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Адрес редакции

620002, г. Екатеринбург, ул. Мира, 19, а/я 10
Тел. +7 (343) 375-97-20
E-mail: 5symposium@mail.ru
WEB-SITE: jtr.urfu.ru

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Contact information

19 Mira St., 620002, Yekaterinburg, Russian Federation
Phone +7 (343) 375-97-20
E-mail: 5symposium@mail.ru
WEB-SITE: jtr.urfu.ru

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- growth of scientific and theoretical knowledge in the fields of public finance and taxation as a science aimed at searching new constructive solutions in the taxation sphere;
- development of practical, economic and organizational measures for increasing the efficiency and justness of taxation and tax reforms;
- international cooperation of representatives of the scientific community, the public, the business sector and government agencies in the improving the tax system.

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- comprehensive analysis of the national and the international experience in reforming tax systems;
- development of measures to prevent tax evasion;
- support of the inter-disciplinary approach to studying taxation and tax reforms;
- cooperation of scholars of various sciences (economics, mathematics, sociology and psychology) with the aim of improving taxation and tax systems.

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Why Did the Consolidated Tax Regime Cause Massive Losses in Tax Revenue in Russia?

N.S. Kostrykina  , A.V. Korytin 

*Russian Presidential Academy of National Economy and Public Administration,
Moscow, Russian Federation*

 Kostrykina@iep.ru

ABSTRACT

In Russia, the consolidated tax regime was introduced in 2012 but in 2019 the decision was made to abolish it from 2023. The initial reform purported to discourage companies from using transfer pricing for domestic transactions between companies of one group and to ensure a more just allocation of the corporate income tax across Russian regions. In practice, however, the government's shortfall in tax revenue reached two billion US dollars in certain years or 0.15% of Russia's GDP. Our analysis has shown that the publicly available data are, unfortunately, insufficient for assessing the success of this reform, in particular, whether the two above-mentioned goals were achieved. However, we can focus on the role the following two factors played in the budgetary losses. The first such factor is that profits and losses of group members can be consolidated within one accounting (fiscal) period. The second factor is that consolidated taxpayer groups shift their tax bases to regions with lower tax rates (in some cases, regions established tax preferences explicitly for the purpose of attracting members of these groups). These loopholes reveal the deficiencies of the Russian consolidation model: for example, the 'everybody or nobody' principle is not applied in Russia and consolidated taxpayer groups are allowed to form the perimeter of tax consolidation themselves. In this paper, statistical tax reporting data are used to estimate the total amount of the shortfall in tax revenue caused by the regional tax preferences granted to members of consolidated taxpayer groups. In some cases, as our analysis of regional tax legislation shows, these tax preferences were intended to 'steal' the tax base from other regions or at least to prevent the regions' own tax bases from being 'stolen' by rivals. Judging by the total figures, regional tax competition had a negative influence on budgetary revenues. This, however, was not the main factor as the shortfall in revenue was mostly caused by the possibility of immediate offset of losses within consolidated taxpayer groups.

KEYWORDS

tax consolidation, budget federalism, interregional tax competition, regional tax preferences, revenue equalization


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Почему применение механизма налоговой консолидации в России привело к существенным потерям для бюджета?

Н.С. Кострыкина  , А.В. Корьтин 

*Российская академия народного хозяйства и государственной службы
при Президенте Российской Федерации, г. Москва, Российская Федерация*

 Kostrykina@ier.ru

АННОТАЦИЯ

Россия ввела механизм налоговой консолидации в 2012 г., а уже в 2019 г. приняла решение о его полной отмене, начиная с 2023 г. Вводя данный механизм в налоговое законодательство, правительство планировало устранить стимулы для

применения трансфертных цен по внутрироссийским операциям между компаниями одной группы, а также обеспечить более справедливое распределение налога на прибыль между регионами России. На практике же оно столкнулось с выпадающими доходами бюджета, которые в определенные годы достигали двух миллиардов долларов США (0.15% от ВВП России). Авторы анализируют данные, доступные для независимого исследователя и делают вывод, что их недостаточно для оценки того, насколько были достигнуты две вышеупомянутые цели для бюджета, ради которых механизм консолидированных групп налогоплательщиков и вводился. В то же время, существует возможность оценить вклад факторов, которые привели к потерям бюджета. Первым таким фактором является возможность суммирования прибылей и убытков между участниками одной консолидированной группы налогоплательщиков в рамках одного отчетного (налогового) периода. Вторым же фактором является то, что консолидированные группы налогоплательщиков перераспределяют свою налоговую базу в регионы с пониженной региональной ставкой налога на прибыль: в ряде случаев региональные льготы специально устанавливались для членов консолидированных групп налогоплательщиков. Это возможно в силу ряда несовершенств модели консолидации, используемой в России. К примеру, правило «все-или-никто» не действует в России, и группы могут произвольно формировать периметр налоговой консолидации. Авторы используют данные статистических форм налоговой отчетности для определения общей величины выпадающих доходов бюджета от предоставления региональных льгот участникам консолидированных групп налогоплательщиков. В ряде случаев региональное налоговое законодательство свидетельствует о том, что региональные льготы по налогу на прибыль вводились специально для того, чтобы «перетянуть» налоговую базу других регионов или, как минимум, предотвратить «перетягивание» своей налоговой базы другими регионами. Итоговые цифры говорят о том, что региональная налоговая конкуренция имела негативное влияние на доходы бюджета. В то же время, это не было определяющим фактором. Основная сумма выпадающих доходов бюджета связана с возможностью мгновенного зачета убытков в рамках консолидированной группы налогоплательщиков.

КЛЮЧЕВЫЕ СЛОВА

налоговая консолидация, бюджетный федерализм, межрегиональная налоговая конкуренция, региональные льготы, выравнивание доходов

1. Introduction

The introduction of a consolidated tax base is now widely debated in relation to taxing the digital economy. In 2019, the OECD proposed to reallocate taxing rights in digital-oriented sectors, which came to be known as the Pillar One Unified Approach to Taxing. This initiative is expected to entail solutions that go beyond the arm's length principle and to address the issue of fairness in terms of the apportionment of IT giants' tax base across the countries where they conduct their digital operations and prevent accumulation of profits in the jurisdictions engaging in aggressive tax competition¹.

¹ *Secretariat Proposal for a 'Unified Approach' under Pillar One: Public Consultation Document*. Paris: OECD Publishing; 2019. Available at: <https://www.oecd.org/tax/beps/public-consultation-document-secretariat-proposal-unified-approach-pillar-one.pdf>

The regime of tax consolidation in Russia is quite close to the one proposed by the European Commission, which makes the analysis of the Russian experience both theoretically and practically pertinent [1].

First, the reform affected the regional component of the corporate tax (up to 18% in 2009–2016 and up to 17% in 2017–2024). The corporate tax makes up the majority of regional tax revenue, accounting for about 30% of the revenue. The experience of the EU and Canada demonstrates that it is difficult to reconcile the interests of different regions if consolidated taxation entails a substantial reallocation of their tax revenues [2; 3].

Second, the consolidated tax reform was deemed unsuccessful in Russia, which would in all probability entail the cancellation of the regime in 2023. Lear-

ning from Russia's mistakes could help the EU authorities to avoid similar pitfalls in the course of the forthcoming European tax reform, especially in addressing the problems that may occur as a result of re-allocation of taxing rights among national jurisdictions.

This study aims to describe the fiscal effects of the tax consolidation regime on the corporate tax base on the regional level and test the hypothesis about the competition between Russian regions for the tax base of consolidated taxpayer groups.

The tax consolidation regime was introduced in order to reallocate corporate tax rights between Russian regions and thus discourage transfer pricing. There are, however, several limitations that impede comprehensive analysis of the reform's outcomes.

Limitation 1. *Lack of publicly available data on the reapportionment of the tax base across Russian regions*

Estimating the reapportionment of the tax base across Russian regions is a challenging task since the size of the tax base for each region is determined by a variety of factors, which need to be taken into account apart from the apportionment formula itself. It is necessary to evaluate each consolidated taxpayer group's contribution to the tax base of each region, since these contributions can differ. Moreover, it is necessary to conduct factor analysis within each group, that is, describe and evaluate the reasons behind the changes in the tax base, for example, changes in sales volumes and prices, new tax preferences, offset of tax losses and so on, as well as the reasons behind the changes in the coefficient of tax allocation across the regions, for example, realization of large investment projects in certain regions, companies joining the consolidation perimeter and replacement of the indicator in the apportionment formula. Ideally, we should be comparing the indicators that reflect possible changes in the tax bases of consolidated groups and their apportionment across Russian regions under the consolidation regime and in the absence thereof. Such calculations, however, can be only

made either by taxpayers themselves or by the Federal Tax Service, which has access to taxpayers' reporting data.

The Ministry of Finance made calculations regarding the re-allocation of taxing rights by using the data provided by the Federal Tax Service. The Ministry, however, provides the data only for 2012–2014, showing only the total number of regions that gained or lost from the tax consolidation regime and the respective amount of their gains and losses². The Ministry calculated these values as the difference between the corporate tax revenue under the consolidated tax regime and in the absence thereof, but provided no detailed description of the methodology.

The report of the Accounts Chamber of 2012–2013 lists the regions that gained or lost the most after the regime was introduced. The main 'loser' is Moscow region since it has by far incurred the biggest losses of all other Russian regions.

Thus, the lack of public access to the necessary data impedes independent research of the reform's influence on the allocation of taxing rights across jurisdictions in 2015–2019.

Limitation 2. *Lack of empirical evidence to assess the reform's outcomes*

Intuitively, it is clear that the reform should be effective, although in the absence of the necessary data, it is difficult to empirically estimate the extent of the resulting tax base increase. Potentially its efficacy might be assessed by the following analysis:

1. Calculate the changes in the tax base of consolidated taxpayer groups under the consolidated tax regime and in the absence thereof (this is in fact the calculation made by the Ministry of Finance of Russia).

2. Determine all the factors that influence this indicator (apart from Factor 3 'Discouraging transfer pricing') and estimate their effects. As Figure 1 illustrates, Factors 1 and 2 reduce the resulting sum, while Factor 3 increases it.

² Focus areas of the Russian tax policy in 2016–2018.

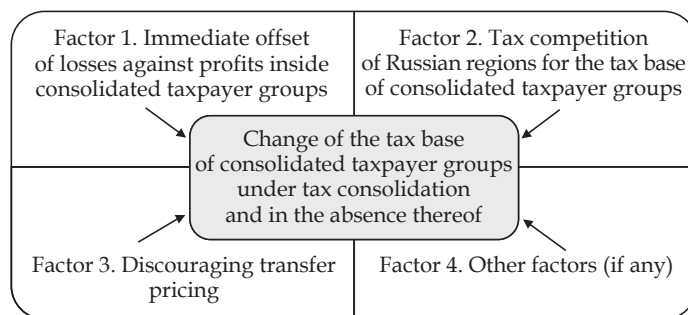


Fig. 1. Factors that determine the indicator ‘Change of the tax base of consolidated taxpayer groups under consolidation and in the absence thereof’

3. The contribution of Factor 3 ‘Discouraging transfer pricing’ equals the difference between the sum and the other summands.

If at all possible, this procedure could be performed only by taxpayers themselves or by the Federal Tax Service. Thus, the available empirical evidence is obviously insufficient to evaluate the outcomes of the reform regarding the two key goals set by the government.

The last reservation that needs to be made is that in Russia, taxpayers have a right to decide whether their companies should join the consolidation perimeter or not (provided they meet the necessary criteria). Consolidated taxpayer groups, however, often tend not to disclose which companies are included in the consolidation perimeter. Therefore, even though many members of consolidated groups are public companies with public reporting obligations, these data remain unavailable since the perimeter of the groups is unknown.

Limitation 3. Lack of transparency regarding the losses of regional governments

As far as we can see from the discussions in government circles, Russian state authorities approach tax consolidation from a somewhat different perspective than the one described above. What matters most is the losses of regional consolidated budgets due to the introduction of the consolidated tax regime: in 2012–2016, these losses amounted to 8, 16, 65, 126 and 78 billion roubles each year respectively (estimates of the Ministry of Finance of Rus-

sia). This means that the tax receipts from consolidated tax groups are lower than the revenues the budgets would have received if the mechanism of tax consolidation had not been implemented. In 2012–2015, regional budgets faced a spike in losses.

The Ministry of Finance contends that the decline in tax receipts may be caused by the following factors: the first is the immediate offset of losses of some members with profits of others within consolidated taxpayer groups and the second is shifting of the tax base to those Russian regions that offer reduced corporate tax rates³. However, none of the available documents known to us provides a breakout of the factors causing the losses.

It should be noted that the possibility of immediate offset of losses within consolidated taxpayer groups was something that could have been expected from the very beginning and it was even described as one of the reform’s goals. It is, therefore, important to make a breakout of losses by factor.

The causes of losses identified by the Ministry of Finance correspond to Factor 1 and Factor 2 as shown in Figure 1. The impact of Factor 1 ‘Immediate offset of losses against profits inside consolidated taxpayer groups’ cannot be estimated because the necessary data constitute tax secret. Nevertheless, we are able to estimate the impact of Factor 2 ‘Tax competition of Russian regions for the tax base of consolidated taxpayer groups’, at least its upper boundary.

³ Focus areas of the Russian tax policy in 2016–2018.

As it was said above, the Ministry of Finance does not disclose its calculation methods, which means that we don't know whether Factor 3 and Factor 4 were taken into account in the calculation of the general indicator. Since only Factors 1 and 2 are mentioned, it can be supposed that the answer to this question is no. Theoretically, the effect of Factor 3 'Discouraging transfer pricing' should enhance the indicator 'Change of the tax base of consolidated taxpayer groups under consolidation and in the absence thereof'. Thus, Factor 3 should not cause an increase in losses of consolidated budgets under the tax regime but, on the contrary, lead to lower values in this indicator. If we suppose that the impact of Factor 4 is insignificant, the difference between the general indicator and Factor 2 estimate will reveal the lower threshold of Factor 1.

2. Literature review

In general, there is a considerable body of research on the subject of tax consolidation in Russia. These studies can be divided into three groups.

The first group (see, for example, [4–8]) includes studies that focus on the introduction of the tax consolidation regime in Russia and the reasons behind this reform. Most of these studies were published in 1997–2013, that is, the immediate pre- and post-reform period, until the first official estimates of the results were obtained. These studies consider the potential of tax consolidation in Russia, discuss the advantages and setbacks of this measure. Most of them rely on international research evidence and do not provide any empirical data of their own.

The second group comprises studies published after 2013. Many of them, in the way similar to that of the previous group, consider the strengths and weaknesses of tax consolidation [9; 10], mechanisms and types of consolidation used by different countries [11–13] as well as the budgetary implications for specific regions [14–17]. These studies explore the Russian experience of tax consolidation (which by the time of their publication had already been introduced in Russia) and compare it with

international practices. They describe in detail the advantages and drawbacks of consolidation for taxpayers and the state budget. Some new shortcomings were detected after the regime was introduced and in the process of its implementation. These were primarily associated with legislative limitations (e.g. tax base for which tax is subject to consolidation; companies entitled to benefit from the consolidation regime; restrictions on offsetting losses and so on).

These studies draw from the data published by the Ministry of Finance of Russia, mentioned above, and the reports of the Accounts Chamber of Russia on operation of consolidated taxpayer groups in 2012–2013. These studies do not provide empirical estimates of their own.

The third group consists of the studies that describe the possible improvements to the existing consolidation mechanism [18; 19]. For instance, suggestions are made that membership in consolidated taxpayer groups should be based on 'everybody or nobody' principle and that to enter these groups, members should meet the criteria '50% plus one', that is, hold 50% plus one of the stocks in a company [20]. Some exceptions from the 'everybody or nobody' rule are possible if the volume of trade between the dependent legal entities is negligible [21]. Furthermore, it is proposed to exclude any possibilities of manipulations with the tax base distribution by setting rigorous rules on how it should be calculated according to the existing formula.

The government's decision to abolish the consolidation tax regime in Russia was followed by a decline in scholarly attention to this topic, although the reasons behind this decision still remain largely unexplored.

Thus, our review of the research literature shows that there is considerable research interest in the topic of consolidated taxation in Russia. Most studies, however, do not provide empirical estimates of the reform's consequences, which could be explained by the problem indicated above, namely the authors' limited access to the data.

3. Data and methodology

Our analysis relies on the data of statistical reporting forms of the Federal Tax Service '5-PM' and '5-KGN' on tax base and accrued corporate tax in Russian regions. These forms are available on the agency's web-site. Our analysis also draws from the data of the Federal Treasury on corporate tax receipts, which include receipts from consolidated taxpayer groups to regional consolidated budgets.

These data can be used to calculate effective corporate tax rates in each region for taxpayers in general and for taxpayers from consolidated groups. The difference between the computed values and the maximum possible values of regional tax rates (in 2009–2016, 18%; in 2017, 17%) shows the extent of tax preferences that regional authorities are willing to grant to their taxpayers. The results show that regions are actively competing with each other for the tax base of consolidated groups.

If a region's effective corporate tax rate for members of consolidated taxpayer groups is below the maximum level, it means that this region offers special tax preferences for members of such groups. If a region's effective corporate rate for members of consolidated taxpayer groups is lower than the rate for all taxpayers, it means that members of consolidated taxpayer groups enjoy more tax preferences in this region than other companies. In this case, the region should be checked for tax preferences for consolidated groups. If we compare the dynamics of the tax rate for consolidated taxpayer groups and the corresponding tax base, we may find that the tax base has been shifted to the regions with lower rates, although to prove this fact, we need to look at the regional tax legislation, budgetary and tax policy reports to find what caused these changes.

Our study covers the period of 2012–2018 and the first half of 2019.

4. Results

4.1. Dynamics of corporate tax receipts from consolidated taxpayer groups

Table 1 shows the data on corporate tax receipts of regional governments in absolute values and in proportion to GDP

from 2009 to the first half of 2019. The data illustrate that corporate tax receipts declined in 2012–2015 (as a percentage of GDP), which can be partially explained by adverse global economic and political conditions. Nevertheless, corporate tax receipts from organizations outside the consolidated taxpayer groups started to rise in 2016 and in 2017 they almost reached the level of 2012. In 2016–2017, consolidated taxpayer groups paid noticeably less corporate taxes than in 2012, which was a disturbing trend if seen from the perspective of budget revenues in the first half of 2018. In 2018, receipts from consolidated groups (as a percentage of GDP) almost reached the level of 2012 and in the first half of 2019, even exceeded it.

It should be noted that the corporate tax revenue (including consolidated taxpayer groups) in the given period reached its maximum in 2018–2019.

Before making any conclusions, it is necessary to clarify the reasons behind the downward trend demonstrated by corporate tax receipts from consolidated groups in 2013–2017. This trend may reside in the mechanism of consolidation itself (for example, offset of losses within a group or reduced tax rates offered by regions to participants of consolidated groups) or in the macro-economic situation in the sectors group members belong to. The latter supposition about the role played by sector-specific characteristics of consolidated groups is supported by the fact that 14 out of 16 groups are engaged in oil and gas and metallurgical industries and there are no banks among them.

4.2. Reduced corporate tax rates for consolidated taxpayer groups in Russian regions

While the regime was in force, that is, from 2012 to 2019, from 14 (in 2012 and 2019) to 24 (in 2018) Russian regions offered reduced corporate tax rates to members of consolidated taxpayer groups. In this period, 31 regions offered some kind of tax preferences to consolidated taxpayer groups and in 13 regions, the effective tax rate was reduced by 2 percentage points or more. The remaining 52 out of

83 Russian regions that had consolidated taxpayer groups always applied the maximum corporate tax rate to these groups (18% in 2017; since 2017, 17%).

The shortfall in corporate tax revenue from consolidated taxpayer groups in the given period was largely determined by the choices made by specific regions, pri-

marily Khanty-Mansiysk Autonomous District and to some extent Leningrad region (Fig. 2). The remaining 29 regions that in different periods granted tax preferences to consolidated taxpayer groups accounted for 4.2 to 12.2 billion roubles (that is, not more than 0.01% of GDP) of tax expenditures.

Table 1

Corporate tax receipts of regional governments from all taxpayers and from consolidated taxpayer groups in 2009–2019

Period	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019*
Corporate tax receipts of regional budgets, bln rbs	1067.9	1517.8	1926.3	1977.0	1702.6	1901.1	1981.1	2205.5	2489.8	3069.6	1723.5
% of GDP	2.55	3.04	3.20	2.90	2.33	2.40	2.38	2.56	2.71	2.96	3.40
including receipts from consolidated taxpayer groups, bln rbs	-	-	-	432.0	397.2	415.2	395.4	365.0	420.2	625.8	333.4
% of GDP	-	-	-	0.63	0.54	0.52	0.47	0.42	0.46	0.60	0.66
including receipts from non-members of consolidated taxpayer groups, bln rbs	-	-	-	1544.9	1305.4	1485.9	1585.6	1840.5	2069.6	2443.8	1390.1
% of GDP	-	-	-	2.27	1.78	1.88	1.90	2.14	2.25	2.35	2.74
Number of regions offering reduced rates for consolidated taxpayer groups**	-	-	-	14	16	15	16	20	23	24	14
Their share in the tax base of consolidated taxpayer groups, %	-	-	-	41.5	49.4	56.6	61.4	31.5	59.8	67.4	21.4
Share of the Khanty-Mansiysk Autonomous District and Leningrad region in the tax base of consolidated taxpayer groups, %	-	-	-	13.3	15.2	37.2	35.0	4.8	8.2	24.1	4.9
Amount of shortfall in revenue due to reduced rates, bln rbs	-	-	-	20.4	18.6	45.2	39.9	5.6	12.3	38.0	8.1
including Khanty-Mansiysk Autonomous District and Leningrad region, bln rbs	-	-	-	10.5	11.4	36.1	31.6	1.4	4.9	25.7	0.8

Note: * The data of 2019 covers only the first six months; ** Including the regions with the effective tax rate lower than the maximum at least by 0.05%.

Source: compiled by the authors on the basis of the data of the Federal Tax Service of Russia.

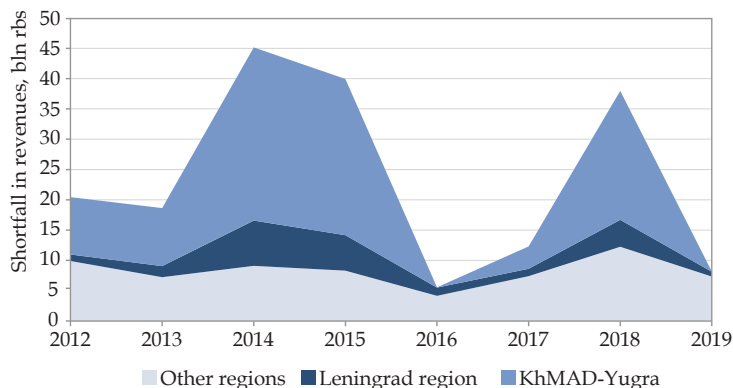


Fig. 2. Shortfall in tax revenues of regional consolidated budgets from reduced rates offered to members of consolidated taxpayer groups

It should be noted that this sum comprises the tax expenditures from all tax preferences in the regions, including industry-specific tax benefits. Therefore, in our study, this sum will be used as the upper threshold value to evaluate the effects of the fierce competition between Russian regions.

4.3. Reduced corporate tax rates in Russian regions

In this section, we are going to concentrate on the tax losses resulting from lower rates offered by certain regions to members of consolidated taxpayer groups (CTGs) (the so-called 'CTG-based preferences'). By CTG-based preferences we mean special tax rates offered to members of consolidated taxpayer groups or, on the contrary, to those organizations that choose not to join consolidated taxpayer groups, in other words, tax preferences related to the tax consolidation regime.

In Leningrad region, for instance, since 2012, the reduced corporate tax rate has been 14% for those oil and gas companies that belong to consolidated taxpayer groups, provided that one or several members of the group and (or) their subsidiaries are established in the territory of the region. In Arkhangelsk region, the reduced rate is available for members of consolidated taxpayer groups specializing on diamond mining and wholesale trade of precious gemstones. We can suppose that this strategy was chosen by the

regions that were hoping for tax receipt gains if enterprises on their territories joined consolidated taxpayer groups.

Some regions offered lower tax rates to companies in exchange for non-joining consolidated taxpayer groups. For example, in Krasnoyarsk region and in the Republic of Sakha (Yakutia), reduced corporate tax rates were applied to the sums paid to regional budgets by the organizations in the crude oil and associated gas (exploration and production) industry that were not members of consolidated groups. It can be supposed that this measure was used by the regions to prevent tax revenue losses which would occur if certain companies established in their territories decided to join consolidated groups. This fact is supported by our analysis of the regional legislation. According to the Ministry of Industry and Geology of the Republic of Sakha (Yakutia), such approach would be conducive to fairer reallocation of the corporate tax rights and the republic would not lose its tax receipts since they cannot be redirected to cover the consolidated group members' losses in other regions.

These examples are quite illustrative of the tax competition between Russian regions for the tax base of consolidated taxpayer groups.

The analysis of regional tax legislation of 2012–2018 has revealed the following regions that granted 'pro-CTG' preferences: the city of Moscow, the Republic

of Komi and Sakha (Yakutia), Arkhangelsk, Irkutsk, Leningrad, Samara and Saratov regions, Yamalo-Nenetsk and Khanty-Mansiysk autonomous districts, Krasnodar, Krasnoyarsk, Stavropol and Khabarovsk regions.

After the adjustment, this sum still remains the upper limit (although it is a bit lower than the result of the previous iteration) rather than an accurate estimate of the effects of reallocation of taxing rights among Russian regions and the reduced tax rates they apply. For a more accurate estimation we would need the breakout of tax revenues by type of regional tax preferences or by type of taxpayers entitled to such preferences.

Further in our study we are going to focus on the case of Khanty-Mansiysk Autonomous District.

4.4. Consolidated tax regime in Khanty-Mansiysk Autonomous District

Khanty-Mansiysk Autonomous District (further referred to as KhMAD) has been the most generous in terms of tax preferences for members of consolidated taxpayer groups. The shortfall in corporate tax revenue from consolidated tax groups in 2012–2018 varied between 0% (in 2016) to 65% (in 2015) and on average was 44.60% from the total shortfall in corporate tax revenue in all Russian regions (Table 2).

Tax preferences for members of consolidated taxpayer groups specializing in oil and gas production were introduced by the law of KhMAD-Yugra № 23-03 of 31.03.2012, that is, three months after the regime came into force. The law took effect on 01.01.2012. This measure was justified by the need to stimulate organi-

zations to create consolidated taxpayer groups in KhMAD to increase the region's tax revenue.

Despite the fact that this tax preference was in effect in 2012–2018, a significant growth in the tax base was observed only in 2014–2015 and in 2018. It should be noted that in KhMAD, effective tax rates are set low not only for consolidated groups but for other types of taxpayers as well, although the former still enjoy more tax benefits. This can be explained if we take a closer look at which companies joined consolidated taxpayer groups and which didn't: the average value of effective rates for all taxpayers in 2009–2011 was 14.9%, which is exactly the same as in 2012–2018.

Our analysis shows that changes in the shortfall of KhMAD's tax revenues due to tax preferences granted to members of consolidated tax groups correlates with the changes in the corporate tax base of the companies that had licenses for oil-field development in this region. A spike in tax losses in 2014–2015 was linked to improvements in the financial performance of the largest taxpayers, which, in their turn, were caused by an increase in their revenue from non-sale operations due to the rising dollar.

The tax consolidation regime in KhMAD had either a neutral (2012) or negative (2013, 2018) effect on the region's budget revenues. Unfortunately, the regional authorities do not publish the data for other years.

We believe that there is a high probability that the above-described sharp increase in tax losses 2014–2015 in KhMAD is associated with the operations of the corporate taxpayer group 'Surgutneftegaz'

Table 2

Indicators of consolidated taxpayer groups' performance in KhMAD

Indicator	2012	2013	2014	2015	2016	2017	2018
Effective corporate tax rates for members of consolidated taxpayer groups, %	14.9	14.7	14.2	14.2	17.9	14.5	14.2
Effective corporate tax rates for non-members of consolidated taxpayer groups, %	15.2	15.7	15.4	15.1	15.6	14.7	13.9
Tax rates difference (tax rates for members minus tax rates for non-members), %	-0.3	-1.0	-1.2	-0.9	2.3	-0.2	0.3
Corporate tax base for consolidated taxpayer groups, bln rbs	303	291.5	753.8	679.4	53.6	149.3	764.0

(further referred to as CTG 'Surgutneftegaz'). This supposition could be confirmed if we had access to the following data:

(a) companies included in the consolidation perimeter;

(b) financial performance data of CTG 'Surgutneftegaz';

(c) coefficient of allocation of corporate taxes paid by CTG 'Surgutneftegaz' to the regions where the group's enterprises operate;

(d) share of tax revenues from CTG 'Surgutneftegaz' in KhMAD's overall corporate tax revenue.

The assessed corporate tax paid by the group to the governments of KhMAD and Leningrad region correlates with the values of the current corporate tax paid by the company 'PAO Surgutneftegaz'. There was a dramatic increase in these indicators in 2014–2015 and 2018, when the company got substantial income on its foreign-currency deposits due to positive foreign exchange differences. A sharp fall in these indicators in 2016–2017, when the rouble grew stronger, led to a significant decrease in profits in 2017 and in 2016, to zero values (Fig. 3).

It is interesting that despite the fact that 'PAO Surgutneftegaz' is one of the largest taxpayers in both regions, we ob-

serve similar dynamics of indicators in both regions (except for 2013). In other words, even if one of these regions supposedly 'stole' the tax base of CTG 'Surgutneftegaz' from the other, it had no perceivable effect on regional tax revenues.

It should be noted that KhMAD had granted corporate tax preferences to oil and gas companies long before the consolidated tax regime was introduced. For instance, in 2007–2011 the nominal corporate tax rate in the region for this category of companies was 13.5–14% with the maximum rate of 17.5–18%. The only requirement companies had to meet to become eligible for this tax benefit was to spend funds on natural resource development or to invest in capital assets. Moreover, since there were no quantitative requirements, companies could make expenditures in accordance with their own plans and needs. The average effective corporate tax rate in the region in 2007–2011 was 14.5–15% and it remained at the same level in 2012–2018 (see Table 3).

Based on the above, the following conclusions can be made.

First, a dramatic rise in corporate tax losses faced by KhMAD due to the rate reduction in certain years was caused by the significant growth in the tax base in the same years and by the fact that tax

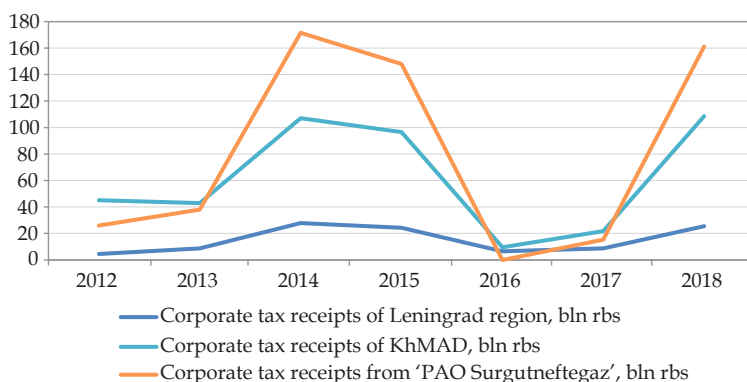


Fig. 3. Correlation between the financial performance of Surgutneftegaz and consolidated corporate income tax receipts of KhMAD and Leningrad region

Table 3

Effective corporate tax rate in Khanty-Mansiysk Autonomous District												
Period	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Effective corporate tax rate, %	14.4	14.5	14.6	15.2	15.0	15.1	15.2	14.6	14.5	15.9	14.6	14.1

preferences were granted to those taxpayers that enjoyed such tax base growth. The tax base grew as a result of the increase in these companies' non-sales revenue from foreign currency deposits. The reverse is also true: the region lost less tax revenue when the corporate tax base of organizations entitled to tax preferences started to decline. Second, members of consolidated taxpayer groups were entitled to preferences throughout the whole tax consolidation period, not in specific years. Third, KhMAD had started to grant tax preferences to oil and gas companies long before the regime was introduced. The average effective corporate tax rate for all taxpayers in 2009–2011 was the same as in 2012–2018.

Thus, the hypothesis that the dramatic expansion of the tax base in KhMAD in 2014–2015 and in 2018 was caused by this region's 'stealing' of the tax base from other regions is not confirmed.

4.5. Analysis of the shortfall in corporate tax revenue after the adjustments

Table 4 summarizes our calculations of the maximum possible shortfall in revenue of regional governments due to re-allocation of the corporate tax base to regions with tax preferences for members of consolidated taxpayer groups.

First, we calculated the total shortfall in tax revenues due to tax preferences granted to members of consolidated tax groups. Then we adjusted the resulting value, focusing only on those regions that offered special 'pro-CTG' preferences. Then we conducted detailed analysis of KhMAD's legislation and other related indicators and found no evidence that the dramatic expansion of the region's tax base in 2014–2015 and in 2018 happened because the region was 'stealing' the tax base from other regions by attracting taxpayers with the help of tax preferences. KhMAD's special 'pro-CTG' preference alone cannot be seen as a loss resulting from the application of the consolidated tax regime. In fact, this region had been offering reduced corporate tax rates to oil and gas companies long before the regime was introduced and, therefore, this measure did not affect the average effective rate in the region.

The estimates we obtained at the third stage do not exceed 13.4 billion roubles a year (as of 2014). This value is an extremely conservative estimate of the shortfall in revenue resulting from shifting of the tax base of consolidated taxpayer groups to regions with lower tax rates. In addition to 'pro-CTG' preferences, this sum comprises other tax benefits in the given

Table 4

Calculations of the maximum possible shortfall in revenue due to re-allocation of the corporate tax base to regions with reduced tax preferences

Indicator	Period							
	2012	2013	2014	2015	2016	2017	2018	first half of 2019
Shortfall in corporate tax revenue of regional governments due to tax preferences to consolidated taxpayer groups, bln rbs	20.4	18.6	45.2	39.9	5.6	12.3	38.0	8.1
Shortfall in corporate tax revenue of regional governments due to tax preferences to members of consolidated taxpayer groups in regions with special 'pro-CTG' preferences, bln rbs	18.3	15.1	42.0	37.5	3.7	9.0	31.3	1.5
Shortfall in corporate tax revenue of regional governments due to tax preferences to members of consolidated taxpayer groups in regions with special 'pro-CTG' preferences, with the exception of KhMAD, bln rbs	8.8	5.6	13.4	11.7	3.7	5.3	10.0	1.5
Losses of the consolidated regional budget due to the consolidated tax regime, as estimated by the Ministry of Finance, bln rbs	8	16	65	126	78	n.a.	n.a.	n.a.

regions as it is impossible to break out the losses in regional tax revenue by category of preferences in tax statistical reporting.

The shortfall in corporate tax revenue hovered around 0.09% of GDP before the regime was introduced as well as afterwards, which means that the amount of revenue lost due to the application of reduced tax rates is negligible (Fig. 4).

5. Discussion

Analysis of the goals of the consolidated tax regime introduced in 2012 and its outcomes as of the second half of 2019 (Table 5) has demonstrated that three goals out of four were either fulfilled (simplification of tax administration; consolidation of losses and profits of group members) or partially fulfilled (fair apportionment of the tax base across regions). From the perspective of tax administration, the problem of transfer pricing was solved although we do not have enough evidence to evaluate the role of this step in the overall reapportionment of the tax base across jurisdictions.

The main drawback of the consolidated tax regime is considered to be the increasing losses in tax revenue, which may be caused by losses offset within consolidated taxpayer groups or by regional tax competition.

Our results show that out of 293 billion roubles lost by regional budgets in 2012–2016 due to the tax preferences offered to consolidated tax groups, the loss of at least 250 billion was caused by the

immediate offset of losses between members of consolidated taxpayer groups. It should be noted that this figure is an extremely conservative estimate and the role of this factor is even more significant. On the other hand, the scale of losses could be predicted from the very beginning. Moreover, the immediate offset of losses between members of consolidated taxpayer groups was initially declared to be one of the goals of the reform. We can suppose that the legislators misjudged the amount of losses as they were using the pre-crisis figures. This hypothesis is supported by the fact that before the recession year of 2014, the losses of regional governments due to the tax preferences for consolidated taxpayer groups had been quite low – 8 billion roubles in 2012 and 16 billion roubles in 2013. Most losses occurred in 2014 and in the following years.

This supposition agrees with the words of S.D. Shatalov, who was the Deputy Finance Minister in 2000–2015: ‘Not only consolidation is an economically sound solution but it also contributes to fairer allocation of the corporate tax among regions’ [22]. He also pointed out that ‘this new institution emerged not in the period of economic growth but with a considerable delay, which aggravated the problems of interbudgetary relationships even more, because the losses of individual consolidated group members decrease the general revenue of the whole group and, therefore, the amount of tax to be reallocated’ [22].

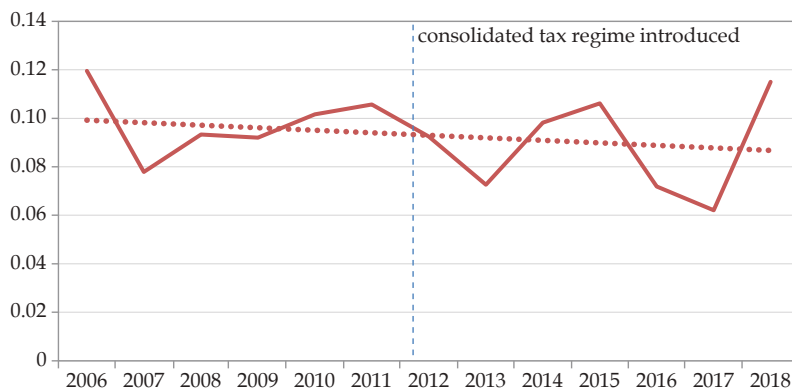


Fig. 4. Shortfalls in the corporate tax revenue due to reduced tax rates in Russian regions, % of GDP

Table 5

Comparison of the reform's declared goals in 2012 and its outcomes as of the second half of 2019

Goal	Result	New shortcomings	Solutions to the new shortcomings
A fairer apportionment of the tax base	The goal was mostly achieved after the first two years. No publicly available data for the other years. The proportion of winners to losers was as follows: 65 against 18 in 2012; 63 against 20 in 2013; and 53 against 32 in 2014. The biggest 'loser' is the city of Moscow.	Apart from the major 'profit centres' – the cities of Moscow and St. Petersburg, the list of 'losers' also includes other Russian regions.	–
Discouraging transfer pricing to minimize the corporate tax	Theoretically, this goal was achieved. Participants of consolidated taxpayer groups no longer need to use transfer pricing since a formulaic approach is applied to the corporate tax allocation. No empirical data available.	Our analysis detected competition for consolidated tax groups' tax base among Russian regions. The groups can to some extent influence their tax base allocation across the regions. Therefore, companies can reallocate a part of their group's tax base to the regions with better tax preferences while the companies' financial results remain virtually unchanged. Consolidated groups can take advantage of the following loopholes to influence their tax base allocation: first, membership of these groups is formed and changed in an arbitrary fashion; second, the indicator reflecting the factor 'labour' in the apportionment formula is also determined and changed arbitrarily; and, third, groups can influence their membership through reorganization and so on.	Starting from 1 January 2023, Russian regions will not be able to use reduced corporate tax rates, except for the cases that the federal legislation explicitly provides for. Thus, regions will have less opportunities for engaging in interregional tax competition. The remaining opportunities will be eliminated or minimized by further improvements to the tax legislation. For instance, it is proposed to deny consolidated taxpayer groups the opportunity to determine the apportionment factor (wage fund or average payroll count). Second, both indicators should be included in the apportionment formula with equal weights (1/4) assigned to each. Another possible measure is to establish a tougher control over formation of the consolidation perimeter.
Facilitation of tax administration	Achieved. Participants of consolidated taxpayer groups act as a single taxpayer. Facilitation of tax administration for the taxpayer and tax authorities. Tax authorities do not have to control companies' compliance with the rules of transfer pricing in domestic transactions.	Increasing uncertainty in regional budget forecasts. Corporate tax receipts depend not only on the financial results of companies in the jurisdiction but also on the performance of the whole consolidated group.	Consolidated taxpayer groups are now obliged to report the forecast tax receipts to regional budgets in the current financial year, ensuing year and planning period as well as the factors that determine the planned corporate tax receipts.
Consolidation of profits and losses of the members of consolidated taxpayer groups to calculate the corporate tax base.	Achieved.	The federal government was unprepared for the massive losses in tax revenue when regions started taking advantage of this opportunity. In other words, the achievement of this goal turned out to be the regime's drawback.	Since 2017, there has been a rule that losses of the previous years can be offset only against 50% of the tax base. The remaining 50% of the tax base is subject to tax. This restriction applies to consolidated taxpayer groups and to other taxpayers.

As our analysis shows, a substantial decline in tax receipts from consolidated taxpayer groups was in all probability caused by the general economic situation, which affected all Russian companies, and by now this downturn is all but over. At the end of 2019, corporate tax revenues from consolidated tax groups were expected to exceed the amount of the corporate tax paid by these companies in 2012, that is, 0.63% of GDP.

If the consolidated tax regime is fully eliminated, there will arise other problems besides those we have been considering in this paper. First, elimination of the consolidated tax regime in combination with limiting the perimeter of internal transfer pricing virtually brings us back to the practices of corporate tax apportionment before 2012, that is, to the situation when large vertically integrated corporations could influence allocation of taxing rights and there were no allocation rules set on the state level. Second, after the regime is cancelled, the tax base will be re-allocated, which means that there will be more losers than winners among the regions and the losers will end up with diminished corporate tax revenues. This situation will undoubtedly give rise to a more heated debate in the future.

6. Conclusions

Due to the lack of publicly available empirical data, it is quite difficult to evaluate the reform's progress, in particular to compare the goals with what has been actually achieved. The declared goals of the reform were to ensure a fairer apportionment of the tax base across Russian regions and to discourage transfer pricing in large holding companies. Most concerns about this regime are associated with the declining corporate tax revenues from companies belonging to the perimeter of consolidated taxpayer groups.

The decline in tax receipts could be determined by the two factors: first, the immediate offset of some members' losses against the profits of others within consolidated taxpayer groups and, second, shifting of the consolidated tax base to those Russian regions that offered reduced rates. Thus, the source of the problems resides in the defects of the current tax consolidation regime.

Our analysis of regional legislation shows that regions compete with each other for the tax base of consolidated taxpayer groups, offering them reduced tax rates. These measures are aimed at 'stealing' the tax base from other regions or preventing them from doing so.

References

1. Khan Niazi S.U. Re-Launch of the Proposal for a Common Consolidated Corporate Tax Base (CCCTB) in the EU: A Shift in Paradigm. *Legal Issues of Economic Integration*. 2017;44(3):293-314.
2. Mintz J. Europe slowly lurches to a common consolidated corporate tax base: Issues at stake. In: *A Common Consolidated Corporate Tax Base for Europe = Eine einheitliche Körperschaftsteuerbemessungsgrundlage für Europa*. Berlin, Heidelberg: Springer; 2008, pp. 128-138. DOI: [10.1007/978-3-540-79484-4_7](https://doi.org/10.1007/978-3-540-79484-4_7).
3. Hentze T. *The challenge of moving to a Common Consolidated Corporate Tax Base in the EU*, IW-Report, No. 2/2019. Köln: Institut der deutschen Wirtschaft (IW); 2019. Available at: <http://hdl.handle.net/10419/191535>.
4. Mau V. et al. *Russian economy in the 1st half of 1997: Tendencies and perspectives*. Moscow: IEPP; 1997. Vol. 17. (In Russ.).
5. Sinelnikov S., Alekseev M. (eds) *Problems of the tax system of Russia: theory, experience, reform*. Moscow: IEPP; 2000. Vol. 1. (In Russ.). Available at: https://www.iep.ru/files/text/working_papers/19.pdf.
6. Kireeva A.V. Perspectives of implementation of taxpayers' consolidation institute in the Russian Federation. *Economico-politicheskaya situatsia v Rossii*. 2008;(2):56-58. (In Russ.). Available at: <https://www.iep.ru/files/text/trends/02-08.pdf>.
7. Kizimov A.S., Shegurova T.A. Consolidated taxpayer regime: history of development and principles of functioning. *Finansy i kredit = Finance and Credit*. 2009;15(30):11-16. (In Russ.).
8. Kondrashova N.A. Background consolidated group of taxpayers. *Mezhdunarodnyi bukhgalterskii uchet = International Accounting*. 2013;16(2):28-34. (In Russ.).

9. Babenko D.A. Introduction of the Concept of the Consolidated Group of Taxpayers in Russia: Preliminary Results. *Finansovyi zhurnal = Financial Journal*. 2014;(2):135–142. (In Russ.). Available at: https://www.finjournal-nifi.ru/images/FILES/Journal/Archive/2014/2/fm_2014_2.pdf.
10. Troyanskaya M.A., Ermakova E.A. Consolidated group of taxpayers: combination of state and taxpayers. *Ekonomicheskoe vozrozhdenie Rossii = Economic Revival of Russia*. 2015;(1):56–64. (In Russ.). Available at: <http://e-v-r.ru/wp-content/uploads/2015/04/2015-1-43.pdf>.
11. Babenko D.A. About development of foreign practice of application of the consolidated taxation concept. *Transportnoye delo v Rossii = Transport business in Russia*. 2014;(1):235–237. (In Russ.).
12. Migukina N.E. Foreign experience of state regulation of institute of the consolidated taxation within providing economic security. *Voprosy ekonomiki i prava = Economic and Law Issues*. 2015;(90):81–87. (In Russ.). Available at: http://law-journal.ru/files/pdf/201512/201512_81.pdf.
13. Malis N.I., Grundel L.P. The analysis of the consolidated taxpayer institution in Russia. *Finansy i kredit = Finance and Credit*. 2015;(3):38–46. (In Russ.). Available at: <http://213.226.126.9/fc/2015/fc03/fc0315-38.pdf>.
14. Korolyova L.P. The role of consolidated groups of taxpayers in providing innovative breakthrough: to be or not to be. *Journal of Tax Reform*. 2015;1(2-3):177–193. DOI: [10.15826/jtr.2015.1.2.011](https://doi.org/10.15826/jtr.2015.1.2.011).
15. Gorbatenko E.O. Consequences of Establishing Consolidated Group of Taxpayers to Regional Budget Revenues in Example of Irkutsk Area. *ECO*. 2015;45(4):177–183. (In Russ.). DOI: [10.30680/ECO0131-7652-2015-4-177-183](https://doi.org/10.30680/ECO0131-7652-2015-4-177-183).
16. Konovalova T.V. The results of functioning of consolidated taxpayer groups in 2012–2015 on the example of Republic of Mari El. *Innovatsionnoe razvitie ekonomiki = Innovative Development of Economy*. 2016;(2):113–115. (In Russ.). Available at: http://www.ineconomic.ru/sites//field_print_version/no2322016.pdf.
17. Ilyin V.A., Povarova A.I. Consolidated Taxation and Its Consequences for Regional Budgets. *Ekonomika regiona = Economy of Region*. 2019;15(1):70–83 (In Russ.). DOI: [10.17059/2019-1-6](https://doi.org/10.17059/2019-1-6).
18. Bannova K.A., Dolgikh I.N., Kuzmina N.A. Improving the methodology for distribution of regional tax revenues from consolidated taxpayers group based on added value. *Finansy i kredit = Finance and Credit*. 2016;22(3):29–39. (In Russ.). Available at: <http://213.226.126.9/fc/2016/fc03/fc0316-29.pdf>.
19. Zolotareva A.B. Several ways for development of a legislation about consolidated taxpayer groups. *Rossiiskoe ekonomicheskoe razvitie = Russian Economic Development*. 2017;24(1):74–81. (In Russ.).
20. Leontieva J.G., Zaugarova E.V., Improvement of Russian consolidated groups of taxpayers taxation system. *Zhurnal pravovyykh i ekonomicheskikh issledovaniy = Journal of Legal and Economic Studies*. 2014;(2):109–115. (In Russ.). Available at: http://giefjournal.ru/sites/default/files/023_4.pdf.
21. Nikitin K.M., Avdienkova M.A., Zakharova O.O., Gilmanova E.A. Consolidated Groups of Taxpayers: How We Should Use the Moratorium. *Finansovyi zhurnal = Financial Journal*. 2016;(5):37–51. (In Russ.). Available at: https://www.finjournal-nifi.ru/images/FILES/Journal/Archive/2016/5/fm_2016_5.pdf.
22. Shatalov S.S. About the main directions of tax policy at present stage. *Finansy = Finance*. 2015;(5):3–7. (In Russ.).

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Information about the authors

Natalya S. Kostrykina – Research Fellow, Laboratory for Tax Policy Studies, Institute of Applied Economic Research, Russian Presidential Academy of National Economy and Public Administration (Building 9, 82–84 Vernadsky Avenue, Moscow, 119571, Russia); ORCID: [0000-0002-9810-0573](https://orcid.org/0000-0002-9810-0573); e-mail: kostrykina@iep.ru.

Andrey V. Korytin – Research Fellow, Laboratory for Tax Policy Studies, Institute of Applied Economic Research, Russian Presidential Academy of National Economy

and Public Administration (Building 9, 82–84 Vernadsky Avenue, Moscow, 119571, Russia); ORCID: [0000-0001-6635-7190](https://orcid.org/0000-0001-6635-7190); e-mail: Korytin-av@ranepa.ru.

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Информация об авторах

Кострыкина Наталья Сергеевна – научный сотрудник лаборатории исследований налоговой политики Института прикладных экономических исследований Российской академии народного хозяйства и государственной службы при Президенте Российской Федерации (119571, Россия, г. Москва, проспект Вернадского, 82-84, корпус 9); ORCID: [0000-0002-9810-0573](https://orcid.org/0000-0002-9810-0573); e-mail: kostrykina@iep.ru.

Корытин Андрей Владимирович – научный сотрудник лаборатории исследований налоговой политики Института прикладных экономических исследований Российской академии народного хозяйства и государственной службы при Президенте Российской Федерации (119571, Россия, г. Москва, проспект Вернадского, 82-84, корпус 9); ORCID: [0000-0001-6635-7190](https://orcid.org/0000-0001-6635-7190); e-mail: Korytin-av@ranepa.ru.

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Impact of Value Added Tax on Macro-Economic Parameters of the Russian Economy

L.P. Koroleva 

National Research Mordovia State University, Saransk, Russian Federation

✉ korol.l@mail.ru

ABSTRACT

In 2019, in Russia the standard VAT rate was raised from 18% to 20%, which resulted in a broad discussion about the possible negative effects of this measure such as falling consumer spending, producers' revenues and profits, imports and exports. The purpose of this study is to test the widely spread views about the impact of VAT on macro-economic parameters such as final consumption, gross profit and gross mixed income, fixed capital investment and export volume. To this end, we formulated three hypotheses, which we tested by using correlation, dispersion and regression analysis based on the data of the system of national accounts and reports of tax authorities in Russia. We built four dual linear regression equations and one multiple regression equation; estimated the significance of these equations (determination coefficient, F-statistic, average approximation error) and their coefficients (Student's *t*-test, *p*-value). The resulting equations were shown to accurately represent the relationship between the criterion variables and predictors. The hypothesis about the negative correlation between VAT and consumer spending was refuted in the case of Russia. VAT revenues to the consolidated budget have a direct influence on consumer spending in the ratio of 1:12.605 and a direct influence on the tax index on consumption, index of spending and index of final consumption in the ratio of 1:0.276. There is also evidence that VAT does not have a significant negative impact on the country's economic performance on the macro-level. VAT revenues to the consolidated budget have a direct influence on gross profit and mixed income in the ratio of 1:8.455. VAT refunds to exporters stimulate fixed capital investment and exports (VAT refunds have a direct influence on fixed capital investment in the ratio of 1:6.543 and on exports, in the ratio of 1:11.117). The positive dependencies demonstrate the neutral influence of VAT on economic growth in Russia and need to be taken into account by VAT policy-makers.

KEYWORDS

value added tax, tax regulation, regression model, final consumption expenditures, gross profit, export, fixed capital investment, VAT refund

JEL E27, E62, H24

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Влияние налога на добавленную стоимость на макроэкономические параметры российской экономики

Л.П. Королева 

Национальный исследовательский Мордовский государственный университет,
г. Саранск, Россия

✉ korol.l@mail.ru

АННОТАЦИЯ

В России с 2019 г. базовая ставка НДС была повышена с 18 до 20%. Исследователи активно анализируют возможные отрицательные эффекты повышения ставки: падение потребительских расходов, выручки и прибыли производителей, объемов внешнеэкономической деятельности. Цель данного исследования –

верифицировать наиболее популярные представления, бытующие в научных исследованиях, о влиянии НДС на макроэкономические параметры на примере российской экономики. Были сформулированы три гипотезы, отражающие устойчивые представления о влиянии НДС на конечное потребление; валовую прибыль и смешанные доходы экономики; инвестиции в основной капитал и объем экспорта. Для проверки гипотез были проведены корреляционный, дисперсионный и регрессионный анализ по показателям системы национальных счетов и поступлений НДС. В результате были построены четыре уравнения парной линейной регрессии и одно уравнение множественной регрессии; проведена оценка значимости уравнений (коэффициент детерминации, *F*-критерия Фишера, средняя ошибка аппроксимации) и их коэффициентов (*t*-критерий Стьюдента, *p*-значение). Полученные уравнения признаны достоверно отражающими взаимосвязь между анализируемыми критериальными переменными и предикторами. Отрицательная зависимость между НДС и потребительскими расходами по эмпирическим данным российской экономики не подтвердилась. Выявлено прямое влияние НДС, поступившего в консолидированный бюджет, на потребительские расходы в пропорции 1:12.605, а также прямое влияние индекса налогов на потребление на индекс расходов на конечное потребление в пропорции 1:0.276. Получила подтверждение гипотеза об отсутствии значимого негативного влияния НДС на результативность экономики на макроуровне. НДС, поступивший в консолидированный бюджет, прямо влияет на валовую прибыль и валовые смешанные доходы в пропорции 1:8.455. Доказана стимулирующая роль возврата НДС экспортерам в повышении объемов инвестиций в основной капитал и экспорта. Выявлено прямое влияние величины возмещения НДС на объем инвестиций в основной капитал в пропорции 1:6.543; а также на объем экспорта в пропорции 1:11.117. Полученные положительные зависимости подкрепляют доводы в пользу утверждения о нейтральном характере влияния НДС на экономический рост и могут быть использованы при обосновании предложений о внесении изменений в порядок исчисления и уплаты НДС в России.

КЛЮЧЕВЫЕ СЛОВА

налог на добавленную стоимость, налоговое регулирование, регрессионная модель, расходы на конечное потребление, валовая прибыль, экспорт, инвестиции в основной капитал, возмещение НДС

Research relevance

VAT makes up a considerable amount of budget revenues in Russia, ranking fourth (after mineral extraction tax, corporate tax and income tax) in terms of the tax revenues to the consolidated budget and second in the structure of the federal budget revenues. As preliminary estimates of VAT revenues to the consolidated budget in 2019 have shown, with the amount of 7023.5 billion roubles, its contribution to the GDP grew from 5.79% in 2018 to 6.4% due to the 2% increase in the standard rate. Nevertheless, this figure is still lower than the average level in OECD countries in 2018 – 7.1%.

The important role that VAT plays in budget systems of OECD countries results from the increase in standard tax rates after the global recession of 2008, which allowed the governments to close their budget gaps. VAT is generally seen as a rich source

of funding to cover state expenditures on the development of human potential and improvement in standards of living. Furthermore, an increase in the share of VAT in state budgets has enabled a number of countries to reduce the burden of direct taxes on corporate profits and labour and thus enhance the neutrality of tax systems.

Developed countries are less likely to rely on VAT as an instrument of economic regulation. In accordance with the neo-liberal principles, for efficient VAT administration and VAT harmonization in the EU, it is necessary to get rid of the majority of tax preferences and exemptions since they tend to distort the imputation system. The effect of VAT is considered to be the least detrimental to economic growth since it does not affect the interests of producers of goods, works and services, including the spheres with high value added, and does not influence investment in the real sector.

In 2019, the Russian government, following the line of reasoning described above, raised the standard VAT rate from 18% to 20%. The growth in VAT revenue provided extra funds for the national projects launched in 2018 – ‘Human Capital’, ‘Comfortable Living Environment’, and ‘Economic Growth’. This measure, however, also aroused heated debates among experts and wider public concerning its possible negative effects on prices, consumer expenditures, in particular those of low-income households, and business activities.

In Russian research literature on taxation, there is a widely spread view that VAT plays a key role in the regulation of demand (consumption) of goods (works and services), especially socially significant ones, and foreign economic activity, which is the reason why the list of zero-rated goods (works and services) or those to which reduced VAT rates are applied is regularly expanded. Moreover, suggestions are made to stimulate investment and innovation with the help of VAT. The most severely criticized aspect of taxation in Russia is the role that VAT plays in stimulation of exports: export of goods is exempted from VAT, which leads to significant budget losses and increase in tax abuse.

Comparatively few studies, however, model the impact of VAT on macro-economic parameters of the Russian economy due to the limited accessibility of the statistical data about VAT structure. As a rule, studies of the role VAT plays in economic development use general scientific methods such as elementary methods of economic analysis, logical analysis and cause-and-effect analysis.

Thus, the relevance of this research stems from the important fiscal role of VAT in the Russian state budget and the lack of agreement concerning the regulating role of this tax. This study also aims to bridge the research gap regarding the impact of VAT on parameters of the Russian economy.

We are going to test the widely spread views about the impact of VAT on macro-economic parameters by focusing on the case of the Russian economy.

To this end, we have formulated the following hypotheses:

1) VAT has a negative impact on consumer spending as it is included into prices of goods (works, services);

2) VAT is an indirect tax and, as a result, it does not negatively affect economic activities of businesses and enterprises (producers of goods, works and services) because the tax burden is shifted to consumers;

3) the current system of VAT refunds to exporters and the zero rate of VAT on exports stimulates exports and enhances fixed capital investment.

Literature review

Since the 2000s, there have been active debates among researchers and politicians of OECD countries about the tax maneuver involving a change in the structure of direct and indirect taxes. An increase in the share of indirect taxes, in particular VAT, was justified by a number of factors. First, modelling of the tax structure’s impact on GDP showed that lowering the labour tax by 1%, which is expected to be compensated by the corresponding increase in consumption taxes (including VAT), would lead to a rise in employment by 0.54% in the long term and to GDP growth by 0.30%. Second, VAT provides a way to distribute the tax burden among the employed and unemployed population, that is, reduce the burden on the labour force. Third, an increase in VAT does not have a direct negative impact on foreign trade. Finally, in the long run, an increase in consumption taxes is likely to contribute to a rise in savings and enhance capital accumulation.

As for the key arguments against this maneuver, these include the following: a rise in prices is likely to result in shrinking consumption, including imports, which, in its turn, will lead to slower economic growth and reduce the equilibrium exchange rate. Another argument is that, due to the regressive nature of VAT, such measure would negatively affect income redistribution. Moreover, since the gross tax burden will remain the same, such measure is unlikely to have a significant

influence on the labour supply. It is also highly likely that the positive effects of this reform will be neutralized by the introduction of a compensatory social policy¹.

After the recession of 2008, many developed countries raised VAT rates while reducing the tax burden on business and labour by cutting social security payments and lowering corporate and income tax rates. There is vast research literature discussing the effects of this measure.

One of the most actively debated questions is the impact of VAT on factors of economic growth. M. Konopczynski uses the data on Poland to demonstrate that acceleration of economic growth can be achieved by raising the expenditure tax rates and lowering the income tax rates, which would not change the total amount of tax revenues [1]. The data on Germany show that the shift of taxes from labour income (personal income tax (PIT) and social security contributions (SSCs)) to consumption (VAT) in the short term contributes to an increase in aggregate labor supply, resulting from higher work incentives and to a reduction in economic inequality [2]. The analysis of different types of panel data models (random effects model, dynamic panel and panel vector-autoregression) over 1995–2015 revealed a positive impact of the standard VAT rate on economic growth in five Central and Eastern European countries (CEE-5) (Bulgaria, Czech Republic, Hungary, Poland and Romania) [3].

A study that covered 115 countries demonstrated that the VAT system enhances the impact of government spending efficiency [4]. There is also evidence that in Japan, unfunded public pensions financed by VAT have a stronger positive effect on economic growth than those financed by the payroll tax [5].

Similar measures are taken in developing countries. For example, the government of Vietnam is recommended

to raise the standard VAT rate to 12% to optimize the tax structure and lower the corporate income tax (CIT) to 17% and thus shift the tax burden from capitalists to consumers [6].

In developing countries, however, the effects of VAT increase are less positive: the increase in VAT rate in South Africa on 1 April 2008 from 14% to 15% as a way to partially fund the budget deficit not only raised the cost of living but also the short-term expenditures of employers. The influence of VAT increase on GDP varies depending on the region but in general it is negative [7].

In developing countries, an indirect tax reform is likely to have a low impact on welfare growth, which can be explained by the strong substitutability in consumption between formal and informal commodities. Only when designed in a consumption-neutral fashion, indirect tax reforms can improve welfare [8].

The negative influence of VAT on economic growth may include falling consumer spending, which rises from the moment when the government announces its plans to increase VAT in the short-term and falls as soon as these plans are put into practice. In Spain, this situation led to a decline in investment, production and employment [9].

The data on fifteen EU countries in 1961–2005 show that a 1% rise in the consumption tax rate can lead to a fall in aggregate consumption by approximately the same figure in the short term and to a slightly larger decline in the long term [10].

In the Czech Republic, a 1%-increase in the VAT rate would cause a decrease in the demand for food of an average Czech household by 0.4652%, which is less than in the case of an increase in the physical person's income tax – 0.6899% [11]. Low-income households are the most susceptible to the effect of a VAT increase. For example, in Ireland, when the VAT rate was raised in 2013–2014, the most vulnerable were the households in the first income decile, households in rural areas, 6-person households and households containing a single adult with children [12]. In Germany, low-income households and

¹ Macroeconomic Effects of a Shift from Direct to Indirect Taxation: a Simulation for 15 EU Member States. Note presented by the European Commission services (DG TAXUD) at the 72nd meeting of the OECD Working Party No. 2 on Tax Policy Analysis and Tax Statistics, Paris, November 14–16, 2006. Available at: <https://www.oecd.org/ctp/tax-policy/39494151.pdf>

households with children would be hit the hardest by a VAT increase [13].

Thus, the discussion about the impact of VAT on consumption mostly concerns the optimal amount and the scale of the VAT rate in the light of the possible shift of the tax to business. From the neoliberal perspective, the most effective option is the VAT flat rate scheme without exemptions and exempt transactions, which distort the operation of the imputation system. In research literature there is evidence supporting the advantages of the flat rate scheme: for instance, it is shown that the effects of a general and uniform VAT system covering all goods and services is welfare superior to the differentiated VAT rate system [14].

The studies focusing on those groups of goods and services to which reduced VAT rates are applied demonstrate that differentiated VAT rates may be quite effective for regulating consumption and enhancing equity. For example, for Norway it was recommended to adjust VAT rates to promote healthier diets of households. A VAT increase was found to be more effective in reducing purchases of unhealthy foods than a VAT removal, in increasing the purchases of healthy foods [15].

The econometric model based on the data for Kosovo for the period of 2013–2016 has shown that the VAT reduction from 16% to 8% for basic products and the increase in VAT from 16% to 18% on luxury products had a positive effect on budget revenues and GDP [16].

A decreased VAT rate on selected groceries has allowed Slovakia to rank among the countries with the lowest income differences and the average household expenditures on non-durable goods, while tax revenues were not significantly affected by the reform [17].

The VAT reform in China resulted in certain redistribution effects mainly due to lowering of the average tax burden and reducing the inequality within the lowest-income group. Compared with the overall rate reduction, a greater relief for necessity items could improve the redistribution effects of the future VAT system more effectively [18].

In practice, however, differentiation of VAT rates does not always result in the drop in prices for specific groups of goods, services and works. For instance, in Poland, the VAT rate on groceries was reduced from 7% to 5%, in January 2011, but this measure did not result in lower prices for consumers for a number of behavioural and psychological reasons [19].

The negative effects of VAT reforms can stem from partial shifting of the tax burden to producers [20]. A considerable VAT rate dispersion in China had a negative effect on the total factor productivity and resulted in a loss of 7.9% of GDP on average in the period from 2000 to 2007 [21]. Modelling based on the panel data for different Chinese provinces in the period of 2012–2017 showed the negative impact of VAT rebates on China's mechanical goods exports. In particular, it was found that on average, a one-percentage-point increase in the VAT rebate rate decreases exports by 2.07% [22]. Another study demonstrated an insignificant impact and asymmetrical effect of VAT pilot expansion on the corporate tax burden of general taxpayers in some Chinese provinces in 2012 [23].

Moreover, there is evidence that in China, VAT rebates to exporters have a positive impact on exports and China's competitiveness on world markets [24]. For the period of 2003–2012, a 1%-increase in VAT rebates lead to a rise in exports by 7% [25]. On the level of individual firms, every extra dollar spent on VAT refunds increased Chinese exports by 4.7 dollars [26].

To sum up, in research literature there is no universal agreement on the impact of VAT reforms on macro-economic parameters and there are no unified guidelines for optimization of the structure of VAT revenues and VAT rates in different countries. The majority of these studies focus on the experience of OECD countries and some developing countries while there is not much research investigating these questions in the context of the Russian economy. All of the above makes it pertinent to consider the impact of VAT on macro-economic parameters of the Russian economy and thus explore the potential of VAT as an instrument of economic regulation.

Methodology

This study focuses on the cause-and-effect relations between the macro-economic parameters of the Russian economy and parameters of the structure of VAT revenues to the consolidated budget.

Conceptually, the study relies on the theories that consider taxation as an effective instrument of economic regulation (Keynesian economics, social market economy theory, supply-side economics, neoclassical synthesis, public choice theory and so on). The methodological framework includes general scientific methods and econometric methods (correlation, dispersion and regression analysis) using MS Excel. The study relies on the official data of the Federal State Statistics Service (system of national accounts, statistical yearbook 'Finance' covering the main parameters of the Russian consolidated budget) and the statistical data reported by the Russian tax authorities.

To evaluate the effects, we conducted correlation, dispersion and regression analysis:

- the data of the national accounts system (provided by the Federal State Statistics Service) and the data on VAT revenues and structure (provided by the Federal Tax Service) for the period of 2006–2018 were used to build a single-factor model

(13 yearly observations) and for the period of 01.04.2006–01.01.2019, a multiple regression (52 quarterly observations);

- the data of the national accounts system and the data on product taxes, including net taxes (provided by the Federal State Statistics Service) for the period of 1995–2018 were used to build two-factor regression models (24 yearly observations) and for the period of 01.04.1998–01.01.2019, a multiple regression (84 quarterly observations).

Our choice of macro-economic parameters as effective indicators was determined by previous research using forecasting and factor analysis of VAT revenues to the consolidated budget and by the hypotheses we formulated for our study.

Out of all the resulting regression models, we are going to discuss in more detail four dual linear regression equations and one multiple regression equation. The statistical significance of these equations was tested by using the coefficient of determination, F-test, average approximation error, Student's t-test, and *p*-value.

Results

To test the hypotheses described above, we built dual linear regression equations and multiple regression equations. Table 1 shows the statistical data for selected mac-

Table 1

Effective (Y) and factorial (X) indicators, bln rbs						
Year	Y ₁	Y ₂	Y ₃	Y ₄	X ₁	X ₂
2006	17809.7	9544.6	4730.0	9079.3	1511.1	585.6
2007	21968.6	11387.1	6716.2	10028.8	2261.7	1011.4
2008	27543.5	13498.7	8781.6	12923.6	2132.5	922.1
2009	29269.6	11921.1	7976.0	10842.0	2050.3	1109.7
2010	32514.7	15093.7	9152.1	13529.3	2498.6	1121.7
2011	40692.2	25148.9	11035.7	16865.2	3250.8	1254.4
2012	46895.8	28132.0	12586.1	18324.8	3546.1	1557.7
2013	52274.3	29279.3	13450.2	18863.4	3539.4	1720.4
2014	56418.2	30623.8	13902.6	21425.9	3940.2	1840.2
2015	58240.5	34077.8	13897.2	23854.1	4233.9	1936.1
2016	61389.8	35350.0	14748.8	22137.6	4571.4	2077.6
2017	65165.4	38231.5	16027.3	23994.3	5137.6	2253.3
2018	69333.0	43406.5	17595.0	31932.6	6017.0	2489.7

Note: compiled by the author on the basis of the data of the Federal State Statistics Service 'National Accounts'. Available at: http://old.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/; data of the Federal Tax Service of Russia 'Report on the Structure of VAT Revenue – 1-VAT'. Available at: https://www.nalog.ru/rn13/related_activities/statistics_and_analytics/forms/

roeconomic indicators (based on the data of the national accounts system) and VAT structure (the statistical data reported by tax authorities), which were used as effective and factorial indicators:

- 1) effective indicators:
 - final consumption expenditures (Y_1);
 - gross profit of economy and gross mixed income (Y_2);

- fixed capital investment (Y_3);
- export volume (Y_4);
- 2) factorial indicators:
 - VAT revenues to the consolidated budget (X_1);
 - amount of VAT refunds (X_2)

Based on the data in Table 1, we built four one-factor regression models (see Figs. 1-4).

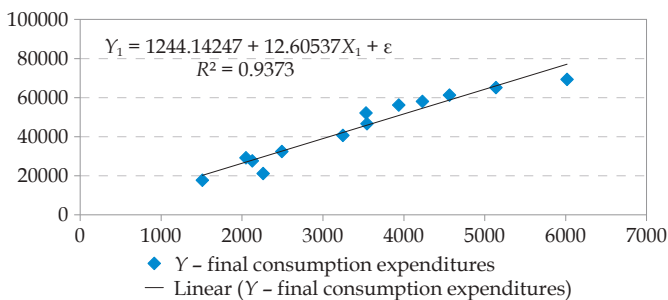


Fig. 1. Regression model of the dependency of final consumption expenditures on VAT revenues to the consolidated budget

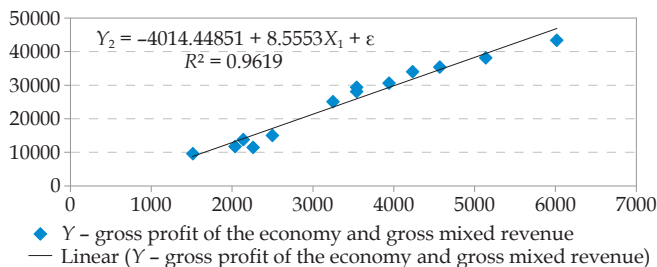


Fig. 2. Regression model of the dependency of gross profit on gross mixed revenue of VAT to the consolidated budget

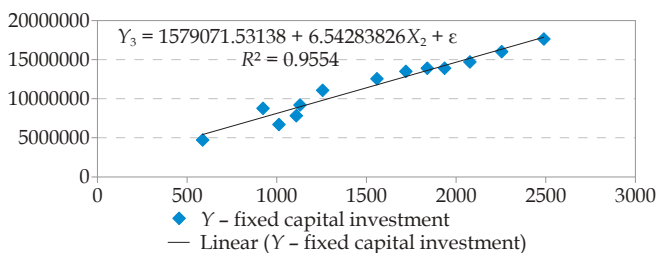


Fig. 3. Regression model of the dependency of fixed capital investment on VAT refunds

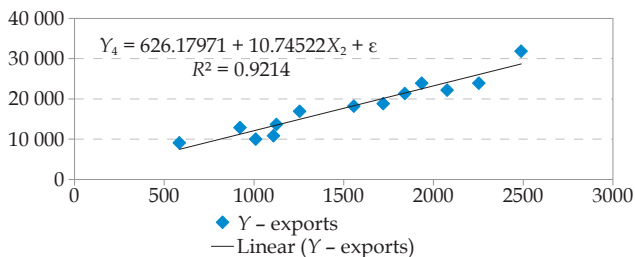


Fig. 4. Regression model of the dependency of exports on VAT refunds

We tested the regression equations for validity (see Table 2 for results).

In Table 2, the values that do not correspond to the criterion parameters are indicated in bold.

All the models demonstrate a high level of correlation between the effective and factorial indicator (multiple correlation coefficient $R - 0.95-0.98$) and a large share of dispersion of the dependent variable, explained by the model in question (determination coefficient $R^2 - 0.92-0.96$).

The F -test was conducted by comparing the actual F statistic with the critical value of the corresponding F -distribution at the level of significance 0.05 and 0.01. The F -test confirms the statistical significance of the regression equations.

Student's t test for the regression coefficient a_1 confirms the validity of all the models since the calculated value exceeds the critical value with the levels of significance 0.05 and 0.01. For the constant term (a_0), however, the t -value is higher than the critical level only in two equations. In the other two, the t -value for the constant term (a_0) is below the critical level.

P -value is the probability of obtaining results for a model of distribution of random values as extreme (or more extreme) as the results actually observed during the test, given that the null hypothesis is true. In other words, p -value is the probability that the results showing the relationship between the indicators were produced by random chance alone. A low p -value suggests that there is little likelihood that the regression results occurred

by chance, which allows us to reject the null hypothesis. P -value is usually compared with the generally accepted levels of significance 0.05; 0.01 and 0.005. In all the regression equations, the p -value of correlation coefficient a_1 is much lower than 0.005, which demonstrates the significance of these equations. The p -value for constant term (a_0), however, was below the significance level of 0.05 only in the second (Y_2) and third (Y_3) equations. In the other two, the p -value for constant term (a_0) is below the critical level.

Thus, in two equations (Y_1 and Y_4), the constant term is statistically insignificant in the t -test and for p -value. Having a constant term in the equation provides us with a more accurate picture of the dependency. From the economic perspective, the constant term reflects the impact of other factors left out of the model. Therefore, we can keep the constant term in the models despite its statistical insignificance. For the dual linear regression we need to analyze the statistical significance of coefficient a_1 , since this coefficient contains the influence of explanatory variable X on dependent variable Y .

To evaluate the quality of the models, we calculated the average approximation error (\bar{A}), measured as a relative divergence for each observation. The average approximation error shows how many theoretical values, that is, those resulting from the regression equation, on average deviate from empirical values. The permissible average approximation error limit is 8-10%. All the regression equations have \bar{A} less than 10%.

Table 2

Parameters of the statistical significance of the dual linear regression equations

Model	R	R^2	F	t		p		\bar{A} , %
				a_0	a_1	a_0	a_1	
$Y_1 = 1244.14247 + 12.60537X_1 + \varepsilon$	0.97	0.94	164.6	0.35	12.8	0.74	5.84E-08	8.48
$Y_2 = -4014.44851 + 8.45553X_1 + \varepsilon$	0.98	0.96	278.0	-2.16	16.67	0.05	3.72E-09	9.22
$Y_3 = 1579071.53138 + 6.54284X_2 + \varepsilon$	0.98	0.96	235.9	2.28	15.4	0.04	8.88E-09	7.41
$Y_4 = 626.17971 + 10.74522X_2 + \varepsilon$	0.95	0.92	128.9	0.62	11.35	0.55	2.05E-07	9.79

R - correlation coefficient (0-1);

R^2 - determination coefficient (0.8);

F - F -statistic (greater than the critical values);

Student's t -test (greater than the critical values);

P -value (< 0.005);

\bar{A} - average approximation error (< 10%).

Among the multiple regressions, the most statistically significant and accurate is the model of the dependency of final consumption expenditures on compensation of employees and product taxes in 1995–2018. To exclude multicollinearity of the factors, this model was built by using chain indices rather than absolute values (see Table 3).

In accordance with the system of national accounts, taxes on products are levied as a percentage of the price or quantity of goods and services produced,

sold or imported by residents (VAT, excise duties, import duties, etc). In other words, product taxes include not only VAT but also other indirect taxes.

The resulting model and the parameters of its statistical significance and adequacy are shown in Table 4.

The model was tested for statistical significance and for adequacy. The average approximation error was just 3.03% (the acceptable level is 10%). The fifth model can be interpreted the following way: the index of final consumption ex-

Table 3
Dynamics of macroeconomic indicators and product taxes, in current prices (mln rbs)

Year	Final consumption expenditures		Compensation of employees		Product taxes	
	sum	index (Y_5)	sum	index (X_3)	sum	index (X_4)
1995	1016594.3	–	647875.8	–	184071.2	–
1996	1435869.8	141.2431	1022643.3	157.8456	269095.0	146.1907
1997	1776137.6	123.6977	1202900.5	117.6266	320255.8	119.0122
1998	2003790.1	112.8173	1263046.8	105.0001	338824.5	105.7981
1999	3285678.1	163.9732	1933606.1	153.0906	613854.6	181.1718
2000	4476850.9	136.2535	2937229.9	151.9043	980880.4	159.7903
2001	5886860.6	131.4956	3848398.3	131.0214	1268911.4	129.3645
2002	7484115.5	127.1325	5065100.6	131.6158	1415153.0	111.5250
2003	9058687.6	121.0389	6231387.9	123.0259	1775123.2	125.4368
2004	11477849.6	126.7054	7845036.7	125.8955	2352124.6	132.5049
2005	14438149.2	125.7914	9474266.7	120.7677	3248224.8	138.0975
2006	17809740.7	123.3520	11985905.6	126.5101	4090102.5	125.9181
2007	21968579.5	123.3515	15526114.7	129.5364	4977558.7	121.6977
2008	27543511.4	125.3768	19559761.0	125.9798	6323848.4	127.0472
2009	29269625.1	106.2669	20411614.4	104.3551	5202132.9	82.2621
2010	32514673.2	111.0867	22995635.9	112.6596	6462567.9	124.2292
2011	40692217.7	125.1503	26386675.4	114.7464	8413321.9	130.1854
2012	46895780.1	115.2451	30201161.5	114.4561	9411798.2	111.8678
2013	52274283.6	111.4691	33792282.2	111.8907	9510857.9	101.0525
2014	56418220.9	107.9273	37430458.0	110.7663	10550847.9	110.9348
2015	58240533.5	103.2000	39745493.0	106.1849	8738499.6	82.8227
2016	61389774.1	105.4073	41245363.8	103.7737	8817205.9	100.9007
2017	65165442.1	106.1503	43884319.8	106.3982	9264512.5	105.0731
2018	69332988.5	106.3953	48244368.2	109.9353	11404173.9	123.0952

Source: Federal State Statistics Service 'National Accounts'. Available at: http://old.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/accounts/

Table 4
Parameters of statistical significance of the regression model of the dependence of final consumption expenditures on compensation of employees and product taxes

Model	R	R ²	F	t		p		\bar{A} , %
				a_0	a_1/a_2	a_0	a_1/a_2	
$Y_5 = 27.79 + 0.490X_3 + 0.276X_4 + \varepsilon$	0.94	0.88	72.3	3.15	3.86/ 3.07	0.005	0.001/0.006	3.03

penditures (Y_2) will increase together with the increase in the index of compensation of employees (X_3) and product taxes (X_4).

The resulting equations, as the statistical tests showed, accurately reflected the relationship between the criterion parameters and predictors. They can be used to predict values of the variables (Y) with the help of independent variables (X) and to find the contributions of specific independent variables to the variation of the dependent variable.

Discussion

The regression equation of the dependence of final consumption expenditures on VAT does not confirm the first hypothesis, that is, on the macro-level, an increase in VAT does not have a negative influence on consumer spending. This model can be interpreted in the following way: an increase in VAT revenues to the consolidated budget by 1 billion roubles causes a rise in consumer spending by 12.605 billion roubles.

The fifth multiple regression model shows a direct dependence between consumer spending and consumption-type taxes. These results can be interpreted the following way: a 1%-increase in the index of compensation of employees will result in a drop in the index of final consumption expenditures by 0.490%, while a 1% increase in the consumption tax index will lead to a rise in the index of final consumption expenditures by 0.276%. If we consider final consumption expenditures as the main source of VAT, then this dependence is easy to explain: the higher are the consumption expenditures, the more VAT is paid to the budget. There is every reason to believe that analysis of the dependency of consumer spending on VAT for groups of goods with different elasticity of demand will confirm this hypothesis. As we know, the higher is the price elasticity of demand for goods, the more it will fall in response to VAT increase. Unfortunately, we were unable to conduct regression analysis for specific groups of goods due to the lack of detailed tax statistics.

Due to different price elasticity of demand, we cannot completely exclude the

possibility that VAT has an influence on VAT-paying producers of goods, services and works. The time lag between purchasing material assets necessary for production process and VAT refunds also means that a certain sum of money will be withdrawn from the turnover. If the price elasticity of demand is high, producers might be losing their revenue and profit due to the fall in sales. This logic underpins our choice of factors for the second model. We supposed that VAT may have a negative influence on gross profit and gross mixed income. However, this hypothesis was refuted. As the regression model has shown, an increase in VAT revenues to the consolidated budget by 1 billion roubles leads to a rise in gross profit and gross mixed income by 8.4555 billion roubles, that is, there is a positive dependency between these two indicators, which supports the second hypothesis. VAT is an indirect tax and, therefore, it does not have a considerable negative influence on businesses (producers of goods, works and services) since it is shifted to consumers of these goods, works and services. On the micro-level, the influence of VAT depends on profitability of businesses and value added: the higher is the share of profit in value added, the lower is the ratio of VAT paid to profit. The higher is the profitability (capital intensity), the lower is the influence of VAT [27].

The final (third) hypothesis was fully confirmed by the third and fourth regression models, which show that VAT refunds to exporters stimulate exports and fixed capital investment. The third model can be interpreted the following way: an increase in VAT refunds by 1 billion roubles will lead to a growth in fixed capital investment by 6.543 billion roubles. Such a high regression coefficient may signify the efficiency of the currently used VAT refund mechanism, even though it is widely criticized by taxation experts and the public. Furthermore, there is evidence that VAT refunds to exporters enhance exports.

The fourth model can be interpreted as follows: an increase in VAT refunds by 1 billion roubles will lead to a growth

in exports by 11.117 billion roubles. This positive relationship, however, does not provide a solution to the problem of the prevalence of raw materials in Russia's export structure. Elimination of VAT refunds, however, is unlikely to result in greater differentiation of exports due to the expansion of the segments other than raw materials but will instead lead to a decline in exports and fixed capital investment made by exporters.

Conclusions

Our study is based on the Russian economic data and contributes to the discussion about the impact of VAT on macro-economic parameters.

The results of modelling of the impact that VAT has on consumer spending showed no negative relationship between the former and the latter. This can be explained by the following: first, the standard VAT rate remained the same throughout the given period; second, an introduction of an automated control system led to an increase in VAT collection rate; and, finally, there was a decrease in Russia's shadow economy².

The hypothesis about the absence of negative effects of VAT on the country's economic performance on the macro-level was confirmed. Such effects, however, are possible on the micro-level, that is, on the level of specific economic entities. This may happen because of the dependence of the degree of VAT shifting on the price elasticity of demand for goods (services, works); the time lag between paying VAT on goods purchased and the finished goods being sold; different levels of profitability of specific firms and the share of value added in revenue.

The hypothesis about the positive role of VAT refund to exporters in enhancing fixed capital investment and exports was confirmed, which may be an argument for keeping the already existing system of export tax refunds and rebates.

We believe that the positive dependencies we found support the idea that VAT exhibits a neutral influence on economic growth and can be used for regulating economic activity. The dual linear regression equations based on the data of the Russian economy in 2006–2018 and multiple regression equations based on the data for 1995–2018 demonstrate the following:

1) direct influence of VAT revenues to the consolidated budget on consumer spending in the ratio of 1:12.605 billion roubles;

2) direct influence of VAT revenues to the consolidated budget on gross profit and gross mixed income in the ratio of 1:8.4555 billion roubles;

3) direct influence of VAT refunds on fixed capital investment in the ratio of 1:6,543 and on exports in the ratio of 1:11.117 billion roubles;

4) direct influence of the consumption tax index on the final consumption index in the ratio of 1:0.276%

The resulting equations, as the statistical tests showed, accurately reflect the relationship between the criterion parameters and predictors. Therefore, they can be used for predicting the values of dependent variables (Y) with the help of independent variables (X) and for estimating the contribution of specific independent variables to variance of a dependent variable. It should be noted, however, that in 2014–2018 in Russia, VAT grew faster than the macro-economic parameters corresponding to its base (volume of final consumption on the domestic market, retail turnover) due to a significant increase in VAT administration efficiency. In our opinion, this fact generated an upward bias of the coefficients in the regression models.

We believe that the positive dependencies support the idea that VAT exhibits a neutral influence on economic growth and can be used for economic regulation.

The use of VAT as an instrument of economic regulation should follow certain principles:

1) it is necessary to minimize the gaps in the taxation of value-adding chains by optimizing the list of tax preferences and

² The shadow economy in Russia, according to the Federal Financial Monitoring Service, is shrinking: in 2018, it was about 20% of GDP in comparison with 28% in 2015–2016.

eliminating other factors contributing to such gaps;

2) taxpayers should be provided with a choice between the preferential and traditional procedures of VAT calculation and payment;

3) measures should be taken to avoid the risks of double taxation and unintended non-taxation;

4) it is possible to introduce VAT exemptions and reduced VAT rates depending on the price elasticity of demand for goods (works, services), in particular reduced VAT rates should be set for merit goods, that is, the goods with price inelastic demand that are highly significant for ensuring social harmony and justice in society and development of human capital. Reduced rates can be applied to other types of goods (works, services), for instance, innovative goods, only in exceptional circumstances;

5) tax preferences can be offered to taxpayers operating in spheres with low profitability and price elastic demand for

goods (works, services) in order to minimize the negative impact of tax burden shifting from consumer to producer;

6) taxpayers should be offered tax preferences for a limited period of time provided that their activities conform with certain requirements and that they assume certain obligations.

Our findings can be useful for VAT policy-makers in Russia, especially in matters concerning VAT computation and payment procedures.

Avenues for further research include evaluation of the dependency between VAT and macro-economic effects in different sectors of economy, for different groups of consumers and types of consumer expenditures. An essential task, in our view, is to investigate the results of the tax reform of 1 January 2019 – an increase in the standard VAT rate from 18% to 20%. Such analysis could be useful in devising guidelines and recommendations for optimization of the tax structure and VAT preferences in Russia.

References

- Konopczynski M. The effect of taxation on economic growth. *Ekonomista*. 2012;689–711.
- Pestel N., Sommer E. Shifting Taxes from Labor to Consumption: More Employment and more Inequality? *Review of Income and Wealth*. 2017;63(3):542–563. DOI: [10.1111/roiw.12232](https://doi.org/10.1111/roiw.12232).
- Simionescu M., Albu L.-L. The Impact of Standard Value-Added Tax on Economic Growth in CEE-5 Countries: Econometric Analysis and Simulations. *Technological and Economic Development of Economy*. 2016;22(6):850–866. DOI: [10.3846/20294913.2016.1244710](https://doi.org/10.3846/20294913.2016.1244710).
- Chan S.-G., Ramly Z., Karim M.Z. A Government Spending Efficiency on Economic Growth: Roles of Value-added Tax. *Global Economic Review*. 2017;46(2):162–188. DOI: [10.1080/1226508X.2017.1292857](https://doi.org/10.1080/1226508X.2017.1292857).
- Maebayashi N. Is an Unfunded Social Security System Good or Bad for Growth? A Theoretical Analysis of Social Security Systems Financed by VAT. *Journal of Public Economic Theory*. (Early View) DOI: [10.1111/jpet.12403](https://doi.org/10.1111/jpet.12403).
- Bhattarai K., Nguyen D.T.K., Nguyen Ch.V. Impacts of Direct and Indirect Tax Reforms in Vietnam: A CGE Analysis. *Economies*. 2019;7(2):50. DOI: [10.3390/economies7020050](https://doi.org/10.3390/economies7020050).
- Roos E.L., Horridge J.M., van Heerden J.H., Adams P.D., Bohlmann H.R., Kobe K.K., Vumbukani-Lepolesa B. National and Regional Impacts of an Increase in Value-Added Tax: A CGE Analysis for South Africa. *South African Journal of Economics*. 2020;88(1):90–120. DOI: [10.1111/saje.12240](https://doi.org/10.1111/saje.12240).
- Haibara T. Indirect Tax Reform in Developing Countries: A Consumption-Neutral Approach. *Journal of Globalization and Development*. 2017;8(1):20160036. DOI: [10.1515/jgd-2016-0036](https://doi.org/10.1515/jgd-2016-0036).
- de-Cordoba G.F., Torres J.L. The VAT Rise in Spain: An Anticipated Assessment of its Effects. *Revista de Economía Aplicada*. 2010;18(53):163–183. Available at: <http://revecap.com/revista/ingles/default.html>.
- Alm J., El-Ganainy A. Value-Added Taxation and Consumption. *International Tax and Public Finance*. 2013;20:105–128. DOI: [10.1007/s10797-012-9217-0](https://doi.org/10.1007/s10797-012-9217-0).
- Syrovátka P. Effects of Changes in the Tax Environment on the Consumer Demand for Food. *Agricultural Economics (AGRICECON)*. 2011;57:350–355. DOI: [10.17221/101/2011-AG-RICECON](https://doi.org/10.17221/101/2011-AG-RICECON).

12. Leahy E., Lyons S., Tol R.S.J. The Distributional Effects of Value Added Tax in Ireland. *The Economic and Social Review*. 2011;42(2):213–235.
13. Thiele S. Increase of the Value Added Tax (VAT): Budget- and Welfare-Effects for Consumers. *Jahrbucher fur Nationalokonomie und Statistik*. 2010;230(1):115–130.
14. Bye B., Strøm B., Åvitsland T. *Welfare effects of VAT reforms: A general equilibrium analysis*. (Discussion Papers No. 343). Statistics Norway; 2003. Available at: <https://www.ssb.no/a/publikasjoner/pdf/DP/dp343.pdf>.
15. Gustavsen G.W., Rickertsen K. Adjusting VAT Rates to Promote Healthier Diets in Norway: A Censored Quantile Regression Approach. *Food Policy*. 2013;42:88–95. DOI: [10.1016/j.foodpol.2013.07.001](https://doi.org/10.1016/j.foodpol.2013.07.001).
16. Asllani G., Satovci B. Effect of the Change in Value Added Tax on The Fiscal Stability of Kosovo. *Ekonomski Pregled*. 2018;69(4):423–438. (In Croatia) Available at: <https://hrcak.srce.hr/205515>.
17. Martinková S., Bánociová A. The Economic Impact of Reduced Value Added Tax Rates for Groceries. *Potravinarstvo Slovak Journal of Food Sciences*. 2016;10(1):656–662. DOI: [10.5219/679](https://doi.org/10.5219/679).
18. Du L. The Effects of China's VAT Enlargement Reform on the Income Redistribution of Urban Households. *China Finance and Economic Review*. 2015;3(3). DOI: [10.1186/s40589-015-0024-5](https://doi.org/10.1186/s40589-015-0024-5).
19. Bernal A. Do Small Value-Added Tax Rate Decreases on Groceries Imply Lower Prices for Consumers? *Eastern European Economics*. 2018;56(1):81–98. DOI: [10.1080/00128775.2017.1412265](https://doi.org/10.1080/00128775.2017.1412265).
20. David P. The Effects of Increased VAT Rates Applied in the EU Member States in 2014. *Society and Economy*. 2016;38(3):331–340.
21. Chen S.X. VAT Rate Dispersion and TFP Loss in China's Manufacturing Sector. *Economics Letters*. 2017;155:49–54. DOI: [10.1016/j.econlet.2017.03.008](https://doi.org/10.1016/j.econlet.2017.03.008).
22. Wang L., Anwar S. VAT Rebate Policy and Export Performance: A Case Study of China's Mechanical Goods Industry. *Emerging Markets Finance and Trade*. 2019. DOI: [10.1080/1540496X.2019.1668771](https://doi.org/10.1080/1540496X.2019.1668771).
23. Fang H., Bao Y., Zhang J. Asymmetric Reform Bonus: The Impact of VAT Pilot Expansion on China's Corporate Total Tax Burden. *China Economic Review*. 2017;46S:17–34. DOI: [10.1016/j.chieco.2017.02.003](https://doi.org/10.1016/j.chieco.2017.02.003).
24. Chao C.C., Yu E.S.H., Yu W. China's Import Duty Drawback and VAT Rebate Policies: A General Equilibrium Analysis. *China Economic Review*. 2006;17(4):432–448. DOI: [10.1016/j.chieco.2006.02.005](https://doi.org/10.1016/j.chieco.2006.02.005).
25. Gourdon J., Monjon S., Poncet S. *Incomplete VAT Rebates to Exporters: How Do They Affect China's Export Performance?* 2017. Available at: <https://hal.archives-ouvertes.fr/hal-01496998/document>.
26. Piyush C., Chery L. VAT Rebates and Export Performance in China: Firm-level Evidence. *Journal of Public Economics*. 2013;102:13–22. DOI: [10.1016/j.jpubeco.2013.03.005](https://doi.org/10.1016/j.jpubeco.2013.03.005).
27. Alekseev M. V., Belev S.G., Gromov V.V. et al. *Prospects for tax policy. Is there an "ideal tax system" for Russia?* Moscow: Delo; 2019. (In Russ.)

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Information about the author

Lyudmila P. Koroleva – Candidate of Sciences (Economics), Associate Professor, Department of Theoretical Economics and Economic Security, National Research Mordovia State University (49 Bolshevistskaya Street, 430005, Saransk, Russian Federation); ORCID: [0000-0002-8375-8524](https://orcid.org/0000-0002-8375-8524); e-mail: korol.l@mail.ru.

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Информация об авторе

Королева Людмила Павловна – кандидат экономических наук, доцент, доцент кафедры теоретической экономики и экономической безопасности, Национальный исследовательский Мордовский государственный университет (430005, Россия, Республика Мордовия, г. Саранск, ул. Большевикская, д. 68); ORCID: [0000-0002-8375-8524](https://orcid.org/0000-0002-8375-8524); e-mail: korol.l@mail.ru.

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Intersectoral Shadow Economic Linkages and their Impact on Tax Evasion

D.Yu. Fedotov¹  , E.N. Nevzorova² 

¹ Baikal State University, Irkutsk, Russian Federation

² Irkutsk State University, Irkutsk, Russian Federation

 fdy@inbox.ru

ABSTRACT

The article discusses shadow economic linkages between companies from different sectors. The research hypothesis is that the multiplier effect can cause a spillover of the shadow economy from one sector to another through business connections between companies. The research methodology comprises, first, a correlation analysis of the indicators reflecting the level of informal activities in the key industries of Russia in 2011–2017; second, analysis of input-output tables to reveal the patterns inherent to intersectoral financial flows that involve sectors with a large share of shadow activities; and, third, analysis of the tax ratio in the key sectors in the given period. The correlation analysis of Rosstat's adjustment of gross value added for informal economic activities and the share of undocumented workers employed in the total number of workers in the sector has revealed a strong correlation between these indicators. It was found that such sectors as real estate, agriculture and forestry, construction, trade and hotel industry have shadow economies exceeding the average level in the country. We used the input-output balance data to reveal the close connections between the sectors with a large share of shadow activities and other sectors. Our calculations have brought to light an increase in the share of illicit transactions in some industries due to interactions with shadow sectors. This trend was particularly characteristic of such industries as transport and communications, education, health care and social services. It was also found that the tax ratio for transactions involving companies from sectors with a large share of shadow activities tended to decline due to tax evasion. These research results can be used by tax authorities to detect and monitor economic operations associated with high tax evasion risks.

KEYWORDS

shadow economy, sectors of economy, tax evasion, informal employment, tax ratio, statistics, input-output balance

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Межотраслевые теневые экономические связи и их влияние на уклонение от уплаты налогов

Д.Ю. Федотов¹  , Е.Н. Невзорова² 

¹ Байкальский государственный университет, г. Иркутск, Россия

² Иркутский государственный университет, г. Иркутск, Россия

 fdy@inbox.ru

АННОТАЦИЯ

В статье исследуются теневые экономические связи между отраслями экономики. Была выдвинута гипотеза о том, что высокий уровень теневых операций, сложившийся в одной отрасли, благодаря мультипликативному эффекту вызывает рост теневых операций в других отраслях, с которыми у отрасли сформиро-

ваны устойчивые деловые связи. Методика исследования включает, во-первых, корреляционный анализ показателей уровня теневой экономики в основных отраслях экономики России за 2011–2017 гг., во-вторых, анализ таблиц «затраты-выпуск» для выявления закономерностей межотраслевых финансовых потоков с участием отраслей с высокой долей теневых операций. В-третьих, анализ налоговой отдачи основных отраслей экономики России за 2011–2017 гг. Корреляционный анализ величины корректировки Росстатом валовой добавленной стоимости на экономические операции, ненаблюдаемые прямыми статистическими методами и доли занятых в неформальном секторе в общей численности занятых по видам экономической деятельности показал высокую взаимосвязь между данными показателями. Уровень теневой экономики, превышающий средний, был выявлен в следующих отраслях: операции с недвижимостью; сельское и лесное хозяйство; строительство; торговля; деятельность гостиниц. Использование данных межотраслевого баланса позволило выявить наиболее тесные деловые связи отраслей с повышенным уровнем теневых операций с другими отраслями экономики России и доказать выдвинутую гипотезу. Проведенные расчеты выявили рост доли теневых операций за счет взаимодействия с «теневыми» отраслями у таких отраслей, как транспорт и связь; образование; здравоохранение и предоставление социальных услуг. Выявлено снижение налоговой отдачи в сделках, в которых принимают участие отрасли с повышенным уровнем тенезации, вследствие уклонения от уплаты налогов участниками таких сделок. Полученные результаты могут быть использованы налоговыми органами для отслеживания экономических операций, отличающихся повышенным риском уклонения от уплаты налогов.

КЛЮЧЕВЫЕ СЛОВА

теневая экономика, отрасли экономики, уклонение от уплаты налогов, неформальная занятость, налоговый коэффициент, статистика, межотраслевой баланс

1. Introduction

The underground economy is a pervasive feature of countries across the world. In their transactions, companies seek to escape state control, resorting to semi- or altogether illegal forms of commerce. Nevertheless, the size of the shadow economy varies significantly across different groups of countries. In developed countries such as Switzerland, the USA and Japan, the

size of the shadow economy is comparatively small – it accounts for 7–8% of GDP (see Fig. 1). In developing countries, including post-Soviet states such as Russia, Ukraine, Belarus, Kazakhstan, the shadow economy is much larger – 30–40% of GDP. In low-income countries such as Zimbabwe and Haiti, the shadow sector is flourishing and makes up over a half of these countries' GDP.

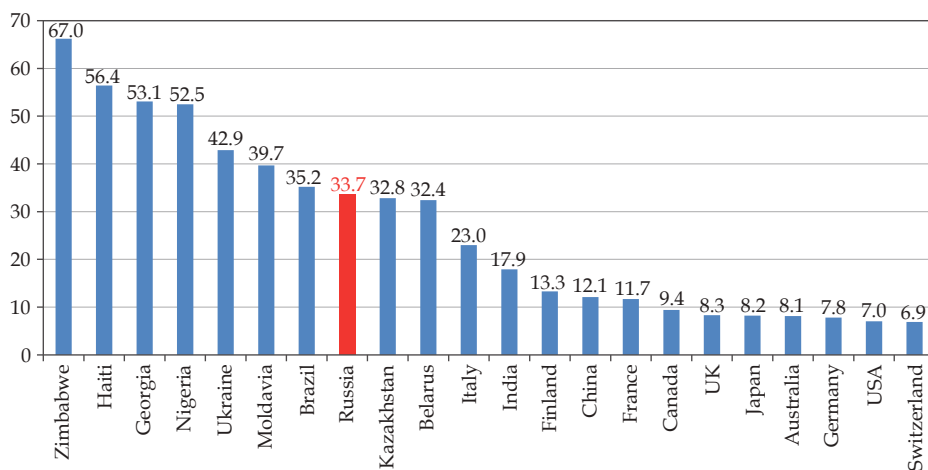


Fig. 1. Size of the shadow economy in different countries in 2015, % of GDP [1, p. 69–76]

Apart from the differences in the size of the shadow economy in developed and developing countries, there are also different reasons why companies move into the shadow sector. In developing countries, the main reasons are the lack of stable institutions regulating market relations; bureaucracy and corruption; and the high tax burden. In such conditions, businesses gain a substantial cost advantage by avoiding taxes and regulations despite the constraints associated with undocumented activities such as the lack of access to credit markets, state and municipal orders, and so on.

In developed countries, the situation is different – they generally have a good institutional environment for doing business while developed market relations make legal activities more beneficial than ‘hiding in the shadows’, outweighing the advantages of tax evasion. Some activities, however, cannot be formalized, especially in developed countries. These include organized crime – there are well-known examples of mafia groups operating in the USA, Italy and Japan, whose income largely remains unreported. Moreover, developed countries attract a lot of illegal migrants, who are employed under the table and whose activity also goes unreported. Shadow activities, however, are reflected in the macro-economic data included in national accounting and thus detected by national accounts statisticians.

No national economy is heterogeneous as far as the shadow economy is concerned and the size of the shadow economy may vary from sector to sector, it may also depend on the nature of the business: in some spheres, the advantages of illegal activities outweigh the disadvantages while in others, it is more profitable to operate legally than to dodge tax liabilities by moving into the shadows. In some spheres, illegal activities are all but impossible: for example, there is a common view that in state and municipal administration, the share of the shadow economy is negligible.

The shadow economy negatively affects national economic development because it results in the loss of tax reve-

nues and creates conditions conducive to terrorist and criminal activities. As the shadow economy spreads more widely, it starts to transform the institutional norms of doing business and thus unregistered activities become the rule rather than the exception.

This study aims to bring to light the differences in the extent and amount of unreported activities in various sectors of economy and identify the sectors characterized by the largest proportion of such activities as well as the reasons behind this situation. An important part of this study consists of the analysis of financial flows between the sectors with a significant portion of shadow transactions.

Our hypothesis is that intersectoral linkages involving sectors with a large share of shadow activities lead to increasing ‘shadowization’ (shadow economy growth) of national economy. If a sector has a large share of shadow activities (a high degree of shadowization), it may influence other sectors due to a multiplier effect. Furthermore, financial flows between the sectors with a large share of shadow activities make the non-observed economy more stable in these sectors, as companies find it more convenient to do business through cash transactions that leave no record. In its turn, the cash they use for these ends also comes from unregistered transactions with other companies. Such business transactions are usually accompanied by tax evasion, since, in case of long-lasting business contacts, partner companies have more mutual trust and tend to be more willing to take the risks associated with illegal operations and concealment of the tax base. All of the above makes it a pertinent task to study economic connections involving shadow sectors as it would allow tax authorities to detect operations with higher risks of tax evasion and monitor them more closely.

2. Sector-specific approach to studying the shadow economy

The shadow economy is a long-standing problem, which has attracted considerable scholarly attention. However, most studies focus on the aggregate shadow

economy and comparatively little attention has been given to shadow activities in individual sectors, which can be explained by the lack of the relevant sector-specific data. While state statistical agencies regularly publish the national accounts information that can be used to estimate the overall size of the shadow economy, there are relatively few indicators that characterize the size of specific shadow sectors.

Guidelines for measuring the non-observed economy in specific sectors are provided by the handbook published in 2012 by the OECD, ILO, IMF, and the International Statistical Committee of the Commonwealth of Independent States¹. In 2008, the United Nations Economic Commission for Europe made a survey of practices of measuring the non-observed economy (NOE) in national accounts². A more recent survey of methods used for measuring the NOE in different institutional sectors was published by the OECD (2012). The survey relies on the ISIC – International Standard Industrial Classification of All Economic Activities. The NOE can be estimated in terms of size and sector (2012) (according to the Eurostat's tabular approach to estimating the production output in the structure of national accounts³) (for an example of the 2012 OECD report⁴).

¹ *Measuring the non-observed economy: A Handbook*. Paris, OECD Publishing. 2002. DOI: [10.1787/9789264175358-en](https://doi.org/10.1787/9789264175358-en); *Measuring the non-observed economy: A Handbook*. 2002. (In Russ.) Available at: <https://www.gks.ru/metod/izmer.pdf>

² *Non-observed economy in national accounts. Survey of country practices*. New York and Geneva, UN, 2008. Available at: <http://www.unece.org/fileadmin/DAM/stats/publications/NOE2008.pdf>

³ Eurostat's tabular approach to exhaustiveness. *Guidelines*. Eurostat/C1/GNIC/050 EN. 2005. Available at: http://www.dst.dk/ext/739814884/0/intconsult/Annex-C1a-Eurostat-Guidelines-Tabular-Approach-part-1-2_ENG---pdf; *Summary of the OECD survey on measuring the non-observed economy*. STD/CSTAT/WPNA (2012)21. 2012. Available at: [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSTAT/WPNA\(2012\)21&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSTAT/WPNA(2012)21&docLanguage=En)

⁴ *Reducing opportunities for tax non-compliance in the underground economy. Information note*. 2012. January. Available at: www.oecd.org/tax/forum-on-tax-administration/publications-and-products/sme/49427993.pdf

One of the widely cited international studies containing comprehensive data on this topic is the study of Friedrich Schneider (2012) [2], who uses different sources of information to estimate the size of the shadow economy. As the analysis of current research literature shows, direct methods appear to be the most applicable to measure the size of the shadow economy on the level of individual sectors: such studies were conducted by P.M. Smith for Canada [3], C. Williams for the UK [4], and T. Putnins and A. Sauka for Latvia [5]. B. Nastav proposes to estimate the size of the shadow economy in Slovenia [6] by looking at GDP structure.

Some sectors of unobserved economy attract more scholarly attention. For example, J. Kocjančič and Š. Bojnec [7] concentrate on the *forestry* sector. They study the influence of staff reductions and the shrinking size of large companies on the shadow economy in Slovenia. For their estimates they rely on the data provided by B. Nastav [6]. *Extraction of mineral resources*, including artisanal or small-scale mining, which is mostly spread in developing countries, is discussed in the widely cited report published by T. Hentschel et al. [8]. Snowdon analyzes the situation in the sphere of *alcohol manufacture and sale* [9] (we believe, however, that following the OECD classification, the sale of counterfeit alcohol should be classified as an illegal rather than shadow activity). L. Burroni et al. [10] investigate the situation in the *textile and clothing industry* and highlight the factors shaping the shadow activities of small and medium-sized enterprises in central Poland and southern Italy. O. Cooke et al. [11] consider shadow activities in *construction* in one of the US states by analyzing a set of parameters and propose to estimate the size of the shadow economy as the average of the 'conservative' and 'more aggressive' estimates. The conservative estimate assumes that the size of the shadow construction sector is proportional to this sector's share of total state GDP while the more aggressive estimate, assumes that the size of the shadow economy is twice the construction sector's share of total state GDP. Other

sectors include *finance*, in particular the so-called 'shadow banking' [12]; *health care* (J. Kornai [13] gathered quantitative data on gratitude payments to doctors in the health care sector through a series of surveys in Hungary); *tourism* (O. Kesar and K. Čuić [14] analyze the factors that determine the shadow tourism sector; these authors also provide an overview of the previous research on this topic and formulate recommendations for reducing the size of the shadow economy in this sector); and the *do-it-yourself activities* (A. Buehn et al. [15] estimate the size and development of the shadow economy and DIY activities in Germany by applying the MIMIC-method).

Since the shadow economy is mostly associated with tax evasion, its size is reflected in the tax evasion and tax fraud figures reported by tax authorities. It is this connection between the shadow economy and tax crime that underlies the method of tax audit used to measure the size of the shadow economy. To estimate the mutual influence between the indicators characterizing the size of the shadow economy and the level of economic crime, we conducted a correlation analysis in our previous research (see A. Kireenko et al. [16]). The results point to a strong connection between the following indicators (significant at the level of 0.05)

- 'Adjustment of the sector's GDP for the NOE' (financial indicator, %) and 'Economic crime damage/sector's gross value added (GVA)' (financial indicator, %);

- 'Adjustment of the sectors' GDP for the NOE' (financial indicator, %) and 'Number of tax crimes per 1,000 workers employed in the sector' (quantitative indicator, units);

- 'Number of tax crimes per 1,000 workers employed in the sector' (quantitative indicator, units) and 'Number of registered tax evasion crimes per 1,000 workers employed in the sector'. This connection was demonstrated by our analysis of the statistical data from the 'Consolidated Statistics on Convictions in Russia': we found that the proportion of people convicted for tax evasion was 53.7% of the total number of tax crimes in 2017.

We believe that the indicator 'Number of tax crimes per 1,000 workers employed in the sector' can be used for measuring the size of the shadow economy. We found that there is a moderate connection between the 'Economic crime damage/sector's GVA' and the 'Number of tax crimes per 1,000 workers employed in the sector'. In our view, criminal statistics can provide us with a more accurate picture of the shadow economy than the financial data, which depend on a multitude of factors subject to change throughout the year.

Regarding Russia and its neighbours, the current research includes the study of S. Kyurzhiiev et al. [17], who developed an econometric regression mathematical model for calculating the degree of shadowization in different sectors. Their methodology relies on the evaluation of connections between nominal GDP growth amount and the amount of cash in the money supply. Their results have shown that in 2007-2017, the largest share of the shadow economy in Russia was observed in construction with the shadowization coefficient of 47.3%; followed by transport and communications (28.3%). In the manufacturing sector and agriculture, the size of the shadow economy was relatively small - 6.3% and 5.9% respectively.

A. Abroskin and N. Abroskina developed a methodology for measuring the shadow economy in different sectors by estimating the ratio of the dynamics of value added to the dynamics of manufacturing costs. They believe that 'a decline in resource intensity (energy, electricity, materials, metal, and so on) is likely to lead to a decrease in the scale of actual production costs in the sector and, therefore, the corresponding adjustments for shadow activities should be raised' [18, p. 94]. They found that in Russia the sectors with the largest shares of shadow activity are agriculture, retail and wholesale trade, land transport, accommodation and food industry, extraction of raw hydrocarbons.

R. Shumyatsky and D. Terre calculated the contribution of specific sectors to the country's GDP and assessed the profitability of production within each sector

[19]. However, since no calculations are provided, it prevents us from retesting the results of the ranking regarding the amount of illicit activities in different sectors of the Russian economy. What raises doubt is the fact that the shadow industry ranking is headed by extraction of mineral resources and manufacturing.

A. Polovyanyan and M. Zanizdra developed a methodology for calculation of coefficients of the shadow sectors in different industries of Ukraine by building a logistic dependency between the coefficient and the quantitative value of the national economy in Doing Business Ranking of Economies. As a result, it was found that the largest shadow sectors in 2014 were found in construction, trade, machine engineering and coal extraction [20].

In Russia, informal activities are especially widely spread in agriculture, which is explained by the following: 'the limited inflow of available market assets; lack of financial market for the agricultural sector; severe competition between shadow agents of market relations for possession of the land resources belonging to the existing agricultural organizations and enterprises with a weak production capacity; and, finally, a large number of hidden in-kind transactions' [21, p. 55]. According to B. Voronin and A. Mitin, the shadow agriculture sector is generated by 'a large number of sale and purchase cash transactions. Moreover, the established model of management in agriculture in Russia is the "iron-hand" model characterized by suppression of competition' [22, p. 12].

Agriculture is closely connected to forestry, which also has a large shadow economy. Forestry, in its turn, has its own factors contributing to this situation: 'high taxes on logging operations, resulting in unequal economic conditions for timber companies. The tax burden on large businesses in forestry is heavier than on medium- or small-sized businesses. The second factor is recession in local economies and the slowdown of global economic growth. Moreover, it's easier for companies to operate in the informal sector. As for the business factors, these include increased pressure on forestry business, severe mar-

ket competition and the growing number of independent workers' [23, p. 712].

There is a widely spread view among Russian economists that tourism and hotel industry have large shadow sectors (N. Zaitseva [24], I. Glazyrina and A. Peshkov [25], Y. Levina et al. [26]). M. Bedanokov and M. Nizaeva contend that this situation is especially typical of the tourism industry in Chechnya: 'the factor impeding the development of the tourism and recreation sector in the Chechen Republic is the high share of the shadow economy'. According to Rosstat, as of the end of 2014, in Chechnya there were registered 9.7 thousand firms. However, the financial performance data are available only for 1.2 thousand. Interestingly, just 15 of them had the revenue over 1 billion roubles in 2014 and 125 firms had the revenue over 1 million per year' [27, p. 19]. M. Bedanokov and M. Nizaeva consider this situation peculiar to Chechnya, which has an unfavourable public image and still suffers from the consequences of the North Caucasus Conflict. There are other studies showing that a large shadow tourism sector exists in other regions as well. For instance, the shadow tourism sector in the Republic of Crimea invariably remains at the level of 70% [28].

Another sphere with a large share of shadow activities is construction, which may be a natural reaction to high risks in this kind of business, since it is dependent on a number of unpredictable factors throughout the long investment cycle, which is typical of construction [29].

There is evidence that the oil and gas shadow sector in Russia is also large. 'Shadow economic activities at the stage of oil and gas extraction occur primarily in the form of illegal entrepreneurship, theft of oil and gas and other activities linked to illegal sale of oil' [30, p. 37]. Other examples of shadow operations in the oil and gas sector include the following: 'tax evasion by selling finished products as semi-finished; extraction of raw hydrocarbons above the limits set by federal exploration licenses to obtain excessive profits; usage of shell firms and in-house transfer pri-

ces by vertically-integrated companies to minimize their tax liabilities' [31, p. 198].

Some researchers attempt to estimate the size of shadow redistribution of financial flows between different sectors of economy: for example, V. Adviysky and V. Bezdenezhnykh consider different ways of measuring financial flows in the shadow economy and draw a scheme of interactions between the open economy and the criminal sector of the shadow economy. However, they failed to find out the amount of shadow financial flows and the amount of the shadow intersectoral redistribution of financial resources, explaining that 'it is hard to estimate the real size of the shadow economy due to the lack of access to the data reflecting the way it actually operates. The error may be tens of percents or even differ severalfold from the actual shadow economy in its various forms' [32, p. 13–14].

E. Baturina and A. Litvinenko conducted a micro-economic analysis of shadow financial flows through marker monitoring of these flows with the help of computer modelling tools. This methodology is used in forensic investigation of economic crimes. It is based on the analysis of the movement of money through the bank accounts of suspected individuals. However, in our view, this methodology alone can give only a fragmented picture of shadow financial flows since it requires prior knowledge about the participants of illegal transactions in order to mark their banking operations. It means that the majority of shadow financial flows will escape monitoring, especially those that do not involve credit organizations [33].

The perceived lack of effective methodology to estimate the intersectoral redistribution of shadow funds means that it is necessary to develop new approaches to address this research gap.

3. Methodology

The Federal State Statistics Service of Russia (Rosstat) uses only two indicators to measure the size of the shadow economy in different sectors:

1) share of undocumented workers in total employment;

2) adjustment of GVA for the NOE.

Rosstat calculates the share of workers employed in the informal sector by using sample surveys of the labour force. Workers in the informal sector are people employed at least in one production unit in the informal sector (that is, enterprises not registered as legal entities) in the given period.

Rosstat's adjustment of GVA values for the NOE gives us a clue as to the amount of illicit activities in the country. To make such adjustment, Rosstat analyzes the indicators absent from the official statistics based on the reports of companies and authorities. This is done by applying the balancing method to compare the macro-economic parameters of the Russian economy.

Table 1 shows the data on undocumented workers in total employment in Russia in 2009–2017. Such sectors as agriculture and forestry, trade, construction, accommodation and food services, storage and transportation had the highest figures of informal employment in Russia. In these sectors, the share of informal employment usually exceeded the average level for Russia.

Table 2 shows the NOE data measured by Rosstat through the adjustment of GVA for informal economic activities. The largest proportion of the NOE is characteristic of real estate, agriculture and forestry, accommodation and food services, construction. The sectors with the largest proportion of the NOE are practically the same as those with the highest levels of informal employment (see Table 1), with an exception of trade, where the share of the NOE is lower than the average level in Russia.

To test the comparability of different shadow sectors by applying the two methods described above, we analyzed the correlation between the share of the shadow economy and the percentage of undocumented workers (see Table 3). The coefficient of the correlation between the given indicators normally exceeded 0.5, which signifies a positive correlation. The value of the correlation coefficient was relatively low only in 2017, when it was

0.3036 due to the fact that the share of the NOE was higher than normal in real estate. Otherwise, the correlation coefficient would as usual exceed 0.5.

Our analysis has revealed the industries with the highest level of shadow activity in the Russian economy. The largest shadow economy is predictably found

Table 1

Share of undocumented workers in total employment in Russia in 2009–2017, %

No	Sectors	2009	2010	2011	2012	2013	2014	2015	2016	2017
1	Agriculture, forestry, hunting, fisheries and aquaculture	67.0	61.7	67.6	68.3	69.7	69.9	71.6	74.7	56.7
2	Extraction of mineral resources	1.2	0.8	1.0	1.2	1.4	1.4	1.5	1.6	1.9
3	Manufacturing	10.8	8.9	9.9	11.3	12.1	12.2	12.7	13.7	13.3
4	Energy, gas and steam supply, air conditioning	1.4	1.2	1.4	1.2	1.5	1.7	1.7	1.5	1.4
5	Construction	25.6	23.1	25.1	26.5	29.0	30.8	31.7	31.8	31.6
6	Wholesale and retail trade; repairs of vehicles and motorcycles	42.5	34.6	38.4	40.2	40.6	40.6	40.8	41.2	40.5
7	Accommodation and food services	20.6	16.3	19.3	22.7	24.1	25.3	26.2	27.8	28.6
8	Transportation and storage	18.0	15.8	17.2	18.5	19.9	21.0	21.2	22.6	22.9
9	Finance and insurance	2.2	1.8	1.7	1.9	1.9	2.4	2.4	2.3	2.2
10	Real estate	6.2	5.3	5.9	6.1	6.6	7.9	8.1	7.0	7.6
11	Education	1.5	1.1	1.2	1.2	1.4	1.6	1.7	2.2	2.2
12	Health care and social services	2.0	1.7	1.8	1.9	2.0	2.3	2.2	2.7	3.4
<i>Total</i>		19.3	16.4	18.2	19.0	19.7	20.1	20.5	21.2	19.8

The table is compiled by the authors by using the data from: *Labour Force, Employment and Unemployment in Russia (Sampling Observation Data)*. 2018: Statistical Yearbook/Rosstat. Moscow; 2018, pp. 48, 95.

Table 2

Adjustment of GVA for the NOE (% of GVA, by sector) in 2011–2017

No	Sectors	2011	2012	2013	2014	2015	2016	2017
1	Agriculture, hunting and forestry	57.3	55.3	56.2	46.6	43.0	38.7	38.1
2	Extraction of mineral resources	0.4	0.6	0.6	0.6	0.6	0.8	0.7
3	Manufacturing	7.2	8.7	8.5	7.7	4.8	5.9	5.9
4	Production and distribution of electricity, gas, and steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Construction	14.2	12.7	14.6	15.7	18.6	17.0	15.8
6	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	8.8	10.8	11.4	11.5	8.0	9.1	10.3
7	Accommodation and food services	18.3	11.7	10.8	10.6	16.9	16.5	16.9
8	Transport and communications	8.9	9.0	6.7	6.8	4.6	4.3	4.2
9	Finance	1.0	0.8	1.1	1.1	1.3	1.2	1.1
10	Real estate, renting and business activities	52.7	52.9	48.3	46.8	45.0	45.0	70.6
11	Education	2.4	5.0	5.1	5.0	6.4	5.4	4.4
12	Health care and social services	5.0	3.7	2.9	2.8	2.6	2.5	3.0
<i>Total</i>		14.6	14.8	14.3	13.8	13.2	13.2	12.7

Compiled by the authors by using the official data of Rosstat (<http://www.gks.ru>)

Table 3

Correlations between the share of the NOE and share of undocumented workers in Russia in 2011–2017

	2011	2012	2013	2014	2015	2016	2017
Coefficient of the correlation between the share of the NOE and share of undocumented workers	0.6133	0.5896	0.6348	0.6020	0.5835	0.5409	0.3036

Compiled by the authors by using the official data of Rosstat (<http://www.gks.ru>)

in the real estate sector since property owners have ample opportunities for engaging in undocumented real estate sales and rental transactions. Leaving some transactions unregistered does not inhibit the development of their business.

Large shadow sectors are found in agriculture and forestry. A lot of production operations of agricultural firms may go unregistered. These organizations, however, have to report their performance if they apply for a bank loan. They also use a part of their production for their own needs. Official statistical reports normally feature the physical indicators such as animal and plant production values, which agricultural companies do not need to hide. The value indicators on GVA, however, are not always included in the official statistics.

Construction traditionally has a large informal sector. Construction companies tend to employ low-qualified workers, including undocumented migrants, in order to dodge social security contributions. Moreover, construction companies are often used by third parties in their fraudulent encashment practices for it may be quite difficult to verify the actual costs of construction works.

Such parts of the services sector as trade and hotel industry often use cash transactions, which are particularly convenient if a company intends to withdraw from the formal sector and move into the shadows.

It should be noted that not only in Russia but also in Europe the above-de-

scribed sectors have a high share of shadow activities. Figure 2 illustrates the results of Friedrich Schneider's study of EU countries, highlighting the sectors with the highest proportions of shadow activity. In Europe, the size of the shadow economy in agriculture and forestry as well as in real estate is slightly smaller than in Russia. On the other hand, in European countries, manufacturing, transport, health care and utility services have a larger informal sector than in Russia.

In the following sections, we are going to consider economic linkages and financial flows between the sectors with the highest proportion of shadow activities and other sectors of Russian economy. The following industries have the largest shadow sectors:

- 1) real estate;
- 2) agriculture and forestry;
- 3) construction;
- 4) trade;
- 5) hotel industry.

For each of them, we analyzed the financial flows related to purchase of goods, works and services by organizations belonging to these sectors from organizations from other sectors. Such operations were classified as belonging to the primary financial flows. Then we analyzed the financial flows associated with the supply of goods, services and works by organizations of the five sectors identified above to organizations from other sectors. These operations were classified as belonging to the secondary financial flows. Our research relies on the data from

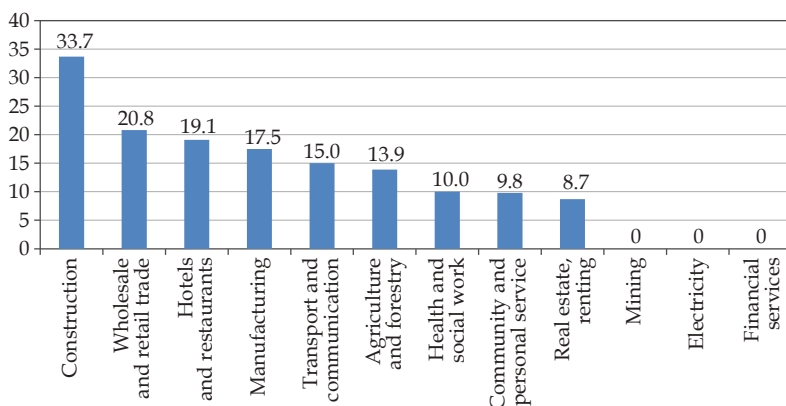


Fig. 2. Sectors with the highest levels of shadow activity in Europe, % of GDP [2]

the input-output tables compiled by Rosstat on the basis of current and capital expenditures of different types of economic entities. Input-output tables contain the data about the intersectoral redistribution of products (goods, works and services). The most recent data can be obtained from the input-output tables published on the official website of Rosstat.

4. Results

Analysis of Rosstat's input-output tables has led us to identify the following characteristics and trends of intersectoral financial flows. First, we analyzed the financial flows between the five sectors with a large proportion of shadow activities (see Table 4). As Table 4 illustrates, these sectors include primarily real estate and agriculture and forestry. In 2017, 44.6% of economic operations of real estate companies were conducted with companies from the other sectors in our list; in agriculture and forestry, such operations accounted for 40.7%, which means that a substantial part of operations, including cash operations, in these sectors went undocumented. The other sectors – construction, trade, and hotel industry – have much less business connections: for example, the hotel industry accounted for 28.7% economic operations; trade, 24.5%; and construction, only 7.0%. This means that a significant part of operations in these sectors were legal as long as the counterparties to these transactions avoided doing business 'in the shadows'.

Second, we analyzed the primary financial flows involving sectors with a large proportion of shadow activities and other sectors. Table 5 shows the groups of industries which supply most goods, works and services (not less than 5%) for the five sectors identified above. The secondary financial flows were analyzed in a similar way. Table 6 shows the groups of industries which supply most goods, works and services for the five sectors. Comparing the data in Tables 5 and 6, we found a certain imbalance between the primary and secondary financial flows in trade. More than a half of the financial flows (51.3%) of trade organizations are payments for commercial services provided by other trade organizations, for example, retail stores pay wholesale companies for the delivery of goods. Only 5.6% of services provided by trade organizations were the services rendered to other trade organizations. This can be explained by the fact that when trade organizations purchase goods, works and services, they tend to make large payments (20.6 trillion roubles in 2017), while the amount of services rendered was much smaller (1.3 trillion roubles in 2017).

Based on these data, we drew a scheme of intersectoral financial flows (see Fig. 3). Construction and trade companies accounted for the majority of economic linkages (12 in 2017) (see Table 7), which raises concerns about the ineffective use of public funds since the counterparties of

Table 4
Intersectoral purchases of goods and services by sectors with a high share of shadow activities in 2017, bln rbs

Products manufactured by the sector	Sectors of economy (according to the 'Russian National Classifier of Types of Economic Activity')					
	Agriculture, forestry, hunting, fisheries and aquaculture	Construction	Trade	Accommodation and food services	Real estate	Intermediate demand, total
Agriculture, forestry, hunting, fisheries and aquaculture	1224.7	6.1	13.7	74.8	1.9	4052.8
Construction	18.8	314.6	94.7	18.5	290.8	2434.1
Trade	39.8	14.9	499.3	0.6	5.0	972.4
Accommodation and food services	0.9	15.0	18.5	4.0	1.1	327.8
Real estate	15.1	95.8	1553.3	167.8	842.9	4952.3
Intermediate consumption, total	3191.1	6378.5	8899.8	925.2	2561.9	83159.0

Compiled by the authors by using the official data of Rosstat (<http://www.gks.ru>)

construction and trade companies include public sector organizations, for example, those operating in the sphere of public administration and defense, social security, health care, and education.

Our analysis of intersectoral financial linkages has revealed the multiplier effect from economic operations involving organizations from sectors with a large share of shadow activities. Tables 8 and 9 show the calculated arithmetic mean of the degree of shadowization in mutual settlement of accounts involving the five 'problem industries' in 2017. In this case, we assumed that involvement of organizations from

different sectors in economic transactions led to spreading of the shadow economy to these sectors. In other words, in those sectors that had business connections with the 'problem sectors', the share of informal activities was likely to start growing as well. For example, for trade organizations with connections to real estate organizations, the share of shadow activities is expected to rise to 40.5% in primary financial flows while for hotels with connections to organizations from the agricultural and forestry sector, to 27.5% (see Table 8). The degree of shadowization already accumulated in the secondary financial flows (see Table 9)

Table 5

Sectors supplying most goods, works and services to sectors with a high share of shadow activities in 2017 (primary financial flows)

№	Agriculture, forestry, hunting, fisheries and aquaculture		Construction		Trade		Accommodation and food services		Real estate	
	Industries supplying the largest amount of products to shadow sectors	Share in total supply, %	Industries supplying the largest amount of products to shadow sectors	Share in total supply, %	Industries supplying the largest amount of products to shadow sectors	Share in total supply, %	Industries supplying the largest amount of products to shadow sectors	Share in total supply, %	Industries supplying the largest amount of products to shadow sectors	Share in total supply, %
1	Agriculture, forestry, hunting, fisheries and aquaculture	38.4	Non-metallic mineral product manufacturing	17.3	Land and pipeline transport	21.8	Food products, beverages and tobacco	38.0	Real estate	32.9
2	Food products, beverages and tobacco	14.4	Finished metal products, except for machinery and equipment	12.2	Real estate	17.5	Real estate	18.1	Electricity, gas and steam supply	14.0
3	Manufacture of coke and refined petroleum products	9.6	Metal-lurgical production	10.2	Warehousing and storage services, supporting and auxiliary transport activities	8.6	Agriculture, forestry, hunting, fisheries and aquaculture	8.1	Construction	11.3
4	Manufacture of chemicals and chemical products	8.5	Manufacture of rubber and plastic products	7.8	Trade	5.6				
5			Industrial machinery and equipment	5.4	Advertising and marketing	5.3				

Table 6

Industries consuming most goods, works and services supplied by sectors with a high share of shadow activities in 2017 (secondary financial flows)

№	Agriculture		Construction		Trade		Accommodation and food services		Real estate	
	Sectors consuming the largest amount of products supplied by shadow sectors	Share in aggregate demand, %	Sectors consuming the largest amount of products supplied by shadow sectors	Share in aggregate demand, %	Sectors consuming the largest amount of products supplied by shadow sectors	Share in aggregate demand, %	Sectors consuming the largest amount of products supplied by shadow sectors	Share in aggregate demand, %	Sectors consuming the largest amount of products supplied by shadow sectors	Share in aggregate demand, %
1	Food products, beverages and tobacco	59.5	Public administration and defence; social security	27.5	Trade	51.3	Public administration and defence; social security	30.4	Trade	31.4
2	Agriculture, forestry, hunting, fisheries and aquaculture	30.2	Construction	12.9	Public administration and defence; social security	8.2	Health care	6.4	Real estate	17.0
3			Real estate	11.9	Land and pipeline transport	6.2	Education	6.3	Land and pipeline transport	11.0
4			Extraction of mineral resources	8.5			Trade	5.6		
5			Health care	5.3						

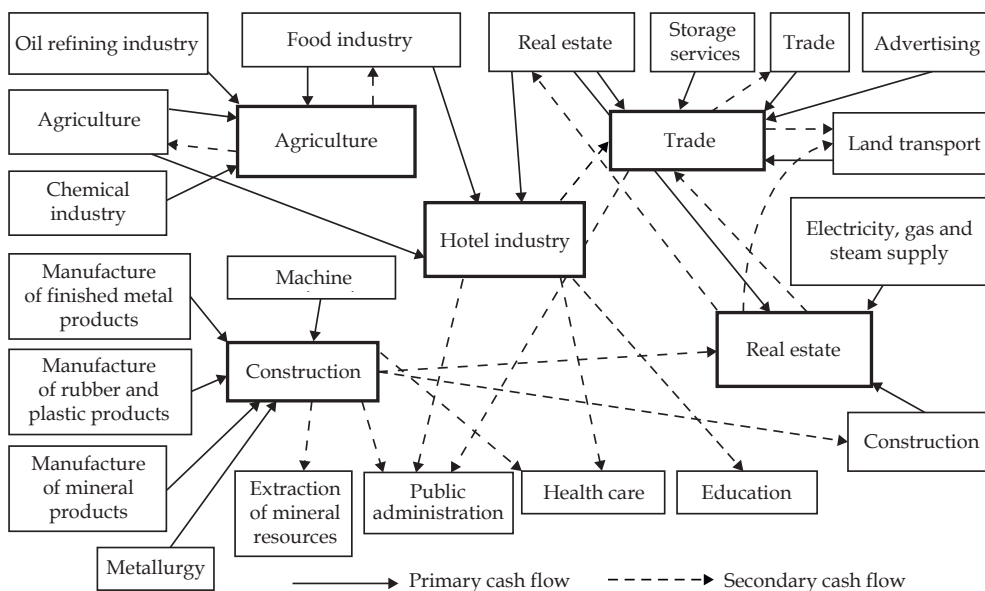


Fig. 3. Intersectoral cash flows involving the sectors with a large share of shadow activities in 2017

may lead to a rise in shadowization in the food industry through the connections of food companies with companies in the forestry and agriculture sector; in trade and transport, through connections with trade companies; in the hotel industry, through connections with trade companies; in health care and education, through connections with hotels and food companies; in trade and transport, through connections with real estate firms.

Thus, it would be logical to assume that business linkages involving sectors with a large share of shadow activities should attract more attention of tax authorities since these linkages may involve companies that are more prone to engaging in shadow economic activities.

Our results lead us to suppose that the tax ratio for the economic operations involving sectors with a large share of shadow activities should be lower. This indi-

cator is used by tax authorities in Ukraine in the assessment of taxpayers when drawing tax inspection plans. Special attention is given to those taxpayers whose tax ratio for certain taxes is lower than the average level in the industry. In macroeconomic terms, the tax ratio corresponds to the tax burden and is calculated as the ratio of the amount of taxes paid by a certain number of taxpayers (in a region, sector or country in general) to GVA produced by these economic entities (or the gross domestic product if taken on a nationwide scale). The actual values of the tax ratio for different sectors of the Russian economy for 2011–2017 are shown in Table 10. In 2017, the tax ratio was higher than in 2016, which can be explained by the fact that in 2017, insurance contributions started to be taken into account by the tax authorities when calculating the total amount of tax payments.

Table 7

Financial linkages between sectors with a large share of shadow activities and other sectors in 2017

№	Sector of economy	Number of financial linkages involving sectors with a large share of shadow activities		
		Suppliers	Consumers	Total
1	Agriculture, forestry, hunting, fishing	2	4	6
2	Food products, beverages and tobacco	2	1	3
3	Manufacture of coke and refined petroleum products	1	0	1
4	Manufacture of chemicals and chemical products	1	0	1
5	Non-metallic mineral product manufacturing	1	0	1
6	Finished metal products, except for machinery and equipment	1	0	1
7	Metallurgical production	1	0	1
8	Manufacture of rubber and plastic products	1	0	1
9	Industrial machinery and equipment	1	0	1
10	Construction	6	6	12
11	Land and pipeline transport	1	2	3
12	Real estate	5	3	8
13	Warehousing and storage services, supporting and auxiliary transport activities	1	0	1
14	Trade	4	8	12
15	Advertising and marketing	1	0	1
16	Accommodation and food services	4	3	7
17	Public administration and defence; social security	0	3	3
18	Health care	0	2	2
19	Education	0	1	1
20	Extraction of mineral resources	0	1	1
21	Energy, gas and steam supply, air conditioning	1	0	1
	<i>Total</i>	34	34	68

Table 8

Arithmetic mean value of the degree of shadowization in transactions involving sectors with a large share of shadow activities in 2017, % of GVA in the corresponding sector, in primary cash flows

No	Agriculture, forestry, hunting, fisheries and aquaculture	Construction	Trade	Accommodation and food services	Real estate	
1	Agriculture, forestry, hunting, fisheries and aquaculture	38.1 Non-metallic mineral product manufacturing	10.9 Land and pipeline transport	7.3 Food products, beverages and tobacco	11.4 Real estate	70.6
2	Food products, beverages and tobacco	22.0 Finished metal products, except for machinery and equipment	10.9 Real estate	40.5 Real estate	16.9 Electricity, gas and steam supply	35.3
3	Manufacture of coke and refined petroleum products	22.0 Metallurgical production	10.9 Warehousing and storage services, supporting and auxiliary transport activities	7.3 Agriculture, forestry, hunting, fisheries and aquaculture	27.5 Construction	43.2
4	Manufacture of chemicals and chemical products	22.0 Manufacture of rubber and plastic products	10.9 Trade	10.3		
5		Industrial machinery and equipment	10.9 Advertising and marketing	13.6		

Note: the industries where the level of shadowization has risen due to the multiplier effect of linkages with the shadow sectors are highlighted in yellow.

Table 9

Arithmetic mean value of the degree of shadowization in transactions involving sectors with a large share of shadow activities in 2017, % of GVA in the corresponding sector, in secondary cash flows

No	Agriculture, forestry, hunting, fisheries and aquaculture	Construction	Trade	Accommodation and food services	Real estate	
1	Food products, beverages and tobacco	30.1 Public administration and defence; social security	7.9 Trade	25.4 Public administration and defence; social security	8.5 Trade	55.6
2	Agriculture, forestry, hunting, fisheries and aquaculture	38.1 Construction	15.8 Public administration and defence; social security	5.2 Health care	10.0 Real estate	70.6
3		Real estate	43.2 Land and pipeline transport	8.8 Education	10.7 Land and pipeline transport	39.0
4		Extraction of mineral resources	8.3	Trade	28.7	
5		Health care	9.4			

Note: the industries where the level of shadowization has risen due to the multiplier effect of linkages with the shadow sectors are highlighted in yellow.

Table 10

Tax ratio in sectors of the Russian economy in 2011–2017
(ratio of taxes paid to GVA), %

Sector of economy	2011	2012	2013	2014	2015	2016	2017
Agriculture, hunting and forestry	2.5	2.1	2.1	2.4	2.6	2.6	8.2
Extraction of mineral resources	55.5	56.4	55.3	60.3	59.5	52.2	59.0
Manufacturing	24.3	24.5	25.8	24.9	24.0	27.2	37.4
Production and distribution of electricity, gas, and steam	17.8	15.3	17.0	18.5	19.4	22.1	34.3
Construction	13.0	13.4	13.1	13.0	12.6	14.1	19.6
Wholesale and retail trade	11.1	13.1	11.1	12.0	12.4	12.9	21.1
Accommodation and food services	14.0	12.7	13.6	13.0	13.1	14.8	22.2
Transport and communications	18.7	17.8	13.7	14.5	13.8	13.9	21.2
Finance	22.8	20.4	19.1	19.0	18.8	24.0	33.0
Real estate	12.2	10.1	9.8	10.5	11.5	11.9	7.9
Education	12.8	13.5	14.3	14.7	15.1	15.0	31.2
Health care and social services	8.3	8.7	8.8	8.2	8.6	8.4	26.4
<i>Total</i>	18.7	18.6	17.7	18.3	18.3	18.6	27.6

Compiled by the authors by using the official data of Rosstat (<http://www.gks.ru>)

Table 11

Expected values of the tax ratio in transactions involving sectors with a large share of shadow activities in 2017, %

Sector of economy	Actual tax ratio	Tax ratio in transactions involving sectors with a large share of shadow activities	Growth rates, %
Wholesale and retail trade	21.1	5.4	25.6
Accommodation and food services	22.2	13.6	61.3
Transport and communications	21.2	2.3	10.8
Education	31.2	12.8	41.0
Health care and social services	26.4	7.9	29.9

Presumably, the tax ratio in transactions involving ‘problem sectors’ will be lower than the average sectoral tax ratio. Table 11 shows our calculations of the expected values of the tax ratio in transactions involving ‘problem sectors’ in 2017. In our calculations, we assumed that in such transactions, the degree of shadowization rises to the level specified in Tables 8 and 9, which leads to significant tax losses. The larger is the share of shadow transactions, the lower becomes the tax ratio of these sectors (see Table 11).

5. Conclusions

In our estimation of the size of the shadow economy in Russia, we used as an indicator the adjustment of GVA for the NOE used by Rosstat. We identified the following industries with a large share of unobserved economic activities:

real estate, agriculture and forestry, construction, trade and hotel industry. Each of them has its own factors contributing to the growth of the shadow sector: for example, firms in agriculture and forestry tend to resort to in-kind payments.

The input-output tables compiled by Rosstat show financial flows involving sectors with a large share of shadow activities. Most economic connections between such sectors were observed in trade and construction. Long-standing linkages with shadow sectors create a multiplier effect as organizations in these sectors tend to conduct illicit transactions (including cash transactions) and thus shadowization spreads to other sectors of economy, even though previously these sectors had only an insignificant share of shadow activities. We found an increase in the share of the shadow economy in transport and com-

munications, education, health care and social services. Thus, our results confirm the hypothesis that the shadow economy spreads to other sectors as a result of their business connections with the sectors with a high degree of shadowization.

Our calculations have shown that the tax ratio is reduced considerably in

transactions involving sectors with a large share of shadow activities because illicit economic transactions tend to be accompanied by tax evasion. Therefore, it would be logical to conclude that business linkages involving these sectors should be closely monitored by tax authorities.

References

1. Medina L., Schneider F. Shadow economies around the world: what did we learn over the last 20 years? *IMF Working Paper*. 2018;(17). DOI: [10.5089/9781484338636.001](https://doi.org/10.5089/9781484338636.001).
2. Schneider F. *The shadow economy in Europe, 2013*. Available at: <https://www.kearney.com/financial-services/article?/a/the-shadow-economy-in-europe-2013>.
3. Smith P.M. Assessing the size of the underground economy: The statistics Canada perspective. In: Lippert O., Walker M. (eds). *The underground economy: global evidence of its size and impact*. Vancouver: The Fraser Institute; 1997, pp. 11–37.
4. Williams C.C. Evaluating the magnitude of the shadow economy: a direct survey approach. *Journal of Economic Studies*. 2006;33(5):369–385. DOI: [10.1108/01443580610706591](https://doi.org/10.1108/01443580610706591).
5. Putnins T., Sauka A. *Shadow economy index for the Baltic countries 2009–2018*. Riga: Stockholm School of Economics in Riga; 2019.
6. Nastav B. *Siva ekonomija v Sloveniji: Merjenje, vzroki in posledice*. Doktorska Disertacija. Ljubljana; 2009. Available at: <http://www.cek.ef.uni-lj.si/doktor/nastav266.pdf>.
7. Kocjančič J., Bojnec Š. Shadow economy in the wood industry in Slovenia. *Advances in Business-Related Scientific Research Journal (ABSRJ)*. 2011;2(2):129–140. Available at: http://www.absrc.org/wp-content/uploads/2015/09/ABSRJ2011_vol2_no2_full.pdf.
8. Hentschel T., Hruschka F., Priester M. *Global report on artisanal and small-scale mining*. IIED and WBCSD. All rights reserved; 2002 (No. 70). Available at: <https://pubs.iied.org/pdfs/G00723.pdf>.
9. Snowdon C. Drinking in the shadow economy. *The Institute of Economic Affairs (IEA) Discussion Paper*. 2012 (No. 43). Available at: https://iea.org.uk/wp-content/uploads/2016/07/Drinking%20in%20the%20shadow%20Economy_0.pdf.
10. Burrioni L., Crouch C., Kaminska M. E., Valzania A. Local economic governance in hard times: the shadow economy and the textile and clothing industries around Łódź and Naples. *Socio-Economic Review*. 2008;6(3):473–492. DOI: [10.1093/ser/mwn005](https://doi.org/10.1093/ser/mwn005).
11. Cooke O., Figart D., Froonjian J. *The underground construction economy in New Jersey*. Galloway: Stockton University, William J. Hughes Center for Public Policy; 2016. Available at: <https://stockton.edu/hughes-center/documents/2018-0424-underground-economy-report.pdf>.
12. Hachem K. Shadow banking in China. *Annual Review of Financial Economics*. 2018;10:287–308. DOI: [10.1146/annurev-financial-110217-023025](https://doi.org/10.1146/annurev-financial-110217-023025).
13. Kornai J. *Hidden in an envelope: gratitude payments to medical doctors in Hungary*. Budapest: CEU Press; 2000. Available at: <http://www.kornai-janos.hu/Kornai2000-Hidden-in-an-envelope.pdf>.
14. Kesar O., Čuić K. Shadow economy in tourism: some conceptual considerations from Croatia. *Zagreb International Review of Economics & Business*. 2017;20(2):65–86. DOI: [10.1515/zireb-2017-0018](https://doi.org/10.1515/zireb-2017-0018).
15. Buehn A., Karmann A., Schneider F. Shadow economy and do-it-yourself activities: the German case. *Journal of Institutional and Theoretical Economics (JITE)*. 2009;165(4):701–722. DOI: [10.1628/093245609789919658](https://doi.org/10.1628/093245609789919658).
16. Kireenko A.P., Nevzorova E.N., Fedotov D.Yu. Sector-specific characteristics of tax crime in Russia. *Journal of Tax Reform*. 2019;5(3):249–268. DOI: [10.15826/jtr.2019.5.3.071](https://doi.org/10.15826/jtr.2019.5.3.071).
17. Kyurdzhev S.P., Peshkova E. P., Mambetova A. A., Kituykova D.S. Determining of the scales of shadow economy on the basis of comparative analysis of GDP and volume of monetary cash. *Gosudarstvennoe i munitsipalnoe upravlenie. Uchenye zapiski = State and Municipal Management. Scholar Notes*. 2018;(4):96–101. (In Russ.) Available at: <http://upravlenie.uriu.ranepa.ru/wp-content/uploads/2018/12/96-101-1.pdf>.

18. Abroskin A.S., Abroskina N.A. features of using the modified method of physical inputs in estimating the scales of shadow activity in the Russian economy. *Vestnik Universiteta*. 2018;(11):91–96. (In Russ.) DOI: [10.26425/1816-4277-2018-11-91-96](https://doi.org/10.26425/1816-4277-2018-11-91-96).

19. Shumyatsky R.I., Terre D.V. some aspects of the evaluation of shady business in Russia. *Vestnik NSUEM*. 2014;(2):256–267. (In Russ.) Available at: <https://nsuem.elpub.ru/jour/article/view/70/68>.

20. Polovyan A.V., Zanizdra M.Yu. Estimating the size of shadow sector of economy of Ukraine in the context of key industries. *Ekonomichesky vestnik Donbassa = Economic Herald of the Donbas*. 2015;(3):43–49. (In Russ.) Available at: [http://www.evd-journal.org/download/2015/3\(41\)/pdf/4-Polovyan.pdf](http://www.evd-journal.org/download/2015/3(41)/pdf/4-Polovyan.pdf).

21. Sologub N.N., Ulanova O.I. The shadow sector in agriculture as a threat to Russia's food security. *Niva Povolzhya = Volga Region Farmland*. 2019;(3):53–61. (In Russ.) Available at: https://niva-volga.ru/file/vipuski/2019_3_52/ru/2019_3_52_ru_53-61.pdf.

22. Voronin B.A., Mitin A. N. Corruption concept, essence and manifestation in the agricultural sectors of economy and other. *Agrarnoye i zemelnoye pravo = Agrarian and land law*. 2016;(7):7–15. (In Russ.) Available at: <https://www.elibrary.ru/item.asp?id=26551569>.

23. Tagiev M.I. Shadow economy forms of manifestation and tools to combat it in the timber industry. *Izvestiya Baykal'skogo gosudarstvennogo universiteta = Bulletin of Baikal State University*. 2018;28(4):711–718. (In Russ.) DOI: [10.17150/2500-2759.2018.28\(4\).711-718](https://doi.org/10.17150/2500-2759.2018.28(4).711-718).

24. Zaitseva N.A. Shadow economic phenomena in tourism and hotel business. *Servis Plus = Service Plus*. 2008;(1):54–60. (In Russ.) Available at: <http://philosoph.su/wp-content/uploads/2015/09/2008-N№1.pdf>.

25. Glazyrina I.P., Peshkov A.E. Discrepancies of border tourism in the east of Russia. *Izvestiya Uralskogo gosudarstvennogo gornogo universiteta = News of the Ural State Mining University*. 2018;(4):128–134. (In Russ.) Available at: <https://iuggu.ru/download/2018-4-52-Glazyrina.pdf>.

26. Levina Ya.G., Karlina E.P., Makarova T.A. Small business as a socio-economic basis for development of tourism industry in the region. *Vestnik Astrakhanskogo gosudarstvennogo tekhnicheskogo universiteta. Seriya: Ekonomika = Vestnik of Astrakhan State Technical University. Series: Economics*. 2017;(4):105–112. (In Russ.) Available at: <https://vestnik.astu.org/en/nauka/article/33056/view>.

27. Bedanokov M.K., Nazaeva M.I. Tourism development of the Chechen Republic in modern conditions. *Transportnoe delo Rossii = Transport Business of Russia*. 2017;(1):17–19. (In Russ.)

28. Kravchenko N.A. Performance criteria for potential realization of tourism industry in the Republic of Crimea. *Pskovskiy regionologicheskiy zhurnal = Pskov Journal of Regional Studies*. 2015;(22):43–58. (In Russ.) Available at: <https://www.pskgu.ru/projects/pgu/storage/prj/prj-22/prj-22-04.pdf>.

29. Pankov A.A., Svetlakov A.G. Theoretical approaches at determining the phenomenon of 'shadow' economy in construction industry. *Mikroekonomika*. 2016;(3):47–54. (In Russ.) Available at: <https://www.elibrary.ru/item.asp?id=26336729>.

30. Bobyrev V.V. Century of Century the oil and gas industry: scales and structure of shadow sector, counteraction factors. *Menedzhment i biznes-administririrovanie = Management and Business Administration*. 2011;(2):33–47. (In Russ.) Available at: <https://www.elibrary.ru/item.asp?id=17820568>.

31. Vasiliev I.V. The shadow economy of the Russian oil and gas industry. *Ustoichivoe razvitie nauki i obrazovaniya*. 2019;(4):196–199. (In Russ.) Available at: <https://www.elibrary.ru/item.asp?id=38564702>.

32. Avdiyskiy V.I., Bezdenezhnykh V.M. The structure of financial flows in the shadow economy and methods of their assessment. *Ekonomika. Nalogi. Pravo = Economics, Taxes & Law*. 2018;11(5):6–15. (In Russ.) Available at: <http://www.fa.ru/org/div/edition/enp/journals/2018%20№5.pdf>.

33. Baturina E.V., Litvinenko A.N. Monitoring of shadow cash flows using computer modelling. *Ekonomika regiona = Economy of Region*. 2018;(1):326–338. (In Russ.) DOI: [10.17059/2018-1-26](https://doi.org/10.17059/2018-1-26).

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Information about the authors

Dmitry Yu. Fedotov – Doctor of Economics, Associate Professor, Professor of the International Relations and Customs Department, Baikal State University (11 Lenin St., Irkutsk, 664003, Russia); ORCID: [0000-0001-9908-802X](https://orcid.org/0000-0001-9908-802X); e-mail: fdy@inbox.ru.

Ekaterina N. Nevzorova – Candidate of Sciences (Economics), Associate Professor, Department of Strategic and Financial Management, Irkutsk State University (1 Karl Marx St., Irkutsk, 664003, Russia); ORCID: [0000-0002-4802-5448](https://orcid.org/0000-0002-4802-5448); e-mail: nevzorova_kat@mail.ru.

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Информация об авторах

Федотов Дмитрий Юрьевич – доктор экономических наук, доцент, профессор кафедры международных отношений и таможенного дела, Байкальский государственный университет (664003, Россия, г. Иркутск, ул. Ленина, 11); ORCID: [0000-0001-9908-802X](https://orcid.org/0000-0001-9908-802X); e-mail: fdy@inbox.ru.

Невzorova Екатерина Николаевна – кандидат экономических наук, доцент кафедры стратегического и финансового менеджмента, Иркутский государственный университет (664003, Россия, г. Иркутск, ул. Карла Маркса, 1); ORCID: [0000-0002-4802-5448](https://orcid.org/0000-0002-4802-5448); e-mail: nevzorova_kat@mail.ru

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Comparative Analysis of Alcohol Excise Taxation and State Alcohol Policies in Russia and Germany

E.V. Iadrennikova¹  , R.A. Busse² 

¹ Ural Federal University named after the first President of Russia B.N. Yeltsin, Yekaterinburg, Russian Federation

² Tax consultant, Halle, Germany

 elena.yadrennikova@mail.ru

ABSTRACT

The influence of excise policy on alcohol consumption has been a focus of interest among Russian and international researchers. In Russia, the socio-economic effects of alcohol abuse are as damaging to the country as its health effects. This problem can be addressed by stimulating a shift of consumer preferences from spirits towards low-alcohol beverages, such as wine and beer. The purpose of this study is to evaluate the efficiency of state alcohol policies, in particular the price and non-price measures, in Russia and Germany and the influence of these policies on alcohol consumption. Based on our research findings, we are going to devise recommendations for improvement of the state alcohol excise policies in these countries. The hypothesis is that for Russia, a feasible solution would be to readjust its alcohol excise policy by increasing the tax burden on spirits and reducing the burden on low-alcohol beverages, which would change the price structure for different kinds of alcohol products. The research methodology involves the analysis of the current state and characteristics of alcohol excise taxation in Russia and Germany, the measures of the state alcohol policies implemented in these countries and their influence on tax revenues and alcohol consumption. We also conducted comparative analysis of the restrictive measures of manufacture, distribution, sale and consumption of alcohol products in Russia and Germany; the dynamics and types of alcohol excise rates in Russia and EU countries. Yet another question discussed in this study is the influence of restrictive measures, especially excise duties, on the amount and structure of alcohol consumption in Russia and Germany. Our study has shown the need to readjust the alcohol excise policy in Russia by taking into account the experience of Germany and other European states.

KEYWORDS

excise tax, alcohol beverages, alcohol policy, tax rates, alcohol consumption, price and non-price measures of state regulation

JEL H20, H30


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Сравнительный анализ антиалкогольных мер в контексте государственной акцизной политики России и Германии

Е.В. Ядренникова¹  , Р.А. Буссе² 

¹ Уральский федеральный университет имени первого Президента России Б.Н. Ельцина, г. Екатеринбург, Россия

² Налоговый консультант, г. Галле, Германия

 elena.yadrennikova@mail.ru

АННОТАЦИЯ

Влияние государственной акцизной политики на потребление алкоголя вызывает растущий интерес как отечественных, так и зарубежных ученых. Злоупотребление крепкими алкогольными напитками в современной России формирует ряд негативных последствий и приводит к значительному бремени для

здравоохранения, экономики и общества в целом. Поэтому смещение потребительских предпочтений в сторону потребления слабоалкогольной продукции, вина и пива является крайне актуальной задачей. Целью данного исследования является анализ и оценка результативности мер государственной антиалкогольной политики ценового и неценового характера Российской Федерации и Германии и их влияния на потребление алкогольных напитков и разработка предложений по совершенствованию государственной акцизной политики по алкогольной продукции в этих странах. Гипотеза исследования состоит в том, что совершенствование акцизной политики по алкогольной продукции в Российской Федерации посредством увеличения фискальной нагрузки на крепкий алкоголь и сокращения налогового бремени по алкоголю с низким содержанием этилового спирта позволит изменить ценовую структуру различных видов алкогольной продукции. Методика исследования включала в себя изучение современного состояния и особенностей акцизного налогообложения алкогольной продукции России и Германии, а также мер государственной антиалкогольной политики и ее влияния на величину поступлений акцизного налога в бюджет и потребление алкогольных напитков населением этих стран. Проведен сравнительный анализ ограничительных мер, касающихся производства, реализации и потребления алкогольных напитков в России и Германии, а также величины, динамики и видов ставок, применяемых при налогообложении алкогольной продукции в России и в странах Европейского Союза. Проведено исследование динамики объема и структуры потребления алкогольных напитков в России и в Германии под влиянием мер государственного регулирования, в частности инструментов акцизного налогообложения и иных ограничительных мер. Обосновывается необходимость совершенствования государственной акцизной политики России в сфере налогообложения алкогольной продукции с учетом опыта Германии и стран Евросоюза.

КЛЮЧЕВЫЕ СЛОВА

акцизное налогообложение, алкогольные напитки, государственная политика по алкогольной продукции, налоговые ставки, потребление алкогольной продукции, ценовые и неценовые меры государственного регулирования

Introduction

Excessive alcohol consumption constitutes a substantial socio-economic burden for many countries. The World Health Organization (WHO) attributes 3.3 million deaths a year to alcohol misuse¹. In Russia, alcohol abuse has long been one of the most serious medical and social problems. According to the WHO, in 2008, registered alcohol consumption per capita (15 years and older) in Russia was 12.09 litres in pure alcohol. In 2016, this figure dropped to 8.42 litres per person. In Germany, registered alcohol consumption per capita (15 years and older) fell from 10.71 litres of pure alcohol in 2008 to 9.55 litres in 2016. Nevertheless, the level of alcohol consumption in both countries is still higher than the level recommended

by the WHO (not more than 8 litres per person per year).

In order to deal with the negative consequences of alcohol abuse, most countries adopt alcohol regulation policies. In the last decades, Russia has been tightening control over its alcohol market.

The Russian alcohol market is characterized by the following:

- relatively high level of overall alcohol consumption;
- large percentage of spirits in the alcohol consumption structure (spirits consumption more than twofold exceeds the recommended 'ideal' structure of alcohol consumption that is likely to result in minimum harm [1];
- considerable percentage of unregistered alcohol (up to 24% of total consumption)²;

¹ World Health Organization (WHO), Global Status Report on Alcohol 2004, Department of Mental Health and Substance Abuse, WHO, Geneva, Switzerland, 2004.

² World Health Organization (WHO), Global Status Report on Alcohol 2004, Department of Mental Health and Substance Abuse, WHO, Geneva, Switzerland, 2004.

- rigorous state control and regulation of manufacture and sale of alcohol, ban on alcohol advertising, restrictions on alcohol selling time and on the density and location of alcohol outlets.

Germany is a EU member country, which means that its excise taxation conforms with the European Commission's directives of 19 October 1992 as far as the list of taxable products and the tax rates are concerned (Directive 92/83/EEC and Directive 92/84/EEC)³. The alcohol market in Germany is characterized by the following:

- relatively high level of overall alcohol consumption;
- healthier alcohol consumption structure, prevalence of low-alcohol drinks (beer and wine account for 82%);
- considerable differentiation of excise tax rates for spirits and low-alcohol beverages;
- stimulation of beer and wine-making through lower rates of beer duty and a zero tax on natural wine;
- insignificant share of unregistered alcohol.

Since Russia and Germany have similar mentality and drinking cultures but different types of alcohol consumption, it is interesting to compare their price and non-price measures of state alcohol regulation and identify priority areas for improving their state alcohol policies.

In recent years, per capita alcohol consumption in Russia has started to decline while the share of low-alcohol drinks, especially beer, started to grow. In general, however, the national drinking habits in Russia, with spirits remaining the preferred type of drink, remain quite persistent. Abuse of hard liquors is a major source of such problems as the rising crime rates; social degradation; upsurge in premature deaths and alcohol-related health problems. Ensuring a radical shift of consumer preferences towards low-

alcohol beverages such as wine and beer is an important task, which will contribute to the improvement of the demographic situation in the country, increase life expectancy, reduce mortality and encourage people to lead a healthier lifestyle [2].

The purpose of this study is to analyze and evaluate the efficiency of state alcohol policies in Russia and Germany, in particular the price and non-price measures, and their influence on alcohol consumption. Based on the research findings, we are going to devise recommendations for improvement of the state alcohol excise policies in these countries.

The hypothesis of this study is as follows. The readjustment of the alcohol excise policy in Russia by increasing the tax burden on spirits and reducing the burden on low-alcohol beverages will lead to changes in the price structure for different kinds of alcohol products. This, in its turn, will contribute to shifting consumer preferences from spirits towards low-alcohol beverages (wine and beer) and result in a reduction in the share of spirits in the overall alcohol consumption structure.

1. Literature review

Alcohol stands apart from other product types as its misuse is linked to a number of harmful consequences such as anti-social behaviour, growing crime and morbidity rates and, consequently, increased health care expenditures [3; 4].

Wagenaar et al. [5] showed the significant positive effects of public policies affecting the price of alcoholic beverages on alcohol-related disease and injury rates. The results of numerous studies of the efficacy of alcohol policies in the USA, Canada, Finland, Spain, Denmark, Switzerland and Russia show the positive impact of such measures on alcohol-related traffic fatalities [6–8], incidence of violence [9], and alcohol-related mortality [7; 10].

The global strategy to reduce harmful use of alcohol approved by the WHO in 2010 recommends national governments to restrict physical availability of alcohol. According to the WHO, the most cost-effective measures are the regulation of the number and location of retail alcohol

³ European Commission. Taxation and customs union. Reading allowed: Tax information Communication database, 2019. Available at: https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-alcohol/excise-duties-alcoholic-beverages_en.

outlets, the hours and days during which alcohol may be sold; establishing a minimum legal age for consumption of alcohol; and restricting drinking alcohol in public places. The WHO's recommendations are supported by ample evidence showing that restrictions on physical availability of alcohol are in fact quite effective [4; 11].

Yet another impactful measure is pricing. Pricing strategies entailing a rise in the retail price of alcohol beverages are considered to be among the most effective in international practice. Excise taxation plays a key role in such strategies. There is research showing the importance of alcohol price regulation with the help of excise duties [12; 13]. An increase in alcohol excise taxes is a proven measure leading to a rise in prices and, consequently, a decline in alcohol sales and in drinking [14–16]. The relationship between excise taxes, retail prices and alcohol consumption in different countries has received a lot of scholarly attention [5; 17]. The negative price elasticity of demand for alcohol has been demonstrated by Wagenaar et al. [5], Mäkelä P. et al. [2018] and Razvodovsky Yu. [19].

State alcohol regulation has different aspects related to alcohol production and consumption, which have been studied extensively by research groups across the world. State seeks to regulate alcohol consumption, on the one hand, and, on the other, to increase its tax revenues. In order to balance these two goals, the government needs to devise an effective state policy to control production, distribution, sale and consumption of alcohol. The effectiveness of these measures has been discussed by Babor T. et al. [4] and Wagenaar et al. [5]. Substantial data on alcohol consumption and state alcohol policies have been collected for different countries, including Russia [20; 21]. It should be noted that judging by the available evidence, so far, the alcohol control policy implemented in Russia has been quite successful.

For each of the aspects discussed above, sufficient research data have been gathered. The influence of tax rate differentiation on alcohol consumption, however, still remains an underexplored question.

2. Research methodology

Our analysis of alcohol excise taxation and alcohol policies in Russia and Germany focused on the period of 2008–2017. Methodologically, this study uses comparative analysis of the contemporary state of alcohol excise taxation in Russia and Germany as well as price (through excise duties) and non-price measures (restrictions on physical access to alcohol) constituting state alcohol policies in these countries. We compared the restrictive measures used in both countries to control manufacture, distribution, sale and consumption of alcohol as well as the amount of excise taxes, tax rates and their overall dynamics in Russia and EU countries.

We analyzed alcohol policies in Russia and Germany by focusing on the instruments of excise taxation for the main types of alcohol beverages (spirits, beer, wine and other alcohol containing products).

In Russia, the category 'spirits' includes distilled beverages containing more than 9% ABV. The largest share in this category is held by vodka, but this category also comprises cognac, liqueurs, brandy, calvados, etc. The category 'beer' comprises beer above 0.5% and in the period of 2013–2016 in this category there were also included the so-called 'beer drinks', that is, beverages made by adding alcohol and beer-based beverages. Other alcoholic beverages with ABV below 9% include low-alcohol drinks such as *med-ovukha*, cider, perry, champagne and sparkling wine.

In Germany, the category 'spirits' comprises ethyl alcohol of any strength (including denatured alcohol), fortified wine, grape must, vermouth and other fermented drinks containing 22% ABV or more. The category 'champagne' (sparkling wine) includes beverages with ABV from 1.2% to 15%. Other alcoholic beverages (intermediate products) include such drinks as port, sherry and Madeira wine (aperitifs), of 1.2% to 22% ABV.

We also analyzed the dynamics in the volume and structure of registered adult alcohol consumption in Russia and Germany in 1963–2016, in particular the role played by excise taxation. We also used

the WHO data on the registered amount of alcohol consumed in these countries per year (in litres of pure alcohol per person (15 years and older)).

The data on the amount of excise taxes for different types of alcoholic beverages and tax rates were obtained from the websites of the Federal State Statistics Service (gks.ru), Federal Tax Service (nalog.ru), and the European Commission (ec.europa.eu). The data on alcohol consumption were provided by the web-site of the World Health Organization (apps.who.int). Methodologically, this study draws from Russian and international research and on the authors' previous works.

3. Results and discussion

3.1. Alcohol excise taxation in Russia and Germany

In Russia, the following types of alcohol excise duties are currently applied: excises on spirits with over 9% alcohol (vodka, cognac); on beer, cider, perry, medovukha, champagne and sparkling wine and other alcohol production with less than 9% alcohol. Taxes on beer, wine, champagne and sparkling wine are calculated based on the amount of alcohol sold (volume-based) expressed as roubles per litre while taxes on other kinds of alcoholic beverages are calculated per unit of absolute alcohol.

We should keep in mind that Germany is a EU member state and that indirect taxation is harmonized throughout the EU, which means that German excise legislation conforms with the EU legislation. Beer, wine (still and sparkling), intermediate products (e.g. port and sherry) and spirits (ethyl alcohol) are the main categories of taxable alcoholic drinks. It should be noted that the EU legislation only sets harmonized minimum rates, which means that EU countries are free to apply excise duty rates above these minima, according to their own needs. Since the harmonizing directives took effect in 1993, EU countries have been following common provisions regarding taxation of specific alcohol categories and the minimum tax rates.

In Germany, since 1993, excise duties have been levied on spirits (ethyl alcohol),

beer, sparkling wine and intermediate products (port and sherry). In 2005, Germany started to levy an additional excise duty on 'alcopops' – sweet beverages containing alcohol – to improve the protection of young people against the dangers of alcohol consumption. The alcopop duty is non-harmonized. Apart from Germany, it is applied only in two other EU countries – Denmark and France; it is also used in Switzerland. It should be noted that natural still wine in Germany is tax-exempt. Only sparkling wines are taxed at a rate per litre of beverage. For other types of alcohol beverages, including spirits, beer and intermediate products, the amount of tax depends on the content of pure alcohol in the product. Excise tax rates have remained unchanged in the 30-year period: the last time the rates were raised was in 1982, when they were increased by 30%.

Alcohol excise duties play an important role in excise taxation in Russia and Germany alike. There are, however, differences between the two countries in terms of excisable alcoholic beverages. For instance, while in Russia natural still wines are taxable, in Germany they are tax-exempt. Spirits and beer account for the largest shares in the structure of alcohol tax revenue both in Germany and Russia.

3.2. Comparative analysis of state alcohol policies in Russia and Germany and their influence on alcohol consumption

State alcohol policy regulates the availability of alcohol by reducing physical access to alcohol and/or by controlling the costs of alcohol, that is, regulating its affordability.

International practices of state regulation of manufacture and sale of alcoholic beverages include several forms: full control (monopoly); partial control (licensing); and no formal control over the manufacture and sale of alcohol. The majority of European countries exercise control through license systems. Only Finland, Norway (alcohol with higher than 4.75% ABV) and Sweden (alcohol with above 3.4 % ABV) have state monopolies over retailing of alcohol beverages [22]. State regulation of production, distribution and sale of alco-

hol products may include the following: restrictions on hours and days of alcohol sale; regulations of public drinking places; bans or limitations on alcohol consumption in certain places (health care and education facilities, government offices, public transport, sports events, youth festivals, etc); regulation of alcohol outlet density; setting minimum purchase and consumption age limits for alcohol; regulation of alcohol marketing (TV, online, printed materials, boards and signs) [2]. The efficiency of these measures in this or that country depends on a range of factors, such as local customs, drinking habits, religious traditions and so on [23; 24].

3.2.1. Analysis of state alcohol policies in Russia and Germany aimed at limiting physical access to alcohol

In the first years after the collapse of the USSR, alcohol policy was not among the top priorities of the Russian government. As market relationships were actively developing, the state abandoned its control over the manufacture and sale of alcohol, the restrictions on the days and hours of alcohol sale were also lifted.

A new stage in state alcohol regulation began in the early twenty-first century. Table 1 illustrates the chronological order in which this policy was implemented in 2008–2017.

Table 1
Stages of state alcohol policy development and implementation in Russia in 2008–2017

Year	Measures
2008	Introduction of the mandatory Unified State Automated Information System (USAIS) for state control over the volume of production and turnover of ethyl alcohol, alcoholic beverages and alcohol-containing products
2009	Creation of the Federal Service for Alcohol Market Regulation (Rosalcogolregulirovanie) Adoption of the 'Concept of Implementation of the State Policy to Reduce Alcohol Abuse and Prevent Alcoholism among the Population of the Russian Federation for the Period until 2020' (Government Decree of 30 December 2009 № 2128-p)
2010	The minimum retail price on vodka was set
2011	Ban on the sale of alcoholic beverages at gas stations Setting new technical requirements for alcohol producers in order to drive small producers out of the market (the minimum capital required for vodka manufacturers was raised to 80 million roubles) Relicensing of alcohol manufacturers and distributors, with the resulting reduction in their total number of 30–40%
2012	More frequent indexation of alcohol excise rates and rise of the minimum retail price of vodka Limitations on the sale of alcohol in the evening and night hours (the federal legislation prohibits the sale of alcohol from 11 p.m. until 8 a.m.; regional and local authorities can add their own limitations by introducing extra hours) Restrictions on location of liquor stores (restrictions on the placement of alcohol outlets near sensitive locations such as schools, hospitals, sport facilities and cultural institutions) Piecemeal limitations, ending with a total ban of alcohol advertising on TV, radio and printed media
2013	Ban on selling beer in the street (from stalls and kiosks). Alcohol beverages (including beer) are allowed to be sold only in restaurants, cafes and stores with an area of at least 50 square meters
2015	The restrictions on beer commercials on TV were relaxed, more specifically, beer advertising was permitted during sports broadcasts. It was also allowed to place beer ads in points of sale Radio and TV advertising of wine made of Russian-grown grapes was permitted The minimum retail price on vodka was lowered by 16%
2016	The use of the USAIS made compulsory for alcohol wholesalers and retailers
2017	Ban on production, distribution and sale of alcohol in PET bottles with the volume exceeding 1.5 litres

Source: [20].

The reform entered its most active phase in 2009, when the Federal Service for Alcohol Market Regulation (Rosalcogol-regulirovanie) was established. At the end of 2009, the Russian government also adopted the new 'Concept of State Anti-Alcohol Policy' aimed at ensuring a more than twofold reduction in the total alcohol consumption by 2020. In 2012, the government introduced limitations on the sale of alcohol in the evening hours and at night and the location of alcohol outlets. Moreover, alcohol advertising in mass media was banned. An important role in the Russian state alcohol policy is played by the Unified State Automated Information System (USAIS), which is used for controlling the volume of production and turnover of ethyl alcohol, alcoholic beverages and alcohol-containing products. The USAIS allows the authorities to monitor the movement of alcohol from suppliers to end customers and thus deal with the problem of off-the-books sale of alcohol and counterfeit alcohol.

In 2015, the alcohol reform in Russia slowed down: for the first time since the minimum retail price on vodka was set, it was lowered by 16%. The rules concerning beer and wine marketing were also relaxed somewhat. In 2015–2016, the government stopped raising excise rates for most types of alcoholic beverages to stabilize the market, increase the share of legal and reduce the amount of unregulated alcohol. One of the reasons behind a large percentage of alcohol being illegally imported from EAEU countries (mainly Belarus and Kazakhstan) through 'grey' schemes is that in these countries excise rates and, consequently, alcohol prices are significantly lower. Starting from 2016, manufacturers, wholesalers and retailers in Russia have been obliged to use and record the data on the products they produce and sell in the USAIS system, which reduced the amount of unrecorded counterfeit alcohol. In 2017, alcohol excise rates were raised again.

Let us now consider the non-price measures of alcohol policy in Germany. Like in Russia, there is no state monopoly on alcohol production and no liquor licensing. There are, however, restrictions on hours of sale and the areas and loca-

tions where alcohol can be sold. There are also certain alcohol marketing restrictions concerning beer, wine and liquor advertising on the radio and TV as well as on signs, billboards, in newspapers or other publications. Like in Russia, in European countries there are requirements that warning labels should be used on alcoholic beverages with information about the risks associated with alcohol consumption.

In Germany, state alcohol regulations concerning physical availability of alcohol and alcohol marketing are not as stringent as in Russia. Germany, like other European 'beer' or 'wine' countries, implements protectionist policy in relation to its breweries and wineries, which includes a range of tax and other preferences. These countries are not trying to deal with the problem of excessive alcohol use by prohibiting alcohol consumption or inducing cuts in the production of alcoholic beverages but instead resort to other methods to combat heavy drinking among the population [25–27] such as the development of national brewing and wine-making traditions, encouraging public celebrations such as beer festivals and promoting social drinking in cafes and bars as opposed to solitary drinking at home. Price methods are also actively used. Differentiated rates of taxes on spirits and beer and zero-tax on natural wine are an effective way to achieve a shift in alcoholic beverage consumption patterns, encouraging consumers to choose healthier options.

In general, it can be concluded that Russia tends to impose more stringent measures to regulate the production, distribution and consumption of alcohol than Germany and most European countries which are closer to Russia in terms of their cultural mindsets and alcohol consumption patterns.

3.2.2. Analysis of alcohol tax policies in Russia and Germany

In Germany, like in most other EU countries, excise rates remained stable throughout the given period. In Germany, the alcohol excise tax was last raised by 30% in 1982. It is interesting to compare the rates of excise taxes on strong and

low-alcohol beverages in Germany and other EU countries. Remarkably, 15 out of 28 EU countries have zero taxes on natural wine. Table 2 illustrates the results of our

comparative analysis of excise tax rates in Russia, Germany and other EU countries for the main types of alcoholic beverages as of 2020.

Table 2

Comparative analysis of the rates of excises on the main types of alcoholic beverages in Russia and EU countries in 2020

Countries	Excise rates						
	Spirits		Beer and mixed beer beverages**		Wines (except for champagne and sparkling wines)**		Champagne and sparkling wines***
	€/litre of absolute alcohol	EU country's ranking position	€/litre	EU country's ranking position	€/litre	EU country's ranking position	€/litre
Russia*	7.698	-	0.311	-	0.439	-	0.566
Minimum rates of excise duty in the EU	5.500	-	0.090	-	0	-	0
Germany	13.030	17	0.094	25	0	14-28	1.360 / 0.510
Austria	12.000	19	0.240	17	0	14-28	1.000
Belgium	29.928	5	0.241	16	0.749	8	2.563
Bulgaria	5.624	28	0.092	27	0	14-28	0
Cyprus	9.568	25	0.288	13	0	14-28	0
Czech Republic	12.529	18	0.147	23	0	14-28	0.909
Denmark	20.0927	7	0.362	9-10	1.508/0.694	4	1.957/1.143
Estonia	18.810	9	0.745	5	1.470/0.634	5	1.478/0.634
Greece	24.500	6	0.600	6	0	14-28	0
Spain	9.589	24	0.099	24	0	14-28	0
Finland	48.800	1	1.538	1	3.970/2.750	2	3.970/2.750
France	17.866	10	0.356	11	0.039	13	0.096
Croatia	7.151	27	0.259	14	0	14-28	0
Hungary	9.958	23	0.252	15	0	14-28	0.491
Ireland	42.570	3	1.082	2	4.248	1	8.497
Italy	10.350	22	0.362	9-10	0	14-28	0
Latvia	15.640	12	0.202	21	1.010	6	1.010
Lithuania	18.320	8	0.341	12	1.647/0.655	3	1.647/0.655
Luxembourg	10.411	21	0.095	26	0	14-28	0
Malta	13.600	15	0.232	18	0.205	12	0.205
Netherlands	16.860	11	0.380	8	0.883/0.442	7	0.883/0.442
Poland	14.355	13	0.220	19	0.397	10	0.397
Portugal	13.869	14	0.206	20	0	14-28	0
Romania	7.452	26	0.090	28	0	14-28	0.107
Sweden	47.813	2	1.002	4	0.507/0.242	9	0.507/0.242
Slovenia	13.200	16	0.581	7	0	14-28	0
Slovakia	10.800	20	0.172	22	0	14-28	0.795/0.542
UK	32.308	4	1.004	3	0.344/0.103	11	0.428/0.141

Source: European Commission. Taxation and customs union. (2019). Reading allowed: Tax information Communication database. Retrieved from: http://ec.europa.eu/taxation_customs/tedb/spl-SearchForm.html, authors' calculations

* Excise duties in Russia were converted into euros by using the average exchange rates of the Central Bank of Russia as of January-March 2020 (1€ = 70.6647 rbs.).

** In EU countries, beer excise rates vary in proportion to alcohol content while in Russia, the excise rates are set in roubles per litre. Since beer excise rates are expressed in a variety of ways, for the purpose of comparability, these rates were converted to euro per litre of beer of 12 degrees Plato or 4.8% ABV.

*** Excise rates for wines of different strength (champagne) are indicated after the slash, the highest rate is imposed on stronger alcoholic beverages.

In setting their excise duty rates, EU countries including Germany follow the Directive 92/83/EEC and 92/84/EEC, which provide a harmonized list of excisable alcoholic beverages and the minimum tax rates for them. As Table 2 shows, Finland, Ireland, Sweden, Estonia, Denmark, Belgium and Greece levy the highest excise duties on alcohol beverages. Taxes on alcohol are lower in Germany than in many other European countries: in Germany, natural still wine is exempt from excise duties, the tax on beer is set close to the minimum level and on spirits it is only 2.4 higher than the minimum.

Interestingly, the vast majority of European countries levy much higher excise duties on spirits. The only country whose spirits tax rate is close to minimum is Bulgaria. In 19 EU countries, including Germany, the spirits tax rate exceeds the minimum rate more than 2 times (68%) and in 11 countries, more than 3 times (39%). As for low-alcohol drinks, the situation is radically different: first, European states can make still wines and champagne exempt from taxation, which is a widely spread practice among these countries. 15 countries out of 28 (54%) have zero taxes on still wine and 9 countries, on champagne (32%). Second, the minimum rate of excise duties on beer is 61 times lower than on spirits. The actual rate of excise duties on beer only slightly exceeds the minimum rate in seven countries (25%). These countries include such well-known leaders in beer production and consumption as Germany and the Czech Republic, but also Bulgaria, Spain, Luxembourg, Romania and Slovakia. Only in 12 countries out of 28 (43%), the rates of excise duties on beer more than 3.5 times exceed the minimum rate and are at the same level or above the rate applied in the Russian Federation. In Germany, the current rate of excise on spirits exceeds that on beer 139 times. Thus, in Germany and other EU countries, the governments regulate alcohol consumption and ensure shifting of consumer preferences from strong liquors to low-alcohol drinks through differentiated tax rates on various products.

Unlike Germany and other EU countries, in Russia alcohol excise duties are raised almost every year. Let us consider the dynamics of alcohol excise duties and their structure in Russia in 2008–2020 (Table 3).

In the recent decade, Russia's alcohol tax policy has been oriented towards a steady increase of excise taxes. A negative trend worthy of attention is a disproportionate increase in excise rates on certain types of alcoholic beverages. In other words, the rates of taxes on low-alcohol beverages grow much faster than those on strong liquor. In 2008–2017, alcohol taxes were increased from 3 times (on spirits) to 7.7 times (on beer and wine). Interestingly, the alcohol tax revenue grew only 3.1 times, which shows that there has been a considerable decline in alcohol consumption in Russia (see Fig. 1, Table 4). Analysis of the data in Tables 2 and 3 leads us to some interesting conclusions about Russia's and Germany's alcohol tax policies.

Excise taxes on spirits (ABV over 9%) in the given period demonstrated a more noticeable threefold increase. Such situation does not stimulate consumers to reduce their consumption of spirits and explains why it retains its top position in the overall consumption structure (Fig. 2, Table 4). The cross-national comparison of spirits taxation has shown that Russia belongs to the group of countries with the minimum rates, which is in fact quite untypical for northern countries. For instance, in Finland, Sweden and Ireland, the spirits tax rates are 5.5–6.3 times higher than in Russia (see Table 2), in Germany 1.7 times higher. Thus, it is recommended that the Russian government should explore the possibilities of excise tax rise for spirits.

In Russia, in 2007–2017, the rate of excise on beer with ABV from 0.5 to 8.6 % rose 7.7 times and in 2017 it reached 21 roubles per litre, which is much higher not only in comparison with other countries of the Eurasian Economic Union (EAEU) but also with other leaders in terms of beer production and consumption, such as Germany (3.3 times higher)

and the Czech Republic (2.1 times higher). The rate of excise on stronger beer (ABV above 8.6%), however, increased only 4.4 times, which means that the whole situation is not conducive to shifting consumption towards low-alcohol beer types. As far as Germany is concerned, apart from the relatively low standard beer tax rate, there are reduced rates to support small and medium-sized breweries. Depending on the annual production, a reduced tax scale is applied:

for breweries with the annual production from 2 to 4 mln litres a year, the excise rate is lowered by 16%; for breweries with 1 to 2 mln litres, by 22%; for those with 500,000 to 1 mln litres, by 33%. The maximum reduction of 44% is available to breweries with the annual production of less than 500,000 litres a year. Furthermore, amateur home brewers in Germany are allowed to produce up to 2,000 litres of beer for their own consumption and in this case their production is tax exempt.

Table 3

Indicators	Years											Change in 2017, in % to 2008	For reference		
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2020		2020 [*] _(adj)	Change, in % 2020 _(adj) in relation to 2020	
	<i>1. Excise tax, rouble/litre of ethyl alcohol</i>														
1.1. Ethyl alcohol	25	27	30	33	37	59	74	93	102	107	428.0	544	281.4	1125.6	
1.2. Beverages with over 9 % ABV	173	191	210	231	300	400	500	500	500	523	302.3	544	281.4	162.7	
1.3. Beverages with less than 9% ABV	110	121	158	190	270	320	400	400	400	418	380.0	435	225.0	204.5	
<i>2. Excise rates, rbs/l</i>															
2.1. Wines, fruit wines, winy beverages produced through natural fermentation without adding ethyl alcohol (except for champagne and sparkling wine)	2.35	2.6	3.5	5	6	7	8	8	9	18	766.0	31	16.0	680.9	
2.2. Champagne and sparkling wines	10.5	10.5	14	18	22	24	25	25	26	36	342.9	40	20.7	197.1	
2.3. Beer, 0.5-8.6% ABV	2.74	3	9	10	12	15	18	18	20	21	766.4	22	11.4	416.1	
2.4. Beer, over 8.6% ABV	8.94	9.8	14	17	21	26	31	31	37	39	436.2	41	21.2	237.1	
2.5. Cider, perry, medovukha	-	-	-	-	-	-	8	8	9	21	-	22	11.4	-	

Source: Federal Tax Service of the Russian Federation. Official site (2019). Retrieved from: https://www.nalog.ru/rn66/related_activities/statistics_and_analytics/forms/, author's calculations

* The values of excise duties were calculated by dividing the excise rates as of 2020 by coefficient 1.993, which reflects the ratio between the yearly average euro exchange rate set by the Central Bank in 2020 (1€ = 70.6647 rbs) and in 2008 (1€ = 36.4466 rbs).

It should be noted that, unlike Russia, in most countries with developed beer industry, the excise tax rates have remained practically the same for many years.

There are differences in beer taxation between Russia and EU countries, includ-

ing Germany. For EU countries, the Directive 92/83/EEC and Directive 92/84/EEC require that the minimum rate of excise duty on wine, fermented beverages (e.g. cider) and intermediate products (fortified wines, liqueurs) should be fixed per hec-

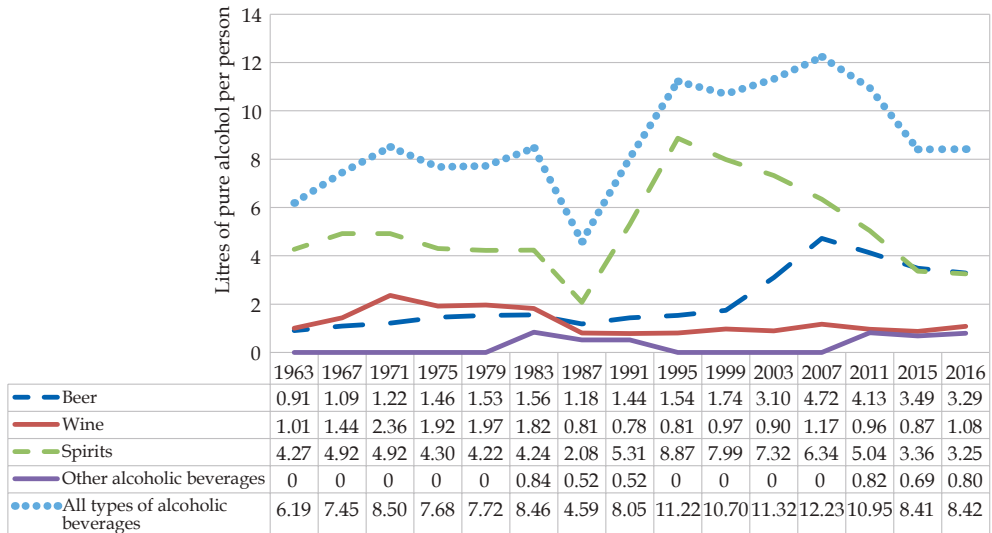


Fig. 1. Registered alcohol consumption per capita (15 years and older) in Russia in 1963–2016, litres of pure alcohol per person

Source: World Health Organization. Official site (2019). Available at: <http://apps.who.int/gho/data/node.main-euro.A1039?lang=en&showonly=GISAH#>, author’s calculations

Table 4

Registered alcohol consumption per capita (15 years and older) in Russia and consumption structure in 2008–2016

Indicators	Years									Change in 2016, in % (percentage points) to 2008
	2008	2009	2010	2011	2012	2013	2014	2015	2016	
1. Registered alcohol consumption in litres of pure alcohol										
All types of alcoholic beverages, including:	12.09	11.25	10.98	10.95	10.89	9.92	8.85	8.41	8.42	69.6
Beer	4.66	4.20	4.09	4.13	4.17	3.96	3.64	3.49	3.29	70.6
Wine	1.27	1.26	1.02	0.96	0.93	0.84	0.89	0.87	1.08	85.0
Spirits	6.16	5.79	5.06	5.04	4.95	4.36	3.60	3.36	3.25	52.8
Other alcohol beverages	0	0	0.81	0.82	0.84	0.76	0.72	0.69	0.80	-
2. Structure of registered alcohol consumption, %										
All types of alcoholic beverages, including:	100	100	100	100	100	100	100	100	100	0
Beer	38.5	37.3	37.2	37.7	38.3	39.9	41.1	41.5	39.1	0.6
Wine	10.5	11.2	9.3	8.8	8.5	8.5	10.1	10.3	12.8	2.3
Spirits	51.0	51.5	46.1	46.0	45.5	43.9	40.7	40.0	38.6	-12.4
Other alcoholic beverages	0	0	7.4	7.5	7.7	7.7	8.1	8.2	9.5	-

Source: World Health Organization. Official site (2019). Available at: <http://apps.who.int/gho/data/node.main-euro.A1039?lang=en&showonly=GISAH#>, author’s calculations

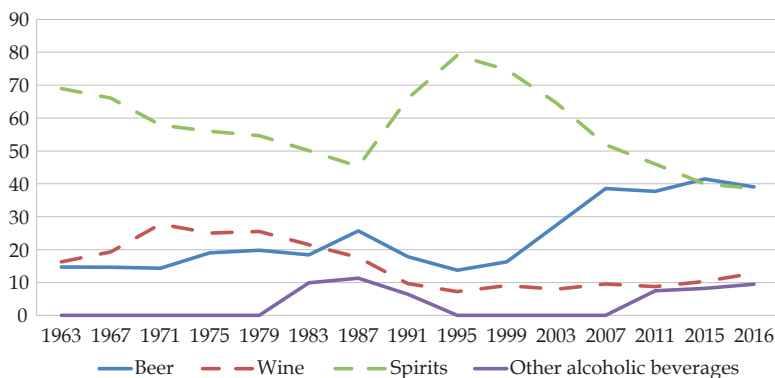


Fig. 2. Registered alcohol consumption per capita (15 years and older) in Russia in 1963–2016, %

Source: World Health Organization. Official site (2019). Available at: <http://apps.who.int/gho/data/node.main-euro.A1039?lang=en&showonly=GISAH#>, author's calculations

tolitre of product and for beer and spirits, per hectolitre of pure alcohol⁴. A similar approach to alcohol taxation is used in other OECD countries which are not members of the EU. In Russia, the excise taxes on wine, champagne and beer of different strength are set at the rouble-per-litre rate while for ethyl alcohol, spirits and other low-alcohol drinks, at rouble-per-litre of pure alcoholic content. Thus, in Russia a similar excise tax rate is applied both for low-alcohol beer and stronger beer with ABV closer to 8.6%. A more promising approach would be to raise the excise on beer in proportion to the increase in alcohol content [2].

Excise taxes on wine (except for champagne and sparkling wine) in the given period in Russia were quite low. However, in the 10-year period, the tax rates for this type of alcohol beverages grew considerably – 7.7. times. Moreover, in 2020, the excise tax on wine grew 13.2 times in comparison with 2007. Starting from 2020, it was decided that grapes and base wine used for wine-making should be considered excisable goods. Therefore, the tax burden on this type of products in Rus-

sia grew most significantly despite the fact that the share of wine in the overall structure of alcohol consumption is the smallest (see Fig. 2, Table 4). Our analysis has shown that many European countries have zero- or near-zero taxes on wine. This refers primarily to the leading wine-producing countries such as Spain, Italy, Portugal and France and helps support their wine industries. Germany also does not levy excise taxes on natural wine. Such approach holds promise for Russia as well, since wine is a low-alcohol drink and such measure would be conducive to the development of wine industry in Russia and could bring about positive transformations to the consumption structure.

In order to evaluate the actual dynamics of alcohol excise taxes in Russia in comparison with Germany, in Table 3 we listed the current tax rates (as of 2020) and the rates adjusted (2020_(adj)) for the changes in the average annual euro/rouble exchange rate set by the Central Bank in 2020 in comparison with 2008. The excise tax on spirits in comparable units increased only by 62.7% in the period of 2008–2020 while the excise tax on wine grew 6.8 times and on beer – 4.2 times. Unlike the taxes on low-alcohol beverages, there has been only an insignificant adjustment of the spirits tax rate in Russia. Such dynamics shows that in Russia the price measures used as a part of the alcohol restriction policy are mostly targeted at low-alcohol

⁴ European Commission. Taxation and customs union. Reading allowed: Tax information Communication database, 2019. Available at: https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-alcohol/excise-duties-alcoholic-beverages_en

beverages such as wine and beer rather than at strong liquors. This means that the alcohol taxation policy in Russia is in need of some serious revision: it is necessary to increase the tax burden on spirits and simultaneously reduce the burden on low-alcohol drinks to shift consumer preferences to healthier options.

3.3. Analysis of adult alcohol consumption in Russia and Germany

Let us consider the dynamics and structure of the registered (legal) adult alcohol consumption in Russia and Germany in 1963–2016 and the role of state alcohol policies in shaping them (Fig. 1–4).

As Fig. 2 shows, Russia belongs to the northern type of alcohol consumption, characterized by the prevalence of spirits and lower wine and beer intake. In the 45-year period from 1963 to 2016, there were some significant changes in the level and structure of alcohol consumption. Alcohol consumption was at its lowest in 1987 (5.59 litres) and in 1963 (6.19 litres) and at its highest in 2007 (12.23 litres) and in 1995 (11.22 litres). Alcohol consumption in the USSR gradually rose in the 1960s, 1970s and in the first half of the 1980s together with the growth in eco-

nomical well-being and reached its peak of 8.46–8.96 litres of pure alcohol per person in 1983–1984. Thus, in that period alcohol consumption increased by more than 2 litres. The most popular alcohol beverage at that time was vodka, which accounted for 50–69% of alcohol consumption. In contrast with present-day Russia, the consumption of wine was also quite high (16–29%) while beer was comparatively less popular (14–20%). Most wine was produced in the USSR, which explains the large percentage of wine in the overall alcohol consumption.

A pronounced decline in alcohol consumption, which hit rock bottom in 1987 with 4.59 litres per person, was caused by the massive anti-alcohol campaign of 1985–1987. Another consequence of this campaign was the increase in moonshine production, in particular *samogon* (home-distilled vodka). The share of wine in the consumption structure also decreased significantly in that period since the country’s own wine production was all but destroyed and most people were struggling financially and could not afford imported wine. The anti-alcohol campaign was abandoned comparatively soon and the figures of legal alcohol consumption

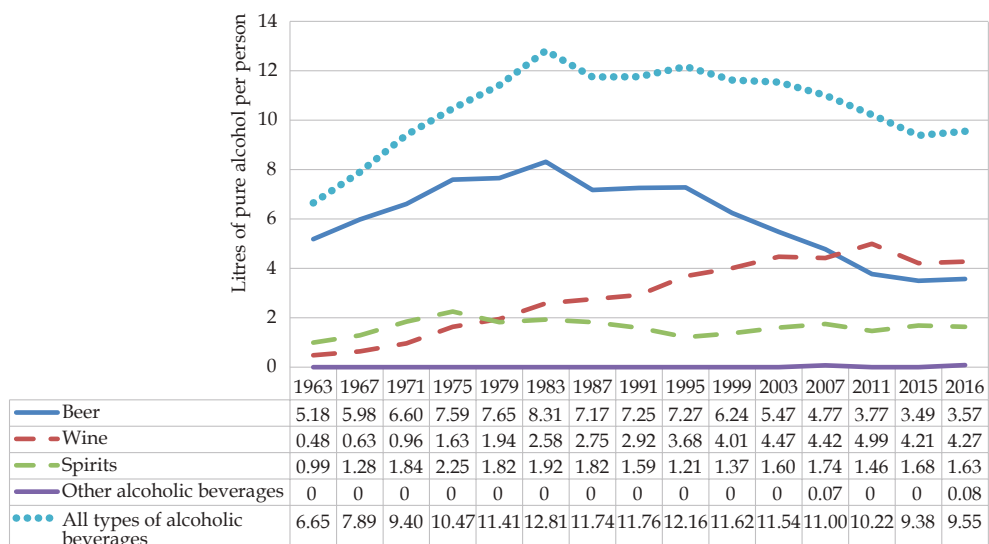


Fig. 3. Registered alcohol consumption per capita (15 years and older) in Germany in 1963–2016, litres of pure alcohol per person

Source: World Health Organization. Official site (2019). Available at: <http://apps.who.int/gho/data/node.main-euro.A1039?lang=en&showonly=GISAH#>, author’s calculations

in 1991–1995 partially recovered mainly due to the increase in the consumption of spirits (in 1995 the share of spirits reached its highest value of 79.1%) (Fig. 2). In 1995–1999, the years of economic collapse, the per capita alcohol consumption in the country declined somewhat.

In the years of economic growth, from 2000 to 2007, the consumption of legal alcohol rose from 10.7 litres to 12.23 litres per person. The structure of consumption changed radically in this period (see Fig. 2). For instance, strong alcoholic beverages were replaced by beer. At the turn of the twenty-first century, international beer manufacturers entered the Russian market and bought brewing plants, re-equipping them with imported machinery, which raised the quality of production. As a result, beer consumption rose more than four times in comparison with the Soviet period while the share of wine still remained below 10%.

Since 2007, there has been a steady decline in alcohol consumption due to state alcohol control policies and the economic recession periods of 2008–2009 and 2014–2015.

In Germany, the average per capita alcohol consumption is comparable with and slightly exceeds similar indicators in Russia. Changes in the amount and structure of alcohol consumption in the given period were less pronounced in Germany in comparison with Russia. The lowest figures in registered alcohol consumption

were observed at the beginning and end of the given period – 6.65 litres per person in 1963 and \approx 9.5 litres per person in 2015–2016. The highest level of consumption was observed in 1983 – 12.81 litres per person. While until 1983 the level of registered alcohol consumption in Germany had been growing, after 1983 there was a dramatic decline, which lasted until 1987. Afterwards, this figure gradually decreased until 2015. The main reason behind this decline was a 30%-increase in alcohol excise duty in Germany in 1982. Further downward trend was determined by the influence of non-price measures of state alcohol regulation and the changes in the ethnographic structure of the population due to migration processes.

There are significant differences between Russia and Germany in terms of alcohol consumption patterns. Germany is known as a beer-drinking country with beer accounting for more than 50% of the overall consumption (see Fig. 4). What is worth noting is the dramatic change in the alcohol consumption structure in the given period: the share of beer shrank from 78% in 1963 to 37.4% in 2016 while the share of wine, on the contrary, increased from 7% to 45–48%. The share of spirits remains steadily low and varies within the range of 15 to 20%. Factors contributing to these transformations in the consumption structure are the cultural and behavioural shifts, changing consumer tastes, leading to some alcohol beverages being replaced

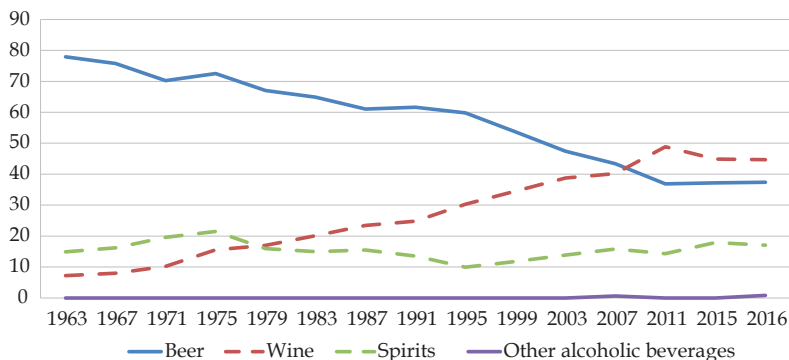


Fig. 4. Structure of registered alcohol consumption per capita (15 years and older) in Germany in 1963–2016, %

Source: World Health Organization. Official site (2019). Available at: <http://apps.who.int/gho/data/node.main-euro.A1039?lang=en&showonly=GISAH#>, author's calculations

by others. For instance, younger generations tend to consume more wine than vodka while more educated drinkers are more prone to consuming wine instead of spirits [20].

In general, despite the higher level of alcohol consumption in Germany than in Russia, the structure of alcohol consumption in the former country is healthier and closer to the 'ideal' structure (beer – 50%, wine – 35%, and spirits – 35%) than in the latter. Thus, we can conclude that price and non-price measures of state alcohol regulation in Germany have proven to be quite effective.

Further we are going to consider the dynamics of average per capita alcohol consumption in Russia and in Germany by looking at the statistics of the WHO for 2008–2016 (Table 4–5).

Adult alcohol consumption per capita in Russia dropped significantly (by 30.4%): from 12.09 litres in 2010 to 8.42 litres in 2016. The structure of consumption also changed: among the types of alcoholic beverages comprising the largest share of excise tax revenue, the most significant decline in consumption was observed for strong alcoholic drinks, including vodka

and cognac (–47.2%). Beer consumption declined by 29.4%, which can be explained by higher excise duties and, accordingly, beer prices. It should be noted that, according to the WHO methodology, the category 'Other alcoholic beverages' comprises cider, fruit wines, fortified wines, etc, which means that the amount of consumption within this category can be in equal proportions divided between spirits and wine.

Compared to Russia, in Germany in 2008–2016, the registered per capita alcohol consumption declined slower (by 10.8%) and equaled 9.55 litres per person in 2016. It was in this period that the share of wine consumption gradually started to prevail over beer consumption in the overall consumption structure. A negative trend is an insignificant increase in the share of spirits consumption.

Analysis of adult per capita alcohol consumption across the world has shown that in most European countries that are close to Russia in mentality and culture of alcohol consumption, in 2010–2016, there was a general but not radical decline in per capita alcohol consumption. On average, in EU countries in the given

Table 5

Recorded alcohol per capita consumption (15 years and older) in Germany and the structure of consumption in 2008–2016

Indicators	Years									Change in 2016, in % (percentage points) to 2008
	2008	2009	2010	2011	2012	2013	2014	2015	2016	
<i>1. Registered alcohol consumption in litres of pure alcohol</i>										
All types of alcoholic beverages, including:	10.71	10.09	10.24	10.22	9.10	9.43	9.53	9.38	9.55	89.2
Beer	4.51	4.13	3.90	3.77	3.52	3.51	3.62	3.49	3.57	79.2
Wine	4.47	4.38	4.88	4.99	4.13	4.35	4.34	4.21	4.27	95.5
Spirits	1.66	1.52	1.46	1.46	1.46	1.57	1.57	1.68	1.63	98.2
Other alcoholic beverages	0.06	0.05	0	0	0	0	0	0	0.08	133.3
<i>2. Structure of registered alcohol consumption, %</i>										
All types of alcoholic beverages, including:	100	100	100	100	100	100	100	100	100	0
Beer	42.2	40.9	38.1	36.9	38.6	37.2	38.0	37.2	37.4	-4.8
Wine	41.7	43.4	47.6	48.8	45.4	46.1	45.5	44.9	44.7	3.0
Spirits	15.5	15.1	14.3	14.3	16.0	16.7	16.5	17.9	17.1	1.6
Other alcoholic beverages	0.6	0.6	0	0	0	0	0	0	0.8	0.2

Source: World Health Organization. Official site (2019). Available at: <http://apps.who.int/gho/data/node.main-euro.A1039?lang=en&showonly=GISAH#>, author's calculations

period the decline in per capita alcohol consumption varied between 2% and 15%⁵. The level of alcohol consumption in Russia is comparable to that of Denmark, Portugal, Belgium, Germany and Finland. A higher level is observed in France (≈12 litres per person) and the Czech Republic (≈13 litres per person). Alcohol consumption is considerably low in Northern European countries – Norway (≈6.5 litres per person) and Sweden (≈7 litres per person) – and in Italy (≈7 litres per person). However, the structure of alcohol consumption in these states is totally different. For example, in the structure of alcohol consumption in Germany, the Czech Republic, Belgium, Denmark, Finland and Norway, beer prevails (it accounts for 38% to 54% in different countries). In France, Italy, Portugal and Sweden, wine accounts for a considerable share of alcohol consumption – from 47% to 65%. In all these countries, the consumption of spirits takes a comparatively small share – 25% or below. In general, such structure of alcohol consumption is healthier. The most effective anti-alcohol policy measures require further investigation and may be applied in the Russian Federation.

The ongoing anti-alcohol reform in Russia is accompanied by long-term changes in the structure of alcohol beverage consumption such as the decline in per capita consumption of spirits, being partially replaced by wine and especially beer. These trends signify that excise taxation achieves its role as a regulatory measure. Our analysis has shown that in Russia, alcohol excise taxation is used quite effectively for fiscal purposes. This leads us to the conclusion that state regulation of alcohol consumption in Russia employing instruments of excise taxation as well as non-price measures (restrictions on alcohol advertising, launching of the Unified State Automated Information System (USAIS)) has brought good results. Nevertheless, if we look at the dy-

namics of excise rates for different types of alcoholic beverages, we shall see that the current alcohol tax policy in Russia is mostly aimed at reducing the consumption of low-alcohol beverages but not spirits, which points to the need for some readjustment of the policy.

In Germany, restrictive measures are less stringent than in Russia: both in terms of pricing (in Russia, excise rates are raised almost every year while in Germany, they have remained the same since 1982) and physical availability of alcohol (in Russia alcohol production, sale and consumption are regulated more heavily than in Germany). Nevertheless, the alcohol consumption structure in Germany can be described as healthier and closer to optimal than in Russia, which means that both price (especially differentiated excise rates for various kinds of alcoholic beverages) and non-price measures in Germany are quite effective.

3.4. Areas for improvement of alcohol excise taxation

Our analysis has revealed several areas for improvement of alcohol excise taxation for Russia as well as for Germany.

In Russia, the priority measures should include raising the tax burden on spirits and lowering the burden on low-alcohol beverages by applying differentiation rates on various alcohol beverages, which would help change the structure of alcohol consumption. Such policy should include the following:

1. Raising excise taxes on spirits (over 9% ABV). Measured in terms of pure alcohol content, excise tax rates are practically the same for beer and spirits, which means that such excise policy is unlikely to shift consumer preferences towards low-alcohol drinks. Liquor excise taxes in Russia are quite low in comparison with other countries. Therefore, a feasible option for Russia would be to raise the tax duties on spirits and thus increase tax revenues and discourage the consumption of spirits.

2. Lowering excise duties on beer and making beer excise rates dependent on beverages' strength. In the beer taxation

⁵ World Health Organization (WHO), Global Status Report on Alcohol 2004, Department of Mental Health and Substance Abuse, WHO, Geneva, Switzerland, 2004.

system currently applied in Russia, low-alcohol beer (less than 0.5%) and strong beer (up to 8.6%) is taxed at the same rate, which, in our view, is unfair. We recommend to make beer excise rates dependent on the alcohol content, that is, beer tax should be levied not on a litre of beer but on the percentage of pure alcohol in beer. As Iadrennikova E. et al. [2] have shown, even though in this case there may be a reduction in tax revenues, such measures will discourage consumers from buying strong beer.

3. Setting zero tax rate for natural wines produced by means of natural fermentation without adding ethyl alcohol to stimulate wine-making in Russia and increase the share of wine in the alcohol consumption structure.

Overall, in Russia there have been some positive changes in alcohol consumption patterns, although the consumption structure is still far from ideal (beer – 50%, wine – 35%, spirits – 15%). To enhance positive outcomes, it is necessary to stimulate the replacement of spirits with low-alcohol alternatives such as beer and wine.

As far as Germany is concerned, a viable solution for this country would be to make regular adjustments of excise rates to match the rate of inflation. This will help the German government prevent reduction in the actual tax burden on alcohol due to inflation and enhance the effects of price measures in the alcohol control policy, which will contribute to further decline in alcohol consumption in the country.

Conclusion

Alcohol excise duties play an important role in the systems of excise taxation in Russia and Germany alike. However, in the recent decade, in comparison with Germany, the Russian government has been implementing a more restrictive alcohol policy in terms of pricing (in Russia, excise rates are raised almost every year while in Germany, they have remained the same since 1982) and physical availability of alcohol (in Russia alcohol production, sale and consumption are regulated more

heavily than in Germany). Nevertheless, Germany has a healthier alcohol consumption structure (low-alcohol beverages such as wine and beer account for 82%) than in Russia, where spirits account for 39% of consumption. In Germany, like in many other EU countries, consumer shifts in alcoholic drinks preferences from spirits to low-alcohol beverages was achieved with the help of excise differentiation measures. Our analysis of the dynamics of alcohol excise rates in Russia has shown that price measures are largely targeted at low-alcohol beverages (wine and beer) rather than spirits. Therefore, the state alcohol taxation policy in Russia requires some serious adjustment.

In the given period, alcohol consumption among adults fell significantly both in Russia and in Germany. The structure of alcohol consumption also changed considerably, which demonstrates that state regulation has brought about the desired effects. In the recent decades, the alcohol consumption structure in Russia has become healthier as the spirits share has shrunk, with strong alcohol beverages being replaced by wine and beer. Nevertheless, the situation is still far from ideal. In order to improve the state alcohol taxation policy in Russia, it seems reasonable to recommend a shift of tax burden from low-alcohol drinks to spirits by raising excise taxes on strong beverages, lowering excise taxes on beer and introducing some other excise changes – for instance, set the amount of tax according to alcohol content in beer and set a zero tax rate on natural wines produced without adding alcohol. These adjustments could change the price structure for various types of alcohol production, which would lead to a desirable shift in consumer preferences towards low-alcohol beverages (wine and beer), and thus reduce harmful use of alcohol. For Germany, it is recommended to make regular adjustments of alcohol excise rates to match the rates of inflation, as this will allow the government to avoid reduction in the actual tax burden on alcohol products and will contribute to further decline in alcohol consumption in the country.

References

1. Edwards G.A.P., Anderson P., Babor T.F., Casswell S., Ferrence R., Giesbrecht N., Godfrey C., Holder H.D., Lemmens P., Mäkelä K., Midanik L., Norström T., Österberg E., Romelsjö A., Room R., Simpura J., Skog O.-J. *Alcohol policy and the public good*. Oxford: Oxford University Press; 1994.
2. Iadrennikova E.V., Leontyeva Yu.V., Mayburov I.A. Analysis of and Improvements of Excise Taxation on Beer in Russia. *Journal of Tax Reform*. 2018;4(2):142–156. DOI: [10.15826/jtr.2018.4.2.049](https://doi.org/10.15826/jtr.2018.4.2.049).
3. Becker G., Murphy K. A theory of rational addiction. *Journal of Political Economy*. 1988;96(4):675–700. DOI: [10.1086/261558](https://doi.org/10.1086/261558).
4. Babor T.F., Caetano R., Casswell S., Edwards G., Giesbrecht N., Graham K., Grube J., Hill L., Holder H., Homel R. Alcohol: No ordinary commodity – a summary of the second edition. *Addiction*. 2010;105(5):769–779. DOI: [10.1111/j.1360-0443.2010.02945.x](https://doi.org/10.1111/j.1360-0443.2010.02945.x).
5. Wagenaar A.C., Salois M.J., Komro K.A. Effects of beverage alcohol price and tax levels on drinking: a meta-analysis of 1003 estimates from 112 studies. *Addiction*. 2009;104(2):179–190. DOI: [10.1111/j.1360-0443.2008.02438.x](https://doi.org/10.1111/j.1360-0443.2008.02438.x).
6. Young D., Bielinska-Kwapisz A. Alcohol prices, consumption, and traffic fatalities. *South Econ Journal*. 2006;72(3):690–703. DOI: [10.2307/20111841](https://doi.org/10.2307/20111841).
7. Pridemore W., Chamlin M., Kaylen M., Andreev E. The impact of a national alcohol policy on deaths due to transport accidents in Russia. *Addiction*. 2013;108(12):2112–2118. DOI: [10.1111/add.12311](https://doi.org/10.1111/add.12311).
8. Mäkelä P., Tigerstedt C., Mustonen H. The Finnish drinking culture: Change and continuity in the past 40 years. *Drug and Alcohol Review*. 2012;31(7):831–840. DOI: [10.1111/j.1465-3362.2012.00479.x](https://doi.org/10.1111/j.1465-3362.2012.00479.x).
9. Markowitz S., Grossman M. The effects of beer taxes on physical child abuse. *Journal of Health Economics*. 2000;19(2):271–282. DOI: [10.1016/s0167-6296\(99\)00025-9](https://doi.org/10.1016/s0167-6296(99)00025-9).
10. Cook P.J., Tauchen G. The effect of liquor taxes on heavy drinking. *Bell Journal of Economics*. 1982;13:379–390. DOI: [10.2307/3003461](https://doi.org/10.2307/3003461).
11. Popova S., Giesbrecht N., Bekmuradov D., Patra, J. Hours and Days of Sale and Density of Alcohol Outlets: Impacts on Alcohol Consumption and Damage: A Systematic Review. *Alcohol and Alcoholism*. 2009;44(5):500–516. DOI: [10.1093/alcalc/aggp054](https://doi.org/10.1093/alcalc/aggp054).
12. Anderson P., Baumberg B. Alcohol in Europe – Public health perspective: Report summary. *Drugs-Education Prevention and Policy*. 2006;13(6):483–488. DOI: [10.1080/09687630600902477](https://doi.org/10.1080/09687630600902477).
13. Seim K., Waldfogel J. Public monopoly and economic efficiency: evidence from the Pennsylvania liquor control board's entry decisions. *American Economic Review*. 2013;103(2):831–862. DOI: [10.1257/aer.103.2.831](https://doi.org/10.1257/aer.103.2.831).
14. Cook P.J., Moore M.J. The economics of alcohol abuse and alcohol-control policies. *Health Affairs*. 2002;21(2):120–133. DOI: [10.1377/hlthaff.21.2.120](https://doi.org/10.1377/hlthaff.21.2.120).
15. Xu X., Chaloupka F.J. The effects of prices on alcohol use and its consequences. *Alcohol Research & Health*. 2011;34(2):236–245. PMID: [PMC3860576](https://pubmed.ncbi.nlm.nih.gov/19338605/).
16. An R.P., Sturm R. Does the response to alcohol taxes differ across racial/ethnic groups? Some evidence from 1984–2009 behavioral risk factor surveillance system. *Journal of Mental Health Policy and Economics*. 2011;14(1):13–23. PMID: [PMC3089007](https://pubmed.ncbi.nlm.nih.gov/21389007/).
17. Chaloupka F.J., Grossman M., Saffer H. The effects of price on alcohol consumption and alcohol-related problems. *Alcohol Research & Health*. 2002;26(1):22–34. PMID: [PMC6683806](https://pubmed.ncbi.nlm.nih.gov/1213806/).
18. Mäkelä P., Bloomfield K., Gustafsson N.K., Huhtanen P., Room R. Changes in volume of drinking after changes in alcohol taxes and travellers' allowances: Results from a panel study. *Addiction*. 2007;103(2):181–191. DOI: [10.1111/j.1360-0443.2007.02049.x](https://doi.org/10.1111/j.1360-0443.2007.02049.x).
19. Razvodovskiy Yu.Ye. Price elasticity of alcohol and the level of its sale. *Narkologiya = Narcology*. 2015;11(5):72–77. (In Russ.) Available at: http://objects.antiprop.ru/narcology02/2012_05_10.pdf.
20. Radaev V.V., Kotelnikova Z.V. Changes in Alcohol Consumption and Governmental Alcohol Policy in Russia. *Ekonomicheskaya Politika = Economic Policy*. 2016;11(5):92–117. (In Russ.) DOI: [10.18288/1994-5124-2016-5-05](https://doi.org/10.18288/1994-5124-2016-5-05).
21. Pridemore W.A., Chamlin M.B., Kaylen M.T. The Effects of the 2006 Russian Alcohol Policy on Alcohol-Related Mortality: An Interrupted Time Series Analysis. *Alcoholism-Clinical and Experimental Research*. 2014;38(1):257–266. DOI: [10.1111/acer.12256](https://doi.org/10.1111/acer.12256).
22. Anderson P., Chrisholm D., Fuhr D.C. Effectiveness and cost-effectiveness of policies and programmes to reduce the harm caused by alcohol. *Lancet*. 2009;373(9682):2234–2246. DOI: [10.1016/S0140-6736\(09\)60744-3](https://doi.org/10.1016/S0140-6736(09)60744-3).

23. Elder R.W., Lawrence B., Ferguson A., Naimi T.S., Brewer R.D., Chattopadhyay S.K., et al. The effectiveness of tax policy interventions for reducing excessive alcohol consumption and related harms. *American Journal of Preventive Medicine*. 2009;38(2):217–229. DOI: [10.1016/j.amepre.2009.11.005](https://doi.org/10.1016/j.amepre.2009.11.005).

24. Waters T.M., Sloan F.A. Why do people drink? Test of the rational addiction model. *Applied Economics*. 1995;27:727–736. DOI: [10.1080/00036849500000062](https://doi.org/10.1080/00036849500000062).

25. Moskalewicz J. Lessons to be learnt from Poland's attempt at moderating its consumption of alcohol. *Addiction*. 1993;88(1S):135S–142S. DOI: [10.1111/j.1360-0443.1993.tb02172.x](https://doi.org/10.1111/j.1360-0443.1993.tb02172.x).

26. Young D.J., Bielińska-Kwapisz A. Alcohol taxes and beverage prices. *National Tax Journal*. 2002;55(1):57–73. DOI: [10.17310/ntj.2002.1.04](https://doi.org/10.17310/ntj.2002.1.04).

27. Popova S., Rehm J., Patra J., Zatonski W. Comparing alcohol consumption in central and eastern Europe to other European countries. *Alcohol and Alcoholism*. 2007;42(5):465–473. DOI: [10.1093/alcalc/agl124](https://doi.org/10.1093/alcalc/agl124).

Information about the authors

Elena V. Iadrennikova – Candidate of Sciences (Economics), Associate Professor, Department of Financial and Tax Management, Ural Federal University named the first President of Russia B. N. Yeltsin (19 Mira St., 620002, Yekaterinburg, Russian Federation); ORCID: [0000-0002-8530-3312](https://orcid.org/0000-0002-8530-3312); e-mail: elena.yadrennikova@mail.ru.

Ralf A. Busse – PhD in Economics, tax consultant (Halle, Germany); ORCID: [0000-0003-4676-9926](https://orcid.org/0000-0003-4676-9926); e-mail: info@steuerberatung-abc.de.

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Информация об авторах

Ядренникова Елена Викторовна – кандидат экономических наук, доцент кафедры финансового и налогового менеджмента Уральского федерального университета имени первого Президента России Б. Н. Ельцина (620002, Россия, г. Екатеринбург, ул. Мира, 19); ORCID: [0000-0002-8530-3312](https://orcid.org/0000-0002-8530-3312); e-mail: elena.yadrennikova@mail.ru.

Буссе Ральф Андреас – кандидат экономических наук, налоговый консультант (г. Галле, Германия); ORCID: [0000-0003-4676-9926](https://orcid.org/0000-0003-4676-9926); e-mail: info@steuerberatung-abc.de.

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Tax Revenues of Local Budgets in Unitary States: a Case Study of Japan

N.V. Pokrovskaya¹  , A.V. Belov^{1,2} 

¹ St. Petersburg State University, St. Petersburg, Russian Federation

² Fukui Prefectural University, Fukui, Japan

 n.pokrovskaya@spbu.ru

ABSTRACT

This article discusses municipal self-government in Japan by focusing on tax receipts of local budgets. Revenues and expenditures of local governments of unitary states, such as Japan, roughly corresponds to subnational budgets of federal states. In unitary frameworks, however, local authorities enjoy greater autonomy. In Japan, local governments account for a large share of public spending and tax revenues. Tax revenues are decentralised and taxes play a significant role in consolidated budget receipts. The centralised system of local administration and finance that evolved in late nineteenth-century Japan was based on arrangements prevailing in Germany at that time. In the second half of the twentieth century, the system of inter-governmental fiscal relations was rebuilt according to the Anglo-Saxon decentralised model, resulting in more autonomy (including tax administration) given to local authorities. The current version of the local public finance in Japan has several salient characteristics and combines both centralisation and decentralisation features. The tax base for the key prefectural and municipal taxes overlaps the tax base for the national income and consumption taxes. The main source of municipal revenue is the property tax. Financial equalisation is achieved through grants, essentially in the form of the local allocation tax (LAT), which is a percentage of national taxes that is channelled to prefectural and municipal budgets. Another important feature of local finance is that municipal governments cover a comparatively large share of expenditures by issuing local bonds. The reform of local governance and inter-governmental fiscal relations conducted in the early 2000s increased the financial autonomy and tax receipts of municipalities. The reform's results were positively received by the international community and may be interesting for several transitional and developing economies that are seeking to improve their system of local finance.

KEYWORDS

local budget, local finance, local taxes, tax revenues of local governments, Japan, prefectures, municipalities, tax allocation

JEL H71, H77


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Налоговые доходы местных бюджетов унитарного государства: опыт Японии

Н.В. Покровская¹  , А.В. Белов^{1,2} 

¹ Санкт-Петербургский государственный университет, г. Санкт-Петербург, Россия

² Университет префектуры Фукуи, Фукуи, Япония

 n.pokrovskaya@spbu.ru

АННОТАЦИЯ

Целью данной статьи является характеристика организации местного самоуправления и формирования доходной части местных бюджетов в Японии. Доходы и расходы местных бюджетов унитарных государств, включая Японию, примерно соответствуют субнациональным бюджетам федеративных стран, в то время как полномочия органов самоуправления в унитарных образованиях обычно шире. Для местных бюджетов Японии характерны высокая доля осуществляемых расходов и налоговых доходов, децентрализация налоговых

поступлений и существенная роль налогов в совокупных бюджетных поступлениях. Система местных финансов Японии сформировалась в конце XIX в. по прусскому образцу и носила централизованный характер. Со второй половины XX в. местные органы власти получили существенную автономию, в том числе налоговую. Построение системы межбюджетных отношений происходило по рекомендациям, ориентированным на англо-саксонскую децентрализованную модель местных финансов. В настоящее время японский вариант организации местных бюджетов имеет несколько специфических черт, к которым относится, прежде всего, параллельное сосуществование централизации и децентрализации. Кроме того, налоговая база по ключевым налогам префектур и муниципалитетов пересекается с национальными налогами на доходы и потребление. Основу доходной базы муниципалитетов составляет налог на имущество. Выравнивание бюджетной обеспеченности производится путем зачисления в бюджеты префектур и муниципалитетов местного распределительного налога, который представляет собой трансферт из поступлений по национальным налогам. Важной особенностью местных финансов Японии является сравнительно высокая доля расходов, финансируемая за счет муниципальных облигаций. И наконец, в начале 2000-х гг. в Японии была проведена реформа местного самоуправления и межбюджетных отношений, которая привела к повышению финансовой самостоятельности и налоговой обеспеченности муниципальных образований. Результаты реформы получили высокую оценку международного сообщества и с этой точки зрения могут представлять интерес для всех стран, занимающихся укреплением финансовых основ деятельности местных органов власти.

КЛЮЧЕВЫЕ СЛОВА

местные бюджеты, местные финансы, местные налоги, налоговые доходы местных бюджетов, Япония, префектуры, муниципалитеты, разделение налогов

1. Introduction

The division of expenditures and revenues between the central and local governments in countries depends on a variety of historical, economic, and political factors. Analysis of the advantages and drawbacks of national budgeting provides valuable insight into the inner design of fiscal systems and enables recommendations regarding the best practices for possible endorsement. Description of national local finance usually starts with a cross-country assessment of several indicators, such as the local governments' tax revenues and expenditures related to GDP, the share of tax revenues of local governments as a proportion of total tax revenue, and the significance of taxes for local governments' revenues and for covering local expenditures. Table 1 compares the share of local budgets in different countries in 2018 (the data are sorted in descending order according to the share of local governments' tax revenues as a proportion of total tax revenue).

The Scandinavian countries and Japan have the largest share of public expenditure at the local level, whereas these figures are considerably lower in Hungary, Por-

tugal, Israel, and Greece. Countries with the largest share of local governments' expenditures are mostly those that have the highest percentage of tax revenues in their GDP. There are, however, some cases with differences between the share of expenditure and tax receipts of local budgets. For example, the share of local tax revenue in Denmark and the Czech Republic is virtually the same, but the latter has much higher local expenditure. Remarkably, local tax revenues in Switzerland are higher than in Germany, while the situation is the opposite for local expenditures.

Tax distribution and the number of local tasks determine the significance of tax revenues for local budgets. The share of non-tax revenues at the local level is comparatively small for most countries. Therefore, tax revenues of local governments have to be supplemented by transfers, which play an important role in local budgets.

The expenditures and revenues of local budgets in federal states are generally lower compared to unitary states. We can say that the data of unitary states corresponds better to the figures at sub-federal level that

comprises regional (provincial, prefectural, etc.) and local budgets. The indicators described above clearly show the difference between centralised and decentralised public finance systems. A decentralised system normally has a higher share of local expenditures and tax revenues as well as a higher share of local governments' tax revenues in total tax revenue. Taxes generally play an important role in local governments' receipts. Japan can serve as a model example of a decentralised local finance system with an important role played by local self-government.

Compared to other countries, Japan has the largest share of tax revenues transferred to local governments, which signifies a high level of commitment to their expenditures. What are the factors that shape the distribution of taxing powers among the governments of different levels in general, and local governments in particular? Which taxes are levied at the local level? What are the implications of this model of local finance? Our study aims to address these questions by describing the mechanisms of inter-governmental redistribution of tax revenues in Japan.

Table 1

Local governments' budgets in unitary and federal states in 2018

Country	Local government expenditures, % GDP	Tax revenues of local governments, % GDP	Tax revenues of local governments, % of total tax revenue	Tax revenues of local governments, % of local governments' revenues	Grants, % of local governments' revenues
<i>1. Unitary states – local level</i>					
Japan	14.7	7.5	38.6	45.4	40.4
Sweden	23.7	13.0	31.7	53.2	33.7
Finland	20.9	9.7	31.6	46.4	29.8
France	10.7	5.9	27.3	53.3	22.2
Denmark	33.4	12.1	27.0	36.1	57.6
Czech Republic	11.4	5.5	27.0	45.4	39.2
Republic of Korea	13.1	4.7	23.6	29.7	51.4
Poland	12.9	4.5	20.5	32.1	50.2
Norway	15.9	6.1	20.2	37.4	44.1
Italy	14.0	4.3	15.0	31.3	55.0
Portugal	5.9	2.5	10.2	43.0	31.8
Israel	5.5	2.4	9.6	41.5	41.4
Hungary	6.4	2.2	8.7	34.4	52.6
United Kingdom	9.2	1.7	6.0	17.9	63.9
Netherlands	13.0	1.3	5.5	10.5	72.1
Greece	3.5	0.9	3.4	23.6	63.4
<i>2. Federal states – local level</i>					
Switzerland	7.0	4.3	20.3	60.7	10.8
Germany	8.3	3.3	13.6	38.5	39.3
Canada	8.3	3.3	11.6	38.4	44.2
Russia	6.8	1.2	5.7	16.3	75.7
Australia	1.9	1.0	3.4	38.7	13.7
<i>3. Federal states – subfederal level</i>					
Canada	22.3	16.0	55.2	52.8	–
Switzerland	13.4	11.3	52.9	53.9	–
Germany	13.1	12.6	52.4	57.4	–
Russia	13.1	9.2	44.1	41.9	–
Australia	13.9	5.4	19.4	32.6	–

Note: the data for Republic of Korea are given as of 2017.

Source: authors' calculations according to International Monetary Fund. Government Finance Statistics Database. Available at: <http://data.imf.org/?sk=a0867067-d23c-4ebc-ad23-d3b015045405>.

Our study starts with a brief overview of the history of local self-government in Japan. The historical section is followed by analysis of the relevant legal acts and empirical data, provided by the Statistics Bureau of Japan, Ministry of Finance of Japan, Ministry of Internal Affairs and Communications (MIAC) of Japan, and the agencies this ministry comprises – the Local Public Finance Bureau and the Local Tax Bureau.

2. Local government and its tax revenues in Japan in the XIX and XX centuries

There is considerable research literature on the division of functions and sources of funding between different government levels in Japan. Although in this country institutions for self-governance existed as far back as in the feudal period (for more on this, see [1]), the Meiji era is widely considered to be the actual starting point for the development of the local government system [1–4]. Starting from 1871, there appeared a new administrative division system with prefectures as the key territorial units [3]. By 1888, the number of prefectures had been reduced significantly from more than 300 to the present-day number of 47. In the same period, prefectures and municipalities (cities, towns and villages) were included into the hierarchy of local governments.

The Meiji Constitution, which drew heavily on its Prussian counterpart, came in force in 1890. The Prussian Constitution presented a mixture of semi-feudalism and rigid bureaucracy, at the same time positioning the bourgeoisie as the key economic force. The Japanese elite were particularly taken with the Prussian constitution, which they saw as ideologically close [4]. Regulatory acts of the Meiji period were developed with the help of German specialists: Albert Mosse [5], a student of Lorenz von Stein and colleague of Rudolf von Gneist, was invited to Japan as a legal expert to participate in drafting the law on local self-governance (for more on this, see [6]). The second half of the nineteenth century saw a flourish-

ing financial science in Prussia [7]. The Prussian public finance model adopted by Japan was highly centralized, which resulted in the appearance of the system where local governments had little autonomy, the central government was in charge of tax administration, and local taxes were mostly stated as a percentage of national taxes.

During the post-WWII American occupation of Japan, a range of political, economic and social reforms were implemented, including reforms of the government system. The 1947 Constitution of Japan was based on democratic principles and promoted local autonomy: in particular, it required that local officials such as mayors and governors should be elected by direct popular vote.

In the late 1940s, a group headed by Prof. C.S. Shoup, a Columbia University economist and experienced taxation consultant working for the U.S. Treasury Department, were invited to Japan (for more on C.S. Shoup and the Shoup Mission in post-war Japan, see [8]). The aim of the Mission was to devise a system of taxation that would contribute to faster restoration of the economy and strengthening democracy in the country.

The Report on Japanese Taxation of the Shoup Mission published in 1949 described the principles of the local taxation system [9]. Although the Report mostly dealt with budget revenues, it also mentioned the division of powers between different government levels which determined the revenue needs of governments. Among other things, the Report proposed a clear delineation of the functions of the three government levels, with specific tasks being assigned to each of those levels. The priority was given to municipalities, then came the prefectures and the central government. The division of taxing powers was to follow several core principles [9]:

1. The tax system should be simple. The number of taxes should be reduced to a minimum and the taxation system should be transparent, understandable and convenient to taxpayers.

2. Local governments should be able to administer local taxes efficiently. The tax base should be allocated to specific jurisdictions.

3. Tax sources should be divided between the national government, prefectures and municipalities; governments on each level should have sufficient opportunities for efficient tax administration. Such division enables citizens to see the connection between the taxes they pay and the use of the corresponding tax revenues.

4. Local authorities should have the powers to change the tax rates in accordance with the needs and expectations of local inhabitants.

In order to provide more autonomy for local governments in post-war Japan, it was recommended to increase local revenues while simultaneously cutting local expenditures, divide tax bases and introduce municipal taxes administered on the local level. It was planned to increase the significance of local taxes while reducing the number of tax levies on the levels of prefectures and municipalities. The list of local taxes was expected to include the property tax, inhabitant tax, and enterprise tax. The inhabitant and property taxes were recommended for the municipal level; the enterprise tax, food and beverage tax, for the prefectural level.

The inhabitant tax introduced in the late 1940s combined the head tax and the tax that was calculated on the basis of the tax-paying capacity of citizens, primarily their income. The tax was levied both on the level of prefectures and municipalities. Its rate was adjusted annually depending on the fiscal needs. The Shoup Mission's Report suggested that the inhabitant tax should be levied on the income declared by the taxpayer and that it should be applied only on the municipal level. It was expected that the tax revenues would double as a result.

The Report also suggested changes in the approaches to tax base estimation, which would lead to an increase in the significance of the local property tax. The existing tax was calculated on the basis of

the annual rental value of the property tax, which led to the proliferation of tax evasion schemes. The Report recommended to calculate the property tax by using the market value, which would increase municipal tax revenues and enhance a more just distribution of tax burden in cities, towns and villages.

The significance of the entertainment tax and the tax on food and beverages was explained by the connection between their tax bases and population density. For the local level it was recommended to use a VAT-like enterprise tax with the tax base defined as 'total gross receipts minus all purchases from other firms, including purchase of capital equipment, land, and buildings' [10].

To a considerable degree, the recommendations of the Report were aimed at adapting the US federal taxation system for the needs of the Japanese unitary state. Some recommendations of the Report, in particular those concerning the local tax levied on value added, were innovative for that time [11].

The architecture of the tax system described in the Report was formally approved by the Japanese government. After the Report was published, Prime Minister Shigeru Yoshida announced that in order to build a rational and just system, it was necessary to follow precisely the recommendations of the Shoup Mission. The Minister of Finance Hayato Ikeda, however, expressed a more cautious attitude: he believed that although theoretically the recommendations were correct, it would be difficult to implement them [12]. It was planned to realize the Mission's recommendations in the middle term.

The introduction of a new enterprise tax (i.e. the value-added tax) was postponed until 1953–1954 and eventually the Japanese government abandoned the idea altogether. The inhabitant and property tax were allocated to municipalities but, starting from 1954, they were also partially transferred to the level of prefectures [13]. Thus, not all recommendations of the Shoup Mission were realized in the Japanese tax system.

Table 2

Year	Local budgets' tax revenues in total tax revenues, %		Share of local budgets' tax revenues (not taking into account financial equalization) in local budgets' revenues, %
	Before financial equalization	After financial equalization	
1940	16	22	20.6
1950	30	44	34.6
1960	32	46	35.6
1970	32	49	35.4
1980	36	54	34.0
1990	35	53	41.6
2000	40	57	35.4
2010	44	67	39.6
2018	39	57	45.4

Note: In Japan, the fiscal year runs from 1 April until 31 March. Hereinafter, in our discussion of budgets in Japan, we will mean financial year and not calendar year when referring to a time period (for example, 2018 corresponds to the financial year from 01.04.2018 to 31.03.2019).

Source: compiled by the authors from *Financial Statistics of Japan*. Available at: https://www.mof.go.jp/english/pri/publication/financial_statistics_of_japan/index.htm (In Japan.); [14].

Table 2 illustrates the tax receipts of local governments in Japan and their significance starting from the mid-twentieth century. The division of tax revenues, on the one hand, reflected the growing tax autonomy of local authorities. On the other hand, the national tax revenues used as transfers to local governments were also growing in significance. Furthermore, the decentralization trends in the distribution of revenues went hand in hand with the centralization of certain functions.

The post-war system of public finance in Japan, combining elements of centralization and decentralization, which are usually seen as mutually exclusive, is best described by the term 'controlled decentralization' proposed by K. Akizuki [2]. After the Great East Japan Earthquake of 2011, the importance of centralization became more evident. Even though the vast majority of studies in the sphere of state governance focus on the advantages of financial decentralization, it is sometimes impossible to effectively deal with the consequences of large-scale or even global natural disasters and pandemics on the local level. Such situations usually require financial decisions on the part of the national government. Since the 2010s, the liquidation of the consequences of the Fukushima accident has been a major impe-

tus for centralization of the public finance in Japan (for more on this, see [15]).

Thus, the Japanese public finance system is a unique case for research of centralization and local autonomy, since it comprises both of these trends. The Japanese model of local public finance is difficult to compare with its counterparts in other countries. Studies of the state governance in contemporary Germany and Japan [16] and of the way the Shoup Mission's Report shaped Japan's tax system [9] emphasize the differences between the present-day situation and the principles of fiscal federalism that the Report proposed. Current peculiarities of the Japanese local finance system stem from the combination of the European centralized model and the Anglo-American decentralized model, although there are also some features that are unique to Japan.

In the 1990s, Japan launched a profound administrative and territorial reform, involving redistribution of powers between different levels of government¹. The key provisions of the reform were described in the Comprehensive Decen-

¹ For more on this, see: *Situation in Local Finances 2019*, MIC of Japan. Available at: http://www.soumu.go.jp/menu_news/s-news/01zaisei07_02000205.html (In Japan.), as well as [17; 18].

tralisation Act, which was adopted in 2000 and came into force in 2003. Municipal mergers were a part of the reform resulting in a fall in the number of municipalities from 3,229 in 1999 to 1,718 in 2017. The main reasons behind this step were the unprecedented rates of population ageing, changing fiscal needs, decreasing population density and other processes that required optimization on the municipal level².

In 2003, the beginning of the so-called ‘triple reform’ of local budgets was announced. The reform included, first, cuts in state subsidies, second, reduction in the LAT grants, and, third, a shift of tax sources from the central government to local governments. In the first three years of the reform (2003–2006), the sums of state subsidies and LAT grants were reduced in accordance with the plans. Nevertheless, since tax revenues came rather late to local budgets, prefectures and municipalities had to face a serious revenue shortfall [19; 20]. In the following decade, the tax revenues started growing but only on the level of prefectures. In 2006–2016, the share of tax revenues in the prefectural budgets rose from 30.2 to 39.3%. On the municipal level, however, the picture was quite different: the share of local taxes declined from 34.4 to 32.7%. At the same time, state subsidies accounted for a larger share of municipal revenues: there was an increase from 9.3 to 15.8%. As a result, prefectures became more autonomous in terms of revenues while cities, towns and villages, on the contrary, more dependent on the central government [21].

3. Tax assignment in Japan

Distribution of tax revenues in Japan is based on shared use of the tax base by the national and local governments and the relative autonomy of prefectures and municipalities in setting their tax rates within the limits of the national standard rates. Thus, C. Shoup’s main idea that each

tax should be levied only on one government level remained unrealized. Table 3 shows tax revenues of budgets of different levels in Japan in 2018.

Table 3
Allocation of tax revenues in Japan
in 2018, bln yen

Taxes	Central budget	Prefectural budget	Municipal budget
Individual income taxes	19420	4679	7674
Corporate income taxes	12820	5059	2301
Consumption taxes	17558	4707	-
Excise duties	8779	141	861
Property taxes	-	1526	8943
Inheritance tax	2240	-	-
Other taxes	2026	1581	2030

Source: authors’ calculations according to *Financial Statistics of Japan*. Available at: https://www.mof.go.jp/english/pri/publication/financial_statistics_of_japan/index.htm (In Japan.).

Most revenues are provided by the personal income taxes, which include the national progressive income tax and inhabitant tax³. To be more precise, in Japan these taxes have the same name but different ways of collecting, determined on the level of prefectures and municipalities. The inhabitant tax is levied on individual citizens and on businesses and is, therefore, a tax on the population and local businesses of a specific prefecture or municipality. Individual citizens pay a fixed sum of 1,500 yen to the prefectural budgets and a fixed sum of 3,500 yen to municipal budgets plus income tax with the flat rate of 10% (4% for prefectures and 6% for municipalities) levied on the taxpayer’s income in the prior year. The tax base for the inhabitant tax is the same

³ The names of taxes and instruments of revenue distribution in Japan usually reflect the economic rather than legal aspects of taxation. For example, the local corporation tax is a national tax and the word ‘local’ refers to the reason why it was introduced and its purpose. In fact, it was introduced to deal with the effects of the elimination of the prefectural tax that had been used before. The local allocation tax (LAT) is not a tax at all but a special kind of grant from the central budget to distribute some of the national tax revenues among the local budgets.

² *Local Autonomy in Japan. Current Situation & Future Shape*. Ministry of Internal Affairs and Communications of Japan; 2009. Available at: http://www.clair.or.jp/j/forum/other_data/pdf/20100216_soumu_e.pdf

as for the national income tax, although it does not take into account some allowances, which means that the tax base of the inhabitant tax is somewhat broader than the tax base of the national tax. These rates and amounts of payments are set by the central government but can be adjusted by local authorities. The local inhabitant tax is paid on the source income and is transferred to the budgets of the prefecture/municipality where the taxpayer resides by their withholding agents.

For business taxation on the subcentral level, several mandatory payments are used: the inhabitant tax (levied by prefectures and municipalities) and prefectural enterprise tax. The corporate inhabitant tax levied on businesses includes a fixed payment (its amount depends on the capital and staff number) and a payment calculated based on the national corporation tax by applying a progressive rate. All the components of the inhabitant tax are characterized by a heavier tax burden and larger taxing powers assigned to municipalities than to prefectures.

Prefectures gain revenues from the enterprise tax, which is levied at a comparatively low rate but has a wide range of tax bases: income, value added and capital. Small businesses are exempt from this tax. Since the 2010s, Japan has conducted a series of corporate tax reforms, which resulted in the elimination of the corresponding local taxes. Since tax revenues were unevenly distributed [22], it was decided to levy business taxes on the national level and transfer a part of these revenues to local governments in the form of grants.

The local consumption tax is a percentage included in the general consumption tax rate in addition to the national tax. A general increase in the consumption rate affected prefectural budgets: until October 2019, the local tax rate had been 1.7% (the total tax rate 8%) and since October 2019, the local tax rate rose to 2.2% (the total tax rate 10%) and 1.76% (of the reduced rate 8%). In setting the key parameters of the local consumption tax, prefectural governments have limited powers in comparison with other local taxes, where they enjoy greater autonomy.

The municipal property tax is a levy on the market value of land and property. In the theory of local taxation, it is considered that the property tax is best levied on the municipal level since this tax provides stable receipts and can be effectively administered by municipalities. A rise in the market value of land and property (the taxable value is revised every three years) leads to an increase in tax revenues.

Experts have mixed views about the effectiveness of the shared use of individual income, business profits and sales of goods by the central government, prefectures and municipalities in Japan. On the one hand, shared tax base on different levels of government works against the benefit principle of taxation (taxpayers do not see the connection between the mandatory payments they make and the specific government level that receives these payments). Moreover, such situation detrimental to the sustainability of public finance during recession, since in this period the two revenue sources may decline simultaneously [23]. On the other hand, if central and local governments share the same tax base, it helps cut administrative costs, prevents tax evasion (especially as far as indirect taxes are concerned), and facilitates tax reforms on the national level.

There are several criteria for evaluation of local taxes: evenness of distribution, stability and increasing revenue generation in response to economic growth. Viewed in the light of these criteria, the local taxation system in Japan shows mixed results. On the one hand, the most evenly distributed across the country's territory are the consumption tax (prefectures) and the property tax (municipalities). The individual inhabitant tax is also distributed quite evenly [22]. As far as the tax on local businesses and consumption tax are concerned, there is a certain balance between the stability of the tax revenues in the short term and the possibility of increase in the tax revenues in the medium term period [24]. K. Ishida has analyzed the statistics on tax revenues of local governments in Japan from 1980 to 2017 and showed that, despite the rise of land prices from the mid-1980s to the 2000s, the

system of municipal tax revenues was unstable while the revenues demonstrated low rates of growth [25]. T. Tran et al. in their analysis of the fiscal data of Tokyo Metropolitan Governments in 2010–2015 found statistically significant positive associations between the volatility of most local taxes and expenditure volatility, but negative associations between the volatility of grants and expenditure volatility [26]. Nevertheless, despite the problems faced by the Japanese local tax system, the country’s government are wary of initiating reforms in this sphere and any adjustments of this system are made only after prolonged consultations and assessment of their possible impact on different aspects of local finance.

As for taxing powers, as it was shown above, the main elements of local taxes are determined on the national level while local authorities have the right to set their own tax rates (adhering to the restrictions set on the national level) and change certain parameters of taxation. Municipalities have slightly broader taxing powers than prefectures. There is, however, no unified approach to setting tax rates across Japanese territories. An increase in the local tax rate often leads to a reduction in the amount of financial support from other budgets [27; 28]. Nevertheless, many prefectures and municipalities can set the rate of the local inhabitant tax as long as it does not exceed the standard tax rate

[23]. Relatively high local tax rates can be explained by the fact that local authorities are not allowed to issue bonds if their tax rate is lower than the standard [29] while borrowing is a popular way used by local authorities in Japan to finance their expenses. Local governments are allowed to set new taxes not specified by the national legislation, but such decisions need to be approved by the Ministry of Internal Affairs and Communications.

In 2018, local governments were allocated a little bit less than 40% of total tax revenues. Since the mid-2000s, the share of national taxes has been growing due to the declining significance of municipal taxes (Fig. 1).

The share of tax receipts going to municipalities is larger than the share that goes to prefectures. Nevertheless, for a long time, the ratio of prefectural and municipal expenditures and revenues has remained virtually unchanged (Table 4). As a result of the decentralization reform in the early twenty-first century, the share of expenditures and revenues of municipalities grew in comparison with prefectures.

Municipalities fund a wide range of public services, including education, especially compulsory education (primary and secondary school), health care, city planning, fire services, housing and utility services, and social services. Powers granted to municipalities by the central government vary depending on the type

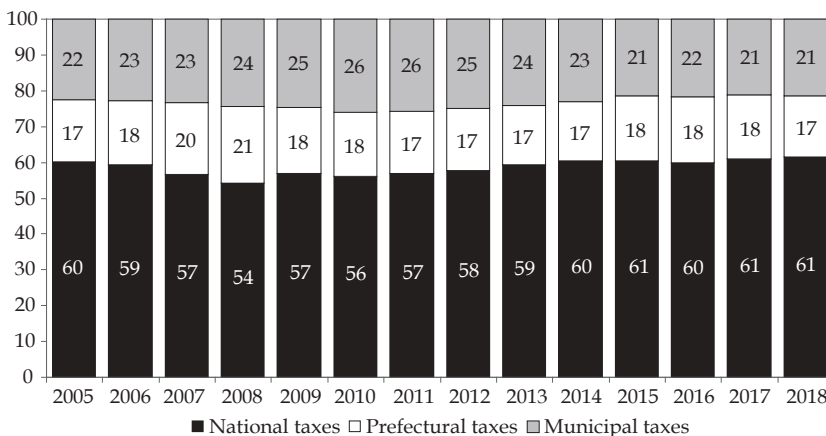


Fig. 1. Distribution of tax revenues between central and local budgets in Japan, %

Source: authors’ calculations according to Financial Statistics of Japan. Available at: https://www.mof.go.jp/english/pri/publication/financial_statistics_of_japan/index.htm (In Japan.)

of municipalities (mostly depends on the number of inhabitants)⁴.

Table 4
Shares of prefectures and municipalities in total local budgets in Japan

Year	Share in total revenues of local governments, %		Share in total expenditures of local governments, %	
	Prefec-tures	Munici-palities	Prefec-tures	Munici-palities
1985	50	50	51	49
1990	50	50	51	49
1995	50	50	50	50
2000	50	50	50	50
2005	48	52	49	51
2006	49	51	49	51
2007	49	51	49	51
2014	47	53	47	53
2015	47	53	47	53
2016	47	53	47	53

Source: authors' calculations according to *Japan Statistical Yearbook 2020*. Statistics Bureau, Ministry of Internal Affairs and Communications of Japan. Available at: <https://www.stat.go.jp/english/data/nenkan/69nenkan/index.html> (In Japan.).

Prefectures act as a link between municipalities and the central government. Services that extend beyond municipal areas are funded on the level of prefectures. The standards for these services are also set on the prefectural level.

4. Prefectural and municipal tax revenues

The key local tax in Japan which provides most revenues is the inhabitant tax. In prefectures, this tax accounts for a third of tax receipts and in municipalities, for up to 45% (Table 5). Receipts from the inhabitant tax paid by individuals are larger than those paid by the corporations. Nevertheless, if we consider the enterprise tax together with the tax on corporate inhabitants, it is easy to see that the amount of taxes paid by individuals and businesses to prefectural budgets is approximately the same.

⁴ *White Paper on Local Public Finance, 2019*. Ministry of Internal Affairs and Communications of Japan. Available at: https://www.soumu.go.jp/iken/zaisei/31data/chihouzaisei_2019_en.pdf (In Japan.).

Table 5
Structure of local budgets' tax revenues in Japan in 2016

	Tax revenue, bln yen	Share in tax revenues of local governments, %	Share in tax revenues of prefectures / municipalities, %
Local tax revenues, total	39392	100	-
1. Local prefectural taxes	18114	46	100
1.1. Prefectural inhabitant tax	5891	15	32.5
- paid by individuals	5017	12.7	27.7
- paid by corporations	874	2.2	4.8
1.2. Local government consumption tax	4703	11.9	26
1.3. Enterprise tax	4261	10.8	23.5
1.4. Motor vehicle tax	1535	3.9	8.5
1.5. Gas oil delivery tax	933	2.4	5.2
1.6. Real estate acquisition tax	397	1	2.2
1.7. Prefectural tobacco tax	149	0.4	0.8
1.8. Automobile acquisition tax	146	0.4	0.8
1.9. Other taxes	99	0.3	0.5
2. Local municipal taxes	21278	54	100
2.1. Municipal inhabitant tax	9574	24.3	45
- paid by individuals	7365	18.7	34.6
- paid by corporations	2208	5.6	10.4
2.2. Property tax	8893	22.6	41.8
2.3. Light motor vehicle tax	238	0.6	1.1
2.4. City planning tax	1262	3.2	5.9
2.5. Municipal tobacco tax	911	2.3	4.3
2.6. Establishment tax	366	0.9	1.7
2.7. Bathing tax	22	0.1	0.1
2.8. Other taxes	12	0.03	0.1

Source: authors' calculations according to *Japan Statistical Yearbook 2020*. Statistics Bureau, Ministry of Internal Affairs and Communications of Japan. Available at: <https://www.stat.go.jp/english/data/nenkan/69nenkan/index.html> (In Japan.).

The local consumption tax and enterprise tax rank second and third in terms of the amount of tax receipts to prefectural budgets. Figure 2 illustrates the consolidated structure of the main taxes as sources of prefectures’ revenues since the early 2000s. In the 2000s, the enterprise tax accounted for about a third of tax revenues of prefectures but since 2009 its share has been steadily declining as a result of the introduction of the LAT. The LAT is set at a given percentage of the major national taxes and distributed in the form of grants

to local governments. The fall in enterprise tax revenues is compensated by the growing role of the inhabitant tax and local consumption tax. Since 2016, the main sources of tax revenues of prefectures have retained a similar proportion.

The motor vehicle tax, which has accounted for 8–12% of the total tax revenues of prefectures since the mid-2000s, is levied as a fixed amount depending on the engine size and how the vehicle is used (personal or business use). The motor vehicle tax is based both on vehicle

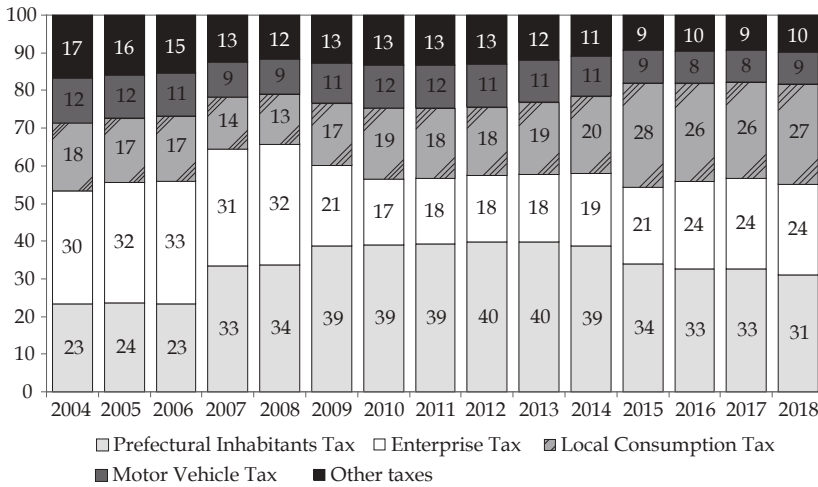


Fig. 2. Prefectural tax revenues in Japan in 2004–2018, %

Source: authors’ calculations according to Financial Statistics of Japan.

Available at: https://www.mof.go.jp/english/pri/publication/financial_statistics_of_japan/index.htm (In Japan.)

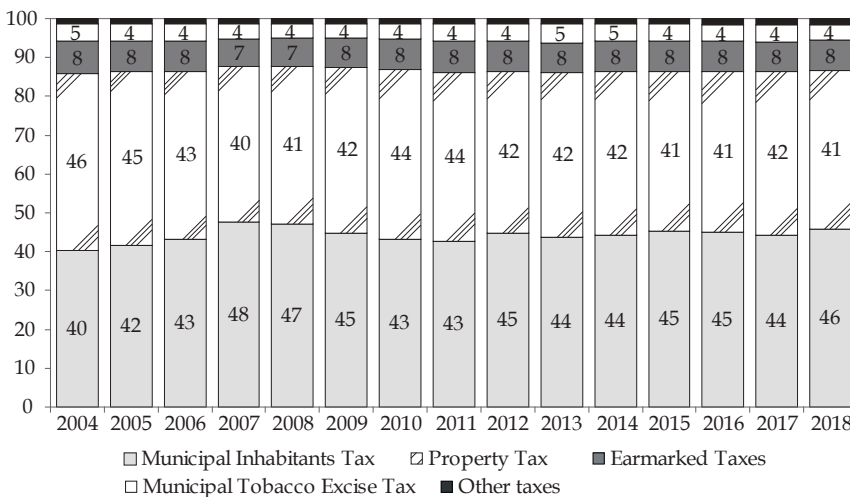


Fig. 3. Municipal tax revenues in Japan in 2004–2018, %

Source: authors’ calculations according to Financial Statistics of Japan.

Available at: https://www.mof.go.jp/english/pri/publication/financial_statistics_of_japan/index.htm (In Japan.)

ownership and usage of roads. Since 2010, the motor vehicle tax revenues have been declining both in absolute values and in terms of total tax revenues of prefectures.

Municipal tax revenues come from the inhabitant tax and property tax. Until 2006, receipts from the property tax had exceeded those from the income tax but starting from the second half of the 2000s, the situation changed to the opposite. Receipts from the property tax are more stable and their year-to-year variation does not exceed 2–4%.

About 7–8% of municipal tax revenues come from special purpose taxes (hunting tax, city planning tax, onsen (bathing) tax) but the fiscal significance of each of these taxes is comparatively low. As far as special purpose taxes are concerned, local authorities enjoy the most autonomy: they have the right to set local taxes to address the needs of their respective territories.

Tax revenues of prefectures and municipalities are in general quite balanced: revenues of prefectures come from three main sources and those of municipalities, from two. Local taxes are levied on businesses and individuals and the taxation base comprises income, revenue, property and consumption.

Receipts from local taxes are more evenly distributed among prefectures than municipalities (Table 6), which can be explained by the significance of tax revenues in the capital's budgets: 79% of local expenditures of Tokyo Metropolis are covered by the receipts from local taxes.

If we compare budgets of municipalities and prefectures, including Tokyo, we will see that the average significance of local taxes for covering expenditures will be the same – 30%. A smaller share of tax receipts in the expenditures of local budgets in comparison with revenues is explained by the fact that a considerable part of expenditures is covered by the bonds issued by local authorities. This figure, however, varies across prefectures more significantly than across municipalities. Since tax revenues are not equally distributed among the territories, it becomes necessary to provide regular grants to local governments for fiscal equalization.

Table 6
Share of revenue sources in local budgets in 2016

Indicator	Share in local budget expenditures, %		
	Local taxes	LAT	Local bonds
<i>1. Prefectural budgets (including Tokyo)</i>			
Maximum value	79	40	18
Minimum value	13	0	2
Mean value	32	24	13
Standard deviation	13	10	3
Covariance	42	39	24
<i>2. Prefectural budgets (excluding Tokyo)</i>			
Maximum value	62	40	18
Minimum value	13	4	5
Mean value	30	25	13
Standard deviation	11	9	3
Covariance	37	36	20
<i>3. Municipal budgets</i>			
Maximum value	50	34	14
Minimum value	16	1	3
Mean value	30	19	9
Standard deviation	9	8	2
Covariance	29	43	21

Source: authors' calculations according to *Japan Statistical Yearbook 2020*. Statistics Bureau, Ministry of Internal Affairs and Communications of Japan. Available at: <https://www.stat.go.jp/english/data/nenkan/69nenkan/index.html> (In Japan.).

5. Redistribution of national tax receipts as grants to local governments

Even though the revenue base of local governments is considered quite balanced, a considerable part of the taxes is levied on the central level and then transferred to prefectures and municipalities in the form of financial assistance (grants). Grants are usually distinguished from tax revenue. But as most countries rely on taxes for the central government's revenues, transfers from higher level budgets are in fact also tax revenues; these revenues are for the most part independent of the territories that receive them. Although in many countries these considerations are of theoretical rather than practical nature, the Japanese system of local governments' revenues reveals the connection between grants from the central budget and the tax revenues of this budget.

The local allocation tax (LAT) is paid annually to the budgets of prefectures and municipalities to adjust the fiscal imbalance among local governments. Despite its name, the LAT is actually a transfer of a fixed sum from the central to the local budget. In 2017, this sum included 33.1% of the income tax and corporate tax revenues, 50% of the alcohol tax and 22.3% of the consumption tax⁵. Thus, local govern-

ments are provided with the basic level of revenues to maintain the level of public services according to the unified national standards. As a result, the revenues of local budgets are more or less equal regardless of the territories' population size.

Figures 4 and 5 show tax revenues and financial assistance per capita from the central budget to prefectural and municipal budgets in the ascending order.

Figures 4 and 5 demonstrate the results of fiscal equalization per capita. The biggest imbalance in terms of local tax revenues is characteristic of prefectural budgets (the ratio of the standard deviation to

⁵ *White Paper on Local Public Finance, 2019*. Ministry of Internal Affairs and Communications of Japan. Available at: https://www.soumu.go.jp/iken/zaisei/31data/chihouzaisei_2019_en.pdf (In Japan.)

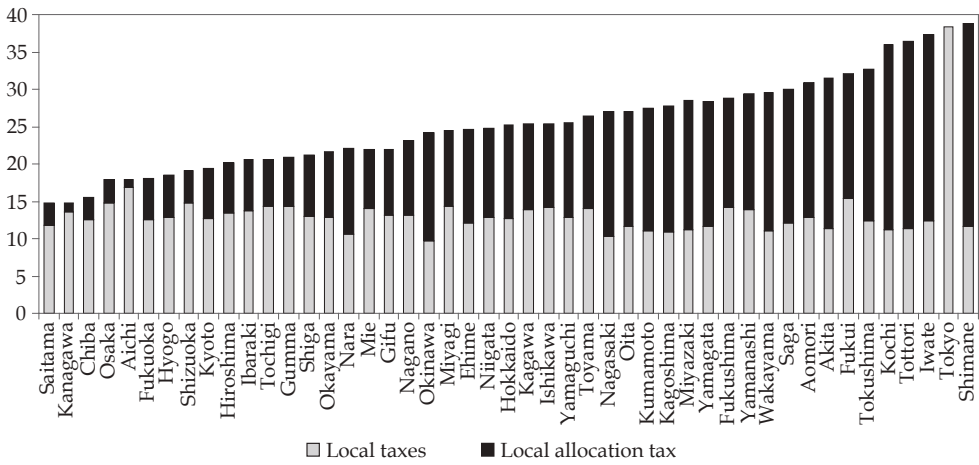


Fig. 4. Local taxes and LAT to prefectural budgets of Japan per capita, in 2016

Source: authors' calculations according to Japan Statistical Yearbook 2020. Statistics Bureau, Ministry of Internal Affairs and Communications of Japan. Available at: <https://www.stat.go.jp/english/data/nenkan/69nenkan/index.html> (In Japan.)

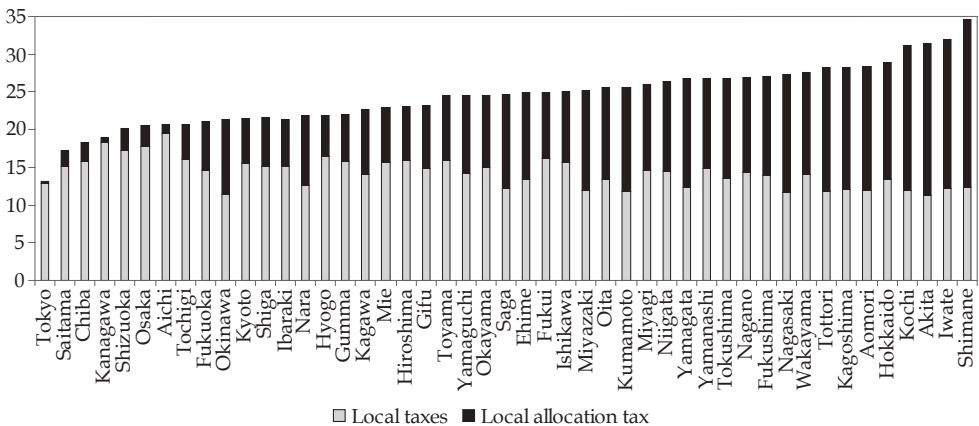


Fig. 5. Local taxes and LAT to municipal budgets of Japan per capita, in 2016

Source: authors' calculations according to Japan Statistical Yearbook 2020. Statistics Bureau, Ministry of Internal Affairs and Communications of Japan. Available at: <https://www.stat.go.jp/english/data/nenkan/69nenkan/index.html> (In Japan.)

the mean value per capita was 34% in 2016). After fiscal equalization, the corresponding per capita indicator, which takes into account local tax revenues, national tax revenues transferred to local governments and the LAT, was 23% for prefectures and 18% for local budgets in total.

Even though the LAT is more significant for prefectures than for municipalities (Table 6), the biggest differences in the share of expenditures covered from this source are characteristic of municipalities. This can be explained by the uneven distribution of revenues among cities, towns and villages.

In 15 prefectures, the LAT covered from 30 to 40% of local expenditures; in 14, from 10 to 20%. The budget of Tokyo Metropolitan Government does not rely on LAT grants. The share of the LAT in the expenditures of consolidated municipal budgets within one prefecture exceeded 30% only in three prefectures, while in 24 prefectures, it was less than 20%. These figures point to the fact that on average, in comparison with prefectures, in municipalities the LAT covers a smaller share of expenditures.

Table 7

National tax revenues transferred to local budgets in Japan

Year	Share of the LAT in national tax revenues, %	Share of local tax revenues and tax revenues transferred to local budgets in total tax revenues (taking into account fiscal equalization), %
2006	31.2	63.5
2007	28.9	60.5
2008	32.1	64.0
2009	33.1	63.7
2010	38.7	67.3
2011	38.5	67.4
2012	37.1	66.1
2013	34.5	64.0
2014	31.5	61.6
2015	27.9	58.4
2016	28.3	59.2
2017	26.6	57.6
2018	25.5	56.7

Source: authors' calculations according to *Financial Statistics of Japan*. Available at: https://www.mof.go.jp/english/pri/publication/financial_statistics_of_japan/index.htm (In Japan.).

In 2008–2013, local governments received about a third of national tax revenues through LAT, and in 2018, a fourth. Table 1 showed that in comparison with other countries, Japan has the largest share of tax revenues going to local budgets. However, if we also take into account those tax revenues that are transferred to local governments as financial assistance, the distribution of tax revenues in Japan will appear even more decentralized: in the first half of the 2010s, the revenues of prefectures and municipalities exceeded 60% of the country's total tax revenue and in 2018, 56.7% (Table 7).

In addition, it should be noted that one more important source of revenues for prefectures and municipalities is local bonds.

6. Conclusions

The system of tax revenues of local governments in Japan has several salient characteristics related to a complex configuration of centralisation and decentralisation, which have taken different forms at different stages of historical development. In the second half of the twentieth century, the fiscal aspects of local governance underwent serious transformation. Specific functions were assigned to different levels of government, tax sources were allocated to local budgets, and the decentralised system of public finance was established. These arrangements, however, did not eliminate centralisation, since they also included instruments of administrative control over local authorities. In the post-war period, the expenditures and revenue figures for prefectures and municipalities were quite similar. In the early twenty-first century, after a round of municipal mergers, the share of municipalities' expenditures and revenues grew in comparison to prefectures. Eventually, Japan became a country with the largest share of tax revenues transferred to local governments, compared to other unitary states.

The financial endowments of local authorities in Japan are equalised through annual payments in the form of the LAT to local governments. The LAT comprises

approximately a fourth of prefectural and a fifth of municipal revenues. Such design of financial equalisation, combined with the active use of borrowing, explains why other grants play a comparatively small role in local tax revenues. This fact can also be regarded as an indirect evidence of the relative stability of local tax revenues in Japan.

In the early 2000s, the system of public finance faced serious challenges, such as slow economic growth, population decline and ageing, concentration of people in several large cities, and the outflow of population from most provincial territories. The results were a growing budget deficit and the shrinking capacity of the central government to subsidise local budgets. This situation led the government to rebuild the mechanism of budgeting, both at the national and local levels. The reform of inter-governmental fiscal relations that was finalised in 2003 addressed these problems by cutting central subsidies, reducing the amount of revenue redistribution, and enhancing the financial capacity of local governments. The goals of the reforms were achieved only at the level of prefectures while municipalities became even more dependent on national grants. Therefore, municipalities have had considerably fewer opportunities for strengthening their governing capacity and becoming more self-sufficient than prefectures. This implies that different approaches are necessary to reforming municipal and prefectural budget systems.

The natural disasters that hit Japan in the 2010s highlighted the need to preserve the centrally-controlled elements in the country's system of public finance. The choices that Japan made in the aftermath of these disasters regarding centralisation and decentralisation of state governance will affect, in all likelihood, the policies of other countries when faced with the threat of a global pandemic.

In Japan, the central and local governments share tax bases. The taxing powers of local governments are limited by the standard tax rates set at the national level. Such division of tax sources

creates vulnerabilities in periods of economic instability but helps in facilitating tax administration. Since the beginning of the 2010s, as part of tax reforms, some business taxes have been transferred from the local to national level due to the unequal distribution of the tax base across provinces.

For prefectures, the main sources of revenues are the inhabitant tax, local consumption tax, and enterprise tax. These taxes usually have the same significance for prefectural budgets. For municipalities, the primary sources are the local inhabitant tax and property tax. Tax revenues of prefectures are generally lower than those of municipal governments. Although local tax revenues have a similar average significance for prefectural and municipal budgets, prefectures have more substantial differences in terms of local tax revenues.

Financial assistance to local governments is mostly channelled through the LAT, which is a transfer of a fixed amount of national tax revenue to the budgets of prefectures and municipalities. The LAT provides effective equalisation of local revenues per capita and is more important for prefectures than for municipalities. Taking into account LAT payments, subnational budgets in Japan received about 60% of total tax revenues in the first half of the 2010s, with the reduction of this share in more recent years. In addition, prefectures and municipalities covered about 10% of their expenditures by issuing local bonds.

Even a limited endorsement of the Japanese tax system is hardly feasible in different national settings. At the same time, the experience of Japan is worth consideration, especially regarding the revenue base of local governments. An interesting subject is the set of limitations of local taxing powers by the national government, while another remarkable trend is that of municipal mergers aimed at ensuring a balanced regional development and equalising the distribution of tax revenues. The analysis of these matters can help show the theoretical and practical relevance of our study.

References

1. Steiner K. *Local Government in Japan*. Stanford, CA: Stanford University Press; 1965. Available at: <https://archive.org/details/localgovernmenti0000stei>.
2. Kume I., Iqbal F., Muramatsu M. (eds) *Local Government Development in Post-war Japan*. Oxford University Press; 2002.
3. Saprykin D.A. *Evolution of Local Self-Government in Japan in the Nineteenth and Twenty-First Centuries*. Moscow; 2012. (In Russ.)
4. Streltsov D.V. (ed.) *Political System of Contemporary Japan*. Moscow: Aspekt Press; 2013. (In Russ.) Available at: <https://mgimo.ru/upload/iblock/dc0/politicheskaya-sistema-sovremennoj-yaponii.pdf>.
5. Sims R. *Japanese Political History Since the Meiji Restoration 1868–2000*. Palgrave Macmillan US; 2001. DOI: [10.1007/978-1-349-63240-4](https://doi.org/10.1007/978-1-349-63240-4).
6. Banno J. *The Establishment of the Japanese Constitutional System*. London and New York: Routledge; 1992. Available at: <http://bookre.org/reader?file=1092498&pg=3>.
7. Salina N.V. Investigation of the Problems of Local Taxation's at Saint-Petersburg University in the Second Part of the XIX – the Beginning of the XX Century. *Vestnik Sankt-Peterburgskogo universiteta. Ekonomika = St Petersburg University Journal of Economic Studies*. 2010;(1):102–111. (In Russ.) Available at: <https://economicsjournal.spbu.ru/article/view/2989>.
8. Brownlee W., Ide E., Fukagai Y. (eds) *The Political Economy of Transnational Tax Reform. The Shoup Mission to Japan in Historical Context*. Cambridge University Press; 2013. DOI: [10.1017/CBO9781139519427](https://doi.org/10.1017/CBO9781139519427).
9. Shoup C.S. et al. *Report on Japanese Taxation by the Shoup Mission*. Tokyo Japan: General Headquarters, Supreme Commander for the Allied Powers; 1949. Available at: <http://www.rsl.waikei.jp/shoup/shoup00.html>.
10. Beyer V. The Legacy of the Shoup Mission: Taxation Inequities and Tax Reform in Japan. *Pacific Basin Law Journal*. 1992;10(2):388–408. Available at: <https://escholarship.org/uc/item/7wn0f37c>.
11. Bronfenbrenner M., Kogiku K. The Aftermath of the Shoup Tax Reforms. Part I. *National Tax Journal*. 1957;10(3):236–254. Available at: <https://www.jstor.org/stable/41790692>.
12. Akira A. The Making of the Postwar Local Government System. In: Ward R., Yoshikazu S. (eds) *Democratizing Japan. The Allied Occupation*. University of Hawai'i Press; 1987, pp. 251–282. DOI: [10.2307/j.ctv9zcm6g.13](https://doi.org/10.2307/j.ctv9zcm6g.13).
13. Ishi H. Historical Background of the Japanese Tax System. *Hitotsubashi Journal of Economics*. 1986;29(1):1–20. DOI: [10.15057/7843](https://doi.org/10.15057/7843).
14. Shah A. (ed.) *Local Governance in Industrial Countries*. Washington: World Bank; 2006. DOI: [10.1596/978-0-8213-6328-7](https://doi.org/10.1596/978-0-8213-6328-7).
15. Matsui Sh. The Role of Central Government and Local Government in Times of Crisis. Japan's Experience after the Great East Japan Earthquake Disaster, In: Harding A., Sidel M. (eds) *Central-Local Relations in Asian Constitutional Systems*. Oxford and Portland, Oregon; 2015, pp. 125–148.
16. Muramatsu M., Naschold F. *State and Administration in Japan and Germany: A Comparative Perspective on Continuity and Change*. De Gruyter, Inc; 1996.
17. Kimura Sh. *Regional Administration in Japan. Departure from Uniformity*. London: Routledge; 2017. DOI: [10.4324/9781315636740](https://doi.org/10.4324/9781315636740).
18. Suzuki H., Kanda K. *Issues of Local Finances and Factors of Its Future Developments*. Daiwa Soken Reports, 2018;30. (In Japan.)
19. Horiuchi Yo. Problems of Local Finances and Reform. *Norin Kinyu*. 2016;5. (In Japan.)
20. Hachiya K. Disparities in Administrative Services and Distortions of Local Finances. *JRI Review*. 2018;9(60). (In Japan.)
21. Ito T., Hoshi T. *Japanese Economy*. 2nd ed. Cambridge: MIT Press; 2020. Available at: <https://mitpress.mit.edu/books/japanese-economy-second-edition>.
22. Mochida N. *Fiscal Decentralization and Local Public Finance in Japan*. London: Routledge; 2008. DOI: [10.4324/9780203894910](https://doi.org/10.4324/9780203894910).
23. Kimura Sh. Goals and Reforms of Current Japanese Local Tax System. *Hitotsubashi Journal of Law and Politics*. 2015;43:17–48.
24. Ishida K. The Trade-Off Between Growth and Stability in Prefectural Tax Revenue in Japan. *International Journal of Public Administration*. 2013;36(3):210–221. DOI: [10.1080/01900692.2012.713302](https://doi.org/10.1080/01900692.2012.713302).
25. Ishida K. The Growth and Stability of the Local Tax Revenue in Japan. *Public Budgeting & Finance*. 2011;31(1):56–75. DOI: [10.1111/j.1540-5850.2011.00974.x](https://doi.org/10.1111/j.1540-5850.2011.00974.x).

26. Tran T., Drew J., Noguchi M. The Role of Revenue Volatility in Local Expenditure Volatility: A Comparison of Tokyo Metropolitan Local Governments. *Economic Papers*. 2018;37(4):443–455. DOI: [10.1111/1759-3441.12228](https://doi.org/10.1111/1759-3441.12228).

27. Bessho Sh., Ogawa H. Fiscal Adjustment in Japanese Municipalities. *Journal of Comparative Economics*. 2015;43(4):1053–1068. DOI: [10.1016/j.jce.2014.10.007](https://doi.org/10.1016/j.jce.2014.10.007).

28. Tajika E., Yui Yu. Fiscal Decentralization in Japan: Does It Harden the Budgets of Local Governments? In: Kaizuka K., Krueger A. (eds) *Tackling Japan's Fiscal Challenges: Strategies to Cope with High Public Debt and Population Aging*. Palgrave Macmillan; 2006, pp. 112–139. DOI: [10.1057/9781137001566_7](https://doi.org/10.1057/9781137001566_7).

29. Bessho Sh. A Case Study of Central and Local Government Finance in Japan. In: Yoshino N., Morgan P. (eds) *Central and Local Government Relations in Asia. Achieving Fiscal Sustainability*. Edward Elgar Publishing; 2017, pp. 306–332. DOI: [10.4337/9781786436870.00018](https://doi.org/10.4337/9781786436870.00018).

Information about the authors

Natalia V. Pokrovskaja – Candidate of Sciences (Economics), Associate Professor, St. Petersburg State University (7/9 Universitetskaya Emb., 199034, St. Petersburg, Russian Federation); ORCID: [0000-0002-8314-9470](https://orcid.org/0000-0002-8314-9470); e-mail: n.pokrovskaja@spbu.ru.

Andrey V. Belov – Doctor habil. (Economics), Professor, Fukui Prefectural University (Matsuoka-Kenjojima 4-1-1, Eiheiiji, Fukui, 910-1195, Japan); Chief Researcher, St. Petersburg State University (7/9 Universitetskaya Emb., 199034, St. Petersburg, Russian Federation); ORCID: [0000-0002-8703-8487](https://orcid.org/0000-0002-8703-8487); e-mail: abelov@fpu.ac.jp.

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Информация об авторах

Покровская Наталья Владимировна – кандидат экономических наук, доцент, Санкт-Петербургский государственный университет (199034, Россия, г. Санкт-Петербург, Университетская наб. 7/9); ORCID: [0000-0002-8314-9470](https://orcid.org/0000-0002-8314-9470); e-mail: n.pokrovskaja@spbu.ru

Белов Андрей Васильевич – доктор экономических наук, профессор, Университет префектуры Фукуи (Мацуока-Кэндзэйдзима 4-1-1, Эйхэйдзи, Фукуи, 910-1195, Япония); главный научный сотрудник, Санкт-Петербургский государственный университет (199034, Россия, г. Санкт-Петербург, Университетская наб. 7/9); ORCID: [0000-0002-8703-8487](https://orcid.org/0000-0002-8703-8487); e-mail: abelov@fpu.ac.jp.

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Требования к статьям, публикуемым в журнале Journal of Tax Reform

Требования к структуре и содержанию статьи

1. Статья, представляемая для публикации, должна обладать новизной, быть самостоятельным, завершенным, характеризующимся внутренним единством исследованием актуальной проблемы, связанной с налоговыми реформами на международном и национальном уровнях.

2. Текст статьи следует структурно разбивать на разделы с заголовками, отражающие:

- актуальность темы исследования;
- степень изученности и проработанности проблемы;
- предлагаемые методы, подходы и их оригинальность;
- анализ полученных результатов;
- основные выводы, обобщающие полученные научные результаты, а также обозначающие направления дальнейших исследований по проблеме.

3. Статья должна содержать иллюстративный материал, демонстрирующий результаты исследований.

Правила оформления статьи

1. Текст статьи набирается в текстовом редакторе Microsoft Word и сохраняется в формате .docx.

2. При наборе необходимо учитывать следующее:

- формат листа – А4;
- шрифт – Times New Roman; размер основного текста – 14 пт., вспомогательного (аннотация, ключевые слова, таблицы, рисунки, литература) – 12 пт., постраничных сносок – 11 пт.;
- межстрочный интервал – одинарный;
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- абзацный отступ – 1,25 см;
- поля – 20 мм со всех сторон;
- нумерация – внизу страницы.

3. Объем статьи не менее 18–25 страниц.

4. Статья должна содержать следующие элементы, оформленные в соответствии с требованиями журнала (см. образец оформления статьи):

- индекс УДК;
- JEL коды;
- заглавие статьи на русском и английском языках;
- информацию об авторе (ах) на русском и английском языках;
- аннотацию на русском и английском языках;
- 5–10 ключевых слов на русском и английском языках;
- список использованной литературы (References);
- ссылки на литературу, оформленные согласно списку литературы в квадратных скобках.

5. Все элементы, перечисленные в п. 4, указываются сначала на английском языке, а затем на русском языке.

Рекомендации по подготовке аннотации статьи

Аннотация является источником информации о содержании статьи и изложенных в ней результатах исследований.

1. Аннотация выполняет следующие функции:

- дает возможность установить основное содержание статьи, определить его релевантность и решить, следует ли обращаться к полному тексту статьи;
- предоставляет информацию о статье и устраняет необходимость чтения полного текста статьи в случае, если статья представляет для читателя второстепенный интерес;
- используется в информационных, в том числе автоматизированных, системах для поиска необходимых статей и информации.

2. Аннотация к статье должна быть:

- информативной (не содержать общих слов);
- оригинальной;
- содержательной (отражать основное содержание статьи и результаты исследований);
- структурированной (следовать логике описания результатов в статье и разделенной на подзаголовки: цель исследования, методы, результаты, заключения);
- компактной (укладываться в **объем от 200 до 250 слов**).

3. Аннотация включает следующие аспекты содержания статьи:

- предмет, цель исследования (указываются в том случае, если они не ясны из заглавия статьи);
- метод или методологию проведения работы (целесообразно описывать в том случае, если они отличаются новизной или представляют интерес с точки зрения данной работы. В рефератах статей, описывающих экспериментальные работы, указывают источники данных и характер их обработки);
- результаты работы (описываются предельно точно и информативно. Приводятся основные теоретические и экспериментальные результаты, фактические данные, обнаруженные взаимосвязи и закономерности. При этом отдается предпочтение новым результатам и данным долгосрочного значения, важным открытиям, выводам, которые опровергают существующие теории, а также данным, которые, по мнению автора, имеют практическое значение);
- область применения результатов;
- выводы (могут сопровождаться рекомендациями, оценками, предложениями, гипотезами, описанными в статье).

4. В тексте аннотации следует употреблять синтаксические конструкции, свойственные языку научных и технических документов, избегать сложных грамматических конструкций. Текст должен отличаться четкостью формулировок и содержать только значимую информацию. Сведения, содержащиеся в заглавии статьи, не должны повторяться в тексте аннотации. В ней следует применять значимые слова из текста статьи.

Рекомендации по выбору ключевых слов

1. Ключевые слова выражают основное смысловое содержание статьи, служат ориентиром для читателя и используются для поиска статей в электронных базах,

поэтому должны отражать дисциплину (область науки, в рамках которой написана статья), тему, цель и объект исследования.

2. В качестве ключевых слов могут использоваться как одиночные слова, так и словосочетания в единственном числе и именительном падеже. Количество слов внутри ключевой фразы (словосочетания) может быть не более трех.

3. Основные принципы подбора ключевых слов:

- применяйте базовые термины вместе с более сложными (бухгалтерский учет основных средств, бухгалтерский учет, основные средства); повторы и синонимы (грузовые перевозки – транспортная логистика, организация перевозок – логистика);

- не используйте слишком сложные слова (словосочетания, в которых приводится больше трех слов, чаще всего можно разбить на несколько ключевых слов (обработка и анализ данных – обработка данных, анализ данных)); слова в кавычках (ОАО «Иркутскэнерго» – Иркутскэнерго); слова с запятыми (факторы, определяющие качество – факторы качества, определение качества);

- каждое ключевое слово – это самостоятельный элемент. Ключевые слова должны иметь собственное значение (человеческий капитал, его оценка – человеческий капитал, оценка человеческого капитала).

Рекомендации по оформлению ссылок на использованную литературу

1. Нумерация в списке литературы осуществляется по мере цитирования. При повторном цитировании источника ему присваивается номер первоначального цитирования.

2. Ссылки на использованную литературу приводятся в тексте в квадратных скобках с указанием в них номера источника по Списку использованной литературы и страницы цитируемого фрагмента, напр.: [5, с. 115].

3. В оригинальной научной статье необходимо упоминание не менее 25–40 источников, имеющих автора, в научном обзоре – 50–80, в том числе не менее 50 % источников на иностранном языке. Редакционная коллегия рекомендует цитировать статьи из журналов, которые индексируются в международных базах данных (Scopus, Web of Science).

4. Электронные ресурсы, в которых не указан автор материала, статистические сборники, нормативно-правовые акты размещаются в постраничных сносках и в список использованной литературы не выносятся.

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Примеры оформления библиографических записей

1. Статьи в журналах:

Pimenov N. A. Fiscal risks in the system of tax security of businesses and State. *Nalogy = Taxes*. 2010;(4):10–13. (In Russ.)

Slemrod J. Lessons for tax policy in the great recession. *National Tax Journal*. 2009;52(3):387–397. Available at: http://webuser.bus.umich.edu/jslemrod/Great_Recession.pdf

Jensen O. W. Transfer Pricing and output decisions: the dynamic interaction. *Decision Sciences*. 1986;17:428–436.

Börner K., Klavans R., Patek M., Zoss A. M., Biberstine J. R., Light R. P., Larivière V., Boyack K. W. Design and update of a classification system:

The UCSD map of science. *PloS one*. 2012;7(7):1-10. DOI: 10.1371/journal.pone.0039464

2. Статьи из сборников научных трудов и материалов конференции:

Reingold I. I. The financial policy of NEP. In: Sokolnikov G. Ya. (ed.) *Fundamentals of the financial system of the USSR*. Moscow: Gosfinizdat; 1930. Pp. 56-61. (In Russ.)

Atkinson A. B. Horizontal equity and the distribution of tax burden. In: Aaron H., Boskin M. (eds) *The Economics of Taxation*. Washington, DC: Brookings Institution; 1980, pp. 3-18.

Börner K., Boyack K. W., Milojević S., Morris S. An introduction to modeling science: Basic model types, key definitions, and a general framework for the comparison of process models. In: Scharnhorst A., Börner K., van den Besselaar P. (eds). *Models of science dynamics, encounters between complexity theory and information sciences*. Berlin: Springer; 2012, pp. 3-22.

Alam S. L., Campbell J., Lucas R. Using social media in government: The Australian taxation office e-Tax facebook page. In: *Proceedings of the 2011 IEEE 9th International conference on dependable, autonomous and secure computing (DASC, 2011), December 12-14, 2011, Sydney, Australia*. Institute of Electrical and Electronics Engineers; 2011, pp. 1002-1009.

3. Монографии, учебники, учебные пособия:

Kormishkina L. A., Koroleva L. P. *Financial security*. Saransk: The National Research Mordovia State University; 2016. (In Russ.)

James S., Sawyer A., Budak T. (eds). *The complexity of tax simplification: experiences from around the world*. London: Palgrave Macmillan; 2016.

Taleb Nassim Nicholas. *The Black Swan. The impact of the highly improbable*. Random House; 2007.

4. Диссертации, авторефераты диссертаций:

Gombozhapova S. V. *Improving tax control in context of historical experience*. PhD (Econ.) Thesis. Irkutsk; 2012. (In Russ.)

Urban I. *Redistributive effects of direct taxes and social benefits in Croatia*. Dr. (Econ.). Slovenia; 2010.

5. Электронные ресурсы, в которых указан автор материала:

Ivanov A. *Strong ruble and cheap loans. How effective are the proposals of Sergei Glazyev*. Available at: <http://svpressa.ru/economy/article/156619/> (In Russ.)

Feldstein Martin. *The Case for fiscal stimulus*. Available at: <https://www.project-syndicate.org/print/the-case-for-fiscal-stimulus>

Предоставление сведений об авторе (ах) статьи

1. В статье в информации об авторах на русском и английском языках указываются следующие данные:

- фамилию, имя, отчество (полностью);
- ученую степень, ученое звание (полностью);
- занимаемую должность;
- рабочее подразделение (кафедра, факультет, институт и др.);
- место работы в соответствии с официальным названием организации;

- почтовый индекс организации – места работы (с указанием почтового индекса);

- адрес электронной почты (e-mail);

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2. Дополнительно указывается информация, которая служит для связи с автором и в журнале не публикуется:

- почтовый адрес для переписки (с указанием индекса);

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Publication requirements for articles submitted to Journal of Tax Reform

The requirements for the structure and content of the article

1. The article submitted for publication must contain novelty, must be an independent, complete and internally united research work on a current issue, related to tax reform at international and national levels.
2. The article should be structurally divided into sections with headings, reflecting:
 - relevance of the research;
 - background of a problem;
 - proposed research methods and their originality;
 - analysis of the study findings;
 - main conclusions, the results of the research and further discussion of them, or the problem solution.
3. The article should contain illustration material, showing the results of the research.

Format requirements

1. The manuscript files in Microsoft Word format should be converted to .docx. files
2. Technical format of the article has to comply with the following requirements:
 - the page size – A4;
 - font – Times New Roman; main text – 14-point, supplementary text (abstract, keywords, tables, figures, references) – 12-point, footnotes – 11-point;
 - line spacing – 1,0;
 - fit to the width;
 - indent – 1,25;
 - margins – 2.0 cm on all sides;
 - page numbers – at the bottom of the page;
3. Article should be 18–25 pages.
4. The article has to contain the following components drawn up in accordance with the journal's requirements (see the sample):
 - JEL classification;
 - title of the article;
 - information about the author;
 - abstract;
 - 5–10 key words;
 - the list of references;
 - the article should have reference notes given in square brackets provided according to the references.

Guidelines for Abstract writing

An Abstract is a source of information on your paper's content and findings.

1. An Abstract has the following functions:
 - allows readers to identify the basic concept of your paper as well as its relevance and decide if the full text paper is of interest to them;

- provides information on your paper and makes it unnecessary to read its full text version if it is of secondary interest to a reader;

- is used in information (including computerized) search systems to find papers and information.

2. An Abstract should be:

- informative (no general words);
- original;
- relevant (reflects your paper's key content and research findings);
- structured (follows the logics of results' presentation in the paper and divided into sub-headings: the purpose of the research, methods, results, conclusions);
- concise (**between 200 and 250 words**).

3. An Abstract should contain the following content aspects:

- the statement of the object and purpose of your study;
- research methods/methodology;
- results observed;
- the sphere of results application;
- conclusions drawn from your study.
- the object, topic and purpose of the research (if they are not clear from the title of the paper);
 - the research methods/methodology if they are original or of interest for this particular research. For papers concerned with experimental work describe your data sources and data process technique;
 - the results of research should be described as precisely and informatively as possible. Include your key theoretical and experimental results, factual information, revealed interconnections and patterns. Give special priority to new results and long-term impact data, important discoveries and verified findings that contradict previous theories as well as data that you think have practical value.
 - the sphere for implementation the results of the research;
 - conclusions could be associated with recommendations, estimations, suggestions, hypotheses described in the paper.

4. Use the language typical of research and technical documents to compile your abstract and avoid complex grammatical constructions. Information contained in the title should not be repeated in the abstract. The abstract should be concise and clear and reflect only the main information of the original paper. The text of the abstract should include key words of the paper

Guidelines for Keywords

1. Keywords encapsulate the principal topics of the paper. These keywords will be used for indexing purposes as a guide to search the articles in electronic databases, therefore, they should reflect area of science in which the article was written, the subject, the purpose and object of research

2. The keywords can be used as single words and phrases. Key phrase (phrases) should contain no more than three words.

3. Basic principles for keyword selection:

- avoid general and plural terms and multiple concepts (avoid, for example, "and", "of").
- be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.
- each keyword should have its separate meaning.

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5. Author's self-citations should not exceed 20 % of the number of sources in the list of references.

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E-mail: press-urfu@mail.ru

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