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How the Inefficiency of Executive Bodies' Performance Reflects the Size of Shadow Economy (The Case of the Russian Federation Regions)

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Abstract. The article reveals how the size shadow economy interacts with the indicators of executive bodies' performance. The theoretical framework of the study is the set of research publications proved the impact of public institutions on the size of shadow economy. The empirical basis of the study is the evaluation of the shadow economy in the regions of the Russian Federation, made by the authors according to Russian Statistic Agency data. The authors study the statistical relationship between the size of the shadow economy in the regions of the Russian Federation and several indicators of the executive bodies performance. The sample consists of 1032 observations for the period from 2004 to 2016. The research methodology includes correlation analysis and cluster data analysis. There was found a negative relationship between the size of the shadow economy and the number of executive bodies' employees per 10,000 of the permanent population. It was found a positive relationship between the size of the shadow economy and the share of population with cash incomes below the subsistence minimum and the level of migration; a weak negative relationship with life expectancy at birth; no significant correlation with the level of unemployment. There were revealed notable tendencies in variables' values (across space and time), that effect on relationship between independent variables and the scale of the shadow economy across regions.

1. Literature review

Public institutions have an impact on the size of the shadow economy and its features. A significant number of scientific publications devoted to the description of this effect. The authors, describing the relationship of the shadow economy and public institutions, identify the factors demonstrating this phenomenon:

1. Features of the public administration system. Fiscal decentralization will cause a shift in production from the observed to the underground sector. Political decentralization will increase the observed output and reduce the underground output [24]. The share of civil service employees at the subnational level in the total number of civil service employees has a negative impact on the shadow economy [4]. Institutions of direct democracy have a negative impact on the size of the shadow economy. This in-

fluence is non-linear; results depend on the interaction of direct democracy with other political institutions [18].

2. Tax system. The magnitude of income tax evasion is higher at higher tax rates, lower penalty rates and lower investigation costs, which determine the likelihood of detection [1]. Higher payroll taxes reduce formal employment [15]. An increase in the progressiveness of the tax burden and deductions for social insurance leads to an increase in the shadow economy [23]. Reducing the complexity of the tax system facilitates to reduce the shadow economy [20].

3. Aspects of public spending. Other things being equal, countries with larger military expenditures have a smaller shadow economy [12]. The level of tax morality is higher when the taxpayer perceives that the government is effective; that is, it provides fair returns for income [2]. If the public sector and taxes on it initially grow from a very low base, then because of the insufficient provision of public goods, the irregular economy grows; but a further increase in taxes after the economy is overloaded with public goods will lead to a fall in tax evasion [6].

4. Impact of state institutions. Other things being equal, crime is higher, the greater the benefits that criminals receive from committing a crime, the less likelihood of detecting a crime, the lower the cost of punishment. Moreover, if alternative incomes are high enough, and they can be guaranteed, the motives for committing a crime diminish [3]. Protecting property rights has a positive effect on business. In countries with higher-quality institutions, the shadow economy can play the role of the initial stage when new entrepreneurs test their skills while remaining informal [10]. The ability of entrepreneurs to transfer production to the shadow economy weakens the ability of corrupt officials to distort the economy for personal gain. Thus, the non-official economy softens the distortions caused by the government and, as a result, leads to the intensification of economic activity in the official sector [5]. Increasing the quality of governance and institutions leads to a decrease in the shadow economy [22].

5. Size of public sector. A large share of public employment in the labor force corresponds to a higher level of the shadow economy [19]. A lower «state size» (the share of public sector final consumption expenditure in GDP) corresponds to a lower level of the shadow economy [17]. A lower level of employment in the public sector and a lower share of subsidies in GDP correspond to a lower level of the shadow economy [7].

6. Parameters of business regulation. Lower regulation intensity corresponds to a lower level of the shadow economy [11]. Simplicity, lower cost, and fewer regulatory procedures reduce the level of the shadow economy [9]. Informality is greater in countries where per capita GDP is lower, and official firms bear more spending in the form of stricter business rules, less valuable police and judicial services and less monitoring of informality [16].

At the regional level, study of these parameters influence on shadow economy size is difficult, since most of these parameters have the same value for the country as a whole. However, a number of papers contain some empirical results on analyzing these issues. An analysis concerning impact of centralization of public administration system on the shadow economy at regional level is presented in research by Torgler B., Schneider F., Schaltegger C. A. (2010) [21]. The results show that local autonomy is significant for tax compliance, and a higher level of centralization has a positive correlation with the size of the shadow economy. Barone G., Mocetti S. (2011) [2] in a study according to the data of Italy municipalities revealed that the level of tax morality is higher when the taxpayer perceives the government more effective; i.e. when government ensures a fair return of income. In research by Di Caro P. and Nicotra G. (2014) [8] according to the data of Italy regions, the relationship between informal employment and its determinants was estimated. It was revealed that informal employment has a positive relationship with the indicators «duration of time for approval of regional state budgets» and «share of employment in the public sector in the labor force at the regional level».

In Russia, very few factors of state regulation for business are differentiated by region. A special regime for self-employed was introduced from January 1, 2019 only in 4 regions of Russia (as an experiment): in Moscow city, as well as Moscow and Kaluga regions and Tatarstan Republic. It will last 10 years - until 2029 [25]. To date, annual data for assessing the impact of this experiment have not yet been published in the public domain. However, such a factor as the number of employees of state

bodies and local governments per 10,000 of the permanent population in the Russian Federation is calculated by region. In this regard, it is possible to analyze the statistical relationship of this indicator with the scale of the shadow economy by regions of Russia, and the performance indicators of the executive bodies of the constituent entities of the Russian Federation.

2. Research methods

Using available Rosstat (Russian Statistic Agency) data of the Russian regions, we identify the relationships (or they absences) between: estimates of the scale of the shadow economy; the number of public bodies' employees as the ratio to population number; indicators to assess the performance of the executive bodies' of the constituent entities of the Russian Federation related to the competence of Rosstat. The data presented on the official Rosstat web-portal were used.

To assess the shadow economy in the regions of Russia, the following data were used: sectoral structure of gross value added by regions of Russia (at current prices; as a percentage of the total) [26]; adjustment of gross value added for economic transactions that are not observed by direct statistical methods (due to limitations related to the availability of data we used data for 2004–2016) [27].

Rosstat presents estimates of adjustments only for the entire country as a whole. Rosstat currently does not publish an official assessment of the shadow economy. We can assume that probably the scale of the shadow activity in the same industry may vary by region. However, based on the above limitations, to assess the scale of the shadow economy in the regions we are based on the assumption that the level of shadow activity in the same industry is the same in all regions. Unit of measurement - % of GRP, identification mark «shadow».

To characterize the level of state intervention in the economy, the indicator «the number of employees of state bodies and local governments per 10,000 of the permanent population» by regions of the Russian Federation is used. The unit of measurement is number of people, identification mark «gov_sector_people» (In this paper we also use such name as «number of executive bodies' employees per 10,000 of the permanent population»).

From the indicators to assess the performance of the executive authorities of the constituent entities of the Russian Federation, only those indicators were selected that are presented in two versions of the methodology: 2015 and 2018 [28]: migration rate, people per 10,000 of people population («migration»); average annual unemployment rate,% («unemployment»); life expectancy at birth, years («life»); the share of the population with income lower than regional minimum subsistence level in total population of the region,% («poverty»).

For analysis, data from all regions of Russia were used (without data of autonomous districts that are part of other constituent entities of the Russian Federation), except Republic of Crimea and the city of Sevastopol (due to the lack of data for most years of the analyzed period, when these regions were not parts of the Russia). Therefore we analyzed data of 80 constituent entities of Russia for 13 years (2004-2016 years). The data of the Chechen Republic are partially missing for 2004-2011 years (8 years), these observations were excluded. Thus the total number of cases (case = observation for a specific region of Russia for a certain year) is 1032 = 1040 – 8.

The estimation of the distribution normality was carried out by histogram analysis, as well as the Kolmogorov-Smirnov test. The assessment of the data stationarity was carried out using ANOVA. For this the initial sample was divided into groups according to the number of years under consideration (12 years). To assess the variance homogeneity, i.e. to test the assumption that each group of the independent variable (year) has the same variance, we used the Levene Statistic.

General interdependencies between variables were revealed at the stages of cluster and regression analysis. Through correlation analysis, the sample was tested for the presence or absence of a statistical relationship between variables. The regression analysis allows revealing spatial effects and temporal effects. Significant spatial effects mean that the intercepts for the relationship between independent variables and the scale of the shadow economy vary significantly across the different regions. Significant temporal effects mean that the slopes for the relationship between independent variables and the scale of the shadow economy vary significantly across the different years.

For more profound analysis we performed clustering procedures. Performing the cluster analysis we pursued several goals: identification of the cluster structure (by splitting the sample into clusters having the most different characteristics); data compression (by ensuring a high degree of objects' similarity within each cluster during the clustering process); detection of novelty (by identifying atypical objects during the clustering process). Herewith the main goal that cluster analysis is capable of achieving was to identify atypical objects (regions with pronounced individual characteristics of the analyzed parameters). Cluster analysis was performed using the k-means method. To improve the quality of the model we used the option «Use running means». When choosing the number of clusters, several criteria were used: average distance between the cluster centers; F-test for variables; total value of F-test for alternative models; filling of clusters; compactness of clusters; entropy-based variation coefficient. Calculations are performed using SPSS. To visualize the results, a graphic image on the summary data was created.

3. Results

According to Kolmogorov-Smirnov test, the only one variable of the sample («life expectancy») is normally distributed (p> 0.05). The stationarity test results by means of ANOVA show that temporal differences were significant for all variables, except migration. The results of variance homogeneity test (Levene's test) are statistically significant for the following indicators: shadow economy, migration, poverty, i.e. there is a difference between the variances in the population (by years). Since we reject the null hypotheses that the data are from a normal distribution for all variables except variable «life expectancy», we also perform analysis of variance using Kruskal–Wallis test. The results indicate that by years the heterogeneity of the variance is significant for all variables, except migration.

Extreme variable values (the maximum negative value of the migration rate and the maximum value of the unemployment rate) were observed in the Republic of Ingushetia during the counterterrorist operation in the North Caucasus in 2004-2005. The maximum positive value of the migration coefficient and the minimum value of the unemployment rate were observed in Moscow during the same years. The maximum value of the shadow economy also is noted in Moscow. The minimum value of the shadow economy and the maximum number of civil servants was observed in the Far Eastern Federal District (Chukotka AO) in 2014-2016.

To bring the data to a single scale, the indicators were normalized within the data for each year. Due to the fact that variables do not have a normal distribution, correlation analysis can be carried out using non-parametric indicators. Of the possible indicators, a Kendall rank correlation coefficient (Kendall's tau coefficient) was used. The rank correlation coefficient rho-Spearman was not used, because variables may have duplicate values.

Significant coefficients are presented in the table 1.

Table 1. Kendall's tau coefficient.

Variable	shadow	gov_sector_people	migration	unemployment	life
gov_sector_people	-0,378**				
migration	0,224**	-0,294**			
unemployment		0,065**	-0,277**		
life	-0,266**		0,107**	-0,070**	
poverty	0,123**	0,090**	-0,234**	0,391**	-0,239**

** Correlation is significant at the 0,01 level (2-tailed)
* Correlation is significant at the 0,05 level (2-tailed)

The relationship strength is qualitatively assessed based on the Chaddock scale. The scale of the shadow economy has rather close correlation relationship (significant at the 0,05 level) with the following indicators: the number of executive bodies' employees per 10 000 of the permanent population (negative, moderate); migration rate (positive, weak); unemployment rate (negative, insignificant); life expectancy (negative, weak); poverty (positive, weak).

To assess the level of interrelation of the variable of the shadow economy with other variables, we built 3 variants of the panel data model: 1) model without intercept; 2) model with spatial effects (random effects - intercept [subject = region]); 3) model with spatial effects and temporary effects (random effects - intercept [subject = region]; repeated effects - year). The estimation results are reported in the table 2:

Table 2. Models estimation.

Parameters	1	2	3
Intercept		0,003 (,000)	-0,160 (,135)
Zgov_sector_people	-0,477 (,000)	-0,135 (,003)	0,006 (,792)
Zmigration	0,226 (,000)	0,153 (,000)	0,108 (,000)
Zunemployment	-0,086 (,004)	0,066 (,084)	0,008 (,781)
Zlife	-0,384 (,000)	-0,938 (,000)	-0,883 (,000)
Zpoverty	0,174 (,000)	0,071 (,010)	0,170 (,000)

Significance is indicated in brackets

Models were estimated using Akaike's Information Criterion (AIC). The criteria for the first model is 2307, for the second model – are 1514, for the third model – 1154. The lower values are characteristic of the third model, thereby indicating its better quality than other models. The significance of the variance estimate for the intercept is tested using the Wald statistic.

Table 3. Estimates of Covariance Parameters.

Parameter	Wald Z	Sig.
Model 2		
Residual	21,529	,000
Intercept [subject = region]	5,409	,000
Model 3		
Repeated Measures (Var: [year=2004]…Var: [year=2016])	4,035-6,204	,000
Intercept [subject = region]	5,871	,000

In models without spatial and temporal effects all variables are significant. The inclusion of spatial effects in the model leads to the coefficient of the variable «life expectancy» has received the highest value. (This means that given the persistent regional differences, variation of this indicator has a significant negative impact on the size of the shadow economy.) When temporal effects are included in the model, the following variables are insignificant: the number of executive bodies' employees per 10000 of the permanent population; average annual unemployment rate. There are prominent tendencies in variables' values (across space and time), that effect on relationship between independent variables and the scale of the shadow economy across regions.

As results of clustering procedures we select a 6-cluster model for analysis. The clustering results are presented in the figure. The units of measurement for the Y axis are standard deviations. The data is ordered from left to right, according to the scale of the shadow economy in ascending order.

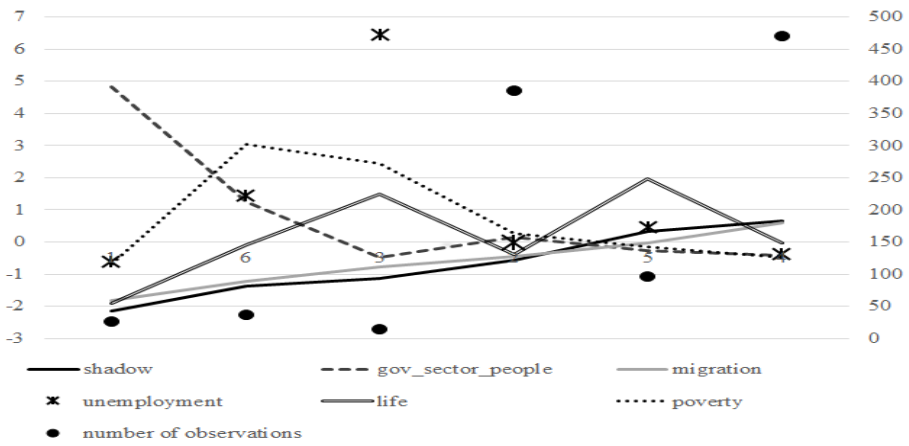

Figure 1. Normalized value of final cluster centers for 6-cluster model.

When describing clusters, we use the following abbreviation: FD means Federal District.

Cluster 1 (26 observations): Chukotka AO and Magadan Region. These regions of Far Eastern FD are the most northeastern regions of Russia bordering the ocean and belong to the regions of Far North. They are the least densely populated regions of Russia. These observations are characterized by maximum migration outflow (maximum value of negative migration balance). The extremely low share of manufacturing sector in gross value added (for Chukotka AO, minimum value of this indicator).

Cluster 6 (37 observations): Siberian FD: Altai, Tyva; Southern FD: Kalmykia Republics. Extremely low value share of manufacturing sector in gross value added. Weakly urbanized territories (Altai Republic has the lowest rates of urbanization in Russia).

Cluster 3 (15 observations): North Caucasus FD: Ingushetia and Chechen Republics. The population density in these republics has a maximum level in Russia (following federal cities Moscow, St. Petersburg, Sevastopol and Moscow region). They are weakly urbanized areas. Using additional data from Rosstat [29], it can be noted that employment in informal sector is very high here: for 2017, this figure was 63.9% for the Chechen Republic (maximum for Russia) and 49.3% for Ingushetia.

It should be noted that despite general tendency concerning poverty level, that we revealed through correlation analysis (a positive relationship with the shadow economy level), we can see that clusters 3 and 2 demonstrate some other facts. Here is rather high poverty level, but low size of the shadow economy. We suppose it can be explain because they are weakly urbanized territories and these regions have high share of agricultural sector in gross value added [14].

Cluster 2 (386 observations): This cluster includes observations from Siberian FD and Far Eastern FD for most of the analyzed years. The cluster includes the following regions for all years: Far Eastern FD: Amur and Sakhalin Regions, Kamchatka and Khabarovsk Territories, Republic of Sakha (Yakutia) (low share of manufacturing industries in gross value added); Siberian FD: Altai and Trans-Baikal Territories, Irkutsk Region, Republics Buryatia and Khakassia (share of manufacturing industries in gross value added are lower than the average level); North-West FD: Arkhangelsk and Murmansk Regions, Komi Republic (they are the most northern regions of this federal district); Volga FD: Kirov and Orenburg Regions, Republics Mari El and Udmurtia; Ural FD: Kurgan and Tyumen Regions; and one region of the Central FD - Kostroma. In this cluster, there are no extreme values of the variables being analyzed.

Cluster 5 (97 observations) includes observations from North Caucasus for most of the years analyzed. On the other hand, here are presented following regions for all years: oblasts: Pskov (North-West FD), Rostov (Southern FD), Yaroslavl (Central FD); republics of North Caucasus FD: Dagestan, Kabardino-Balkaria, Karachay-Cherkessia, North Ossetia-Alania. The unemployment rate is high; migration rates and poverty are average; life expectancy is maximum.

Cluster 4 (471 observation): most regions of Russia. This cluster includes observations from Central FD and Ural FD for the majority of the analyzed years, as well as Northwestern FD and Volga FD for half of all years. The cluster includes the following regions for all years: Central FD: Moscow, Belgorod, Vladimir, Voronezh, Kaluga, Lipetsk, Moscow, Ryazan, Tambov, Tver, Tula Regions; North-West FD: Kaliningrad, Leningrad, Novgorod Regions and federal city St. Petersburg; Volga FD: Nizhny Novgorod, Penza, Samara Regions and Republics Bashkortostan and Tatarstan; Siberian FD: Novosibirsk and Omsk Regions; Ural FD: Chelyabinsk and Sverdlovsk Regions; Southern FD, Krasnodar Territory and Volgograd Region; and one region of North Caucasus FD is Stavropol Territory. Poverty has a low value here: there is a relatively high standard of living of the population when compared with data from all regions of Russia. The migration coefficient has a maximum value (positive net migration balance).

4. Discussion

According to our results, a negative relationship was found between the scale of the shadow economy and the level of state intervention in the economy, measured as the number of executive bodies' employees per 10,000 of the permanent population. On the one hand, such a direction of the relationship between variables can be explained by the direction of the general trends of state regulation in Russia to reduce the number of employees of government bodies. On the other hand, this relationship illustrates the overall effectiveness of the measures taken to reduce the size of the shadow economy. In a panel regression model that takes into account spatial effects and temporal effects, the coefficient of this model is estimated as insignificant, i.e. other factors of the model may explain the variation of the resulting indicator. It should be noted that the direction of interrelation does not coincide with the results of the aforementioned study by Di Caro P. and Nicotra G. (2014) [2] for the regions of Italy. We believe that the reason here is that despite the external similarity of employment in the public sector with the indicator chosen by us (number of executive bodies' employees), these indicators characterize different spheres.

The migration coefficient is positively related to the level of the shadow economy in the Russian regions for the period under review. In this regard, it would be possible to assume that a region is attractive for the inflow of migrants, if it has the most convenient conditions for doing business, including such in the shadow sector, or vice versa, a significant migration inflow can lead to an increase in the shadow economy in the region. We believe that for a more detailed study of the direction of this relationship, it is advisable to conduct an analysis using methods for identifying cause-effect relationships.

The unemployment rate shows an insignificant relationship with the scale of the shadow economy in the regions of Russia for the period under review. This result contradicts the results of cross-country comparisons, according to which the unemployment rate can be used as an indicator of the scale of the shadow economy. One possible explanation for this contradiction is the problem of recording and estimating the number of the self-employed population in Russia. A significant number of unregistered self-employed is noted by both academic researchers and practitioners.

The indicator of life expectancy at birth (one from the quality of life indicators) is in general negatively related to the scale of the shadow economy in regions of the Russian Federation, i.e. in general the scale of the shadow economy is higher in regions with lower life expectancy. Similar results were obtained in our previous study (Kireenko A., Nevzorova E. (2015) [13]). The effect of this factor is greatest in a panel regression model that takes into account spatial effects, but does not take into account temporal effects.

Poverty level shows a weak positive relationship with the size of the shadow economy in the regions.

Majority of regions characterized by a low scale of the shadow economy are geographically distant from the capital, and have a low value of the share of the manufacturing sector in gross value added. We can assume a weaker control and effectiveness of restraining the shadow economy in these regions compared with economic center of the country (the capital and close to it territories).

Comparing the different specifications of the panel regression model shows that the inclusion of spatial effects and temporal effects in the model leads to the fact that the variables «number of executive bodies' employees per 10,000 of the permanent population» and «unemployment rate» becomes insignificant. Thus, in this case, the variation of the scale of the shadow economy in the regions can be explained by the variation of other factors: migration, the life expectancy of the population (components of the quality of life), the level of poverty, and spatial and temporal effects.

The practical significance of this research is that the analysis results can be used in developing of government program documents aimed at leveling the territorial disproportions in socio-economic development of regions. Namely, measures to reduce the shadow economy are particularly relevant for regions with a high share of production in value added.

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References

[1] Allingham M G, Sandmo A 1972 Income tax evasion: A theoretical analysis *Journal of Public Economics* **1(3-4)** 323-338
[2] Barone G, Mocetti S 2011 Tax morale and public spending inefficiency *International Tax and Public Finance* **18(6)** 724-749
[3] Becker G S 1968 Crime and Punishment: An Economic Approach *The Journal of Political Economy* **76(2)** 169-217
[4] Buehn A, Lessmann C, Markwardt G 2013 Decentralization and the shadow economy: *Oates meets Allingham–Sandmo Applied Economics* **45(18)** 2567-2578
[5] Choi J P, Thum M 2005 Corruption and the shadow economy *International Economic Review* **46(3)** 817-836
[6] Cowell F A, Gordon J P F 1988 Unwillingness to pay: Tax evasion and public good provision *Journal of Public Economics* **36(3)** 305-321
[7] Dell'Anno R 2007 The shadow economy in Portugal: an analysis with the MIMIC approach *Journal of Applied Economics* **10(2)** 253-277
[8] Di Caro P, Nicotra G Short, long and spatial dynamics of informal employment (May 30, 2014) https://ssrn.com/abstract=2448075 or http://dx.doi.org/10.2139/ssrn.2448075
[9] Djankov S, La Porta R, López-de-Silanes F, Shleifer A 2002 The regulation of entry *The Quarterly Journal of Economics* **117(1)** 1-37
[10] Estrin S, Mickiewicz T 2012 Shadow economy and entrepreneurial entry *Review of Development Economics* **16(4)** 559-578
[11] Friedman E, Johnson S, Kaufmann D, Zoido-Lobaton P 2000 Dodging the grabbing hand: the determinants of unofficial activity in 69 countries *Journal of public economics* **76(3)** 459-493
[12] Goel R K, Saunoris J W 2014 Military versus non-military government spending and the shadow economy *Economic Systems* **38(3)** 350-359
[13] Kireenko A, Nevzorova E 2015 Impact of shadow economy on quality of life: Indicators and model selection *Procedia Economics and Finance* **25** 559-568
[14] Kireenko A P, Nevzorova E N 2019 Shadow Economy in the countryside of Russian regions. *Regional Research of Russia* **9(1)** 66-77
[15] Kugler A D, Kugler M 2003 The labor market effects of payroll taxes in a middle-income country: evidence from Colombia *IZA Discussion* Paper 852
[16] Loayza N V, Rigolini J 2006 Informality trends and cycles. World Bank Policy *Research Working Paper* 4078
[17] Schneider F 2016 Out of the shadows: measuring informal economic activity In: Miller T, Kim A B (eds.) 2016 Index of Economic Freedom pp 35-49 The Heritage Foundation (Washington DC)
[18] Schneider F, Teobaldelli D 2012 Beyond the veil of ignorance: The influence of direct

democracy on the shadow economy *CESifo Working Paper Series* 3749
[19] Tafenau E, Herwartz H, Schneider F 2010 Regional estimates of the shadow economy in *Europe International Economic Journal* **24(4)** 629-636
[20] Thiessen U 2003 The impact of fiscal policy and deregulation on shadow economies in transition countries: *The case of Ukraine Public Choice* **114(3-4)** 295-318
[21] Torgler B, Schneider F, Schaltegger C A 2010 Local autonomy, tax morale, and the shadow economy *Public Choice* **144(1-2)** 293-321
[22] Torgler B, Schneider F 2007 Shadow economy, tax morale, governance and institutional quality: a panel analysis IZA Discussion Paper 2563 CESifo Working Paper Series 1923
[23] Trandel G, Snow A 1999 Progressive income taxation and the underground economy *Economics Letters* **62(2)** 217-222
[24] Treisman D 1999 Decentralization, Tax Evasion, and the Underground Economy: A Model with Evidence from Russia *Economics and Politics* **11** 145-169
[25] Rossiyskaya Gazeta https://rg.ru/2019/01/01/v-rossii-nachalsia-eksperiment-po-nalogu-dlia-samozaniatyh.html
[26] Rosstat website http://www.gks.ru/free_doc/new_site/vvp/tab-vrp2.htm
[27] Rosstat website http://www.gks.ru/free_doc/new_site/vvp/vvp-god/tab14-19.html
[28] Rosstat website http://www.gks.ru/free_doc/new_site/rosstat/pok-monitor/pok-monitor.html
[29] Rosstat website http://www.gks.ru/bgd/regl/b18_61/IssWWW.exe/Stg/pril/r_3.xls