SHADOW ECONOMY INDEX
for Russia 2017-2018:

comparison with the size of the shadow economies in Ukraine, Kyrgyzstan, Kosovo, Moldova, Romania, Latvia, Lithuania, Estonia and Poland.

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Acknowledgments

Executive summary

This report analyses the dynamics of the shadow economy in Russia during the period 2017-2018 and provides evidence on the main factors that influence entrepreneurs' involvement in the shadow economy. The Shadow Economy Index draws on methodology developed by Putnins and Sauka (2015) using information from entrepreneurs. It combines business income that has been concealed from authorities, unregistered or hidden employees, and 'envelope' wages to estimate the size of the shadow economy as a proportion of GDP.

Our findings show that the size of the shadow economy in Russia was 45.8% of the GDP in 2017 and slightly decreased to 44.7% of the GDP in 2018. Putting this level into perspective by comparing it to nearby countries), it is similar to the level of shadow economy in countries such as Kyrgyzstan, Kosovo, Ukraine and Romania, but higher than the level seen in the Baltic countries (Estonia, Latvia, and Lithuania). Our findings are largely consistent with other less direct approaches for estimating the size of the shadow economies, such as Schneider (2019). An advantage of our approach is that it is able to provide more detailed information on the components of the shadow economy, which we turn to next.

We find that envelope wages and underreporting of business profits stand out as the two largest components of the Russian shadow economy. Underreporting of salaries or so called 'envelope wages' accounted for 38.7% of the Russian shadow economy in 2018, whereas underreporting of the business income (profits) was 33.8%. Underreporting of employees in Russia makes up the remaining 28.3% of the shadow economy.

Some companies in Russia, rather than simply concealing part of the income or employees, are completely unregistered and therefore also contribute to the shadow economy. We estimate that such companies make up 6.1% of all enterprises in Russia.

Our findings also suggests that there is very high level of bribery in Russia: the magnitude of bribery (percentage of revenue spent on 'getting things done') is found to be 26.4%, whereas percentage of the contract value that firms typically offer as a bribe to secure a contract with the government in Russia is 20.6% in 2018. We also find that more than one-third of companies in Russia pay in bribes more than 25% of the revenue or contract value.

The highest levels of shadow economy are observed in Nizhny Novgorod region, reaching 64% of the GDP, followed by Moscow (47.1%) and Voronezh (41.1%). We also find that the size of the shadow economy in all sectors is close to 40% with somewhat higher levels in the construction and wholesale sectors, controlling for other factors.

Using regression analysis, we find that entrepreneurs that view tax evasion as a tolerated behaviour tend to engage in more informal activity, as do entrepreneurs that are more dissatisfied with the

tax system and the government. This result offers some insights into why the size of the shadow economy in Russia is so large – it is at least in part due to relatively high dissatisfaction of entrepreneurs with the business legislation and the government's tax policy. We also find some evidence that higher perceived detection probabilities and, in particular, more severe penalties for tax evasion reduce the level of tax evasion, suggesting increased penalties and better detection methods as possible policy tools for reducing the size of the shadow economy.

Finally, while firms of all sizes participate in the shadow economy, we find that younger firms tend to do so to a greater extent than older firms. The results support the notion that young firms use tax evasion as a means of being competitive against larger and more established competitors.

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1. Introduction

The size of a shadow economy is an important issue because informal production has a number of negative consequences. First, countries can spiral into a 'bad equilibrium': individuals go underground to escape taxes and social welfare contributions, eroding the tax and social security bases, causing increases in tax rates and/or budget deficits, pushing more production underground and ultimately weakening the economic and social basis for collective arrangements. Second, tax evasion can also hamper economic growth by diverting resources from productive uses (producing useful goods and services) to unproductive ones (mechanisms and schemes to conceal income, monitoring of tax compliance, issuance and collection of penalties for non-compliance). Third, informal production can constrain entrepreneurs' ability to obtain debt or equity financing for productive investment because potential creditors/investors cannot verify the true (concealed) cash flows of the entrepreneur. This can further impede growth. Finally shadow activities distort official statistics such as GDP, which are important signals to policy makers.

The aim of the Shadow Economy Index is to measure the size of the shadow economies, as well as to explore the main factors that influence participation in the shadow economy. We use the term "shadow economy" to refer to all legal production of goods and services produced by registered firms that is deliberately concealed from public authorities.[1] The Index draws on method as developed by Putnins and Sauka (2015) and has been applied to numerous countries including Latvia, Lithuania, and Estonia (since 2010), Moldova and Romania (since 2016), Poland (2015-2016), Kosovo (in 2018) as well as Ukraine and Kyrgyzstan (since 2017) to provide policy makers with information for policy decisions, as well as to foster a deeper understanding of entrepreneurship processes.

This report analyses the dynamics of the shadow economy in Russia during the period 2017-2018. It also provides evidence on the main factors that influence entrepreneurs' involvement in the shadow economy and provides some policy recommendations.

Being a phenomenon that is not directly observable, shadow economies are difficult to measure. The various approaches to measuring the shadow economy that have been proposed can be classified into 'direct' and 'indirect' methods. Indirect methods usually draw on macro data, whereas direct methods use tax audits or surveys (see Putnins and Sauka (2015) for a review). The Shadow Economy Index is based on a direct method that draws on annual surveys of company managers. This approach is based on the notion that those most likely to know how much production/income goes unreported are the entrepreneurs that themselves engage in the misreporting and shadow production. The Index combines estimates of misreported business

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[1] This definition corresponds to what the Organisation for Economic Co-operation and Development (OECD) in their comprehensive 2002 handbook "Measuring the Non-observed Economy" as well as the System of National Accounts (SNA 1993) refer to as "underground production". It is also consistent with definitions employed by other researchers (e.g., the World Bank study of 162 countries by Schneider, Buehn and Montenegro (2010)). We elaborate further on the components of the unobserved economy in Section 2.

income, unregistered or hidden employees, as well as unreported 'envelope' wages to obtain estimates of the size of the shadow economies as a proportion of GDP. The method used in this report for estimating the size of the shadow economy requires fewer assumptions than most existing methods, in particular compared to methods based on macro indicators. Furthermore, the Shadow Economy Index can be used through time or across sectors and countries and thus is a useful tool for evaluating the effectiveness of policy designed to minimise the shadow economy.

Survey-based approaches face the risk of underestimating the total size of the shadow economy due to non-response and untruthful response given the sensitive nature of the topic. Our method minimizes this risk by employing a number of survey and data collection techniques shown in previous studies to be effective in eliciting more truthful responses.[2] These include confidentiality with respect to the identities of respondents, framing the survey as a study of satisfaction with government policy, phrasing misreporting questions indirectly about "similar firms in the industry" rather than the respondent's actual firm, gradually introducing the most sensitive questions after less sensitive questions, excluding inconsistent responses, and controlling for factors that correlate with potential untruthful response such as tolerance towards misreporting. See Putniņš and Sauka (2015) for more detailed discussion.

The next section describes how the Index is constructed, starting with the survey and then the calculations. Section 3 presents estimates of the Index and analyses the various forms of shadow activity. Section 4 analyses the determinants of entrepreneurs' involvement in the shadow sector and their attitudes towards shadow activities. Finally, Section 5 discusses the conclusions that we can draw from the results and identifies some policy implications.

2. Methods used in constructing the Index

2.1. The survey of entrepreneurs

The Shadow Economy Index is based on an annual survey of company owners/managers, following the method of Putniņš and Sauka (2015). The survey in Russia was conducted during February - March 2019 and contains questions about shadow activity during 2018 and 2017. We use random stratified sampling to construct samples that are representative of the population of firms in Russia drawing on the official company register and covering all territory of Russia. 500 phone interviews were conducted with owners, directors and managers of companies in Russia, on average lasting fifteen minutes. The survey process was co-ordinated by SKDS and outsourced to data collector in Russia. We use same methodology to collect data in other countries, which we compare with Russia in this report, conducting minimum 500 interviews in each country.

The questionnaire (see Appendix 1) contains four main sections: (i) external influences and satisfaction; (ii) shadow activity; (iii) company and owner characteristics; and (iv) entrepreneurs'

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[2] For example, Gerxhani (2007), Kazemier and van Eck (1992), and Hanousek and Palda (2004).

attitudes. To increase the response rate and truthfulness of responses the questionnaire begins with non-sensitive questions about satisfaction with the government and tax policy, before moving to more sensitive questions about shadow activity and deliberate misreporting. This 'gradual' approach is recommended by methodological studies of survey design in the context of tax evasion and the shadow economy (e.g., Gerxhani, 2007; and Kazemier and van Eck, 1992). Further, the survey is framed as a study of satisfaction with government policy, rather than a study of tax evasion and misreporting (similar to Hanousek and Palda, 2004). We also guarantee respondents 100% confidentiality with respect to their identities.

In the first survey block, 'external influences', respondents are asked to express their satisfaction with the State Revenue Service, tax policy, business legislation and government support for entrepreneurs in the respective country. The questions use a five point Likert scale, from "1" ("very unsatisfied") to "5" ("very satisfied"). The first section of the questionnaire also includes two questions related to entrepreneurs' social norms: entrepreneurs' tolerance towards tax evasion and towards bribery. The measures of tolerance serve a second important role as control variables for possible understating of the extent of shadow activity due to the sensitivity of the topic.

The second section of the questionnaire, 'informal business', is constructed based on the concepts of productive, unproductive and destructive entrepreneurship by Baumol (1990), assessment of 'deviance' or 'departure from norms' within organisations (e.g., Warren, 2003) and empirical studies of tax evasion in various settings (e.g., Fairlie, 2002; Aidis and Van Praag, 2007). We assess the amount of shadow activity by asking entrepreneurs to estimate the degree of underreporting of business income (net profits), underreporting of the number of employees, underreporting of salaries paid to employees and the percentage of revenues that firms pay in bribes.

We employ the 'indirect' approach for questions about informal business, asking entrepreneurs about 'firms in their industry' rather than 'their firm'.[3] This approach is discussed by Gerxhani (2007) as a method of obtaining more truthful answers, and is used by Hanousek and Palda (2004), for example. The study conducted by Sauka (2008) shows that even if asked indirectly entrepreneurs' answers can be attributed to the particular respondent or company that the respondent represents.[4] Furthermore, experience from Sauka (2008) suggests that phone

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[3] Even when asked indirectly, some entrepreneurs choose not to answer sensitive questions about shadow activity. One way to avoid providing truthful answers to such questions is by simply answering "0" to all of the shadow activity questions, suggesting that no shadow activity of any kind has taken place during the past two years. We view it as much more likely that these responses reflect avoidance of sensitive questions than truthful opinions and therefore treat these cases as non-responses, in order to minimise the downward bias in estimates of shadow activity.
[4] Sauka (2008) used the following approach: in the follow up survey (one year after the initial survey), respondents are 'reminded' that in the initial survey they stated that, for example, the degree of involvement in underreporting business income by 'their firm' (not by 'firms in their industry' as formulated in the initial survey) was, for example, 23%. Each respondent is then asked whether the degree of underreporting in their companies is the same this year and if not, to what extent it has changed. The conclusion from using this method is that respondents tend to state the amount of underreporting in 'their firm' when asked about 'firms in their industry'.

interviews are an appropriate tool to elicit information about tax evasion.[5] The second section of the questionnaire also elicits entrepreneurs' perceptions of the probability of being caught for various forms of shadow activity and the severity of penalties if caught deliberately misreporting.

We include a question to measure the amount of unregistered businesses. We ask owners/managers of registered businesses the following question (see question 12 in Appendix 1): "In some industries, in addition to registered companies such as yours, unregistered enterprises also operate but do not report any of their activity to authorities. In your opinion, what percentage of your industry's total production of goods/services is carried out by unregistered enterprises …?" Even though we ask this question to owners / managers of registered businesses, we believe that being experts in their industry they are likely to know approximately how many unregistered businesses operate in their industry. Registered companies compete with unregistered ones and therefore should be aware of such companies.

We do not include the production of unregistered businesses in the shadow economy index as their activity does not fit within our definition of the shadow economy. Yet, by including question 12, we are able to provide a more in depth picture of the unobserved economy. As illustrated in Appendix 2, key parts of unobserved economy are:

(1) Unreported income of registered producers. This is what we refer to as the 'shadow economy' and measure with our Index.
(2) Unreported income of unregistered producers. This component is not included in the Index.
(3) Income from production of illegal goods/services. We do not measure this component of unobserved economy since it requires different methods.

The third section of the questionnaire asks entrepreneurs about the performance of their companies (percentage change in net sales profit, sales turnover and employment during the previous year), company age, industry and region.

The fourth section of the questionnaire elicits entrepreneurs' opinions and attitudes towards tax evasion, including questions relating to entrepreneurs' tax morale. We draw on Torgler and Schneider (2009) who define tax morale as a moral obligation to pay taxes and "a belief in contributing to society by paying taxes" (Torgler and Schneider 2009: 230). Similar to the approach we take for other questions relating to tax evasion, we phrase the tax morale question indirectly, asking company managers to what extent they would agree or disagree with the statement: "Companies in your industry would think it is always justified to cheat on tax if they have the chance" using scale from 1 ('strongly disagree') to 5 ('strongly agree'). We also include a question on community belonging and question on perceived contribution to the growth of economy and society in general, both of which are factors associated with tax morale.

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[5] Sauka (2008) uses both face-to-face and phone interviews and concludes that willingness to talk about sensitive issues like tax evasion in Latvia does not differ significantly between the two methods.

2.2. Calculation of the Index

The Index measures the size of the shadow economy as a percentage of GDP.[6] There are three common methods of measuring GDP: the output, expenditure and income approaches. Our Index is based on the income approach, which calculates GDP as the sum of gross remuneration of employees (gross personal income) and gross operating income of firms (gross corporate income). Computation of the Index proceeds in three steps: (i) estimate the degree of underreporting of employee remuneration and underreporting of firms' operating income using the survey responses; (ii) estimate each firm's shadow production as a weighted average of its underreported employee remuneration and underreported operating income, with the weights reflecting the proportions of employee remuneration and firms' operating income in the composition of GDP; and (iii) calculate a production-weighted average of shadow production across firms.

In the first step, underreporting of firm *i*'s operating income, $UR_i^{OperatingIncome}$, is estimated directly from the corresponding survey question (question 7). Underreporting of employee remuneration, however, consists of two components: (i) underreporting of salaries, or 'envelope wages' (question 11); and (ii) unreported employees (question 9). Combining the two components, firm *i*'s total unreported proportion of employee remuneration is:[7]

$$UR_i^{EmployeeRemuneration} = 1 - (1 - UR_i^{Salaries})(1 - UR_i^{Employees})$$

In the second step, for each firm we construct a weighted average of underreported personal and underreported corporate income, producing an estimate of the unreported (shadow) proportion of the firm's production (income):

$$ShadowProportion_i = \alpha_c UR_i^{EmployeeRemuneration} + (1 - \alpha_c)UR_i^{OperatingIncome}$$

where α_c is the ratio of employees' remuneration (*Eurostat* item D.1) to the sum of employees' remuneration and gross operating income of firms (*Eurostat* items B.2g and B.3g).[8] We calculate α_c for each country, *c*, in each year using data from *Eurostat*. Taking a weighted average of the underreporting measures rather than a simple average is important to allow the Shadow Economy Index to be interpreted as a proportion of GDP.[9]

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[6] Two caveats are worth noting: (i) because we do not measure shadow activity in the state (public) sector, our estimates refer to private sector shadow activity as a percentage of private sector domestic output; and (ii) we do not measure the "black economy", i.e., the illegal goods and services.

[7] In deriving the formula we make the simplifying assumption that wages of unreported employees are on average equal to those of reported employees.

[8] Where Eurostata data are not available for the country, we use data from the country's statistical bureau.

[9] For example, suppose in an economy wages sum to 80 and corporate income 20, giving true GDP of 100. Suppose that wages are underreported by 50% and corporate income by 10% giving an official reported GDP of 40+18=58. In this example the shadow economy is 42% of true GDP, i.e. (100-58)/100. A weighted average of the two underreporting proportions accurately estimates the size of the shadow economy: (0.8)(50%)+(1-0.8)(10%)=42%.

In the third step we take a weighted average of underreported production, $ShadowProportion_i$, across firms in country c to arrive at the Shadow Economy Index for that country:

$$INDEX_c^{ShadowEconomy} = \sum_{i=1}^{N_c} w_i ShadowProportion_i$$

The weights, w_i, are the relative contribution of each firm to the country's GDP, which we approximate by the relative amount of wages paid by the firm. Similar to the second step, the weighting in this final average is important to allow the Shadow Economy Index to reflect a proportion of GDP.[10]

3. Shadow Economy Index for Russia 2007-2018 and comparison with nearby countries

Table 1 reports the aggregate size of the shadow economy as a percentage of GDP in Russia during 2017-2018 and provides a comparison with Ukraine, Poland, Latvia, Lithuania, Estonia, Romania, and Moldova. According to our estimates, the shadow economy in Russia was approximately 45.8% of GDP in 2017 and it slightly decreased to 44.7% of GDP in 2018. Figure 1 shows that relatively high levels of shadow economy are also found in Kyrgyzstan (44.5% in 2018), Kosovo (39.5% in 2018), Ukraine (38.2% in 2018) and Romania (33.35% in 2016). Lower levels are found in Moldova (27.5% in 2018), Poland (25.0% in 2016), Latvia (24.2% in 2018), Lithuania (18.7% in 2018), and Estonia (16.7% in 2018).
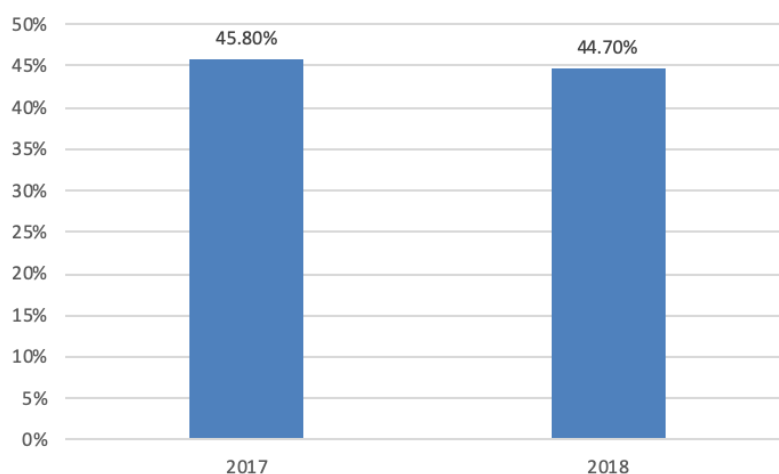
Figure 1. Shadow Economy Index for Russia (% of GDP), 2017-2018

However, neither of the two underreporting proportions themselves correctly represent the size of the shadow economy (50% and 10%), nor does an equal weighted average: (0.5)(50%)+(1-0.5)(10%)=30%.

[10] For an example, consider the previous footnote's example replacing the two sources of income with two firms: a large one that produces income of 80 and a smaller one that produces income of 20.

Table 1. Size of the shadow economies in Russia and nearby countries

This table reports point estimates and 95% confidence intervals (in parentheses) for the size of the shadow economies as a proportion of GDP in Russia (2017-2018), Ukraine (2017-2018)*, Kyrgyzstan (2017-2018)**, Latvia, Lithuania and Estonia (2015-2018)***, Moldova (2015-2018), Romania (2015-2016)****, Poland (2015-2016)*****, Kosovo (2018) ****** using the method of Putniņš and Sauka (2015).

	2018	**2017**	**2016**	**2015**
Russia	44.7% (42.4%, 46.9%)	45.8% (43.4%, 48.1%)	-	-
Ukraine	38.2% (35.3%, 41.2%)	38.5% (35.5%, 41.5%)	-	-
Kyrgyzstan	44.5% (40.9%, 48.1%)	46.1% (42.4%, 49.6%)	-	-
Latvia	24.2% (21.5%, 26.8%)	22.0% (19.6%, 24.5%)	20.7% (18.0%, 22.6%)	21.3% (19.0%, 23.7%)
Lithuania	18.7% (17.0%, 20.4%)	18.2% (16.1%, 20.4%)	16.5% (14.8%, 18.3%)	15.0% (13.8%, 16.3%)
Estonia	16.7% (14.5%, 18.8%)	18.2% (16.1%, 20.3%)	15.4% (13.1%, 17.8%)	14.9% (12.4%, 17.4%)
Moldova	27.5% (24.0%, 31.0%)	29.4% (25.7%, 33.1%)	29.7% (26.9%, 32.5%)	29.8% (27.0%, 32.6%)
Kosovo	39.5% (n/a, n/a)	-	-	-
Romania	-	-	33.3% (30.4%, 36.3%)	35.6% (32.2%, 39.0%)
Poland	-	-	25.0% (22.5%, 27.4%)	24.5% (22.0%, 26.9%)

Sources:
* Lysa et al (2019)
** SIAR (2019)
*** Putnins and Sauka (2019). Data on the Baltic countries available for 2009-2018.
**** Putnins, Sauka and Davidescu (2019, forthcoming)
***** Lechmann and Nikulin (2017)
****** Krasniqi et al (2019)

The estimates of the Shadow Economy Index in Table 1 are somewhat consistent with estimates from other studies that use different estimation methods. For example, Schneider (2019) uses an indirect latent variable method and reports similar estimates for the size of the shadow economy in Russia: 40.6% of GDP in 2017 and 41.4% of GDP in 2018. Schneider (2019) estimates a larger shadow economy in Ukraine: 45.3% in 2017 and 46.5% in 2018. For Romania and Poland in 2016 Schneider (2019) estimates 27.6% and 23.0%. The major difference in the estimated magnitude of the shadow economy using the two different methods (but not in the dynamics) is for Estonia,

where Schneider estimates the level as 23.2% in 2018. Schneider's (2019) estimates for Latvia are 20.2% and for Lithuania 22.9% of GDP in 2018.

It is also worth noting that in some of the countries above, the respective statistics bureau or state revenue service also produces estimates of the undeclared economic activity. However, those estimates are usually substantially lower than those that are provided by the Index or indirect latent variables approach (see Putnins and Sauka, 2015 for discussion) and should be seen as a lower bound rather than an unbiased estimate.

In contrast to Schneider's indirect latent variable method, our approach is able to provide more detailed information on the components of the shadow economy, which we turn to now.

Figure 2 illustrates the relative size of the components of the shadow economy in Russia in 2018. In particular our findings show that unreported business income accounts for 35.3% of the total shadow economy in Russia, whereas underreporting of salaries and underreporting of employees accounts for, accordingly, 32.1% and 32.6% of the total shadow economy in Russia
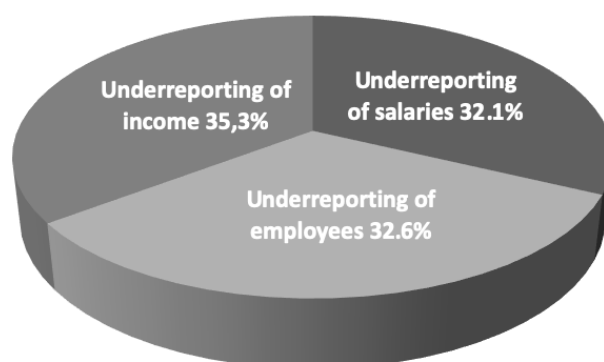

Figure 2. Components of the shadow economy in Russia in 2018.

Figures 3 and 4 illustrate the underreporting of business income (profits), underreporting of the number of employees (percentage of the actual number of employees), and underreporting of salaries (percentage of actual salaries) in Russia.
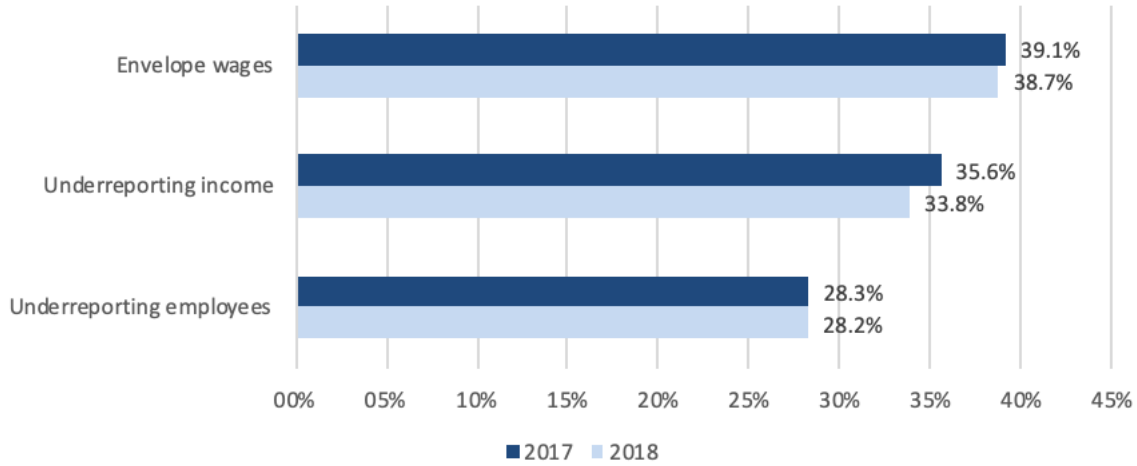
Figure 3. Underreporting of business income (percentage of actual profits), the number of employees (percentage of the actual number of employees) and underreporting of salaries (percentage of actual salaries) in Russia, 2017-2018.
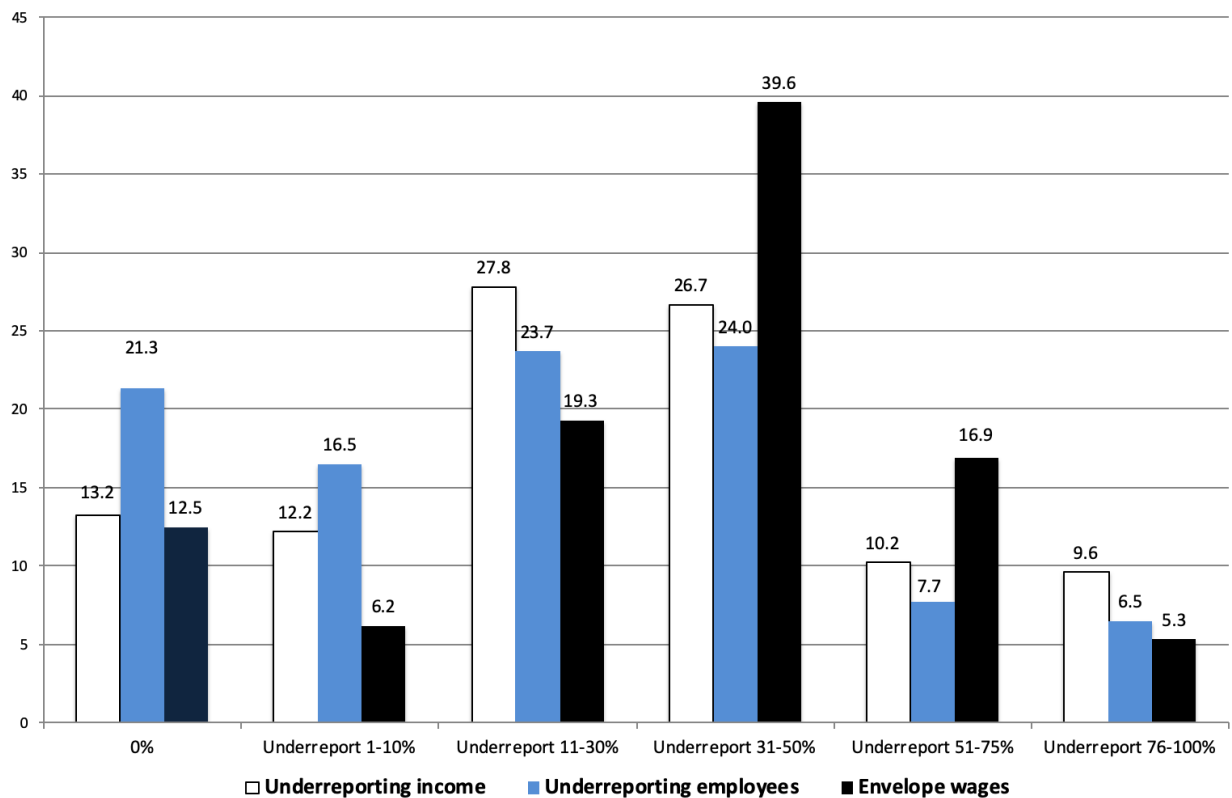
Figure 4. Underreporting of income (percentage of actual profits), underreporting of the number of employees and underreporting of salaries in 2018 in Russia. The vertical axis measures the percentage of each country's respondents underreporting within the range given on the horizontal axis.

Figure 3 shows that underreporting of salaries or so called 'envelope wages' in Russia as a proportion of the true wage was 39.1% on average in 2017 and 38.7% in 2018. Our findings also

suggest that underreporting of business income has decreased slightly in 2018 as compared to 2017, i.e., from 35.6% to 33.8%, whereas underreporting of employees is estimated at around 28.2 to 28.3%. Companies in Russia most often underreport 31%-50% of actual salaries (Figure 4). Similarly, more than 50% of companies in Russia underreport 11-50% of actual business profits.

Figure 5 indicates that the magnitude of bribery (percentage of revenue spent on 'getting things done') is approximately 26.4% on average whereas the percentage of the contract value that firms typically offer as a bribe to secure a contract with the government in Russia is around 20.6% in 2018. Needless to say, these are very high numbers indicating major challenges with regards to bribery in Russia.

Figure 5. Bribery (percentage of revenue spent on payments 'to get things done') and percentage of the contract value paid to government to secure the contract in 2018 in Russia.

Figure 6 further shows the distribution of bribery: to 'get things done' and securing contract with the government within a given range, indicating that more than one-third of companies in Russia pay in bribes more than 25% of the revenue or contract value.
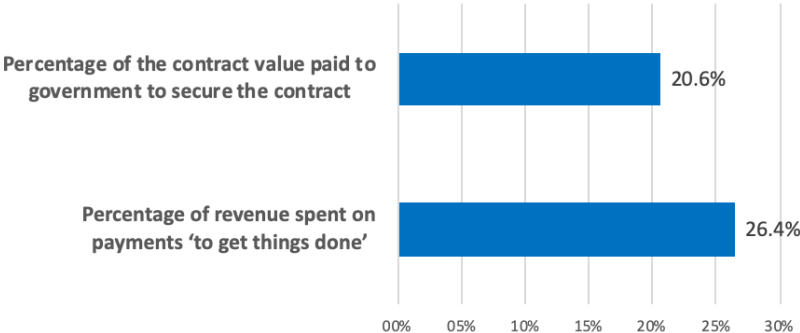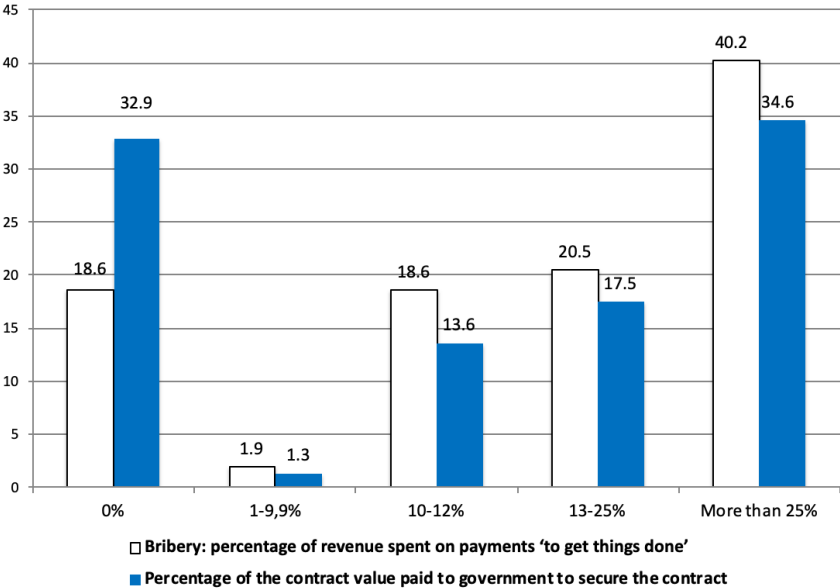

Figure 6. Bribery (percentage of revenue spent on payments 'to get things done') and percentage of the contract value paid to government to secure the contract in 2018 in Russia. The vertical axis measures the percentage of each country's respondents underreporting within the range given on the horizontal axis.

Some companies in Russia, rather than simply concealing part of the income or employees, are completely unregistered and therefore also contribute to the shadow economy. According to our data (Table 2), the proportion of such companies in 2018 was 6.1% in Russia.

Table 2. Proportion of unregistered enterprises in Russia, 2017-2018

This table reports point estimates and 95% confidence intervals of unregistered enterprises as a percentage of all enterprises in Russia.

	Russia
2018	**6.1%**
	(5.1%, 7.1%)
2017	5.8%
	(4.5%, 7.1%)

4. Determinants of shadow activity

In this section we examine the factors that influence firms' decisions to participate in the shadow economy. We start by reporting the size of the shadow economy by company characteristics including operating region, sector and firm size. Next, we report descriptive statistics of how the size of the shadow economy varies with attitudes and perceptions towards tax evasion. We explore entrepreneurs' tax morale, perceived probability of being caught and potential consequences, entrepreneurs' satisfaction with the government and tax authority, social identity, as well as strength of institutional environment in Russia. Finally, we use regression analysis to identify the drivers of firms' involvement in the shadow economy, while controlling for a range of factors.

4.1. Company characteristics

Figure 7 reports the size of the shadow economy in different regions in Russia in 2018. The highest levels are in the Nizhny Novgorod region, reaching 64% of GDP. This is followed by Moscow (47.1%) and Voronezh (41.1%). Rostov-on-Don has a relatively low level of shadow activity compared to other regions in Russia.
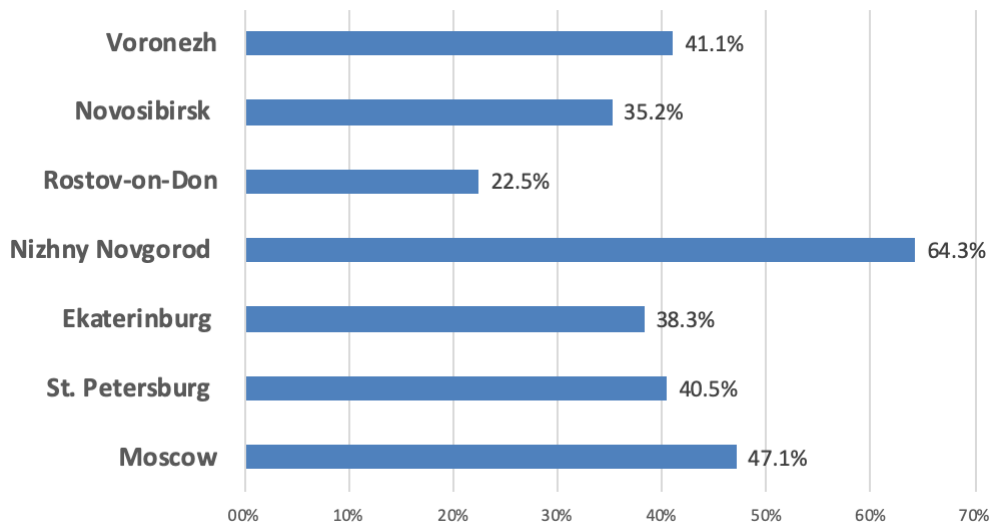
Figure 7. Size of the shadow economy (% of GDP) by region in Russia (2018).

Figure 8 summarizes how the size of the shadow economy varies by sector, showing that the size of the shadow economy in all sectors is close to 40% or more. Later, we test the differences across sectors controlling for other variables.

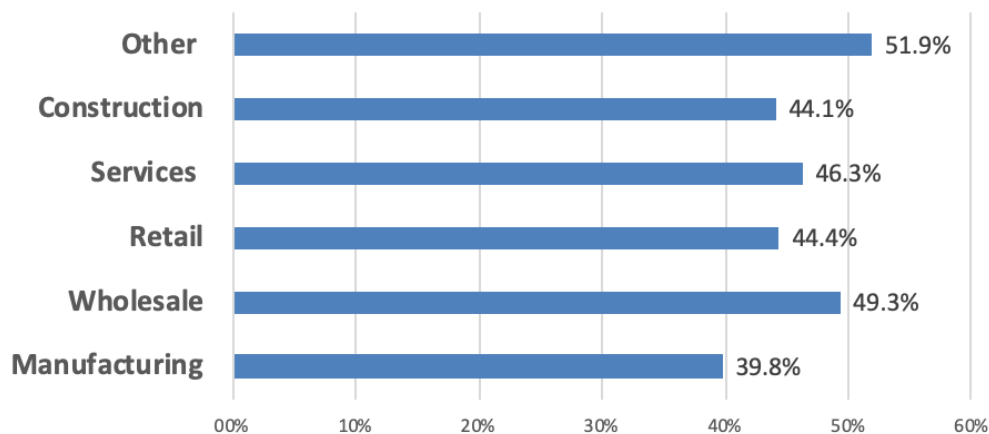**Figure 8. Size of the shadow economy (% of GDP) by sector in Russia (2018).**

Figure 9 shows that shadow activity in Russia is not a phenomenon that can only be observed in relatively small companies. Even though shadow economy is relatively low in companies that employ 6-10 employees, in all other groups we find the level of shadow economy to be 43% and higher.
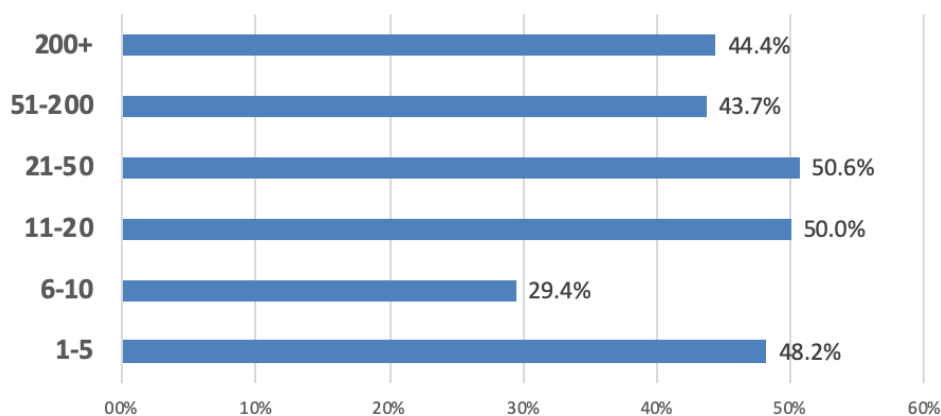
Figure 9. Size of the shadow economy (% of GDP) by firm size (number of employees) in Russia (2018).

4.2. How attitudes and perceptions affect shadow activity

According to the tax evasion literature, the decision to evade taxes and participate in the shadow economy is affected by the detection rates, the size and type of penalties, tax morale, firms' attitudes towards risk-taking, strength of the institutional framework, and so on. We measure these factors in the survey.

4.2.1. Probability of being caught and potential consequences

Rational-choice theory of crime (e.g., Becker, 1968), applied to tax evasion, argues that individuals make decisions about whether or not to evade taxes by weighing up the expected benefits of not paying taxes on one hand against the risk of being caught and the penalties if caught on the other (e.g., Allingham and Sandmo, 1974; Yitzhaki, 1974).

To measure such influences, we include questions about entrepreneurs' perceptions of the likelihood of being caught for underreporting business profits, number of employees, and salaries, as well as involvement in bribery. We also ask entrepreneurs to evaluate potential consequences for the firm if it were caught for deliberate misreporting. Figures 10 and 11 summarise the results on perceived probabilities of being caught and expected consequences.

The results suggest that considerable proportion of entrepreneurs in Russia perceive the risk of being caught when underreporting income, salaries, and employees as relatively high (Figure 10). Namely, approximately one-fifth of all respondents (one-third in the case of underreporting profits), perceive the probability of being caught as being 75-100%. Still, a substantial proportion of respondents in Russia also reported zero or very low likelihood of being caught while underreporting business profits, employees, salaries, and undertaking bribery.
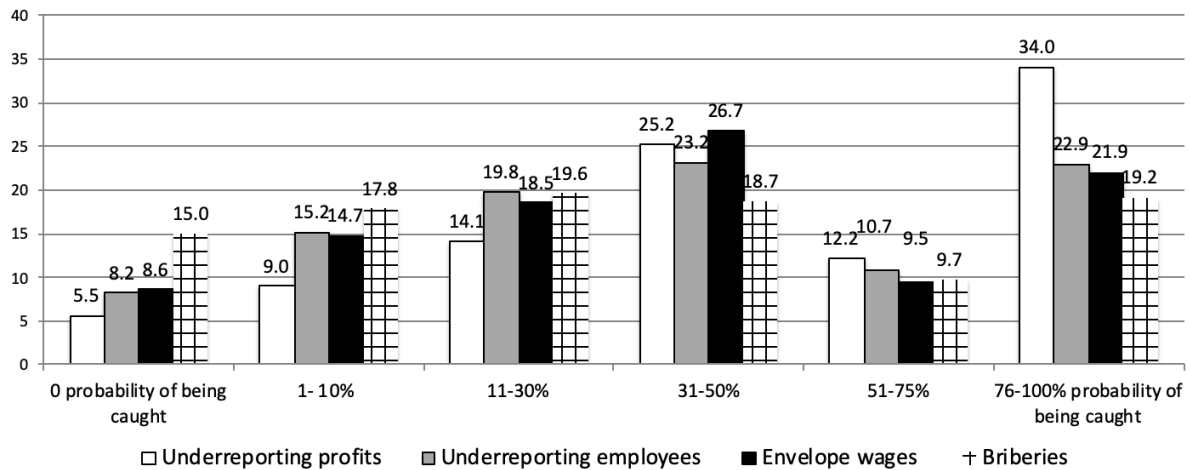
Figure 10. Probability of being caught for underreporting business profits, underreporting number of employees, underreporting salaries, bribery: making payments to 'get things done' in Russia, 2018. Vertical axis measures percentage of each country's respondents in each category. %.

Figure 11, however, shows that only approximately 34% of respondents expect that the penalty would be a serious fine that would impact on competitiveness and approximately the same proportion expects a very small fine if caught.
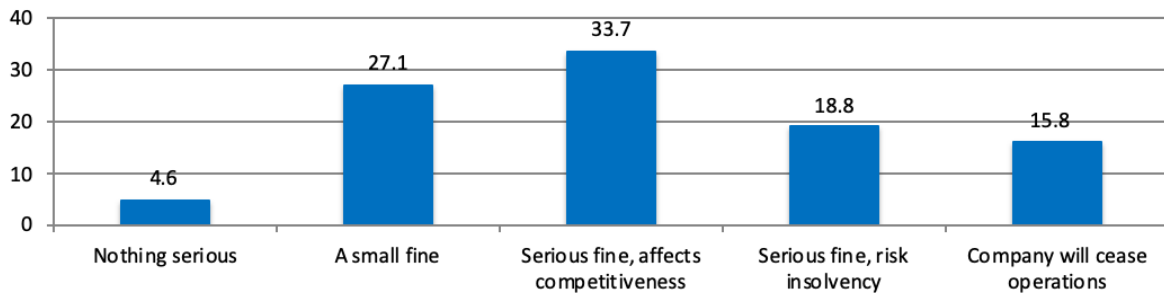
Figure 11. Most likely consequences if caught deliberately underreporting in Russia, 2018. Vertical axis measures percentage of each country's respondents in each category. %.

4.2.2. Tax morale

Existing empirical evidence suggest that higher levels of tax morale lead to less involvement in tax evasion (Blanthorne and Kaplan, 2008; Wenzel, 2005) thus smaller shadow economies at the aggregate level (Torgler and Schneider, 2009; Halla, 2012). Tax morale is usually defined as a moral obligation to pay taxes and "a belief in contributing to society by paying taxes" (Torgler and Schneider 2009: 230). Overall, tax morale has been recognized as a complement to conventional rational choice explanations of tax evasion (e.g., Allingham and Sandmo, 1974; Yitzhaki, 1974). Empirical studies find that the actual amount of tax evasion is considerably lower than predicted by rational choice models. The difference is often attributed to the second, broader, set of tax evasion determinants—attitudes and social norms, including tax morale. According to Alm and Torgler (2011: 636): "… it is not possible to understand fully an individual's compliance decisions

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– or indeed, an individual's choices more broadly – without considering in some form these ethical dimensions and their implications for behaviour."

We measure tax morale through a series of questions that elicit company managers' views about tax evasion. The first of these questions asks managers to what extent they would agree or disagree with the statement: "Companies in your industry would think it is always justified to cheat on tax if they have the chance" (Q24.2 in Appendix 1) using scale from 1 ('strongly disagree') to 5 ('strongly agree'). This question is an adjusted version of the World Values Survey (WVS) question that has been used widely in research on tax evasion (Torgler, 2016).[11]

Another, somewhat more general way of measuring the level of the tax morale, is by assessing the extent to which entrepreneurs tolerate involvement in the shadow economy (Luttmer and Singhal, 2014). We measure this aspect of tax morale by asking respondents whether they believe that tax avoidance is tolerated behaviour in Russia. We also ask respondents whether they believe that bribery is tolerated behaviour in Russia using the same measurement scale as in the previous questions. Even though tolerance towards bribery might not be directly related to tax morale as defined above, it can still have an influence on the shadow economy.

Figures 12 and 13 present the results. In summary, the results suggest that entrepreneurs in Russia have 'average' tax morale: 2.4 to 2.8 on average (on a scale from 1-5 where '1' is very high tax morale and '5' is very low tax morale). However, Russian entrepreneurs tend to have a higher tolerance of bribery. For example, as shown in Figure 13, almost 40% of respondents are highly tolerant of bribery. This relatively high tolerance of bribery may explain (at least to some extent) the fairly high levels of bribery in Russia compared to other countries.
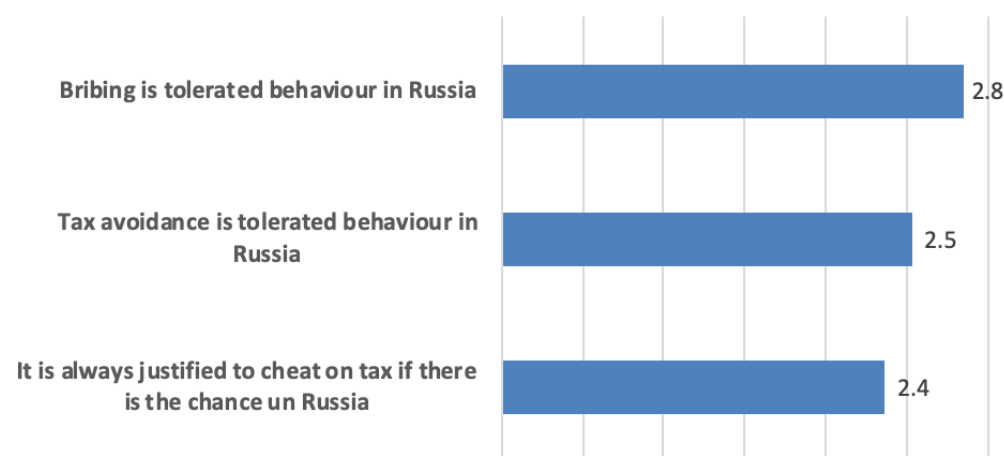
Figure 12. Tax morale in Russia, 2018
This figure displays the average response of entrepreneurs measured from 1-5, where '1' means that the respondent strongly disagrees that (high tax morale), and '5' means that the respondent strongly agrees (low tax morale).

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[11] Instead of asking the question directly, i.e., whether the respondent thinks it is justifiable to cheat on tax if one has the chance (as it is done in the WVS survey), we phrase question indirectly, for the same reasons as we phrase the other questions relating to tax evasion indirectly.
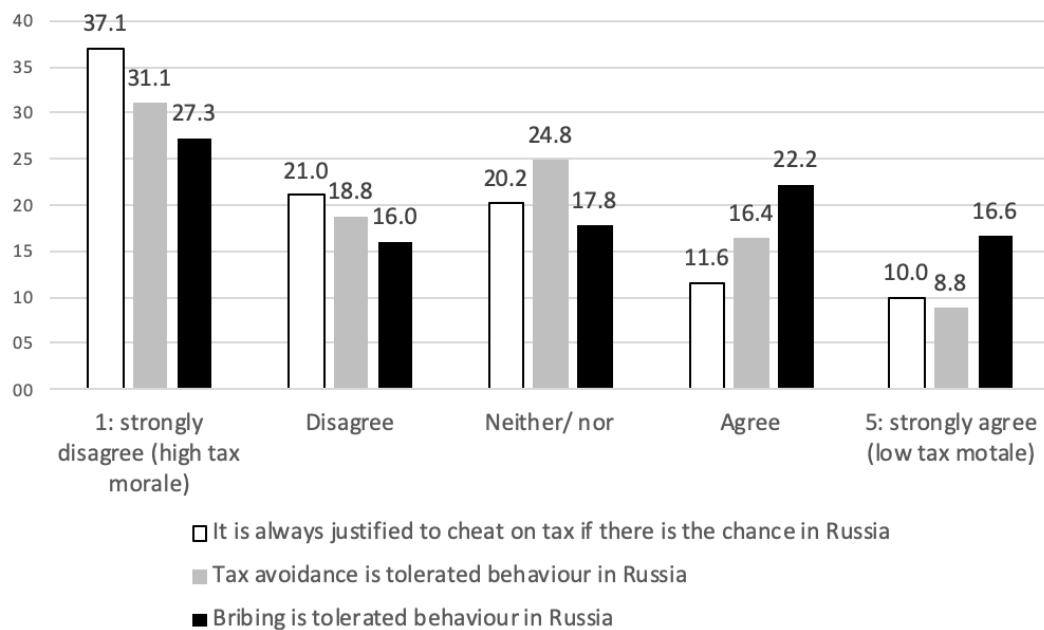
Figure 13. Tax morale: distribution of responses in Russia, 2018.
The vertical axis measures the percentage of respondents in each category.

4.2.3. Satisfaction the government and tax authority

An increasing number of studies show that trust in public officials (e.g., Torgler, 2003) as well as entrepreneurs' satisfaction with tax policies and business legislation (e.g. Marien and Hooghe, 2011; Scholz and Lubell, 1998; Torgler, Schaffer and Macintyre, 2010) are among the factors that foster higher tax compliance. Distrust and dissatisfaction are associated with higher levels of shadow activity.

We measure firms' attitudes using four questions about their satisfaction with the State Revenue Service, the government's tax policy, business legislation, and the government's support for entrepreneurs. Results (averages, measured on the scale from 1-5, where '1' is very low satisfaction and '5' is very high satisfaction) are presented in Figure 14. The distributions of responses in 2018 are shown in Figure 15. To summarise, our findings suggest that firms in Russia tend to be more satisfied with the State Revenue Service and are less satisfied with the government's support for entrepreneurs. However, overall satisfaction with government and the tax system is relatively low, which may explain (at least to some extent) the fairly high levels of shadow economy.
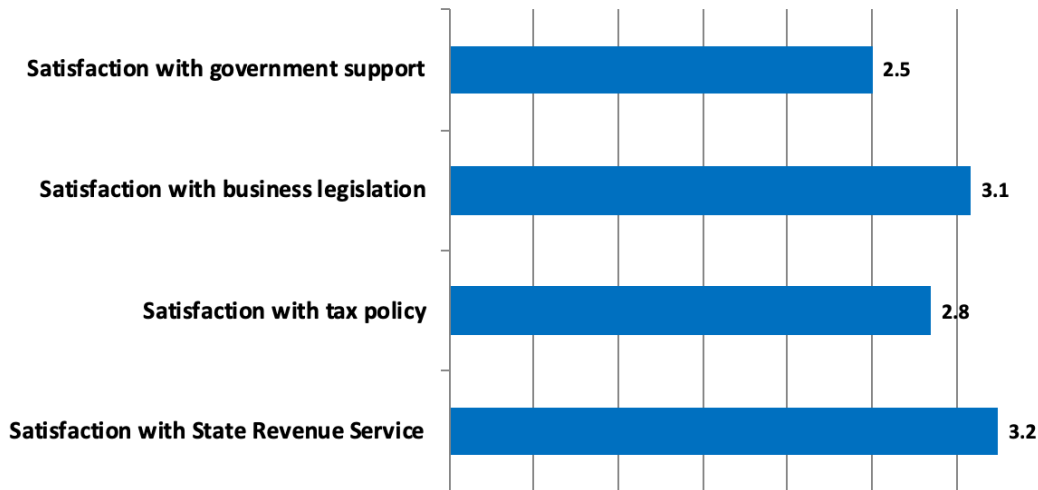
Figure 14. Satisfaction with the State Revenue Service, tax policy, business legislation, and government support in Russia, 2018.
This figure displays the average response of entrepreneurs measured on a scale from 1-5, where '1' is very low satisfaction and '5' is very high satisfaction.
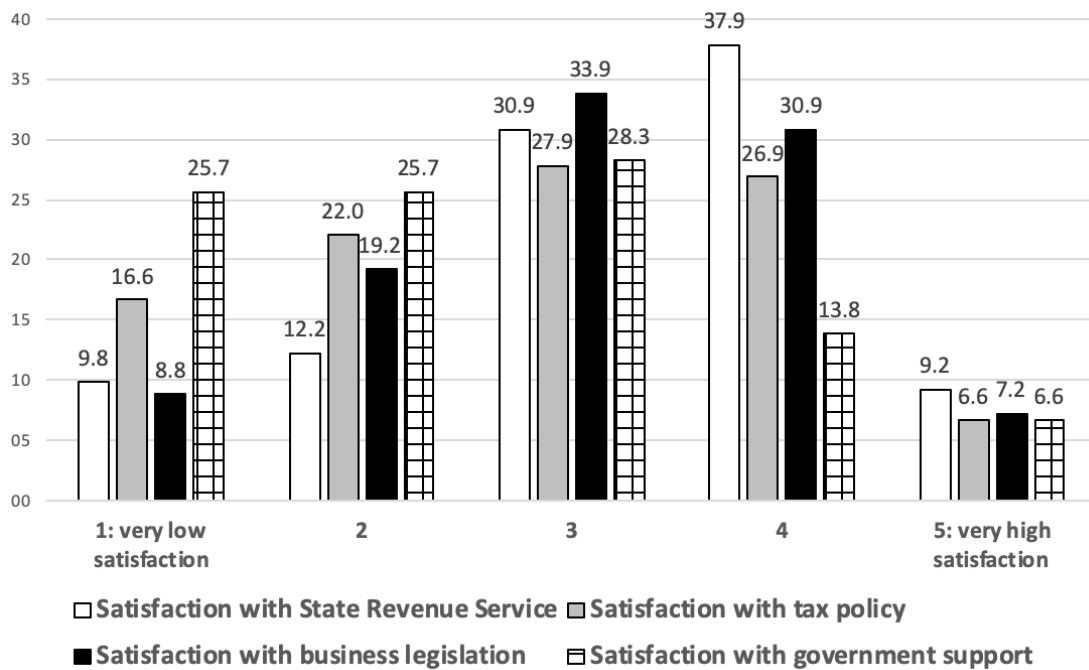
Figure 15. Satisfaction with the State Revenue Service, the government's tax policy, the quality of business legislation, and with government's support for entrepreneurs in Russia, 2018.
The vertical axis measures percentage of respondents in each category.

4.2.4. Social identity

According to the cultural/cognitive perspective put forward by Scott (2014), involvement in the shadow economy may be driven by social identity, i.e., how entrepreneurs identify themselves within the country in which they pay taxes (Ashforth and Mael, 1989; Hogg et al., 1995). Several

studies have found a direct link between stronger social identity, such as 'belonging to the state', and higher tax morale, leading to lower involvement in shadow economy activities (Heinemann, 2011; Konrad and Qari 2012; Martínez-Vázquez and Torgler 2009).

To measure social identity, we ask respondents to evaluate the extent to which they agree/disagree with the following statement: "Being a member of the Russian community is important to me." Their responses are measured on a scale of 1 to 5, where '1' is 'completely disagree' (low social identity) and '5' is 'completely agree' (high social identity). We also ask company managers to evaluate the extent to which they agree/disagree with the following statement: "Businesses such as yours contribute a lot to growth of the Russian economy and society in general", using the same five-point scale. This question, despite being very generally, still sheds some further light on how entrepreneurs perceive their belonging to the community.

The results are summarised in Figure 16 and Figure 17, showing that entrepreneurs in Russia on average possess very high community belonging and perceive their contribution to the economy also to be high.
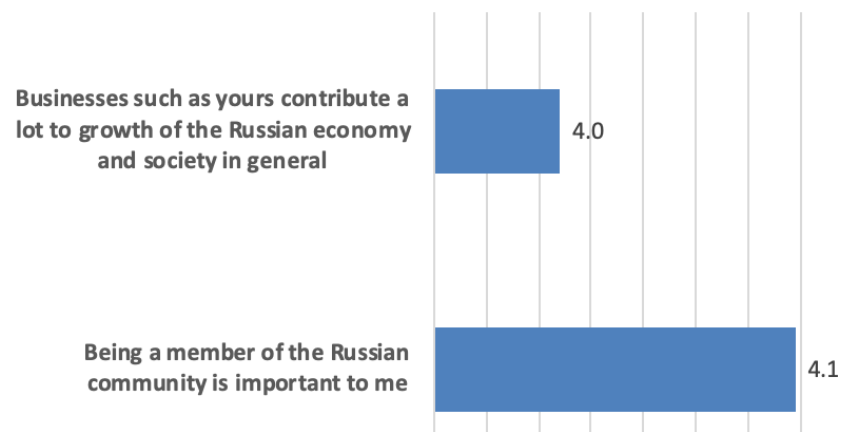
Figure 16. Perceived community belonging and perceived contribution to the growth of the economy and society in general in Russia, 2018.
This figure displays average responses measured from 1-5, where '1' is 'completely disagree' (low social identity/ low contribution) and '5' is 'completely agree' (high social identity/ high contribution).
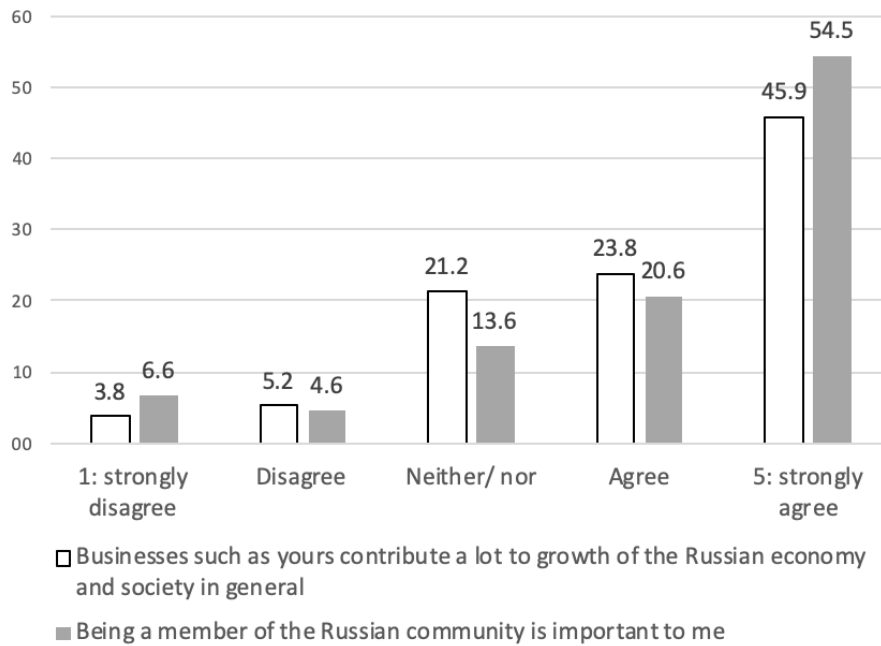
Figure 17. Perceived community belonging and perceived contribution to the growth of the economy and society in general in Russia, 2018.
The vertical axis measures the percentage of respondents in each category.

4.3. Multivariate tests of the determinants of shadow activity

We use regression analysis to identify the statistically significant determinants of firms' involvement in the shadow economy. For the regressions, we use the data about involvement in the shadow economy in both years, 2017 and 2018. The dependent variable in all regressions is the level of the firm's involvement in the shadow economy. The independent variables are various firm-level characteristics, attitudes, sector dummy variables, region and year fixed effects.

The regression results are reported in Appendix 3. Model 1 includes most of the measured determinants of shadow activity. Model 2 additionally includes variables that measure the firm's perceived probability of being caught for involvement in the shadow economy (*DetectionProbability*) and the firm's perceived penalties for being caught (*PenaltyForDetection*). Model 3 adds region fixed effects. Model 4 adds year fixed effects.

The results across all models show that tolerance towards tax evasion is positively associated with the firm's stated level of income/wage underreporting, i.e., entrepreneurs that view tax evasion as a tolerated behaviour tend to engage in more informal activity. The measures of tolerance also serve the important role of controlling for possible understating of the extent of shadow activity (untruthful responses) due to the sensitivity of the topic.[12]

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[12] For example, consider two firms that underreport income/wages by 40% each, but the first operates in an environment in which tax evasion is considered highly unethical and is not tolerated, whereas the second operates in an environment in which tax evasion is relatively tolerated. The first firm might state that its estimate of

The regression results also indicate that a firm's satisfaction with the tax system and the government is negatively associated with the firm's involvement in the shadow economy, i.e. dissatisfied firms engage in more shadow activity, satisfied firms engage in less. This result is consistent with the descriptive statistics and with previous research on tax evasion, and offers some insights into why the size of the shadow economy in Russia is so large – it is at least in part due to relatively high dissatisfaction of entrepreneurs with the tax system and the government.

Analysing each of the four measures of satisfaction separately we find that shadow activity is most strongly related to dissatisfaction with business legislation and the government's tax policy, followed by support for entrepreneurs and the State Revenue Service.

The regression coefficients indicate that the effect of perceived detection probabilities and penalties on the tendency for firms to engage in deliberate misreporting is consistent with the predictions of rational choice models, i.e., the higher the perceived probability of detection and the larger the penalties, the lower the amount of tax evasion and misreporting. However, only the severity of penalties is marginally statistically significant as a deterrent of shadow activity. This evidence suggests a possible policy tool for reducing the size of the shadow economies, namely increasing the severity of consequences for tax evasion, or increasing the probability of detection of misreporting. This could be done via an increased number of tax audits, whistle-blower schemes that provide incentives to report information to authorities about non-compliant companies, and investment in tax evasion detection technology.

Another statistically significant determinant of involvement in the shadow economy is firm age, with younger firms engaging in more shadow activity than older, more established firms. A possible explanation is that young firms use tax evasion as a means of being competitive against larger and more established competitors. A tendency to engage in tax evasion is associated with an increase in profits, perhaps due to the tax saving.

The sector dummy variables suggest that firms in the construction and wholesale sectors tend to engage in more shadow activity than firms in other sectors such as retail, controlling for other factors.

5. Discussion and conclusions

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underreporting is around 20% (a downward biased response due to the more unethical perception of tax evasion) whereas the second firm might answer honestly that underreporting is around 40%. This example illustrates that failure to control for the sensitivity of tax evasion (proxied here by tolerance) can lead to biased comparisons.

The Shadow Economy Index estimated in this report draws on surveys of entrepreneurs using the methodology developed by Putnins and Sauka (2015). It combines business income that has been concealed from authorities, unregistered or hidden employees, and 'envelope' wages to estimate the size of the shadow economy as a proportion of GDP.

Our first key finding is about the size of the shadow economy in Russia and comparison with shadow economies in Ukraine, Kyrgyzstan, Kosovo, Moldova, Romania, Poland, Latvia, Lithuania, and Estonia. Our estimates indicate that shadow economy in Russia accounts for approximately 45.8% of the GDP in 2017 and 44.7% of the GDP in 2018. For comparison with nearby countries, using the same approach, high levels of shadow economy are also found in Kyrgyzstan (44.5% of the GDP in 2018), Kosovo (39.5% of the GDP in 2018), Ukraine (38.2% of the GDP in 2018) and Romania (33.35% of the GDP in 2016), but considerably lower levels are found in the Baltic countries, especially Estonia (16.7% of the GDP in 2018).

We find that envelope wages and underreporting of business profits stand out as the two largest components of the Russian shadow economy. Underreporting of salaries or so called 'envelope wages' accounted for 38.7% of the Russian shadow economy in 2018, whereas underreporting of the business income (profits) was 33.8%. Underreporting of employees in Russia makes up the remaining 28.3% of the shadow economy. Some companies in Russia, rather than simply concealing part of the income or employees, are completely unregistered and therefore also contribute to the shadow economy. We estimate that such companies make up 6.1% of all enterprises in Russia.

The highest levels of shadow economy are observed in Nizhny Novgorod region, reaching 64% of the GDP, followed by Moscow (47.1%) and Voronezh (41.1%). We also find that the size of the shadow economy in all sectors is close to 40% with somewhat higher levels in the construction and wholesale sectors, controlling for other factors.

Our findings also suggests that there is very high level of bribery in Russia: the magnitude of bribery (percentage of revenue spent on 'getting things done') is found to be 26.4%, whereas percentage of the contract value that firms typically offer as a bribe to secure a contract with the government in Russia is 20.6% in 2018.

When it comes to attitudes, companies in Russia are relatively satisfied with the State Revenue Service and business legislation, and relatively dissatisfied with the government's support for entrepreneurs.

We identify several factors that make companies in Russia more likely to operate in the shadow sector. Firms that are dissatisfied with the tax system or the government tend to engage in more shadow activity; satisfied firms engage in less. This result is consistent with previous research on tax evasion, and has implications for policy measures to reduce the size of the shadow economy. We also find that younger firms engage in proportionally more shadow activity than older firms,

consistent with the anecdotal evidence that tax evasion is used by firms to gain a competitive edge, and that having an edge is important in competing in an established market. Finally, there is some evidence that the level of tax evasion and deliberate misreporting among Russian companies is responsive to the probabilities and penalties for being caught. In particular, companies that perceive the penalties to be more severe tend to engage in less shadow activity.

Our results highlight the need for serious reforms and actions that combat the shadow economy in Russia.

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Appendix 1. Questionnaire form.

ENTREPRENEURS' SATISFACTION WITH BUSINESS CLIMATE / INFORMAL

ENTREPRENEURSHIP IN RUSSIA

February, 2019

My name is ... from … . We are conducting a survey aimed at understanding entrepreneurs' satisfaction with entrepreneurship climate in Russia. The main interest of the study is to find out how various policy initiatives implemented within the country and entrepreneurs satisfaction with business climate influences entrepreneurial behaviour, including tax avoidance.

I would like to emphasize that we are only interested in your expert opinion and in no way are we indicating, for instance, that your company is involved in any type of tax avoidance activities.

The interview will last approximately 15 minutes. We guarantee 100% confidentiality as neither your name nor your company's name will appear in the data analysis. Data will be analysed using a computer program without any reference to the data source. If you are interested, we can also send you the summary of the survey results once the survey is complete.

If respondent hesitates or says 'no':

This survey is very important to foster the knowledge about the entrepreneurship in *(insert country)*. By participating in this survey you are helping to improve such knowledge. All your answers will be 100% confidential and no one will be able to track you or your company. Moreover we are interested in your expert opinion and what you say will be attributed to the industry or your competitors, not your firm.

<u>**Questionnaire Form**</u>

<u>**External influences**</u>

Q1. Please evaluate your satisfaction with the performance of the State Revenue Service with regards to tax administration in *Russia* during 2018.

1	2	3	4	5
Very unsatisfied	Unsatisfied	Neither satisfied nor unsatisfied	Satisfied	Very satisfied

Q2. Please evaluate your satisfaction with the government's tax policy in *Russia* during 2018.

1	2	3	4	5
Very unsatisfied	Unsatisfied	Neither satisfied nor unsatisfied	Satisfied	Very satisfied

Q3. Please evaluate your satisfaction with the quality of business legislation in *Russia* during 2018.

1	2	3	4	5
Very unsatisfied	Unsatisfied	Neither satisfied nor unsatisfied	Satisfied	Very satisfied

Q4. Please evaluate your satisfaction with the government's support to entrepreneurs in *Russia* during 2018.

1	2	3	4	5
Very unsatisfied	Unsatisfied	Neither satisfied nor unsatisfied	Satisfied	Very satisfied

Q5. Tax avoidance is tolerated behaviour in *Russia*.

1	2	3	4	5
Completely disagree (Entrepreneurs do not tolerate involvement in tax avoidance)	Disagree	Neither agree nor disagree	Agree	Completely agree (Entrepreneurs highly tolerate involvement in tax avoidance)

Q6. Bribing is tolerated behaviour in *Russia*.

1	2	3	4	5
Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree

Government policy and amount of informal business

Q7. Please estimate the degree of underreporting business income (profits) by firms in your industry in 2018_____ % (Q7.1) and in 2017 _____ %. (Q7.2)

Q8. Please estimate the degree of underreporting number of employees (% of actual number of employees) by firms in your industry in 2018_____ % (Q8.1) and in 2017 _____ % (Q8.2).

Q9. Please estimate the degree of underreporting salaries paid to employees by companies in your industry (for instance, if in reality an employee receives EUR 400, but the reported salary is EUR 100, then underreporting is 75%; if EUR 400 and EUR 200, then underreporting is 50%). Firms underreported actual salaries by approximately ____ % in 2018 (Q9.1) and ____ % in 2017 (Q9.2).

Q10. On average, approximately what percent of revenue (turnover) did firms in your industry pay in unofficial payments to 'get things done' in in 2018_____ % (Q10.1) and in 2017 _____ % (Q10.2).

Q11. When other firms in your industry do business with the government, approximately how much of the contract value would firms typically offer in unofficial payments to 'secure' the contract? (year 2018)_____%

Q12. In some industries, in addition to registered companies such as yours, unregistered enterprises also operate but do not report any of their activity to authorities. In your opinion, what percentage of your industry's total production of goods/services is carried out by unregistered enterprises in 2018?_____% (Q12.1) in 2017? _____% (Q12.2)

Q13. What is the size of the average unregistered enterprise in your industry compared to your company (e.g., if the average unregistered enterprise is half as big then record 50%, if twice as big then 200%)?

In 2018_____% (Q13.1)
In 2017_____% (Q13.2)

Q14. For a typical company in your industry, what would you say is the approximate probability (0-100%) of being caught if the company were to:
  Q14.1. underreport its business income? _____%
  Q14.2. underreport its number of employees? _____%
  Q14.3. underreport the amount it pays to employees in salaries? _____%
  Q14.4. make unofficial payments to 'get things done'? _____%

Q15. If a company in your industry were caught for deliberate misreporting, what would typically be the consequence to that company?

Nothing serious	A small fine	A serious fine that would affect the competitiveness of the company	A serious fine that would put the company at risk of insolvency	The company would be forced to cease operations
1	2	3	4	5

Company / Performance/ Value Creation

Q16. What is the approximate percentage change in your operating profit, turnover and total employment in 2018 compared to 2017?

	1 Operating profit (Q16.1)	2. Turnover (Q16.2)	3 Total employment (Q16.3)
Change (increase or decrease in %) as compared to 2017. For example: +20%, -15%, 0 (no change)			

Q17. Approximately, what was the operating profit of your company in 2018?
EUR _____

Q18. Approximately, what was the turnover of your company in 2018?
EUR _____

Q19. Approximately, how many employees are currently employed in your company (full time equivalent, including you)?
_____ employees

Q20. Approximately what was the average reported salary (NETTO) in your company in 2018_____ EUR (Q20.1)/ month and in 2017 _____ EUR/ month (Q20.2)?

Q21. In which year did your company start operation?

Year_____

Q22. What is the main activity (i.e. sector) that your company is engaged in?

☐ Manufacturing

- ☐ Wholesale
- ☐ Retail
- ☐ Services (please specify_____)
- ☐ Construction
- ☐ Other (please specify_____)

Q23. In which region does your company conduct most of its business?

- ☐ Moscow
- ☐ St. Petersburg
- ☐ Ekaterinburg
- ☐ Nizhny Novgorod
- ☐ Rostov-on-Don
- ☐ Novosibirsk
- ☐ Voronezh

Attitudes / tax morale / barriers to business

Q24. For each of the following statements, please indicate on a scale of 1 to 5 whether you agree (1 means you completely disagree, 5 means you completely agree):

	Strongly disagree	Disagree	Neither/ nor	Agree	Strongly agree
Q24.1. Businesses such as yours contribute a lot to growth of the *(insert country)* economy and society in general	1	2	3	4	5
Q24.2. Companies in your industry would think it is always justified to cheat on tax if they have the chance	1	2	3	4	5
Q24.3. Being a member of the Russian community is important to me	1	2	3	4	5

Thank you!

Appendix 2. Observed and non-observed components of GDP.

```
                          ┌─────────────────────────────┐
                          │ 1. Income from all economic │
                          │ production (theoretical GDP)│
                          └─────────────────────────────┘
                    ┌───────────────┴────────────────────┐
        ┌───────────────────────────┐        ┌──────────────────────────┐
        │ 2. Income from production │        │ 3. Income from production│
        │ of LEGAL goods/services   │        │ of ILLEGAL goods/services│
        └───────────────────────────┘        └──────────────────────────┘
          ┌──────────────┴──────────────┐
    ┌──────────────────┐        ┌──────────────────┐
    │ 4. Income of     │        │ 5. Income of     │
    │ REGISTERED       │        │ UNREGISTERED     │
    │ producers        │        │ producers        │
    └──────────────────┘        └──────────────────┘
     ┌──────────┴──────────┐
┌──────────────────┐  ┌──────────────────┐
│ 6. Income that is│  │ 7. Income that is│
│ REPORTED and     │  │ NOT REPORTED     │
│ fully OBSERVED   │  │                  │
│ income           │  │                  │
└──────────────────┘  └──────────────────┘
```

SHADOW ECONOMY

UNREGISTERED ENTERPRISE

OBSERVED ECONOMY

NON-OBSERVED ECONOMY

Notes on some of the components 1-7 follow. Income refers to both business income and employee income. Illegal production (3) includes production of goods/services that are illegal regardless of who produces them (e.g., narcotics, prostitution) and production of goods that themselves are legal but the production is illegal because it is carried out by an unauthorised producer (e.g., unlicensed surgeons, unlicensed production of alcohol). Goods/services that are produced legally (2) can still involve breaches of the law at the registration or reporting stage (e.g., intentional underreporting of profit to evade taxes). Most of the income generated from producing legal goods is reported by registered firms and therefore fully captured in official GDP (6). However, some proportion of income is intentionally hidden from authorities either by not registering the enterprise (5) or by misreporting wages or company earnings (7). Following other studies, we refer to the latter (7) as the 'shadow economy', and use the term 'non-observed' economy in a broader sense referring to illegal goods/services, activities of unregistered enterprises and the shadow economy.

Appendix 3. Regression results

Table 3. Determinants of firms' involvement in shadow activity.

This table reports coefficients from regressions of firms' unreported proportion of production (the firm-level shadow economy measure) on various determinants of shadow activity, using the sample of Russian firms in years 2017 and 2018. *Tolerance_TaxEvasion* is the firm's response to Question 5, with higher scores indicating more tolerance. *Satisfaction* is the first principal component of the firm's responses to Questions 1-4, with higher scores indicating higher satisfaction with the country's tax system and government. *DetectionProbability* and *PenaltyForDetection* measure the firm's perception of the probability of being caught for shadow activity and the severity of penalties conditional on being caught (calculated as the first principal component of responses to Questions 14(i)-14(iv), and the response to Question 15, respectively). *ln(FirmAge)* and *ln(Employees)* are the natural logarithms of the firm's age in years and its number of employees. *ChangeInProfit* is the firm's percentage change in net sales profit relative to the previous year. *D_Wholesale* to *D_OtherSector* are sector dummy variables with manufacturing as the omitted category. ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels. T-statistics are reported in parentheses.

	Model 1	Model 2	Model 3	Model 4
Intercept	41.449***	48.822***	34.071***	33.537***
	(7.17)	(8.08)	(5.54)	(5.41)
Tolerance_TaxEvasion	4.756***	4.273***	3.596***	3.598***
	(6.86)	(5.92)	(5.10)	(5.10)
Satisfaction	-2.919***	-3.140***	-3.740***	-3.733***
	(-2.89)	(-3.09)	(-4.09)	(-4.08)
DetectionProbability		-0.684	-0.332	-0.332
		(-0.68)	(-0.32)	(-0.32)
PenaltyForDetection		-1.511*	-0.939	-0.942
		(-1.81)	(-1.12)	(-1.12)
ln(FirmAge)	-3.714**	-3.830**	-2.559*	-2.567*
	(-2.47)	(-2.53)	(-1.71)	(-1.72)
ln(Employees)	-0.154	-0.453	-0.359	-0.360
	(-0.19)	(-0.53)	(-0.45)	(-0.45)
ChangeInProfit	0.077**	0.080**	0.077**	0.077**
	(2.02)	(2.05)	(2.05)	(2.04)
D_Wholesale	5.974**	5.865**	5.172*	5.165*
	(2.21)	(2.13)	(1.84)	(1.83)
D_Retail	2.956	3.190	4.262	4.266
	(1.03)	(1.10)	(1.40)	(1.40)
D_Services	1.963	2.042	0.026	0.024
	(0.82)	(0.84)	(0.01)	(0.01)
D_Construction	4.225	5.842*	7.583***	7.571***
	(1.40)	(1.95)	(2.63)	(2.63)
D_OtherSector	-2.336	-2.307	-1.312	-1.315
	(-0.65)	(-0.64)	(-0.40)	(-0.40)
D_RU				
Region fixed effects	No	No	Yes	Yes
Year fixed effects	No	No	No	Yes
Data	2017-2018	2017-2018	2017-2018	2017-2018
R-squared	11.7%	12.6%	19.5%	19.6%