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Economic impact of the change in tax rate on small enterprises of manufacturing and construction sectors: Evidence from Russia 2006-2014

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Abstract: The hypothesis about positive influence of lower tax rate was tested on the Russian small businesses of construction and manufacturing sectors. The period from 2006 to 2014 includes the three-year gap, during which the net income tax rate was the same for all Russian regions, and the six-year interval of regionally differentiated tax rates. Quantitative estimates of the consequences of tax change without time lag, with time lags 1 and 2 year were made on the basis of double logarithmic regressions with fixed effects. Positive effect of lower tax rate was documented. The number of enterprises was the indicator, which was influenced most. A regional tax rate decrease by 1 per cent results in an increase of the number of small enterprises by 0.1-0.2%. This effect becomes evident in the first year of regional tax rate change and remains on the same level during the following two years. 1% decrease in tax rate led to 0.1% increase in the turnover of the company. Tax stimulus led to an increase of employment in manufacturing industry (the coefficient of elasticity is 0.1), while the impact on employment in construction sector was not identified. There is a potential for expanding tax revenues to the Russian budget system by increasing the taxation base with the help of the positive effect from tax rate reduction.

JEL Classifications: H25, G38

Keywords: Small business, entrepreneurship, tax rate, construction, manufacturing, fiscal stimulus, fixed effects model, the simplified system of taxation, the object of "net income", employment, revenue, turnover
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1. Introduction

State tax policy not only performs the fiscal function of raising budget funds but also acts as a tool for stimulating economic activity. By differentiating the tax base and/or tax rate, the authorities influence the net rate of return and relative attractiveness of certain business activities. These effects explain the right part of the famous Laffer curve, when the amount of tax revenue increases in response to tax rate reduction.

However, in reality the state is unwilling to provide tax exemptions, claiming such exemptions have no guaranteed positive economic consequences. The experience of different countries that changed their tax rates is rather contradictory. The main measurement difficulty is caused by the fact that the results of enterprise activities are influenced by multiple factors, making it difficult to distinguish the effect caused specifically by taxation changes (Tatarkin, Maksimov, & Maksimov, 2015).

Besides, proving or disproving the interrelation between tax conditions and business activity for a certain amount of observational data does not mean these results can be applied universally. High levels of industrial, territorial and temporal specificity between tax relations limit the opportunities even for a comparative analysis of the same taxes in different business activities, countries and time periods.

A correct comparative analysis of economic consequences of fiscal changes requires inclusion of other business activities' conditions, which is hardly possible in practice. However, this unique situation occurred in the Russian Federation in 2009. Since January 1, 2009, as a part of the state anti-crisis measures, federal authorities delegated to regional ones the right to establish the tax rate for taxpayers adopting a simplified taxation system and choosing the difference between income and expenses (net income) as the taxation object. The Russian Tax Code regulates only minimal (5%) and maximal (15%) tax rates, while until 2008 the common tax rate of 15% was applied on the national level.

56 of 83 Federation subjects adopted regional laws estimating tax rate depending on taxpayers' activities. In most cases the tax rate has been reduced for entrepreneurs working in manufacturing and construction industries. The tax rate for payers performing these activities remained on its maximum level only in 15 and 28 regions, respectively. The comparison of economic activity of these entrepreneurs before and after the tax rate change, including comparison between regions with different tax rates, may estimate the efficiency of decisions made by regional authorities.

Thus, the aim of this research is to provide the quantitative measurement of tax rate impact on taxpayers' business activities. The structure of this article is determined by the logic of conducted study. The first part analyzes scientific approaches to estimating causal relations between separate taxation aspects (the reason) and economic activity results (the cause). The second part describes the research methods and information base. The results of calculations and their interpretation are provided in the third part of this article. The final part stipulates conclusions and recommendations.

2. Taxation impact on economic activity: multiplicity of estimations and approaches

Scientific literature shows several directions to studying the impact of tax regulation measures on macroeconomic processes management. The first direction involves the theoretical analysis of macroeconomic models of general balance, where taxes influence business activities by offering production factors, predominantly labor and capital. For instance, Solow (1956) concluded that taxes reduce economic growth measured by gross domestic product growth to the extent not limited by tax rate changes only. According to several scientists (Lucas, 1990) (Romer, 1990) (Mankiw, Romer, & Weil, 1992), taxes negatively affect human capital and innovations, thus restraining the output volume.

The second direction studies the economic role of taxation in relation to institutional factors of business development (Acemoglu & Robinson, 2010) (Brons-Petersen, 2017). From this point of view, the response of economic agents to taxation impact depends not only on the amount of tax burden but, more significantly, on complementarity with processes of economic growth of other social elements (legislation, judicial system, pricing mechanism, etc.). As an empirical proof they mention the fact that developed countries have higher tax burden compared to developing ones.

The third group includes a large number of works analyzing economic effects caused both by taxation and by consequent allocation of budget funds for covering state expenses. To a certain degree this scientific approach may be viewed as the follow-up of the institutional approach; however, its main distinctive feature is the predominantly quantitative analysis attributes. In particular, Bassini & Scarpetta (2001), basing on data from OECD countries, have proved that the positive effect from state expenses does not fully compensate the negative impact of taxation on economic growth. The estimation made by Bergh & Henrekson (2011) indicates that the increase of state budget by 10% (in case of simultaneous increase of tax payments and state expenses) leads to an economic growth reduction by 0.5-1% in average. According to Li & Sarte (2004), the state reallocation of income through taxation deforms the national economy structure; this process can be described by the power function, which argument is the square tax rate. However, further research performed by Barro (2015) demonstrated statistical insignificance of state budget formation and spending for economic growth.

The econometric modeling-based empirical estimation of interrelation between specific taxation parameters (rate, object, amount, tax burden amount, etc.) and economic conditions outlines the fourth direction of studying interactions between tax burden and economic development (Sinenko, 2016). Dackehag & Hansson (2012) analyzed data from 25 richest OECD countries for the period of 1975-2010 and got consistent and statistically significant negative coefficients of tax rate indicators in regressions where dependent variables characterized economic growth rate. Similar results were obtained by Gemmel, Kneller, & Sanz (2013), Thomakos & Vasilopoulou (2017), Tsenes & Thomakos (2017). Besides, researchers estimated the negative elasticity between the amount of corporate taxes and tax base related to them (de Mooij & Ederveen, 2008). Depending on causal relations type (e.g. by choosing organizational form of business activity or correlation between debt and share funding), a tax rate increase by 1% resulted in a tax base decrease by 0.15-1.2%.

Meanwhile, several empirical studies demonstrate that taxation reduction does not always have a positive effect on economic growth. The research performed by Redonda & Galletta (2017) analyzed consequences of the switch to flat tax rate scheme on profits in certain Swiss cantons since 1990. In other cantons, the tax rate remained graduated during the analyzed period and had similar or higher values for any sizes of taxed objects. Comparing cantons with different tax rates, the authors conclude that the tax rate reduction had a negative and statistically significant impact on the economic activity level (Redonda & Galletta, 2017).

The analysis of dynamics of employment, savings, investments and economic growth indicators in the USA for the last 50 years did not distinguish any response of business to tax rate reductions (Gravelle & Marples, 2014). The lack of significant stimulating effect of corporate tax reduction on income is also demonstrated by Riedl & Rocha-Akis (2012). Having analyzed data from 17 OECD countries for the period of 1982-2005, they concluded that the reduction of tax rates caused decline of tax revenue, thus proving the absence of economic activity growth resulting from these changes. Several authors (Gravelle & Hungerford, 2007) could not find any relation between tax rates and tax revenues. Contradictory results of the tax rate and tax income analysis of 20 OECD countries for the period of 1986-2004 were obtained by Devereux (2007).

Quantitative analysis has been rarely used for studying relations between taxation and business development in Russia. Tatarkin, Maksimov, & Maksimov (2015) outline

inefficiency of tax privileges provided to companies in the Perm Krai. This estimation can be reasoned by a relatively weak (e.g. compared to the US) impact of taxation on output volume in Russia. On the other hand, the regressive analysis performed by Andreev, Isaeva, & Krylov (2016) demonstrated the negative elasticity coefficients of tax revenue by tax rate. According to their calculations, a reduction of tax rates by 1% causes an increase of tax payments by 0.1-0.15%. Thus, theoretical and empirical estimations of taxation contribution to economic growth dynamics in Russia and other countries show varying results, and methods for studying this problem include multiple tools.

3. Research methods and information base

The Russian Federal State Statistics Service data related to small businesses activities in Russian regions in 2006-2014 have been used for fulfilling the research aim. The horizon period includes the three-year gap, during which the net income tax rate was the same for all Russian regions, and the six-year interval of regionally differentiated tax rates. Due to the fact that studying the efficiency of tax incentives for Russian small businesses did not lead to certain conclusions (Tumanyants, 2015), (Tumanyants & Soboleva, 2014) this research studies the development of small businesses in two industries only - manufacturing and construction. As was stated above, these industries were the ones most significantly influenced by net income tax rate reduction, thus enabling to expect clearly visible effects.

For analyzing the impact of taxation on business development, we have used indicators of the number of small construction and manufacturing enterprises in the region (hereinafter - *NumEntDEV* and *NumEntIND* respectively), and the said number calculated as per capita (*EntDEVperCap* and *EntINDperCap* respectively). This indicator has also been used for measuring tax incentives efficiency (Fajnzylber, Maloney, & Montes-Rojas, 2011).

EXPLANATION OF THE VARIABLES

VARIABLES	DECRYPTION
NumEntDEV	Number of small construction enterprises in the region
NumEntIND	Number of small manufacturing enterprises in the region
EntDEVperCap	Number of small construction enterprises in the region per capita
EntINDperCap	Number of small manufacturing enterprises in the region per capita
EmpSbDEV	Number of employed personnel in small construction enterprises
EmpSbIND	Number of employed personnel in small manufacturing enterprises
TurnSbDEV	Turnover of small construction enterprises
TurnSbIND	Turnover of small manufacturing enterprises
EmpSbDEVinLabFor	Share of employed personnel of small construction enterprises in the total number of economically active regional residents
EmpSbINDinLabFor	Share of employed personnel of small manufacturing enterprises in the total number of economically active regional residents
EmpSbDEVinAll	Share of employed personnel of small construction enterprises in the total regional population
EmpSbINDinAll	Share of employed personnel of small manufacturing enterprises in the total regional population
TurnSbDEVinALL	Share of small construction in the total turnover of all regional construction enterprises
TurnSbINDinALL	Share of small manufacturing in the total turnover of all regional construction enterprises

EXPLANATION OF THE VARIABLES

VARIABLES	DECRYPTION
GRPperCap	Gross regional product per capita
GRP	Gross regional product
DEVinGRP	Share of construction enterprises in gross regional product
INDinGRP	Share of manufacturing enterprises in gross regional product
TaxrateDEV	Regional net income tax rate for construction enterprises
TaxrateIND	Regional net income tax rate for manufacturing enterprises

Besides, in many publications, the level of business activity has been measured by the number of employed personnel and the turnover volume (Tatarkin, Maksimov, & Maksimov, 2015), (Redonda & Galletta, 2017), (Fajnzylber, Maloney, & Montes-Rojas, 2011), (Bondonio & Greenbaum, 2007). In order to exclude the impact of general economic and industrial factors on the indicators' dynamics and to provide a precise estimation of regional tax rate reduction effects, apart from the number of employed personnel in small construction and manufacturing enterprises (*EmpSbDEV* and *EmpSbIND* respectively) and the turnover of said groups of enterprises (*TurnSbDEV* and *TurnSbIND* respectively), the indicators demonstrating the share of employed personnel of respective groups of enterprises in the total number of economically active regional residents (*EmpSbDEVinLabFor* and *EmpSbINDinLabFor*) and in the total regional population (*EmpSbDEVinAll* and *EmpSbINDinAll*) have been used. For the same purpose the indicator demonstrating the share of small construction and manufacturing enterprises turnover in the total turnover of all regional construction and manufacturing enterprises (*TurnSbDEVinALL* and *TurnSbINDinALL* respectively). Tables 1 and 2 (see the Appendix) provide the descriptive statistics of these indicators.

For the control variables, according to the IMF survey methods (IMF, 2016), the indicators of gross regional product per capita (*GRPperCap*), gross regional product (GRP) and relative share of manufacturing and construction enterprises in it (*INDinGRP* и *DEVinGRP*) have been applied. The descriptive statistical data for these indicators and the size of regional net income tax rate for construction and manufacturing enterprises (*TaxrateDEV* and *TaxrateIND* respectively) are provided in Table 3 (Appendix). Besides, the indicators of the number of enterprises, the number of employed personnel and the volume of their regional turnover are mutually dependent enabling to use two of these indicators as control variables for the third one. The existing set of panel data makes it possible to apply econometric modeling for estimating the impact of tax rate on activities of small enterprises. The general view of this model can be represented by the following regression equation (Tumanyants & Sinitsyna, 2017):

$$Y_j = \beta_0 + \beta_1 Taxrate_j + \sum_{i=2}^{k} \beta_i X_{ij} + \varepsilon_j , \qquad (1)$$

Where, Y_j - value of one of enterprises' activities indicators from Table 1 or 2 (Appendix) in *j* region; $Taxrate_j$ - value of tax rate for respective activity type in *j* region; X_{ij} - value of I control value in *j* region; β_i - regression coefficients; ε_j - regression residuals.

Most studies analyzing the impact of taxation on economic indicators apply the ordinary least squares method (OLS) (Devereux, 2007), (Tsenes & Thomakos, 2017) and, in case of international or interregional observations, the model of fixed effects (Riedl & Rocha-Akis, 2012), (Gravelle & Hungerford, 2007), (Thomakos & Vasilopoulou, 2017), (Slemrod & Kawano, 2016). Consequently, during the first stage each specification of equation [1] was estimated by ordinary least squares method and the model of fixed effects. Due to the fact that certain researchers (Riedl & Rocha-Akis, 2012), (Devereux, 2007) included variables logarithms in the model, initially, for each dependent variable, four variants of equation forms were made: linear, logarithmic, linear-logarithmic and double logarithmic.

Thus, the second stage required the choice of the most adequate model among 8 specifications for each of 7 indicators of small businesses activities in construction and manufacturing industries. The linear constraints test demonstrated the inconsistency of coefficient estimations in equations applying the ordinary least squares method. During the final stage, the comparison based on Akaike and Schwarz information criteria demonstrated a higher modeling accuracy level of double logarithmic equations. As a result, the analysis has been performed according to the following equation, which coefficients have been estimated taking into account the presence of fixed effects:

$$\ln Y_j = \beta_0 + \beta_1 \ln Taxrate_j + \sum_{i=2}^{k} \beta_i \ln X_{ij} + \varepsilon_j \qquad (2)$$

The tax impetus to business activity is inertial. It is mediated by management decisions on making new businesses or legalizing existing ones, changing output volumes or employment level and setting proportions between shadow and visible parts of business activity. The time interval between the state adoption of taxation changes and implementation of entrepreneurial plans may be represented in the model by the lagging of dependent and independent variables' values. Certain studies (Thomakos & Vasilopoulou, 2017) introduced a three-year time lag to their model specification. Meanwhile, small enterprises have higher flexibility compared to other economic subjects. The relatively small scope of their businesses enables them to provide a quicker response to external changes. Thus, our research estimated regressions with zero time lag, and 1- and 2-year lags.

4. Modeling results and interpretation

From the viewpoint of the research aim, the most notable estimations are β_1 coefficients in regression [2]. The calculations indicate a statistically significant negative relation between the tax rate and the number of small enterprises in the industry (Table 4A-4C and Table 5A-5C, see the Appendix). A regional tax rate decrease by 1 per cent results in an increase of the number of small enterprises in this industry by 0.11-0.14%. The coefficient values coincide in functional dependencies for the number of enterprises in absolute terms in the region and in calculation per thousand residents in the Federal subject. This effect becomes evident in the first year of regional tax rate change and remains on the same level during the following two years. A slight reduction of tax incentives impact during the third year is demonstrated by a decrease of coefficient estimation level of significance from 1% to 5% level.

The impact of regional tax rate on employment and output volume of small manufacturing businesses in less evident. We have found no statistically significant response from the business for the first year of taxation change. During the following year, Russian Federal subjects that reduced their tax burden demonstrated higher dynamics of turnover and the number of employed personnel in small manufacturing enterprises. In average, a tax rate reduction by 1 per cent stimulates a turnover increase by 0.13% and an increase in the number of employed personnel in absolute terms by 0.07%. The synchronicity of these effects proves the adequacy of modeling results. In this aspect, the preservation of positive impetus from tax reduction during the third year, as well as the surpassing dynamics of activities indicators of taxpayers with reduced rate compared to other regional economic subjects, can be considered to be less reliable.

The output volumes of small manufacturing enterprises continue to be positively influenced by lowered tax rate even during the third year, although this influence becomes a third less effective. However, this is not verified by a statistically significant employment increase. The increase of employment in small manufacturing enterprises as a response to a tax rate reduction has been estimated in absolute and relative terms. In Russian subjects that reduced their tax burden, the relative share of personnel employed by entrepreneurs with tax privileges in the total number of economically active population and the number of people employed in all regional manufacturing enterprises is 0.06% higher as calculated per 1 per cent of difference in tax rates. But this has no effect on the share of enterprises with reduced tax rate in the total turnover of regional manufacturing companies.

The number of small business subjects in construction industry is also elastic in relation to regional tax rates (Table 6A-6C and Table 7A-7C, see the Appendix). A tax rate reduction by one per cent causes an average increase of the number of small construction enterprises by 0.17%. During the second and third years the effect is reduced to 0.1% but still remains statistically significant. We have established no impact of tax rate on employment in construction industry. The equation coefficient for the share of employed personnel in small construction enterprises in the number of regional economically active population is statistically significant, but positive, thus assuming the growth of this share in case of a tax rate increase. The interpretation of this phenomenon requires a special study.

However, the tax burden reduction leads to a construction volume increase in small business segment. A reduction of tax rate by one per cent causes an increase of companies' turnover by 0.09% in the first and the following year. Although the coefficient remains negative in the equation with the 2-year gap, it loses its statistical significance. It must be noted that the positive effect of turnover growth in the year of tax reduction is supported by the growth of relative share of small businesses turnover in the total value of all regional construction enterprises. In Russian subjects, this indicator increases by 0.06% as calculated per each percent of tax rate reduction. However, the positive impact is limited only by the first year of reduced tax rate application.

5. Conclusions

The results of this research provide evidence of the positive impact on reduced tax rate on development of small businesses in Russia, but this dependency has its industrial specifics, is differentiated by its period of activity and type of consequences (employment and/or output volume). The universal aspect is the impact of tax rate on demography of small

business subjects. It is observed in manufacturing and construction industries in all three analyzed time periods. In this part our estimations are similar to the IMF survey results (IMF, 2016). However, this strong and sustainable effect can be partially explained by artificial fractioning of business for conformity with employment (no more than 100 people), annual turnover (no more than 60 million rubles) and assets volume (no more than 100 million rubles) criteria, giving the right to apply a simplified taxation system and, consequently, privileged tax rates.

In comparison to construction, manufacturing industry reacts to tax incentives with a one-year delay, but more actively. The value of β_1 coefficient (modular) in regression for manufacturing industry turnover is almost 1.5 times bigger than the same coefficient for construction companies. Besides, the improvement of turnover dynamics for small manufacturing enterprises is supported by employment growth; this does not happen in construction industry. But in general, the results prove the efficiency of privileges provided within the simplified taxation system (Andreev, Isaeva, & Krylov, 2016).

The application of tax tools by the state for supporting small businesses, according to our research, seems justified but is unable to provide a huge and rapid response. The estimation of Russian small business elasticity indicators does not exceed 0.2% in response to a 1% change of tax rate, thus corresponding to calculations performed by other researchers (Andreev, Isaeva, & Krylov, 2016). Meanwhile, the scope of this study does not cover the impact of tax rate on other business activity indicators, for example, on investments volume and dynamics, wage volume, pre-taxation income amount.

The inclusion of the abovementioned aspects of economic activity in dependent variables for conducting further survey would enable to achieve a more precise analysis of impact of tax incentives on small businesses development. Apart from manufacturing and construction industries, significant tax privileges are provided to Russian innovation and agriculture industries. It seems reasonable to measure the effects of reduced tax burden on these sectors of Russian economy. By the end of 2018, when results of 10 years of observations on small businesses in regions with reduced tax rates, it makes sense to perform similar analysis increasing the time lag to 5 years.

However, the results of this econometric modeling enable to conclude that current Russian taxation rates for small business subjects in the real sector of economy exceed the optimum level. High fiscal burden is one of the obstacles for output volume growth, at least for small enterprises. There is a potential for expanding tax revenues to the national budget system by increasing the taxation base with the help of the positive effect from tax rate reduction. Thus, the reduction of tax payments caused by privileged tax rates on the two-year horizon can be partially compensated by economic activity growth.

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Appendix

TABLE 1. DESCRIPTIVE STATISTICS OF CONSTRUCTION ENTERPRISES

VARIABLE	MEAN	MEDIAN	MINIMUM	MAXIMUM	STD. DEV.
NUMENTDEV	2.29	1.39	0.03	24.43	3.14
ENTDEVPERCAP	1.25	1.14	0.04	4.70	0.67
EMPSBDEV	17.82	10.57	0.10	276.20	28.06
EMPSBDEVINLABFOR	1.72	1.59	0.17	15.92	0.89
EMPSBDEVINALL	26.74	25.72	2.63	415.66	17.10
TURNSBDEV	23.92	11.97	0.10	491.82	44.79
TURNSBDEVINALL	48.63	49.25	1.03	100.00	17.75

Source: Own calculations based on the data from the Russian Federal State Statistics Service.

TABLE 2. DESCRIPTIVE STATISTICS OF MANUFACTURING ENTERPRISES

VARIABLE	MEAN	MEDIAN	MINIMUM	MAXIMUM	STD. DEV.
NUMENTIND	1.98	1.22	0.00	20.38	2.69
ENTINDPERCAP	1.04	0.95	0.03	4.54	0.55
EMPSBIND	19.34	13.30	0.00	314.00	26.53
EMPSBINDINLABFOR	1.95	1.88	0.00	11.72	1.13
EMPSBINDINALL	15.71	14.29	0.00	95.85	7.77
TURNSBIND	22.23	11.70	0.00	290.70	34.23
TURNSBINDINALL	16.99	12.47	0.00	100.00	16.44

Source: Own calculations based on the data from the Russian Federal State Statistics Service.

TABLE 3. DESCRIPTIVE STATISTICS OF TAX RATES AND CONTROL VARIABLES

VARIABLE	MEAN	MEDIAN	MINIMUM	MAXIMUM	STD. DEV.
GRP	485.39	231.29	9.03	12780.00	1070.30
GRPPERCAP	291.89	184.87	21.92	4329.00	437.99
INDINGRP	17.52	17.50	0.20	55.60	10.65
DEVINGRP	8.01	7.10	1.90	31.50	3.80
TAXRATEIND	11.63	15.00	5.00	15.00	4.07
TAXRATEDEV	12.31	15.00	5.00	15.00	3.82

Source: Own calculations based on the data from the Russian Federal State Statistics Service.

TABLE 4A. MODEL FOR THE SMALL MANUFACTURING ENTERPRISES RESULTS (LAG 0)

LOGARITHM OF THE VARIABLES	*NUMENTIND*	*ENTINDPERCAP*	*EMPSBIND*	*EMPSBINDINLABFOR*
TAXRATEIND	-0.14***(0.05)	-0.14***(0.05)	-0.01(0.01)	0.04 (0.05)
GRP	0.76***(0.20)	0,65***(0.17)	-0.01(0.02)	-0.81***(0.13)
GRPPERCAP	-0.26*(0.15)	-0.13(0.13)	-0.01(0.02)	0.31**(0.13)
INDINGRP	0.08 (0.07)	0.09(0.07)	0.01(0.01)	0.01(0.08)
EMPSBIND	-0.05 (0.43)	-0.29(0.43)	-	-
EMPSBINDINLABFOR	0.43(0.40)	0.68*(0.41)	0.99***(0.01)	-
EMPIND	-0.04 (0.14)	-0.07(0.13)	-	-
TURNSBIND	-0.11 (0.21)	-0.13(0.21)	0.01**(0.01)	-0.11 (0.16)
TURNIND	0.13 (0.20)	0.14(0.20)	-0.01(0.01)	0.44***(0.17)
TURNSBINDINALL	0.19 (0.24)	0.22(0.24)	0.01(0.01)	0.56***(0.21)
NUMENTIND	-	-	1.01***(0.17)	-0.23(0.81)
ENTINDPERCAP	-	-	-1.01***(0.17)	0.63(0.81)
CONST	-3.28***(1.10)	-3.02***(1.11)	1.67***(0.07)	0.27(1.22)
LSDV R-SQUARED	0.97	0.86	0.99	0,88
OBSERVATIONS	727	727	727	727

Source: Own elaboration, with data from the Russian Federal State Statistics Service.
Note: Standard errors in parentheses. * - p<0.05, ** - p<0.01, ***- p<0.001

TABLE 4B. MODEL FOR THE SMALL MANUFACTURING ENTERPRISES RESULTS (LAG 1)

LOGARITHM OF THE VARIABLES	*NUMENTIND*	*ENTINDPERCAP*	*EMPSBIND*	*EMPSBINDINLABFOR*
TAXRATEIND	-0.11***(0.04)	-0.11***(0.04)	-0.07**(0.03)	-0.06*(0.03)
GRP	1.04***(0.14)	0.95***(0.14)	-0.43**(0.20)	-0.44**(0.18)
GRPPERCAP	-0.44***(0.13)	-0.33**(0.13)	0.29(0.19)	0.26(0.18)
INDINGRP	0.13*(0.08)	0.13*(0.08)	0.09(0.09)	0.08(0.09)
EMPSBIND	0.30(0.56)	0.10(0.57)	-	-
EMPSBINDINLABFOR	0.03(0.56)	0.23(0.57)	0.07(0.10)	-
EMPIND	-0.33**(0.13)	-0.36***(0.13)	-	-
TURNSBIND	0.03(0.15)	0.01(0.15)	-0.26*(0.13)	-0.24*(0.14)
TURNIND	-0.19(0.16)	-0.18(0.16)	0.39**(0.17)	0.39**(0.16)
TURNSBINDINALL	-0.08(0.17)	-0.05(0.17)	0.54**(0.22)	0.53**(0.21)
NUMENTIND	-	-	-0.14(1.02)	-1.27(1.00)
ENTINDPERCAP	-	-	0.11(1.03)	1.26(1.04)
CONST	-1.67(1.21)	-1.49(1.23)	0.82(1.14)	-0.61(1.21)
LSDV R-SQUARED	0.97	0.86	0.96	0.85
OBSERVATIONS	647	647	646	646

Source: Own elaboration, with data from the Russian Federal State Statistics Service. Note: Standard errors in parentheses. * - p<0.05, ** - p<0.01, ***- p<0.001

TABLE 4C. MODEL FOR THE SMALL MANUFACTURING ENTERPRISES RESULTS (LAG 2)

LOGARITHM OF THE VARIABLES	*NUMENTIND*	*ENTINDPERCAP*	*EMPSBIND*	*EMPSBINDINLABFOR*
TAXRATEIND	-0.12**(0.05)	-0,12**(0,05)	-0.06(0.04)	-0.06(0.04)
GRP	0.62***(0.22)	0.56**(0.23)	-0.04(0.15)	0.01(0.17)
GRPPERCAP	-0.24(0.23)	-0.16(0.25)	-0.13(0.13)	-0.16(0.14)
INDINGRP	0.09(0.07)	0.10(0.07)	-0.12(0.09)	-0.12(0.09)
EMPSBIND	0.12(1.06)	-0.03(1.07)	-	-
EMPSBINDINLABFOR	-0.18(1.03)	-0.02(1.05)	-0.01(0.05)	-
EMPIND	-0.38**(0.17)	-0.42**(0.18)	-	-
TURNSBIND	-0.02(0.09)	-0.09(0.07)	-0.07(0.09)	-0.07(0.09)
TURNIND	-0.07(0.08)	-0.02(0.08)	0.22*(0.12)	0.21**(0.10)
TURNSBINDINALL	0.14(0.10)	0.16*(0.10)	0.24*(0.14)	0.23*(0.12)
NUMENTIND	-	-	-1.20(1.13)	-2.19*(1.21)
ENTINDPERCAP	-	-	1.12(1.16)	2.12*(1.25)
CONST	-0.47(1.74)	-0.36(1.77)	2.69***(0.86)	0.95(0.89)
LSDV R-SQUARED	0.97	0.85	0.96	0.86
OBSERVATIONS	566	566	565	566

Source: Own elaboration, with data from the Russian Federal State Statistics Service.
Note: Standard errors in parentheses. * - p<0.05, ** - p<0.01, ***- p<0.001

TABLE 5A. MODEL FOR THE SMALL MANUFACTURING ENTERPRISES RESULTS (LAG 0)

LOGARITHM OF THE VARIABLES	*EMPSBINDINALL*	*TURNSBIND*	*TURNSBINDINALL*
TAXRATEIND	0.03 (0.05)	-0.03 (0.04)	-0.01(0.03)
GRP	-0.52***(0.14)	0.84***(0.16)	0.82***(0.11)
GRPPERCAP	0.16(0.12)	0.24(0.18)	-0.03(0.09)
INDINGRP	-0.01(0.06)	0.29***(0.09)	0.13**(0.05)
EMPSBIND	-	2.08**(0.87)	1.58**(0.67)
EMPSBINDINLABFOR	-	-1.55*(0.80)	-1.14*(0.63)
EMPIND	-	-	-
TURNSBIND	-0.13(0.18)	-	-
TURNIND	0.36**(0.16)	-0.14**(0.07)	-0.84***(0.05)
TURNSBINDINALL	0.53**(0.21)	-	-
NUMENTIND	-1.79*(0.96)	-2.82***(1.06)	-3.03***(0.87)
ENTINDPERCAP	2.17**(0.97)	2.86***(1.06)	3.08***(0.88)
CONST	2.56**(1.09)	-6.69***(1.40)	-0.78(1.11)
LSDV R-SQUARED	0.73	0.97	0.93
OBSERVATIONS	727	727	727

Source: Own elaboration, with data from the Russian Federal State Statistics Service.
Note: Standard errors in parentheses. * - p<0.05, ** - p<0.01, ***- p<0.001

TABLE 5B. MODEL FOR THE SMALL MANUFACTURING ENTERPRISES RESULTS (LAG 1)

LOGARITHM OF THE VARIABLES	*EMPSBINDINALL*	*TURNSBIND*	*TURNSBINDINALL*
TAXRATEIND	-0.06*(0,04)	-0.13***(0.04)	-0.01(0.04)
GRP	-0.22*(0.12)	0.66***(0.14)	-0.85***(0.32)
GRPPERCAP	0.14 (0.11)	0.01(0.15)	0.95***(0.36)
INDINGRP	0.03(0.07)	0.06(0.06)	-0.28**(0.13)
EMPSBIND	-	1.14(1.09)	0.98(0.88)
EMPSBINDINLABFOR	-	-0.97(1.00)	-0.97(0.93)
EMPIND	-	-	-
TURNSBIND	-0.20(0.13)	-	-
TURNIND	0.30**(0.13)	-0.03(0.05)	-0.24**(0.09)
TURNSBINDINALL	0.45***(0.17)	-	-
NUMENTIND	-2.83***(0.94)	-3.15**(1.23)	-2.86*(1.61)
ENTINDPERCAP	2.79***(0.93)	3.21**(1.25)	2.92*(1.62)
CONST	1.90**(0.81)	-2.24(1.68)	2.52(1.58)
LSDV R-SQUARED	0.62	0.97	0.87
OBSERVATIONS	646	647	647

Source: Own elaboration, with data from the Russian Federal State Statistics Service.
Note: Standard errors in parentheses. * - p<0.05, ** - p<0.01, ***- p<0.001

TABLE 5C. MODEL FOR THE SMALL MANUFACTURING ENTERPRISES RESULTS (LAG 2)

LOGARITHM OF THE VARIABLES	*EMPSBINDINALL*	*TURNSBIND*	*TURNSBINDINALL*
TAXRATEIND	-0.05(0.04)	-0.08**(0.04)	0.02(0.03)
GRP	0.22(0.20)	0.59***(0.12)	-1.51**(0,68)
GRPPERCAP	-0.30*(0.16)	-0.19(0.13)	1.42**(0.68)
INDINGRP	-0.17*(0.10)	-0.11(0.07)	-0.09(0.14)
EMPSBIND	-	0.07(0.61)	0.06(0.61)
EMPSBINDINLABFOR	-	-0.21(0.67)	0.01(0.70)
EMPIND	-	-	-
TURNSBIND	-0.07(0.09)	-	-
TURNIND	0.20*(0.11)	0.11(0.09)	-0.01(0.08)
TURNSBINDINALL	0.21*(0.12)	-	-
NUMENTIND	-3.75**(1.68)	-2.20(1.56)	-1.99(1.89)
ENTINDPERCAP	3.63**(1.69)	2.31(1.58)	1.99(1.89)
CONST	3.19***(0.97)	0.39(1.09)	3.82***(1.25)
LSDV R-SQUARED	0.64	0.97	0.90
OBSERVATIONS	566	566	566

Source: Own elaboration, with data from the Russian Federal State Statistics Service.
Note: Standard errors in parentheses. * - p<0.05, ** - p<0.01, ***- p<0.001

TABLE 6A. MODEL FOR THE SMALL CONSTRUCTION ENTERPRISES RESULTS (LAG 0)

LOGARITHM OF THE VARIABLES	*NUMENTDEV*	*ENTDEVPERCAP*	*EMPSBDEV*	*EMPSBDEVINLABFOR*
TAXRATEDEV	-0.17***(0.06)	-0.17***(0.06)	-0.01 (0.01)	0.08*(0.04)
GRP	0.76***(0.16)	0.64***(0.20)	-0.01(0.02)	-0.64***(0.13)
GRPPERCAP	-0.08(0.15)	0.05(0.19)	-0.01(0.01)	0.17(0.11)
DEVINGRP	-0.10(0.07)	-0.09(0.07)	0.00(0.00)	0.01(0.05)
EMPSBDEV	-0.24(0.73)	-0.49(0.71)	-	-
EMPSBDEVINLABFOR	0.42(0.71)	0.67(0.69)	1.00***(0.01)	-
EMPDEV	0.34(0.27)	0.32(0.26)	-	-
TURNSBDEV	-0.07(0.11)	0.13(0.13)	0.06**(0.03)	0.21***(0.08)
TURNDEV	-0.13(0.11)	-0.14(0.11)	-0.05*(0.03)	0.08(0.05)
TURNSBDEVINALL	-0.03(0.21)	-0.04(0.21)	-0.07*(0.04)	0.26**(0.12)
NUMENTDEV	-	-	1.13***(0.19)	-0.11(1.18)
ENTDEVPERCAP	-	-	-1.13***(0.19)	0.29(1.17)
CONST	-3.62(2.55)	-3.27(2.51)	1.91***(0.12)	1.14*(0.67)
LSDV R-SQUARED	0.96	0.82	0.99	0.76
OBSERVATIONS	744	744	744	744

Source: Own elaboration, with data from the Russian Federal State Statistics Service.
Note: Standard errors in parentheses. * - p<0.05, ** - p<0.01, ***- p<0.001

TABLE 6B. MODEL FOR THE SMALL CONSTRUCTION ENTERPRISES RESULTS (LAG 1)

LOGARITHM OF THE VARIABLES	*NUMENTDEV*	*ENTDEVPERCAP*	*EMPSBDEV*	*EMPSBDEVINLABFOR*
TAXRATEDEV	-0.10*(0.06)	-0.10*(0.06)	-0.01(0.04)	0.03(0.05)
GRP	1.05***(0.15)	0.94***(0.17)	-0.43*(0.24)	-0.57**(0.23)
GRPPERCAP	-0.35**(0.14)	-0.24(0.17)	0.36*(0.21)	0.38*(0.21)
DEVINGRP	-0.01(0.07)	0.01(0.07)	-0.02(0.05)	-0.01(0.06)
EMPSBDEV	-0.53(0.82)	-0.76(0.80)	-	-
EMPSBDEVINLABFOR	0.66(0.78)	0.90(0.76)	0.25***(0.08)	-
EMPDEV	0.28(0.23)	0.27(0.23)	-	-
TURNSBDEV	-0.11(0.09)	-0.10(0.09)	-0.02(0.08)	0.00(0.08)
TURNDEV	0.07(0.09)	0.07(0.09)	0.11**(0.05)	0.16***(0.06)
TURNSBDEVINALL	0.25*(0.15)	0.25*(0.15)	0.16(0.11)	0.26**(0.12)
NUMENTDEV	-	-	1.32(1.37)	-0.05(1.49)
ENTDEVPERCAP	-	-	-1.36(1.35)	0.05(1.48)
CONST	-4.25**(2.12)	-3.99*(2.08)	1.55***(0.57)	0.10(0.65)
LSDV R-SQUARED	0.96	0.81	0.96	0.70
OBSERVATIONS	662	662	662	662

Source: Own elaboration, with data from the Russian Federal State Statistics Service.
Note: Standard errors in parentheses. * - p<0.05, ** - p<0.01, ***- p<0.001

TABLE 6C. MODEL FOR THE SMALL CONSTRUCTION ENTERPRISES RESULTS (LAG 2)

LOGARITHM OF THE VARIABLES	*NUMENTDEV*	*ENTDEVPERCAP*	*EMPSBDEV*	*EMPSBDEVINLABFOR*
TAXRATEDEV	-0.11***(0.04)	-0.10***(0.03)	-0.02(0.05)	-0.02(0.05)
GRP	0.95***(0.29)	0.87***(0.31)	-0.21(0.20)	-0.18(0.18)
GRPPERCAP	-0.49*(0.28)	-0.41(0.30)	-0.03(0.14)	-0.06(0.12)
DEVINGRP	-0.01(0.06)	0.01(0.06)	0.05(0.07)	0.05(0.07)
EMPSBDEV	-0.14(0.47)	-0.35(0.47)	-	-
EMPSBDEVINLABFOR	0.12(0.44)	0.34(0.44)	0.01(0.04)	-
EMPDEV	-0.01(0.11)	-0.02(0.11)	-	-
TURNSBDEV	-0.07(0.11)	-0.07(0.11)	-0.05(0.07)	-0.07(0.07)
TURNDEV	0.13(0.10)	0.13(0.10)	0.17**(0.07)	0.20***(0.07)
TURNSBDEVINALL	0.25(0.18)	0.26(0.18)	0.14(0.11)	0.18*(0.11)
NUMENTDEV	-	-	0.81(1.48)	-0.37(1.45)
ENTDEVPERCAP	-	-	-0.72(1.49)	0.45(1.45)
CONST	-2.67*(1.44)	-2.46*(1.42)	2.55***(0.73)	0.75 (0.73)
LSDV R-SQUARED	0.97	0.83	0.96	0.72
OBSERVATIONS	581	581	581	581

Source: Own elaboration, with data from the Russian Federal State Statistics Service.
Note: Standard errors in parentheses. * - p<0.05, ** - p<0.01, ***- p<0.001

TABLE 7A. MODEL FOR THE SMALL CONSTRUCTION ENTERPRISES RESULTS (LAG 0)

LOGARITHM OF THE VARIABLES	*EMPSBDEVINALL*	*TURNSBDEV*	*TURNSBDEVINALL*
TAXRATEDEV	0.08 (0.05)	-0.09**(0.04)	-0.06*(0.03)
GRP	-0.70***(0.16)	1.02***(0.31)	0.77***(0.13)
GRPPERCAP	0.21*(0.12)	-0.11(0.30)	-0.28**(0.13)
DEVINGRP	-0.08(0.06)	0.20***(0.06)	0.04(0.06)
EMPSBDEV	-	1.88***(0.48)	0.52(0.45)
EMPSBDEVINLABFOR	-	-1.28***(0.44)	0.03(0.45)
EMPDEV	-	-	-
TURNSBDEV	0.34***(0.09)	-	-
TURNDEV	-0.06(0.09)	-0.02(0.03)	-0.51***(0.04)
TURNSBDEVINALL	0.01(0.12)	-	-
NUMENTDEV	0.26(1.16)	-1.70(1.05)	-0.62(0.74)
ENTDEVPERCAP	-0.13(1.16)	1.81*(1.03)	0.68(0.73)
CONST	5.10***(0.68)	-5.58***(0.74)	2.17**(0.85)
LSDV R-SQUARED	0.71	0.96	0.86
OBSERVATIONS	744	744	744

Source: Own elaboration, with data from the Russian Federal State Statistics Service.
Note: Standard errors in parentheses. * - p<0.05, ** - p<0.01, ***- p<0.001

TABLE 7B. MODEL FOR THE SMALL CONSTRUCTION ENTERPRISES RESULTS (LAG 1)

LOGARITHM OF THE VARIABLES	*EMPSBDEVINALL*	*TURNSBDEV*	*TURNSBDEVINALL*
TAXRATEDEV	0.04(0.05)	-0.09*(0.05)	-0.02(0.03)
GRP	-0.60***(0.22)	0.78***(0.16)	-0.00(0.07)
GRPPERCAP	0.44**(0.20)	-0.12(0.10)	0.04(0.05)
DEVINGRP	-0.10*(0.06)	0.07(0.07)	-0.08(0.06)
EMPSBDEV	-	0.97(0.60)	0.57*(0.32)
EMPSBDEVINLABFOR	-	-0.56(0.46)	0.14(0.36)
EMPDEV	-	-	-
TURNSBDEV	0.09(0.09)	-	-
TURNDEV	0.03(0.07)	-0.02(0.03)	-0.11**(0.05)
TURNSBDEVINALL	0.07(0.11)	-	-
NUMENTDEV	0.33(1.41)	-0.30(1.08)	0.15(0.88)
ENTDEVPERCAP	-0.38(1.41)	0.39(1.10)	-0.03(0.91)
CONST	3.65**(0.71)	-1.82*(0.94)	4.67***(0.89)
LSDV R-SQUARED	0.67	0.95	0.76
OBSERVATIONS	662	662	662

Source: Own elaboration, with data from the Russian Federal State Statistics Service.
Note: Standard errors in parentheses. * - p<0.05, ** - p<0.01, ***- p<0.001

TABLE 7C. MODEL FOR THE SMALL CONSTRUCTION ENTERPRISES RESULTS (LAG 2)

LOGARITHM OF THE VARIABLES	*EMPSBDEVINALL*	*TURNSBDEV*	*TURNSBDEVINALL*
TAXRATEDEV	0.01(0.05)	-0.02(0.05)	0.04(0.04)
GRP	-0.21(0.20)	0.74***(0.27)	0.24(0.19)
GRPPERCAP	0.00(0.16)	-0.24(0.21)	-0.26*(0.15)
DEVINGRP	-0.01(0.05)	0.09(0.06)	0.02(0.04)
EMPSBDEV	-	2.01**(0.93)	1.05**(0.52)
EMPSBDEVINLABFOR	-	-1.92**(0.83)	-0.50(0.42)
EMPDEV	-	-	-
TURNSBDEV	0.02(0.08)	-	-
TURNDEV	0.06(0.10)	0.09**(0.04)	0.05**(0.02)
TURNSBDEVINALL	0.00(0.14)	-	-
NUMENTDEV	0.24(1.48)	-2.01(1.30)	-1.60*(0.94)
ENTDEVPERCAP	-0.19(1.50)	2.10(1.30)	1.68*(0.95)
CONST	4.05***(0.73)	-3.37*(1.80)	3.53**(0.82)
LSDV R-SQUARED	0.69	0.95	0.80
OBSERVATIONS	581	581	581

Source: Own elaboration, with data from the Russian Federal State Statistics Service.
Note: Standard errors in parentheses. * - p<0.05, ** - p<0.01, ***- p<0.001