

DOES BARGAINING POWER IMPACT
THE CITIZEN'S WILLINGNESS TO
REPORT CORRUPTION? AN
EXPERIMENTAL STUDY OF
HARASSMENT BRIBERY

by

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A thesis submitted in partial fulfillment of
the requirements for the degree of

MA in Economic Analysis

Kyiv School of Economics

2022

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Kyiv School of Economics

Abstract

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Using a lab-in-the-field experiment, I examine whether higher bargaining power increases citizen's willingness to report instances of bribe solicitation. Previous research suggested that access to higher initial endowment reduces the relative cost of reporting, which, in turn, signals a threat of punishment to the corrupt officials deterring them from engagement. While I do not find evidence for the effectiveness of higher bargaining power in deterring bribes, there is a significant negative relationship between the citizen's endowment level and their willingness to report. Results reveal that highly endowed individuals are less likely to spend their resources to exert bottom-up pressure on the corrupt officials, thereby failing to hold them accountable.

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ACKNOWLEDGMENTS

Throughout my academic career I have been blessed to meet and work with spectacular mentors, who kindly and unconditionally offered their guidance and support at the moments when I needed it most. Without them I would not be able to balance work, to pursue another degree, to keep up with the latest season of the Bachelor, and to chase the questions that pique my interest. This work is dedicated to them.

To Nicolas Aragon, Robert Lemke, Jeffrey Sundberg, Andrii Meleshevyh, Susanna Fiedler, Brett Safford, Sasha Baptiste, Nastia Davydiuk, Andrii Fedotov, Camille Lemieux, Linda Bobert, Oksana Huss, Marta Hlomb, to my baby sister Margaryta, and my parents, Olena and Mykhailo -- thank you.

Chapter 1

INTRODUCTION

Corruption is often perceived as a spoke in the wheel of developing countries, slowing down economic growth (see Gorodnichenko and Sabirianova-Peter 2007; Mauro 1995), lowering investment (Méon and Sekkat 2005), widening income inequality (Policardo and Carrera 2018), and increasing the incidence of poverty (Gupta, Davoodi and Alonso-Terme 2002). The traditional literature on anticorruption interventions largely focuses on changing incentives for corrupt actors through formal monitoring and punishment. While sound in theory, the successful implementation of such mechanisms demands a unique alignment of political will, citizen engagement, legal and judicial institutions – benchmarks that weak institutional environments struggle to live up to (Bolly & Gillanders 2018; Mungiu-Pippidi 2006; Ryvkin and Serra 2018; Rothstein 2018; Serra 2011).

Most recently, the academics and donors have shifted the focus towards encouraging the recipients of public services to act as monitors and exert bottom-up pressure on the anticorruption institutions to sanction corrupt actors (World Bank 2012; Serra 2012; Abbnick and Wu 2016). This approach allows to correct for insufficient external monitoring, since the beneficiaries of public services have direct access to information about corrupt actors and are more aware of the existing corrupt schemes (see Banerjee and Duflo 2005; Serra 2011). Moreover, active citizen monitoring establishes corruption as a morally unacceptable phenomenon (Chen, Zeng, and Ma 2020; Zhou, Jiao, and Zhang 2016). This leads to a more targeted implementation of top-down sanctions, thereby forcing politicians and institutions to commit to fighting misconduct, and deters public officials from engaging in corruption, thereby lowering the instances of corruption (Ottone, Ponzano, and Zarri 2015; Serra 2011).

The strategies to encourage citizens to hold public officials and institutions accountable have largely focused on offsetting the costs of citizen initiative by providing reward for reporting/whistleblowing, ensuring anonymity, and providing legal protection from retaliation (Abbnick and Wu 2016; Chassang and Miquel 2019; Mechtenberg, Muehlheusser, and Roider 2020). The current paper aims to investigate the influence of citizen's bargaining power on their willingness to report corruption. In this paper, I explore whether the citizen's endowment level influences the willingness of private citizen and public official to engage in extortionary corruption. More importantly, I seek to understand whether highly endowed individuals are more likely to spend their resources to exert bottom-up pressure that would hold corrupt actors accountable.

When it comes to corruption engagement, the evidence suggests that individuals that are perceived as wealthy are less likely to be coerced into bribery than poor, even though they are more likely to pay higher bribes, when solicited (Fried, Lagunes, and Venkataramani 2010; Robinson and Seim 2018). Both groups of authors suggest that the coercion of the wealthy is rare because of their bargaining power. Wealth indicates that a person has access to more alternatives and therefore is less likely to engage with a corrupt actor. Moreover, it is perceived as a signal of retribution threat: highly endowed individuals are presumed to carry more weight in the society due to their connections and access to resources that can be used to reprimand corrupt actors. This study aims to uncover whether the threat is actually valid – are wealthy individuals willing to spend their resources to punish corruption?

There are several methodological challenges when it comes to studying corruption due to its clandestine nature. Often researchers use survey data, usually collected by institutions like Transparency International, to estimate prevalence of corruption and people's attitudes towards it. Survey data is often

unreliable and lacks predictive capacity since it usually relies on self-reporting and falls prey to social desirability bias (Wysmulek 2019). Field experiments are challenging and costly to implement and are often largely observational in nature, largely due to the ethical concerns of engaging participants in an illegal activity. Laboratory experiments provide a controlled environment which allows to rule out the confounding effects and isolate the impact of the variable of interest. Moreover, there is significant evidence of generalizability of laboratory experiments to the field (Armantier and Boly 2013; Gneezy, Saccardo and van Veldhuizen 2019). In this paper I employ a lab-in-the-field experiment to analyze the impact of bargaining power on corruption engagement. The combination of the naturalistic environment and a standardized lab procedure is not only a more cost-effective approach, but also minimizes potential discrepancies between lab behavior and the real life.¹

My paper makes several contributions to the understanding of corruption. First, it is the first experiment to examine the impact of citizen's wealth in the context of harassment bribery. The wealth extension allows me to analyze whether individuals with higher bargaining power would be more willing to report corrupt officials than individuals with lower bargaining power. Moreover, the study also compares the public official's willingness to demand a bribe when interacting with a high-income vs. low-income citizen.

The study contributes to the pool of the literature that studies asymmetric reporting, rather than placing the responsibility of reporting on a designated monitor or on a third-party observer. Previous literature suggests that the possibility of reporting significantly reduces bribe-demanding behavior (García-Gallego et al. 2020). However, it is unclear how the wealth of the reporter changes

¹ For differences between lab & real-world behavior, see Alevy, Haigh, and List (2007), Haigh and List (2005), Henrich, Heine, and Norenzayan (2010).

this dynamic since, in most societies, high-income citizens have higher bargaining power.

The third contribution manifests itself in the improvement of the experimental design. As suggested by Banerjee (2016), the study introduces an entitlement component and measures participants' understanding of corruption, which allows me to differentiate corruption from other deviant activities.

Lastly, the lab-in-the-field approach enables to bridge the gap between the traditional lab experiments and field experiments. It could be argued that the behavior of the participants of my experiment is still not reflective of the general population due to non-representative sampling. Moreover, there is also a question of generalizability or direct comparison to other cultures and populations. I acknowledge that these concerns are, indeed, valid. The goal of the study is not to estimate general corruption perception or preferences in Ukraine, rather, like most experimental economists, I'm interested in comparative statics. That is, the effects of bargaining power and the mechanisms underlying participant's engagement in corruption, rather than the levels of corruption. Previous laboratory experiments have a strong record of reflecting participant's behavior in the field across different cultural contexts (e.g. Gneezy, Saccardo and van Veldhuizen 2019),

While one may argue that the results are not generalizable or directly comparable to other populations, it offers the reader more insight into the Ukrainian context. Therefore, the conclusions and policy recommendations are more applicable to Ukraine.

My results indicate that there is a significant negative relationship between the citizen's endowment level and their willingness to report corrupt behavior. In particular, highly endowed citizens report bribery significantly less than those

who have lower, or the same level of endowment as the official. In contrast to previous studies, I find no evidence for the differences in extortion levels based on citizen's endowment level, suggesting citizen's endowment level does not impact the official's decision to demand a bribe. Likewise, I do not find evidence of the difference in willingness to accept the bribe and the size of the bribe demanded across the citizen groups. These results present a new dimension of the unequal burden of corruption. While both high- and low-income individuals are equally affected by it, the latter choose to spend their scarce resources on fighting against it.

Chapter 2

LITERATURE REVIEW

One of the main challenges of designing and implementing a successful anticorruption campaign lies in the vagueness of its definition. Political scientists often highlight corruption as an empty signifier that has no fixed meaning, carries a strong negative connotation, and is universally understood (Huss 2018; Koechlin 2013; Rothstein and Tannenbergh 2015). In politics, a lack of consistent definition enables political representatives to either manipulate the definition in their struggle for hegemony or fight invisible battles that lead to further crises and demoralization (see Huss 2018). In scientific research this problem undermines the very *raison d'être* of science – how can we study corruption without knowing what it is? Furthermore, even knowing what it is, how can we ensure that we are studying corruption and not some other unethical act? In this chapter I briefly discuss the core theoretical and disciplinary frameworks for studying corruption, highlighting the anticorruption measures they have inspired and briefly discussing their effectiveness. In doing so, I focus on the importance of bottom-up monitoring as a corruption deterrent and introduce key experimental methodologies and their limitations.

2.1 Definitions

Corruption is most widely defined as “the abuse of public trust for private gain” (Transparency International, 2018). This definition highlights the core element of the moral frame of corruption – a sense of entitlement among the players who are forced / volunteer to provide an illicit benefit to receive a public benefit. Banerjee (2016) demonstrated that corruption experiments need to include an activity that would induce a sense of entitlement to create a moral framework of corruption and ensure generalizability of the results. Without the entitlement

component we cannot differentiate whether the observed subject's behavior is bribery or stealing.

Bribery is a form of corruption, and is most defined as “the offering, promising, giving, accepting or soliciting of an advantage as an inducement for an action which is illegal, unethical or a breach of trust” (Transparency International, 2018). The most common form of corruption is bribery, which can be categorized into two main types: collusive bribery, where an individual pays a bribe to access a service they are not legally entitled to, and harassment bribery, where an individual is forced to pay a bribe to access a service they are lawfully entitled to. In this study I focus on harassment bribery, which is common in weak institutional environments, where officials are more likely to demand bribes considering weak audit mechanisms and costly corruption reporting. For example, Transparency International (2017) estimated that 54% of citizens of India paid bribes for standard government services, and 80% of the bribes were offered to avoid harm rather than to gain an advantage.

2.2 Corruption as a principal-agent problem

Economic theory argues that people are rational, have access to complete information, and strive to maximize utility. If the benefits of corrupt activity outweigh the benefits from alternative activities, then an individual will always choose the former. Becker's model of crime applied this model to criminal activity. He stated that individuals generally compare the financial benefits of engaging in illicit activity with the likelihood and magnitude of punishment – when expected benefits exceed the cost, people engage in corruption, and when benefits outweigh the costs, people don't (Becker, 1968). In context of corruption, one's decision to engage in a corrupt activity depends on the potential costs, which are measured as the size and probability of punishment, and the expected rewards, which are measured by the size of the bribe demanded.

Klitgaard (1988) then adapted this approach to principal agent model that reflects the hierarchical relationships between agents. In Klitgaard's view, a corrupt transaction needs a trio – a subject, a corrupt agent, and a client. A subject appoints an agent to provide a service to a client, thereby entitling him with some discretionary power. An agent can then use this discretionary power to obtain private benefit. The core component of the model is information asymmetry – the agent has more information than the subjects, and the subject cannot effectively monitor the agent's actions. Based on this, Klitgaard posits that corruption is a function of monopoly power, discretion, and accountability (Klitgaard 1988). These frameworks provide a theoretical foundation for the most intuitive anti-corruption instruments – top-down punishment.

Top-down punishment aims to increase the cost of corruption by increasing the magnitude of punishment and the probability of getting caught. Notably, the punishment, and its probability, are set externally, and not contingent on the individuals directly engaged in corruption. For example, there could be a central governing body elected by the state, whose main job is to monitor public servants and punish them, if corrupt activity is detected. Generally, this is a traditional form of punishment, that's usually operationalized as exclusion and/or decrease in monetary payoffs (akin to a prison sentence, loss of employment, or a fine in the real world) and it has been shown to be effective in deterring corrupt activity. For example, Abbnik (2002) found that the threat of severe, but highly improbable punishment had a significant impact on bribery relationships – individuals paid bribes less frequently, the amount offered was lower, and individuals rejected offers more often. At the same time, Serra (2011) finds that top-down monitoring and punishment is no different from a no-monitoring treatment. These results suggest that for top-down punishment to be effective in curbing corruption both the prosecution rates and penalties need to be significantly high, which is costly to implement, especially in countries with weak judicial mechanisms.

The key criticism of the principal-agent model of corruption is it does not account the systemic nature of corruption. In the weak institutional environments, the key issue is that ‘anticorruption strategies are adopted and implemented in cooperation with the very predators who control the government and, in some cases, the anticorruption instruments themselves’ (Mungiu-Pippidi 2006:87). In fact, Boly and Gillanders (2018) experimentally demonstrated that even honest policymakers, who do not want to commit corrupt acts and have no prior records of such behavior, set lower probability of corruption detection. Their study bolsters Mungui-Pippidi’s argument that institutions are constrained in their power to curb corruption, since individuals that rule them set relaxed, potentially self-serving approaches of controlling it. This criticism leads to a more macro framework of corruption, where corruption is perceived as a collective action problem.

2.3 Corruption as a collective action problem

Mungiu-Pippidi (2006) was the first one to present corruption as a collective action problem. In the environments where corruption is endemic, individuals perceive other members of the society as corrupt. This expectation, in turn, establishes corruption as an acceptable social norm that people use to guide their decisions. Individuals recognize that society would benefit from minimization of corrupt interactions, and, yet, continue to engage. To solve the collective action problem, studies have explored the collaborative roots of bribery, suggesting that policies that cast doubt on the reciprocal link between the two agents can shift the expectation of corruption as a social norm. Hence, in context of systemic corruption such policies are more effective in decreasing instances of corruption than punishment alone (e.g., Engel, Goerg and Yu 2016, Lambsdorff and Nell 2007).

One way of severing the reciprocal link is to reduce the possibility of repeated interaction. For example, Abbnik (2004) demonstrates that rotation of public

officials in public procurement reduces the instances of harassment bribes, since it prevents the development of long-term relationships between public officials and the potential bribers. However, this approach is rather costly to implement, since public procurement offices will have to spend more time on re-training the public officials, thereby threatening even slower service provisions, and creating fertile environment for collusive bribery.

Another way is to empower the service recipients to act as monitors, directing the attention of authorities to dishonest agents, thereby increasing the accountability of external monitors and service providers. For example, Barr, Lindelow and Serneels (2009) designed an embezzlement game to study the performance of health service providers in Ethiopia. They found that service providers expropriate less when they know that the service recipients can hold monitors accountable. A bottom-up punishment approach alone is considered as punishment by non-monetary costs, such as a loss of reputation and exclusion. Individuals engaged in corruption or third-party observers can expose dishonest behavior of people engaged in a corrupt act. As a result, they may lose their social standing and receive social disapproval from their community. A good example of a bottom-up anticorruption measure is the “I paid a bribe”² website launched in India in 2010, where citizens could anonymously report instances of corruption. Ryvkin, Serra and Tremewan (2017) replicated the setting in the laboratory and showed that, without an external punishment system, the bottom-up instrument is not powerful enough to deter corruption. In the experimental setting, bottom-up monitoring is often framed as reporting behavior and is viewed as a proxy for individual’s intolerance. Considering that it does not guarantee the enforcement of punishment, and is often costly to the individual, the researchers frame the reporting behavior as an attempt to reinforce social norms in an environment (García-Gallego et al. 2020; Zhou, Jiao, and Zhang 2016).

² See <http://www.ipaidabribe.com/>

Serra (2011) explored a combination of both methods. In her experiment, she compared an environment with an existing top-down commitment (e.g., a static probability of getting caught), no punishment probability, and an environment where top-down punishment is triggered by bottom-up reporting (i.e., a corrupt official faces a probability of getting caught only if the citizen reports him). The logic behind the study is the following – countries with weak institutional environment have limited resources that they can dedicate to monitoring activity, hence, to allocate their resources efficiently, they only investigate cases which were reported by the citizens. In her experiment, Serra (2011) sets the top-down punishment in form of a fine with probability of 4%, to further show that the weakness of the institutional environment. The study shows that the combined approach is significantly more effective in deterring harassment bribery though the conditional probability of punishment is lower than the other conditions. While the study itself does not test possible reasons behind the findings, the author explains her findings by suggesting that public officials may view citizens' reports as a form of betrayal (Serra 2011), so the combined approach threatens the reciprocity norm of corruption.

Considering the demonstrated effectiveness of the citizen participation, it is important to understand the factors that encourage the citizens to hold institutions and their state representatives accountable. My study builds on Serra's (2011) framework by examining the effectiveness of bottom-up reporting in the environment where reporting is costly and citizen endowment varies.

2.3 Corruption and the citizen bargaining power

The importance of bargaining power in corruption engagement has been studied through the lenses of wealth and information access.

For example, Ryvkin and Serra (2012) have focused on bargaining power as an element of information asymmetry. They wanted to know how bargaining power

impacts the size of the bribe demanded, depending on who initiates the bribery request. Their thinking was that if citizens can choose where to receive a service, then they have more bargaining power than public officials. Likewise, if the public officials own the monopoly power over the provision of a certain service, they de facto own the monopoly bargaining power. In the end, Ryvkin & Serra (2012) demonstrated that if citizens or firms have higher bargaining power than the public officials, then the amount of the bribe is smaller. At the same time, the opposite is true – if public officials are monopolists, the bribes are smaller, since the citizens know that bribery would not influence the official's decision. Similarly, the authors manipulated search costs (Ryvkin and Serra 2019), suggesting that in the environment where the search costs are low, individuals would be less likely to engage in harassment bribery since they could easily find an honest official to receive the service from. The results indicate that in a competitive environment, where multiple offices are providing comparable service, decreasing the search costs significantly lowers the willingness to demand a bribe on the official's side, and the willingness to accept the bribe, on the citizen's side. These studies demonstrate that bargaining power does play a role in determining whether a corrupt engagement will take place.

My study approaches bargaining power from the wealth perspective. Paying a bribe and reporting an instance of bribery to authorities are both costly behaviors, both money- and time- wise. Hence, one would assume that a higher monetary endowment can increase the instances of both due to a lower relative cost.

The impact of wealth on corruption solicitation and reporting behavior is less studied. In theory, wealthy individuals should be perceived as an easy target for corruption since they have a greater ability to pay and are less willing to engage in the bureaucratic reporting processes (Guerrero and Rodríguez-Oreggia 2008). In reality, we observe that wealthier individuals are more likely to offer a bribe to avoid unpleasant experiences with public service providers (Guerrero and

Rodríguez-Oreggia 2008; Hunt and Laszlo 2012). However, they are less likely to be harassed into giving a bribe (Justesen and Bjørnskov 2014; Robinson and Seim 2018). The tolerance of unfair treatment and the willingness of wealthy individuals to punish unfair behavior has not yet been studied in the corruption setting. There is some evidence that suggests that since the wealthy feel more entitled to better outcomes, they are less likely to tolerate the unfair treatment, and thus more likely to reject unfair offers out of spite (Ding et al. 2017). However, it is unclear whether the wealthy would be more willing to actively spend existing resources to enforce social norms. Considering that corruption disproportionately targets the poor, while harming everyone, it is important to explore to what extent wealthier populations are ready to engage in anti-corruption initiatives.

Chapter 3

EXPERIMENTAL DESIGN

3.1 Bribery Game

The main idea of this experiment is to mimic a petty corruption situation, where a citizen is entitled to a provision of a service or to a reward, but the public official can refuse to provide the service without a bribe. Consider, for example, an issuance of a driver's license. An individual passes a driving test successfully, but the public official refuses to issue the license without a bribe. An individual knows that they are entitled to receive the driving license, since they have successfully fulfilled all the requirements. They also know that they are unlikely to ever interact with this public official in the future. Refusing to pay the bribe has its costs – they would need to come back and retake the test again with a different public official. The process takes time and there is no guarantee that a different public official will not try to extort a bribe as well.

Building on Serra (2011) bribery experiment, the experimental design consists of a two-player one shot bribery game. At the beginning of the experiment, six participants are randomly and anonymously matched into three groups of two players. In each group, the participants are randomly assigned a role of a 'Public Official' or a 'Private Citizen'. These roles are retained throughout the experiment.

At the beginning of the experiment, all participants receive an initial endowment, Y , and are informed that their final payoff will ultimately depend on their performance in the game.

To impose a moral framework of corruption, I first introduce an entitlement component for private citizens via a real effort task (Banerjee, 2016). The first player ('the Private citizen') is first asked to count the number of arrows in a series of matrixes. In order to eliminate any ambiguity that could justify bribe extortion

for the official (Gneezy, Saccardo and van Veldhuizen 2019), the citizen can continue the experiment only if they have performed all the problems correctly. The participant is forced to perform all problems correctly to continue in the experiment, to eliminate any vagueness that could justify bribe extortion for the official

The second player (‘the Public Official’) is tasked with compensating the citizen for their work. They are informed that the Citizen has completed a tedious task successfully and deserves full compensation. The Official needs to decide whether they want to provide the compensation in full or demand a bribe.

If the bribe is not demanded the Citizen’s payoff is $Y_c + V$, where Y_c is the Citizen’s initial endowment, V is the compensation for the completion of the real effort task. the Public Official’s payoff equals his initial endowment, Y_p .

If the bribe is demanded, the Citizen moves twice. First the Citizen’s needs to decide whether to pay the bribe or reject it. Then, regardless of his previous decision, he needs to decide whether to report the Public Official or not.

Detection of the corrupt activity happens with a probability p_r . The reporting is costly to the Citizen and reduces their final payoff by r . Therefore, if the Citizen chooses to report, their final payoff will equal to $Y_c - b + V - r$, and if he chooses not to report, the final payoff is $Y_c - b + V$, where $b > 0$ if the bribe is paid.

If the Citizen chooses to report, the Public Official’s expected payoff equals, $Y_p + b$, with probability $(1 - p_r)$ or $Y_p - F$ with probability p_r , where F is the fine, he must pay if detected.

If the Citizen does not report, the probability of detection is reduced to 0 and the Official’s payoff is $Y_p + b$, where b indicates the bribe amount ($b > 0$ if the bribe is paid)

The cost of engaging in corruption for the Public Official depends on the probability of the Citizen’s willingness to report p_r and the probability of detection,

p_e . I assume that both players in the experiment are profit-maximizers. Therefore, a rational Citizen will always pay the bribe, if $b < V$, and will never report. Public Official knows this and would demand a bribe such that $V - \varepsilon$, where ε is the smallest possible amount that would give them a higher expected payoff than Y_p .

Figure 1 presents the structure of the game. The subgame-perfect Nash equilibrium of this game is: the Public Official solicits a bribe; the Citizen pays it and does not report.

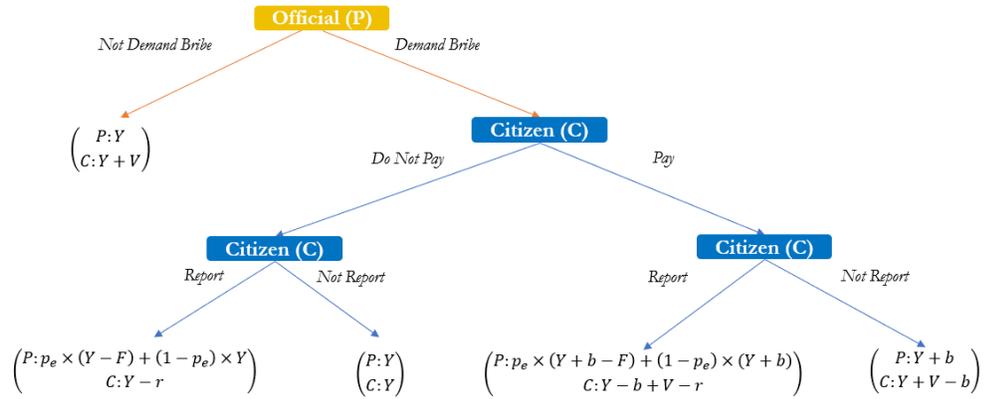


Figure 1. The bribery game structure.³

3.2 Experimental Treatment

I used a three-group within-subjects design where I varied the levels of initial endowment of the Citizen. The control group had the same level of endowment as the Public Official ($Y_c = Y_p$), the endowment for the highly endowed group is

³ Note: Y is the initial endowment, V is the reward for successful completion of the effort task, b is the bribe amount, p_e is the probability of detection, r is the cost of reporting. F is the fine for soliciting a bribe.

50% higher level endowment as the official ($1.5Y_c = Y_p$). Symmetrically, the low endowment group received 50% less than Public Officials at the beginning of the experiment ($Y_c = 0.5 Y_p$).

In the study, I used points as a currency, where 1 UAH = 10 points. The baseline initial endowment is 100 points, low-income subjects receive 50 points, and high-income subjects receive 150 points. The endowment of the public official does not vary ($Y_p=100$). Moreover, the type of citizen is revealed to them before they have to make their first decision.

Citizens are asked to complete an effort task, which involved counting arrows in three matrices. The maximum available reward $V=50$. The public official determines the amount of the bribe, so $b \in \{1,50\}$. The citizen response was elicited via a direct response method, where the citizen responds only to the bribe requested from them.

The method was chosen to emphasize to the participants that they are playing against another human, thereby increasing ecological validity of their decisions. Moreover, as stated in Brandts & Charness (2011), direct response methods are better at detecting realistic punishment behavior, which tends to be lower in the experiments that use the strategy method approach. Analogous to Serra (2011), the probability of detection is set to 4%, so if the citizen reports the public official $p_e = 0.04$, and if he does not then $p_e = 0$. The size of fine is set $F = 50$, while the cost of reporting $r = 5$.

3.3 Hypotheses

1. Public Officials will demand higher bribes from highly endowed Citizens.

A rational Public Official will always demand a bribe if the gains from corruption are higher than the expected punishment. He will demand the amount that would match the Citizen's maximum willingness to pay. Knowing the endowment level of the Citizen that he is interacting with, Public Official would expect that highly

endowed Citizens have a higher willingness to pay, since the relative costs of bribery is lower for them, than for participants with the same or lower levels of endowment as the Public Official.

2. Highly endowed citizens are more likely to pay the bribe, when demanded, than other Citizen groups.

A rational Citizen would agree to pay the bribe if the amount of the bribe less than the compensation for the completion of the effort task. However, previous research suggested that subjects perceive bribes as a share of their total endowment Hunt and Laszlo (2012). Therefore, wealth individuals would be more likely to pay the bribe since the payment would constitute a lower share of their income.

3. Access to a higher endowment would decrease the relative cost of reporting, so high-income subjects will report bribery more than other Citizen groups.

A rational Citizen would not report since reporting decreases his payoffs with no upside. However, if we continue to think of reporting costs in terms of a share of the total endowment, then highly endowed individuals would be more likely to report than other groups.

However, when it comes to morally questionable behavior, individuals also consider moral costs from engaging in socially undesirable behavior (Abbink, Irlenbusch, and Renner 2002; Barr, Lindelow, and Serneels 2009; Gneezy, Saccardo, and van Veldhuizen 2019; Guerra and Zhuravleva 2021). These moral costs may discourage people from both engaging in a corrupt activity and reprimanding others for it.

Chapter 4

DATA

A total of 162 subjects were recruited to participate in this study. The participants who didn't complete the first part of the questionnaire were excluded from the analysis for the sake of completion. The participants were recruited at the central railway station in Kyiv during the last week of Dec 2021 and the early 2 weeks of Jan 2022 via convenient sampling method. The experiment was pre-tested in advance with a group of students at Kharkiv Polytechnic Institute to ensure quality, clarity, and the timing of the data collection. Field recruitment allowed me to ensure a diverse pool of participants that extended beyond college student population, since a personal (as opposed to anecdotal) experience with corruption was an important factor to consider.

The experiment was implemented using oTree (Chen, Schonger, and Wickens 2016). The participants received a link to a session and were invited to familiarize themselves with a consent form and experimenter instructions.

Each session of the game was played by six participants, who were randomly assigned to the roles of private citizens or public officials at the beginning of each session and maintained their role throughout the game. Each participant played two rounds of the game, where they were randomly matched with a different player in the session via a perfect stranger matching protocol. The game was anonymous and one-shot. It was emphasized to the participants that each round of the game is played with a random stranger at the train station, so the participants could not deduce other players.

In the instructions, participants learned about the game, and the possible payoff options. If a participant was assigned to a role of a public official, they were told that their task is to reward the citizen for the completion of an annoying effort

task and given a choice to extort a bribe or not. The public official was informed about the initial endowment of the citizen, and whether it was “lower / equal / higher” than their own. If the citizen chose to extort a bribe, they had to indicate an amount. If a participant was assigned the role of private citizen if the bribe was demanded, they could either pay the bribe or reject the bribe and choose to report the official’s behavior to the authorities or not. As mentioned above, the direct response method was used throughout the experiment.

After the completion of two rounds of the game, the participants were asked to fill out a questionnaire that measured their understanding of corruption, corruption perception and experience, corruption justification, and general demographic variables, such as age, gender, place of residence, education, employment type, and income. Each sessions lasted ~20 minutes.

Corruption perception and experience measures were based on Transparency International methodology (Transparency International 2021). The participants were asked to indicate whether they paid a bribe in the last 3 years, and whether they, or people in their close surrounding faced corruption in the last year.

The measures of corruption prevalence, corruption norm, and punishment risk were adapted from the World Values Survey (UCEP 2020). To measure corruption prevalence, the participants were asked to indicate how often do ordinary people are forced to give a bribe on a 4-step Likert scale running from “Never” to “Always”. To measure corruption norm, the participants were asked to indicate to what extent extorting a bribe in the course of their duties is justified on a 4-step Likert scale running from “Never” to “Always”. To measure a perceived risk of punishment, the participants were asked to indicate how high is the risk of being held accountable for giving or receiving a bribe, gift or favor in return for public service on a scale from 0 to 100 (%).

To measure trust, the participants were asked to answer a binary whether people in general can be trusted.

The corruption understanding measure was developed based on the legal definition of corruption in Ukraine by Hromadske (2018). The participants were asked to answer 7 questions that presented them with various scenarios and indicate whether the scenario exemplifies corruption or not. For example, participants were told “you’ve inherited an apartment, but other relatives also want to claim it. They file a lawsuit and make ‘an arrangement’ with a judge just to be sure. The judge rules in their favor.” and asked to indicate if the judge in the scenario was corrupt or not. Based on the number of correct answers, a corruption understanding score was computed.

Table 1 shows the demographic characteristics of the 137 participants. The age ranged from 18 to 79 years old ($M=25.6$, $SD = 8.79$). We had slightly more males than females (53% vs 45%), and most of the participants obtained a bachelor’s degree or higher (63.3%).

Table 1. Sociodemographic Characteristics of Participants

| Baseline characteristic | Citizen | | Official | | Full sample | |
|---------------------------|----------|------|----------|------|-------------|------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| Gender | | | | | | |
| Female | 32 | 47.1 | 29 | 42.6 | 61 | 44.9 |
| Male | 35 | 51.5 | 37 | 54.4 | 72 | 52.9 |
| Employment Status | | | | | | |
| Full-time | 28 | 41.2 | 26 | 38.2 | 54 | 39.7 |
| Student | 18 | 26.5 | 24 | 35.3 | 42 | 30.9 |
| Sole Proprietor | 8 | 11.8 | 8 | 11.8 | 16 | 11.8 |
| Part-time | 12 | 8.8 | 0 | 0 | 6 | 4.4 |
| Unemployed | 1 | 1.5 | 4 | 5.9 | 5 | 3.7 |
| Retired | 0 | 0 | 2 | 2.9 | 2 | 1.5 |
| Other | 7 | 10.3 | 4 | 5.9 | 11 | 8.1 |
| Highest educational level | | | | | | |
| Primary school | 0 | 0 | 1 | 1.5 | 1 | 0.7 |
| Middle school | 1 | 1.5 | 0 | 0 | 1 | 0.7 |
| High school | 14 | 20.6 | 21 | 30.9 | 35 | 25.7 |
| Vocational training | 7 | 10.3 | 6 | 8.8 | 13 | 9.6 |
| Bachelor's degree | 22 | 32.4 | 22 | 32.4 | 44 | 32.4 |
| Post-graduate degree | 24 | 35.3 | 18 | 26.5 | 42 | 30.9 |
| Monthly income (UAH) | | | | | | |
| <30,000 | 35 | 51.5 | 39 | 57.4 | 74 | 54.4 |
| 30,000 – 60,000 | 9 | 13.2 | 8 | 17.6 | 17 | 12.5 |
| 60,000 | 4 | 5.9 | 6 | 11.8 | 10 | 7.4 |
| City Type | | | | | | |
| Large (>1M) | 27 | 39.7 | 28 | 41.2 | 55 | 40.4 |
| Significant (500k-1M) | 11 | 16.2 | 12 | 17.6 | 23 | 16.9 |
| Medium (250k-500k) | 12 | 17.6 | 8 | 11.8 | 20 | 14.7 |
| Small (100k – 250k) | 9 | 13.2 | 14 | 20.6 | 23 | 16.9 |
| Rural (<100k) | 9 | 13.2 | 6 | 8.8 | 15 | 11.0 |

Note. $N = 136$ (50% for each role). Participants were on average 25.6 years old ($SD = 8.7$), and participant age did not differ by condition.

Table 2 shows the summary of the results of the corruption survey.

Table 2. Corruption Beliefs of Participants

| Baseline characteristic | Citizen | | Official | | Full sample | |
|-----------------------------|----------|------|----------|------|-------------|------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| Trust | | | | | | |
| Can be Trusted | 10 | 14.9 | 15 | 22.1 | 25 | 18.5 |
| Need to Be Careful | 57 | 85.1 | 53 | 77.9 | 110 | 81.5 |
| Corruption Frequency | | | | | | |
| Never | 3 | 4.5 | 4 | 5.9 | 7 | 5.2 |
| Rarely | 27 | 40.3 | 28 | 41.2 | 55 | 40.7 |
| Often | 36 | 53.7 | 34 | 50 | 70 | 51.9 |
| Always | 1 | 1.5 | 2 | 2.9 | 3 | 2.2 |
| Corruption Justification | | | | | | |
| Never | 31 | 46.3 | 40 | 58.8 | 71 | 52.6 |
| Rarely | 28 | 41.8 | 23 | 33.8 | 51 | 37.8 |
| Often | 7 | 10.4 | 4 | 5.9 | 11 | 8.1 |
| Always | 1 | 1.5 | 1 | 1.5 | 2 | 1.5 |
| Bribery Experience | | | | | | |
| No, didn't need to | 30 | 44.8 | 43 | 63.2 | 73 | 54.1 |
| No, refused to | 13 | 19.4 | 8 | 11.8 | 21 | 15.6 |
| Yes, felt forced to | 6 | 9 | 2 | 2.9 | 8 | 5.9 |
| Yes, wanted to | 11 | 10.4 | 9 | 13.2 | 20 | 14.8 |
| Corruption Experience | | | | | | |
| Did not face | 20 | 29.9 | 23 | 33.8 | 43 | 31.9 |
| Faced | 47 | 70.1 | 45 | 66.2 | 92 | 68.1 |
| Understanding of corruption | | | | | | |
| Good Understanding | 13 | 18.8 | 14 | 20.6 | 27 | 19.7 |
| Poor Understanding | 56 | 81.2 | 54 | 79.4 | 110 | 80.3 |

Note. $N = 136$ (50% for each role). Participants were on average 25.6 years old ($SD = 8.7$), and participant age did not differ by condition.

Chapter 5

ESTIMATION RESULTS

Since the rounds were independent of each other, and the players were informed that each round was played with a random stranger, in our data analysis we analyzed each round independently. Figures 2-4 offer a first overview of the public official's decision to extort a bribe and citizen's decision to pay and report the official's offer. In contrast to previous studies, very few officials choose to demand a bribe when given a chance to do so ($\sim 27.1\%$), which is a testament to the importance of the introduction of the effort task. Moreover, when the bribe was demanded, only 30.5% of participants chose to pay, and the majority chose to report the official (72.2%). The average size of the bribe was 20.6 (SD=16.2), $\sim 41\%$ of the total Citizen compensation.

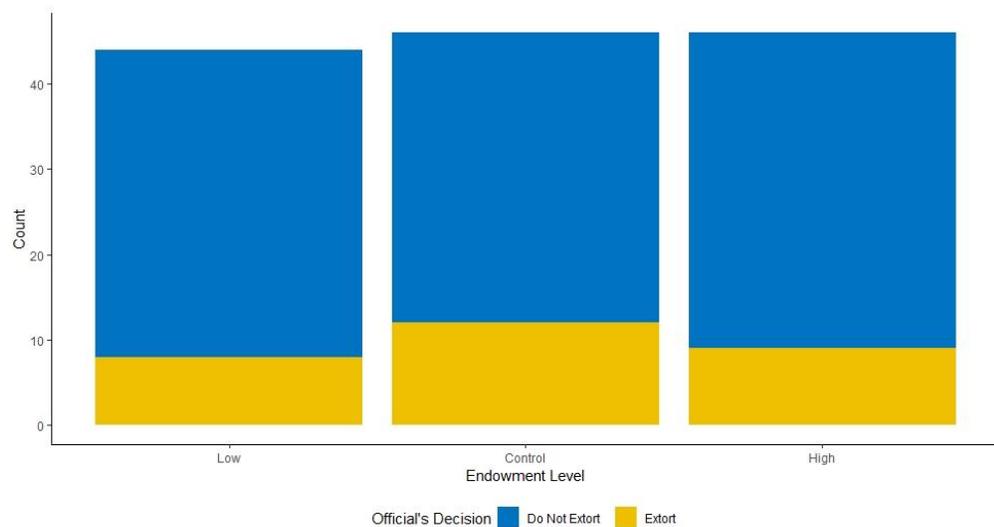


Figure 2. Public Official's decision to extort a bribe by Private Citizen's endowment levels.

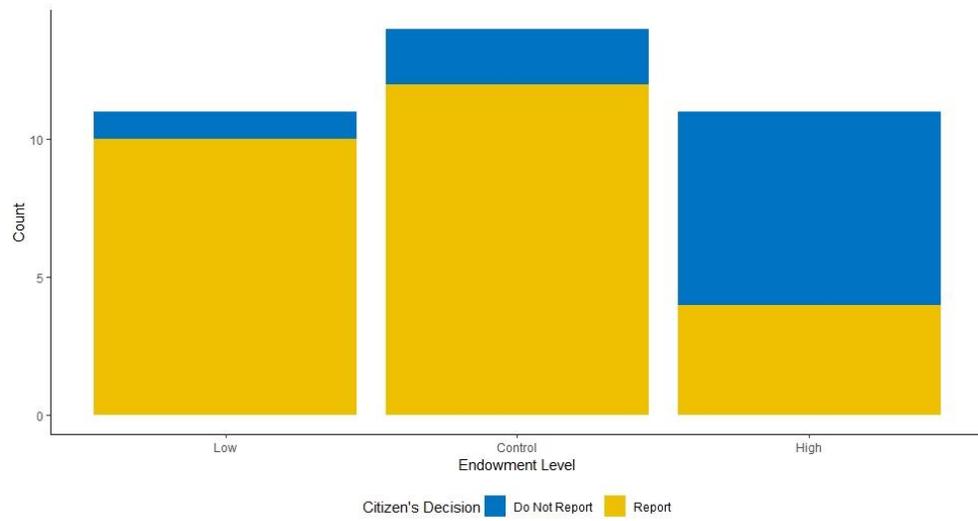


Figure 3. Private Citizen's decision to report a bribe by Citizen's endowment levels.

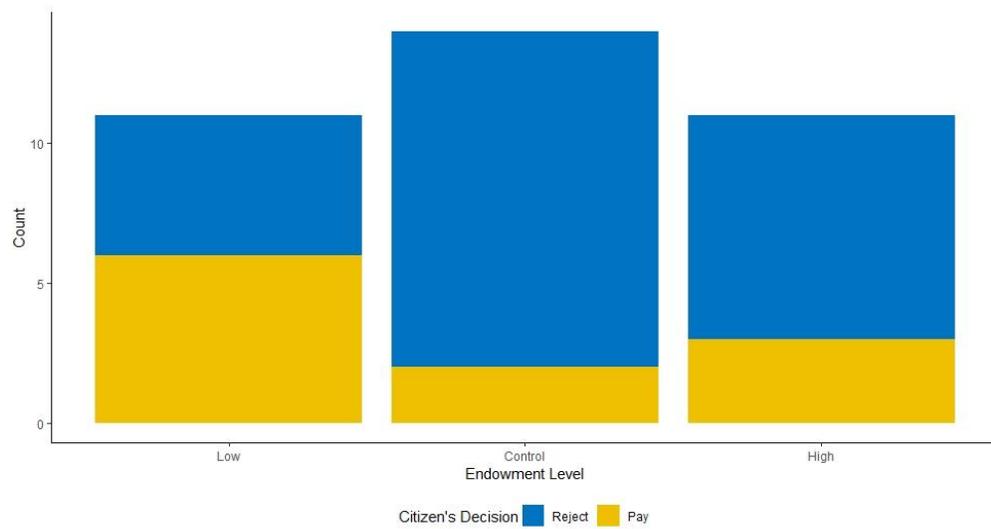


Figure 4. Private Citizen's decision to pay a bribe by Citizen's endowment levels.

H1: Officials would demand higher bribes from highly endowed citizens.

Fisher's exact test was used to determine if there was a significant relationship between the citizen endowment and the official's decision to demand a bribe. There was not a statistically significant association between the two variables (two-tailed $p = 0.62$).

Since the participants were exposed to several experimental conditions, and the rounds are treated as independent, there is a risk that the responses across the conditions may be correlated. I used R 4.1.2 (R Core Team, 2021), the *lme4* (v1.1-29; Bates et al. 2015), *MuMIn* (v1.46.0; Barton 2022) to perform a generalized linear mixed effect analysis of the relationship between the citizen's endowment levels and the official's decision to extort the bribe. I used the official's decision to extort as a dependent variable, and the participant ID as a grouping variable.

The results of the generalized linear mixed effect model are presented in Table 3. It should be noted that the p-values reflected in the table should be interpreted with caution, since they are based on asymptotic Wald tests.⁴ Since our sample is quite small, the estimates are particularly unreliable. To account for this, I compared the null intercept-only model to a full model with the variable of interest in the likelihood ratio test. The intercept only baseline model performed worse than the full model ($\chi^2(2): 6.69, p = 0.03$), hence the full mixed effects model is preferred. However, we still fail to find evidence for the impact of citizen's endowment levels on the official's willingness to demand a bribe.

⁴ See <https://bbolker.github.io/mixedmodels-misc/glmmFAQ.html#what-are-the-p-values-listed-by-summaryglmerfit-etc.-are-they-reliable>

Table 3. Null Model (1) and Generalized Mixed Effects Binomial Logistic Regression (2) Estimates Results for Experimental Condition on Extortion Behavior.

| | <i>Dependent variable:</i> | |
|---------------------|----------------------------|-----------------------|
| | Decision to extort | |
| | (1) | (2) |
| Control | | 6.837 (4.322) |
| High | | -0.511 (1.808) |
| Constant | -7.274*** (1.432) | -15.230*** (5.768) |
| Observations | 136 | 136 |
| Log Likelihood | -58.767 | -55.420 |
| Akaike Inf. Crit. | 121.533 | 118.839 |
| Bayesian Inf. Crit. | 127.359 | 130.490 |
| <i>Note:</i> | | * ** *** p<0.01 |

H2: Highly endowed citizens are more likely to pay the bribe, when demanded.

Fisher's exact test was used to determine if there was a significant relationship between the citizen endowment and the citizen's decision to pay the bribe. There was no statistically significant association between the two variables (two-tailed $p = 0.108$). Following the same protocol as with H1, I performed a generalized linear mixed effect analysis of the relationship between the citizen's endowment levels and the citizen's decision to pay the bribe when demanded. I used the decision to pay the bribe as a dependent variable, and the participant ID as a grouping variable. The results of regression analysis can be found in Table 4. While the regression analysis indicates potential evidence of the statistically significant difference between control endowment level and low endowment level, this is likely a Type I error, likely caused by a small number of qualifying observations. Likelihood ratio test failed to demonstrate a significant difference between the null model (without the factor) and the full model ($\chi^2(2): 4.77, p = 0.09$), showing no evidence of the significance of the fixed effect. Small sample sizes are particularly vulnerable to Type 1 errors in mixed effects models (Luke 2017); hence we fail to reject the null hypothesis.

Table 4. Null Model (1) and Generalized Mixed Effects Binomial Logistic Regression (2) Estimates Results for Experimental Condition on Citizen Payment Behavior.

| | <i>Dependent variable:</i> | |
|---------------------|----------------------------|---------------------|
| | Decision to Pay | |
| | (1) | (2) |
| Control | | -1.974** (0.975) |
| High | | -1.163 (0.908) |
| Constant | -0.842* (0.431) | 0.182 (0.606) |
| Observations | 36 | 36 |
| Log Likelihood | -22.153 | -19.766 |
| Akaike Inf. Crit. | 48.305 | 47.532 |
| Bayesian Inf. Crit. | 51.473 | 53.866 |
| <i>Note:</i> | | * ** *** p<0.01 |

H3: Highly endowed individuals are more likely to report bribery since the relative cost of reporting is lower.

Fisher's exact test was used to determine if there was a significant relationship between the citizen endowment and the citizen's decision to report. There was a statistically significant association between the two variables (two-tailed $p = 0.009$). A post-hoc Bonferroni-corrected pairwise comparison test was performed, which demonstrated that two comparisons between high endowment and low endowment ($p = 0.07$) and high endowment and control ($p = 0.05$) were significant at 10% significance level. This allows us to reject the null hypothesis; there is a significant relationship between the citizen's endowment level and their reporting behavior. Moreover, the citizens in high endowment condition report significantly less than the citizens in low endowment condition or the baseline.

A mixed-effect binomial logistic regression model with random intercepts for participants was fit to data in a stepwise procedure. The results of the models are presented in Table 5. All the models demonstrate strong statistical significance of the high endowment variable, suggesting that highly endowed individuals report bribery significantly less than individuals with low endowment levels, *ceteris paribus*. While counterintuitive in nature, the models also demonstrate no significant impact of the size of the bribe demanded on one's willingness to report. One could also say that individual's reporting decision is related to his/her participation in the corrupt act, suggesting that the citizen's willingness to pay the bribe influences their decision to report the official for extortion. The models do not find evidence for this claim, failing to show any significant impact of the citizen's choice to pay the bribe on their reporting decision, *ceteris paribus*. To decrease the likelihood of Type 1 error, I conducted the likelihood ratio test for all the models in Table 5. In comparison to the null model, Model 2, which includes endowment as a sole intercept performed significantly better than the null model ($\chi^2(2): 9.61, p = 0.009$), and was not significantly different from the other models.

Based on AIC / BIC criteria, Model 2 was selected as a final minimal adequate model. The results of the mixed effects model corroborate the initial results of the Fisher's exact test, suggesting that highly endowed individuals report bribery significantly less than individuals with low endowment (p-value =0.05), and then individuals in the control group (p-value = 0.05).

Table 5. Generalized Linear Mixed Model Regression Results for Citizen's Reporting Behavior

| | <i>Dependent variable:</i> | | | | |
|---------------------|----------------------------|-------------------|-------------------|-------------------|-------------------|
| | Decision to Report | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| Control | | -0.51 (1.30) | -0.47 (1.31) | -0.63 (1.37) | -0.81 (1.40) |
| High | | -2.86** (1.22) | -2.84** (1.25) | -2.95** (1.27) | -3.09** (1.32) |
| Bribe amount | | | -0.03 (0.03) | | -0.04 (0.03) |
| Chose to Pay | | | | -0.28 (1.03) | -0.95 (1.15) |
| Constant | 1.18* (0.67) | 2.30** (1.05) | 3.00** (1.26) | 2.46** (1.22) | 3.76** (1.61) |
| Observations | 36 | 36 | 36 | 36 | 36 |
| Log Likelihood | -21.11 | -16.30 | -15.60 | -16.27 | -15.26 |
| Akaike Inf. Crit. | 46.22 | 40.61 | 41.20 | 42.53 | 42.51 |
| Bayesian Inf. Crit. | 49.39 | 46.94 | 49.12 | 50.45 | 52.01 |

Note:

* ** *** p<0.01

Chapter 6

DISCUSSION AND CONCLUSION

Corruption is a good example of “teamwork making the dream work”. It helps individuals resolve issues that one wouldn’t be able to resolve on their own, fosters strong connections, and develops a high degree of trust between agents (Leib et al. 2021). The problem is that these benefits are felt only by the people, who engage in it, while the negative effects are felt by the society at large. Due to the collaborative nature of corruption, the traditional deterrence-based measures, like severity and likelihood of punishment, are often not effective, particularly in the environments where corruption is a systemic issue. Most recently the researchers have focused on measures that could undermine the trust between the agent who want to engage in a corrupt activity. One example is bottom-up monitoring.

Previous research hinted on the potential of wealth to act as a signal for retribution, suggesting that public officials often choose not to extort bribes from individuals that display signs of wealth because they fear that these individuals will use their recourses to punish them. I conducted a lab-in-the-field experiment to test if the threat of retribution from the wealthy is real. More specifically, I was interested to see if highly endowed individuals would be willing to spend their resources to hold dishonest public officials accountable.

My results reveal that the willingness to engage in bribery, for both officials and citizens, is not affected by the citizen’s endowment level. These findings corroborate previous research suggesting that in context of harassment bribery the burden of corruption is borne equally by all socio-economic classes and the bargaining power on its own is not a strong enough corruption deterrent (Robinson and Seim 2018).

More interestingly, I find that the wealthy are less likely to exert bottom-up pressure on the corrupt officials than individuals with lower levels of endowment. One may think that this finding feeds into the idea of the selfish rich, who prioritize self-interest over the social good. There is a significant body of literature that suggests that wealthy individuals have a higher sense of entitlement (Piff 2014), are more likely to endorse and engage in dishonest profit-maximizing behavior (Piff et al. 2012) and have lower tendencies for altruistic behaviors even at the early age (Miller, Kahle, and Hastings 2015). However, if the study supported the selfish rich hypothesis, then we would also observe significant differences in the willingness to pay bribes, as this would also fall in line with their profit maximizing objective. One possible explanation for the observed discrepancy is the sensitivity of the rich to the moral costs of punishment. They might be less willing to tolerate the unfair treatment, and, therefore, more likely to punish the corrupt official by not engaging (Ding et al. 2017). At the same time, highly endowed individual might be more averse from turning the corrupt official in, considering that the official is already in a less advantageous financial position compared to them.

The results of my study might be particularly helpful to policymakers that are designing models of citizen engagement. My findings suggest that in order to encourage bottom-up monitoring of corruption a policy should focus on lowering the cost of reporting, making the channel more accessible and less taxing for the less endowed. Moreover, the policy should also aim to lower the moral cost of reporting. Individuals, whether rich or poor, should understand that being a public servant is a privileged job, and if a state representative abuses their discretionary power, they should be held accountable.

The study has several methodological and conceptual limitations. Firstly, in comparison with previous studies, the participants were less likely to demand and pay bribes than they do in the lab. Leib et al. (2021) show that dishonest behavior

tends to be higher in the lab than in the field, since the participants in the field pay more attention to moral considerations, rather than profit maximizing objectives. However, in my study, the lower rates of bribery engagement were particularly detrimental considering a very small sample size, leading to inadequate statistical power and higher sensitivity to type II error. Reduced statistical power prevented me from analyzing the impact of personality predictors on the participant behavior, and from interpreting effect sizes in the relationships that I was able to observe. Further studies with more funding and resources should aim to collect enough data for adequate comparisons across experimental treatments. Secondly, lab-in-the-field studies are generally characterized by a lot of noise in the data and susceptibility to environmental influence. In my case, I could not guarantee that the participants were not distracted by the external factors, such as phone notifications, conversations with co-travelers, or thoughts about the upcoming train ride. Due to the resource and time constraints, I was not able to replicate the experiment in the lab environment. Conducting an identical lab experiment at this point would be useless, since the war caused a significant external shift in people's perceptions, making the datasets incomparable. Further research should aim to collect the data in the lab first and ensure that the adaptation to the field is performed with minimal time lag to avoid the impact of external shocks.

My study focused on harassment bribery, which is solicitation of inappropriate rewards in return for a service that the citizens are entitled to. It is not yet known how the results compare with collusive corruption, where individuals provide inappropriate rewards to gain access to services that they are not entitled to. One may presume that higher endowment levels could be used a mechanism to gain access to illegal services. Considering that wealthy individuals also have a higher sense of entitlement, they may be less likely to consider collusive corruption problematic and will not engage in the efforts to curb it. Guerrero and Rodríguez-Oreggia (2008) suggests that the described dynamic could only be true

in a weak institutional environment, while in a strong institutional environment, wealthy people offer and pay fewer bribes, because they feel more protected by the formal procedures and norms. Future studies should explore the relationship between citizen endowment levels and the tendency to report collusive bribery.

Lastly, the focus on my study has been primarily on weak institutional environment. It would be interesting to see if the same dynamics are observed in more developed democracies.

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APPENDIX A. PARTICIPANT INSTRUCTIONS

Consent Form

Greetings! Thank you so much for your interest in my study. Please read the general information about the study and confirm your participation.

General Information

This study is carried out as a part of master's thesis at Kyiv School of Economics under the supervision of Professor Nicholas Aragon. This is a study to evaluate how people make economic decisions. The study consists of an interactive online experiment and a brief questionnaire. Participation in this study is voluntary and will take less than 20 minutes of your time.

Participation Benefits

In the experiment you will have an opportunity to earn some points, which would be converted to UAH at an exchange rate of 1:10, so every 10 points are worth 1 UAH. On average, participants receive from 20-50 UAH. The earnings will be transferred to you as a mobile top-up.

Participation Risks

There are no known risks from your participation in this study, other than the risks associated with everyday life.

Confidentiality and Data Protection

The data collected over the course of this experiment cannot be tied to your personal data. Your participation in the study is anonymous, and no other participant will be able to identify you. Your personal data is collected only to verify unique participants in the study. In order to protect your personal data, your answers will be saved under a random number identifier, not associated with your name / last name. Your name will be stored separately from your answers.

Publications based on the data from this study will only use the aggregated results. Your personal data will never be published in connection to this study. The data will be used for scientific purposes only and can be accessed by the researcher and the supervisor.

Do I have to participate?

Participation in the experiment is voluntary. You can stop at any moment. However, we can only reward the participants who have completed the experiment task and the follow-up survey.

If you have any questions or concerns about the experiment, please contact the main researcher Anna Shcherbiak via email at annashcherbiak@gmail.com or @annashch on Telegram. Please use this contact info to reach out if you want to know the results of the study.

Experimental Instructions

Thank you again for your interest and willingness to participate. Today we invite you to play some games with other participants and complete a series of short questionnaires.

The game that you are you are going to play involves real money. You can receive up to 50 UAH over the course of the experiment, depending on your answers and the answers of other participants. At the beginning of the experiment, you receive a certain number of points as your initial endowment, and you can spend it as you wish. At the end of the experiment your points will be converted to UAH at an exchange rate of 1 UAH = 10 points.

Recommendation

We kindly ask you to turn off your phone notifications and try not to get distracted by your surroundings while you are participating in the experiment.

Game description

At the beginning of the experiment, you will be randomly assigned to one of two roles – Private Citizen or Public Official. Every participant will receive an initial endowment – on average 100 points.

Every Private Citizen needs to complete a series of tasks to receive a reward (50 points).

Every Public Official would have to verify the accuracy of the tasks completed and decide how on the amount of the reward that the Citizen deserves. At the same time, every Public Official can, if they choose, ask for a bribe from the Private Citizen with whom he/she is playing

The Private Citizen decides if s/he pays the bribe demanded by the Public Official, or not. If the Private Citizen refuses to pay the bribe, then both players earn their initial endowment, and the Private Citizen does not receive the reward for the task. If the Private Citizen pays the bribe, then he/she earns the initial endowment plus the 50 points earned from the task minus the demanded bribe. The Public Official will receive their endowment of 55 points plus the bribe.

The Private Citizen could report the Public Official to authorities if they demanded a bribe, regardless of his/her decision to pay it or not. Reporting costs the Private Citizen 5 points.

Reporting the Public Official results in a 4% probability that the Public Official loses the bribe and must pay a fine of 50 points. If the Private Citizen does not report, then there's no chance that Public Official will face a punishment.

Examples

To illustrate the game, let's consider several scenarios:

1. Private Citizen and Public Official both have initial endowment of 100 points each. The Private Citizen completes the task flawlessly, but the Public Official decides to demand a bribe of 10 points. The Citizen agrees to pay the bribe, and, therefore, receives only 40 points for the task. The Citizen decides not

to report. Therefore, the final payoff for the Citizen is 140 points (endowment + reward – bribe). Public Official’s payoff is 110 points (endowment + bribe).

2. Private Citizen has a starting endowment of 50 points, while Public Official has 100 points. The Citizen performs the task, and the Official chooses to demand a bribe of 20 points. The Citizen agrees to pay, and therefore only receives 30 points as a reward for task completion. This time the Citizen decides to report the extortion of the bribe to the authorities. As a result, Public Official is forced to pay a fine, and his final payoff constitutes 50 points. Private Citizen’s payoff is 75 points (endowment + reward – reporting cost).

You will be asked to play this game twice, each time with different players. Remember, each round is completely independent from the others, and you are playing with a different person each time. Remember, your actions in the game determine your final payoff. You will see the sum of the points you have earned after each round. After you have completed the questionnaire, your earnings will be converted from points to UAH, at an exchange rate of 1:10. You will receive your earnings as a mobile top-up.

Role -- Private Citizen

Greetings! You have been randomly assigned to the role -- **Private Citizen** .

Your initial endowment is = **50 points** . It is **significantly lower** than the endowment of other players. Your role and your endowment level will remain the same throughout the whole experiment.

On the next screens you will be asked to complete a simple, but tedious task. You will see a matrix with arrows on the screen. Your task will be to count the number of arrows that are pointing to the right. You need to complete the task perfectly to receive the reward.

Then the Public Official will review your answers and decide whether they choose to demand a bribe or not. If they choose to demand a bribe, you can choose to pay / reject it.

Regardless of your decision, you can always report the official to authorities if they demanded a bribe from you.

If you report, the Official will face a punishment with the probability of 4%. This would reduce their endowment by 50% and confiscate the bribe in full, if you chose to pay it. Your payoffs will not be affected by your decision to report.

Next

Figure A-1. Exemplary screenshot of the role assignment screen (Citizen Role)

Task 1

Please, count the number of right arrows (→) in the matrix below. You need to enter a correct number to proceed in the experiment.

| | | | | |
|---|---|---|---|---|
| → | ↓ | ↓ | → | → |
| → | → | → | ↓ | ↓ |
| → | → | → | → | ↓ |
| → | ↓ | → | → | → |

Figure A-2. Exemplary screenshot of the effort task.

Extort or Not

The Citizen has completed the task, and deserves to receive **50 points**.

Note, that the initial endowment of the Private Citizen is 50 points , and so is **significantly lower** than yours.

Please indicate if you want to demand a bribe.

- Yes, I want to demand a bribe
- No, I want to pay the reward in full

Figure A-3. Exemplary screenshot of the Official's choice to extort a bribe.

Citizen's Response

The Public Official demands **4 points** as a bribe. Please indicate if you agree to pay the bribe. Remember that your initial endowment is **50 points** . It is **significantly lower** than the initial endowment of the Public Official.

- Yes, I agree to pay.
- No, I do not agree to pay.

Figure A-4. Exemplary screenshot of the Citizen's response

Report corruption

The Public Official demanded a bribe for your honest work. Now you have a choice – to report his actions to authorities or not?

Reporting would cost you 5 points. . If you report, the Public Official will be forced to pay a fine of 50 points, and will lose the bribe (if you chose to pay it). **If you do not report, there is no chance that the Public Official will be held responsible.**

Reporting does not affect your payoffs – if you paid the bribe, it will not be returned to you / if you rejected the bribe, the reward will not be given to you.

- Report
- Do not report

Next

Figure A-5. Exemplary screenshot of the Citizen's decision to report.

Knowledge of Corruption

Please answer the following questions.

You've inherited an apartment, but other relatives also want to claim it. They file a lawsuit and make 'an arrangement' with a judge just to be sure the judge is on their side. The judge rules in their favor. Is the judge corrupt?

- Yes
- No

Your acquaintance chose to buy a university diploma, instead of earning it fairly. In your opinion, is he/she corrupt?

- Yes
- No

The main doctor of the public city hospital is a good expert. Also he is a diplomat: he maintains good relationships with suppliers and purchases the medicine by adjusting the tender requirements to fit their case. In your opinion, do these actions make him corrupt? ?

- Yes
- No

Imagine that your employer pays your salary in cash under the table to avoid paying taxes. Does that make him corrupt?

- Yes
- No

A foreign company wants to start a timber business in Ukraine. To cut the costs, it pays one of the state forestry employees to ensure he doesn't notice illegal logging. Is this a case of corruption?

- Yes
- No

A state enterprise received funds from the government to modernize one of its facilities. The director decided to also buy some new furniture for his office. After all, he is also a part of the state enterprise. Do his actions constitute corruption?

- Yes
- No

A businessman decided to build a shopping mall on an arbitrarily occupied plot of land. He has not received the necessary approvals yet. However, he decided to start the construction process without them. Is this corruption?

- Yes
- No

Next

Figure A-6. Exemplary screenshot of the corruption knowledge assessment.

Demographics

Please answer the following questions.

How old are you?

Please indicate your gender

- Male
- Female
- Other

Please indicate the highest level of education attained.

- Full Primary School (full 4 grades in school)
- Full Middle School (full 9 grades in school)
- Full High School (full 11 grades in school)
- Vocational Training (e.g. technical college)
- Bachelors Degree or equivalent
- Post-Graduate Degree (Completed Masters or higher)

Please indicate your level of employment.

- Full-time
- Part-time
- Unemployed and looking
- Unemployed and not looking
- Student
- Retired
- FOP
- Other

Please indicate how would you describe a city that you resided, over the last 3 years.

- Large (more than 1M residents, e.g. Odesa, Kyiv, Kharkiv)
- Significant (500k-1M residents, e.g. Dnipro, Lviv, Zaporizhzhia)
- Medium (250k-500k residents, e.g. Vinnytsia, Cherkasy, Mykolaiv)
- Small (100k-250k residents, e.g. Rivne, Ivano-Frankivsk)
- Rural (less than 100k residents, e.g. Kovel, Dubno, Izyum)

Please indicate a category which best describes your monthly income.

- less than 30k UAH
- 30k - 60 k UAH
- more than 60k UAH
- Do not want to respond

Next

Figure A-7. Exemplary screenshot of demographics survey.

Corruption in Ukraine

Congratulations! This is the last part, I promise. Please answer the questions below.

In your opinion, can people generally be trusted or should one always be careful

- Most people can be trusted
- You should always be careful

In your opinion, what is the probability of being held responsible for receiving / giving a bribe or a gift to receive public services?
Please rank your answer on a scale from 0% to 100%, where 100% means that every offender is held responsible.

In your opinion, how often do ordinary people have to give bribes?

- Never
- Rarely
- Often
- Always

Over the course of the last year, have you or anyone in your close surroundings faced corruption?

- Yes
- No

Did you pay a bribe in the last 3 years?

- No, I did not pay, because I did not need to.
- No, I did not pay, because I refused to
- Yes, I paid, because I was forced to
- Yes, I paid, because I wanted to
- Hard to say

In your opinion, how often does receiving a bribe, using an official position, can be justified?

- Never
- Rarely
- Often
- Always

Next

Figure A-8. Exemplary screenshot of the prevalence of corruption survey.

APPENDIX B. SUPPLEMENTAL ANALYSES

The following analysis presents the differences in official's and citizen's decisions based on the individual characteristics, which participants have reported in the follow-up survey. Most, if not all, fail to find any statistically significant differences, reiterating the importance of gathering a larger dataset to better understand individual-level predictors of corruption engagement.

B.1 Predictors of Official's Behavior.

In the follow-up survey the participants reported the highest educational level attained (for summary of demographic statistics see Table 1). Figure B-1 demonstrates the difference in extortion behavior based on the individual's education level. Fisher's exact test did not find any significant relationship between the two variables ($p > 0.05$)

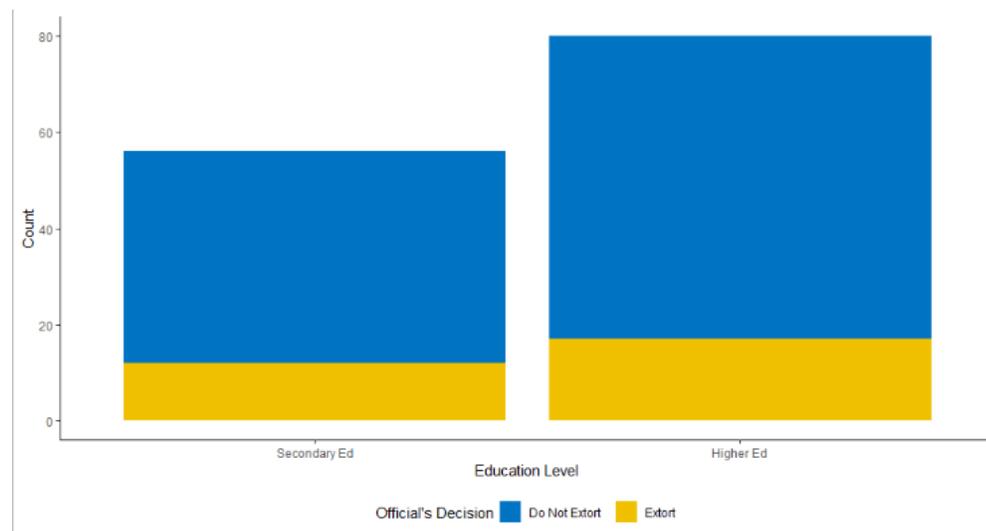


Figure B-1. Official's Decision to Extort by Education Level

The participants were also asked to indicate their monthly level of income. Participants who earned >30,000 UAH / per month were considered to earn above average income, while those who earned <30,000 UAH/ month were considered to earn average or lower level of income. Figure B-2 presents the difference in the official’s decision to solicit a bribe based on subject’s income level. Fisher’s exact test found a significant relationship between the subject’s decision to extort a bribe and their reported level of income ($p = 0.03$). However, the results of the generalized mixed effect logistics regression with grouping based on participant ID failed to replicate the statistical significance. This is likely due to the low count of participants with above average income.

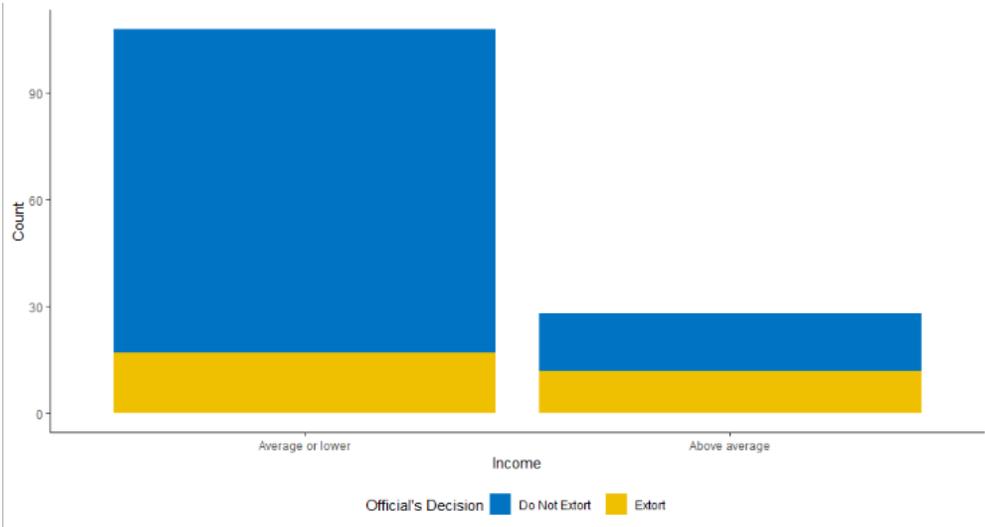


Figure B-2. Official's Decision to Extort by Income Level

Corruption frequency was measured as the subject’s perception of how often people in Ukraine are forced to give a bribe to receive a public service. The response options ranged from ‘Never’ to ‘Always’. Figure B-3 demonstrates the difference in extortion behavior based on the perception of corruption frequency.

Fisher's exact test did not find any significant relationship between the two variables ($p = 0.55$)

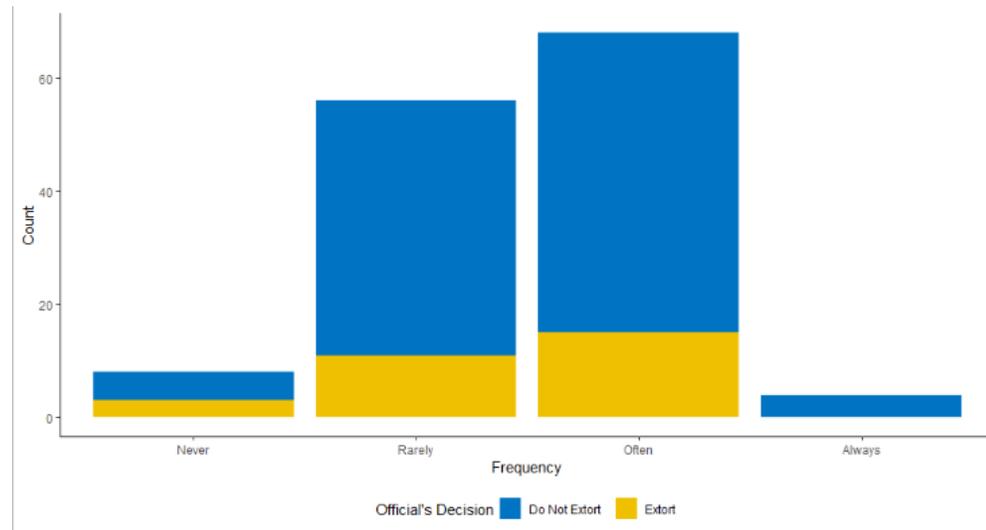


Figure B-3. Official's Decision to Extort by Corruption Frequency

Similarly, the participants were asked to indicate if they or anyone in their closest surroundings have had any experience with bribery or corruption over the last year and three years, respectively. Figures B-4 and B-5 illustrate the difference in official's willingness to extort a bribe and their personal experiences with corruption. Fisher's exact test did not find a significant relationship between the willingness to extort and either of those variables ($p > 0.05$).

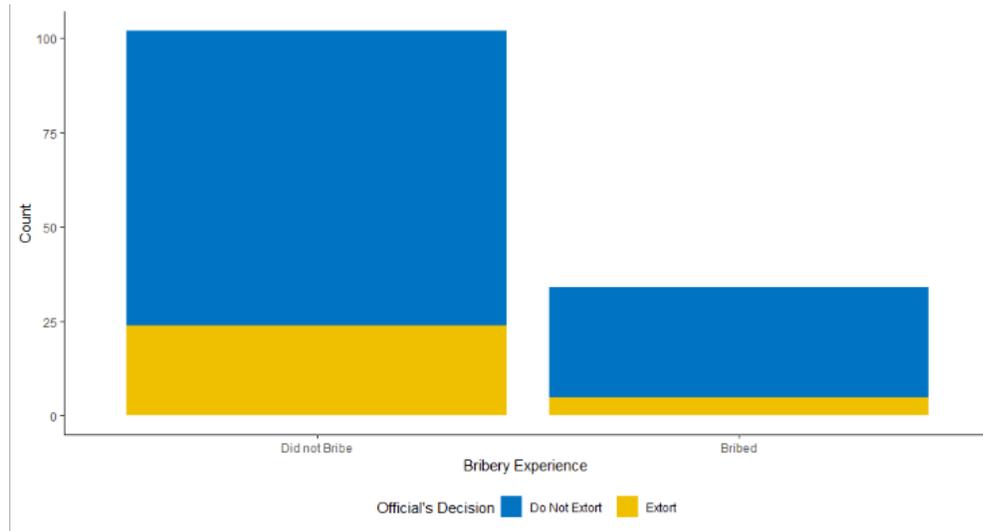


Figure B-4. Official's Decision to Extort by Bribery Experience.

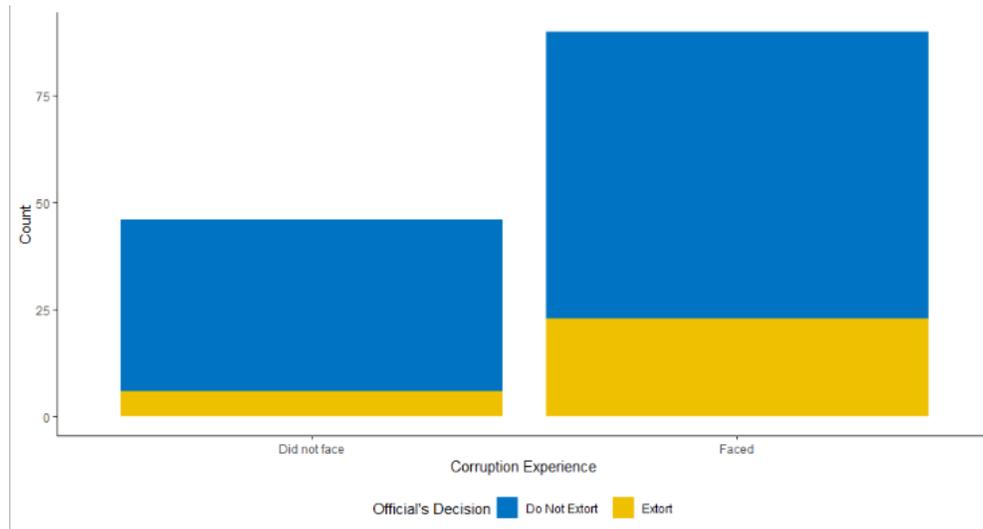


Figure B-5. Official's Decision to Extort by Corruption Experience

The participants were also asked to indicate how often can extortion of a bribe be justified. The relationship is depicted on Figure B-6. It is clear that most of the subjects did not believe that bribe extortion could be justified. However,

Fisher's exact test failed to find any significant relationship between subject's perception and their extortion behavior.

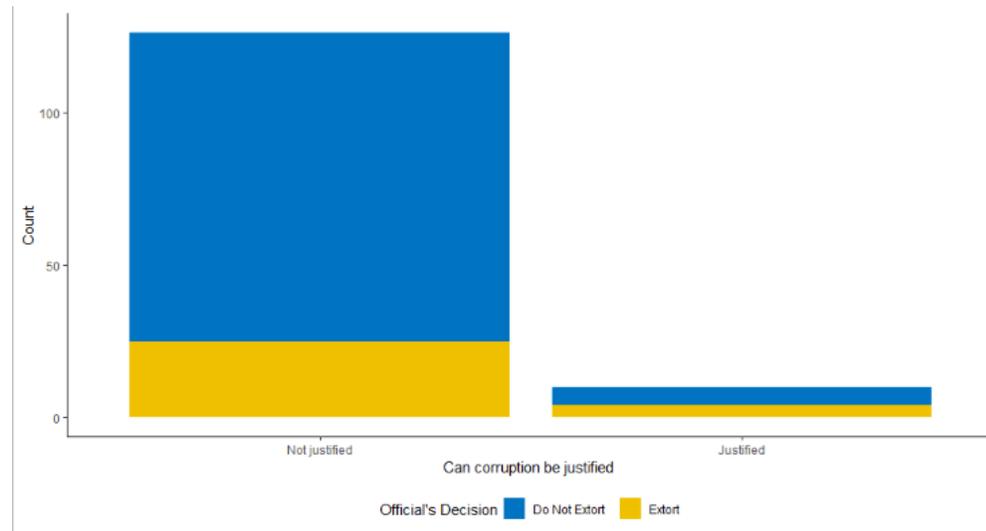


Figure B-6. Official's Decision to Extort by Corruption Justification.

The participants were asked to take a short test on their understanding of corruption. Based on the median split, the answers were then grouped to indicate good understanding (median or higher), and poor understanding (below median). The relationship is depicted on the Figure B-7. Fisher's exact test did not find a significant relationship between the willingness to extort and the subject's understanding of corruption ($p > 0.05$).

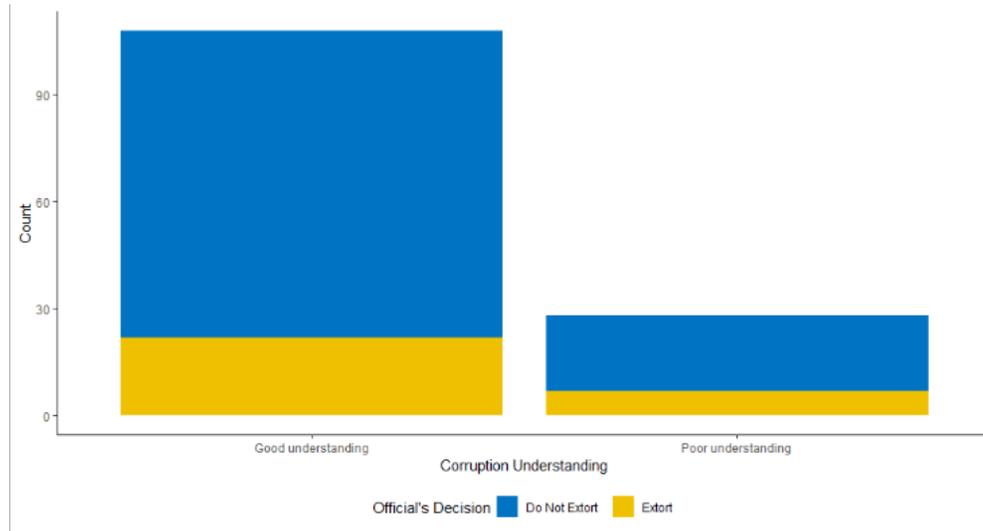


Figure B-7. Official's Decision to Extort by Corruption Understanding

Lastly, I also measured gender effects, which can be found in Figure B-8. Fisher's exact test did not find a significant relationship between the willingness to extort and the subject's gender ($p > 0.05$).

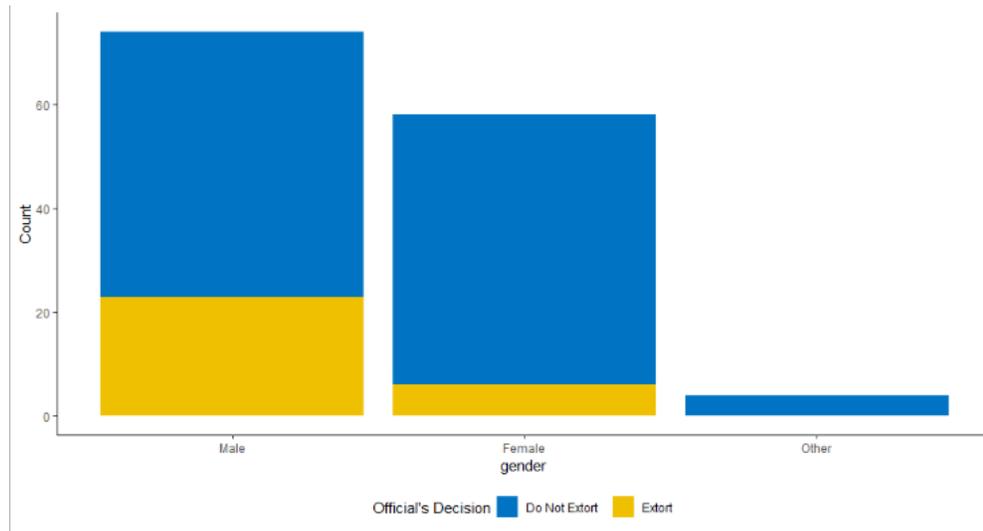


Figure B-8. Official's Decision to Extort by Gender

B2 Predictors of Citizen's Behavior.

As for the citizen's decision, I focus primarily on the decision to report instances of corruption.

Figure B-9 presents the relationship between the subject's highest attained education level and their decision to report bribe solicitation. Fisher's exact test did not find a significant association between the two variables ($p = 0.41$)

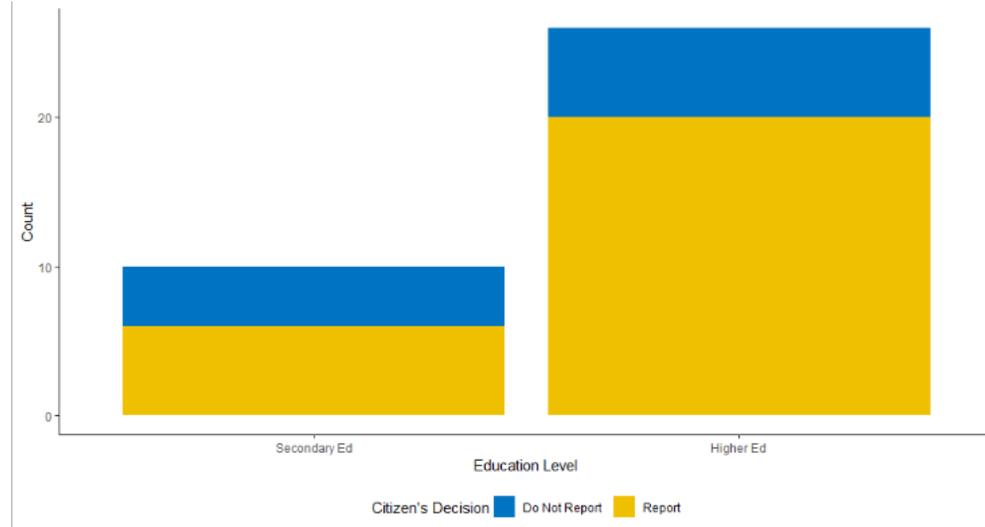


Figure B-9. Citizen's Decision to Report by Education

Figure B-10 presents the relationship between the subject's perception of the frequency of corruption in Ukraine and their decision to report bribe solicitation. Fisher's exact test did not find a significant association between the two variables ($p = 0.6$)

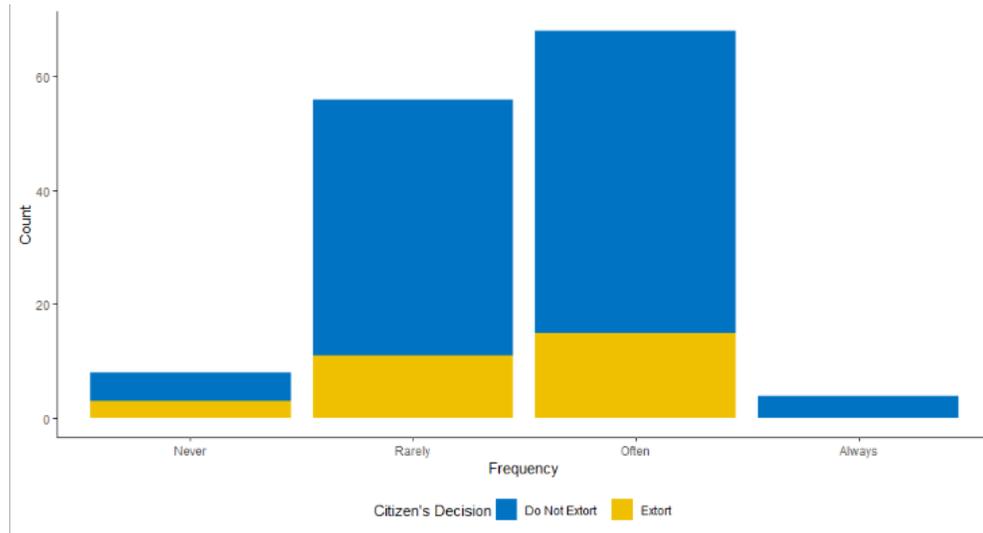


Figure B-10. Citizen's Decision to Report by Corruption Perception

Figures B-11 and B-12 illustrate the difference in citizen's willingness to report bribery and their personal experiences with corruption. Fisher's exact test did not find a significant relationship between the willingness to extort and either of those variables ($p > 0.05$).

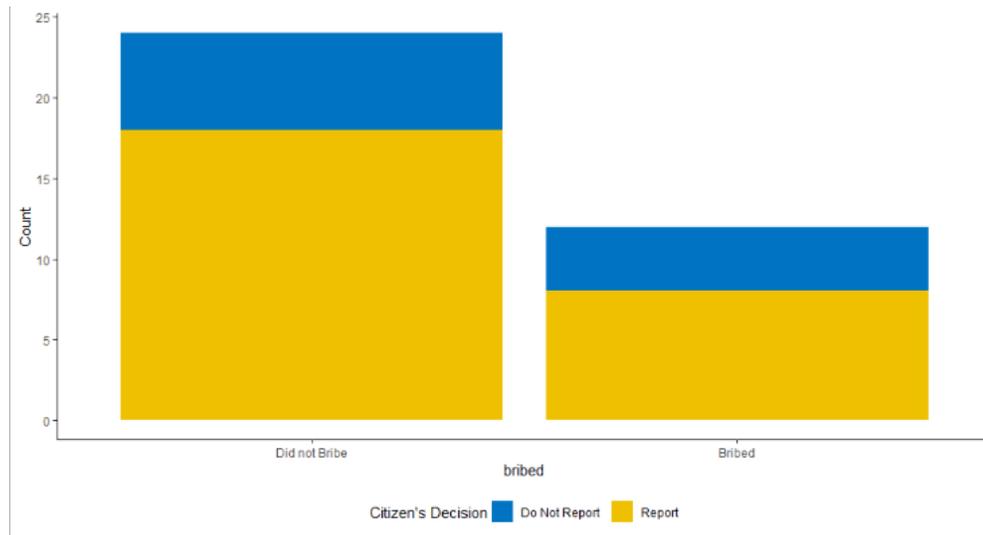


Figure B-11. Citizen's Decision to Report by Bribery Experience

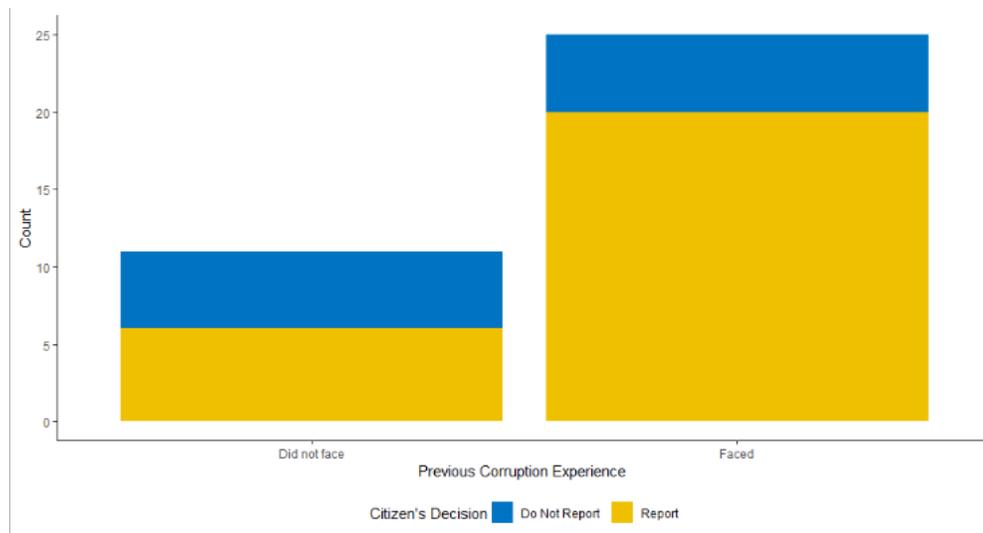


Figure B-12. Citizen's Decision to Report by Corruption Experience

Figure B-13 presents the relationship between corruption justification and citizen's willingness to report bribery. Fisher's exact test failed to find any significant relationship between subject's perception and their reporting behavior.

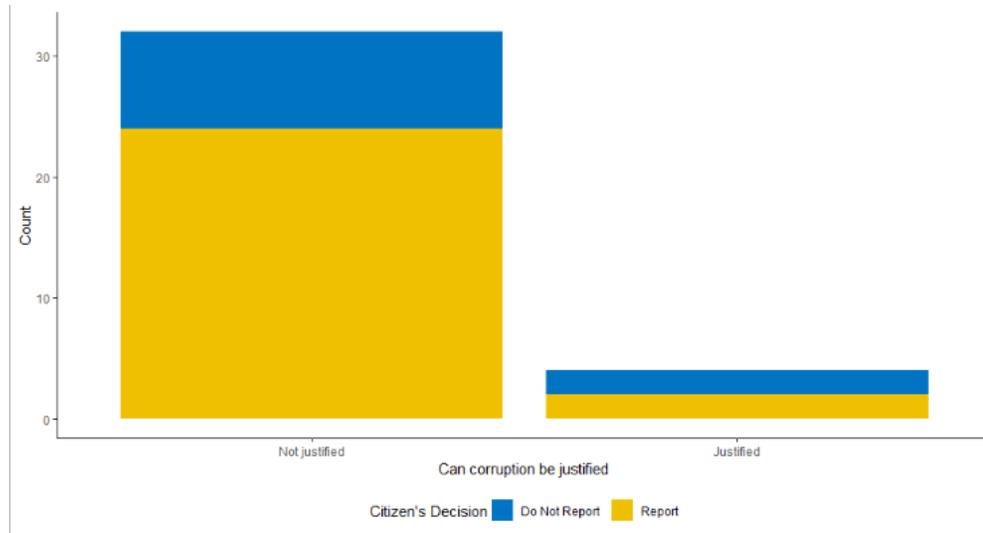


Figure B-13. Citizen's Decision to Report by Corruption Justification

Lastly, I also measured gender effects, which can be found in Figure B-14. Fisher's exact test did not find a significant relationship between the willingness to report and the subject's gender ($p > 0.05$).

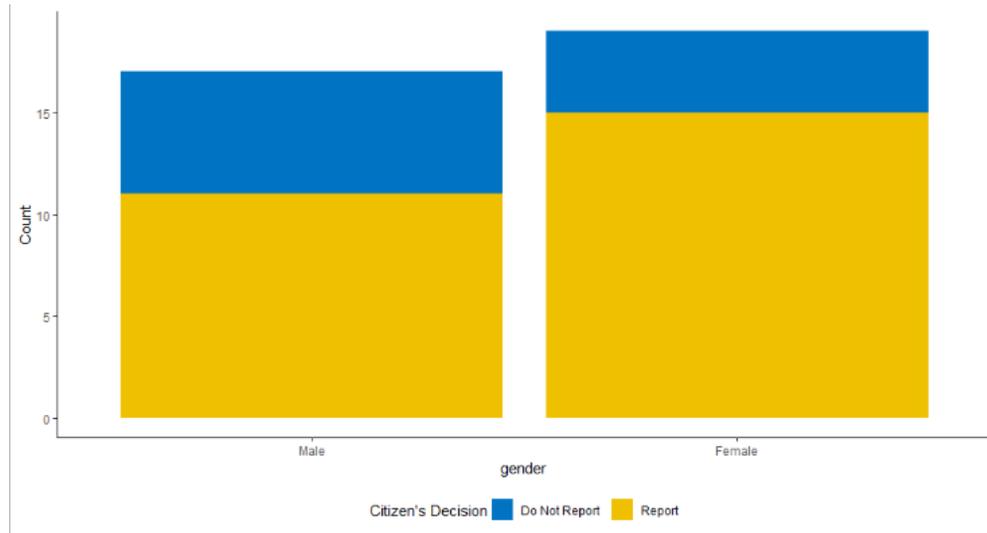


Figure B-14. Citizen's Willingness to Report by Gender