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The Impact of the Size of Enterprises on Tax Evasion in the Forestry Industry of Russia

Iu.E. Labunets  , I.A. Mayburov 

Ural Federal University, Ekaterinburg, Russian Federation

 ulya.ev_84@mail.ru

ABSTRACT

The problem of low tax revenues and a large shadow sector is relevant to many countries and industries, and the forestry industry in Russia is no exception. This study examines the forms of tax evasion in various segments of the forestry industry to evaluate the impact of the size of businesses and the level of tax audit risk on the frequency of same-type tax responses. The hypothesis is that same-type tax responses in the form of tax evasion are observed in businesses of all sizes of the forestry industry. The frequency of these tax responses correlates with the level of tax audit risk. The representative sample of micro-, small and mid-sized businesses comprises 7,910 enterprises. For each enterprise included in the sample we calculated the level of tax audit risk for the period of 2017-2020. Audit risk was calculated as a cumulative indicator of the incidence of non-compliance, which was detected by comparing the calculated and normative values of the criteria described in the Federal Tax Service's Concept of the System of Planning of On-Site Tax Audits. The study found that the businesses of all sizes from all sectors of the forestry industry resorted to tax evasion. The specific forms and structural elements of their responses were described. The correlation and regression analysis has shown that there is a strong direct relationship between the level of tax audit risk and the frequency of same-type tax responses. The occurrence of same-type tax responses points to the weaker impact of economic factors within the traditional model of tax behaviour. These findings can be of interest to the tax authorities and policy-makers seeking to raise tax revenues collected from enterprises of the Russian forestry industry.

KEY WORDS

tax response, tax behaviour, tax evasion, forestry industry, tax audit risk, business size

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Влияние масштабов бизнеса на использование однотипных налоговых реакций предприятиями лесопромышленного комплекса России

Ю.Е. Лабунец  , И.А. Майбуров 

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

 ulya.ev_84@mail.ru

АННОТАЦИЯ

Проблема низких налоговых поступлений и высокой доли теневого сектора в лесопромышленном комплексе России является очень актуальной темой. Знание особенностей и различных форм проявления однотипных налоговых реакций в виде уклонения от уплаты налогов в отраслевых сегментах необходимо для снижения доли теневого сектора. Целью исследования является оценка вли-

яния масштабов бизнеса и уровня налогового риска на частоту использования однотипных налоговых реакций в виде уклонения от уплаты налогов предприятиями лесопромышленного комплекса России. Гипотеза исследования заключается в том, что однотипные налоговые реакции в виде уклонения от уплаты налогов присутствуют во всех категориях масштаба деятельности предприятий отраслей лесопромышленного комплекса, при этом частота использования налоговых реакций взаимосвязана с уровнем налогового риска. Мы сформировали репрезентативную выборку микро, малых и средних предприятий отраслей лесопромышленного комплекса России в количестве 7910 предприятий. Уровень налогового риска для каждого предприятия-респондента выборки устанавливался за каждый год исследуемого периода 2017–2020 гг. Он определялся как аккумулированный показатель нарушений, выявленных путем сопоставления расчетных значений критериев Концепции планирования выездных налоговых проверок с нормативным значением критериев. По результатам исследования выявлено использование однотипных налоговых реакций в виде уклонения от уплаты налогов предприятиями всех исследуемых категорий масштаба и видов деятельности отраслей лесопромышленного комплекса России. Определены формы однотипных налоговых реакций, описаны их структурные элементы. Корреляционно-регрессионный анализ показал наличие сильной прямой связи между уровнем налогового риска и частотой использования этих налоговых реакций. Присутствие однотипных налоговых реакций в виде уклонения от уплаты налогов уменьшает влияние экономических факторов традиционной модели налогового поведения. Практическая значимость исследования состоит в том, что полученные результаты могут быть использованы налоговыми органами для развития отраслевого подхода в налоговом администрировании предприятий лесопромышленного комплекса России.

КЛЮЧЕВЫЕ СЛОВА

налоговые реакции, налоговое поведение, уклонение от налогов, лесопромышленный комплекс, налоговый риск, масштаб бизнеса

1. Introduction

Tax evasion is one of the most significant barriers to increasing tax revenues. Russia's forestry industry is no exception in this respect: while the annual volume of wood production and export-import operations are growing steadily, the share of tax revenues from this industry in Russia did not exceed 1% from 2012 to 2021. The share of the shadow sector in the forestry industry of Russia in this period ranged from 37 to 40% of total GDP. Such a large shadow sector impedes efficient problem-solving in the sphere of wood processing, it is detrimental to the development of competitive markets, and in general complicates the achievement of priority objectives of the industry.

The forestry industry in Russia is characterized by a high number of enterprises and comparatively small share of sectoral leaders in the total volume of production. The forestry industry is dominated by micro-, small and mid-sized enterprises. It should be noted that micro- and small

enterprises lack the necessary technical, human and financial resources to make full use of the digital technology and thus maintain sufficient transparency and completeness of their accounting records on all the stages of wood production.

The problem of low tax revenues and the large shadow sector, where micro-, small and mid-sized enterprises are overrepresented, stands high on the list of priority tasks for the development of the forestry industry in Russia. Therefore, in order to implement the trust-based tax strategy more efficiently, it is necessary to gain a more in-depth understanding of the tax behaviour of such enterprises and of the mechanisms behind the interactions within the tax environment.

The problem of low tax collection from enterprises in the forestry industry brings to the fore the need to study the *tax responses* of these enterprises, that is, the taxation-induced changes in their rational economic behaviour. Such tax responses may include changes in the manufactu-

ring programme, changes in the output, or in investment activities but mostly they take the form of tax evasion.

The study of the same-type tax responses associated with tax evasion of enterprises in the Russian forestry industry may provide valuable insights into the problem and help reduce the share of the hidden economy in this industry.

Our research seeks to address the following two questions.

1. Is there a relationship between the level of tax audit risk, the size of an enterprise and the frequency of same-type tax responses (tax evasion) in the Russian forestry industry?

2. Does the sector affiliation of enterprises influence the relationship between the size of a business and the frequency of same-type tax responses (tax evasion)?

This study aims to evaluate the impact of the size of business and the level of tax audit risk on the frequency of same-type tax responses in the form of tax evasion in the forestry industry of Russia.

We are going to test the following hypotheses:

H1. Same-type tax responses in the form of tax evasion are observed in businesses of all sizes of the forestry industry. The frequency of these tax responses correlates with the level of tax audit risk.

H2. The relationship between the size of businesses and the frequency of same-type tax responses (tax evasion) is determined by the businesses' sector affiliation.

2. Literature review

2.1. Research on the factors of tax evasion

Allingham & Sandmo [1] proposed a basic model of tax behaviour, which provided a foundation for the modern theory of managing and improving tax compliance (the economic deterrence theory) as well as the coercive strategies of tax control. The toolkit that their model offers includes selective tax audits, tax rates, tax penalties, and analysis of the gross receipts of businesses.

Alm et al. [2] argue that taxpayers fear the discovery of their tax evasion and the ensuing punishment and that

this fear works as an effective deterrent to non-compliance. In other words, tax compliance occurs because some taxpayers overweight the low probability of audit.

Slemrod et al. [3] in collaboration with the Minnesota Department of Revenue conducted an income tax compliance experiment among randomly selected taxpayers in Minnesota. They showed that a heightened threat of examination affects taxpayers' behaviour, but it also depends on their individual perceptions of the probability of an audit.

Alm & Mckee [4] found that the announcement of audits increases the compliance rate of those who are told that they will be audited. However, the compliance rate of those who know that they will not be audited falls, and the net effect is that overall compliance falls.

Alm et al. [5] studied the influence of economic factors on tax evasion. They collected individual-level data from identical laboratory experiments across five separate studies and found that only two-thirds of all subjects reacted to higher audit rates by increasing their compliance. Some of the subjects did not respond to the changes in the frequency of tax audits at all.

Manhire [6] puts forward a concept of tax compliance as a "wicked system" and argues that there is a diversity of economic factors that have different effects on tax behaviour and in particular non-compliance. He believes that even with simplified tax laws, tax compliance "would still be prone to developing its own emergent and unpredictable properties".

Kleven et al. [7] showed the significance of horizontal interactions between different taxpayers. They conducted a tax enforcement field experiment in Denmark to demonstrate that the influence of the fact of third-party reported income on tax evasion is similar and sometimes exceeds the impact of the threat of an audit.

Alm & Malézieux [8] used laboratory experiments to examine individual tax evasion behavior and found that compliance is affected by specific characteristics of national tax systems (e.g. tax rates, tax amnesties, etc.) and the demographic cha-

racteristics of subjects (e.g. gender, experimental income, occupation, risk attitude).

Kogler et al. [9] conducted an incentivized experiment to show that tax compliance decision-making is in fact more complicated than the risky decisions taken in the context of gambles. The main reason behind this difference is that “while gambling studies relate to both the gain and the loss domain ..., taxpaying is focused on the loss domain”. Interestingly, as far as evasion is concerned, it offers “the chance to circumvent the loss in case of not being detected, with the risk of a possible audit resulting in a higher loss compared to being compliant”.

Kahneman & Tversky [10] describe what they refer to as the certainty effect, which contributes to risk aversion in choices involving sure gains and to risk seeking in choices involving sure losses. The decision to comply with tax laws or not often implies that a person needs to consider more than two options because in some cases partial non-compliance is possible, which makes the decision-making process more complicated.

James S. [11] showed that an approach based on behavioral economics and social sciences can be applied successfully to study taxation and tax reforms, in particular the influence of different factors on tax behaviour.

De Giovanni et al. [12] demonstrated that analysis of long-run distribution of evaders and preferences of the game participants choosing from the possible strategies of tax behaviour can help formulate an optimal tax control strategy for specific national contexts.

Weber T.O. et al. [13] argue that both psychological and purely economic factors can provide further insights into tax behaviour.

Alm [14] argues that the “compliance puzzle” can be explained, at least partially, by “expanding the standard analysis of individual compliance behavior to incorporate the important ways in which individual decisions are shaped by group motivations”.

The analysis of contemporary research literature presented above shows

that taxpayers are no longer considered as rational maximizers of utility. Instead, they are largely seen as a heterogeneous group of agents taking their decisions concerning compliance or non-compliance under uncertainty depending on their preferences and views.

In reality, tax behaviour is simultaneously affected by a multitude of factors, which makes the research on the impact of specific factors on tax responses particularly relevant.

2.2. Research on the influence of the size of the business on tax evasion

Shakkour et al. [15] detected a strong positive relationship between the specific characteristics of SMEs in Jordan and tax compliance.

Alshira et al. [16] argue that tax compliance costs and tax service quality are pivotal for taxation of SMEs – many business owners decide not to comply if the tax service quality is poor and the costs are too high.

Irawan et al. [17] investigated the factors determining the tax morale of micro-, small and mid-sized enterprises in Indonesia. They found that the rate of non-compliance is high among the enterprises of these type. The trust of business owners in tax authorities has a positive effect on tax morale for all these categories of firms and it also helps reduce the level of non-compliance.

Rashid & Morshed [18] examined SMEs in 85 countries to show the impact of the small and mid-sized forms of business on tax evasion. They found that SMEs are more likely to evade taxes than large firms.

Payne & Saunoris [19] studied the relationship between firm-level tax evasion and corruption across 25 transition economies for the years 2002 and 2005 and found that corruption has a larger impact when tax evasion is more widespread. Interestingly, firm-level characteristics show heterogeneous effects across the conditional distribution of tax evasion.

Alshira’h A. et al. [20] found a positive relationship between the tax morality of SMEs and sales tax compliance.

Vincent [21] conducted a questionnaire survey of SMEs owners in Nigeria to develop and test the reliability of a new scale for measuring tax compliance behaviour. He found an inverse relationship between non-compliance and the size of businesses.

Amponsah et al. [22] conducted a cross-sectional survey of 305 micro-taxpayers by using structured interviews and showed that the likelihood of a taxpayer to evade tax stamp is predicted by such parameters as the age, application of sanctions, guilt feeling, transportation costs and the frequency of tax audits.

Werekoh [23] conducted a questionnaire survey of 400 SMEs to show the relationship between the size of businesses and tax evasion. He also demonstrated that tax authorities should be aware of the patterns of tax behaviour to increase tax compliance.

Kireenko et al. [24] studied the relationship between tax evasion in different sectors and the shadow economy and found that the level of tax evasion is higher in the sectors with lower labour costs and social payments as well as other expenses included in the production costs but with a higher share of fixed assets depreciation (asset-intensive industries).

Dabla-Norris et al. [25] provide evidence that productivity correlates with the size of businesses and that higher productivity causally leads to lower tax evasion.

Kelmanson et al. [26] argue that there is a connection between the size of shadow economies and the level of tax evasion.

Lopez [27] proposes a general equilibrium model where heterogeneous establishments optimally select themselves into informality, tax compliance, and formal tax evasion. According to his model, tax revenues are mostly collected from mid-sized firms, which are scarce, while small and large firms opt for various forms of informality.

Alm et al. [28] examined the financial reasons behind tax evasion among SMEs. They have shown that firms dealing with credit and financial constraints are more likely to evade taxes. Moreover, the effects of financial constraints are heterogeneous across firm ownership, age and size.

Barth et al. [29] found that the bigger is a firm, the smaller is the share of the taxes paid per worker.

Most of the studies discussing the relationship between tax evasion and the size of businesses focus on the strong inverse relationship between these parameters. Avenues for further research may be to investigate this relationship for specific categories of enterprises as well as to build data bases for more comprehensive and informative research.

3. Methodology

The categories of micro-, small and mid-size entrepreneurship for sectors of the forestry industry in Russia were determined by applying the normative criteria based on the number of employees and revenue. Individual entrepreneurs were excluded from this study because of the lack of open data on their operations.

For selection of a representative sample, we chose from the general population only those businesses that were registered before 01.01.2017.

The representative sample thus comprises 7,910 enterprises in the forestry industry of Russia. The study covered the period from 2017 through 2020. The procedure of selecting a representative sample of enterprises and calculating the level of tax audit risk is shown in Figure 1.

The normative values for the seven criteria were determined by using the online service of the Federal Tax Service of Russia: the tax burden calculator and the official statistics on average wages in Russian regions.

For a broader understanding of the characteristics of the enterprises in our sample we used the information system SPARK. In addition, we studied the information on the founding members, registered capital, length of time this or that business has been in operation, the data on public contracts, forest land rental agreements, and so on.

The deviation from the norm in each of the seven criteria was taken as 1 and the correspondence to the norm, as 0. The general level of tax audit risk for each year of the given period was calculated as a sum

of values for each of the criteria compared with the corresponding normative values. We evaluated all the enterprises in the sample according to the seven criteria and divided them by risk level into the following groups:

1. Enterprises with risk values only in 0 to 1 criterion – low risk of being audited.
2. Enterprises with risk values in 2 to 3 criteria – moderate risk of being audited.
3. Enterprises with risk values in 4 and more criteria – high risk of being audited.

The breakdown of the sample by sectors of the forestry industry is shown in Table 1.

The sample and general population are statistically homogeneous; the representative sample makes up 25.5% of the general population. It should be noted that in the case of the remaining enterprises that met the sampling criteria, some of the financial accounting data were not available for one or several fiscal periods. It is, therefore, impossible to calculate the values of the criteria of cost-effectiveness and tax burden as well as the general level of tax audit risk.

To identify the forms of same-type tax responses (tax evasion) of enterprises in the Russian forestry industry, we pro-

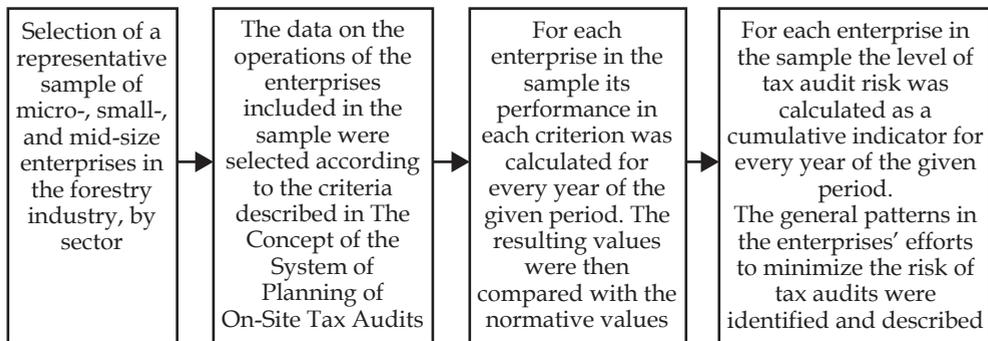


Figure 1. Selection of a representative sample of enterprises and calculation of their tax audit risk

Source: Order of the Federal Tax Service of Russia of 30.05.2007 № M-3-06/333@ "On the Approval of the Concept of the System of Planning of On-Site Tax Audits"

Table 1

Sample of enterprises in the Russian forestry industry by size, units

№	Sector	Number of enterprises by size			Total number of enterprises selected	Total number of enterprises by size as of 01.01.2021			Total number of enterprises as of 01.01.2021
		Mid-size	Small	Micro		Mid-size	Small	Micro	
1	Forestry and logging	24	328	975	1327	56	562	4546	5164
2	Manufacture of wood and products of wood and cork	31	755	2883	3669	95	1347	13726	15168
3	Manufacture of paper and paper products	37	288	622	947	78	502	2161	2761
4	Manufacture of furniture	10	187	713	910	27	394	3375	3796
5	Wholesale of wood	5	95	957	1057	12	252	3908	4172
Total		107	1653	6150	7910	268	3057	27716	31041

ceeded from the assumption that the level of tax audit risk for these enterprises determines their behaviour [30].

To identify the forms of same-type tax responses (tax evasion), we compared the levels of risk in different sectors and for enterprises of different size. We also looked for discrepancies that would point to important peculiarities of the enterprises in the forestry industry facing high levels of audit risk. These discrepancies were then evaluated according to the following parameters: the moment of their occurrence, their frequency and length, and their structure.

For each sector and category of business, we identified and described the forms of same-type responses (tax evasion). Correlation and regression analysis was used to reveal the dependence between the level of tax audit risk and the frequency of same-type tax responses.

4. Results

We found that the level of opportunism in different sectors of the Russian forestry industry depends on the size of businesses (Fig. 2).

For enterprises with the level of tax audit risk from low to moderate, there was a directly proportional relationship between their size and the share of enterprises in all the sectors covered by this study.

For enterprises with the level of tax risk from moderate to high, there was an inversely proportional relationship between their size and the share of enterprises in all the sectors covered by this study.

In other ranges of risk levels, the dependencies were more complex.

Same-type tax responses (tax evasion) were typical of the enterprises whose tax audit risk was constantly high or ranged from moderate to high levels. We found that each enterprise with the level of tax audit risk being constantly high or ranging from moderate to high tended to evade taxes or manifest same-type tax responses.

We identified the main forms of same-type tax responses (tax evasion):

1. Creation by the founding members and director (sole founder) of a structure of interconnected businesses (form of response - creation of a structure of interconnected enterprises).

2. Constant reorganization of enterprises (form of response - preservation of investment capital).

3. Creation by an enterprise's founding members (primarily foreign citizens and organizations) of a structure consisting of mid-sized, small and micro-enterprises (form of response - creation of a structure involving foreign capital).

4. Establishment of an enterprise for the purpose of winning government con-

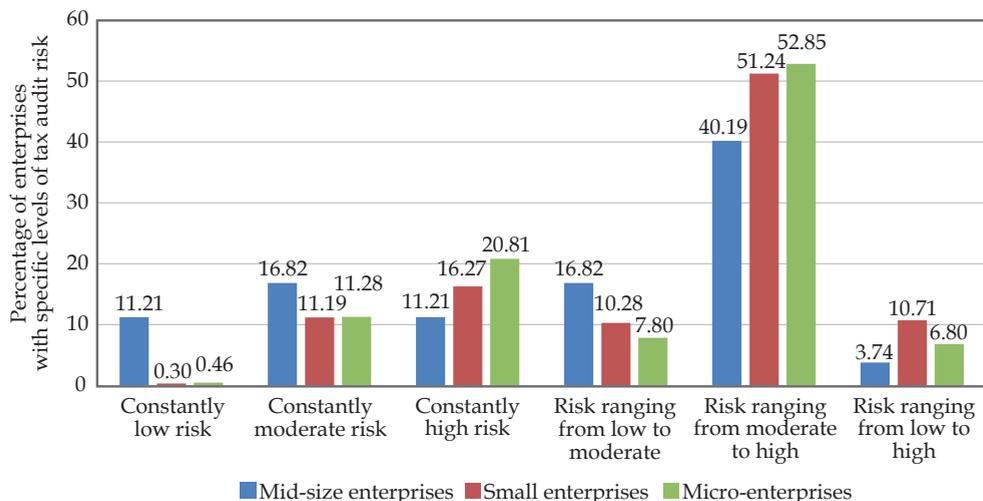


Figure 2. Ratio of the shares of enterprises in the forestry industry by different categories and level of tax audit risk, (%)

tracts (form of response – creation of an enterprise to win government contracts).

5. Liquidation of an old enterprise and creation of a new, similar one (form of response – replacement of an old enterprise with a new, similar one).

6. The founder and (or) director (sole founder) establishes a structure of interconnected enterprises where each enterprise is responsible for a specific stage of the general production process and where all the enterprises share the same labour, financial and material resources (form of response – business disaggregation).

7. Creation of an enterprise by an opportunistic maximizer with prior experience of tax evasion (form of response – opportunistic maximizer).

8. Creation of an enterprise as part of a structure of interconnected enterprises (form of response – creation of a participant enterprise in a structure).

The use of same-type tax responses associated with the creation of structures of interconnected enterprises is beneficial to the taxpayer on all the stages: before, during, and after the tax audit. At the pre-audit stage, all enterprises of this structure can continue their operations for a considerable period of time, despite the high likelihood of an on-site tax audit. Such situation is possible because at the stage where an on-site tax audit is

actually conducted, the sheer complexity of the structure of enterprises can make the collection of data by tax authorities difficult. Moreover, the enterprise that is being audited can minimize its losses by redistributing its resources among other enterprises within the structure in the case of an on-site tax audit and additional tax charges.

Some of the entrepreneurs, who will be further referred to as opportunistic maximizers, through same-type tax responses, can gain maximum profit in the short term (within a 4–5-year period). This form of tax responses allows them to avoid being audited.

We found a strong direct relationship between the level of tax audit risk (y) and the frequency of tax responses (x) (Fig. 3).

We used regression and correlation analysis to show the dependency of the frequency of same-type tax responses (tax evasion) on the size of business in each sector (Table 2).

We found a strong inverse dependence of the number of same-type tax responses and the size of the business in all the sectors. Different types of dependency equations also show the impact of the size of the business on the forms and variations of tax responses.

Table 3 illustrates the distribution of different forms of same-type tax responses depending on the size of the business.

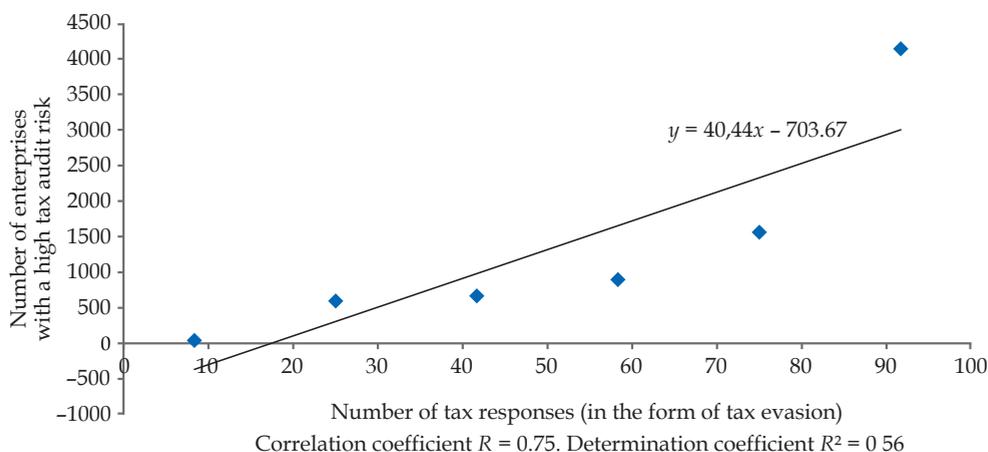


Figure 3. Relationship between tax audit risk and the frequency of same-type tax responses of businesses in the Russian forestry industry, (units)

Table 2
**Number of same-type tax responses in the tax behaviour of enterprises
 in the Russian forestry industry**

Sector	Number of same-type tax responses in the form of tax evasion			Equation of the dependency of the number of same-type tax responses (tax evasion) on the size of the business	Correlation coefficient
	Mid-size	Small	Micro		
Forestry and logging	10	187	697	$y = 166.5x^2 - 1009.5x + 1540$	$R = 1$ $R^2 = 1$
Manufacture of wood	14	488	2021	$y = 34632e^{-2.486x}$	$R = 0,987$ $R^2 = 0,975$
Manufacture of paper	24	228	535	$y = -462.7\ln(x) + 538.71$	$R = 0,99$ $R^2 = 0,9988$
Manufacture of furniture	6	143	586	$y = 7766.2e^{-2.291x}$	$R = 0,98$ $R^2 = 0,9792$
Wholesale of wood	1	70	691	$y = 25177e^{-3.269x}$	$R = 0,99$ $R^2 = 0,9966$

For the situations where business owners are trying to evade taxes by creating a structure of interconnected enterprises, we have identified three possible scenarios (modifications of structures):

1) on the level of mid-level enterprises, the structure is created by founding members, one of whom performs the executive function (director). Such structures normally comprise micro- or small enterprises;

2) on the level of small enterprises, the structure is created by founding members, one of whom may perform the executive function (director). Such structures normally comprise micro-enterprises and businesses registered as an individual entrepreneur (these are mostly founders or directors of the “parent enterprise”);

3) on the level of micro-enterprises, the structure is created by a sole founder, who may be registered as an individual entrepreneur. Such structures normally comprise micro-enterprises.

The smaller is the size of businesses, the more frequently occur the manifestations of natural opportunism, such as an increase in the number of enterprises established by opportunists seeking to maximize their personal profits.

Thus, the smaller businesses are, the more prone they are to using horizontal rather than vertical structures of interaction. They also tend to use more indi-

vidual forms of tax evasion rather than collective ones.

We analyzed the relationship between the size of businesses and their tendency to resort to same-type tax responses and identified the following key characteristics of the sectors in the forestry industry:

1. *Forestry and logging.* The main mechanism behind the tax responses of enterprises specializing in forestry and logging is to establish a new micro-enterprise and use it to conclude forest land rental agreements. A significant part of these firms has been operating for 10 years or more and have forest land rental agreements; there are also data on these enterprises’ annual volumes of timber production. These micro-enterprises, however, do not have sufficient labour or material resources to engage in timber production.

2. *Manufacture of wood.* The share of exported lumber prevails in the total structure of exports. One of the peculiar forms of tax response is the creation of a structure of interconnected enterprises involving foreign capital.

3. *Wholesale of wood.* A peculiar form of same-type tax responses is business disaggregation. Micro- and small enterprises in this sector are established just for one purpose – wholesale trade. All the stages of the manufacturing process are implemented by the structure of interconnected enterprises.

Table 3

**Forms of same-type tax responses in tax behaviour of enterprises
in the forestry sector of Russia**

Sector	Mid-size enterprises		Small enterprises		Micro-enterprises	
	Form of tax responses	Number of modifications	Form of tax responses	Number of modifications	Form of tax responses	Number of modifications
Forestry and logging	creation of a structure of interconnected enterprises	3	creation of a structure of interconnected enterprises	3	creation of a structure of interconnected enterprises	3
	preservation of investment capital	1	establishment of an enterprise to win government contracts	1	participant enterprise in a structure opportunistic maximizer	1 1
Manufacture of wood	creation of a structure of interconnected enterprises	3	creation of a structure of interconnected enterprises	3	creation of a structure of interconnected enterprises	2
	replacement of an old enterprise by a new, similar one	1	preservation of investment capital	1	creation of a structure involving foreign capital	1
	creation of a structure involving foreign capital	1	opportunistic maximizer	1	opportunistic maximizer business disaggregation	1 1
Manufacture of paper	creation of a structure of interconnected enterprises	2	creation of a structure of interconnected enterprises	2	creation of a structure of interconnected enterprises	1
	establishment of an enterprise to win government contracts	1			establishment of an enterprise to win government contracts	1
Manufacture of furniture	creation of a structure of interconnected enterprises	2	creation of a structure of interconnected enterprises	2	creation of a structure of interconnected enterprises	1
					establishment of an enterprise to win government contracts	1
Wholesale of wood	creation of a structure of interconnected enterprises	2	creation of a structure of interconnected enterprises	3	creation of a structure of interconnected enterprises	2
			creation of a structure involving foreign capital	1	opportunistic maximizer	1
			opportunistic maximizer	1	business disaggregation	1
			business disaggregation	1		

4. *Manufacture of furniture.* In this sector micro- and small enterprises do not actually manufacture furniture. These enterprises are created to ensure the financial and material flows within the structure of interconnected micro-enterprises.

5. *Manufacture of paper.* In this sector, the prevailing tax response is to establish an enterprise or a structure of enterprises to win government contracts. Such enterprises are not actual manufacturers of paper or paper products. They perform the role of intermediaries buying and reselling paper products or they are used to create structures of interconnected micro-enterprises to conduct tax evasion transactions.

Thus, different sectors have different dominant forms of tax evasion, which are also determined by the size of businesses.

5. Discussion

The results of our analysis have shown that the level of opportunism in tax behaviour depends on the size of businesses in different sectors of the Russian forestry industry.

We used correlation and regression analysis to reveal the strong direct relationship between the risk of a tax audit and the frequency of same-type tax responses (tax evasion) of enterprises in the Russian forestry industry. We found a strong inverse relationship between the size of the business and the frequency of same-type tax responses of enterprises in the forestry industry.

Thus, hypothesis H1 is confirmed. Our findings agree with the evidence of prior research on the relationship between the size of the business and tax evasion [16; 21; 22].

Our study contributes to the field by providing insights into the nature of tax responses of enterprises of different sizes and sectors in the forestry business. We have also shown the structural and dynamic complexity of the system of tax behaviour. Our study relies on the official, publicly accessible data on enterprises in the Russian forestry industry and their operations.

We found that the same-type tax responses of these enterprises have an insti-

tutional nature, they evolve as individual behaviour patterns, stemming from the individual habits, convictions and stereotypes, and as collective behaviour patterns (e.g. creation of interconnected institutional structures). All of these behaviour patterns are aimed at utility maximization in the established economic environment. The latter, in its turn, is characterized by certain rules of economic management as well as persistent problems that remain unresolved for a long time.

All of the above-mentioned factors (mechanisms of economic management, technological principles, the current state and development potential of the industry) shape these enterprises' tax behaviour. Hypothesis H2 was confirmed and our findings agree with the results of previous research [24; 28].

6. Conclusion

Our study of the relationship between the size of the business and tax evasion focused on the tax behaviour of micro-, small and medium enterprises of the Russian forestry industry.

The correlation and regression analysis has revealed a strong inverse relationship between the size of the business and the frequency of same-type tax responses (tax evasion) of enterprises. For each sector we have identified the dominant forms of tax evasion among micro-, small and mid-sized enterprises.

Both of our hypotheses were confirmed. We found that enterprises of all sizes and in all sectors of the forestry industry use same-type tax responses. The frequency of such responses depends on the level of tax audit risk. We have also found evidence for the relationship between the size of businesses and their increased proneness to same-type tax responses in particular sectors of the forestry industry.

From the practical perspective, our findings may be of interest to government regulatory agencies and policy-makers seeking to devise measures to minimize tax evasion and to unlock tax-revenue collection in the forestry industry, for example, through risk-based audit selection.

References

1. Allingham M.G., Sandmo A. Income Tax Evasion: A Theoretical Analysis. *Journal of Public Economics*. 1972;1(3-4):323–338. [https://doi.org/10.1016/0047-2727\(72\)90010-2](https://doi.org/10.1016/0047-2727(72)90010-2)
2. Alm J., McClelland G.H., Schulze W.D. Why do people pay taxes? *Journal of Public Economics*. 1992;48(1):21–38. [https://doi.org/10.1016/0047-2727\(92\)90040-M](https://doi.org/10.1016/0047-2727(92)90040-M)
3. Slemrod J., Blumenthal M., Christian C. Taxpayer Response to an Increased Probability of Audit: Evidence from a Controlled Experiment in Minnesota. *Journal of Public Economics*. 2001;79(3):455–483. [https://doi.org/10.1016/S0047-2727\(99\)00107-3](https://doi.org/10.1016/S0047-2727(99)00107-3)
4. Alm J., Mckee M. Audit Certainty, Audit Productivity, and Taxpayer Compliance. *National Tax Journal*. 2006;59(4):801–816. <https://doi.org/10.17310/ntj.2006.4.03>
5. Alm J., Enami A., McKee M. Who Responds? Disentangling the Effects of Audits on Individual Tax Compliance Behavior. *Atlantic Economic Journal*. 2020;48(2):147–159. <https://doi.org/10.1007/s11293-020-09672-4>
6. Manhire J. Tax Compliance as a Wicked System. *Florida Tax Review*. 2016;18(6):235–274. <https://doi.org/10.2139/ssrn.2586556>
7. Kleven H.J., Knudsen M., Kreiner C.T., Pedersen S., Saez E. Unwilling or Unable to Cheat? Evidence From a Tax Audit Experiment in Denmark. *Econometrica*. 2011;79(3):651–692. <https://doi.org/10.3982/ECTA9113>
8. Alm J., Malézieux A. 40 years of tax evasion games: A meta-analysis. *Experimental Economics*. 2021;24:699–750. <https://doi.org/10.1007/s10683-020-09679-3>
9. Kogler C., Olsen J., Müller M., Kirchler E. Information processing in tax decisions: a MouselabWEB study on the deterrence model of income tax evasion. *Journal of Behavioral Decision Making*. 2022;1:1–15. <https://doi.org/10.1002/bdm.2272>
10. Kahneman D., Tversky A. Prospect Theory: An Analysis of Decision under Risk. *Econometrica*. 1979;47(2):263–292. <https://doi.org/10.1017/CBO9780511803475.003>
11. James S. *Combining the Contributions of Behavioral Economics and Other Social Sciences in Understanding Taxation and Tax Reform. Conference of the Society for the Advancement of Behavioral Economics, San Diego State University, August 2–5. 2010:1–19.* <https://doi.org/10.2139/ssrn.1705207>
12. De Giovanni D., Lamantia F., Pezzino M. Evolutionary Tax Evasion, Prospect Theory and Heterogeneous Taxpayers. In: Szidarovszky F., Bischi G. (eds). *Games and Dynamics in Economics*. Springer, Singapore; 2020, pp. 89–102. https://doi.org/10.1007/978-981-15-3623-6_5
13. Weber T.O., Fooker J., Herrmann B. Behavioural Economics and Taxation. *Taxation Papers*. No. 41. 2014. 37 p. Available at: http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_papers/index_en.htm
14. Alm J. Expanding the theory of tax compliance from individual to group motivations. *Turlane Economic Working Paper Series. Tulane University*. 2014:260–277. <https://doi.org/10.4337/9781781004715.00020>
15. Shakkour A., Almohtaseb A., Matahen R.K., Shakkour N. Factors influencing the value added tax compliance in small and medium enterprises in Jordan. *Management Science Letters*. 2021;11:1317–1330. <https://doi.org/10.5267/j.msl.2020.11.007>
16. Alshira A.F., Abdul-Jabbar H., Samsudin R.S. Sales Tax Compliance Model for the Jordanian Small and Medium Enterprises. *International Journal of Economics and Finance*. 2019;11(5):114–127. <https://doi.org/10.5539/ijef.v11n5p114>
17. Irawan B., Khoirunurrofik. Understanding Tax Morale of Micro, Small, and Medium Enterprises in Jabodetabek. *Proceedings of the Asia-Pacific Research in Social Sciences and Humanities Universitas Indonesia Conference (APRISH 2019). Advances in Social Science, Education and Humanities Research*. 2021;58:449–457. <https://doi.org/10.2991/assehr.k.210531.058>
18. Rashid Md. H. Firms' Characteristics and Tax Evasion. In: *Handbook of Research on Theory and Practice of Financial Crimes*. Edition: First Chapter: 22 Publisher: IGI Global, USA; 2021, pp. 428–451. <https://doi.org/10.4018/978-1-7998-5567-5.ch022>
19. Payne J.E. Saunoris J.W. Corruption and Firm Tax Evasion in Transition Economies: Results from Censored Quantile Instrumental Variables Estimation. *Atlantic Economic Journal*. 2020;48:195–206. <https://doi.org/10.1007/s11293-020-09666-2>

20. Alshira'h A., Abdul-Jabbar H., Samsudin R., Intan T. The Effect of Tax Moral on Sales Tax Compliance among Jordanian SMEs. *International Journal of Academic Research in Accounting, Finance and Management Sciences*. 2019;9(1):30–41. <https://doi.org/10.6007/IJARAFMS/v9-i1/5722>
21. Vincent O. The development of a scale to measure SMEs tax compliance in Nigeria: An adaptation of Fischer's model. *Journal of Accounting and Taxation*. 2021;13(3):132–143. <https://doi.org/10.5897/JAT2021.0479>
22. Amponsah S., Isshaq Z., Agyapong D. Determinants of tax stamp evasion in rural districts in Ghana. *International Journal of Law and Management*. 2019;61(1):73–90. <https://doi.org/10.1108/IJLMA-08-2017-0190>
23. Werekoh E.A. The Effects of Taxation on Economic Development: the Moderating Role of Tax Compliance Among SMEs. *Research Square*. 2020. <https://doi.org/10.21203/rs.3.rs-1238141/v1>
24. Kireenko A.P., Nevzorova E.N., Fedotov D.Yu. Sector-Specific Characteristics of Tax Crime in Russia. *Journal of Tax Reform*. 2019;5(3):249–264. <https://doi.org/10.15826/jtr.2019.5.3.071>
25. Dabla-Norris E., Gradstein M., Miryugin F., Misch F. Productivity and Tax Evasion. *IMF Working Papers*. 2019;260:1–33. <https://doi.org/10.5089/9781513518619.001>
26. Kelmanson B., Kirabaeva K., Medina L., Mircheva B. Explaining the Shadow Economy in Europe: Size, Causes and Policy Options. *International Monetary Fund (IMF) Research Paper Series*. 2019;278:1–22. <https://doi.org/10.5089/9781513520698.001>
27. Lopez J.J. A quantitative theory of tax evasion. *Journal of Macroeconomics*. 2017;53:107–126. <https://doi.org/10.1016/j.jmacro.2017.06.005>
28. Alm J., Liu Y., Zhang K. Financial constraints and firm tax evasion. *International Tax and Public Finance*. 2019;26:71–102. <https://doi.org/10.1007/S10797-018-9502-7>
29. Barth E., Ognedal T. Tax Evasion in Firms. *Labour*. 2018;32(1):23–44. <https://doi.org/10.1111/labr.12111>
30. Mayburov I.A., Labunets Iu. E. Taxpayer behavior patterns of firms and their classification. In: *Conference: 37th IBIMA Conference on 30–31 May 2021 Cordoba, Spain. Conference proceedings*, pp. 4193–4197. Available at: <https://ibima.org/accepted-paper/taxpayer-behavior-patterns-of-firms-and-their-classification/>

Information about the authors

Iulia E. Labunets – Post-Graduate Student, Department of Financial and Tax Management, Ural Federal University named after the first President of Russia B.N. Yeltsin (19 Mira St., 620002, Yekaterinburg, Russian Federation); ORCID: <https://orcid.org/0000-0001-8522-4115>; e-mail: ulya.ev_84@mail.ru

Igor A. Mayburov – Doctor of Economics, Professor, Head of the Department of Financial and Tax Management, Ural Federal University named after the first President of Russia B.N. Yeltsin (19 Mira St., 620002, Yekaterinburg, Russian Federation); ORCID: <https://orcid.org/0000-0001-8791-665X>; e-mail: mayburov.home@gmail.com

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Информация об авторах

Лабунец Юлия Евгеньевна – аспирант кафедры финансового и налогового менеджмента Уральского федерального университета имени первого президента России Б.Н. Ельцина, Екатеринбург, Россия (620002, Екатеринбург, улица Мира, 19); ORCID: <https://orcid.org/0000-0001-8522-4115>; e-mail: ulya.ev_84@mail.ru

Майбуров Игорь Анатольевич – доктор экономических наук, профессор, заведующий кафедрой финансового и налогового менеджмента Уральского федерального университета имени первого Президента России Б.Н. Ельцина (620002, Российская Федерация, г. Екатеринбург, ул. Мира, 19); ORCID: <https://orcid.org/0000-0001-8791-665X>; e-mail: mayburov.home@gmail.com

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