Treatment of Business Investments in Intellectual Assets: An International Comparison. , OECD Science, Technology and Industry Working Papers 2006/04. Paris.

OECD Publishing. Accessed via: http://dx.doi.org/10.1787/672304513676 (accessed on October 15, 2013).

Warda, J. (2001), "Measuring the Value of R&D Tax Treatment in OECD Countries", STI Review No.27: Special Issue on New Science and Technology Indicators, OECD Publishing. p. 184-211 http://www.oecd.org/sti/37124998.pdf.

Weisbach D. (2006) Tax Expenditure, Principal Agent Problems, and Redundancy. The University of Chicago. The Law School. John M. Olin Law & Economics Working Paper No. 299. Accessed via: http://dx.doi.org/10.2139/ssrn.912735 (accessed on September 24, 2013)

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