

THE IMPACT OF REGIONAL TAX INCENTIVES ON INDUSTRIAL PERFORMANCE

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Abstract: The article explores the interplay between regional tax incentives and the trends in industrial performance indicators. The authors advance arguments for their statement that it is necessary to increase industrial performance in order to create growth poles and centres in regional development. They range the industrial performance indicators based on their assessment. The authors provide a rationale for the choice of areas for tax incentives at the regional level that should take into account indicators of efficiency of investments in fixed assets at industrial enterprises, innovation activities in industry, and growth of industrial production and import substitution. At the regional level, this can be achieved through the use of horizontal tax incentives, including investment tax

deductions, support for R&D and special investment contracts.

Keywords: region, growth poles and centres, industry, horizontal and vertical incentives, indicator, performance, tax incentives, tax burden, R&D

1. Introduction

Tax regulation in the real sector of economy is aimed at stimulating economic growth, which is an integral indicator for assessing the effectiveness of economic development. To achieve the desired effect at the regional level, it is necessary to assess the impact of tax incentives on the industrial performance. Our research hypothesis is that the provision of tax incentives should

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improve certain indicators of industry development and contribute to creating growth poles and centres in regional development. Therefore, in our opinion, it is necessary to explore the trends in industrial performance indicators. As the majority of tax incentives are characterised by territorial limitations, the efforts to increase effectiveness of industrial development should be correlated with the provision of regional tax incentives.

2. Literature review

Numerous empirical studies of the relationship between the tax level and the economic growth have not provided definitive evidence on the existence of such relationship or its character. Some studies reveal negative effects of the increased tax burden on the economic growth, while others deny that there is any relationship between them.

S. Gupta and his co-authors, based on their study with the use of econometric

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models, come to the conclusion that fiscal consolidation in low-income countries has a negative impact on economic growth both in the short and long term⁶. The works by Christopher J. McDermott and Robert F. Wescott⁷, Alberto Alesina and Roberto Perotti⁸, and Jürgen von Hagen and Rolf Strauch⁹ demonstrate that that under certain circumstances fiscal contractions can stimulate economic growth. The opposite view is held by Folster and Henrekson¹⁰, who show that 10% increase in the tax burden (relative to the gross domestic product) reduces economic growth by 1%. N. Ahmad and his co-authors¹¹ studied the impact of taxes on the economic growth in Pakistan. Based on the analysis of data for the period from 1976 to 2011, they conclude that taxes have a significant negative impact on the gross domestic product, which is used as an indicator of economic growth: 1% increase in tax burden leads to 0.08% decline in gross domestic product.

⁶ Gupta, S., Clements, B., Baldacci, E., & Mulas-Granados, C. (2005). Fiscal policy, expenditure composition, and growth in low-income countries. *Journal of International Money and Finance*, 24(3), 441–463.

⁷ McDermott, C.J., & Wescott, R.F. (1996). An empirical analysis of fiscal adjustments. *IMF Staff Papers*, 43 (December), 725–753.

⁸ Alesina, A., & Perotti, R. (1995). Fiscal expansion and fiscal adjustments in OECD countries. *Economic Policy*, 21, 205–248.

⁹ Von Hagen, J., & Strauch, R. (2001). Fiscal consolidations: quality, economic conditions, and success. *Public Choice*, 109, 327–346.

¹⁰ Folster, S., & Henrekson, M. (2001). Growth effects of government expenditure and taxation in rich countries. *European Economic Review*, 45(8), 1501–1520.

¹¹ Ahmad, N., Ahmad, A., & Yasmeen, K. (2013). The impact of tax on economic growth of Pakistan: An ARDL approach. *Journal of Basic and Applied Scientific Research*, 3(11), 392–398.

Proponents of the traditional neoclassical model assume that tax policies affect economic growth negatively in the short term, while in the long term it does not affect economic growth rates at all¹². Long-term implications of the tax policy impact on economic growth are also addressed by Tanzi and Zee¹³.

According to the theory of endogenous growth, such factors as investment in R&D and human capital can benefit the entire economy, while reducing the negative impact of the tax system on long-term rates of economic growth. It is viable under condition that governmental policies are aimed at creating favourable conditions for the development of human potential and for capital accumulation¹⁴. Opponents of this point of view believe that sustainable growth of the state is determined only by exogenous

factors, such as population trends, technological progress and changes in taxation¹⁵.

The findings of the studies by Chamley¹⁶, Barro¹⁷, Barro and Sala-i-Martin¹⁸, and Mendoza, Milesi-Ferretti and Asea¹⁹ suggest that tax policies can either stimulate or slow down the economic growth, because investments in physical and human capital, which depend on taxation and government spending, can affect the growth rates in a stable state. The study by Edame and Okoi²⁰ considers the impact of taxation on economic growth and investments in Nigeria in the period from 1980 to 2010. Their findings prove that the personal income tax and corporate income tax have a significant negative impact on gross domestic product; the corporate income tax increase also has a significant negative effect on investments,

¹² Engen, E., & Skinner, J. (1996). Taxation and economic growth. *National Tax Journal*, 49(4), 617–642.

¹³ Tanzi, V., & Zee, H.H. (1996). Fiscal policy and long-run growth. IMF Working Paper 96/119 (Washington: International Monetary Fund).

¹⁴ Engen, E., & Skinner, J. (1996). Taxation and economic growth. *National Tax Journal*, 49(4), 617–642.

¹⁵ Easterly, W., & Rebelo, S. (1993). Fiscal policy and economic growth: An empirical investigation. *Journal of Monetary Economics*, 32(3), 417–458.

¹⁶ Chamley, C. (1986). Optimal taxation of capital income equilibrium with infinite lives. *Econometrica*, 54(3), 607–622.

¹⁷ Barro, R.J. (1990). Government spending in a simple model of endogenous growth. *Journal of Political Economy*, 98(1), 103–117.

¹⁸ Barro, R.J., & Sala-i-Martin, X. (1995). *Economic growth*. New York, NY: McGraw-Hill.

¹⁹ Mendoza, E., Milesi-Ferretti, G.M., & Asea, P. (1997). On the ineffectiveness of tax policy in altering long-run growth: Harberger's Superneutrality Conjecture. *Journal of Public Economics*, 66, 99–126.

²⁰ Edame, E., & Okoi, W. (2014). The impact of taxation on investment and economic development in Nigeria. *Academic Journal of Interdisciplinary Studies*, 3(4), 209–218.

while the personal income tax has a significant positive effect on investments in Nigeria.

In order to explore how taxes affect economic growth, B. Kalaš and his co-authors²¹ study the impact of the personal income tax, corporate income tax and social security contributions on economic growth in the United States in the period from 1996 to 2016. Their findings prove that the growth of tax revenues and social security contributions has a significant impact on economic growth — in particular, 1% increases in tax revenues and social security contributions lead to increase in the gross domestic product by 0.3% and 2.05% respectively. At the same time, the growth of the corporate income tax has a negative impact on the gross domestic product, but this effect is not statistically significant. The correlation reflects the fact that growth of tax revenues and the corporate income tax are mostly related to gross domestic product.

Thus, the numerous empirical studies aimed to identify links between the level of taxation and the economic growth have not provided definitive evidence on the

existence of such relationship or its character. The ambiguity of research results depends on various factors, such as the choice of the analysed period, macroeconomic instability in the studied country and the level of income inequality²². Most of the scholars identify close relationships between the tax burden and the economic growth and conclude that an increase in the tax burden has a negative impact on the growth rate of the gross domestic product, which is the main indicator of economic growth.

3. Materials and methods

In our study we used the method of dividing tax incentives into two groups, depending on sectoral application strategies (according to the classification by Rodrik²³): vertical and horizontal incentives. Vertical incentives are aimed to support particular industrial sectors and activities, while horizontal interventions are aimed to support certain objectives and indicators of activity (profitability; knowledge, capital and labour intensity; social significance; etc.).

An example of a vertical tax incentive is VAT exemption on imports of

²¹ Kalaš, B., Mirović, V., & Andrašić, J. Estimating the impact of taxes on the economic growth in the United States. *Economic Themes*, 55(4), 481–499.

²² Stepanyan, V. (2003). Reforming Tax Systems: Experience of the Baltics, Russia, and other countries of the former Soviet

Union. *IMF Working Paper* 03/173 (September).

²³ Rodrik, D. (2009). Industrial Policy: Don't ask why, ask how. *Middle East Development Journal*, 1(01), 1–29. [Online]. Retrieved from <https://www.sss.ias.edu> Accessed on: 28.10.2017.

raw materials and components for manufacturing certain medicines for the Russian Federation pharmaceutical industry.

Some examples of horizontal tax incentives: investments tax credits, recognition of R&D expenses with an increased coefficient, etc.

The Russian Federation fiscal system is characterised by the limited use of horizontal tax incentives, which are reclassified as vertical incentives. For example, recognition of R&D expenses with increased coefficient of 1.5 is allowed for certain categories of taxpayers from the list approved by the Government. So, only a limited circle of taxpayers can get financial benefits from real savings on profit tax, which transforms a horizontal tax incentive into a vertical one. Among the R&D tax incentives, there is also exemption of some organizations from value-added tax (VAT). In 2018, 1724 organizations took advantage of this benefit; the amount of the accrued income tax in absence of the exemption would be 6.9 billion roubles, which is 32% more than in 2014.

The Russian Federation practice of tax incentives demonstrates the combined use of vertical and horizontal tax incentives, with the geography of tax incentives limited to a particular territory. Some examples of regional tax incentives: special investment contracts (SPICs), special economic zones

(SEZs), priority social and economic development areas (PSEDAs), and regional investment projects (RIPs). RIP is an investment project aimed at production of goods subject to certain criteria, and there is a strictly limited scope of constituent entities of the Russian Federation where such industrial activity can be carried out. Today in the Russian Federation there are 81 PSEDAs in single-industry towns, 8 PSEDAs in restricted-access territories and 18 other PSEDAs. PSEDAs are most often created to support such industrial sectors as production of machinery and equipment and chemicals and chemical products, as well as manufacturing branches.

Summarizing the experience of providing tax incentives, we can state that the mechanism of general tax incentives that are available for a wide scope of taxpayers is limited and primarily aimed to stimulate capital investments and R&D activities.

4. Results and discussion

Our analysis shows that the RF Government does not overload the tax system with regulatory mechanisms, but, on the contrary, gives preference to strengthening the fiscal significance of taxes. However, the tax burden in the Russian Federation is much lower than in most developed countries, where tax burden levels are at least 33% of GDP. In 2017 the level of industry-average

tax burden in the Russian Federation was 16.69%, but the tax burden in all individual industrial sectors was higher. The sectoral tax burden in process manufacturing amounted to 27.79%, in the sector of electricity, gas and water production and supply — 22.08%, and in mining and quarrying — 51.56%²⁴. The increased tax burden in mining and quarrying can be explained by the natural rent withdrawal into the state budget.

Based on the foregoing analysis, we believe that, in order to create growth poles and centres in regional development, tax incentives should be linked to the performance of industrial development. The performance indicators can be selected from among the lists of performance indicators used in such government programs as "Development of Industry and Increasing its Competitiveness"²⁵, and "Labour

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Productivity Increase and Employment Support"²⁶, as well as indicators used by the Federal State Statistics Service to analyse social and economic performance of industries. The performance can be measured with such indicators as investments in fixed assets at industrial enterprises, innovation activities in industry, and the index of industrial production and import substitution.

1. We assessed the efficiency of investments in fixed assets on the basis of the following indicators: the degree of wear and tear of fixed assets; the share of investments used for reconstruction and modernization in the total value of investments; and the index of physical volume of investments in fixed assets.

Our assessment of these indicator for the period from 2014 to 2018 provided the following results (Fig. 1).

²⁴ Steshenko, Ju.A. (2018). Institucional'nye ogranichenija nalogovogo stimulirovanija, prepjatstvujushhie jekonomicheskomu rostu na sovremennom jetape (Institutional constraints of tax incentives that impede economic growth at the present time). *Finansy i upravlenie*. 2, 27–42. DOI: 10.25136/2409-7802.2018.2.26520. Retrieved from http://e-notabene.ru/flc/article_26520.html

²⁵ Government Program "Development of Industry and Increasing its Competitiveness". Approved by RF Government Decree No. 328 of 15.04.2014. Retrieved from <http://government.ru/docs/11912/>

²⁶ RF Government. Priority Program "Labour Productivity Increase and Employment Support". Retrieved from <http://government.ru/projects/selection/663/>

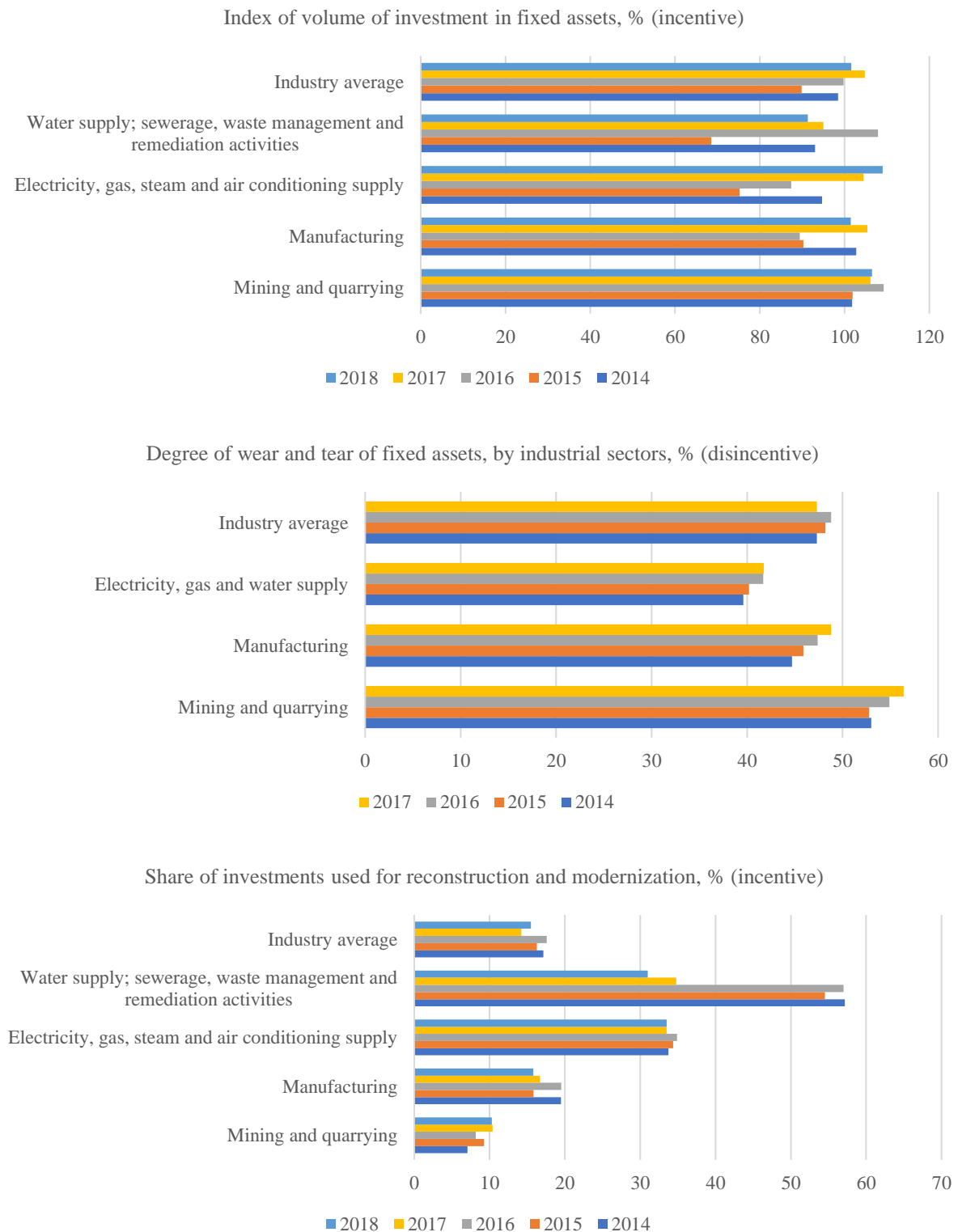


Figure 1. Indicators of efficiency of investments in fixed assets at industrial enterprises²⁷

²⁷ Data for 2019 are not available in official statistics.

Source: calculated by the authors based on the Federal State Statistics Service data accessed on 20.02.2020.

The degree of wear and tear of fixed assets allows assessing the current condition of facilities and equipment, and it can be considered an unstimulating factor (disincentive) — the lower is the value of the indicator, the faster are the fixed assets renewed at enterprises of the industrial sector. Industrial sectors are characterised by high degree of wear and tear of fixed assets. This indicator is higher for mining and quarrying and for process manufacturing, varying in the range from 53.00% to 56.40% and from 44.70% to 48.80% respectively, with the minimum industry average of 47.30%.

The index of physical volume of investments in fixed assets makes it possible to estimate the investments used for construction and reconstruction (including expansion and modernization) of facilities, resulting in an increase in their original value, and for the purchase of machinery, equipment, and vehicles. During the period under review, a positive trend in this indicator was observed at enterprises of the mining and quarrying sector: the growth rate of investments in fixed assets compared to the previous period amounted to 106.11% in

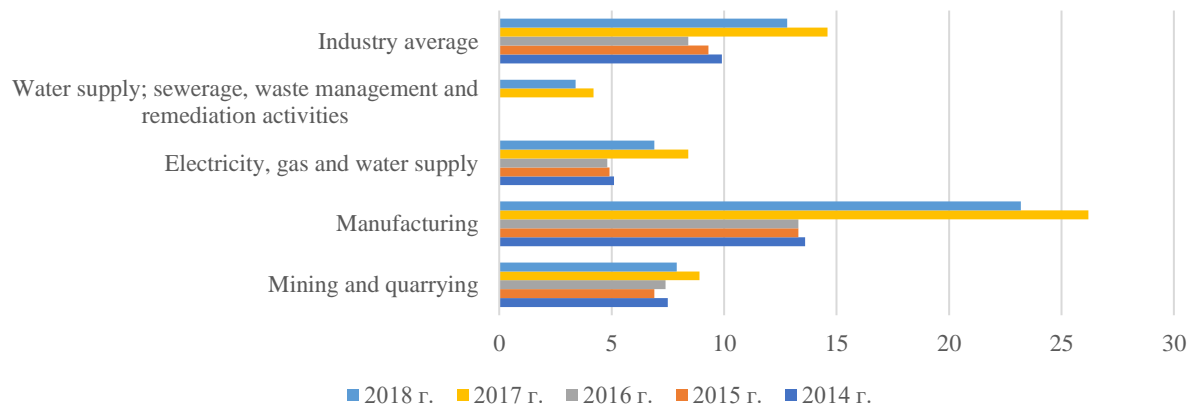
2017 and 106.47% in 2018. The index of physical volume of investments in fixed assets in electricity, gas, steam and air conditioning supply, water supply and other similar segments was below industry average values during the analysed period (except for 2018).

The share of investments used for reconstruction and modernization in the total value of investments reflects changes in the structure of investments in fixed assets, in terms of costs aimed at improving production and increasing its technical and economic indicators. None of the sectors demonstrated stable growth of the indicator during the analysed period. Enterprises of the mining and quarrying sector used less than 11% of the total investment for modernization, which is 1.5 times lower than the industry average.

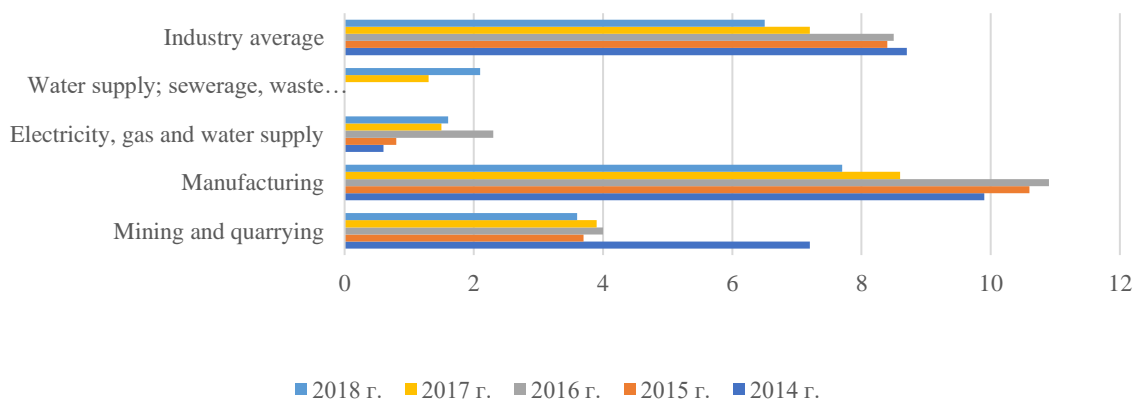
2. We assessed the efficiency of innovation activities in industry on the basis of the following indicators: innovation activity of industrial enterprises; the share of technological innovations in the total volume of goods shipped and works and services performed; internal R&D costs, etc.

Our assessment of these indicators for the period from 2014 to 2018 provided the following results (Fig. 2).

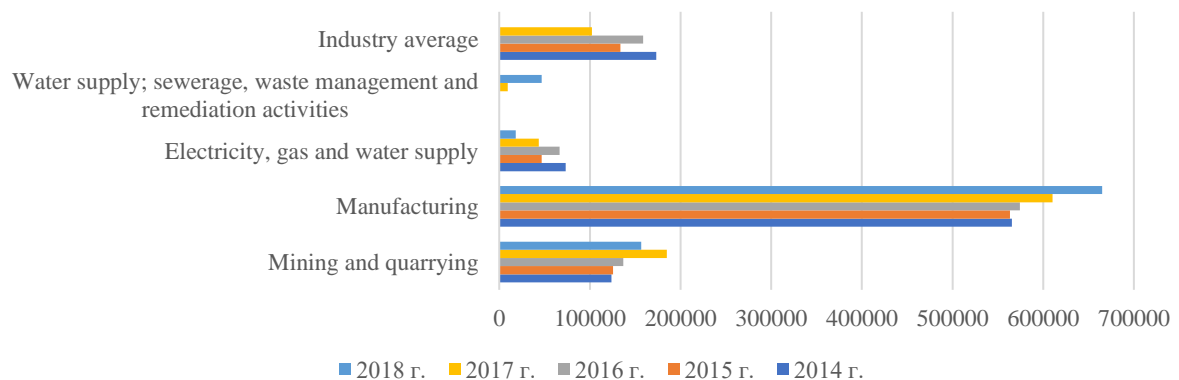
Innovative activity, % (incentive)



Share of innovative goods, works and services in total volume of goods shipped and works and services performed, % (incentive)



Technological innovation costs, million RUB (incentive)



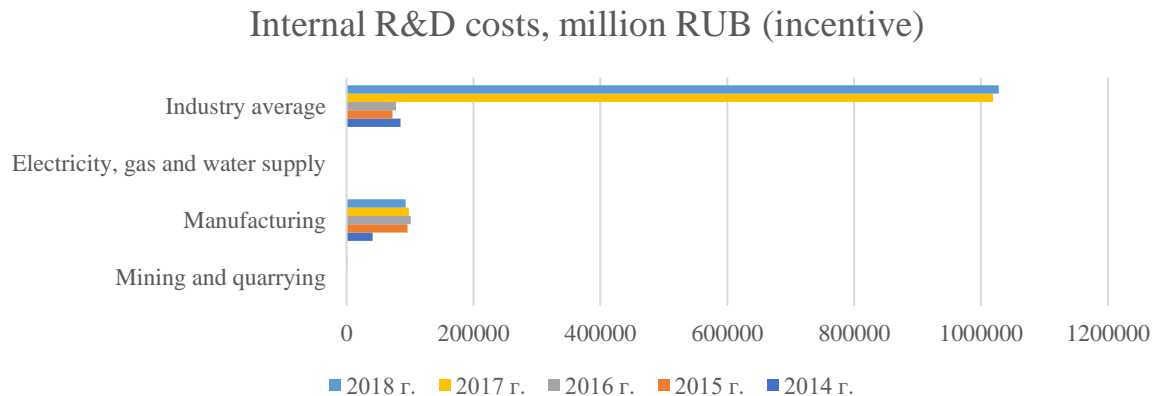


Figure 2. Indicators of effectiveness of tax incentives for innovation activity in industrial production²⁸²⁹³⁰³¹

Source: calculated by the authors based on the Federal State Statistics Service data accessed on 20.02.2020.

The index of innovation activity is calculated as the share of entities engaged in technological, organizational or marketing innovations in the total amount of the examined entities. Considering the industry as a whole, we can conclude that industrial enterprises are not very active in the innovation sphere. Comparing the indicators in the mining and manufacturing sectors, we can see that manufacturing enterprises produce 2 times more innovative goods and services, and also annually increase their costs for technological innovations. The level

of innovation activity in mining and quarrying is 3 times lower than in the manufacturing sector, and is 5 p.p. below the industry average. The share of innovative goods, works and services in the total volume of goods shipped and works and services performed for industry as a whole does not exceed 6.5%. The level of costs for technological innovations in mining and quarrying is more than 4 times lower than in manufacturing, and internal R&D costs are more than 81 times lower. In general, we can acknowledge the low level of innovation activity in industry.

3. We assessed the growth of industrial production and import substitution on the basis of the following indicators: gross

²⁸ Data for 2019 are not available in official statistics.

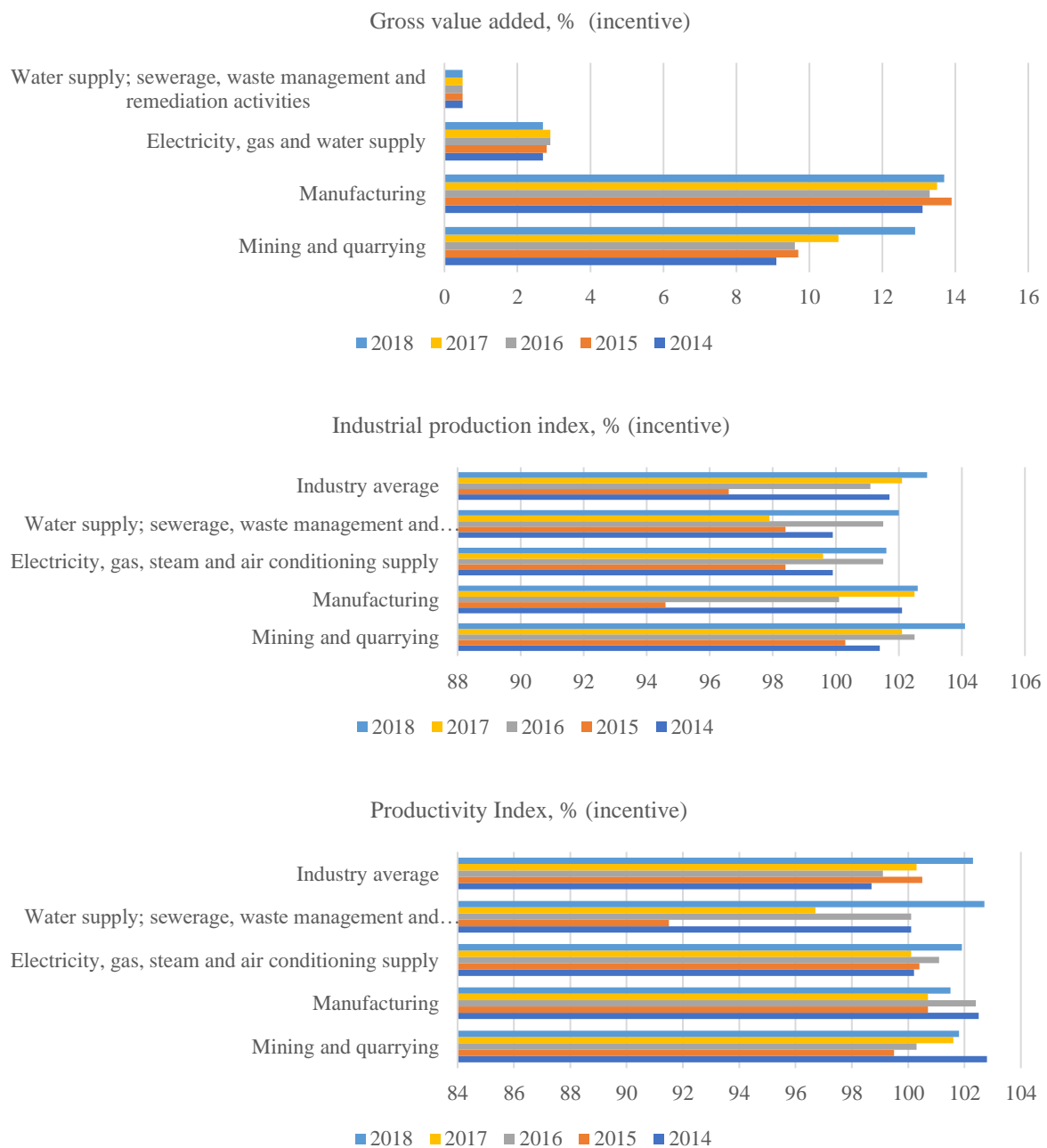
²⁹ The data for 2017 were published for the sector of electricity, gas, steam and air conditioning supply, without data for water supply; sewerage, waste management and remediation activities.

³⁰ The data for 2017 were published for the sector of electricity, gas, steam and air conditioning supply, without data for water supply; sewerage, waste management and remediation activities.

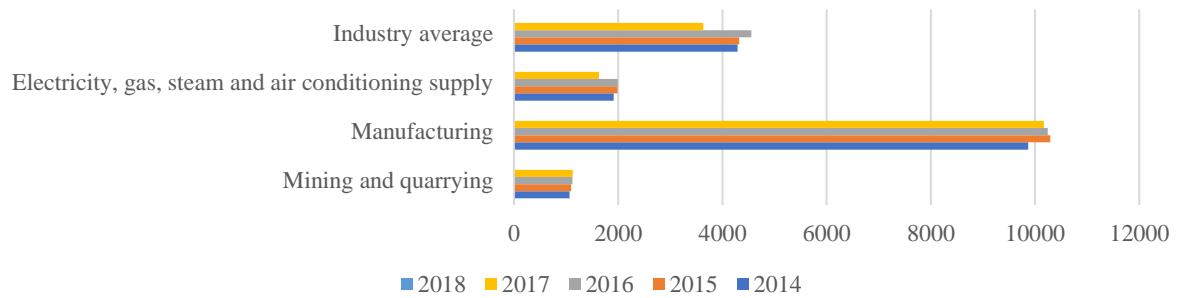
³¹ The data for 2017 were published for the sector of electricity, gas, steam and air conditioning supply, without data for water supply; sewerage, waste management and remediation activities.

value added; industrial production index; labour productivity index; average annual number of employees; monthly average gross payroll; the volume of imports of manufactured goods; profitability of sold

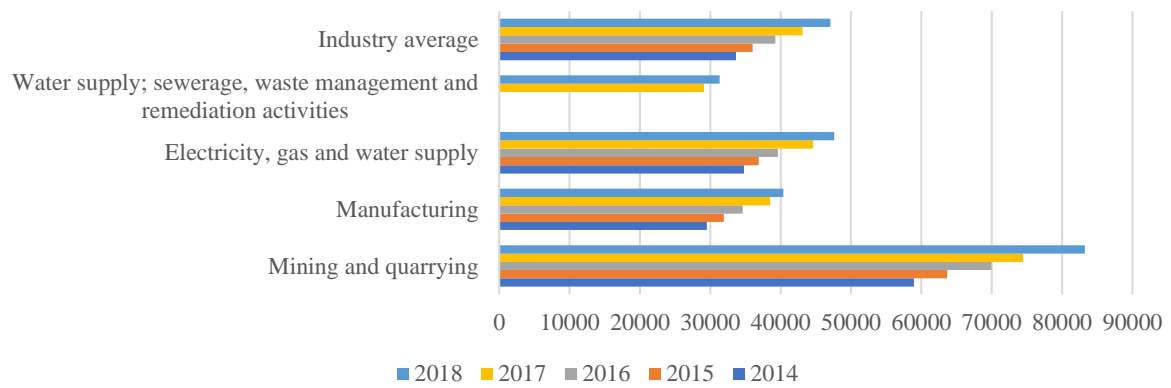
goods and products (works, services); and return on assets. Our assessment of these indicators for the period from 2014 to 2018 provided the following results (Fig. 3).



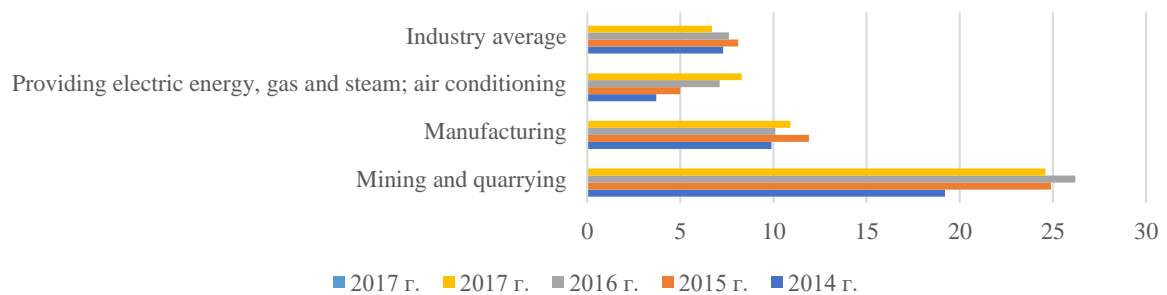
Average annual number of employed, thousands of people (incentive)



Average monthly accrued salary, ruble. (incentive)



Profitability of goods, products (works, services), % (incentive)



Return on assets, % (incentive)

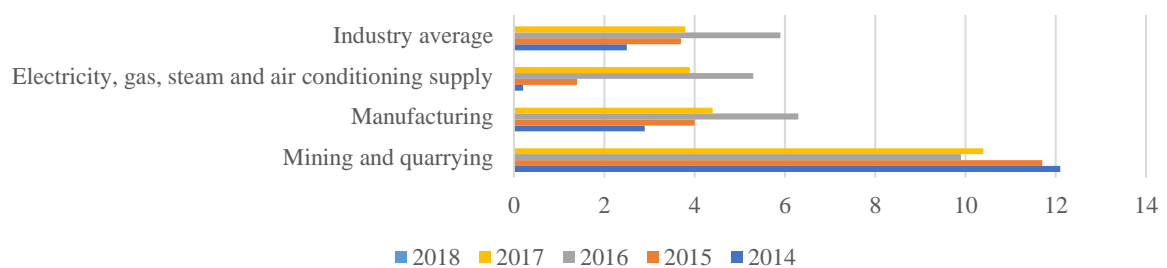




Figure 3. Performance indicators of the growth of industrial production and import substitution ³²

Source: calculated by the authors based on the Federal State Statistics Service data accessed on 20.02.2020.

The gross value added (GVA) characterizes the final result of production activities of resident economic entities and is the measure of the value of goods and services produced by these entities for final consumption. The largest contribution to GVA was made by the sectors of manufacturing and mining and quarrying: the share of each of them was about 12–13%. The labour productivity index during the analysed period did not exceed 2%. The industrial production index, characterizing the change in the scale of production, did not show definite positive trends in any industrial sectors during the analysed period. Growth in

this indicator was recorded in all industrial sectors only in 2018. According to the RF Government Program "Labour Productivity Increase and Employment Support"³³, 5% increase was planned in labour productivity. However, actually it did not exceed 2%. We also observe a decrease in the average annual number of employees, while the monthly average gross payroll was growing. The share of manufactured goods in the total imports during the period invariably exceeded 81%, which impeded the process of import substitution. Profitability indicators, reflecting the economic efficiency of industrial enterprises, had

³² Data for 2019 are not available in official statistics.

³³ RF Government. Priority Program "Labour Productivity Increase and Employment Support". Retrieved from <http://government.ru/projects/selection/663>

the highest values in the sectors of mining and quarrying and in manufacturing. Moreover, the values of these indicators in mining and quarrying were twice as high as those in manufacturing. Despite the established policies of import substitution, manufactured goods still constitute a significant share in total imports, and the volume of their imports is growing every year.

The indicators of socio-economic development of industrial enterprises are low, especially in the sectors of electricity, gas and water production and supply and of water supply, sewerage, waste management and remediation activities. Only such industrial sectors as mining and manufacturing are receptive to tax incentives. Therefore, only those regions where mining and manufacturing are well developed can really benefit from tax reductions.

Based on the foregoing analysis, we believe that, in order to create growth poles and centres in regional development, the choice of areas for tax incentives at the regional level should take into account indicators of efficiency of investments in fixed assets at industrial enterprises,

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innovation activities in industry, and growth of industrial production and import substitution.

5. Conclusion and recommendations

In order to create growth poles and centres in regions, it is necessary to increase efficiency of investments in fixed assets at industrial enterprises through introduction of tax incentives aimed to encourage companies to upgrade fixed assets. Such incentives include, first of all, investment tax deductions (ITDs) provided by the Russian Federation regions through reduction in profit tax. ITD is a reimbursable investment tax credit, which is provided in the form of reduction in the amount of the accrued tax for the amount of capital expenses. If a taxpayer uses its right to an investment deduction, it cannot accrue depreciation for the respective assets in expenses. Such tax incentive gives taxpayers investing in production assets a direct monetary benefit in the form of savings on profit taxes in the amount of up to 4 times the reduction in tax liabilities for profit taxes. The unused ITD amount may be carried forward for future periods.

ITD can become a popular incentive under current conditions, as, stating from 2019, the RF regions have lost the right to establish lower profit tax rates, except for the incentives established for RIP participants and SEZ residents. The incentives that had been established by regional authorities earlier will be valid until 2023. Under these conditions, some regions have to resort to expansion of horizontal incentives that can benefit taxpayers from different sectors. In 2019 10 regions of the Russian Federation (the Amur, Vologda, Kaluga and Sverdlovsk Oblasts, the Jewish Autonomous Oblast, the Republic of Karelia, the Udmurt Republic, the Khanty-Mansiysk and Yamalo-Nenets Autonomous Districts) adopted local laws allowing local taxpayers to use ITDs.

In order to create growth poles and centres of the regional development, it is necessary to support the growth of innovation activities in industrial production through introduction of tax incentives aimed to promote R&D. The main obstacle to R&D development is

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insufficient amount of investments at early project stages, because it is difficult to determine in advance whether the innovation will be commercially successful. As a result, the low level of R&D development inhibits the innovation activity of industrial enterprises. Stimulating innovation activity in industrial sectors can strengthen the process of modernising the Russian economy and, to a large extent, will contribute to economic growth. Therefore, we believe that the potential benefits of existing tax incentives have not been fully realised. It is no coincidence that in the near future it is planned "to grant the right to establish investment tax deductions for R&D expenses to the subjects of the Russian Federation"³⁴.

We believe that another area of stimulating the growth of industrial production and import substitution is the labour productivity improvement. As proved by M. Irlacher и F. Unger, the companies with low labour productivity are relatively more responsive to tax policies than those with high labour

³⁴ RF Ministry of Finance. The Main Directions of the Budget, Tax and Customs Tariff Policy for 2020 and the Planned Period of 2021 and 2022. Retrieved from https://www.minfin.ru/ru/document/?id_4=1283

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productivity³⁵. One of the measures to encourage enterprises to increase productivity should be promotion of creating high-performance jobs through the tax burden reduction. Serious foundations for increasing labour productivity in industrial production can be laid by such tax incentive as a special investment contract (SPIC). Development of SPICs with the corresponding tax incentives will promote convergence of labour productivity. For the purposes of this study, the convergence of labour productivity is understood as an outperforming growth rate of the indicator in developing economic subjects as compared with the developed ones. The studies on this issue unequivocally come to the conclusion that there is no labour convergence in the Russian economy (with the exception of agriculture with its significant funding)³⁶. A significant role in "launching" the convergence process is provided by the technological development of production and the

growth of energy availability, which can be achieved through SPIC mechanisms³⁷.

Stimulation of the human capital development should be the key area for tax incentives in industry, which would allow increasing labour productivity and create conditions for growth poles and centres in the regional development. The tax incentives aimed to support collaboration between the higher education institutions and government-funded and private companies and to involve education institutions into R&D activities for industrial production will definitely promote the development of human capital. Application of tax incentives in the sphere of education can complement the existing system of governmental financial support for industry.

All the above-described tax incentives are horizontal incentives, therefore they can be successfully integrated into the development strategy of any region, regardless of the structure of prevailing industries. The fiscal

³⁵ Irlacher, M., & Unger, F. (2018). Effective tax rates, endogenous mark-ups and heterogeneous firms. *Economics Letters*, 173, 51–54. DOI: <https://doi.org/10.5282/ubm/epub.49717>

³⁶ Tikhonova, A.V. (2019). *Primenenie special'nogo investicionnogo kontrakta v usloviyah realizacii politiki importozameshhenija* (The use of special investment contracts during

implementation of the policy of import substitution). *Jekonomika. Nalogi. Pravo*, 12(6).

³⁷ Tikhonova, A.V. (2019). *Primenenie special'nogo investicionnogo kontrakta v usloviyah realizacii politiki importozameshhenija* (The use of special investment contracts during implementation of the policy of import substitution). *Jekonomika. Nalogi. Pravo*, 12(6).

stimulus in the Russian Federation regions can create conditions for acceleration of the economic growth, if tax incentives are provided with consideration to the level of receptiveness of a particular sector of economy to preferential tax regimes resulting in the tax burden reduction.

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