




## Effectiveness Assessment of Tax Benefits in Terms of Reduced Rates of Insurance Contributions for IT-companies in Russia

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### ABSTRACT

The relevance of the research topic is determined by new changes to the taxation treatment of IT companies, applied by the Russia Federation in 2021, which are called the IT maneuver. Previously, in 2010, IT organizations benefited in terms of reduced rates of insurance contributions to the pension, medical and social insurance funds. To make informed decisions on further stimulation of the IT industry, it is important to determine the effectiveness of tax benefits already provided. The purpose of this paper is to quantify the economic effect of IT benefits on the economic performance of IT companies. The hypothesis of the study means that IT companies using this support get an incentive for development and demonstrate better economic performance compared to other businesses in the industry. The business that has received additional financial resources due to savings on insurance contributions can use them to increase employee remuneration, expand its business (resulting in growth in the number of employees and revenues) or, at least, achieve greater profitability. The methodology of the study is as follows. The enterprises applying the insurance benefit were identified according to the sample of enterprises in the IT sector. Further, a comparison was made in respect of economic indicators of the benefit recipients and indicators of companies from the same industry having no benefits. Main findings of the quantitative analysis show a significant outperformance of economic growth for companies applying the IT benefit compared to those companies having no benefit. Practical relevance of the obtained findings means that the benefit on insurance contributions for software developers is a significant factor in the development of Russian IT-industry as a whole. The scientific impact of the conducted research involves the creation and application of a methodology for reliable determination of the insurance benefit among the enterprises of the IT sector.

### KEYWORDS

tax benefits, IT industry, IT-technology, tax expenditures, income tax, innovative benefits, import substitution in IT

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## Оценка результативности налоговых льгот в виде снижения тарифных ставок страховых взносов для IT-компаний в России

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### АННОТАЦИЯ

Актуальность темы исследования определяется тем, что в 2021 г. в России приняты новые изменения в режим налогообложения IT-компаний, которые получили название ИТ-маневра. До этого с 2010 г. для организаций в области информационных технологий была введена льгота в виде пониженных тарифов

страховых взносов, зачисляемых в фонды пенсионного, медицинского и социального страхования. Для того чтобы принимать обоснованные решения относительно дальнейшего стимулирования ИТ-отрасли, необходимо выяснить результативность уже предоставленных налоговых льгот. Цель данной работы – дать количественную оценку экономического эффекта влияния ИТ-льготы на экономические показатели предприятий ИТ-отрасли. Гипотеза исследования состоит в том, что ИТ-компании, воспользовавшиеся данной поддержкой, получают стимул для развития и демонстрируют лучшие экономические показатели по сравнению с остальными предприятиями отрасли. Предприятие, получившее дополнительные финансовые ресурсы за счёт экономии на уплате страховых взносов, имеет возможность направить их на увеличение оплаты труда сотрудников, расширение бизнеса (выражающееся в росте численности сотрудников и выручки) или, по крайней мере, достигнет большей прибыльности. Методика исследования заключается в следующем. По выборке предприятий в сфере ИТ выделены предприятия, применявшие льготу по страховым взносам. Далее произведено сравнение экономических показателей получателей льгот с показателями компаний из той же отрасли, но не имевших льготы. Основные результаты количественного анализа показывают значительное опережение роста экономических показателей у компаний, применяющих ИТ-льготу, по сравнению с компаниями, у которых отсутствовала эта льгота. Практическая значимость полученных результатов заключается в подтверждении того, что льгота по страховым взносам для разработчиков программного обеспечения является существенным фактором развития российской ИТ-отрасли в целом. Научный результат проведенного исследования состоит в создании и применении методики достоверного определения наличия льготы по страховым взносам среди предприятий сектора ИТ.

#### КЛЮЧЕВЫЕ СЛОВА

налоговые льготы, ИТ-отрасль, информационные технологии, налоговые расходы, налог на прибыль, инновационные льготы, импортозамещение в ИТ

### 1. Introduction

In Russia, since January 1, 2010, a benefit in terms of reduced rates of insurance contributions to the Pension Fund (PFR), Medical Fund (FCMIF) and Social Fund (SIF) has been in effect for Russian organizations engaged in information technology (IT)<sup>1</sup>. This benefit has initially been established in the law “On Insurance Contributions” and from January 1, 2017 in Chapter 34 of the Tax Code of the Russian Federation.

The point of the benefit is the possibility for IT companies to apply a general insurance contribution rate of 14% (7.6% from 2021) instead of 30% for organizations using the standard rate. To apply this benefit, an organization must meet three criteria.

*Firstly*, it is the state accreditation as an organization conducting activities in the IT sphere.

*Secondly*, the share of income from allowable activities must be at least 90% in the total of all incomes earned by the organization for the reporting (accounting) period.

*Thirdly*, the average headcount for the estimated (reporting) period must be at least seven employees.

From 2021, the scope of the granted benefit has been expanded due to an even greater reduction in the overall rate of insurance contributions paid by IT companies, 7.6% instead of the 14% rate in effect from 2010–2020<sup>2</sup>.

Moreover, there are plans to expand the perimeter of the benefit: in accordance with the Executive Order of the President of the Russian Federation of March 2, 2022. The Government of Russia has been instructed to take measures aimed at granting tax benefits, including to accredited organizations receiving income from the

<sup>1</sup> As of January 1, 2010, the unified social tax was reformed into insurance contributions.

<sup>2</sup> Federal Law of 31.07.2020 No. 265-FZ (ed. of 23.11.2020) “On Amendments to Part II of the Tax Code of the Russian Federation”.

distribution (placement) of advertising or provision of additional services using applications and online services of these organizations or incomes associated with the sale, installation, testing and maintenance of domestic solutions in the field of information technology<sup>3</sup>.

Providing insurance contributions benefit to IT organizations is reasonable if IT companies using this support receive an incentive for development and demonstrate better economic performance compared to the rest of the industry. This study analyzes the economic effect of the benefit in terms of reduced rates of insurance contributions for IT companies, which was in effect in 2010–2020 (IT benefit).

*The purpose* of this study is to quantify the economic effect of the impact of IT benefits on the economic performance of IT companies.

*The hypothesis* of the study is that IT-companies using insurance contributions benefits get an incentive for development and demonstrate better economic performance compared to the rest of the industry.

The suggested hypothesis is tested using the following *method*. We make a sample of companies in the IT sector, find out which of them applied the insurance contributions benefits and compare their economic and financial indicators with those companies from the same industry that did not enjoy the benefit. A company that has received additional funds due to savings on the payment of insurance contributions, can direct them to increase the remuneration of employees, business expansion (expressed in growth of the number of employees and revenues) or at least, will achieve greater profitability.

## 2. Literature review

Burman & Phaup [1] show that the institution of tax expenditures emerged in the 1960s almost simultaneously in Germany and the USA.

Bogacheva & Fokina [2] argued that the tax expenditure concept was coined by Surrey in 1967 while serving as Deputy Secretary of the U.S. Treasury. Surrey used it in an internal instruction where the goal was to prepare a list of income tax preferences and benefits similar to the objectives of program expenditures. In the 1980s, the practice spread to virtually all OECD states and a number of developing countries.

Surrey [3] as the developer of the tax expenditure concept argued that any tax consists of two elements (parts). The first part represents structural norms required for the normal functioning of the tax. The second part presents the norms introducing special benefits, i.e. tax incentives or tax subsidies, which represent a deviation from the standard (optimal, reference) structure of taxes and are designed in favor of specific industries, activities or groups of taxpayers.

Burman [4] noted that such deviations take many forms, such as permanent exclusion from taxable income, deductions, deferral of tax liability, tax credits or special tax rates. Whatever their form, these deviations from the normative structure of taxes represent budgetary expenditures, however, made through the tax system rather than through direct payments from the budget, loans or other forms of state aid.

Mankiw & Weinzierl [5] used the definition of tax expenditures through the concept of a reference or optimal tax system, recognizing any deviation from this reference as tax expenditure in terms of a tax benefit, deduction, exemption, etc.

Piketty et al. [6] understood as a fair reference tax system the redistribution of income aimed to equalize the households' incomes.

Weinzierl [7] understood by a fair reference tax system the redistribution in favor of less affluent groups of households, consistent with the principle of "equal sacrifice."

Shmakov [8] showed that the Kaldor-Hicks economic improvement criterion is used with a fair reference tax system, thereby, redistribution of income (including with-

<sup>3</sup> Executive Order of the President of the Russian Federation of 02.03.2022 No. 83 "On Measures to Ensure Accelerated Development of the Information Technology Industry in the Russian Federation".

drawals to the budget) can be considered an improvement if the party that benefited from the redistribution of income can compensate in full the losses of the other party.

Feldstein [9] noted that to assess the macroeconomic effects of tax policy requires counting on the behavior of taxpayers (changes in investment decisions or consumption) at the micro level.

Djankov et al. [10] show that higher taxes on enterprises have a negative impact on investment in production and provoke an increase in informal economic activity.

Darnihamedani et al. [11] showed that tax increases are negative especially for new small companies.

Venâncio et al. [12] justified that tax increases are also negative for high-skilled employment.

Malinina [13] conducted a scrupulous analysis of these definitions and identified four characteristic features: 1) confirmed lost tax revenues (reduction of budget revenues), 2) consequence of established tax benefits and exemptions relative to the standard normative structure of taxes, 3) focus on the implementation of goals of the state socio-economic policy, 4) an alternative to direct state expenditures.

Mayburov [14] recognizes as redundant the second two signs of identification of tax expenditures in the study [13], while introducing another criterion, that is, creating advantages for certain types of activities or groups of taxpayers.

Belev et al. [15] showed that a specific feature of social contributions in Russia is the link between social contributions on behalf of an employee and the social benefits to which that employee is entitled.

Therefore, it is reasonable to consider social contributions as a tax type, i.e., it is important to emphasize the gratuitousness of these payments. Thus, social contributions along with PIT, are taxes on labor income. Consequently, the concept of tax expenditures is also applicable to benefits for IT companies.

Although benefits for IT companies have existed for a number of years, we did not find a large number of academic articles analyzing the economic effect of such benefits. Most articles on “taxes and

IT” have appeared recently after the announcement of the first package of measures to support the IT industry in 2020, but they are more publicistic, describing the content of the proposed (introduced) measures, their purpose and possible effect. However, there are indications on the effectiveness of tax benefits as a tool to support technology and improve the competitiveness of the industry [16].

A number of studies provide a deeper semantic analysis of IT industry support measures, but there are no quantitative assessments of their impact on industry performance.

Gromov [17] analyzes the specifics and tax incentives issues for small IT companies. The author concludes that the bulk of tax benefits is concentrated in medium and large IT companies, which make up about 1% of the entire industry.

Kazarin & Svechnikova [18] analyzed the impact of regional tax benefits on the development of IT companies in 2016–2018. Authors conclude that provision of such benefits is not always the optimal measure to increase the level of IT companies’ development and that a comprehensive approach is required to solve this problem.

Milogolov & Berberov [19] analyzed the effectiveness of the VAT tax exemption for IT companies for 2012–2016. Authors formulated a proposal to repeal this benefit due to significant distorting effects and opportunities for tax evasion, as well as the inconsistency of this benefit with the objectives of tax policy in terms of creating a level playing field for taxation in the e-commerce industry and the lack of clear signals to confirm the effectiveness of this benefit.

Liubkina et al. [20] point to the critical importance of government support for software developers in emerging markets.

Yigitcanlar et al. [21] justified that Brazilian software companies that took advantage of government subsidies and benefits were more likely to become nationally competitive.

This being said, we could not find any works on the analysis of the economic impact of benefits on the IT industry in terms of reduced rates of insurance contributions for Russian IT companies.

The motivation for granting tax exemptions to a certain industry is diverse. Being one of the instruments of fiscal policy, tax benefits are applied within its scope in accordance with the priorities of economic development.

On the one hand, they can be incorporated into tax design to achieve greater neutrality of the tax system in the context where current taxes for some reason distort the decisions of economic agents.

Awasthi & Engelschalk [22] concluded that if a significant part of enterprises in an industry is involved in informal economic activity due to excessive tax and administrative burden, the reduction of tax costs is one of the factors of “white-washing” of this industry.

On the other hand, taxation features including benefits contribute to creation of non-neutrality in certain areas of economic activity.

Harju & Kosonen [23] proved that owing to a lower tax burden some activities become more attractive, contributing to their accelerated development.

Other activities (usually socially undesirable, such as those related to environmental pollution) are discouraged by higher tax burdens.

Klemm [24] showed that lower tax rates are increasingly driven by tax competition for business location.

Fischeret et al. [25] concluded that lowering tax rates is also an instrument of international competition for skilled labor.

Fink & Migulez [26] proved that in a globalized economy, wage differences are becoming a more important factor in the migration of skilled employees, increasing the importance of payroll tax benefits.

For these reasons, the effectiveness of a sectoral tax benefit should be assessed in accordance with the extent the benefit provision contributes to the achievement of the intended economic development objectives.

Kostić [27] proved that reduction of taxes on qualified IT workers in Serbia contributes to growth of investments in human capital.

Manelici & Pantea [28] concluded that for Romania lowering taxes on skilled

IT workers also contributes to growing investment in human capital, aiming to develop the IT industry up to the level of Western European countries.

Kromann et al. [29] proved that growth in software development and automation can help to increase overall productivity across industries.

With regard to objectives with which benefits on insurance contributions (or unified social tax) were introduced specifically for IT-companies, the legislative documents for adopting federal laws in Russia, introducing benefits for IT-companies, first on a unified social tax, then on insurance contributions, do not contain information on the purpose of the given benefits and expected results.

In this situation, let us address the goals facing the Russian economy in 2006–2010, when this benefit could have been offered during implementation of these goals, and first of all it is about the road to innovation of the economy.

Academic articles, devoted to innovation of the Russian economy, note the need for measures of state support.

Yusupova & Khalimova [30], analyzing the high-tech business in Russia, concluded that companies that could potentially form the basis of the leadership core will not be able to maintain their positions while developing independently.

Such companies need support and incentives. The importance of state support for leading high-tech companies, which was confirmed by the regression analysis, has also been noted.

Golichenko [31] noted the importance of creating a complete and consistent system of financial incentives at the beginning of the investment stage, which would contribute (including through targeted grants and tax benefits) both to creation of absorptive capacity in the business environment and diffusion of technologies.

Tax benefits as a tool for economic innovation are as well considered by international organizations in their works. For example, the OECD report [32] notes that if tax benefits are only intended to promote R&D in large stable firms, it can significantly reduce the effect of redistribu-

tion of innovation rents in favor of young enterprises and slow the innovation development of the country as a whole.

In later years, two other trends emerged in the Russian economy and politics, whereby state support for the IT industry was also reasonable, i.e. import substitution and national security.

If it is about the first trend, the supporters of import substitution usually put forward the argument of young industries, according to which the emerging and promising industries require support during the start-up phase.

Zagha & Nankani [33] concluded that for success of such policies, it is crucial to strike a balance between supporting producers and promoting competition.

At the same time, as a strategy, the import substitution does not correspond either to the current stage of development of global economy or to the status of development of Russian economy. This being said, it may be used as a tool in the arsenal of economic policy, in particular, in the struggle to concentrate on its territory the most profitable operations of the global technological cycle.

Zagashvili [34] stated that import-substitution diversification, which implies substitution of one well-known product with a similar one, loses to creative diversification aimed at creating innovation: new opportunities, products, technical solutions, materials and modes of production.

According to researchers, in the area of national security, the Russian Federa-

tion is currently exposed to serious risks due to cyber-threats focused on its financial institutions with a goal to weaken the economy and increase socio-economic unrest and tension.

Shkodinsky et al. [35] recommend the Russian authorities and the management centers for financial institutions continue developing their own software and digital products, banking infrastructure, as well as promoting the Rунet segment among the people of Russia and CIS countries as a safe and politically neutral platform for creating and developing digital economy based on their own high-tech solutions and services.

Pishchik & Alekseev [36] concluded that in Russia and other countries of the Customs Union, growth of cybercrime is one of the major threats to the stable functioning of national payment infrastructures and credit-financial systems on the whole.

As shown in Table 1, the benefit in terms of reduced rates of the insurance contributions is the largest among other tax preferences granted to IT companies. Therefore, we focus on this benefit and intend to find out how its application contributes to growth of economic indicators of IT companies.

Thus, according to authors, benefits on insurance contributions effective from 2007 to 2020 (unified social tax) for IT companies were in compliance with modernizing of economy, as well as tasks of import substitution and national security.

Table 1  
Estimates of tax expenditures on IT-benefits by Ministry of Finance of Russia,  
billions of rubles

Type of benefit	Actual						Estimates on 2020			
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Reduced contribution rates for IT	18.6	26.1	28.1	49.5	60.2	72.1	92.1	118.5	126.8	135.5
VAT exemption for software and databases	22.0	24.9	27.8	34.7	50.4	65.9	14.4	16.2	18.7	20.4
Reduction of IT income tax rate	-	-	-	-	-	-	16.0	16.9	17.9	19.4
Accelerated depreciation for computer equipment	0.03	0.05	0.06	0.06	0.06	0.07	0.07	-	-	-

Source: own estimates based on data released by the Ministry of Finance of Russia ([https://minfin.gov.ru/ru/document/?id\\_4=134382-informatsiya\\_o\\_normativnykh\\_tselevykh\\_i\\_fiskalnykh\\_kharakteristikakh\\_nalogoovykh\\_raskhodov\\_rossiiskoi\\_federatsii](https://minfin.gov.ru/ru/document/?id_4=134382-informatsiya_o_normativnykh_tselevykh_i_fiskalnykh_kharakteristikakh_nalogoovykh_raskhodov_rossiiskoi_federatsii))

### 3. Methodology

#### 3.1. Selection of companies for analysis of the economic effect of the IT benefit

The IT industry includes companies with their main activity corresponding to industry codes (OKVED) 62 (Development of computer software, consulting services in this field and other related services) and 63 (Information Technology Activities). However, contribution exemption is granted only to organizations that comply with the requirement that 90% of their income comes from software and database development. However, the activity aimed at software development is marked by the industry code 62 and, more specifically, code 62.01 (Software development), while codes 62.02, 62.03 and 62.09 denote related but different activities. Moreover, the sample includes code 63.11 involving “Activities to create and use databases and information resources”.

The possibility to receive contribution exemptions under codes 62.01, 62.03, 62.09 and 63.11 has been confirmed by explanations of the Ministry of Digital Development regarding conditions for obtaining accreditation as an IT company<sup>4</sup>.

To analyze the economic effect of IT benefits, one can only use indicators of those companies for which the necessary data are available. The most complete data on Russian companies required for such an analysis can be found in the SPARK system<sup>5</sup>. Since data on insurance contributions by individual company are only available from 2017 onwards, we can examine the availability of the IT benefit and the evolution of economic performance over 2017–2020. For this purpose, a sample of companies with activity codes 62.01, 62.02, 62.03, 62.09 and 63.11 (a total of 161.137 companies in the SPARK system, including for code 62.01-67.709 companies) was drawn, for which there are data available from the report on financial results, in particular on revenue for at least one period of 2017–2020 (53.371 companies).

<sup>4</sup> <https://digital.gov.ru/ru/activity/govservices/1/>

<sup>5</sup> <https://spark-interfax.ru/>

To apply the methodology used to determine the IT benefit based on the ratio of insurance contributions, only those were chosen from the mentioned variety of companies, for which data are available not only on revenue, but also on insurance contributions to the pension fund for at least one period out of 2017–2020 (46.655 enterprises). This leaves 42.776 legal entities for further study as a result of these intersections.

#### 3.2. Division of companies by benefits

##### 3.2.1. Differences in the amounts of contributions paid

The absence of a register of enterprises receiving this benefit makes it difficult to analyze the economic impact of IT benefits. Another challenge for the study is that in addition to the special contribution benefits for IT companies the latter could benefit from a number of other privileges provided for in chapter 34 of the Tax Code.

Having analyzed the provisions of fiscal law, it has been concluded that organizations active in the field of information technology in 2017–2020 could have applied one of the following insurance contribution rates:

- 1) standard rate;
- 2) IT benefit;
- 3) rate for organizations applying simplified tax system (STS) (repealed since 2019);
- 4) rate for small and medium businesses (SME) (in force since March 1, 2020);
- 5) rate for special economic zone (SEZ);
- 6) rate for free economic zone (FEZ);
- 7) rate for advanced development zone (ADZ);
- 8) rate for free port of Vladivostok (FPV);
- 9) rate for Skolkovo.

Main parameters of contribution rates for the above categories are shown in Tables 2, 3 and 5, and the thresholds for the application of limit rates are shown in Table 4.

Since it is our task to assess the effect of the special benefit for IT companies (rather than other preferential treatment

available to a number of IT companies), we need to separate companies that apply IT benefit not only from companies applying standard rate, but from all other companies in the sample, applying some or other preferential rates of insurance contributions.

To begin with, we have excluded from the sample the residents of those territories enjoying special tax regime (Table 5). The exception implied the TIN of organizations in the initial sample in

the registers of territories with a special tax regime. Thus, the initial sample included 819 members of special territories.

Next, we have considered a sample that contains four categories of organizations: 1) using standard contribution rate, 2) IT benefit, 3) rate for simplified system and 4) rate for SME. This sample contains 41,957 enterprises.

Note, however, that data are available for a smaller number of companies for each specific period (Table 6).

Table 2

### Nominal and limit insurance contributions

Year	Standard rate			Rate for organizations on the simplified system			Special rate for IT companies		
	Pension fund	Social fund	Medical fund	Pension fund	Social fund	Medical fund	Pension fund	Social fund	Medical fund
2016									
2017	22% within limit value	2,9% within limit value;		20%	0%	0%	8% within limit value;	2% within limit value;	
2018	+ 10% above limit value	above - 0%	5,1%				above - 0%	above - 0%	4%
2019				No benefit	No benefit	No benefit			
2020									

Note: \* For certain types of activity, including IT, for enterprises with income not exceeding Rb79 million per year

Source: compiled by authors from the Tax Code

Table 3

### Rate parameters for small and medium businesses

Year	Benefit for SME		
	Pension fund	Social fund	Medical fund
2020 (as from April 1, 2020)	Within minimum wage* - standard rates. Above minimum wage - 10%**	Within minimum wage* - standard rates. Above minimum wage - 0%**	Within minimum wage* - standard rates. Above minimum wage - 5%**

Note: \* The value of minimum wage in 2020 was Rb12,130 per month

\*\* Within limit value; over - 0%

Source: compiled by authors from the Tax Code

Table 4

### Tax base limits for application of contribution rates

Year	Maximum base value	
	For contributions to pension fund, Rb	For contributions to social fund, Rb
2016	796 000	718 000
2017	876 000	755 000
2018	1 021 000	815 000
2019	1 150 000	865 000
2020	1 292 000	912 000

Source: compiled by authors from the Tax Code



Based on the insurance contribution rates provided for in Chapter 34 of the Tax Code<sup>6</sup> and indicated above in Tables 2 and 3, we shall calculate effective insurance contribution rates for the pension, medical and social funds depending on the salary of the employee for each of the four categories of organizations (Figure 1).

Taking into account different dynamics of changes in the effective rates of contributions to the funds, the following division method seems to be promising:

<sup>6</sup> From January 1, 2017, insurance contributions are regulated by Chapter 34 of the Tax Code, while from January 1, 2010, to December 31, 2016, they were regulated by certain federal laws.

*Step 1.* Calculate for each organization in the sample the theoretical effective rates of insurance contributions based on the average wage of the organization and rates established by the Tax Code.

*Step 2.* Calculate for each organization in the sample the actual effective contribution rates as a quotient of actual contributions to the funds and labor costs.

*Step 3.* Determine for each organization the type of contribution rate it applies, based on the proximity of the actual effective contribution rate to the appropriate type of theoretical effective contribution rate.

However, we rejected this method of division because, firstly, only a small

Table 5

### Contribution rates for residents of special tax territories

Year	Skolkovo residents			SEZ residents			Residents of the territories of advanced development, free port of Vladivostok, special economic zone in the Kaliningrad region, free economic zone		
	Pension fund	Social fund	Medical fund	Pension fund	Social fund	Medical fund	Pension fund	Social fund	Medical fund
2017	14% within limit value, no tax above limit value			8% within limit value, no tax above limit value	2% within limit value	4%			
2018		0%	0%	13% within limit value	2.9% within limit value	5.1%	6% within limit value, no tax above limit value	1.5% within limit value	0.1%
2019				20% within limit value	2.9% within limit value	5.1%			
2020						No benefit			

Source: compiled by authors from the Tax Code

Table 6

### Available data for each of the periods under consideration

Available data	Period			
	2017	2018	2019	2020
Insurance contributions	31765	33251	33310	32720
Revenues*	24619	25755	27061	28745
Profit*	25660	27198	28858	29587
Staff number*	-	30039	31223	29759
Labor remuneration*	2294	2618	3109	3851

Note: \* For this and for the previous period (to calculate the change in the indicator for the period)

Source: own calculations

fraction of the IT companies in the SPARK sample has the payroll data necessary to calculate an effective contribution rate. Secondly, the effective contribution rate for the enterprise as a whole cannot be accurately determined based on the average wage in the enterprise, since the contribution for each individual employee depends on his/her personal salary. Therefore, such a straightforward approach related to calculating effective rates greatly limits the analysis ability and reduces the accuracy and statistical significance of results.

At the same time, it is possible to use a different approach to establish the fact of using the IT benefit. Depending on the type of benefit and the amount of the employee’s salary, certain correlations are observed between the amounts of contributions to pension, medical and social funds, which Figure 2 shows.

This method has the advantage, as the contributions to the pension, medical and social funds are listed for massively larger

number of companies (comparable to financial results), allowing a more complete statistical analysis.

Figure 2 shows that the ratio of contributions to pension and medical fund can be a factor for separating the standard mode of payment of insurance contributions (no benefits) and IT benefits, since using standard rates, the ratio of pension/medical fund changes in the range of 2.5–4.31, while having IT benefits it is in the range of 0.5–2.0.

The accuracy of separating companies using IT benefit from those using standard contribution rates is confirmed, as these ranges do not intersect. Moreover, this fact solves the problem that different employees of the same enterprise can have different salaries and, consequently, the ratio of contributions to pension/medical fund: however, within one enterprise their ratios will fall into one of two disjoint ranges. Thus, the average pension/medical fund ratio for this enterprise will be in the same range.

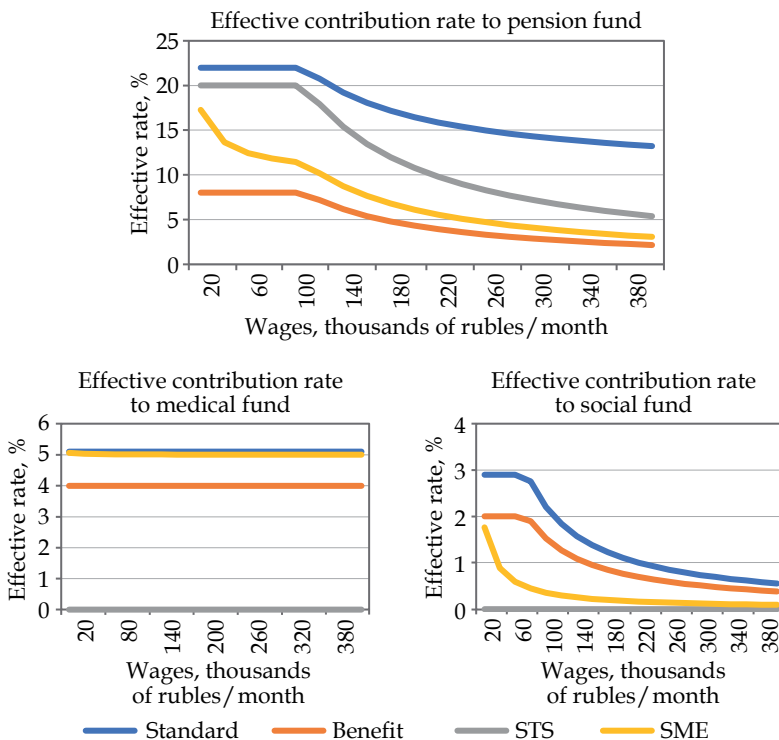


Figure 1. Effective contribution rates depending on the employee’s salary

Source: own calculations

The benefit under the simplified system was determined in 2017 and 2018 according to non-zero contributions to the pension fund and zero contributions to the medical and social fund. In 2019, this benefit was abolished, which resulted in a change in the payment mode of insurance contributions for companies that applied it.

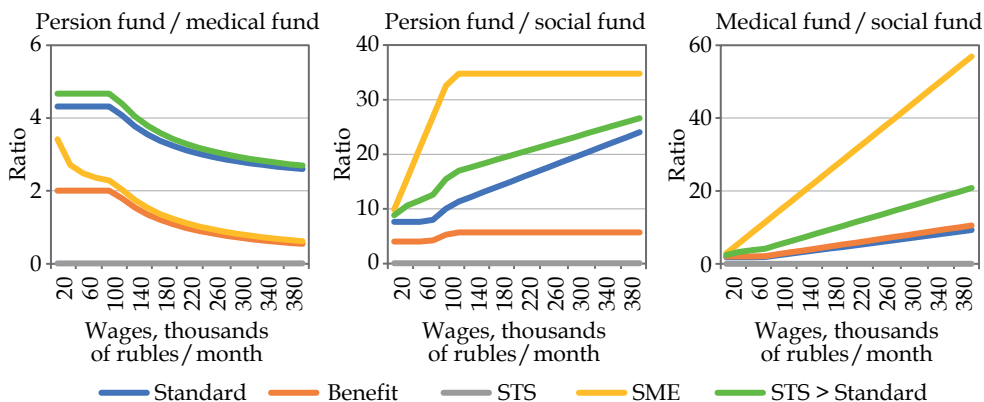
In the first month of 2019, they paid contributions for organizations on the simplified system, and for the remaining 11 months they paid new rates (standard or possible IT-benefit). For salaries not exceeding Rb108,000 per month a change of rates for the simplified system to standard rates provides ratio of pension fund / medical fund as 4.67.

Figure 3 shows ratios between pension fund / medical fund for other transition options and other salary levels.

**3.2.2. Benefit identification**

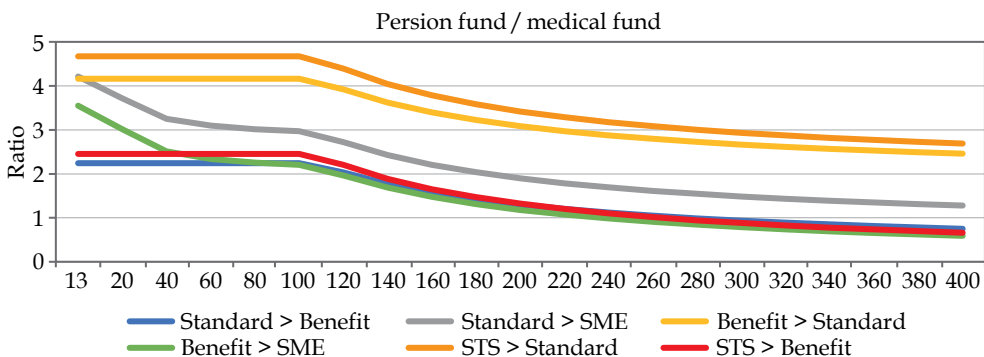
Having calculated the values of the pension fund/medical fund contributions ratios for the sample of IT companies, let us construct charts of distribution of the number of companies based on the value of this ratio (Figure 4).

A more detailed study of the presented distributions has revealed that in most cases the sample companies' actual pension fund/medical fund contributions ratios fall into one of the two ranges: (1) 0.25–2.13 with IT benefit; (2) 2.13–7.0 without benefits. It is evident that on the border of the specified ranges the chart height is minimal and the two peaks relate to the pension fund / medical fund contributions ratios of 2.0 and 4.31 (the values are relevant to a wide range of salaries from the minimum wage to Rb108,000).



**Figure 2. Ratio of contributions to pension, medical and social funds according to the employee's salary**

Source: own calculations



**Figure 3. Ratio between pension fund/medical fund in case of a change of contribution mode**

Source: own calculations

As regards the simplified system benefit which existed till 2019, the pension fund/medical fund contributions ratio was not determined (because contributions to the medical fund were equal to zero) and, consequently, the companies observing the simplified system were not to be included in this distribution. If a company switches over to the benefit under the simplified system after paying contributions at standard (or preferential) rates, its contributions to the medical fund are above zero (payment for the last month of the previous year), however, the pension fund / medical fund ratio for such a company will be equal to 14.2–45.5 (15.3-57.0 in case of a switchover from IT benefit).

In Figure 4, the third peak can be explicitly seen in the 2019 distribution: it is a portion of companies which had to shift from the simplified system benefit to the standard regime of insurance contributions payment (it corresponds to the pension fund / medical fund ratio of 4.67).

We created Table 7 to better demonstrate the number of companies, which shifted between the ranges.

The year 2020 saw a dramatic fall in the number of companies applying contribution rates, which were typical of low salaries under the standard rate with the pension fund/medical fund ratio of about 4.3 (a decrease of 10,000 companies) and the pension fund/medical fund ratio of 4.5–4.7 (a decrease of 1,000 companies). By contrast, the number of companies with the pension fund/medical fund ratio of 2.5–4.2, typical of a shift from standard rates to the benefit for SME, increased (growth by the same 11,000 companies).

Due to close proximity of effective rates of insurance contributions with benefit for SME for salaries of up to Rb280,000 per month and standard effective rates with salaries of Rb120,000–Rb400,000 per month (see Figure 2), we have no reliable statistical instrument to identify which companies applied the benefit for SME. However, we identify a number of companies

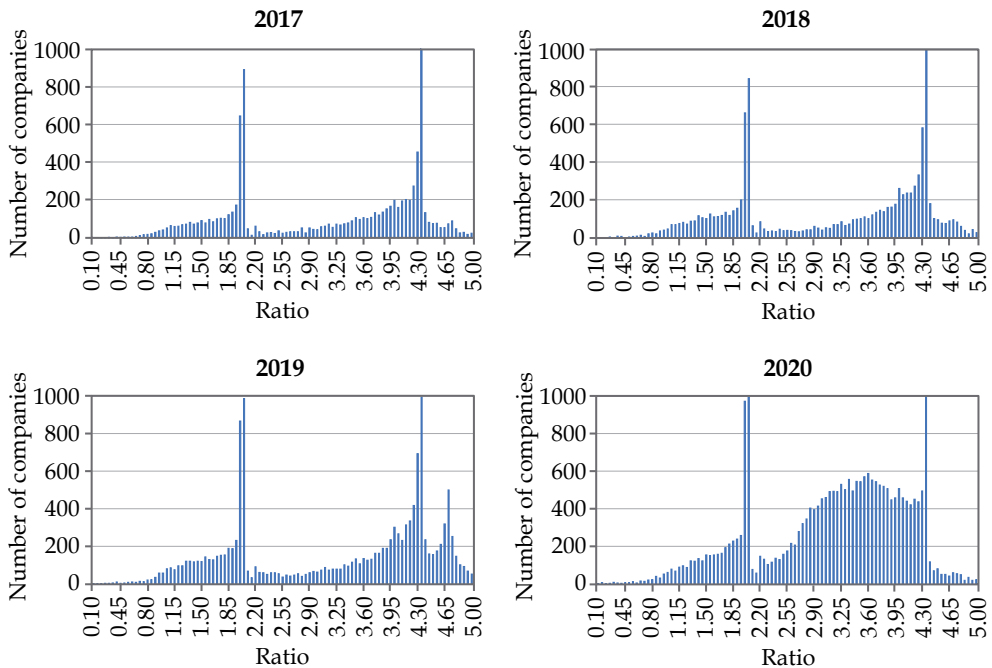


Figure 4. Distribution of companies based on to the pension fund/medical fund contributions ratios

Note: the number of companies in the column with the pension fund / medical fund ratio of 4.31 exceeds 15,000 companies and goes beyond the chart scale limit.

Source: own calculations

that shifted from the standard regime to the benefit for SME on the basis of reduction in their contributions to the pension fund as compared to the medical fund.

According to the data shown in Table 8, the share of companies in the IT industry, which took advantage of IT benefit was gradually growing from 11.2% in 2017 to 16.8% in 2020. If counting is based on the number of companies having the title to the benefit (with a staff of at least 7 employees), the number of companies applying the IT benefit is much higher: from 27.9% in 2017 to 41.7% in 2020.

Despite the reduced insurance contributions rates within the scope of the IT benefit, the share of contributions payable

by companies with IT benefit is even more noticeable: from 32.0% in 2017 to 43.8% in 2020.

Overall, a regularity is observed that this benefit is more often used by small and large companies with a staff of over 50 employees (Figure 5).

At the same time 60–80% of IT companies with a staff of under 10 employees did not have benefits on insurance contributions, while only 30% of mid-sized and large companies did not receive them. This might mean that small IT companies either experience problems with an access to preferential taxation or have no need in receiving benefits on insurance contributions.

Table 7

**A change in the number of companies in the ranges of the pension fund/medical fund ratio**

Contributions ratio	Number of companies in range				Change in number of companies year on year		
	2017	2018	2019	2020	2018	2019	2020
from 0 to 0.25	6	6	17	16	0	11	-1
from 0.25 to 2.13	3544	4025	4765	5493	481	740	728
from 2.13 to 2.5	228	329	443	928	101	114	485
from 2.5 to 4.2	3220	3733	4342	15325	513	609	10983
from 4.2 to 4.5	18000	18014	20424	9869	14	2410	-10555
from 4.5 to 4.75	354	430	1463	262	76	1033	-1201
from 4.75 to 7.0	505	633	1218	459	128	585	-759
Over 7.0	344	598	401	269	254	-197	-132

Source: own calculations

Table 8

**The results of classification on the basis of the regime of insurance contributions payment, number of companies**

Insurance contributions payment regime	2017	2018	2019	2020
Simplified system (medical fund contributions = 0)	5 564	5 483	237	99
IT benefit (pension fund/medical fund from 0.25 to 2.13)	3544	4025	4765	5493
Standard rates (pension fund/medical fund from 2.13 to 7.0)	22307	23139	27890	21800
Benefit for SME (in 2020 pension fund/medical fund decreased by 1.0 or more)				5043
Other	350	604	418	285
Overall (data are available on insurance contributions)	31765	33251	33310	32720
Share of companies with IT benefit, %	11.2	12.1	14.3	16.8
Including those from number of companies having title to benefit based on size criteria, %	27.9	30.6	35.8	41.7
Share of insurance contributions attributable to companies with IT benefit, %	32.0	35.9	39.1	43.8

Source: own calculations

Benefit beneficiaries are mainly companies whose types of activities are identified by the following codes: 62, 62.01, 62.02, 62.09, 63.11, 62.11.1. The presence of other types of activities in this list can be justified both by inaccuracy in attributing companies to a certain type of activity and classification errors. In any case, the share of such companies among benefit recipients does not exceed a fraction of a percent.

The accuracy of determination of IT benefit existence on the basis of the applied method can be verified in respect of that sample portion on which the data on the number of employees and labor remuneration are available. Based on this data, we can calculate an average salary per employee, as well as an effective rate of contributions to the pension fund (Table 10). The received effective rate is compared

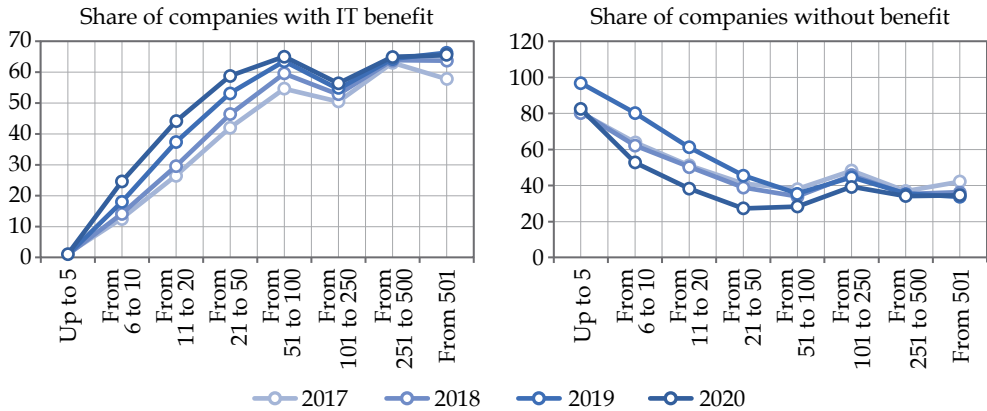


Figure 5. The share of companies with IT benefit depending on the number of employees

Source: own calculations

Table 9

IT benefit beneficiaries distribution based on industry codes

Industry code	Number of companies in sample	Number of benefit beneficiaries, year on year			
		2017	2018	2019	2020
62	2586	349	365	400	440
62.01	19243	2162	2520	3029	3503
62.02	5051	246	264	337	406
62.02.1	39	3	2	5	6
62.02.2	8	1	1	1	0
62.02.3	11	0	0	0	0
62.02.4	12	0	1	0	0
62.02.9	47	1	1	2	3
62.03	285	2	2	3	6
62.03.1	15	1	1	1	1
62.03.11	2	1	1	1	1
62.03.12	8	0	0	0	0
62.03.13	52	1	1	4	5
62.03.19	5	0	0	0	0
62.09	6609	250	286	342	392
63.11	2871	53	67	73	94
63.11.1	5080	474	513	567	635
63.11.9	33	0	0	0	1

Source: own calculations

with the theoretical rate of pension fund contributions corresponding to the calculated average salary (according to the rules from Table 2).

As seen from Table 10, the difference between the realized effective rate of pension fund contributions and its theoretical value does not surpass 5 percentage points (p.p.) for 97–98% of companies in respect of which we have determined the existence of the IT benefit.

Though the theoretical value is received with a considerable error due to inequality of labor remuneration of individual staff members (about 3 p.p.), the possible error remains much below the difference between the standard and preferential rates of pension fund contributions (from 10 p.p. to 14 p.p.), thus excluding incorrect classification because of this error.

### 3.3. Economic effect evaluation procedure

For evaluating the economic effect of IT benefit, let us compare growth rates of economic performance of companies which took advantage of IT benefit and the relevant control sample indicators, that is, those companies which did not have benefits on insurance contributions and paid them at standard rates. For each year of the 2017–2020 period, we compare the dynamics of four indicators:

- average staff number;
- revenues;
- profit before tax;
- labor remuneration.

A relative increase in one of the indicators is calculated for each group for the same year. For example, for companies with the benefit in 2018, percentage reve-

nues gain in 2018 on 2017 were calculated and this increase is compared with relevant revenues gain of companies which did not have the benefit in 2018.

As each year of the specified period a different number of companies received the benefit, there may be cases where a company which did not have the benefit one year started to use it next year and vice versa. In some cases, the data are unavailable on a company in one of the periods under review. For these reasons, the compared samples composition changes from year to year, however, with this change taken into account, it is feasible to identify the impact of IT benefit on economic indicators' dynamics in the studied industry.

## 4. Results

Figure 6 presents the findings of comparison of economic indicators' dynamics of companies with and without IT benefit across the entire sample of companies (small, mid-sized and large companies with industry codes 62 and 63.11). The height of each column in the chart shows a percentage increase year on year in the relevant indicator; specified in the middle is the number of companies on which the indicator is aggregated.

It can be seen that the findings were received on the basis of aggregated data on several thousand companies. If we compare these values with the number of companies with IT benefit and the standard rates on contributions that were initially included in the sample (see Table 8), we can find out for which share of the sample companies the data on the relevant financial indicator correspond to. For example, the results of

Table 10

**The share of companies with IT benefit where the difference between the actual and theoretical effective rates of pension fund contributions is within a margin of error**

	2017	2018	2019	2020
Companies with determined existence of IT benefit	3544	4025	4765	5493
Including those with available data on salaries and headcount	680	833	1 160	1 195
Including difference between actual and theoretical effective rates of pension fund contributions from -5 p.p. to +5 p.p.	668	811	1 130	1 162
Share of companies within specified limits	98.2%	97.4%	97.4%	97.2%

Source: own calculations

calculation of an increase in the number of headcount in 2019 include 95% of companies with IT benefit (4,536 companies out of 4,765 companies), notably, these companies account for Rb31.0 bn out of Rb32.0 bn of insurance contributions paid by benefit beneficiaries, as well as 85% of companies with standard rates (23,715 companies out of 27,890 companies); they account for Rb47.1 bn worth of insurance contributions out of Rb49.5 bn paid by companies

with standard rates. In other words, the obtained results are based on the data regarding the bulk of the IT industry.

Figure 7 shows how with several conditions regarding the availability of data applied only a portion of the sample is left.

To take into account the possible specifics of development of individual types of activities, let us calculate relevant indicators only for software companies, that is, those with industry code 62.01 (Figure 8).

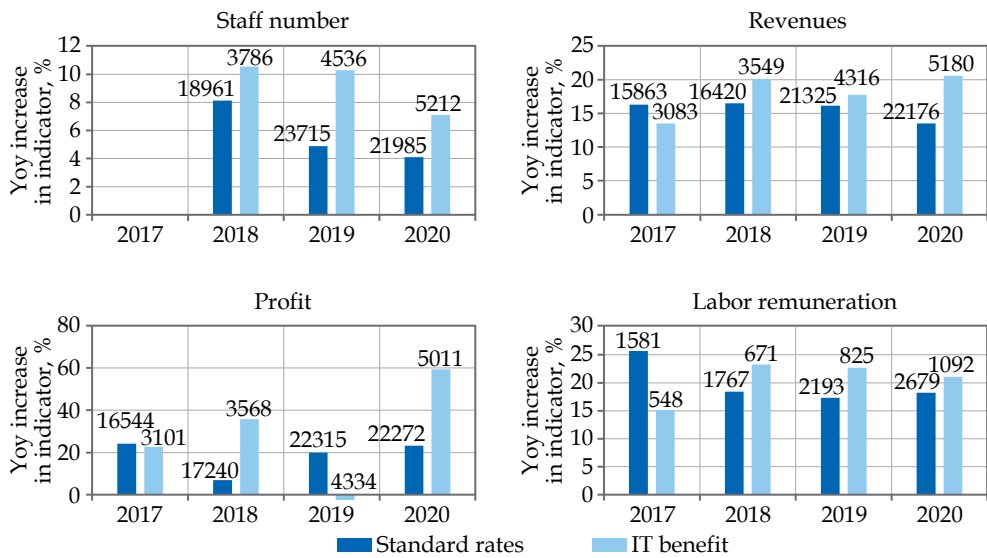


Figure 6. Comparison of dynamics of economic indicators of companies with and without IT benefit across the entire sample of companies

Source: own calculations

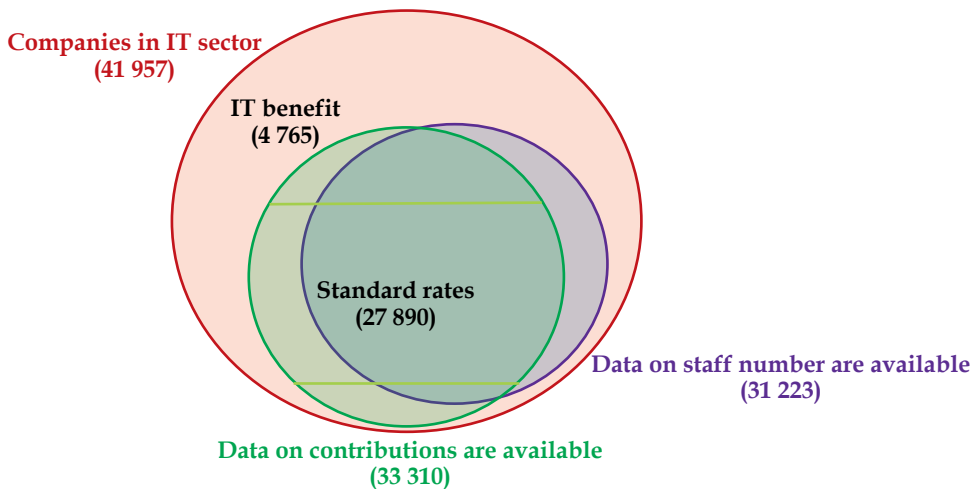


Figure 7. The result of application of several conditions to the IT companies sample in 2019



As we have found out above that the IT benefit is mainly used by mid-sized and large companies, let us consider in Figure 9 this category of software companies separately in order to take into account the possible effect of the size of a company on its rates of development. If this effect is strong enough, it may happen that all large and mid-sized companies grow faster as compared with companies with benefit.

### 5. Discussion

The results of the first calculation (see Figure 6) suggest that the IT industry in Russia is growing at higher rates relative to indicators of the Russian economy as a whole (for comparison, in 2017–2020 the average annual output growth in goods and services in the economy and average growth in gross profit were equal to 6.3% and 8.0%, respectively). All surveyed

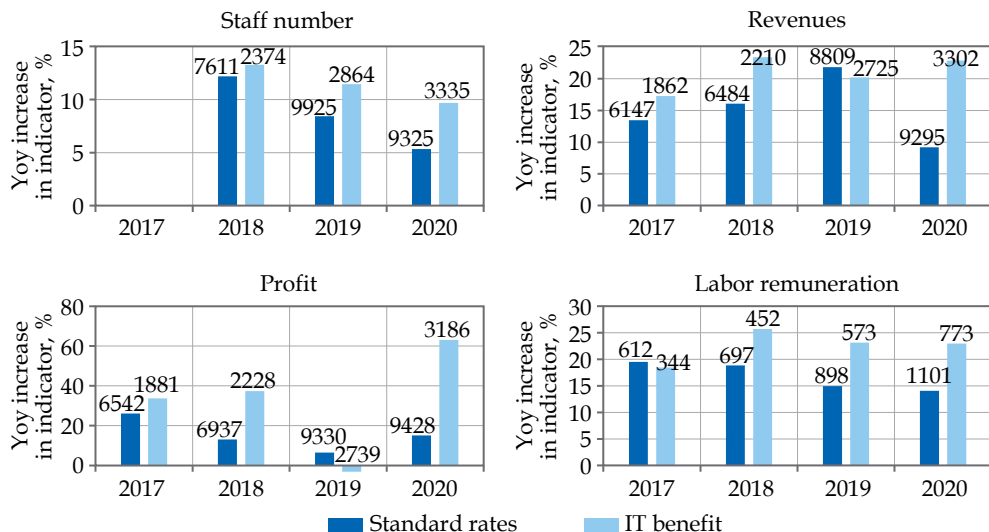


Figure 8. Comparison of dynamics of economic indicators of software companies with and without IT benefit (industry code 62.01)

Source: own calculations

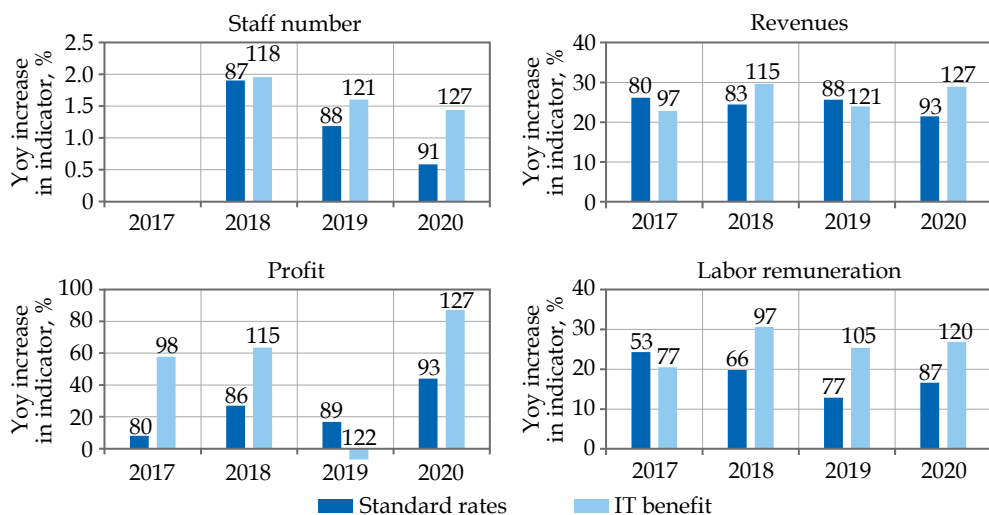


Figure 9. Comparison of dynamics of economic indicators of mid-sized and large software companies (industry code 62.01) with and without IT benefit

Source: own calculations

indicators saw growth: average staff number, revenues, labor remuneration (higher growth rates relative to those of staff number suggest an increase in salaries) and profit, though our method of calculation does not take into account new companies which emerged on the market.

In these conditions, companies with IT benefit see consistently higher growth rates of economic indicators by contrast with companies without benefits on insurance contributions.

As regards growth in staff number, “benefit holders” are ahead of “non-benefit holders” on average by 50% (9.3% of average annual growth against 5.7%).

Also, the advantage of having the benefit is evident both in average annual growth in revenues (18.0% against 15.6%) and growth in profit (28.8% against 18.6%).

Labor remuneration indicators are somewhat less reliable (owing to a lack of data, evaluation was made only in respect of 17% and 8% of companies with and without IT benefit, respectively), but higher with companies having the benefit (20.5% against 19.9%).

As seen from intra-sectoral specifics taken into account (see Figure 8), software companies are growing faster than the average across the IT industry as a whole;

also, this sample confirms the hypothesis on advanced growth in all indicators of IT companies with the benefit on insurance contributions, that is, an increase in staff number (11.5% against 8.7%), revenues (20.9% against 15.1%), profit (32.8% against 15.2%) and labor remuneration (22.6% against 17.9%).

The results of the last calculation (see Figure 9) support the previous findings that the IT benefit is an important factor for considerable growth in economic indicators of companies, including large and mid-sized software ones. Further, the advantage of the IT benefit is even more explicit in this case in respect of all indicators: annual average staff number (16.7% against 12.3%), revenues (26.3% against 24.4%), labor remuneration (25.9% against 18.4%) and, particularly, profit (50.4% against 24.0%).

Let us consider on a separate basis the dynamics of indicators of small software companies in Figure 10.

Despite more volatile dynamics, Figure 10 shows the advantage of IT benefit beneficiaries if average values of growth indicators are compared: staff number (8.3% against 7.7%), revenues (15.6% against 8.8%), profit (14.3% against 9.7%) and labor remuneration (15.8% against 15.2%).

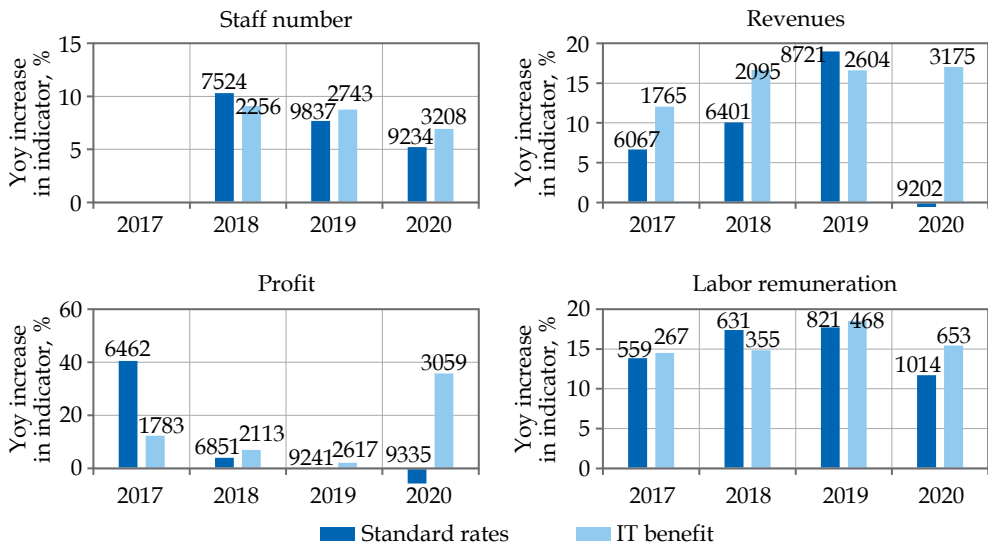


Figure 10. Comparison of the dynamics of economic indicators (industry code 62.01) of small software companies with and without IT benefit

Source: own calculations

So, our hypothesis on the IT benefit's positive effect on the IT industry's economic indicators is proved by a series of our calculations of the indicators' dynamics, that is, staff number, revenues, profit and labor remuneration.

From comparison of our findings with those of Kazarinov and Svechnikova [18], it turns out that companies' technical efficiency does not necessarily increase, but financial performance indicators grow. Our findings confirm those made by Yigitcanlar et al. [21] on a discernible impact of tax benefits on the IT industry's competitiveness.

## 6. Conclusion

Starting from 2010, the benefit in terms of reduced rates on insurance contributions (IT benefit) has been applied in respect of IT companies (with headcount of at least 7 employees) engaging in the development of software and databases. This paper looks into the IT benefit's effect on financial performance of companies with this benefit in 2017-2020.

We applied to a more complete sample of companies engaged in development of software and databases the method of identification of the payment regime of insurance contributions on the basis of ratios between contribution sums to different funds (the pension fund and the medical fund) depending on the relevant regime, that is, standard rates of contributions, IT benefit, simplified system benefit and benefit for SME.

The share of companies with the IT benefit among the sample of companies with headcount of over 7 employees increases from 27.9% in 2017 to 41.7% in

2020. Among large companies (with a staff of over 50 employees) the share of those using the IT benefit goes up to 65%.

For assessing the effect of IT benefit on the development of companies for each period from 2017 till 2020, we compare dynamics of the economic indicators (staff number, revenues, pre-tax profit and labor remuneration) of companies with IT benefit and those with standard rates of insurance contributions.

The findings allow us to conclude about a considerable positive effect of the IT benefit on insurance contributions on economic performance of software companies which took advantage of it. It is expressed in higher average annual growth in their economic indicators as compared with IT companies without the benefit: staff number 11.5% against 8.7%, revenues 20.9% against 15.1%, profit 32.8% against 15.2% and labor remuneration 22.6% against 17.9%. Considering the extent of application of this benefit, the benefit on insurance contributions for software developers is an essential factor of development of the IT industry as a whole.

The study's scientific result consists in the development and application of the method of reliable identification of the existence of the insurance contributions benefit of IT companies. The findings of application of this method have allowed to assess the effect of this benefit on IT companies' financial performance. It is shown that the benefit has a positive effect on growth in revenues, profit, average staff number and labor remuneration with benefit-recipient companies engaged in the development of software and databases.

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