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Determinants of experiences and perceptions of corruption: A case study of Russian regions

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Abstract

In this article, the main determinants of experiences and perceptions of corruption in the Russian regions are analyzed. The research focuses on evaluating the determinants of corruption among ordinary people and business representatives in three regions of Russia. The main objectives of the research are: to reveal the relationship of individual characteristics and attitudes toward corruption with citizens' actual experiences and perceptions of corruption; to learn how experiences and perceptions of corruption influence each other. The main conclusion is that the experience of corruption and its perception are interrelated. Those members of both the general public and the business community who perceive the prevalence of corruption to be high report experiencing corrupt practices more often than those who see a lower frequency of corruption. People who justify corruption are more likely to report encountering bribery and other low-level corruption practices. For business corruption, tolerance of corruption shows a significant link with perception of corruption, but not with real experiences of corruption. Social learning theory and victimization theory can explain the interdependence of perceptions and experiences of corruption in the Russian regions. The indicators of both perception and experience of corruption in the research can be used as indirect measures of corruption. Their interrelation in the same survey may also indicate their validity as instruments for measuring corruption.

Keywords: experience of corruption; perception of corruption; low-level corruption; business corruption; attitudes toward corruption; determinants of corruption

1 Introduction

Corruption is dangerous for all domains of society in any country and at the global level. Most researchers broadly define corruption as the 'misuse of public office for private gain' (Treisman, 2000, p. 399). The most important sphere of corruption is that in which citizens and business representatives interact with different public-sector authorities and institutions, where governmental officials may break rules for their private gain. Ordinary people finding themselves subjected to corruption in such a situation is an example of low-level,

street-level, or petty corruption (Wysmułek, 2019). When private companies and organizations are involved in corrupt behavior, it is defined as business corruption (Rose-Ackerman, 1999). Researchers agree it is difficult to measure corruption because of its hidden nature and diversity of forms.

There are many cross-national and country-level measures of the connection between individual-level characteristics and perceptions of corruption and the link between experiences and perceptions of low-level and business corruption (Canache et al., 2019; Melgar et al., 2010; Pozsgai, 2015). These connections are often considered questionable and dependent on specific political, social, and economic circumstances (Tanzi, 1998; Andvig et al., 2001). Some studies demonstrate that relationships between perceptions and experiences of corruption are distributed among countries (Seligson, 2006). They recommend the systematic comparison of corruption perceptions to experience surveys on cross-national and national levels (Delios et al., 2024).

The question arises to what extent do the experience and perception of corruption reflect the real level of corruption in a country or region? Each of these indicators contains risks of bias due to insufficient or distorted information about the level of corruption or insincerity in answering sensitive questions. To avoid bias, the indicators should be tested 'through measurement reliability' (Fazekas & Ferrali, 2023, pp. 6–7).

Analyzing their relationships and their relation with other indicators helps to understand their potential as measures of corruption. Researchers note that even if perceptions and self-reported experiences of corruption do not sufficiently reflect current levels of corruption, these phenomena are interrelated, and high levels of perceived corruption cause negative effects in the economy and society (Melgar et al., 2010).

The link between perceptions and experience of corruption is tested at different levels, however, the regional level within countries is often not considered. Researchers note that corruption has been studied mainly at the international or national level, and little research has focused on the local level (Zimelis, 2020). Studying the role of different determinants of corruption, including individual characteristics or attitudes toward corruption, can contribute to enhancing information policy in regions and fostering accountability and good governance (Canache et al., 2019).

In recent decades, the problem of corruption has become crucial in Russia. This research focuses on the evaluation of the determinants of corruption among ordinary people and business representatives in three regions of Russia based on a survey conducted in 2019. We examine how people's and organizations' social, demographic, and economic backgrounds as well as their attitudes toward corruption can influence the perceived level of corruption and engagement in it. Thus, the study framework includes three main research questions:

What is the role of the individual characteristics of people and business organizations in determining their experiences and perceptions of corruption?

Can attitudes toward corruption be predictors of corruption experience and corruption perception?

Can experiences and perceptions of corruption be determinants of each other?

Answers to these questions can help clarify the opportunity to consider perception and experience of corruption as interdependent and to use them as the indicators for measuring corruption in surveys.

2 Literature review

It is necessary to focus on the main terms that will be used in this study, such as factors or determinants of corrupt behavior; individual characteristics; attitudes toward corruption; perceptions of corruption, and personal experiences with corruption.

Factors or determinants of corrupt behavior are defined as characteristics or conditions that bear influence on corruption extension in a specific country or region (macro level), or on people's corrupt behavior (micro level) (Fazekas & Ferrali, 2023). At the same time, studying factors of corruption is closely connected with the ways in which corruption is measured.

Individual characteristics are considered in studies of corruption as individual determinants of corrupt behavior that reflect social, demographic or other characteristics of people or organizations. They may include gender, age, marital status, income, education, place of living etc., for citizens, or the specific features of organizations or entities.

Attitudes toward corruption are defined as acceptance and justification of corruption or of its specific types among citizens or business representatives. Attitudes can be presented in surveys as statements about what practices respondents regard as corrupt (Torgler & Valev, 2006) or as evaluations of different misbehaviors as acceptable or unacceptable (Kamel et al., 2021).

Perception of corruption is defined as different agents' beliefs toward the extension of corruption and its forms in society: 'prevalence of corruption and the urge to engage' in some corrupt practices' (Haddoud et al., 2024, p. 6). The perception of corruption in the surveys may evaluate the integrity or corruptibility of the government, public officials, and specific institutions, or the perception of the effectiveness of anticorruption efforts (Hauk et al., 2022). Corruption perception is observed among different categories of actors: experts, business representatives, members of organizations, or ordinary citizens (Melgar et al., 2010).

Experience with corruption reflects the frequency or existence of cases connected with some corrupt practices reported by different agents (individuals or entities) and their involvement in corrupt situation. Some researchers consider is as a 'direct indicator' measuring if some agents were involved in corrupt situations in a certain period (Deininger & Mpuga, 2004). Questionnaires can comprise not only personal respondents' experience but also their colleagues, peers or other representatives of their inner circle.

2.1. Individual characteristics

This group of factors is considered in different studies in connection with both perception and self-reported experience of corruption. For instance, some researchers have claimed that women perceive a higher level of corruption than men (Melgar et al., 2010; Swamy et al., 2001). Other studies have shown that women underestimate the level of corruption (Gerasymenko, 2018). Women are more likely to disapprove of corrupt behavior (Schulze & Frank, 2003). Most researchers have concluded that women are less involved in corrupt practices (Torgler & Valev, 2006). Lee and Guven argue that this is because men are more

competitive and have a higher risk appetite than women, and previous findings suggest that competition may be a factor in unethical behavior such as corruption (Lee & Guven, 2013). At the same time, Pozsgai found that women are more exposed to corruption (Pozsgai, 2015). However, despite numerous studies of the connection between gender and corruption, some researchers have admitted certain complications in analyzing the relationship of gender with corruption and perceptions thereof.

Age also has an ambiguous relationship with corruption. Torgler and Valev concluded that people under 30 years of age see corruption as significantly more justifiable than older age groups (Torgler & Valev, 2006). The authors explained this finding by referring to age theory. According to it, older people are more sensitive to the effects of sanctions and have a stronger dependency on others' reactions, so the perceived costs of sanctions increase over the years for this group. However, according to research conducted in Russia, older people are more prone to engaging in corruption (Zaloznaya et al., 2018). Thus, hypotheses based on age theory need to be complemented by additional explanations related to acceptable informal norms in society.

Melgar et al. showed that people who have completed at least secondary school are more likely to perceive a lower degree of corruption (Melgar et al., 2010). In some research, education does not have a significant link with perceptions of corruption (Torgler & Valev, 2006; Borošak & Šumah, 2019).

Mocan (2008) and Torgler & Valev (2006) showed that wealthier people and more educated individuals are more likely to be targeted for bribes. Other research has shown that less educated and lower-income citizens face corruption more often (Tavits, 2010; Zaloznaya et al., 2018). Peiffer & Rose offer two reasons for this situation (Peiffer & Rose, 2018). First, public officials may perceive poor people as being 'easy targets' because of their lack of knowledge, useful linkages, and financial resources. Second, for low-income people, paying bribes can be the only way to solve everyday problems.

According to Mocan, individuals who live in larger cities face a higher likelihood of being asked for a bribe because the level of economic activity is higher there than in smaller cities and, as a result, there are more opportunities to interact with public institutions (Mocan, 2008).

As for the relationship between individual factors in business corruption, research has usually focused on features of companies that can influence corruption. Small organizations have a higher propensity to be affected by bribery than large firms because small firms have less power to resist illegal offers and less practical experience in relating with the government (Friesenbichler et al., 2017).

Thus, individual factors often show unstable explanatory power in relation to experiences and perceptions of corruption. The relationship usually depends on social context in a specific country or region. For instance, income level can influence engagement in corruption in connection with other factors, such as living standards, the level of inequality in a specific country, or the market environment (Peiffer & Rose, 2018). Such contextual factors are affected by specific traditions, values, and formal or institutional norms in the explanation of the members of different social groups' corrupt behavior. For this reason, the role of people's attitudes can be significant in predicting corruption.

2.2 Attitudes toward corruption

Ajzen defined attitudes as 'summary evaluation of a psychological object captured in such attribute dimensions as good-bad, harmful-beneficial, pleasant-unpleasant, and likable-dislikable' (Ajzen, 2001, p. 28). Attitudes toward corruption may refer to the justifiability of corruption or other people's beliefs related to it. The more tolerant people are toward corruption or other unethical behavior, the more likely they are to be involved in actual corrupt actions (Zaloznaya et al., 2018; Pozsgai, 2015; Tavits, 2010). Lee & Guven found that those who were engaged in corruption in the past are more likely to justify it (Lee & Guven, 2013). Gorsira et al. found that among business representatives, those who indicate that their colleagues approve of corruption and have engaged in it are themselves more prone to engaging in corrupt actions (Gorsira et al., 2018).

There are some important concepts for the analysis of attitudes toward corruption. Some researchers explain the role of attitudes in explanation of corrupt behavior regarding Ajzen's theory of planned behavior (Ajzen, 2001). This theory postulates that intention to perform (or not to perform) a behavior is a function of three main inputs: attitudes toward the behavior, subjective norms, and perceived behavioral control. Kubbe argued that informal norms with their connection with formal institutions create values and customs that can predict and affect the corrupt behavior (Kubbe, 2018).

The role of attitudes toward corruption can also be explained by the theory of collective action. This concept assumes that all actors maximize their own interests. Since a sufficiently large number of actors are expected to play unfairly, each of them may benefit from corrupt actions (Persson et al., 2013). This means that under certain conditions, all of them can be corrupted because such behavior is normal and expected in this environment. This theory emphasizes the social and political environment that influences on the people's values. In the societies with systemic corruption, e.g., post-soviet countries, people are prone to consider corruption as the way of life. Karklinks writes that despite the strengthening of anti-corruption measures in post-communist countries, their implementation has not led to a real strengthening of accountability (Karklinks, 2005).

Some studies show a weak relationship between justification of corruption and involvement in it, as well as perceptions of its prevalence. The authors explain this through social desirability biases (Delios et al., 2024). Agerberg emphasizes a pattern whereby respondents condemn corruption but negatively evaluate others' presence of such beliefs (Agerberg, 2022). According to the research, such tendencies characterize countries with high levels of corruption.

2.3 Perceptions and experiences of corruption as independent and interdependent factors

Perceptions of corruption, as an indirect measurement method, can be a predictor of actual engagement in corrupt behavior (Treisman, 2007; Charron, 2016).

The relationship between perceptions and experiences of corruption is studied at country level as well as and at national or regional level. The study conducted by Melgar,

Rossi and Smith (2010) showed that those who think that corruption is widespread in a country are more willing to be involved in bribery. Some researchers have agreed that perceptions of corruption can be a predictor of actual engagement in corrupt behavior (Charron, 2016). Donchev and Ujhelyi have shown that corruption experiences are only weakly related to corruption perceptions (Donchev & Ujhelyi, 2014).

The reliability of survey methods for studying corruption in some countries and regions has been widely discussed. These methods are often criticized for different reasons, such as the alleged inadequacy of public opinion for determining the level or definition of corruption. People may underreport their experiences of corruption because of fear of prosecution or shame (Pozsgai, 2015). Both ordinary people and business representatives may be reluctant to answer sensitive questions truthfully. Individuals may avoid answering questions about their own corrupt behavior at all, especially in countries where corruption is widespread at different levels (Friesenbichler et al., 2017).

Thus, the causal link between the two remains unclear. As with the individual factors, any relationships identified depend on the specific social, political, and cultural context of the specific country and region (Charron, 2016; Erlingsson & Kristinsson, 2016; Seligson, 2006).

For instance, Gonzalez et al. (2019) found that the perception of corruption is associated with the experience of bribery and that this connection is stronger in countries where corruption is low and press freedom is high. Melgar et al. demonstrated that 'better economic performance reduces corruption perception' (Melgar et al., 2019, p. 129).

For our research, it will be interesting to consider which theories explain the mutual influence of perception and experience of corruption. Regarding the influence of the experience of corruption on the perception of corruption, victimization theory is used. Victimization theory posits that being a victim of a crime in the past positively influences crime risk perception (Öhman, 2017; Pozsgai, 2015). According to Seligson, the experience of corruption strongly decreases institutional trust (Seligson, 2006).

To explain how the perception of corruption determines engagement in corruption, the researchers use social learning theory (Bandura & Walters, 1977). According to this theory, people decide to involve in illegal acts because of their perception of its widespread among peers or the society. In this process, data on how anti-corruption laws are implemented, how people are punished for corruption, obtained from personal observation, communication and media information play an important role in creating cognitive models or images toward corruptibility of specific social groups or institutions (Gutmann et al., 2020).

Thus, the review of the literature shows:

(1) Individual characteristics have not been explicitly linked to either experiences or perceptions of corruption.
(2) The attitudes toward corruption, tolerance of it can be predictors of actual corrupt behavior.
(3) Both perception and experience of corruption are actively used for survey measuring this complex and hidden phenomenon at macro and micro levels.
(4) There are some theoretical concepts and research results that find the interdependency between perception and experience of corruption. Previous experiences of corruption can influence perceptions of corruption; the perceived prevalence of corruption in society can lead to corrupt actions.

All the measures imply some risks and limitations that underscore the necessity of further study of this issue regarding specific social and spatial conditions.

3 Corruption in Russia

Corruption is a very serious problem in Russia that hinders democratic reforms and the economic development of the country. In 2023, Russia's CPI rating was 136th among 180 countries, with a score of 2.6 (Corruption Perception Index, 2023). In 2020, 70 per cent of Russian citizens reported that the level of corruption in the country is high; 53 per cent believe that it is impossible to eradicate corruption in Russia (Pavroz, 2021).

In 2008, the Anti-Corruption Act was passed in Russia, and the National Anti-Corruption Strategy was introduced by then President Dmitry Medvedev in 2010. In that period, the government also initiated numerous projects to curb corruption. The Russian authority had outstanding success in creating institutes to prevent street-level corruption in ordinary people's everyday dealings with public officials.

Despite some results in preventing low-level corruption, the situation with business corruption remains tense. Entrepreneurs, especially those in small and medium-sized firms, are unprotected from corruption in their dealings with governmental institutions and municipal authorities (Ivanova, 2013). An additional factor is the insufficient development of civil society to provide public control of corruption (Chebankova, 2013).

In recent years, Russia has seen increasing state control over business and media, along with decreasing freedom of the press and political pluralism. Controlled media supply limited information about corruption scandals and arrests, and Russians are often unaware of the consequences of these incidents. In this situation, it is difficult to discuss citizens' awareness of the real level of corruption, which also complicates measurement procedures.

Russian researchers have elaborated on the different methodologies for measuring corruption, trying to determine the related influencing factors (Satarov, 2013; Nisnevich & Stukal, 2012). Unfortunately, only a few researchers have focused on factors connected with citizens' characteristics and attitudes in relation to corruption. For instance, Popova showed that middle-aged and older people with lower-middle incomes and high education levels report higher levels of corruption than do other social and demographic groups (Popova, 2019, p. 393). Satarov emphasized that people with a higher level of education are more likely to perceive the level of corruption to be high. Perceptions of the level of corruption are higher in million-person cities than in cities with populations between 100,000 and 300,000. Regarding business corruption, some studies have indicated that the economic sector is the most significant determinant of corruption perceptions in Russia: 'the extractive and financial services sectors are the riskiest in terms of perceived corruption' (Satarov, 2013, p. 506).

According to a 2019 survey, more than half of Russians have a tolerant attitude toward corruption (Maksimenko et al., 2020). High tolerance of corruption is explained by the high level of informal practices both at the street level and in business (Ledeneva, 2013).

Some researchers place Russia among the countries where the connection between the level of perception and experience of corruption is low (Melgar et al., 2010; Rose & Mishler, 2010). Russian scholars also emphasize the contradictoriness of Russians' attitudes toward corruption.

Despite increasing centralization of power, there is great diversity in behavioral, social and cultural traditions among Russia's 89 regions. This also applies to corrupt practices. Zakharov (2019) concluded that the central part of Russia and the Urals are relatively less corrupt, while the areas on the periphery exhibit higher levels of experienced corruption. Regional studies of corruption are currently insufficient, especially in analyzing the factors of perception and experience of corruption at the micro level. However, the studies of public attitudes toward corruption allow for forming realistic anticorruption policies and strategies at national and regional levels. Analysis of determinants of perception and experience of corruption contributes to reveal social, political and cultural features that influence corruption in the specific territories, and to enhancing the tools for measuring corruption.

The main objectives of our empirical research are: (1) to determine the individual factors related to citizen's actual experiences and perceptions of corruption; (2) to discover how attitudes toward corruption relate with both perception and experience of corruption; and (3) to learn how experiences and perceptions of corruption influence each other.

4 Methods and measures of the research

Public opinion surveys are the most common methods for measuring corruption. Surveys of the general public or businesspeople about corruption usually focus on either experiences of corruption or perceptions of corruption. Asking about experiences of corruption is a method for measuring self-reported engagement in situations of corruption. Perception of corruption includes people's beliefs toward the level of corruption in a region, its dynamics, opinions about the integrity or corruptibility of institutions or authorities, and evaluation of the effectiveness of anticorruption policies.

In recent years, due to citizens' growing impatience with anti-corruption policy, it has become necessary to conduct complex research on corruption in Russia. For these reasons, in 2019, the Russian government initiated a national survey to evaluate the level of corruption in all regions of Russia. This study aimed to estimate the level of low-level and business corruption and included many indicators based on individual experiences of corruption as well as perceptions of corruption (Metodika, 2019). This allowed us to use the results of this survey to measure different factors of corruption.

For our research, we use the survey results for three regions of Russia – the Cis-Urals, the Urals, and Western Siberia – where the survey was conducted under the author's supervision.1800 (N=600 in each region) respondents above 18 years old took part in the survey on low-level corruption. The method of this research was an individual formalized interview at the place of residence. 900 business representatives (N=300 in each region) completed an online questionnaire related to business corruption. The population of the regions varies from 1.5 to 4.3 million people. Regression analysis was used to investigate the factors of perception and experience of corruption. A detailed description of the variables is presented in the Appendix.

5 Results of empirical analysis

5.1 Low-level corruption

Hierarchical multiple linear regression analyses were performed to assess the relationship of experiences of bribery with different groups of determinants. The hierarchical modeling (Table 1) demonstrates increasing R^2 and F indexes, which indicates model stability.

Table 1 Results of hierarchical linear regression analysis of factors of bribery experience (B, β for each variable; R^2, F for the model)

	B (β)
Age	–.108 (–.069)**
Gender	.060 (.012)
Urbanization	–.063 (–.021)
Education	–.054 (–.032)
Income	.125 (.052)*
Tolerance	.137 (.077)***
Perception of effectiveness of anticorruption efforts	.294 (.048)
Estimation of the dynamics of corruption	.079 (.036)
Perception of integrity	.016 (.028)
Perceived frequency of corruption	.089 (.422)***
R^2	.194***
F	39.766

Dependent variable: bribery experience

*p < .05, **p < .01, ***p < .001.

The results show that except for age, the individual characteristics have a nonsignificant relationship with the experience of bribery. The younger a person is, the more often he or she encounters bribery. Attitudes toward corruption (tolerance) and perceptions of frequency of corruption show a significant relationship with bribery experiences. The more often people approve of corruption, the more often they encounter bribery. The more often people indicate a possibility of finding themselves in corrupt situations in their daily dealings, the more often they face pressure to pay bribes.

To evaluate the relationship of the determinants with experiences of low-level corruption, we performed hierarchical binary logistic regression analysis (Table 2).

Table 2 Results of hierarchical binary logistic regression analysis of determinants of experience of low-level corruption (B, ExpB, 95% C.I. for Exp (B) for each variable; Cox and Snell R^2, Hosmer and Lemeshow test, and -2 log-likelihood for the model)

	B (ExpB),	**95% C.I. for Exp (B)**
Age	–.069 (.933)	.860–1.012
Gender	–.024 (.976)	.762–1.250
Urbanization	–.063 (.939)	.805–1.095
Education	–.035 (.965)	.881–1.058
Income	–.169*(.844*)	.740–.963
Tolerance	.112* (1.118*)	1.019–1.227
Perception of effectiveness of anticorruption efforts	–.526** (.1692**)	1.236–2.316
Estimation of the dynamics of corruption	.157** (1.170**)	1.050–1.304
Perception of integrity	–.054** (1.032**)	.917–.979
Perceived frequency of corruption	.031***(1.032***)	1.021–1.043
R^2 (Cox and Snell)	.064	
Hosmer and Lemeshow test	$\chi 2 = 4.533$ $p = .775$	
-2 Log-likelihood	1545,423	

Dependent variable: experience of low-level corruption

*p < .05, **p < .01, ***p < .001.

According to the data, the role of individual determinants is nonsignificant, except for income, which has a positive link with experience of low-level corruption as the dependent variable. This model demonstrates that both attitudes and perceptions of corruption have a significant influence on experience of corruption. Tolerance of corruption has a significant positive relationship with the experience of low-level corruption. The variables measuring perception of effectiveness of authorities' anticorruption efforts, estimation of the dynamics of corruption, perceived integrity of institutions, and perception of the frequency of corruption demonstrate significantly influence on exposure to corruption.

The next stage of the research is to evaluate the determinants of perceptions of low-level corruption. We assessed them by performing hierarchical linear regression analysis. As a dependent variable, the perceived frequency of corruption was chosen (Table 3).

Table 3 Results of hierarchical linear regression analysis of determinants of perceptions of low-level corruption (B, β for each variable; R^2, F for the model)

	B (β)
Age	–.058 (-.008)
Gender	-.244 (-.011)
Urbanization	1.370 (.105)***
Education	.641 (.087)**
Income	-.438 (-.040)
Tolerance	-.008 (-.001)
Experience of bribery	2.834 (.112)***
Experience of low-level corruption	1.782 (.385)***
R^2	.211***
F	49.785

Dependent variable: perceived frequency of corruption

*p < .05, **p < .01, ***p < .001.

Perception of corruptions are strongly related with the variables reflecting experiences of corruption. The more often people are exposed to corruption, the higher they evaluate the frequency of corruption. Urbanization level positively affects the perceived frequency of corruption with high significance (B=1.370, p=.000). Education is also significant; however, the significance is lower (p < .01). The most significant factors associated with perceptions of corruption are experiences of bribery and experiences of low-level corruption. People who engage in corruption are more inclined to perceive a high level of corruption in their country and in their region.

5.2 Business corruption

For the evaluation of the factors of experience in business corruption, a hierarchical binary logistic regression analysis was performed (Table 4).

Table 4 Results of hierarchical binary logistic regression analysis of determinants of business corruption experience (B, ExpB, 95% C.I. for Exp (B) for each variable; Cox and Snell R^2, Hosmer and Lemeshow test, and -2 log-likelihood for the model)

	B (ExpB)	**95% C.I. for Exp (B)**
Ownership (Private companies)	.651* (1.917*)	1.125 -3.267
Revenue	.238 (1.268)	.959 – 1.678
Size	.127(1.136)	.952– 1.355
Age	.197* (1.218*)	.980-1.514
Urbanization	.329* (1.389*)	1.005-1.920
Tolerance	.091 (1.095)	.894-1.342
Effect	-.131 (.877)	.644-1.193
Dynamics	.129 (1.137)	.970-1.333
Perceived frequency of business corruption	.237*** (1.268***)	1.158-1.388
Perception of forms of business corruption	.225* (1.252*)	1.034-1.518
R^2 (Cox and Snell)	.220	
Hosmer and Lemeshow test	$\chi 2 = 7.524$ $p = .481$	
-2 Log-likelihood	562.859	

Dependent variable: business corruption experience

*p < .05, **p < .01, ***p < .001.

The results show that among the individual characteristics of organizations, ownership and the type of settlement are the most significant determinants. The level of urbanization and affiliation with private businesses positively influences the experience of business corruption. The attitudes of business representatives toward corruption (tolerance) do not significantly affect the experience of business corruption. The perceived frequency of corruption positively and significantly affects experiences of business corruption.

For the evaluation of the determinants of perception of business corruption, hierarchical linear regression analysis was performed (Table 5).

Table 5 Results of hierarchical linear regression analysis of determinants of perceptions of business corruption (B, β for each variable; R^2, F for the model).

	B (β)
Ownership (private companies)	–.820 (–.137)***
Revenue	.011 (.003)
Size	–.166 (–.096)*
Age	–.027 (–.012)
Urbanization	–.234 (–.060)
Tolerance	.403 (.151)***
Experience of business corruption	.843 (.442)***
R^2	.251***
F	42.596

Dependent variable: perceived frequency of business corruption
*p < .05, **p < .01, ***p < .001.

The results show the high significance of the type of ownership (perceived frequency of corruption is higher in private companies than in other organizations) and the low negative significance of revenue. Tolerance of corruption and experience of it are the most significant determinants of the perceived frequency of business corruption. The more often business representatives are exposed to corruption, the higher they evaluate the frequency of corruption. As with low-level corruption, the experience of business corruption also significantly affects higher perceptions of corruption.

6 Conclusions

6.1 Individual determinants

This group of variables shows low significance. However, age displays a considerable link with citizens' experience of bribery. The most susceptible to corruption are citizens between 30 and 40 years old, as the most economically and socially active group of the population.

Income positively correlates with experiences of low-level corruption: wealthier citizens are more likely to report encounters with corrupt practices in their everyday lives. Income and education also positively influence the perceived risk of corruption. Under conditions of a high level of informality in the economy, members of the middle class find themselves pressured to solve problems by using illegal practices. However, both age and income show a weak impact on involvement in corruption.

As for the perception of corruption, education and level of urbanization are positively related to the perception of the prevalence of corruption. These two indicators may correlate with the level of awareness of corruption. More educated people and residents of large cities are more interested in economics and politics and use different sources of information. Opposition media, social media and the internet are more likely to publish news about corruption scandals and investigative journalism about corruption.

The level of urbanization relates to both experiences of business corruption and its perceived prevalence. In urban areas, entrepreneurship is more developed than in rural areas. Business representatives in urban territories interact with public and municipal authorities more often than in rural areas to solve their problems. Furthermore, there are considerable economic and social differences between types of settlement, especially between urban and rural areas, which hinder business activity in villages (Satarov, 2013). Despite government efforts to support regional and rural entrepreneurship, the business community still faces bureaucratic red tape, disadvantages in tax policy and other obstacles. For these reasons, informal ways of solving problems in business are very popular in Russia (Ivanova, 2013). The representatives of private and small companies are more prone to perceive frequent corruption in the business sphere. This implies lower legal protection of businesses in Russia against predatory officials and a lack of anticorruption, compliance, and whistle-blowing instruments in these spheres.

6.2 Attitudes toward corruption

People who justify corruption are more likely to report encountering bribery and other low-level corruption practices. Regarding the perception of corruption, justification of corrupt behavior is no longer a significant factor, but prior experience of corruption is significant in assessing its prevalence. For business corruption, tolerance of corruption shows a significant influence on perception of corruption but not with experiences of corruption.

Attitudes associated with corruption more significantly influence perceptions than experiences of corruption in the case of business corruption. The insufficiently stable relationship between justification of corruption and its perception and experience can be explained by social desirability bias, where people demonstrate condemnation of corruption as a socially unacceptable behavior. The theory of collective behavior can also explain the link between corruption and its justification as applied to Russia as a country, where many people justify behavior by the pressure of the social environment and the system as a whole. 16 per cent of respondents do not condemn any of the participants in corrupt transactions, and a quarter of them do not condemn the bribe-giver. The lack of anti-corruption education and the weak ability of civil society to control corruption lead to its normalization and even its perception as a subjective norm.

6.3 Perceptions and experiences of corruption

Perception of effectiveness of anti-corruption policy is negatively but weak determine experience of corruption. Perception of low-level and business corruption and its experience significantly affect each other.

Social learning theory and victimization theory can explain the interdependence of perceptions and experiences of corruption in Russian regions. Involvement in corruption may contribute to the perception of the prevalence of corruption. Social learning theory can also explain the influence of experience on corruption perception, since personal experience, along with other factors, can be a condition for people's perceptions of its prevalence.

The indicators of both perception and experience of corruption in the research can be used as indirect measures of corruption. Our research has shown a variety of ways of estimating corruption and underscored the necessity of conducting complex studies on this topic under specific social conditions. The results of the surveys help to adjust anti-corruption policy toward the development of public awareness, and the formation of anti-corruption values in the population. These areas are currently underrepresented in Russia.

The link between experiences and perceptions of corruption and the role of other factors are determined by specific features of countries and regions. The main limitation in our research is the representativeness of the three regions of Russia considered; our findings cannot be generalized to all of Russia because of some differences across regions. At the same time, the results reflect the situation in most Russian regions. However, these results need additional verification that would assess different social, attitudinal, or contextual factors. Social conformity bias, fear bias, and cognitive, socio-economic, political and cultural factors may play a significant role in perceptions and experiences of corruption.

Appendix

The description of the variables

Low-Level Corruption

1. To study the determinants of experience of low-level corruption, we chose two dependent variables: experience of bribery and experience of low-level corruption.
    1.1. The experience of bribery variable was created by summing up the answers to the following question: "In the past 12 months, did you happen to find yourself in a situation where obtaining a service involved bribery?" This question was asked regarding 16 types of public services for ordinary citizens. Each of them was evaluated as 0 ("I did not get such service and did not fall into such a situation"; "difficult to answer") or 1 ("I had to offer a bribe at least once"). After summing the answers related to each service, an aggregate variable taking values from 0 to 16 was derived (mean = 1.31, SD = 2.35, Cronbach's Alpha = .839).
    1.2. The experience of low-level corruption variable was created from the answers to the following question: "In the past 12 months, were you faced with a need to make an extra informal payment or offer a bribe or gift, regardless of whether you did it or not?" (1 = yes; 0 = no). The mean of this variable is 0.26 (SD = 0.51). This means that more than one-quarter of respondents encountered corruption in their interactions with public institutions and organizations.

These two variables were used as dependent variables in the regression models evaluating the different factors of low-level corruption.

As the independent variables for our regression model, we used three types of variables that may relate to experiences of corruption.

1.3. Individual factors include the social and demographic characteristics of respondents:
   - gender (0 = female, 1= male);
   - age (1 = under 20, 2 = 21-30, 3 = 31-40, 4 = 41-50, 5 = 51-60, 6 = above 60);
   - education (1 = no schooling completed, 2 = high school diploma, 3 = vocational training, 4 = college degree, 5 = some higher education, 6 = higher education diploma [specialist, bachelor's, or master's degree], 7 = doctoral degree or higher);
   - type of settlement based on the level of urbanization (1 = rural settlement, 2 = small town, 3 = large regional center);
   - income (1 = very low, 2 = below average, 3 = average, 4 = relatively high, 5 = high).

1.4. Attitudes toward corruption include the tolerance of corruption (1 = I condemn both the briber and the receiver of bribe); 2 = I condemn only the briber and do not condemn the bribee; 3 = I condemn only the receiver of bribe and do not condemn the briber; 4 = I condemn neither the briber nor the receiver of bribe). The mean of this variable is 1.9 (SD = 1.375).

1.5. The perceptions of low-level corruption measures reflect respondents' evaluations of the level of integrity and prevalence of corruption in different sectors and institutions and include the following variables:
   - perception of effectiveness of anticorruption efforts (1 = authorities fight corruption effectively, 0 = there is no effect of the fight against corruption by governmental institutions);
   - estimation of the dynamics of corruption, operationalized as the sum of three variables that reflect perceptions of the changing level of corruption over the last year at the national, regional and municipal levels, where 1 is growing corruption and 0 is no change or decreasing corruption (the final value of the aggregate variable varies from 0 to 3)
   - perception of integrity, measured as the sum of variables that evaluate the integrity of 15 different sectors (1 = honest; 0 = dishonest) and varying from 0 to 15 (mean = 5.1, SD = 4.243, Cronbach's Alpha = .889).
   - perceived frequency of corruption in interactions with different institutions and organizations (16 situations), based on the answers to the following question: "How often in your place of living do people like you have to face bribery and corruption in the following situations and circumstances?" (0 = never, 1 = rarely, 2 = from time to time, 3 = quite often, 4 = very often; the aggregate variable for risk of corruption varies from 0 to 64; mean = 11, SD = 11.266, Cronbach's Alpha = .916).

2. To estimate the determinants of perceptions of low-level corruption, the abovementioned perceived frequency of corruption variable was chosen as the dependent variable. The independent variables are as follows.
   2.1. Individual factors include the social and demographic characteristics of respondents:
      – gender;
      – age;
      – education;
      – type of settlement;
      – income.
   2.2. Attitudes corruption measure includes the tolerance of corruption.
   2.3. The experiences of low-level corruption measure includes the two abovementioned variables:
      – experiences of bribery;
      – experiences of low-level corruption.

Business corruption

3. For the evaluation of the determinants of business corruption experience, a hierarchical binary logistic regression was used.
   3.1. As the dependent variable, the experience of business corruption indicator was used. This is a binary variable that was derived from answers to the following question: "During the last 12 months, was there any occasion when public officials asked your business entity for a gift, a counterfavor or some extra money?" (1 = yes, 0 = no). The mean of this variable is .21 (SD = .408).

   As independent variables, the following three groups of factors were chosen.
   3.2. Individual factors (characteristics of an organization) (M1) include the following variables:
      – form of ownership (private = 1, other = 0);
      – revenue (1 = under 120 million rubles, 2 = from 121 to 800 million rubles, 3 = from 801 million to 2 billion rubles, 4 = over 2 billion rubles);
      – size of organization (1 = under 15 employees, 2 = from 15 to 100 employees, 3 = from 101 to 250 employees, 4 = from 251 to 500 employees, 5 = from 501 to 1000 employees, 6 = over 1000 employers);
      – age of organization (1 = under 1 year, 2 = from 1 to 3 years, 3 = from 3 to 5 years, 4 = from 5 to 10 years, 5 = over 10 years);
      – type of settlement based on the level of urbanization (1 = rural settlement, 2 = small town, 3 = large regional center);.
   3.3. Attitudes toward corruption include the tolerance of corruption, created by using the answers to the following question: "In current conditions for doing business, does corruption help or hinder organizations like yours?" (1 = usually hinders, 2 = more often hinders than helps, 3 = does not hinder or help; 4 = more often helps than hinders, 5 = usually helps) (mean = 1.06, SD = 1.11);

3.4. The perception of business corruption measures are as follows:
- Effectiveness of government anticorruption efforts, evaluated by the answers to the following question: "In your opinion, how effective are the authorities' actions in preventing corruption?" (1 = worsen the situation, counterproductive, 2 = usually ineffective, 3 = neutral, 4 = usually effective, 5 = very effective);
- Estimation of the dynamics of corruption, evaluated based on the sum of three variables that reflect perceptions of change in the levels of corruption at the national, regional and municipal levels over the last year (1 = decreasing corruption, 2 = no change, 3 = growing corruption (the final value of aggregate variable varies from 3 to 9);
- The perceived frequency of business corruption variable, that is, the reported frequency of facing possible instances of business corruption, created by summing the answers to the following question for five variables that reflect different corrupt situations: "How often does a business entity in your field face the necessity of making an informal or hidden payment to public officials?" (0 = never, 1 = rarely, 2 = from time to time, 3 = quite often, 4 = very often). The resulting variable varies from 0 to 20 (mean = 1.06, SD = 1.11, Cronbach's Alpha = .884).
- The perception of different forms of business corruption, created from the sum of three variables reflecting three forms of corruption (giving a gift, bribe, or illegal favor) (mean = .175, SD = .58, Cronbach's Alpha = .808).

4. For the evaluation of the determinants of perceptions of business corruption, the following variables were used.

4.1. As the dependent variable, the abovementioned perception of business corruption indicator was used. This is the frequency of facing possible instances of business corruption for different potential purposes.

As independent variables, the three following groups of factors were chosen.

4.2. Individual factors (characteristics of the organization) include the following:
- form of ownership;
- revenue;
- size of organization;
- age of organization;
- type of settlement.

4.3. Attitudes about corruption include the tolerance of corruption measure;

4.4. Experience of business corruption.

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