Gender heterogeneity of bureaucrats in attitude to corruption: evidence from list experiment

Abstract

A high level of corruption usually constrains economic development in emerging countries. However, anti-corruption campaigns often fail because the relevant policies need to be implemented by existing corrupt governments. This article studies the extent of bureaucrats' heterogeneity in attitude to the problem of corruption. Due to the sensitivity of direct questions on corruption, we conduct the list experiment among public procurement officials in Russia. We show that female bureaucrats consider corruption an obstacle to public procurement development, and male bureaucrats do not. This heterogeneity holds even at the high-level occupied positions. Although the negative attitude to corruption does not necessarily imply the anti-corruption activity by women, recognition of the problem seems to be a prerequisite for supporting an anti-corruption policy.

Keywords: gender heterogeneity, corruption, public procurement, item count technique, list experiment, Russia

JEL classification: D73, H57

1. Introduction

Corruption is commonly recognized as a roadblock to development. It is especially relevant in countries with weak democracies: a low level of political accountability and insufficient public pressure on the officials do not incentivize existing corrupt bureaucrats to implement anti-corruption campaigns properly. Moreover, some bureaucrats do not necessarily consider corruption as a roadblock, and therefore may find no reasons to resist it. Thus, for the successful implementation of the anti-corruption campaigns under existing institutional environments, it is necessary to understand which groups of bureaucrats can potentially support anti-corruption policies.

This article studies the heterogeneity in attitude to the problem of corruption among bureaucrats. We conduct an online list experiment among 1251 bureaucrats responsible for the procurement activity in public organizations in Russia in 2014–2016. As corruption is a sensitive issue for bureaucrats, the list experiment technique mitigates the estimation bias in their attitude to this problem. Our analysis shows significant gender heterogeneity. Namely, female bureaucrats seem likely to consider corruption a significant public procurement development problem, and male bureaucrats do not. To use this finding as a potential anti-corruption policy, we check whether the occupied position causes the low tolerance to corruption of female bureaucrats. If only low-ranked female bureaucrats consider corruption a problem, promoting female officials would hardly reduce corruption. However, our experiment results show that high-ranked female bureaucrats are not tolerant of the corruption issue as well.

This gender gap in attitude to corruption is useful for anti-corruption reforms because gender is an observable characteristic. It means that even if there are internal characteristics that explain this discrepancy — e.g., attitude to risk or valuation of career success — they are likely to be harder to exploit for anti-corruption policies due to unobservability. At the same time, according to the Gender Quotas Database, many countries have gender quotas in parliaments.[1]

Although the negative attitude to corruption does not necessarily imply the anti-corruption activity by women, recognition of the problem seems to be a prerequisite for supporting an anti-corruption policy. We propose that the results can be driven by female bureaucrats' being more attentive to illegal activities. As the literature suggests, female

[1] https://www.idea.int/data-tools/data/gender-quotas

officials are more risk-averse than male officials, and they often need to work harder than men to be successful in their careers. The latter is indirectly supported by our data as women are older and have lower positions, though their experience in public procurement is comparable to men's. These factors imply that women, especially in high positions, are less likely to value illegal activity and more aware of the negative consequences of corruption.

Russia is a compelling case for two reasons. On the one hand, it is a developing country with a high level of corruption[2] and a vast bureaucracy.[3] On the other hand, Russia introduced e-governance and the transparency of public spending.[4] The scope of the penetration of information technologies allows to control of bureaucratic activity and creates technical preconditions to limit corruption, which are absent in many other developing countries.

This article focuses on bureaucrats dealing with public procurement for several reasons. First, unlike other officials, these bureaucrats are directly involved in decisions regarding the allocation of public money, and their practical experience makes their assessments of corruption much more valuable. Second, the regulation of public procurement is highly unified in Russia, and therefore, the assessments of respondents from different branches of the public sector are comparable. Finally, the high level of transparency of public procurement information in Russia enables us to access many officials.

Our results are in line with the literature showing that women can be less prone to corrupt activities than men (Dollar et al., 2001; Swamy et al., 2001; Alatas et al., 2009; Esarey and Chirillo, 2013; Rivas, 2013; Esarey and Schwindt-Bayer, 2018). Although there are also studies that find no evidence of this discrepancy (Debski et al., 2018; Sung, 2012), we rely on our experimental design to deliver accurate estimates. Namely, we contribute to the literature on the relationship between corruption and gender in two ways. First, we detect gender heterogeneity in attitude to corruption of actual bureaucrats. In contrast, the previous perception-based studies of corruption usually employ either

[2] In 2017, Transparency International placed Russia 135th among 180 countries on its Corruption Perceptions Index (Transparency International, 2018).
[3] According to Rosstat, at the end of 2017, government staff at all levels included about 2173 thousand officials (http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/en/main/).
[4] In 2018, Russia joined a group of countries with very high levels of e-government development (https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2018).

surveys of consumers of public services (citizens and firms) or laboratory experiments. In the latter case, participants, usually college/university students, only 'pretend' to be bureaucrats. Thus, we focus on the 'insiders' of the bureaucratic system, not on those who do not make actual bureaucratic decisions. Our estimates do not measure the scale of corruption perceived by bureaucrats; they measure the bureaucrats' attitude. Even when corruption is omnipresent, some bureaucrats may not see corruption as a roadblock of development, so they cannot contribute to breaking away from the existing vicious circle. However, if there are groups of bureaucrats that distinguish the corruption issue, they might want to support anti-corruption policies. Second, the list experiment technique enables us to estimate the correct opinion of the bureaucrats. Questions on corruption are sensitive for respondents due to the illegal character of this activity. Therefore, many scholars have used impersonal forms of questions, asking respondents about the experience dealing with corruption for an 'average firm in your sector/region' or an 'average person' (Hellman et al., 2003; Alhassan-Alolo, 2007; Becker et al., 2016). However, even for a question in an impersonal form, bureaucrats may still feel that their answers will be treated as reflections of their personal experience so that they may distort their responses. The list experiment approach enables us to estimate the proportion of individuals who consider corruption a problem for public procurement without discovering any individual opinion. This privacy, in turn, leads to non-biased results.

The remainder of the article is organized as follows. Section 2 reviews the literature on corruption and gender-related heterogeneity in the perception of corruption. Section 3 describes the list experiment technique and the data. Section 4 provides the results, and Section 5 shows a robustness check. Section 6 concludes.

2. Literature review

2.1. Studies of Corruption

Most of the articles devoted to the analysis of corruption can be classified into four major groups: (i) studies that use survey-based measures of corruption, (ii) laboratory experiments on corruption, (iii) theoretical studies of corruption, (iv) studies that use micro-level statistics (procurement contracts data).

The first group consists of empirical studies based on various types of surveys of public service consumers. These studies can be classified by the type of survey:

- Population surveys: the World Values Survey (worldvaluessurvey.org), the European Values Survey (europeanvaluesstudy.eu), the Life in Transition Survey (Becker et al., 2016)
- Business surveys: the World Competitiveness Report (Ades and Di Tella, 1999), BEEPS (ebrd-beeps.com), the Enterprise Surveys of the World Bank (enterprisesurveys.org)
- Expert assessments: the Business International indices of Doing Business (Bosio et al., 2020), the International Country Risk Guide (Tanzi and Davoodi, 1998), the Corruption Perceptions Index of Transparency International (transparency.org/research/cpi)

More examples can be provided for each of the three types of surveys. These studies enable researchers to measure the scale of corruption and to register significant heterogeneity among countries in this respect. The studies also provide a basis for a more detailed analysis of the factors influencing corruption perception. Specifically, two pioneering studies of the relationship between corruption and gender (Dollar et al., 2001; Swamy et al., 2001) use corruption indices based on surveys. These studies show that women are less tolerant of corruption than men and that greater female participation in politics is generally associated with lower corruption levels. Further empirical studies based on surveys or expert assessments reveal an inverse relationship between the scale of corruption and the level of economic development in different countries (Tanzi and Davoodi, 1998; Wei, 1999; Aidt, 2009; Bosio et al., 2020).

Most studies of the first group use empirical data that reflect the perception of corruption by public service consumers. However, these perceptions are insufficient for anti-corruption policy-making since the perceptions of bureaucrats, as decision-makers, may differ. However, measuring the perception of corruption by officials is complicated, as they may provide distorted assessments to avoid any suspicion of their involvement in corruption. Few articles focus on the corruption perceptions of officials. One of these studies was based on a direct survey of bureaucrats in Ghana (Alhassan-Alolo, 2007). This survey included questions about the differences between the potentially corrupt practices of female and male officials. The study did not reveal significant differences between female and male officials in their attitudes to corrupt practices. However, due to the sensitivity of the research topic, such an approach can lead to biased results and may

underestimate the scale and perception of corruption. Vijayalakshmi (2008) finds no association between gender and attitudes towards corruption for the elected representatives in India, but this survey also used direct questions for estimating the attitude to corruption.

To our knowledge, the study of Brierley (2020) is the only one that proposes an estimation of corruption from the perspective of government officials by using an indirect survey technique. She uses a randomized-response survey method to reveal the opinions of public procurement officials in Ghana. She asks them whether their choices of suppliers depend on whether the firms are likely to finance the incumbent party's election campaign. However, she does not explore the potential heterogeneity of the results, particularly gender differences.

The second group of studies comprises laboratory experiments. In laboratory experiments, participants, usually college/university students, represent the authorities, businesspeople, or citizens. The participants' behavior is used for exploring corrupt behavior with a further extension to society. Although some studies suggest that this extension is justified, other studies point out the limitation of the lab experiment approach for the development of real-life policy implications that arise from the complexity of real agents' behavior (Armantier and Boly, 2008; Barr et al., 2009; Banerjee, 2016). Therefore, the results of laboratory experiments alone should not be considered sufficient grounds for conclusions about real-life bureaucrats.

The third group of studies on corruption uses an entirely distinctive approach — theoretical models (Mookherjee and Png, 1995; Chand and Moene, 1997; Macrae, 1982; Lambert-Mogiliansky and Sonin, 2006; Menezes and Monteiro, 2006). These articles usually identify factors that impact incentives for corrupt behavior and help find measures capable of influencing those incentives. However, in most cases, these studies do not answer why politicians or bureaucrats, being in 'bad equilibrium,' would make efforts to reduce factors that generate corruption. Another peculiarity of these works is a large number of assumptions, which oversimplify reality.

The fourth group of studies on corruption includes empirical studies that have become possible in recent years due to increased transparency and open access to data on public expenditures and government program execution (Golden and Picci, 2005; Olken, 2006; Gorodnichenko and Sabirianova Peter, 2007; Ferraz and Finan, 2011). Due to the

unified nature of the procedures and a large number of public procurement contracts, the studies based on public procurement data are among the most popular in this group (Chong et al., 2013; Mironov and Zhuravskaya, 2016; Andreyanov et al., 2017; Tkachenko et al., 2017; Auriol et al., 2016; Szucs, 2017; Dávid-Barrett and Fazekas, 2020). Their significant advantages are detecting transactions containing potentially corrupt elements and detailed analyses of such transactions' characteristics. However, as the former two groups, these studies do not provide much information about how to motivate decision-makers to implement anti-corruption policies — if we are not talking about changing the political regime.

2.2. Corruption and gender

Despite the abundance of research on corruption, in our opinion, the existing literature does not sufficiently uncover to what extent officials differ in their attitude to corruption and what bureaucratic groups can contribute to breaking away from the current 'bad equilibrium' or vicious circle. Based on the studies on how female participation in politics and bureaucracy is related to corruption levels, we hypothesize that female bureaucrats can become such a group. Stensöta and Wängnerud (2018) discuss various aspects of the relationship between gender and corruption; in this section, we mention the research that we find most relevant to our analysis.

Many studies have found a possibility for women being less prone to corruption than men. For example, a few experimental studies show that women may be less willing to participate in corrupt activities (Alatas et al., 2009; Frank et al., 2011; Rivas, 2013). Gingerich et al. (2016) find a discrepancy between men and women in their attitude to bribes using an indirect survey technique. They find that men are more likely than women to show a willingness to bribe. Brollo and Troiano (2016) use the RDD design to show that female mayors in Brazil are less likely to participate in corrupt activities than male mayors. Finally, a few studies suggest that female managers of firms are less likely to be involved in corrupt activities than male managers (Breen et al., 2017). Torgler and Valev (2010) analyze survey-based data on Western European countries and find that women are more averse to corruption than men.

These studies also offer a few mechanisms that might cause the empirically observed negative relationship between female participation and corruption levels. The

mechanisms can be broadly divided into two groups, as Torgler and Valev (2010) suggest. The first group attribute the distinction to personal characteristics, and the second group suggest that male and female officials have different opportunities for corrupt behavior. Concerning the first category, it is generally suggested that women are more risk-averse than men (Croson and Gneezy, 2009). It implies that women may be less likely to participate in risky corrupt activities (Rivas, 2013; Esarey and Schwindt-Bayer, 2018). Women are also less likely to reciprocate in illegal activities than men, as Lambsdorff and Frank (2011) found. Lambsdorff and Frank suggest that it may make women less trustworthy as partners in corrupt transactions, and therefore men can be offered bribes more often. Additionally, Dollar et al. (2001) rely on previous gender studies and suggest that women might be more honest than men. The second group of mechanisms suggest that female and male officials may be treated differently by society and their colleagues. For example, women may have to meet higher standards if they run for a political or a bureaucratic office. Whether this happens due to women's social roles or stereotypes, these standards can prevent women from participating in corrupt activities (Alatas et al., 2009; Esarey and Chirillo, 2013; Stensöta et al., 2015; Esarey and Schwindt-Bayer, 2018). It is also possible that women's potential male counterparties or colleagues might not trust them enough to interact in a corrupt way (Swamy et al., 2001).

Recent studies often point out the impact of the institutional and cultural context on the relationship between corruption and gender. Alatas et al. (2009) find that women may be less tolerant of corruption than men in Australia, but in India, Indonesia, and Singapore, the corruption perception does not depend on gender. Esarey and Chirillo (2013) find a large gender gap in attitude to corruption in democracies, while it is small or non-existent in autocracies. Esarey and Schwindt-Bayer (2018) also find distinctions between different countries; they suggest that electoral accountability might be a prerequisite for the negative relationship between female participation in politics and legislatures.

Some studies find the relationship between corruption and gender non-existent or minimal. Jha and Sarangi (2018) provide evidence that it is only the share of women in parliament that may have an impact on corruption levels. Debski et al. (2018) find that accounting for cultural differences in cross-country analysis eliminates the association of corruption levels with female participation in parliament and the labor force. Sung (2012)

uses panel data to show that accounting for the strength of liberal democratic institutions eliminates the effects of female representation on corruption. While studying village council headship gender quotas in India, Afridi et al. (2017) find the impact of women's leadership on corruption to be minimal.

Overall, the literature on gender studies suggests that, in some contexts, female officials can become an anti-corruption force. This article gives insight into the attitude to corruption by female and male officials in the Russian institutional environment. Russia is characterized by a high level of corruption (Schulze et al., 2016), related, in particular, to political elites' incentives (Sidorkin and Vorobyev, 2018; Szakonyi, 2018; Tkachenko and Esaulov, 2020), and there is substantial heterogeneity of bureaucrats in public procurement effectiveness (Best et al., 2017).

3. Methodology and data

3.1. Methodology

To examine bureaucrats' attitude to corruption, we conducted an experiment in the framework of a survey among Russian officials responsible for the procurement activity in public organizations in 2014–2016. This field was chosen for the analysis because public procurement procedures became unified in Russia after the last decade's reforms and due to the widespread use of information technologies. The same procedures are applied by various types of organizations in various branches of the public sector and therefore provide broad opportunities for comparisons.

The survey consists of questions regarding different aspects of the public procurement process at all stages: problems in procurement practice, rigidity, and necessity of regulation, public procurement costs.[5] All these aspects are well recognized in procurement literature and practice (Bosio et al., 2020). There were no mandatory questions; therefore, the respondents could skip any of them. As the last question of the central part of the questionnaire (before the demographic questions), we ask the experimental question in the form of a list experiment.[6]

[5] See Questionnaire in the Online Appendix. The original Questionnaire in Russian and data with responses are open and available at https://iims.hse.ru/eapp/database.
[6] Question 14 of Questionnaire in the Online Appendix

We apply the list experiment technique because public officials may resist revealing their genuine attitude to corruption. In a nutshell, the list experiment can be described as follows. All respondents are randomly divided into a control group and a treatment group. The respondents in the groups receive a list of situations or items and are required to indicate *how many* of them can be characterized in a specific manner (for example, how many of them bother the respondent). A respondent is asked to indicate the *number* of items rather than items themselves. The list of items presented to the respondents in the treatment group is identical to that presented to the respondents in the control group, apart from one additional item — a sensitive one. As shown in the literature (Imai, 2011; Blair and Imai, 2012), if certain assumptions are satisfied[7], the difference in the average number of items between the treatment and control groups is an unbiased estimator of the population probability to choose the sensitive item. At the same time, the respondents do not directly reveal their answer to the sensitive item,[8] and therefore, may not be afraid to reveal their true opinion about it. Noteworthy, in list experiment, like in other experimental studies, if the randomization is well implemented so that control and treatment groups are balanced, controlling for confounding factors via regression is not necessary, as these factors will be insignificant due to randomizations. This technique also allows several treatment groups by comparing each treatment group with the control group. List experiment as a part of in-person or online survey is widely used in the literature (Frye et al., 2018; Gingerich et al., 2016; Glynn, 2013).

We used three different treatments in our experiment. The question and the items for each group are listed in Table 1. The option 'Informal relationships between buyers and suppliers' was added to the list of potential problems in public procurement development in Treatment Group 1. This item was intended to capture to what extent the respondents are aware that such informal relationships always precede corrupt engagements. The 'Corruption of buyers' option was added in Treatment Group 2 to concentrate on the attitude to corruption of procurers. Because corruption is intensively discussed by Russian media, we expected many respondents to admit its existence but

[7] i) Treatment assignment is randomized; ii) the sensitive item added to the list does not influence the probabilities of the other items being selected; and iii) the respondents reveal their true opinions.
[8] Unless they choose maximum available items or zero items that directly indicate their choice about the sensitive question.

prefer to shift the blame for it on their business counterparties. Therefore, we introduced Treatment Group 3 with a 'Corruption of suppliers' option.

Table 1. The experimental question

Question: Based on your experience, **how many** of the following factors create problems for the development of the public procurement system in Russia? The question is not which factors create problems but, rather, how many of them do:

Group	**List of Items**
Control Group	a) Low competition b) Excessive regulation c) Insufficient transparency d) Low competence of procurement officials
Treatment Group 1	The four Control Group items and: e) Informal relationship between buyers and suppliers
Treatment Group 2	The four Control Group items and: e) Corruption of buyers
Treatment Group 3	The four Control Group items and: e) Corruption of suppliers

Notes: Respondents in the control group have four items, and respondents in the treatment groups have five items.

3.2. Data

To conduct the survey with the list experiment as one of the questions, we collected a list of bureaucrats' emails in more than 8 million announcements of public procurement auctions from 2014–2016 in Russia.[9] The source of these emails is the official website www.zakupki.gov.ru. These emails are published for the needs of suppliers to contact public buyers for clarification questions about announcements. It allows considering these emails as official ones. From the population of these emails, we selected the emails that satisfy the following two conditions:

- the email satisfies the 'canonical' structure, 'XXX@XXX.ru' (or similar but with the ending '.com');
- the email was published at least ten times from 2014–2016 in auction announcements, including at least one publication in 2016.

[9] Some of the emails were distorted (for example Russian letters were used instead of English). We do not analyze this phenomenon in the current paper, but replace the most obvious 'mistakes' to obtain valid emails.

The first condition eliminates the emails that were ex-ante incorrect; the second condition limits the sample to officials who might potentially be considered reliable and competent enough in public procurement. Thus, we got a list of 129,289 emails of different bureaucrats from different public entities that we consider to be the population of competent public buyers. We stratify open data about public buyers into three categories: (i) centralized agencies, who conduct procurement for regional or municipal public entities; (ii) public buyers with three-years average procurement expenditure *below* the overall median of annual expenditure among all public buyers;[10] (iii) public buyers with three-years average procurement expenditure *above* this median. The behavior of centralized agencies might be different from the one of the basic public entity since centralized agencies buy for other public organizations rather than for their own needs. Therefore, we create a separate stratum for them. In each stratum, we randomly assigned each email to one of four groups: one control group and three treatment groups.

For the population of 129,289 emails, we sent out cover letters with a link to the online survey during the period 23rd – 30th January 2017. We conducted the survey at the online platform Anketolog (anketolog.ru), the Russian analog of SurveyMonkey.[11] As a reward for completing the questionnaire (not necessarily entirely), we informed the respondents in the cover letter that we will send them the analytical results of the survey if they indicate an email address at the end of the questionnaire.

We received 1251 replies, i.e., the response rate is around 1%.[12] Among 1251 respondents, 1211 respondents replied to the experimental question. For the main analysis, we filter out some unreliable observations due to several reasons. First, following the previous literature, we excluded 7 observations from Chechnya, Ingushetia, Dagestan republics because people living there may not feel secure enough to sincerely answer the questions of the survey, including the sensitive question, even if they are asked indirectly (Enikolopov et al., 2011; Mirkina, 2017). Next, we excluded 20 observations from Crimea and Sevastopol because these two regions were attached to Russia only in 2014, and the unified regulation of public procurement was introduced there much later.

[10] The median of annual expenditure is around 8 M RUB, or equivalently 133 K USD.
[11] We deliberately do not use SurveyMonkey, as foreign-based online platforms can deter the participation of public bureaucrats in the survey.
[12] Such a response rate is a normal one for online surveys of populations. Such surveys usually have the response rate between 0.5% - 3%. Moreover, as we discuss below, it is not the response rate that matters, but the representativeness of the final sample to the population.

Given the nature of the sensitive question, we also excluded 12 answers from the respondents with either too low (less than one year) or too high (more than 25 years) experience in public procurement.[13] Thus, our final sample consists of 1,172 observations.

The descriptive statistics of respondents' characteristics in our sample are provided in Table 2. Male respondents constitute 28% of the sample. Respondents with positions "procurement coordinator or specialist" constitute 52% of the sample, "head of a division" — 28%, "head of a department or deputy CEO" — 20%. Henceforth, we call "head of a division" and "head of a department or deputy CEO" as *high-ranked position*, while "procurement coordinator or specialist" as *low-ranked position*. The average experience of respondents with public procurement is 5.6 years. Respondents have ages between 21 and 40 years in 50% of cases. Respondents work in small-sized organizations (less than 100 workers) in 69% of cases, and medium-sized organizations (101-250 workers) or in large-sized organizations (at least 251 workers) in 31% cases each. These organizations have the federal subordination level in 18% of cases, regional and municipal subordination in 24% and 58% of cases, respectively. They are of the public administration activity in 27% of cases, healthcare — 13%, education — 33%, and 27% are of other activities.

For the subsequent analysis, we need to understand the difference in observable characteristics between male and female officials. As we explain further, it can help to explain the gender gap in attitude to corruption due to unobservable characteristics. Table 2 shows the descriptive statistics by gender. Women are less likely to have high positions; they are a little older. Women-bureaucrats work in smaller organizations more often, as well as in organizations of the municipal subordination level. Gender representation in organizations of the regional subordination level is well balanced. Women are more represented in education and less represented in public administration, while the healthcare sector is gender-balanced. Although men have a high position more often, their average experience in public procurement is approximately the same.

[13] The lower boundary helps exclude bureaucrats that are not experienced enough, and the upper boundary is established to eliminate three obvious outliers of 33, 37 and 45 years of experience. It was only in 1992 when post-soviet Russian public procurement system was initiated by the Law of the Russian Federation 'On supply of goods for public needs'.

Table 2. Descriptive statistics

Panel A: descriptive statistics for categorical variables

Variable		All respondents N	All respondents %	Female N	Female %	Male N	Male %
Gender	Female	836	71.8				
	Male	328	28.2				
	Total	1164	100				
Position	High-rank	554	48.3	376	45.7	178	54.8
	Low-rank	594	51.7	447	54.3	147	45.2
	Total	1148	100	823	100	325	100
Age	Between 21 and 40	577	49.6	394	47.1	183	55.8
	More than 40	587	50.4	442	52.9	145	44.2
	Total	1164	100	836	100	328	100
Size of organization	Large and medium	361	31.0	238	28.5	123	37.5
	Small	803	69.0	598	71.5	205	62.5
	Total	1164	100	836	100	328	100
Subordination	Municipal	676	58.5	531	64.0	145	44.6
	Regional	276	23.9	188	22.7	88	27.1
	Federal	203	17.6	111	13.4	92	28.3
	Total	1155	100	830	100	325	100
Economic activity	Education	389	33.4	311	37.2	78	23.8
	Healthcare	156	13.4	120	14.4	36	11.0
	Public administration	313	26.9	179	21.4	134	40.9
	Other	306	26.3	226	27.0	80	24.4
	Total	1164	100	836	100	328	100

Panel B: descriptive statistics for continuous variables

Variable	N	Mean	St.dev.	Min	Max
Experience in years (all respondents)	1075	5.57	3.84	1	25
Experience in years (female)	779	5.48	3.80	1	25
Experience in years (male)	296	5.83	3.95	1	23

Note. The table reports the descriptive statistics for the sample, including four groups of respondents — one control and three treatment groups. It includes statistics for all respondents as well as its breakdown by gender. Panel A shows the descriptive statistics for categorical variables, Panel B — for continuous variables.

3.3. Assumptions

In the rest of this section, we discuss assumptions for the list experiment, their validity for our sample, and the sample's representativeness of the population. Recall, there are three main assumptions for the difference in means to be interpreted causally under list experiment technique: i) treatment assignment is randomized; ii) the sensitive item added

to the list does not influence the probabilities of the other items being selected; iii) the respondents reveal their genuine opinions.

The first assumption is achieved through the stratification and within strata randomization with respect to the population of 129,289 emails. However, there is a concern that self-selection to respond to the survey can distort this initial randomization. Therefore, we test the quality of randomization in the final sample. The good randomization implies that the control group and the treatment groups must have no significant differences in observable respondents' characteristics. We chose demographic characteristics to examine whether the randomization was done accurately: gender, position, experience in public procurement, age group, size of public organization, subordination level, economic activity. The balance statistics for these characteristics are provided in Table A1 of the Appendix. The balance statistics show that the distribution of respondents among the control and the treatment groups can be considered random. Indeed, according to all these characteristics, the mean differences are insignificant at the 5% level, and almost for all of them, mean differences are insignificant at the 10% level.[14]

Concerning the second assumption, there is no direct test for it. To address this concern, we gave the sensitive item the last option among all others for the respondents from treatment groups. Thus, the control (non-sensitive) items should be observed by respondents before they observe the sensitive item.

As for the third assumption, there is no direct test for it either. However, we have the following reasons to believe that this assumption holds. First, we did not violate the privacy of the respondents. We suggested reporting an email, but only voluntarily and not necessarily the official one. Second, the ceiling and floor effects (Blair and Imai, 2012) do not change the main results. The floor effect[15] is not a problem for our estimates because the control items are likely to be chosen, and only 4 out of 298 respondents (1.34%) in the control group reported zero. To explore the possible ceiling effect[16], we first note that it yields underestimation, i.e., the list experiment results can be considered

[14] As Gerber and Green (2012: 108–109) propose, regression analysis can mitigate the disbalance in some characteristics, which we also present as a robustness check.

[15] Respondents may hide their true answer 0 and replace it with 1, if they are concerned of revealing their disbelief in corruption's being a problem. Also, respondents may hide their true answer 1 and replace it with 0, if they suspect that their answer 1 is indicative of corruption's being a problem.

[16] Respondents may hide their true answer 5 and replace it with 4, if they are concerned of revealing their belief in corruption's being a problem.

a lower bound for the genuine attitude to corruption. Second, after presenting the main results, we demonstrate that the upper bound for the attitude is not substantially different. To compare the experiment results between various subgroups (e.g., between men and women), we test whether the control items are chosen with equal probabilities by respondents from these subgroups.[17] We implement a t-test with unequal variances and compare the average number of selected items in control groups: first, separately for men and women, and then for low- and high-ranked respondents.[18] On average, in the control group, men choose 2.59 items and women 2.69 (p-value of the t-test is 0.46), low-ranked respondents choose 2.61 items, and high-ranked respondents choose 2.69 (p-value of the t-test is 0.47). These results imply that the control (non-sensitive) items are selected with equal probabilities by these subgroups.

Another concern is that respondents can understand the sensitive item differently. We did not give the respondents a definition of corruption due to two reasons. First, the term 'corruption' is everyday in the Russian media, and corruption cases are omnipresent in Russian public procurement. Therefore, the bureaucrats working with public procurement are aware of its meaning, possibly more than regular people.[19] Second, providing a precise definition may alert the respondents, and they may not give sincere answers.

There is also a possible concern of self-selection into survey participation because of the experimental question. This concern is negligible because of two reasons. First, the experimental question is the last question of the central part (before the demographic part). Therefore, the respondents should not self-select into the survey participation because of this question. Second, among 1251 replies, 1211 respondents answered the experimental question. Moreover, the 40 respondents who skipped the experimental

[17] Noteworthy, for the list experiment technique, it is not *necessary* for male and female respondents to choose the same number of control items. The difference in average number of chosen items between treatment and control groups within female(male) subgroup would eliminate this gap, unless the ceiling effect is a major concern. However, if male and female respondents choose different number of control items, then ceiling effect can lead to underestimation of the treatment effect in one subgroup (e.g., of men), but have no effect in the other subgroup.

[18] We also implement this test for other categorical characteristics presented in Table 2, where for non-binary characteristics, we use ANOVA test. The results show no significant differences in the number of chosen items in the control group by characteristics and are available by request.

[19] For example, the survey conducted by the Foundation of Public Opinion on everyday corruption in Russia did not provide the definition for the respondents (Foundation of Public Opinion, 2011)

question filled just 23% of the questionnaire (on average), so they self-select not to answer the experimental question, not because of the question per se.

Assumptions i)–iii) guarantee that the difference in means estimator is unbiased. However, they are irrelevant to the external validity of the estimates. To understand the external validity of the results, we examine how our final sample is related to the population of bureaucrats to which we sent the emails. We use different characteristics to show the representativeness of our sample to the population: bureaucrats' genders,[20] organizations' economic activities, and subordination levels. The comparisons of the population with our sample are given in Table A2 of the Appendix. Both the sample and the population include 72% of women. Organizations from education are 4% underrepresented in the sample with respect to population, while organizations from healthcare and public administration are well represented. Organizations of federal subordination are 5% overrepresented in the sample, regional subordinated organizations are well represented, and organizations of municipal subordination are 5% underrepresented with respect to population. Overall, the sample is well represented with respect to the population, so the results of the list experiment can be extended to the population.

4. Results

Table 3 shows the estimates of the probabilities of choosing the sensitive item.[21] Specifically, 25% of the respondents consider informal relationships to be a problem of public procurement development in Russia, 29% of the respondents consider the corruption of buyers to be a problem, and 42% of the respondents consider the corruption of suppliers to be a problem. All these estimates are significant at the 1% level.

Noteworthy, our estimates are not a measure of the scale of corruption in public procurement per se. They are a measure of how often bureaucrats consider corruption to be a problem of public procurement development, i.e., their attitude to corruption. This distinction is important: even when corruption is omnipresent, some bureaucrats may not

[20] In population, on top of the contact emails, we observe the full names of bureaucrats: first, middle, and last name. Due to the specifics of Russian names, the endings of the first and middle names allow us to confidently identify the person's gender.

[21] These are the differences in the average number of chosen items between the treatment groups and the control group.

see corruption as a roadblock to development. For example, they can consider illegal activities inalienable from public procurement, or the benefits they receive from their illicit activity distort their perception, etc. Thus, they cannot contribute to breaking away from the existing vicious circle. However, if there are groups of bureaucrats that distinguish the corruption issue, they may want to support anti-corruption policies.

Table 3. Description of the answers to the sensitive question

Treatment	**N**	**Mean**	**St. Dev**	**Difference**	**P-Value**
Control Group	298	2.67	1.04		
1: Informal relationships between buyers and suppliers	306	2.92	1.27	0.25	<0.01
2: Corruption of buyers	285	2.96	1.18	0.29	<0.01
3: Corruption of suppliers	283	3.09	1.26	0.42	<0.01

Notes: Treatment group 1 is the one with the additional choice option 'Informal relationships between buyers and suppliers,' Treatment group 2 has the additional option 'Corruption of buyers,' Treatment group 3 has the additional option 'Corruption of suppliers.' The Difference column shows the difference in the mean number of chosen items between the control group and a treatment group, i.e., the probability of selecting the sensitive item. The P-Value column reports the p-value in a one-sided t-test with unequal variances for whether the mean in a treatment group is higher than in the control group.

The results of the list experiment can be compared to measures of corruption perception in Russia created via surveys among private-sector workers. A business survey conducted in 2009 shows that corruption is thought to be a severe problem in the business environment by 21% of manufacturing firms' top managers (Avdasheva et al., 2010). The BEEPS survey report (World Bank, 2013) indicates that 33% of firms reported corruption as a 'major' or 'very severe' obstacle to doing business in 2011. At the same time, 40% of the respondents stated that corruption was not an obstacle. The distinction between the measures obtained in the two studies could be due to the larger size of the firms in the first sample and its focus on only the manufacturing sector. The BEEPS surveys confirm that smaller and nonmanufacturing firms generally report higher corruption than large firms. Corruption in the business environment is closely related to corruption in public procurement because firms participate in auctions and execute public procurement contracts. In addition, a research report of Foundation of Public Opinion in 2011 states that 51% of Russian citizens felt the necessity to bribe an official, and 47% are ready to give a bribe if necessary (Foundation of Public Opinion, 2011). Therefore, our measure of the proportion of bureaucrats, who believe that corruption creates a problem for

procurement development, is comparable in magnitude to the perception of corruption by business and citizens. It means that procurement officials are aware of corruption and its consequences. Noteworthy, the measures of corruption based on non-bureaucrats' surveys are not helpful for anti-corruption policies. Business, citizens and even bureaucrats can have correct perception of corruption, i.e., of its scale, or even treat it negatively. But if bureaucrats do not conceive of corruption as a problem there will hardly be any change in the level of corruption as they will not resist it.

Following the existing literature, we examine whether the attitude to corruption depends on gender. To this end, we estimate the effect of the treatments for men and women separately, i.e., for male (female) subsample, we calculate the difference in the average number of chosen items between the treatment and control groups.[22] Table 4 shows the estimates for the probabilities to select a sensitive item with breakdown by gender.

Table 4. Description of the answers to the sensitive question by gender

Gender	Treatment	N	Mean	St. Dev	Difference	P-Value
Male						
	Control Group	84	2.6	1.08		
	1: Informal relationships between buyers and suppliers	96	2.8	1.32	0.21	0.12
	2: Corruption of buyers	86	2.78	1.21	0.18	0.15
	3: Corruption of suppliers	62	2.82	1.18	0.23	0.12
Female						
	Control Group	211	2.7	1.02		
	1: Informal relationships between buyers and suppliers	209	2.97	1.25	0.27	<0.01
	2: Corruption of buyers	196	3.02	1.15	0.32	<0.01
	3: Corruption of suppliers	220	3.16	1.28	0.46	<0.01

Notes: Treatment group 1 is the one with the additional choice option 'Informal relationships between buyers and suppliers,' Treatment group 2 has the additional option 'Corruption of buyers.' Treatment group 3 has the additional option 'Corruption of suppliers.' The Difference column shows the difference in the mean number of chosen items between the control group and a treatment group, i.e., the probability of choosing the sensitive item. The P-Value column reports the p-value in a one-sided t-test with unequal variances for whether the mean in a treatment group is higher than in the control group. All the tests are conducted separately for men and women.

[22] Recall, as Section 3 c) emphasizes, the difference between the mean number of chosen items of men and women in the control groups is insignificant (p-value 0.46).

For men, the estimated probability for pointing out the informal relationships is 21%; for corruption of buyers — 18%; and for corruption of suppliers — 23% (none of them is statistically different from zero at the 10% level). For women, the estimated probabilities are 27% for informal relationships, 32% for corruption of buyers, and 46% for corruption of suppliers (all significant at the 1% level). Overall, the probability of choosing a sensitive item by a woman in Treatment groups 2 and 3 is 1.8 — 2 times higher than by a man.

Thus, the analysis of the attitude to corruption with respect to gender suggests that female bureaucrats consider corruption a problem of public procurement development, while male bureaucrats do not. This heterogeneity in the attitude of bureaucrats to corruption is essential. Still, it is necessary for a potential policy recommendation to understand to what extent these attitudes to corruption are related to the occupied positions. Indeed, promoting women can hardly be an anti-corruption policy if women are sensitive to corruption issues only at low-ranked positions, where they have little power to fight corruption and be exposed to it. Therefore, it is essential to understand if the results still hold for women in high-ranked positions. Table 5 shows the results with breakdown by both gender and position[23].

Table 5. Average treatment effect with breakdown by gender and position

Position\ Gender	**Female**			**Male**		
High-ranked	Treatment 1	Treatment 2	Treatment 3	Treatment 1	Treatment 2	Treatment 3
	0.255	0.243	0.562	0.134	0.021	0.475
	(0.05)	(0.06)	(0.001)	(0.295)	(0.465)	(0.035)
Low-ranked	Treatment 1	Treatment 2	Treatment 3	Treatment 1	Treatment 2	Treatment 3
	0.321	0.412	0.422	0.386	0.407	-0.125
	(0.025)	(0.005)	(0.003)	(0.072)	(0.064)	(0.682)

Notes: The table shows the differences between treatment groups and the corresponding control groups by gender and positions. Treatment 1 is the one with the additional choice option 'Informal relationships between buyers and suppliers,' Treatment group 2 has the additional option 'Corruption of buyers,' Treatment group 3 has the additional option 'Corruption of suppliers.' P-values in parentheses are for a one-sided t-test with unequal variances for comparison with the corresponding control groups (the alternative hypothesis is that the mean in a treatment group is larger than the mean in the control group). The differences can be interpreted as the proportions of the bureaucrats distinguishing the corresponding corrupt aspect within a position-gender group. The negative value of the difference in mean between the treatment and control groups for low-ranked men is insignificant and clearly due to chance (Glynn, 2013).

[23] Table A3 of the Appendix shows the distribution of observations by gender-position.

For high-ranked bureaucrats, the effects of Treatment 1 ('Informal relationships') and Treatment 2 ('Corruption of buyers') are significant at the 5%–6% level for women and insignificant for men. Moreover, the magnitude of the effects is also substantially different. Among female high-ranked officials, 24.3% (25.5%) see 'Corruption of buyers' ('Informal relationships') to be a problem of public procurement development, while the corresponding value for high-ranked male officials is 2.1% (13.4%) respectively. Both male and female high-ranked bureaucrats admit 'Corruption of supplier' — the effects are significant at the 5% level and are comparable in size (56.2% for female and 47.5% for male bureaucrats). These results suggest that high-ranked female bureaucrats consider corruption a problem at both sides — buyers and suppliers — while high-ranked male bureaucrats do not admit that corruption of buyers can be an issue to procurement development.

At low-ranked positions, the effect of Treatment 1 ('Informal relationships') and Treatment 2 ('Corruption of buyers') is significant at the 10% level for both women and men. Magnitudes of the effects are also comparable: for Treatment 1 — 32.1% for women vs. 38.6% for men, for Treatment 2 — 41.2% for women vs. 40.7% for men. The effect of Treatment 3 is significant at the 1% level for women (42.2%) and insignificant for men. In sum, both male and female bureaucrats at low-ranked positions may consider corruption to be a problem of public procurement development. In contrast, at high-ranked positions, only women demonstrate a negative attitude to corruption.

It may be argued that the estimates for high-ranked male officials (Treatment 1 and Treatment 2) are insignificant due to the small samples (see Table A3). However, we have two reasons to believe that the sample sizes do not affect the conclusion. First, the magnitude of the effect of Treatment 2 (and Treatment 1) for high-ranked male officials is low and economically insignificant. Second, if for high-ranked men the effect of Treatments 1 and 2 are insignificant just due to the small samples, but not because these effects are close to zero, we would observe significance at the 10% level, as we observe for low-ranked male even with a lower number of observations (see Table A3). Similarly, the effect of Treatment 3 is estimated for high-ranked male officials using even fewer observations, yet it is statistically significant.

As can be seen from the results above, bureaucrats may shift the blame for corruption to suppliers. Even though corruption is a bilateral activity between a bureaucrat

and a supplier, the results of Tables 3 to 5 suggest that bureaucrats of all genders and kinds of occupation consider the suppliers more corrupt than the bureaucrats themselves. Although it may be alarming that, according to Table 4, female bureaucrats appear to blame the suppliers comparatively more than male bureaucrats, we find the results of Table 5 more critical in that respect. Specifically, the data suggest that male officials at low rank do not recognize the corruption of suppliers and do recognize the corruption of buyers. Once male officials are promoted, they fully move the blame to the opposite side: they become unaware of the corruption of buyers and blame only the suppliers. Female bureaucrats also exhibit blame-shifting once promoted but at a substantially lower magnitude. Women at both position levels recognize the corruption of suppliers, and, what is more important, they acknowledge the corruption of buyers. Therefore, while the shift of blame with promotion creates a concern per se, it is less pronounced for female officials and cannot be a strong argument against promoting female officials.

This gender gap in attitude to corruption can be a consequence of some internal differences in genders' characteristics. As the literature proposes, women are likely to be more risk-averse, and they may need to exert more efforts to achieve high positions (see, for example, an overview by Bishu and Headley, 2020). Apart from the results in the literature, the latter argument can be indirectly justified by our data via the observable characteristics of respondents (Table 2). Women have fewer career opportunities — they work in smaller organizations, these organizations are more likely to be of municipal rather than federal subordination, and women are less likely to have high positions. At the same time, the average experience in public procurement of men and women officials is very close, and the women are a litter older. It means that the optimal (i.e., the first-best) anti-corruption policy should include better career opportunities for the officials that value their career path more, are more risk-averse. But this optimal policy is almost unfeasible since it is tough to implement measurement of risk-aversion and valuation of career opportunities. At least it would require a set of specific recruiting tests, which are lacking in developing countries. With this in view, gender as a promotional factor can be the *second-best* anti-corruption policy, which can be easily implemented, as gender is an observable characteristic. Notably, women's negative attitude to corruption, which we detect, does not necessarily imply their anti-corruption activity. This concern can further be strengthening because women still exhibit blame-shifting with promotion. However,

recognition of corruption as a development roadblock by high-ranked female officials seems to be a prerequisite for supporting an anti-corruption policy lacking among high-ranked male officials.

5. Robustness check

Random assignment of treatment is one of the requirements for obtaining unbiased estimates while using the list experiment approach. Table A1 shows all demographic characteristics to be well balanced — the difference in mean of these characteristics between control and treatment groups is insignificant at the 5% level. However, some characteristics are imbalanced at the 10% level: age for Treatment 1, position for Treatment 2, gender for Treatment 3. These imbalances can make the difference in mean estimates biased. To correct the bias, we use the approach proposed by Gerber and Green (2012, pp. 108–109) for a failure of treatment randomization that happens by chance. In our case, the failure occurred because not all the respondents answered the questionnaire. According to Gerber and Green, demographic variables that show imbalance (or those close to being imbalanced) should be included as controls in the linear regression that has the answer to the experimental question as the dependent variable. All well-balanced variables are expected to be insignificant if included as controls. Thus, we implement an OLS regression with the answer to the experimental question as the dependent variable; we include treatment, gender, their multiplications, and all other demographic characteristics as explanatory variables. For each treatment, we run separate regression, where the samples have the observations from the control group and the treatment group under study.

Table 6 demonstrates the regression results, and Tables A4 and A5 of the Appendix show its full output with a gradual introduction of control variables. Columns 1–3 show the total effects of Treatments 1–3, respectively. They are all significant at the 1% level and 6–7 percentage points higher than estimates of Table 3. The number of observations in Table 6 is lower due to the lack of respondents' answers to all demographic questions that we use as controls. Columns 4–6 demonstrate the effects of Treatments 1–3 separately for men and women and should be compared with Table 4. Similar to the initial findings, treatment effects are insignificant for men but significant for women at the 1%

level. It implies that the initial findings are not affected by the imbalance of demographic characteristics.[24]

Table 6. List experiment results in a regression setting

	Dependent variable: the answer to the experimental question					
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	0.311***	0.354***	0.496***			
	(0.102)	(0.099)	(0.103)			
Treatment*Male				0.294	0.181	0.261
				(0.197)	(0.189)	(0.198)
Treatment*Female				0.318***	0.425***	0.574***
				(0.117)	(0.116)	(0.119)
Constant	2.519***	2.586***	2.477***	2.515***	2.541***	2.429***
	(0.221)	(0.210)	(0.230)	(0.223)	(0.211)	(0.231)
Other controls: Female, High-ranked position, Experience, Age is above 40, Medium and Large organization, Municipal and Regional subordination, Activity: Public administration, Healthcare, Education.						
Observations	537	515	530	537	515	530
R-squared	0.029	0.039	0.063	0.029	0.041	0.066

*p<0.1; **p<0.05; ***p<0.01

Note. The table shows estimates of treatment effect in a regression setting. The dependent variable is the number of chosen items of the sensitive question in either the control or a treatment group. Columns 1–3 estimate average treatment effects for Treatments 1–3, respectively. For Treatments 1–3, Columns 4–6 estimate the average treatment effect interacted with gender. The sample in each column includes observations from the control group and the treatment group under consideration. The full output is presented in Tables A4 and A5 of the Appendix. Robust standard errors are in parentheses. We also analyzed if there is a distinction between men and women in their attitude to corruption (by replacing Treatment*Female regressor with Treatment for columns 4–6). The difference is insignificant at the 10% level; that is likely to be due to the small number of male observations.

Table 7 replicates the results of the most flexible model of Table 6 (columns 4–6) with breakdown by position levels (see Table A6 for full output). Columns 1–3 (4–6) of Table 7 show the treatment effects for men and women at low-ranked positions (high-ranked positions). The magnitude of effects is similar to the one in Table 5, though we do not observe a significant effect for male bureaucrats at low-ranked positions due to the small number of them in the sample. More importantly, the main results for women at high-ranked positions hold for all treatments at the 1%–5% level.

[24] Noteworthy, that well-balanced variables (with p-value above 0.15 in Table A1) are insignificant in regression setting (see Table A4 and A5). This is another indicator of a good randomization.

Table 7. List experiment results in regression setting with breakdown by gender for low- and high-ranked positions

	Dependent variable: the answer to the experimental question					
	Low-ranked			High-ranked		
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment*Male	0.409	0.351	-0.128	0.201	0.122	0.583**
	(0.290)	(0.286)	(0.289)	(0.267)	(0.248)	(0.274)
Treatment*Female	0.315*	0.515***	0.502***	0.326**	0.329**	0.662***
	(0.171)	(0.163)	(0.158)	(0.163)	(0.166)	(0.184)
Constant	2.401***	2.185***	1.966***	2.596***	2.797***	2.678***
	(0.310)	(0.315)	(0.304)	(0.310)	(0.281)	(0.331)
Other controls: Female, High-ranked position, Experience, Age is above 40, Medium and Large organization, Municipal and Regional subordination, Activity: Public administration, Healthcare, Education.						
Observations	263	265	269	274	250	261
R-squared	0.057	0.076	0.075	0.048	0.065	0.075

*p<0.1; **p<0.05; ***p<0.01

Note. The table shows estimates of treatment effect in the regression setting. The dependent variable is the number of chosen items of the sensitive question in either the control or a treatment group. For treatments 1–3, Columns 1–3 (4–6) estimate average treatment effects interacted with gender for low-ranked (high-ranked) workers. The sample in each column includes observations from the control group and the treatment group under consideration. Robust standard errors are in parentheses. The full output is presented in Table A6 of the Appendix.

As was mentioned in Section 3 c), the presence of the ceiling effect may cause underestimation of the genuine attitude to corruption. It is neither a problem for women nor men at low-ranked positions (Treatments 1 and 2). These groups of respondents are sensitive to corruption even with underestimated effect, i.e., the genuine attitude can be even higher for them. However, if underestimation of attitude to corruption is substantial for high-ranked men, we may wrongly conclude their lack of sensitivity to corruption. In what follows, we construct an upper bound for the genuine attitude to corruption by eliminating the ceiling effect. We replaced all answers 4 with 5 in the treatment groups and replicated the analysis of Table 5. The results are presented in Table 8. Even though all estimates of treatment effects increase, accounting for the possible ceiling effect does not change the outcomes for male bureaucrats at the high-ranked position. The effects of Treatments 1 and 2 are insignificant, while the effect of Treatment 3 is significant despite a lower number of observations compared to Treatments 1 and 2 (see Table A3). The results for high-ranked women preserve.

Table 8. Upper bound for average treatment effect with breakdown by gender and position

Position\ Gender	**Female**			**Male**		
High-ranked	Treatment 1 0.402 (0.009)	Treatment 2 0.409 (0.01)	Treatment 3 0.771 (<0.001)	Treatment 1 0.252 (0.171)	Treatment 2 0.16 (0.268)	Treatment 3 0.58 (0.019)
Low-ranked	Treatment 1 0.483 (0.003)	Treatment 2 0.614 (<0.001)	Treatment 3 0.636 (<0.001)	Treatment 1 0.568 (0.025)	Treatment 2 0.5 (0.038)	Treatment 3 0 (0.5)

Note. To see if the ceiling effect could have affected the results, we use the following approach: replace all answers 4 in treatment groups with 5. The estimates after the change suggest the results that would be if all respondents are vulnerable to the ceiling effect. This approach yields the upper bound for a genuine attitude to corruption. The table shows the differences between the corresponding treatment group and the control group with breakdown by position and gender. P-values in parentheses are for a one-sided t-test with unequal variances compared to the affiliated control groups (the alternative hypothesis is that the mean in a treatment group is larger than the mean in the control group). The differences can be interpreted as the proportions of the bureaucrats distinguishing the corresponding corrupt aspect within a position-gender group.

6. Conclusion

Many studies consider the scale of corruption in developing countries and its negative effects. However, most of these studies do not answer why, under an existing corrupt equilibrium, bureaucrats or politicians would make efforts to reduce corruption. Understanding the heterogeneity of bureaucrats in their attitude to corruption can help policy designers to identify groups of bureaucrats that can be the basis to fight corruption in imperfect institutional environments.

This article studies the differences in bureaucrats' attitudes to corruption among public procurement officials in Russia. A list experiment technique is applied due to the sensitivity of direct questions on corruption for respondents. The results suggest that female bureaucrats are likely to consider corruption a public procurement roadblock, and male bureaucrats are not. This result holds for women even at high positions, while high-ranked male bureaucrats do not consider corruption of bureaucrats a problem of public procurement development.

Despite these results being in line with some of the previous findings on gender differences regarding perceptions of corrupt activities, we detect heterogeneity in the attitude to corruption of real-life bureaucrats. It makes the results different from those obtained through surveys of consumers of public services (citizens and firms) or laboratory experiments. Thus, focusing on the 'insiders' of the bureaucratic system and

applying the list experiment technique, we provide new insight into the attitude to corruption by officials of different gender and positions.

This paper has several objective limitations. First, we cannot conclude that promoting female officials should necessarily reduce corruption due to more active anti-corruption policies supported by women. However, the recognition of the corruption issue by women can be considered as a prerequisite for an attempt to reduce the scale of corruption. Second, women's and men's attitude to corruption is affected by promotion. Once promoted, both female and male officials shift the blame for corruption to suppliers rather than consider themselves corrupt. However, while male officials fully move the blame to suppliers, female officials exhibit the blame-shifting at a substantially lower magnitude. Therefore, the shift of blame with promotion creates a concern per se, but it is less pronounced for female officials. Third, female promotion, probably, is not the first-best anti-corruption policy, as the gender gap in attitude to corruption can be a consequence of some internal differences in genders' characteristics: risk-aversion and appreciation of career. But this optimal policy is almost unfeasible or requires precise recruiting tests, which are lacking in developing countries. Therefore, gender as a promotional factor can be seen as the *second-best* and feasible anti-corruption policy. Finally, our sample size is not large enough to further investigate the causes of gender differences in attitude to corruption. Even when we study the career distinctions of genders, we observe rather few observations for low-ranked men and high-ranked women. It makes our statistical exercise quite unstable as it generates high standard errors even when the estimates of treatment effects are large in magnitude and economically significant. Thus, the promotion of female bureaucrats as an anti-corruption policy requires further investigation, and this paper gives the initial insight into its consequences.

REFERENCES

Ades, A., Di Tella, R. (1999). Rents, Competition, and Corruption. *American Economic Review*, *89*(4), 982–993. https://doi.org/10.1257/aer.89.4.982

Afridi, F., Iversen, V., Sharan, M. R. (2017). Women Political Leaders, Corruption, and Learning: Evidence from a Large Public Program in India. *Economic Development and Cultural Change*, *66*(1), 1–30. https://doi.org/10.1086/693679

Aidt, T. S. (2009). Corruption, institutions, and economic development. *Oxford Review of Economic Policy*, *25*(2), 271–291. https://doi.org/10.1093/oxrep/grp012

Alatas, V., Cameron, L., Chaudhuri, A., Erkal, N., Gangadharan, L. (2009). Gender, Culture, and Corruption: Insights from an Experimental Analysis. *Southern Economic Journal*, *75*(3), 663–680.

Alhassan-Alolo, N. (2007). Gender and corruption: Testing the new consensus. *Public Administration and Development*, *27*(3), 227–237. https://doi.org/10.1002/pad.455

Andreyanov, P., Davidson, A., Korovkin, V. (2017). *Detecting Auctioneers' Corruption: Evidence from Russian Procurement Auctions*.

Armantier, O., Boly, A. (2008). *Can Corruption be Studied in the Lab? Comparing a Field and a Lab Experiment* (SSRN Scholarly Paper ID 1324120). Social Science Research Network. https://papers.ssrn.com/abstract=1324120

Auriol, E., Straub, S., Flochel, T. (2016). Public Procurement and Rent-Seeking: The Case of Paraguay. *World Development*, *77*, 395–407. https://doi.org/10.1016/j.worlddev.2015.09.001

Avdasheva, S., Dolgopyatova, T., Golikova, V., Gonchar, K., Kuznetsov, B., Yakovlev, A. (2010). *Predprijatija i rynki v 2005–2009 godah: Itogi dvuh raundov obsledovanija rossijskoj obrabatyvajushhej promyshlennosti. [Industries and markets in 2005-2009: Results of two rounds of studying Russian manufacturing industry]*.

Banerjee, R. (2016). On the interpretation of bribery in a laboratory corruption game: Moral frames and social norms. *Experimental Economics*, *19*(1), 240–267. https://doi.org/10.1007/s10683-015-9436-1

Barr, A., Lindelow, M., Serneels, P. (2009). Corruption in public service delivery: An experimental analysis. *Journal of Economic Behavior & Organization*, *72*(1), 225–239. https://doi.org/10.1016/j.jebo.2009.07.006

Becker, S. O., Boeckh, K., Hainz, C., Woessmann, L. (2016). The Empire Is Dead, Long Live the Empire! Long-Run Persistence of Trust and Corruption in the Bureaucracy. *The Economic Journal*, *126*(590), 40–74. https://doi.org/10.1111/ecoj.12220

Best, M., Hjort, J., Szakonyi, D. (2017). *Individuals and Organizations as Sources of State Effectiveness* (SSRN Scholarly Paper ID 2961055). Social Science Research Network. https://papers.ssrn.com/abstract=2961055

Bishu, S. G., Headley, A. M. (2020). Equal Employment Opportunity: Women Bureaucrats in Male-Dominated Professions. *Public Administration Review*, *80*(6), 1063–1074. https://doi.org/10.1111/puar.13178

Blair, G., Imai, K. (2012). Statistical Analysis of List Experiments. *Political Analysis*, *20*(1), 47–77.

Bosio, E., Djankov, S., Glaeser, E. L., Shleifer, A. (2020). *Public Procurement in Law and Practice* (Working Paper No. 27188; Working Paper Series). National Bureau of Economic Research. https://doi.org/10.3386/w27188

Breen, M., Gillanders, R., Mcnulty, G., Suzuki, A. (2017). Gender and Corruption in Business. *The Journal of Development Studies*, *53*(9), 1486–1501. https://doi.org/10.1080/00220388.2016.1234036

Brierley, S. (2020). Unprincipled Principals: Co-opted Bureaucrats and Corruption in Ghana. *American Journal of Political Science*, *64*(2), 209–222. https://doi.org/10.1111/ajps.12495

Brollo, F., Troiano, U. (2016). What happens when a woman wins an election? Evidence from close races in Brazil. *Journal of Development Economics*, *122*, 28–45. https://doi.org/10.1016/j.jdeveco.2016.04.003

Chand, S., Moene, K. (1997). Controlling Fiscal Corruption. *IMF Working Paper: Controlling Fiscal Corruption*, *97*(100). https://doi.org/10.5089/9781451852363.001

Chong, E., Klien, M., Saussier, S. (2013). *The quality of governance and the use of negotiated procedures: Some (un)-surprising evidence from the European Union (Working paper)*.

Croson, R., Gneezy, U. (2009). Gender Differences in Preferences. *Journal of Economic Literature*, *47*(2), 448–474.

Dávid-Barrett, E., Fazekas, M. (2020). Anti-corruption in aid-funded procurement: Is corruption reduced or merely displaced? *World Development*, *132*, 105000. https://doi.org/10.1016/j.worlddev.2020.105000

Debski, J., Jetter, M., Mösle, S., Stadelmann, D. (2018). Gender and corruption: The neglected role of culture. *European Journal of Political Economy*, *55*, 526–537. https://doi.org/10.1016/j.ejpoleco.2018.05.002

Dollar, D., Fisman, R., Gatti, R. (2001). Are women really the "fairer" sex? Corruption and women in government. *Journal of Economic Behavior & Organization*, *46*(4), 423–429. https://doi.org/10.1016/S0167-2681(01)00169-X

Enikolopov, R., Petrova, M., Zhuravskaya, E. (2011). Media and Political Persuasion: Evidence from Russia. *The American Economic Review*, *101*(7), 3253–3285.

Esarey, J., Chirillo, G. (2013). "Fairer Sex" or Purity Myth? Corruption, Gender, and Institutional Context. *Politics & Gender*, *9*(4), 361–389. https://doi.org/10.1017/S1743923X13000378

Esarey, J., Schwindt-Bayer, L. A. (2018). Women's Representation, Accountability and Corruption in Democracies. *British Journal of Political Science*, *48*(3), 659–690. https://doi.org/10.1017/S0007123416000478

Ferraz, C., Finan, F. (2011). Electoral Accountability and Corruption: Evidence from the Audits of Local Governments. *American Economic Review*, *101*(4), 1274–1311. https://doi.org/10.1257/aer.101.4.1274

Foundation of Public Opinion. (2011). *Sostojanie bytovoj korrupcii v Rossijskoj Federacii [The state of everydate corruption in the Russian Federation]*. http://www.indem.ru/corrupt/doklad_cor_INDEM_FOM_2010.pdf

Frank, B., Lambsdorff, J. G., Boehm, F. (2011). Gender and Corruption: Lessons from Laboratory Corruption Experiments. *The European Journal of Development Research*, *23*(1), 59–71.

Frye, T., Reuter, O. J., Szakonyi, D. (2018). Hitting Them With Carrots: Voter Intimidation and Vote Buying in Russia. *British Journal of Political Science*, 1–25. https://doi.org/10.1017/S0007123416000752

Gerber, A. S., Green, D. P. (2012). *Field Experiments: Design, Analysis, and Interpretation* (1st edition). W. W. Norton & Company.

Gingerich, D. W., Oliveros, V., Corbacho, A., Ruiz-Vega, M. (2016). When to Protect? Using the Crosswise Model to Integrate Protected and Direct Responses in Surveys of Sensitive Behavior. *Political Analysis*, *24*(2), 132–156. https://doi.org/10.1093/pan/mpv034

Glynn, A. N. (2013). What Can We Learn with Statistical Truth Serum? Design and Analysis of the List Experiment. *Public Opinion Quarterly*, *77*(S1), 159–172. https://doi.org/10.1093/poq/nfs070

Golden, M. A., Picci, L. (2005). Proposal for a New Measure of Corruption, Illustrated with Italian Data. *Economics & Politics*, *17*(1), 37–75. https://doi.org/10.1111/j.1468-0343.2005.00146.x

Gorodnichenko, Y., Sabirianova Peter, K. (2007). Public sector pay and corruption: Measuring bribery from micro data. *Journal of Public Economics*, *91*(5), 963–991. https://doi.org/10.1016/j.jpubeco.2006.12.003

Hellman, J. S., Jones, G., Kaufmann, D. (2003). Seize the state, seize the day: State capture and influence in transition economies. *Journal of Comparative Economics*, *31*(4), 751–773. https://doi.org/10.1016/j.jce.2003.09.006

Imai, K. (2011). Multivariate Regression Analysis for the Item Count Technique. *Journal of the American Statistical Association*, *106*(494), 407–416. https://doi.org/10.1198/jasa.2011.ap10415

Jha, C. K., Sarangi, S. (2018). Women and corruption: What positions must they hold to make a difference? *Journal of Economic Behavior & Organization*, *151*, 219–233. https://doi.org/10.1016/j.jebo.2018.03.021

Lambert-Mogiliansky, A., Sonin, K. (2006). Collusive Market Sharing and Corruption in Procurement. *Journal of Economics & Management Strategy*, *15*(4), 883–908. https://doi.org/10.1111/j.1530-9134.2006.00121.x

Lambsdorff, J. G., Frank, B. (2011). Corrupt reciprocity – Experimental evidence on a men's game. *International Review of Law and Economics*, *31*(2), 116–125. https://doi.org/10.1016/j.irle.2011.04.002

Macrae, J. (1982). Underdevelopment and the economics of corruption: A game theory approach. *World Development*, *10*(8), 677–687. https://doi.org/10.1016/0305-750X(82)90093-6

Menezes, F. M., Monteiro, P. K. (2006). Corruption and auctions. *Journal of Mathematical Economics*, *42*(1), 97–108. https://doi.org/10.1016/j.jmateco.2005.04.002

Mirkina, I. (2017). *Regions of Russia in Comparative Perspective: Introducing a New Dataset* (SSRN Scholarly Paper ID 2969950). Social Science Research Network. https://papers.ssrn.com/abstract=2969950

Mironov, M., Zhuravskaya, E. (2016). Corruption in Procurement and the Political Cycle in Tunneling: Evidence from Financial Transactions Data. *American Economic Journal: Economic Policy*, *8*(2), 287–321. https://doi.org/10.1257/pol.20140188

Mookherjee, D., Png, I. (1995). Corruptible Law Enforcers: How Should They Be Compensated? *Economic Journal*, *105*(428), 145–159.

Olken, B. A. (2006). Corruption and the costs of redistribution: Micro evidence from Indonesia. *Journal of Public Economics*, *90*(4), 853–870. https://doi.org/10.1016/j.jpubeco.2005.05.004

Rivas, M. F. (2013). An Experiment on Corruption and Gender. *Bulletin of Economic Research*, *65*(1), 10–42. https://doi.org/10.1111/j.1467-8586.2012.00450.x

Schulze, G. G., Sjahrir, B. S., Zakharov, N. (2016). Corruption in Russia. *The Journal of Law and Economics*, *59*(1), 135–171. https://doi.org/10.1086/684844

Sidorkin, O., Vorobyev, D. (2018). Political cycles and corruption in Russian regions. *European Journal of Political Economy*, *52*, 55–74. https://doi.org/10.1016/j.ejpoleco.2017.05.001

Stensöta, H., Wängnerud, L. (2018). *Gender and Corruption: Historical Roots and New Avenues for Research*. Springer.

Stensöta, H., Wängnerud, L., Svensson, R. (2015). Gender and Corruption: The Mediating Power of Institutional Logics. *Governance*, *28*(4), 475–496. https://doi.org/10.1111/gove.12120

Sung, H.-E. (2012). Women in government, public corruption, and liberal democracy: A panel analysis. *Crime, Law and Social Change*, *58*(3), 195–219. https://doi.org/10.1007/s10611-012-9381-2

Swamy, A., Knack, S., Lee, Y., Azfar, O. (2001). Gender and corruption. *Journal of Development Economics*, *64*(1), 25–55.

Szakonyi, D. (2018). Businesspeople in Elected Office: Identifying Private Benefits from Firm-Level Returns. *American Political Science Review*, *112*(2), 322–338. https://doi.org/10.1017/S0003055417000600

Szucs, F. (2017). Discretion and Corruption in Public Procurement. *Mimeo*, 1–42.

Tanzi, V., Davoodi, H. (1998). Corruption, Public Investment, and Growth. In *The Welfare State, Public Investment, and Growth* (pp. 41–60). Springer, Tokyo. https://doi.org/10.1007/978-4-431-67939-4_4

Tkachenko, A., Esaulov, D. (2020). Autocratic governors in public procurement. *European Journal of Political Economy*, *61*, 1–18. https://doi.org/10.1016/j.ejpoleco.2019.101825

Tkachenko, A., Yakovlev, A., Kuznetsova, A. (2017). 'Sweet deals': State-owned enterprises, corruption and repeated contracts in public procurement. *Economic Systems*, *41*(1), 52–67.

Torgler, B., Valev, N. T. (2010). Gender and Public Attitudes Toward Corruption and Tax Evasion. *Contemporary Economic Policy*, *28*(4), 554–568. https://doi.org/10.1111/j.1465-7287.2009.00188.x

Transparency International. (2018). *Corruption Perceptions Index 2017*. https://files.transparency.org/content/download/2185/13756/file/2017_CPI_Brochure_EN.PDF

Vijayalakshmi, V. (2008). Rent-Seeking and Gender in Local Governance. *The Journal of Development Studies*, *44*(9), 1262–1288. https://doi.org/10.1080/00220380802265611

Wei, S.-J. (1999). *Corruption in Economic Development: Beneficial Grease, Minor Annoyance, or Major Obstacle?* (SSRN Scholarly Paper ID 604923). Social Science Research Network. https://papers.ssrn.com/abstract=604923

World Bank. (2013). *Russia—BEEPS at a glance 2011* (No. 75568; pp. 1–28). http://documents.worldbank.org/curated/en/402491468336533488/Russia-BEEPS-at-a-glance-2011

Appendix

Table A1. Balance statistics by control and treatment groups

	Control Group	**Treatment 1. Informal relationships**			**Treatment 2. Corruption of buyers**			**Treatment 3. Corruption of suppliers**		
	Mean	Mean	Difference	P-Value	Mean	Difference	P-Value	Mean	Difference	P-Value
Female	0.72	0.69	-0.03	0.42	0.7	-0.02	0.6	0.78	0.06	0.07
High ranked position	0.52	0.48	-0.04	0.32	0.45	-0.07	0.09	0.46	-0.06	0.15
Experience (years)	5.63	5.42	-0.21	0.51	5.61	-0.02	0.94	5.64	0.01	0.99
Age more than 40	0.52	0.45	-0.07	0.09	0.5	-0.02	0.54	0.53	0.01	0.81
Large and medium sized organization	0.3	0.31	0.01	0.76	0.33	0.03	0.42	0.3	0	0.89
Municipal subordination	0.56	0.59	0.03	0.42	0.59	0.03	0.44	0.61	0.05	0.2
Regional subordination	0.23	0.26	0.03	0.5	0.23	0	0.9	0.24	0.01	0.86
Public administration activity	0.26	0.26	0	0.86	0.28	0.02	0.55	0.28	0.02	0.45
Healthcare activity	0.11	0.13	0.02	0.45	0.14	0.03	0.34	0.16	0.05	0.11
Education activity	0.35	0.35	0	0.99	0.33	-0.02	0.63	0.29	-0.06	0.11

Note. The table reports the balance statistics for the sample. The Difference columns show the difference in the mean values between the corresponding treatment groups and the control group. The P-Value columns report the p-values of two-sided t-tests with unequal variances for equality between the means of variable in the control group and in the corresponding treatment group.

Table A2. Comparison of the sample and population by different characteristics

Characteristic	Value	Sample	Population
Gender	Female	71.8%	71.9%
Economic activity	Education	33.3%	37.6%
	Healthcare	13.3%	14.4%
	Public administration	26.9%	27.5%
Subordination level	Federal	17.7%	12.6%
	Regional	23.9%	24.0%
	Municipal	58.4%	63.3%

Note. The table shows a comparison of the sample and the population of respondents. The population parameters are based on the analysis of organizations and their workers to whom we sent emails. Information about organizations is published at the official website of Russian public procurement zakupki.gov.ru/epz/organization. Sample parameters are based on the analysis of the answers of the respondents. Approximately one percent of the respondents in the sample did not state the subordination level of their organization.

Table A3. Number of observations by gender and position

Position\Gender	**Female**				**Male**			
High-ranked	Contr.	Tr. 1	Tr. 2	Tr. 3	Contr.	Tr. 1	Tr. 2	Tr. 3
	106	95	84	91	46	51	43	38
Low-ranked	Contr.	Tr. 1	Tr. 2	Tr. 3	Contr.	Tr. 1	Tr. 2	Tr. 3
	101	111	109	126	36	44	43	24

Notes. The table shows the number of observations of the sample with breakdown by position, gender, and treatment. ‘Contr.’ is for the Control group, ‘Tr. 1’ is for the group with the additional choice option ‘Informal relationships between buyers and suppliers’ (Treatment 1), ‘Tr. 2’ is for ‘Corruption of buyers’ (Treatment 2), and ‘Tr. 3’ is for ‘Corruption of suppliers’ (Treatment 3). High- and Low- ranked lines are for the corresponding ranks of positions.

Table A4. List experiment results in a regression setting

	Dependent variable: the answer to the experimental question								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Treatment	0.251***	0.290***	0.421***	0.253***	0.291***	0.434***	0.311***	0.354***	0.496***
	(0.094)	(0.092)	(0.096)	(0.095)	(0.093)	(0.098)	(0.102)	(0.099)	(0.103)
Age is above 40				0.041			0.014	-0.093	-0.063
				(0.095)			(0.105)	(0.107)	(0.110)
Medium and Large org.							-0.156	-0.065	-0.114
							(0.132)	(0.134)	(0.129)
Municipal subord.							0.058	0.073	0.011
							(0.169)	(0.150)	(0.157)
Regional subord.							0.095	0.111	0.086
							(0.179)	(0.162)	(0.162)
Female						0.223**	-0.011	0.125	0.164
						(0.110)	(0.121)	(0.117)	(0.121)
High-ranked position					-0.023	0.229**	0.072	0.041	0.243**
					(0.093)	(0.097)	(0.102)	(0.104)	(0.108)
Experience							-0.011	-0.016	0.003
							(0.016)	(0.015)	(0.015)
Public administration						0.089	0.016	0.046	0.154
						(0.132)	(0.152)	(0.146)	(0.142)
Healthcare						0.234	-0.022	-0.100	0.162
						(0.169)	(0.200)	(0.203)	(0.195)
Education						0.235*	0.116	0.092	0.281**
						(0.127)	(0.134)	(0.132)	(0.134)
Constant	2.668***	2.668***	2.668***	2.646***	2.670***	2.245***	2.601***	2.577***	2.247***
	(0.060)	(0.060)	(0.060)	(0.080)	(0.079)	(0.139)	(0.216)	(0.211)	(0.207)
Observations	604	583	581	604	572	568	537	515	530
R-squared	0.012	0.017	0.032	0.012	0.017	0.056	0.029	0.039	0.063

*p<0.1; **p<0.05; ***p<0.01

Note. The table shows estimates of treatment effects in the regression setting. The dependent variable is the number of chosen items of the sensitive question in either the control or a treatment group. Columns 1–3 estimate average treatment effects for Treatments 1–3, respectively, without controls for demographic characteristics of respondents. Columns 4–6 estimate average treatment effects for Treatments 1–3 respectively, with controls for characteristics that are not well-balanced in treatment assignment (they correspond to the p-value below 0.15 in Table A1). Columns 7–9 estimate average treatment effects for Treatments 1–3, respectively, with controls for all demographic characteristics. All well-balanced characteristics are insignificant. The sample in each column includes observations from the control group and the treatment group under consideration. Robust standard errors are in parentheses.

Table A5. List experiment results in a regression setting with breakdown by gender

	Dependent variable: the answer to the experimental question								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Treatment*Male	0.207	0.184	0.227	0.210	0.206	0.232	0.294	0.181	0.261
	(0.178)	(0.175)	(0.190)	(0.180)	(0.176)	(0.187)	(0.197)	(0.189)	(0.198)
Treatment*Female	0.275**	0.324***	0.462***	0.276**	0.330***	0.501***	0.318***	0.425***	0.574***
	(0.112)	(0.109)	(0.112)	(0.112)	(0.111)	(0.115)	(0.117)	(0.116)	(0.119)
Female	0.101	0.101	0.101	0.100	0.118	0.103	-0.023	0.002	0.021
	(0.137)	(0.137)	(0.137)	(0.136)	(0.139)	(0.141)	(0.150)	(0.150)	(0.151)
Age is above 40				0.032			0.014	-0.091	-0.066
				(0.096)			(0.105)	(0.107)	(0.110)
Medium and Large org.							-0.157	-0.062	-0.115
							(0.132)	(0.134)	(0.129)
Municipal subord.							0.058	0.084	0.016
							(0.169)	(0.151)	(0.156)
Regional subord.							0.095	0.123	0.092
							(0.179)	(0.162)	(0.162)
High-ranked position					0.001	0.237**	0.072	0.038	0.249**
					(0.093)	(0.098)	(0.102)	(0.104)	(0.108)
Experience							-0.011	-0.016	0.003
							(0.016)	(0.015)	(0.016)
Public admin.						0.094	0.016	0.046	0.162
						(0.131)	(0.152)	(0.145)	(0.142)
Healthcare						0.241	-0.021	-0.107	0.169
						(0.168)	(0.200)	(0.204)	(0.193)
Education						0.239*	0.116	0.094	0.287**
						(0.127)	(0.134)	(0.132)	(0.134)
Constant	2.595***	2.595***	2.595***	2.580***	2.573***	2.324***	2.610***	2.654***	2.339***
	(0.117)	(0.117)	(0.117)	(0.130)	(0.128)	(0.153)	(0.229)	(0.221)	(0.219)
Observations	600	577	577	600	568	568	537	515	530
R-squared	0.015	0.021	0.039	0.015	0.023	0.058	0.029	0.041	0.066

*p<0.1; **p<0.05; ***p<0.01

Note. The table shows estimates of treatment effects in the regression setting with breakdown by gender. The dependent variable is the number of chosen items of the sensitive question in either the control or a treatment group. Columns 1–3 estimate average treatment effects (with breakdown by gender) for Treatments 1–3, respectively, without controls for demographic characteristics of respondents. Columns 4–6 estimate average treatment effects for Treatments 1–3 respectively, with controls for characteristics that are not well-balanced in treatment assignment (they correspond to the p-value below 0.15 in Table A1). Columns 7–9 estimate average treatment effects for Treatments 1–3, respectively, with controls for all demographic characteristics. All well-balanced characteristics are insignificant. The sample in each column includes observations from the control group and the treatment group under consideration. Robust standard errors are in parentheses. We also analyzed if there is a distinction between men and women in their attitude to corruption (by replacing Treatment*Female regressor with Treatment for columns 4–6). The difference is insignificant at the 10% level; that is likely to be due to the small number of male observations.

Table A6. List experiment results in regression setting with breakdown by gender for low and high-ranked positions

	Dependent variable: the answer to the experimental question					
	Low-ranked			High-ranked		
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment*Male	0.409	0.351	-0.128	0.201	0.122	0.583**
	(0.290)	(0.286)	(0.289)	(0.267)	(0.248)	(0.274)
Treatment*Female	0.315*	0.515***	0.502***	0.326**	0.329**	0.662***
	(0.171)	(0.163)	(0.158)	(0.163)	(0.166)	(0.184)
Female	-0.069	0.023	-0.030	0.094	0.113	0.055
	(0.227)	(0.230)	(0.229)	(0.212)	(0.202)	(0.209)
Experience	0.002	0.023	0.013	-0.020	-0.037*	-0.005
	(0.025)	(0.024)	(0.023)	(0.023)	(0.020)	(0.022)
Age is above 40	-0.081	-0.313*	-0.122	0.078	0.038	0.043
	(0.156)	(0.161)	(0.156)	(0.152)	(0.145)	(0.167)
Medium and Large org.	0.148	0.175	-0.302	-0.393**	-0.307*	0.078
	(0.215)	(0.233)	(0.183)	(0.172)	(0.158)	(0.186)
Municipal subord.	0.384	0.286	0.072	-0.229	-0.102	-0.068
	(0.281)	(0.252)	(0.224)	(0.205)	(0.188)	(0.220)
Regional subord.	0.414	0.061	0.082	-0.166	0.245	0.059
	(0.296)	(0.269)	(0.234)	(0.223)	(0.201)	(0.228)
Public admin.	-0.250	-0.004	0.226	0.282	0.050	0.112
	(0.214)	(0.218)	(0.205)	(0.212)	(0.194)	(0.200)
Healthcare	-0.456	-0.149	0.279	0.312	-0.162	0.072
	(0.300)	(0.327)	(0.272)	(0.279)	(0.269)	(0.277)
Education	0.021	0.215	0.289	0.129	-0.113	0.285
	(0.200)	(0.196)	(0.177)	(0.184)	(0.184)	(0.206)
Constant	2.403***	2.299***	2.420***	2.816***	2.954***	2.502***
	(0.332)	(0.319)	(0.296)	(0.316)	(0.310)	(0.336)
Observations	263	265	269	274	250	261
R-squared	0.057	0.076	0.075	0.048	0.065	0.075

*p<0.1; **p<0.05; ***p<0.01

Note. The table shows estimates of treatment effect in the regression setting. The dependent variable is the number of chosen items of the sensitive question in either the control or a treatment group. Columns 1–3 (4–6) estimate average treatment effects for Treatments 1–3, respectively, with breakdown by gender for low-ranked (high-ranked) workers. The sample in each column includes observations from the control group and the treatment group under consideration. Robust standard errors are in parentheses.