



GÖTEBORGS
UNIVERSITET

DEPARTMENT OF POLITICAL SCIENCE

MONITORING CORRUPTION: CIVIL SOCIETY INVOLVEMENT IN PUBLIC PROCUREMENT

A comparative study of the conditional effect of
societal accountability in EU regions

Fredrik Larsson

Master's Thesis:	30 higher education credits
Programme:	Master's Programme in International Administration and Global Governance
Date:	2019-05-23
Supervisor:	Marcia Grimes
Words:	19 590

Abstract

Public procurement encompasses large amounts of public funds and is essential for the public sector to function. For the same reasons it is vulnerable to corruption, considering that the process presents both motives and opportunities for corruption. To control corruption, anti-corruption literature suggests that civil society can play an important role in monitoring and sanctioning corrupt public officials. Consequently, the aim of this thesis is to combine these strands of literature and observe the possibility for a strong civil society to curb corruption within procurement. Nonetheless, accountability scholars argue that the ability for civil society to demand accountability should be considered on a contextual basis. Thus, in order to accurately capture the effect of civil society on procurement corruption, the study observes both the unconditional relationship and the relationship conditional upon level of transparency, meritocracy, and local media. The thesis studies the relationships in 175 EU regions and estimates the effect of civil society using OLS regression analysis. In contrast to the previous literature, the results of the study suggest that civil society is ineffective in the most favourable institutional conditions. Instead, civil society appears capable of reducing procurement corruption in regions characterized by low transparency and meritocracy respectively. This thesis interprets the results as indicative of institutions not only affecting the ability of civil society to demand accountability, but also the willingness for it do so.

Keywords: civil society, public procurement, corruption, procurement corruption, societal accountability, EU regions, contextual conditions

Table of contents

1. Introduction	1
2. Literature review	3
2.1. Public procurement and procurement corruption	4
2.2. Civil society, societal accountability, and contextual conditions.....	7
2.3. Cases and examples of societal accountability in public procurement	13
2.4. Identifying the research gap	14
2.5. Expected results and theoretical model	17
3. Methodology	22
3.1. Unit of analysis.....	22
3.2. Statistical technique.....	24
3.3. Data	25
4. Results	35
4.1. Unconditional models	35
4.2. Conditional models	38
4.3. Robustness tests.....	48
5. Discussion	51
6. Conclusion.....	57
7. References	59
8. Appendices	66
Appendix I – Descriptive statistics.....	66
Appendix II – Robustness tests	68
Appendix III – Diagnostic tests.....	73
Appendix IV – Data	75
Appendix V – Test of curvilinearity	77

List of figures and tables

Figure 1. Theoretical model.	21
Figure 2. Bivariate relationship between civil society and single bidder ratio.	36
Figure 3. Marginal effect of civil society on single bidder ratio given different levels of transparency.	41
Figure 4. Marginal effect of civil society on single bidder ratio given different levels of meritocracy.	44
Figure 5. Marginal effect of civil society on single bidder ratio given different levels of local media credibility.	47
Figure 6. Robustness tests, single bidder ratio as the dependent variable in all regression models.	50
Figure 7. Marginal effect of civil society on corruption given different institutional conditions.	55
Figure 8. Diagnostic test, distribution of residuals.	74
Figure 9. Diagnostic test, influential observations.	75
Figure 10. Marginal effect of civil society on corruption given different institutional conditions, including current sample.	77
Figure 11. Marginal effect of civil society on single bidder ratio given different levels of transparency, non-linear interaction.	78
Figure 12. Marginal effect of civil society on single bidder ratio given different levels of meritocracy, non-linear interaction.	78
Table 1. Descriptive statistics.	35
Table 2. Unconditional model, single bidder ratio as the dependent variable.	37
Table 3. Conditional model, transparency as the moderating variable and single bidder ratio as the dependent variable.	39
Table 4. Conditional model, meritocracy as the moderating variable and single bidder ratio as the dependent variable.	43
Table 5. Conditional model, local media as the moderating variable and single bidder ratio as the dependent variable.	46
Table 6. Countries and regions in the study.	66
Table 7. Correlation matrix.	67
Table 8. Correlation between single bidder ratio and other measures of corruption.	68
Table 9. Robustness test, analytical weights.	69
Table 10. Robustness test, country fixed effects.	70
Table 11. Robustness test, politically relevant regions.	71
Table 12. Robustness test, social trust from 2002.	72
Table 13. Diagnostic test, multicollinearity.	73
Table 14. Definition of transparency components.	76

1. Introduction

Public procurement is one of the most important government functions; instrumental in the provision of public goods and for the operation of the entire public sector (Basheka, 2008; Thai, 2008). Public procurement constitutes a sizeable part of most developed countries economies, comprising 13% of the EU's GDP in 2014 (DG GROW, 2016). Simultaneously, procurement¹ is often regarded as one of the government processes most vulnerable to corruption for many of the same reasons; the considerable amounts of public funds involved present both opportunities and motives for corruption (Ware, et al., 2007). Moreover, studies have found that corruption in public procurement serves as a proxy for the level of corruption more generally (Charron, et al., 2017; Fazekas & Kocsis, 2017). To combat corruption, researchers and anti-corruption practitioners alike typically prescribe increased accountability; allowing for the answerability and sanctioning of corrupt action. The classic examples of accountability imagine the public exercising accountability via elections or government officials pursuing it through intra-government monitoring. However, civil society and the use of societal accountability has been proposed as an alternative to the traditional forms of accountability (Peruzzotti & Smulovitz, 2006). A strong civil society, characterized by dense networks, should, in theory, aid in monitoring and demanding accountability of corrupt public officials (Grimes, 2013). In the case of procurement corruption, several case studies have demonstrated the feasibility of civil society efforts to reduce corruption (Ramkumar, 2008; Brown & Neumann, 2017). The EU has also recognized the potential of civil society and is currently launching pilot projects to further facilitate the role of civil society as an external monitor of public procurement (European Commission, 2018). Therefore, it is relevant to empirically study the impact of civil society on corruption in public procurement.

Although civil society presents an alluring case for controlling corruption, it is important to note that civil society does not operate in a vacuum; prior research demonstrates that civil society should not be expected to have the same effect regardless of context. Rather, civil society appears dependent on its surroundings to effectively monitor and by extension reduce corruption (Grimes, 2008; Fox, 2015). Studies have found that e.g. government transparency, the presence of reform-minded elites and investigative media are important contextual conditions for civil society to effectively exercise societal accountability (Grimes, 2013). Thus, in addition to observing the correlation between civil society and procurement

¹ Procurement is used interchangeably with public procurement.

corruption, this study explores three contextual factors that are considered important for civil society to demand accountability; meritocracy in the public sector, transparency of procurement contracts and the credibility of local media. The study poses two research questions to guide the analysis:

(1) Does the strength of civil society affect corruption in public procurement in EU regions?

(2) What contextual conditions impact the effect of civil society?

This thesis examines the link between civil society and procurement corruption in EU regions, investigating both between- and within-country differences. Most models include 175 regions from 20 different EU countries. The regional setting is suitable considering that a lot of procurement takes place at the regional/local level (Decarolis & Giorgiantonio, 2015). Furthermore, all regions within the EU are subject to the same regulation on public procurement. Contracts exceeding certain thresholds are required to be published in an EU-common procurement database (Fazekas & Kocsis, 2017). The study employs a quantitative approach, utilizing OLS regression analysis to estimate the correlation between civil society and procurement corruption.

The study makes several important contributions. Firstly, it adds to the study of public procurement and the risk associated with the practice by observing the involvement of non-state actors. Previous literature on procurement corruption has tended to focus on aspects of the bureaucracy and features of the procurement process that incentivize corruption. Consequently, studying civil society involvement in procurement provides a new dimension to the literature. Such a focus is essential given the magnitude as well as the importance of the practice (Ware, et al., 2007; Basheka, 2008) and considering the initiatives aimed at including third parties in the procurement process (DIGIWHIST, 2018b; European Commission, 2018). Secondly, the thesis employs the use of a novel and objective indicator of corruption, which enables to more accurately gauge the accountability mechanism of civil society. Previous empirical literature on societal accountability has to a large extent relied on aggregate and perception-based measures of corruption. Although important, the measures are rather blunt, slow-moving and driven by perceptions. Consequently, it is hard to know whether variation or fluctuation is due to accountability or increased attention of the issue. Using an objective indicator allows this thesis to disregard effects of media reports as well as of perceptions and

focus on the accountability mechanisms at work; thus, making it easier to distinguish between the effect of accountability and that of advocacy. Finally, the study contributes to research by studying the interaction between different actors capable of exercising accountability. Fox (2015) and other influential scholars have highlighted the need to combine different forms of accountability to break a negative environment. Thus, this thesis adds to the research field by empirically studying the interaction between civil society and other actors capable of exercising accountability.

In contrast to previous research, this study does not find an amplifying effect of institutional conditions on the ability of civil society to demand accountability. Instead, the results show that an increase in civil society strength reduces procurement corruption in regions characterized by low and medium levels of transparency and meritocracy, respectively. However, in the most well-performing regions, in terms of transparency and meritocracy, there is no significant effect of civil society. The thesis argues that these results complement the findings of previous research; suggesting that institutional conditions not only affect the ability to exercise societal accountability but also affect the willingness of civil society to demand accountability.

The subsequent section introduces the relevant literature on public procurement, procurement corruption, and civil society, amounting to the research questions and the expected results. Following the literature review, the study addresses the methodological approach, discussing the design and data of the study. The ensuing section presents the results of the regression analysis and the tests carried out to ensure the robustness of findings. The succeeding discussion section deals with the results in more detail. Finally, the concluding section answers the research questions and gives suggestions for future research.

2. Literature review

The aim of this thesis is to study the relationship between civil society and procurement corruption. To reach the stated aim, it is important to have a grasp on several different strands of literature. Thus, this section introduces the concept of public procurement, its importance and the steps of the process as well as types of corruption within procurement; civil society, the strategies of voluntary organizations to demand accountability and the contextual conditions that influence the impact of such an approach. To further provide an understanding

of how civil society can influence procurement corruption, the section presents several cases of civil society involvement in procurement. The section then addresses the research gap and situates the thesis within the research field. Lastly, the thesis formulates hypotheses based on previous research.

2.1. Public procurement and procurement corruption

Public procurement entails the purchase of goods and services by the government (Uyarra & Flanagan, 2010). All government sectors are dependent on the process to function; whether it relates to the purchase of necessary supplies or finding a contractor to undertake a public works project (Basheka, 2008). Furthermore, it constitutes a considerable portion of most countries' economies, involving large sums of public funds (Schapper, et al., 2006); data shows that EU countries spent between 6%-20% of GDP on procurement, the EU average being 13.4%, in 2016 (Kutlina-Dimitrova, 2018). The procurement process is complex, involving several different phases: from design of tender to pre-bidding/bidding and evaluation of bids². The regulation that applies depends on a number of factors, for example: contract value, procured good/service and procuring entity. Important in the discussion of applicable regulation are procurement thresholds. These effectively dictate the procurement process and the degree of discretion afforded public officials. Procurement above thresholds usually entails a more formal and open process as opposed to procurement below thresholds, where demands are usually less comprehensive³ (Grandia, 2017). The procurement process is meant to be characterized by principles of transparency, competition and fairness in all steps to produce an outcome that represents the best value for money (Thai, 2009; Fazekas & Kocsis, 2017). Nevertheless, several circumstances and strategies allow for circumventing these principles; consequently, presenting opportunities for corruption.

Corruption is typically understood as the misuse of public office for private gain (Persson, et al., 2013). Within the process of procurement, Fazekas and Kocsis (2017, pp. 1) define corruption as “*unjustified restriction of access to public contracts to favour a selected bidder*”. Corruption has extensive societal effects, contributing to the misallocation and

² The three mentioned steps represent a rough sketch of the procurement process, for a more detailed description see e.g. Thai (2009).

³ Procurement is typically subject to several thresholds. In EU member countries, both national and EU thresholds apply depending on e.g. contract value. In general, if supply/service contracts exceed values of roughly 140 thousand euros, then an open procurement process is required. More information on thresholds: https://ec.europa.eu/growth/single-market/public-procurement/rules-implementation/thresholds_en

misuse of public funds (Lambsdorff, 2006; Mungiu-Pippidi, 2006). In this sense, procurement corruption is no different. A relatively recent study of procurement in the EU estimates that procurement corruption contributes to the loss of about five billion euros each year⁴ (Hafner, et al., 2016). Transparency International estimates that corruption increases the cost of procurement by up to 50% (Transparency International, 2018). From these reports, it is easy to see why it is essential to study attempts at curbing procurement corruption; considering the large amounts of public funds lost to corruption.

To understand how procurement corruption can be addressed, it is necessary to grasp the various ways in which corrupt schemes operate in the procurement process. The definition provided by Fazekas and Kocsis (2017) gives a general view of what constitutes procurement corruption but does not substantiate the actors involved nor the multitude of ways in which corruption can transpire. Procurement corruption typically involves senior public officials with decisive power to award contracts; however, it can also involve politicians who exert pressure on public officials to favour a certain bidder. In any case, the actors involved are typically high-ranking and with discretionary power over the procurement process (Ware, et al., 2007). Due to the seniority of actors and the considerable amounts of public funds concerned in the process, procurement corruption is suggested as a proxy for high-level corruption (Fazekas & Kocsis, 2017). Furthermore, Ware et al. (2007) contend that the most common corruption schemes are characterized by kickbacks; corrupt public officials are awarded a share of the profits from the winning actor for having steered the procurement towards a certain bidder. It can also take on the form of over-billing, where public officials set procurement costs that significantly exceed the actual value of the procured goods to allow for the extraction of rents (Rose-Ackerman & Palfika, 2016, pp. 99-109). To further complicate matters, Søreide (2002) argues that public procurement presents opportunities for corruption in all steps of the process; in designing the tender, officials can tailor the requirements in order to fit a certain supplier and exclude others; in the pre-bidding/bidding stage, officials can demand/be offered bribes in order to include a certain supplier amongst qualified bidders or provide specific bidders with inside information; in evaluating bids, non-quantifiable evaluation criteria can be used, creating opportunity for corrupt officials to more easily favour

⁴ The number is based on the estimated costs of procurement corruption across all 28 member states.

a pre-determined bidder⁵ (Søreide, 2002; Ware, et al., 2007; Rose-Ackerman & Palfika, 2016, pp. 103-109). The implication of this is that it can be hard to detect procurement corruption, following the numerous ways available to tweak the rules and the subtlety of some of them.

Previous research suggests that aspects of public procurement influence incentives and opportunities for public officials to engage in corruption. Firstly, the value of procurement contracts; larger rents can be extracted if contracts involve larger sums, increasing the potential gain of corruption and, thus, the incentives for corrupt behaviour (Søreide, 2002; Schultz & Søreide, 2008). Secondly, the level of discretion retained by public officials over the procurement process; significant discretionary power is afforded public officials in several of the procurement steps, implying that officials are able to exert considerable influence over how the process is conducted. Greater discretion allows corrupt officials to more easily favour a certain bidder (Søreide, 2002; Ware, et al., 2007). Similarly, the degree of transparency influences opportunities for procurement corruption; greater transparency of the process allows more actors to be involved in monitoring and increases disincentives of engaging in corruption for public officials, as the chance of detection is increased (Rose-Ackerman & Palfika, 2016, pp. 146-157; Fazekas & Kocsis, 2017). Thirdly, the risk of sanctioning has decisive influence on the incentives for public officials; if there is a greater chance that corrupt behaviour is sanctioned, incentives for officials to engage in corruption are lower (Schultz & Søreide, 2008).

In addition to the mentioned features of the procurement process that impact the incentives of engaging in procurement corruption, studies have focused on features of the bureaucracy that impact procurement corruption. Charron et al. (2017) study the effect of meritocracy in the public sector, i.e. requiring that recruitment and career opportunities are based on merit rather than connections. They argue that meritocracy presents several causal paths for impacting procurement risks. Firstly, it incentivizes monitoring within the government. Meritocracy ensures that career opportunities of bureaucrats are not dependent on relationships with politicians; considering that a meritocratic system does not allow politicians to handpick public servants. Consequently, career paths of bureaucrats and politicians are separated, which in turn encourages monitoring between groups. Secondly, by affirming that hiring is

⁵ It is important to note that this is not meant to provide an exhaustive list of how illicit influence can be exercised on the procurement process, rather schemes can be made a lot more sophisticated following the inherent complexity of the procurement process (Fazekas & Kocsis, 2017).

done on the basis of documented qualifications, a more capable pool of candidates for civil service jobs is created. These candidates are likely to be more capable of resisting every-day pressure of corruption. A similar argument is put forward by Tukamuhabwa (2012), who highlights the importance of professionalism within the bureaucracy to avoid non-compliance of procurement principles. Professionalism is important to enforce an ethical code of conduct, which is more likely to occur if public servants have the proper education.

In summary, public procurement constitutes a significant process for governments but is simultaneously vulnerable to corruption. Due to the nature of public procurement, incentives for engaging in corruption are strong. Previous research has to a large extent focused on institutional conditions; features of the procurement process and of the bureaucracy that affect these incentives. Nevertheless, as is demonstrated in the following sections, civil society can be important in influencing incentives/disincentives for procurement corruption. It should also be noted that much of the suggested remedies rely on a conceptualization of corruption as a principal-agent problem. Where reduced corruption is achieved by e.g. increasing transparency of procurement; allowing the principal to hold the agent accountable for its actions (Persson, et al., 2013). Persson et al. (2013) argue that in thoroughly corrupt contexts, no one is likely to take on the role of principal. In these cases, where corruption is the rule rather than the exception, corruption is more accurately conceptualized as a collective action dilemma. The two different conceptualizations widely differ in how corruption is framed and results in different answers regarding what can be done to curb it. Consequently, it is crucial to account for the nature of corruption in evaluating anti-corruption measures.

2.2. Civil society, societal accountability, and contextual conditions

Civil society is often portrayed as something with great potential of impacting a multitude of societal aspects. Nevertheless, what actually constitutes or comprises civil society tends to vary considerably, and the concept is by many accounts rather “fuzzy” (Heinrich, 2005). In empirical research, civil society has frequently been conceptualized as either an arena for collective action, the intermediate level between state and family or, simply, as embodied by voluntary associations (Howard, 2003, pp. 1-15; Heinrich, 2005; Torsello, 2012, pp. 27-49). Heinrich (2005) describes how in normative literature there has been a tendency to view civil society as something inherently good and representative of the public interest. However, others have refuted this, arguing that civil society should not be viewed as a representation of the public will, but rather as agents of special interests (Torsello, 2012, pp. 27-49). Studies

also suggest that civil society to a large degree is characterized by the context in which it operates; thus, making overly general statements about the nature of civil society irrelevant (Boulding, 2010; Cornell & Grimes, 2015).

For empirical reasons, this study focuses on voluntary associations as constituting civil society. However, in accordance with the work of Grimes (2013), the emphasis is put on a smaller number of organizations, with incentives to monitor and potentially curb corruption in public procurement. Incentives to address corruption arise from the damaging effects of the phenomenon, which creates a large group of “losers” who do not benefit from the prevailing corruption. Rather, this group stands to gain from organizing to curb corruption and is facilitated in doing so by the organizational structure of civil society (Mungiu-Pippidi, 2013). In the specific case of procurement corruption, civil society organizations have clear incentives to address corruption; considering that procurement constitutes the basis of public goods provision and that it comprises a majority of government spending (Basheka, 2008). Fox et al. (2016) contend that diverse types of organizations can be active in various phases of the process and serve different purposes in the monitoring of procurement. However, they also state that it is the combinations and coalitions of different organizations that are crucial to achieving success. For example, technically skilled organizations are useful to manage data processing and provide information but are aided by broad-based membership organizations that engage a large share of the population (Johnston & Kpundeh, 2005; Fox, et al., 2016). Thus, it is a good idea to avoid an excessively narrow focus on one specific type of organization. Nonetheless, not all organizations have the same incentives to ensure that procurement is conducted properly, some might even contribute to exacerbating corruption in public procurement⁶. Consequently, this study focuses on four types of organizations: welfare organizations, trade unions, local community action groups, and development/human rights groups. All of these should have incentives to ensure that public procurement and, by extension, public goods provision is performed according to regulation. However, the different organizations can have diverse functions in addressing public procurement; e.g. local development organizations might be most suited in monitoring execution as well as delivery of local projects, whilst trade unions typically can present more of a professionalized organization with other skills and access points (Fox, et al., 2016).

⁶ An example of this is the involvement of the mafia in public procurement in Southern Italy (Caneppele & Martocchia, 2013)

Having defined civil society and discussed its motivation for addressing procurement corruption, the study turns to the question of how these organizations can impact corruption. Civil society has become a popular concept in much of the contemporary anti-corruption literature (Mungiu-Pippidi, 2006). It has been recognized as a source of accountability outside the realm of traditional accountability mechanisms. However, to understand the possibility for civil society to demand accountability, it is necessary to first consider how accountability operates in general. Accountability is often divided into two dimensions: answerability, ability to demand answers; and sanctioning, the punishment of abusive behaviour (Fox, 2007). Although commonly used as a general term, different forms of accountability can be distinguished. The two most classical forms of accountability are vertical and horizontal. Vertical accountability is usually envisaged as exercised by the electorate on the rulers via elections, where voters have the possibility to sanction politicians based on performance or future policy. Horizontal accountability refers to the intra-government monitoring and sanctioning that takes place between government agencies. Although these mechanisms are important to attribute blame and administer sanctioning, scholars argue that both are inherently flawed. Considering the periodical nature of elections, it is deemed insufficient as an instrument for the public to hold elites accountable. Moreover, elections only provide one vote to give verdict on a wide range of government decisions; consequently, it is hard to distinguish whether voting is based on retrospective judgment of performance or based on future policy (Peruzzotti & Smulovitz, 2006; Przeworski, 2006). Similarly, horizontal accountability relies on the presence of a functioning judiciary or offices of audit and oversight that are both capable as well as interested in sanctioning corrupt behaviour (Peruzzotti & Smulovitz, 2006). Such institutions should not be assumed in all contexts, especially not when confronted with systemic corruption (Persson, et al., 2013), and the institutions are malfunctioning in many places (Lemos-Nelson & Zaverucha, 2006; O'Donnell, 2006). Partly in response to the shortcomings of other forms of accountability, a third channel of accountability has been suggested: societal accountability.

Societal accountability refers to the on-going process of monitoring and holding public officials accountable by civil society. The monitoring aspect is relatively straightforward; organizations act as watchdogs, observing the work of the bureaucracy and the government in order to expose misconduct (Peruzzotti & Smulovitz, 2006). It does require a certain degree of government transparency (Grimes, 2013) and knowledge of government processes to be successful (Torsello, 2012, pp. 107-136). Nevertheless, the aspect of societal accountability

that has been questioned is the ability to sanction misbehaviour, as assumed by most definitions of accountability (Houtzager & Joshi, 2008). Mainwaring (2003) argues that societal accountability should not be classified as a legitimate form of accountability seeing as civil society does not possess formal powers of sanctioning. However, such an argument does not tell the whole truth. Although not directly engaging in formal sanctioning, civil society can alert formal control functions to the presence of abuse by triggering “fire alarms”. Thus, activating horizontal mechanisms of sanctioning. Sanctioning can also work through informal mechanisms, should government functions be unresponsive. In such a case, civil society can e.g. alert media to the existence of misconduct, accruing reputational costs to misbehaviour (Grimes, 2013). Additionally, more drastic measures are conceivable, for example, the mobilization of disruptive protests (Boulding, 2010; Machado, et al., 2011). Similar accountability could, in theory, be exercised by citizens without the support of a civil society organization. However, considering that both monitoring and the administering of sanctioning require resources, it is facilitated when pursued by an organization rather than a single individual. Grimes (2013) concludes that societal accountability is more feasible in the context of a strong and vibrant civil society; it facilitates the coordination of demanding accountability through elections, increase public participation and have greater resources for monitoring compared to a weaker and more sparse civil society. In the case of procurement corruption, civil society can increase disincentives for public officials to engage in corruption; considering the monitoring and sanctioning functions of a strong civil society, societal accountability contributes to increasing both risk of detection as well as the risk of sanctioning for public officials. By extension, reducing the incidence of procurement corruption.

Although civil society and the use of societal accountability has shown promising signs in addressing corruption (Grimes, 2013), a theme in the contemporary accountability literature is the emphasis on interactions between different types of accountability. The argument is that different forms of accountability and actors capable of exercising accountability can enhance one another (Smulovitz & Peruzzotti, 2003; O'Donnell, 2006; Grimes, 2013; Fox, 2015). Even though the actions of a single actor in exercising accountability are important, it is the combination of pressures for accountability by several actors that is able to yield change. This notion is clearly portrayed in Fox's (2015) “sandwich model”, where he contends that the pressure from below garnered by civil society is aided by pressure simultaneously being applied from above by responsive government functionaries. Fox further argues that the

effectiveness is created by combining the monitoring and advocacy functions of civil society with the capabilities of sanctioning from formal government institutions. A similar sentiment is echoed by Ankamah (2016) with regards to the interaction between societal accountability and horizontal accountability. He argues that both have been proven ineffective on their own, but that the interaction between the two increases opportunities for holding public officials accountable. Without horizontal control mechanisms, civil society will not be able to access formal sanctioning; similarly, without civil society, corruption could go unnoticed (Ankamah, 2016). Thus, this line of research suggests that societal accountability and the efforts of civil society might not be enough on its own, but rather presupposes certain factors to be present for civil society to be effective.

Consequently, it is of interest to consider the context in which civil society operates to determine its proficiency in achieving control of corruption. Grimes (2013) suggests that civil society requires an enabling environment for it to be effective in combating corruption. Amongst other things, she identifies government transparency and the presence of free media as facilitators of civil society demanding accountability. The empirical findings are quite intuitive; for example, the ability to exercise societal accountability is likely dependent on the access to information to uncover and address abuse. This is also applicable to the case of procurement as civil society requires access to procurement documentation to be able to monitor the process (Brown & Neumann, 2017; Berliner & Dupuy, 2018). Furthermore, studies propose media as a facilitator for societal accountability. Media can aid in the process of uncovering corruption (Peruzzotti, 2006; Brown & Neumann, 2017), but can also help spread reports of abuse compiled by civil society (Grimes, 2013); thus, enabling civil society to accrue reputational costs to misbehaviour (Peruzzotti & Smulovitz, 2006). In addition, media is important in keeping the issue of corruption on the agenda, which is required to mobilize the public and to enable civil society to sustain pressure (Behrend, 2006). Moreover, the literature suggests that several aspects of the bureaucracy can facilitate societal accountability. Pande (2008) describes, in a case study, how civil society is enabled by the presence of “sympathetic bureaucrats”, who provide access to necessary documentation and open up public space for scrutiny. Furthermore, Brown and Neumann (2018) argue that meritocracy is essential for creating responsive bureaucrats, which together with civil society pressure can address corruption in procurement. In summary, the role of civil society in demanding accountability is not implausible, but likely subject to contextual considerations as well as the presence of other actors capable and interested in exercising accountability. Thus,

the research field suggests that both societal conditions and institutional conditions are important for civil society to demand accountability; although the specific mechanisms at work remain to be conclusively outlined.

Nonetheless, in certain contexts, civil society might be considerably hampered in demanding accountability. Mechanisms of societal accountability seem less feasible in the context of systemic corruption. It is made problematic considering that the trademark of systemic corruption is the absence of a principal concerned with curbing corruption (Persson, et al., 2013), and given that the participation in voluntary associations presents a collective action dilemma in itself; requiring individuals to forgo potential benefits of engaging in corruption or even facing repercussions for organizing opposition (Grimes, 2013). Moreover, the contextual conditions that facilitate societal accountability are likely absent in a thoroughly corrupt context (Grimes, 2013; Williams-Elegbe, 2018). However, studies have noted that in such a corrupt context, civil society might nevertheless present one of the few alternatives in changing the prevailing particularistic culture (Mungiu-Pippidi, 2013). Thus, civil society as a platform for demanding accountability should be theoretically possible in most contexts. Nonetheless, consistent impact of civil society appears less plausible in a thoroughly corrupt setting.

In conclusion, the empirical evidence and theory suggest that civil society is an important actor for demanding accountability; capable of monitoring, but also proficient in administering sanctioning through both formal and informal sanctioning mechanisms. In the case of procurement, societal accountability can contribute to increasing disincentives for public officials to engage in corruption by increasing the risk of detection and risk of sanctioning. Nonetheless, previous research has noted that various contextual factors are likely important in understanding the effectiveness of civil society in curbing corruption. Access to information, presence of investigative media and a professional bureaucracy are all factors that likely facilitate societal accountability. Lastly, the review so far has centred around theoretical considerations that suggest the feasibility for civil society to address procurement corruption. However, it is of interest to study actual cases of civil society involvement in curbing procurement corruption to further understand the mechanisms at work. The following section introduces a few such examples.

2.3. Cases and examples of societal accountability in public procurement

This section provides concrete examples that demonstrate the viability of civil society to monitor procurement and to act on the information to address corruption. The cases provide insights into how the previously mentioned interactions of different actor work in practice and the contextual conditions that facilitate societal accountability.

The first example of successful civil society involvement in procurement is taken from Paraguay, where journalists in tandem with civil society accessed procurement documentation and uncovered that the education ministry had procured goods at excessively high prices. Civil society, foremost represented by student and youth organizations, staged protests following the incident and managed to turn the spotlight on procurement corruption. The demonstrations and pressure from civil society eventually led to the resignation of the minister for education as well as the cancellation of the procurement contract in question. Moreover, it forced the implementation of an institutionalized role of civil society in monitoring public spending (Brown & Neumann, 2017; Berliner & Dupuy, 2018). The case demonstrates several of the aspects mentioned in the previous section; the cooperation of media and civil society to improve monitoring; use of protests as a means of administering sanctioning. Consequently, showcasing that civil society can be an important actor in curbing procurement corruption, both capable of monitoring and sanctioning.

A further example is taken from Kazakhstan, where an organization, Namys, undertook monitoring of public procurement to improve conditions for the disabled. By monitoring the allocation of public funds and procurement, the organization uncovered and documented irregularities in the provision of wheelchairs. Namys later compiled a report on the findings and brought it to the attention of the local mayor, resulting in an adjustment of the procurement practices (Ramkumar, 2008). In contrast to the previous case, civil society, in this case, relies on triggering fire alarms to administer sanctioning. The case also demonstrates that civil society can contribute to increasing accountability in society by aiding formal institutions in monitoring.

The final example of civil society engagement in procurement is taken from the Philippines. In 2001 Procurement Watch Incorporated (PWI) was formed, funded by several international organization such as the World Bank and with the intention of fighting corruption within public procurement. PWI's strategy was twofold: firstly, to join forces with local civil society

organization, educating them in the procurement process and how to monitor it. Secondly, to engage the media in reporting on government corruption and in raising public awareness. Although having to overcome issues related to accessing relevant procurement documents, the approach has been shown to be successful and is today an important part in ensuring a more transparent and accountable procurement process (World Bank, 2009). What should be taken away from this example is that coalitions of societal actors can aid one another in addressing procurement corruption; where civil society organizations and media can serve different roles in demanding accountability. Nonetheless, it also alludes to the need for a certain degree of knowledge to successfully understand and detect corruption in procurement.

In summary, the examples demonstrate that under the right circumstances, civil society can be successful in pursuing accountability for corruption in public procurement. The examples also demonstrate that contextual conditions are of importance; for example, the presence of media or sympathetic local elites. Thus, these examples give further substance to the idea that civil society can be important in explaining variation in procurement corruption, provided the right context. On the other hand, these are simply examples and cases, not extensive empirical studies. Consequently, it is good to keep in mind that the cases do not present a complete outline of how societal accountability in procurement functions in general nor the contextual conditions that are important to understand societal accountability. Instead, they should be considered indicative of potential mechanism as well as contextual factors that could be essential, and which should be tested empirically. Lastly, although slightly outside the scope of this study, it is of interest to note that several initiatives have been launched by the EU to create a more formalized role of civil society in monitoring procurement⁷ (European Commission, 2018). This is significant of a larger trend of furthering the involvement of non-state actors in government processes and it demonstrates the belief in civil society.

2.4. Identifying the research gap

From the review of previous research, it is possible to gather that procurement is a crucial government process (Basheka, 2008), but also an area of concern with regards to corruption (Ware, et al., 2007; Fazekas & Kocsis, 2017). In addition, the review concludes that corruption within public procurement typically features top-level officials and contributes to

⁷ One such example is the so-called *Integrity Pacts* that the EU in cooperation with Transparency International are piloting in a few European regions. The integrity pacts are provided access to procurement processes as external monitors and are typically led by a civil society organization.

extensive societal losses (Ware, et al., 2007; Hafner, et al., 2016). Consequently, corruption in public procurement is proposed as a proxy for high-level corruption in general (Fazekas & Kocsis, 2017). Moreover, the literature frequently hails civil society as an important actor important in the fight against corruption (Mungiu-Pippidi, 2013) and empirical research indicates that societal accountability is capable of addressing corruption, provided certain contextual prerequisites (Grimes, 2013). Lastly, the examples presented in the previous section further signify the feasibility of societal accountability. Nonetheless, previous research has yet to combine these strands of literature in an empirical study. Thus, this study aims to fill the gap.

Intuitively, the case of civil society and procurement corruption makes a lot of sense. In many ways, the setting is favourable for societal accountability, especially the observed context of EU regions. All EU regions are covered by EU directives on procurement, requiring most large contracts to be published openly in publicly available databases (Fazekas & Kocsis, 2017); allowing third parties to partake in the documentation and by extension demand accountability. Moreover, public procurement presents incentives for civil society monitoring, given that it constitutes the basis for the provision of public services and infrastructure, and involves considerable amounts of public funds (Basheka, 2008). Civil society involvement should increase disincentives of engaging in corruption, by increasing risk of detection, through monitoring of the process; and by increasing risk of sanctioning, through the triggering of fire alarms and use of informal sanctioning mechanisms.

Despite these considerations, few studies on procurement corruption have considered the role of civil society or other non-state actors in the process. Instead, research has focused on institutional conditions, aspects of the procurement process and bureaucracy that incentivize procurement corruption; meritocracy affecting incentives of public officials to monitor and capabilities of resisting pressure (Charron, et al., 2017), degree of discretion afforded to public officials (Søreide, 2002) and incentives provided by the nature of the procured goods/services (Ware, et al., 2007; Schultz & Søreide, 2008). Nevertheless, it is important to observe the feasibility of actors outside the bureaucracy and government to influence procurement corruption. Especially considering the enthusiastic view of civil society in anti-corruption research and the initiatives aimed at facilitating the inclusion of third parties in public procurement. Consequently, this study contributes to the study of procurement

corruption by observing the possibility of non-state actors to monitor and demand accountability of the procurement process.

The current study not only addresses the gaps in the literature on procurement corruption but also contributes to the study of societal accountability. Previous literature on societal accountability and corruption has to a large degree relied on aggregate and perception-based measures of corruption (see e.g. Lee, 2007; Grimes, 2013). Although important, it does not allow to accurately capture the mechanisms at work. This thesis instead focuses on procurement corruption and makes use of an objective measure of corruption risk as a proxy for procurement corruption⁸; thereby, it not only tackles corruption in one of the most important government processes but also allows to more accurately gauge the actual effect of societal accountability on corruption. Considering that aggregate measure typically are based on perceptions and are slow-moving (Rose-Ackerman & Palfika, 2016, pp. 24-27; Charron, et al., 2017), it is made difficult to discern whether fluctuation or variation in corruption is due to holding officials accountable by civil society or due to increased focus on the issue. The work of civil society involves raising awareness of issues, corruption in this case, which can affect the perceptions of said issues; positively or negatively depending on the response from the government. This form of advocacy is undoubtedly important but should not be confused with accountability; in which civil society not only turns the spotlight on the issue but also targets it directly. Nonetheless, such a distinction is difficult to make with the use of perception-based measures. Employing an objective and easily discernible proxy of procurement corruption facilitates making such a distinction, given that the proxy foremost should be affected by accountability and not advocacy; thus, getting at the mechanisms at work.

Lastly, accountability literature suggests that in order to break a negative environment and be able to demand accountability, different forms of accountability as well as actors capable of exercising accountability need to be combined (O'Donnell, 2006; Fox, 2015). Hence, civil society and its proficiency in demanding accountability should be considered on a contextual basis, dependent on both institutional and societal conditions (Grimes, 2013; Ankamah, 2016). Although a few empirical studies address this concern, the exact nature of these interactions remains to be conclusively outlined. To a large degree, the suggested mechanisms

⁸ The measure of procurement corruption is explained in more detail in the data section.

surface from case studies of a smaller number of examples; or in the best of cases, argued by a few large-N studies. Even though these studies are important, there is considerable room to extend on these findings and to test new interactions. This study serves to study the conditional effect of civil society dependent on transparency, meritocracy, and local media in EU regions. Consequently, contributing to testing the conditional effect of civil society in a new setting, enabling this study to draw new conclusions regarding the mechanism of the interaction effects. Finally, this study synthesizes findings from studies of procurement, arguing that e.g. meritocracy not only is important for curbing procurement corruption, but also significant in facilitating societal accountability.

Considering the limitations of previous literature, this study aims to fill the research gaps by studying the relationship between civil society and corruption in public procurement, but also to review under what contextual conditions societal accountability can be effective in addressing corruption. Thus, observing both the unconditional and conditional relationship between civil society and procurement corruption. To reach the stated aim, the following research questions will guide the study:

(1) Does the strength of civil society affect corruption in public procurement in EU regions?

(2) What contextual conditions impact the effect of civil society?

2.5. Expected results and theoretical model

The reviewed research and cases support the idea that civil society is capable of monitoring as well as sanctioning corruption in procurement. Nevertheless, it should be recognized that it is not without resources and effort that results can be achieved. Firstly, monitoring public procurement requires both knowledge of the process and technical skills to make sense of the available procurement documentation. For example, in the Paraguayan case, it is mentioned that the available data was not used by civil society to any greater extent before the described event; rather, its usage was limited to data scientist and actors directly involved in public procurement (Brown & Neumann, 2017; Berliner & Dupuy, 2018). The monetary resources, as well as the technical expertise to process and compile data, are more likely to be available within a strong civil society, one that engages a large portion of the public and encompasses different types of organizations. Secondly, the ability for civil society to sanction misbehaviour is also dependent on the resources and strength of civil society. Strength of civil

society will dictate the possibility for mobilizing protests (Cornell & Grimes, 2015) and, consequently, the possibility for elites to ignore or act on reports of abuse (Behrend, 2006). In addition, previous research highlights the importance of coalitions of different types organizations organized around a common cause, in order to be able to sustain pressure for reform (Kpundeh, 2005) and to include different types of skills (Fox, et al., 2016). These features and requirements are more feasible to be in place in the context of a strong and vibrant civil society. In summary, a strong civil society that engages a large share of the population should be capable of both amassing larger resources for monitoring and mobilizing the population; by extension, a strong civil society will be more adept in exercising societal accountability in comparison to a weaker one (Grimes, 2013). All things considered, it is reasonable to expect a negative correlation between the strength of civil society and corruption in public procurement. Therefore, the first hypothesis of this paper is:

H1: Strength of civil society is negatively associated with corruption in public procurement

Something that has been discussed throughout the previous sections is that successful instances of societal accountability have been characterized by the presence of various contextual factors that facilitate demanding accountability. Previous research finds that contextual conditions are important for understanding the performance and ability of civil society to demand accountability. Even though civil society presents an alluring case for combating corruption in public procurement, the effectiveness is likely conditional upon both the institutional and societal context in which it operates. Therefore, this study observes three contextual factors that are deemed relevant in the case of procurement corruption: transparency, meritocracy, and local media.

Previous literature suggests transparency as crucial for civil society to be able to monitor and exercise societal accountability (Grimes, 2013). Although it should not be viewed as a sufficient criterium for societal accountability, it is a necessary one. Without transparency, and, consequently, information, monitoring of government practices is made impossible (Fox, 2015; Rose-Ackerman & Palfika, 2016, pp. 395-411). The successful cases of civil society, mentioned previously, all entail the access to procurement documents by civil society (Ramkumar, 2008; World Bank, 2009; Brown & Neumann, 2017). EU procurement legislation requires both tenders and contract notices above certain thresholds to be published openly. Consequently, most major contracts are available for public scrutiny, ensuring a

fundamental level of transparency (Fazekas & Kocsis, 2017). Nevertheless, the information contained in each contract notice varies (Bauhr, et al., forthcoming). This affects the possibility for civil society to detect irregularities and to pursue accountability for said irregularities (De Simone & Shah, 2012). Hence, transparency should affect the possibility of civil society to exercise societal accountability. In a region characterized by more available information on procurement, i.e. greater transparency, civil society should be more capable of detecting and pursuing irregularities than in a region characterized by less transparency. The second hypothesis is, therefore:

H2: The effect of civil society on procurement corruption is amplified in regions characterized by a higher degree of procurement transparency.

Both the literature and the presented cases indicate that societal accountability is facilitated by responsive elites within the bureaucracy (Ramkumar, 2008; Brown & Neumann, 2017). Fox (2015) considers this interaction between society and state actors as contributing to the formation of pro-accountability coalitions; allowing pressure to be applied from several sources and, thus, increases the likelihood of success. This is also noted by Grimes (2013), stating that most successful cases of societal accountability have required the presence of elites willing to uphold legislation and aid in combating abuse. An example of this can be seen in a case study from India, where societal accountability is aided by the presence of a sympathetic bureaucrat who provides access to the needed documentation (Pande, 2008). This thesis argues that meritocratic systems, which stands in contrast to systems where politicians appoint officials to the bureaucracy, contributes to creating sympathetic bureaucrats. Charron et al. (2017) argue that increased meritocracy creates a more capable pool of candidates, able to resist pressures of corruption. Moreover, it incentivizes hard work as a means for achieving a successful career rather than it being dependent on connections and contacts. Finally, meritocracy incentivizes intra-government monitoring (Charron, et al., 2017). All things considered, meritocracy within the public sector should create bureaucrats that are independent of politicians; thus, hindering collusion between the two groups. It also implies that bureaucrats should have less incentive of tolerating corruption in a meritocratic system than in one characterized by favouritism. By extension, meritocracy should provide reasons for officials to consider input from civil society to combat corruption, and allow officials to support civil society by granting access to information and opening up public space for scrutiny (Lemos-Nelson & Zaverucha, 2006). The presence of both a strong civil society and

sympathetic bureaucrats can contribute to monitoring and accountability being demanded both from above and below, activating several dimensions of accountability (O'Donnell, 2006; Fox, 2015). Therefore, the third hypothesis of this study is:

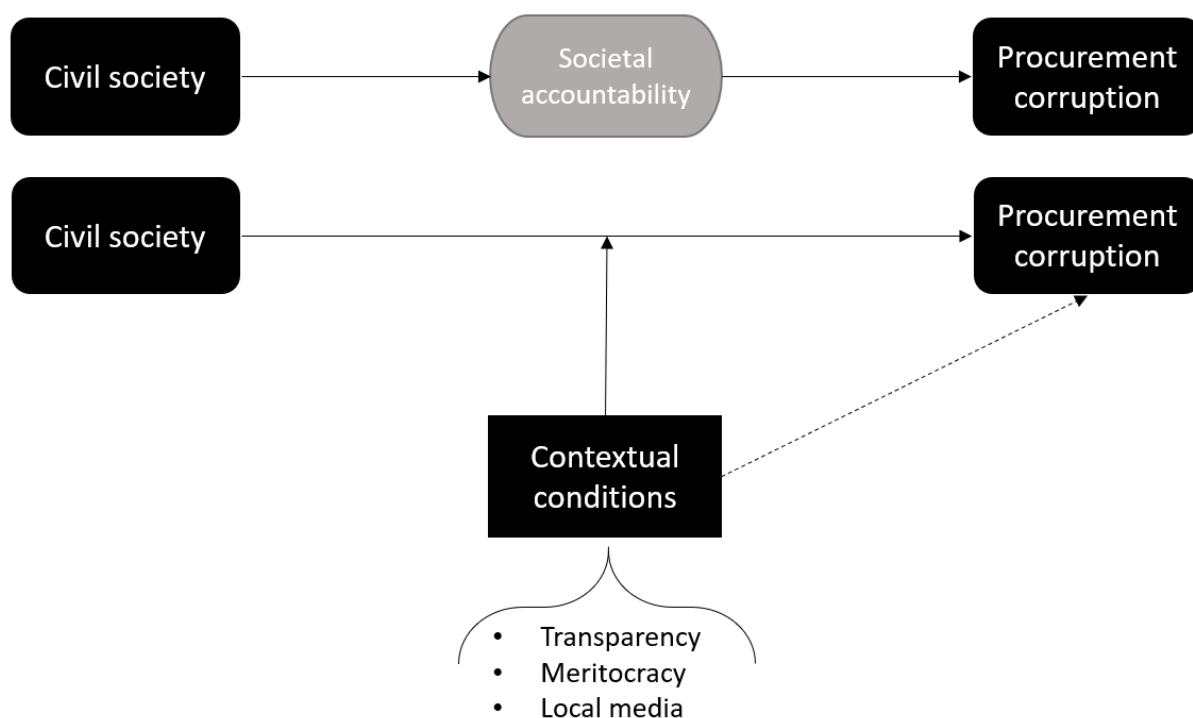
H3: The effect of civil society on procurement corruption is amplified in regions characterized by a higher degree of meritocracy in the public sector.

Several scholars propose that the presence of a capable and credible media constitutes an important contextual condition for societal accountability (Peruzzotti, 2006; Peruzzotti & Smulovitz, 2006; Grimes, 2008; Fox, 2015). It was noted in the Paraguayan case that journalists in cooperation with civil society were responsible for uncovering corruption within public procurement (Brown & Neumann, 2017). Alluding to the fact that media could be perceived as a watchdog in its own right, but also capable of assisting civil society in monitoring (Peruzzotti, 2006; Peruzzotti & Smulovitz, 2006). Media can also aid in administering sanctioning; enabling civil society to mobilize the public in protest through both alerting the public to the issue and in keeping it on the public agenda (Behrend, 2006). In addition, media is instrumental for societal accountability to be able to accrue reputational costs to misbehaviour; operating through the publishing of reports of corruption and, consequently, tarnishing reputations of corrupt elites (Peruzzotti & Smulovitz, 2006). However, the facilitating effect of media likely depends on how free and credible the media platforms are (Grimes, 2013). If the media outlets are merely the voice of a corrupt regime, they are unlikely to facilitate civil society's fight against corruption. Therefore, the credibility of media in reporting on matters of corruption should influence the ability of societal accountability to reduce corruption. Credibility should also determine the mobilizing effect of exposés; it is crucial that the public believe and trust reports of abuse for it to fuel action (Behrend, 2006). Furthermore, considering that the study is focused on the regional level, it is important to note that it is the local media that matters in the current case. National level media will matter less in the scrutiny of local and regional level corruption (Grimes, 2008). The credibility of local media is particularly crucial in the case of corruption within public procurement, considering the complex nature of the process; presenting an added challenge in communicating it effectively (Torsello, 2012, pp. 107-136). In summary, local media should play an important role in allowing civil society to be successful in tackling procurement corruption. Consequently, the fourth hypothesis is:

H4: The effect of civil society on procurement corruption is amplified in regions characterized by a higher degree of local media credibility.

The figure below summarizes the hypothesized linkages between civil society and corruption in public procurement.

Figure 1. Theoretical model.



The relationship illustrated at the top shows the unconditional relationship between civil society and procurement corruption, societal accountability being the causal mechanism⁹; by extension, affecting the incentives for public officials to engage in corruption. Nevertheless, it is possible to argue that the causality could flow the other way, i.e. procurement corruption affecting the strength of civil society. Such an argument typically relies on corruption negatively affecting social trust, which by extension ensures that individuals are less likely to engage in civil society (Charron & Rothstein, 2018). However, as the theory and cases presented throughout previous sections have suggested, this study takes as a theoretical point of departure that civil society affects procurement corruption. Nonetheless, this issue is dealt with in more detail in the methodology section.

⁹ Note that the causal mechanism is not measured directly, hence it is presented in grey in the model.

The elaborated model in *Figure 1* illustrates the relationship dependent on contextual conditions, i.e. the three factors described above. In addition to influencing the use of societal accountability, the contextual conditions are likely to directly affect procurement corruption. For example, meritocracy has been suggested to limit procurement corruption by e.g. incentivizing intra-government monitoring (Charron, et al., 2017).

3. Methodology

The methodology section presents the research design of the thesis, more specifically the object of analysis and the statistical techniques used. It also introduces the data; discussing the operationalization and reliability as well as validity of the variables that are used in the analysis. Lastly, the data section includes descriptive statistics of all variables.

3.1. Unit of analysis

The units of analysis in the study are regions within the EU. EU regions are coded according to the NUTS nomenclature, which presents three levels of territorial units and where each subsequent level is a disaggregation of the previous. NUTS1 constitutes the largest division of regions, whilst NUTS2 regions are disaggregations of the regions offered by NUTS1¹⁰ and so on. The focus is NUTS2 regions, however, when data is not available for NUTS2, data on NUTS1 regions is used¹¹. The classification favours existing administrative units/politically relevant regions within countries, e.g. *Bundesländer* at NUTS1 level in Germany and *Regioni* at NUTS2 in Italy (Eurostat, 2018). The political relevance stems from the fact that these regions are governed by popularly elected regional governments that have a certain degree of autonomy from the central government. It also implies that these regions are, to varying degrees, directly responsible for local service provision (Charron, et al., 2015). The current sample includes politically relevant regions as far as possible. Nevertheless, in some cases, especially in highly centralized countries, it is not possible to observe politically meaningful regions¹², and the sample then includes regions without political relevance. However, the aim is not exclusively to look at separate polities. Instead, it is of interest to observe all regional variation, which is present even in highly centralized countries (Charron, 2013). Nonetheless,

¹⁰ As an example, Sweden is divided into three regions at NUTS1 level, these are disaggregated into eight regions at NUTS2 level.

¹¹ In the analysis, there is no overlap of using both NUTS1 and NUTS2 regions within a single country.

¹² In certain countries and at specific NUTS levels, there are no existing administrative unit. NUTS regions are then constituted by aggregations/disaggregations of existing administrative units.

politically relevant regions is used as a control in the regressions. At most, 175 regions from 20 EU countries are included in the sample¹³.

Studying regions within the EU is suitable for several reasons. Firstly, the procurement regulation is decided by the EU, ensuring all member countries are subject to the same regulation. Contracts exceeding certain thresholds are required to be advertised on a publicly available, and EU-common, procurement database (Fazekas & Kocsis, 2017). The fact that the data is openly available is important for civil society to be able to monitor (Grimes, 2013). However, as noted in the previous section, information available in the contract award notices varies extensively. In addition, a lot of procurement takes place at the regional level¹⁴ (Decarolis & Giorgiantonio, 2015; OECD, 2015), providing both incentives and opportunities for local civil society organizations to address procurement corruption. Furthermore, there is generally large amounts of variation at the subnational level, which is overlooked in cross-country studies (Snyder, 2001). Considering the large variation with regards to corruption present within certain EU countries, it is highly relevant to study the subnational context (Charron, et al., 2017). Finally, studying the regional level allows for keeping certain institutional and cultural factors, that are shared in the country, constant¹⁵. These can be hard to account for in cross-country studies (Snyder, 2001).

The case of civil society and procurement corruption in EU regions can be viewed as presenting both a most-likely and a least-likely case, i.e. both an “easy” and a “tough” test for the theory, which influences the generalizability of the findings (Flyvbjerg, 2006). Easy in the sense that all the surveyed countries are democracies; and civil society, thus, should be facilitated in its existence (Howard, 2003, pp. 31-56). Consequently, results found here do not necessarily apply to settings of weaker democratic institutions; the sample accommodates some of the most well-performing regions in the world and findings should be considered significant of such contextual conditions. Nevertheless, as mentioned, there is a considerable amount of variation within the sample. Quality of government differs extensively between and within countries (Charron, 2013). However, one could also argue that it presents a rather tough case for the theory given the nature of procurement and

¹³ See Appendix I for more information on the regions.

¹⁴ OECD estimates that about 63% of procurement spending is conducted at the local/regional level in OECD countries in 2015.

¹⁵ Prerequisites the use of country fixed effects, which is used as a robustness test.

corruption within the same. Procurement is by all accounts a complex process, requiring knowledge of practices and regulations (Ware, et al., 2007). Therefore, civil society monitoring of the process is not entirely straightforward and communicating the message of abuse to the public could present a challenge (Torsello, 2012, pp. 107-136). Implying that many local organizations might not be capable of such a feat, considering it requires resources and capabilities that might not be present in all local contexts. Following this line of reasoning, a negative relationship between civil society and procurement corruption found in this study should be applicable to other forms of corruption as well, given the nature of procurements and the regional context.

3.2. Statistical technique

This study utilizes OLS (Ordinary Least Squares) to estimate the relationship between civil society and procurement corruption. OLS is the statistical process of fitting a linear relationship to data, minimizing the squared distances between fitted and observed values. OLS is a simple yet powerful way to produce unbiased estimations. If a few assumptions are fulfilled, OLS will produce the Best Linear Unbiased Estimators (BLUE). However, it is important to note the limitations of OLS. Firstly, OLS produces coefficients that show the strength of correlation between independent and dependent variables, it does not show causality (Mehmetoglu & Jakobsen, 2017, pp. 46-52). Nonetheless, this is a general concern for most statistical techniques and is mitigated through clever research design and theoretical argument. Secondly, OLS relies on certain assumptions for it to produce accurate results. Some assumptions are more troublesome than others. These are discussed below.

A common issue is the assumption of homoscedasticity, i.e. constant variance of the error term. Implying that models predict values as accurately for low and high values. Breach of the assumption results in heteroskedasticity, biasing standard errors. Another issue, which causes similar problems to standard errors, is autocorrelation. Autocorrelation entails a breach of the assumption of uncorrelated errors (Mehmetoglu & Jakobsen, 2017, pp. 149-151). Considering that regions are nested in countries, spatial autocorrelation is likely an issue in this study (Charron, et al., 2017). To mitigate these problems, clustered¹⁶ and robust standard errors are used. The technique entails relaxing the assumptions of constant variance and uncorrelated errors (Mehmetoglu & Jakobsen, 2017, pp. 234-235). Two further assumptions of OLS are the

¹⁶ Clustering is done on the basis of countries, meaning that standard errors are calculated based on number of countries rather than regions.

absence of multicollinearity and linearity, meaning that independent variables cannot be perfectly/highly correlated and that the focal relationship is linear in nature. Considering that interactions are used in several specifications of the models, these assumptions are breached. Lastly, the presence of influential observations can cause estimated coefficients and standard errors to become incorrect. To observe such outliers, the study utilizes Cook's Distance, measuring the influence of each observation on the model (Mehmetoglu & Jakobsen, 2017, pp. 137-157).

Finally, one issue of regression analysis that deserves special attention is that of endogeneity. Endogeneity can be strictly interpreted as occurring when the independent variable is correlated with the error term, biasing regression results. One cause of endogeneity is the omission of important explanatory variables or so-called omitted variable bias. Omitted variables bias entails biasing results due to the exclusion of a variable that is important to control for; important in the sense that it correlates with both the dependent and the main independent variable (Aneshensel, 2013, pp. 85-95). Similarly, a spurious relationship implies that an observed relationship between an independent variable and a dependent variable is driven by a third unobserved variable that affects both observed variables (Aneshensel, 2013, pp. 199-222). Consequently, the concepts of omitted variable bias and spuriousness are related; considering that the omission of important control variables can result in the observation of a spurious relationship. Another cause of endogeneity is simultaneity. Simultaneity implies that causality not only flows from the independent variable to the dependent variable but also flows in the opposite direction, i.e. reverse causality (Aneshensel, 2013, pp. 85-95). Thus, ruling out endogeneity is important to be able to assert causality of the observed relationship. Accounting for endogeneity is a tall order in social science research, due to the observational nature of most research; instead, it is commonly addressed through theoretical argument. Nonetheless, one strategy to account for endogeneity is to rule out counterarguments (Ibid.). In order to do so, several control variables are included in the models to control for factors that are likely to influence both the independent and the dependent variable. The following section introduces the control variables.

3.3. Data

For the purposes of this thesis, a cross-sectional dataset is assembled; observing EU regions at one point in time. In most models, 175 observations are included; however, due to data limitations, in some models, the number of observations is slightly less. The data section first

introduces the dependent and main independent variables, thoroughly discussing their operationalization. Subsequently, the section presents moderating¹⁷ and control variables respectively. Lastly, the section introduces a table of descriptive statistics of the variables.

Procurement corruption

Observing procurement corruption directly is problematic due to the nature of the phenomenon; it is an illegal activity and involved actors go to great lengths to hide it (Dahlström & Sundell, 2013). Nonetheless, studies of procurement corruption suggest that certain aspects of procurement present clear risks of corruption and once aggregated can be used to approximate corruption within procurement (Fazekas & Kocsis, 2017). Fazekas and Kocsis (2017) show that procurement risks serve as a proxy for high-level corruption; by tapping into strategies for the deliberate restriction of competition of high-value contracts. Consequently, the measure satisfies the definition of procurement corruption provided in Section 2.1¹⁸.

Corruption risks typically arise when principles of transparency, fairness, and competition are circumvented (Fazekas & Kocsis, 2017). Following the work of Fazekas and Kocsis (2017), the main indicator of corruption in public procurement is the percentage of contracts with a single bidder. Single-bidder contracts allow for awarding contracts above market price and for extraction rents. Single instances do not necessarily reflect corruption, but if occurring repeatedly in an otherwise competitive market, it gives an indication of corruption. As noted in the literature review, corrupt procurement schemes take on a lot of different forms and can be made excessively complicated (Søreide, 2002; Ware, et al., 2007). Consequently, measures of corruption could be made equally complicated. Nonetheless, the suggested measure captures the simplest strategies of corrupt tampering. As long as the simplest strategies remain the cheapest strategies, the measure should be a valid estimator of procurement corruption (Fazekas & Kocsis, 2015).

The study constructs the measure from a database containing roughly 2 million procurement contracts from 28 EU countries (including Norway and excluding Malta) compiled over a five-year period, 2009-2013 (Fazekas & Kocsis, 2017). The contract database is maintained

¹⁷ Moderating variables denotes the three variables that approximate the contextual conditions, i.e. variables that *moderate* the relationship between civil society and procurement corruption.

¹⁸ It is defined as “*unjustified restriction of access to public contracts to favour a selected bidder*”.

by DIGIWHIST, which processes data from the EU procurement database, TED (DIGIWHIST, 2018a). However, to fit the purposes of this thesis and to ensure the accuracy of the corruption measure, some of the contracts are dropped. Firstly, contracts with values below the mandatory publication threshold are dropped. Secondly, for the measure of single-bidder contracts to accurately capture procurement corruption, it relies on the assumption of a competitive market. In an uncompetitive market, single-bidder contracts are likely to occur, given that few actors will be able to supply the sought good. To ensure that markets¹⁹ are in fact competitive, the measure is only constructed from contracts in markets where the number of awarded contracts is more than 10²⁰ during the observed period. This is done to avoid less competitive markets such as defence (Charron, et al., 2017; Fazekas & Kocsis, 2017).

The measure constitutes an objective indicator of corruption. There are several benefits associated with the use of objective indicators as opposed to commonly used perception-based measures. Firstly, perceptions of corruption can be distorted and must not necessarily be related to actual circumstances. Rather, it can be impacted by recent media coverage of the issue. Secondly, perceptions are slow-moving and do not always reflect the current situation (Rose-Ackerman & Palfika, 2016, pp. 24-27; Charron, et al., 2017). Fazekas and Kocsis (2017) argue that despite large changes to governance structures, little change can be observed in the widely used perception-based measures of corruption. Consequently, using the objective indicator allows this thesis to more accurately gauge the effect of societal accountability. Thirdly, observing high-level corruption, which procurement corruption typically is classified as, based on perceptions is made even more difficult; considering that few have actual experiences with that type of corruption (Fazekas & Kocsis, 2017). Objective measures, on the other hand, are formed based on tangible data, procurement contracts in this case, which does not suffer from the same flaws as perceptions. Another benefit of using procurement data is that it is not context-dependent. Rather, this type of information is available in many countries and regions; enabling the construction of similar measures of procurement corruption in other settings (Charron, et al., 2017; Fazekas & Kocsis, 2017). In conclusion, the suggested measure is stronger in terms of reliability and provide a more up-to-date estimation of corruption levels than perception-based measures. The validity of the

¹⁹ Markets are defined based on procured good/service, according to CPV codes, and NUTS region. One market consists of a particular CPV code in a region.

²⁰ By studying the UK procurement market, Fazekas & Kocsis (2017) find that excluding markets with less than 10 contracts significantly decreases the risk of tapping into a market with only a single possible supplier.

measure is also seen in the fact that it correlates highly with other measures of corruption; for example, Charron et al. (2017) find a high degree of correlation with e.g. the EQI index²¹.

Civil society

Civil society constitutes the main independent variable in the study. The conceptualization and estimation of civil society constitute a topic of extensive discussion. Considerable variation can be seen in the approaches taken to estimate civil society in empirical literature; both dependent on the various definitions of civil society, but also due to the different data used in the construction of indicators. This thesis follows the strand of research that employs survey data in estimating the strength of civil society (Paxton, 2002; Howard, 2003; Cornell & Grimes, 2015). Strength of civil society is estimated through voluntary organizational memberships. However, as mentioned, it is important to note that not all organizations are likely to have the same effect on procurement corruption (Paxton, 2002; Howard, 2003; Grimes, 2013). A sports association is unlikely to be as engaged in monitoring public procurement as an organization devoted to local development. Moreover, some organizations, such as organized crime, might even have the opposite effect on procurement corruption (Howard, 2003, pp. 31-56; Caneppele & Martocchia, 2013). Therefore, this study focuses on the four organization types discussed in the literature section²².

As mentioned, civil society strength is constructed using survey data, more specifically from the European Value Survey (EVS) gathered between 2008-2009²³ (EVS, 2016). The time period, for the most part, predates that of the dependent variable, which is important, although not sufficient, to determine causality; nonetheless, logically it makes sense that the consequence follows the cause and not the other way around (Aneshensel, 2013, pp. 85-88). The measure captures the strength of civil society by summing the number of voluntary organizational memberships for the concerned organization types for each respondent. This is then aggregated to form an average number of organizational memberships for each region. Strength is held to increase with the number of memberships. Moreover, the strength of civil society should be associated with the capability of exercising societal accountability;

²¹ These correlations are displayed in Appendix I.

²² These are: welfare organizations, trade unions, local community action groups and development/human rights groups.

²³ A majority is gathered in 2008.

considering a strong civil society involves a larger share of the population and likely encompasses several types of organizations (Grimes, 2013; Fox, et al., 2016).

As previously mentioned, empirical conceptualizations of civil society are contested and there is no perfect way of measuring civil society (Howard, 2003, pp. 31-56). In this thesis, a choice had to be made between using survey data or data from an EU-transparency register on civil society organizations (European Commission, 2019). The register data, although presenting a number of organizations in various parts of Europe, was foremost concerned with larger organizations that interacted directly with the EU. In addition, it was not possible to ensure the validity of the data as a proxy for civil society. Consequently, the choice was made to proceed with survey data as it provides a better option for capturing different types of organizations and their strength in terms of memberships at the regional level.

Nonetheless, it is important to note the limitations of utilizing survey data. Firstly, questions can be interpreted differently in various settings (Paxton, 2002). Another related issue is that the use of this approach does not provide the possibility to account for local organization types that might be relevant, which potentially can make cross-country comparisons problematic (Heinrich, 2005). Nevertheless, studies have found that views of what constitutes a civil society organization are consistent throughout Europe (Howard, 2003; Torsello, 2012, pp. 27-50); thus, limiting the possibility of miscoding due to differences in interpretation. The most acute issue in using EVS data is the fact that the survey is not entirely adapted to the regional context; in certain regions, quite few respondents are sampled²⁴. To remedy this issue, the thesis introduces analytical weights²⁵ as a robustness test. Despite the drawbacks of survey data, it does present the best opportunity of estimating civil society at the regional level. Most other indices and scores of civil society are constructed for the national level and are not suitable for the purpose of this thesis. The method of using survey data is also frequently used in empirical literature and constitutes a good alternative for measuring civil society, given that it typically provides the best data coverage (Hoskins & Mascherini, 2009). Lastly, it should be noted that despite the limitations of survey data, the EVS study does provide good coverage, in terms of respondents, for most regions. It also allows respondents to mark a wide number of organization types, which should allow for the correct coding (EVS, 2016).

²⁴ *Table 1* includes descriptive statistics of the number of respondents.

²⁵ Section 4.3 contains a more extensive discussion on analytical weights.

Moderating variables

Interactions effects are used to model how the relationship between civil society and procurement corruption is affected by contextual factors. In the regression models, the interaction effects are estimated by multiplying civil society with the moderating variables. Consequently, the approach allows the marginal effect of civil society to vary dependent on the contextual conditions; rather than assuming that the marginal effect is the same across all values (Aneshensel, 2013, pp. 320-321).

Transparency has been suggested as a necessary component for civil society to be able to demand accountability (Grimes, 2013). Although public procurement contracts, in general, are publicly available²⁶, the contained information is not always consistent and can influence the possibilities for monitoring. If procurement documentation is lacking important information, it will affect the ability for civil society to accurately assess whether or not procurement has been conducted properly. Bauhr et al. (forthcoming) argue that transparency can be divided into two dimensions of ex-ante and ex-post transparency. They propose that ex-post transparency, i.e. hindsight information of the procurement process as found in contract award notices, is the most valuable for external actors, such as civil society organizations. Following a similar approach to that of Bauhr et al. (forthcoming)²⁷, this study constructs a measure of procurement transparency based on key missing information in contract award notices; specifically, information that should be included and that is important for the assessment of a contract. The transparency of an individual contract is calculated according to the following formula²⁸:

$$\text{Transparency} = 1 - 1 \times ((\text{missing submission period} + \text{missing price weight} + \text{missing procedure} + \text{missing foreign winner})/4)$$

This is then aggregated to form an average transparency score for contracts at the regional level, where higher levels indicate more transparency. Data has been gathered from the same database as in the construction of corruption measure (DIGIWHIST, 2018a), and has undergone the same treatment in terms of exclusion of contracts.

²⁶ If exceeding certain thresholds, a contract notice must be posted.

²⁷ Due to data limitations, it has not been possible to construct a transparency measure exactly matching that of Bauhr et al. (forthcoming).

²⁸ Appendix IV provides a more thorough description of the components.

The second moderating variable is meritocracy. The data used to construct the measure of meritocracy in the public sector is gathered from a survey representative at the regional level of 24 European countries, focusing on questions of governance and corruption. Respondents are asked to rate two statements, on a scale from 1-10, regarding the importance of merit within the public sector: (1) *“in the public sector, most people can succeed if they are willing to work hard”* (2) *“hard work is no guarantee of success in the public sector for most people—it’s more a matter of luck and connections”*. Subsequently, respondents are asked regarding their sector of employment; upon which, only responses from respondents working in the public sector are kept²⁹. The results are then aggregated to form a mean score for each region³⁰. Validity is considered as high as it presupposes actual experience working in the public sector (Charron, et al., 2017). Higher values indicate higher levels of meritocracy.

Lastly, credibility of local media constitutes the third moderating variable. This study operationalizes local media credibility as trust in media in reporting on matters of politics and public services in each region. A credible local media should not only be able to assist in monitoring procurement but should be more successful in engaging the public. Local media is constructed from survey data from the European Quality of Government Index (EQI), gathered in 2013 (Charron, et al., 2015). Respondents are asked to rank the following statement on a scale from 0-10³¹: *“I trust the information provided by the local mass media in reporting on matters of politics and public services in my area”*. It is aggregated to form a mean value for each region. The survey is adapted to the regional context, randomly surveying between 400-450 respondents in each region. Nonetheless, Annoni and Charron (2017) raise some concerns regarding the validity of the question in gauging local media. These concerns are revisited in the results section. It was the intention of this thesis to construct a measure of local media from tangible data on media outlets, e.g. the number of local radio stations, similar to the approach of Mondo (2016). Nonetheless, such data could not be found in the European context and, consequently, the choice was made to use the EQI data as it provides the best data coverage of EU regions.

²⁹ Roughly 20% of all respondents in the survey report working in the public sector (Charron, et al., 2017)

³⁰ After transformation, the maximum range of values is 1-10.

³¹ 0 being strongly disagrees and 10 being strongly agrees. The scores used in this study have, however, been rescaled, ensuring that the maximum possible range is 0-1.

Control variables

This thesis enlists several control variables to account for endogeneity but also to control for the possibility of alternative explanations. In the case of civil society and procurement corruption, there is likely a larger risk of spuriousness than simultaneity; procurement corruption is unlikely to directly affect participation in civil society. However, certain variables could present linkages between the two. In any case, this is controlled for, to the extent possible, to limit the risk of endogeneity. Nonetheless, it should be noted that it is impossible to rule out all conceivable alternative explanations (Aneshensel, 2013, pp. 85-95).

Previous literature links social trust to participation in civil society, although the causal direction is debated (Kumlin & Rothstein, 2005). In his classic work studying Italian regions, Putnam contends that participation in civil society fosters social trust; allowing citizens to practice positive reciprocity through involvement in voluntary associations (Putnam, et al., 1992). However, more recent research has challenged this position, arguing that it is more likely a matter of self-selection; high-trusting citizens participate in civil society to a greater extent than less-trusting members of society (Charron & Rothstein, 2018). Moreover, Rothstein and Uslaner (2005) argue that higher social trust is correlated with lower degrees of corruption, operating via inequality. In addition, Charron and Rothstein (2018) find that social trust varies considerably at the regional level in Europe. They also find that the quality of government (QoG) is important in explaining this variation, where an important aspect of QoG is the absence of corruption (Rothstein & Teorell, 2008). Considering that social trust is likely to be correlated with both focal variables, it is deemed a suitable control variable. Social trust is constructed from the EQI survey of 2013 (Charron, et al., 2015), asking respondents whether people, in general, can be trusted. Responses are aggregated to form a regional average of trust, where higher values indicate higher levels of trust in the region.

The study controls for level of economic development in each region using GDP per capita. Economic development is correlated with corruption, although the causality is debated (Treisman, 2007). More economically developed regions should also feature more vibrant civil societies, considering that a certain degree of economic well-being is required for people to be able to allocate time for participation in voluntary associations (Howard, 2003, pp. 73-74). Data is collected from Eurostat and the study uses the mean value of GDP per capita for each region between 2009-2013 (Eurostat, 2019). The time period is chosen to match that of the procurement data.

The demographic conditions of the various regions are also controlled for by utilizing population density. Population density could affect the presence of available suppliers, which in turn can affect the likelihood of single-bidder contracts. Moreover, population density should influence participation in civil society. Previous studies suggest that people in densely populated areas are less likely to participate in civil society (Howard, 2003, pp. 87-88). Data is gathered from Eurostat and the mean value of the variable for each region between 2009-2013 is used (Eurostat, 2019).

The study introduces two dichotomous control variables. The first is whether or not the region is politically relevant. Political relevance stems from the presence of a directly elected local government. It also implies that these regions are to varying degrees in charge of service provision (Charron, et al., 2015), which necessitates the use of procurement. Consequently, it is reasonable to expect that the use of procurement can be somewhat different in a politically relevant region than in one of mere statistical nature; possibly affecting corruption in procurement. Moreover, civil society should be more active in these regions given that regions to a larger degree are directly responsible for service provision, creating incentives to organize in civil society.

Secondly, this thesis controls for whether regions are post-communist. Studies have shown that civil society participation is distinctly lower in contexts of post-communism/-socialism compared to other contexts without a similar background within the EU (Howard, 2003, pp. 57-91). Moreover, post-communist regions demonstrate higher levels of corruption than other parts of Europe (Grødeland & Aasland, 2011). It is therefore deemed a relevant control.

Lastly, to allow for the possibility of popular explanations to variation in corruption and to increase the explanatory power of the regression models; women in parliament and EU-funds are included in some models.

Several authors link the presence of women in local parliaments to lower levels of corruption (Grimes & Wängnerud, 2012; Sundström & Wängnerud, 2016; Esarey & Schwindt-Bayer, 2018). Whether it is the case that women contribute to lowered corruption or if corruption contributes to lower representation of women remains a topic of discussion. Some scholars argue that women are more risk-averse and, thus, less likely to engage in corrupt activities

compared to their male colleagues (Esarey & Schwindt-Bayer, 2018). Others argue that in the presence of corrupt networks within politics, women will face obstacles in accessing the political arena (Wängnerud, 2012). Nevertheless, a negative correlation is expected. Data is from Sundström (2013)³².

EU-funds typically constitute a significant portion of newly appointed EU members' economies. Nonetheless, the use of EU-funds in public procurement can contribute to wasteful behaviour and increase procurement corruption in institutionally weak settings. EU-funds increase the amount of funds available for rent extraction and the number of procurements carried out; creating more opportunities for corruption to take place (Fazekas, et al., 2013). Therefore, the study controls for the percentage of contracts in a region that involves EU-funds. The measure approximates the level of EU-funding received, considering that the percentage of contracts involving EU-contracts should be associated with the amount of EU-funds that a region receives. The data is gathered from the contract database provided by DIGIWHIST (2018a).

Descriptive statistics

The table below presents descriptive statistics for the variables introduced above.

³² See Appendix IV for more information.

Table 1. Descriptive statistics.

	Observations	Mean	Standard deviation	Minimum	Maximum
Single bidder ratio	175	.1765489	.1346611	0	.6905205
Civil society	175	.2246444	.2345288	0	1.07062
Transparency	175	.8072105	.0530352	.4941176	.9653061
Meritocracy	175	4.092197	.6700549	2.21212	5.5625
Local media	175	.4836293	.0623056	.2607454	.645473
Social trust	175	.4286559	.1827307	.0638419	.802211
GDP per capita (ln)	175	9.928918	.6341569	8.125631	11.03295
Population density (ln)	175	4.980973	1.123223	1.518848	8.862435
Politically relevant region	175	.6857143	.4655629	0	1
Post-communist region	175	.2857143	.4530502	0	1
Women in local parliaments	175	27.44587	8.16538	10	44.96667
EU funds	175	.1082984	.1283625	0	.6909091
Respondents EVS	175	172.8571	151.4097	8	791

4. Results

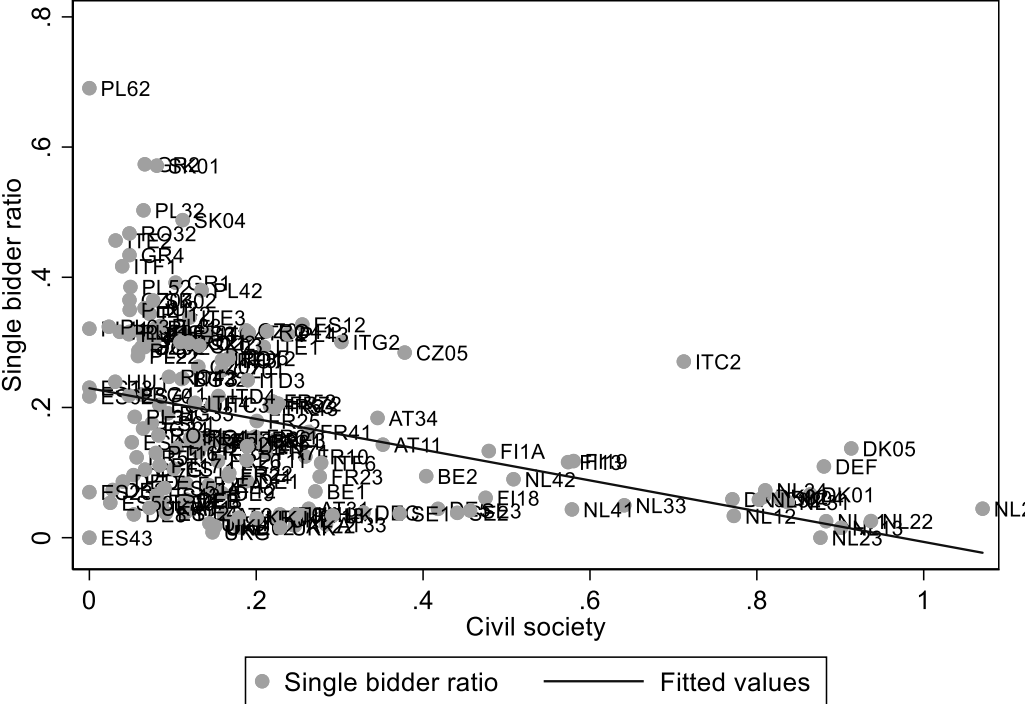
The results section is divided into three separate parts. Firstly, the section presents the unconditional models, i.e. models without the use of interaction effects. Secondly, the focus turns to the contextual conditions that impact societal accountability, estimating the conditional models using interaction effects. Finally, to ensure the validity of the results, a few robustness tests are carried out. The results section is foremost meant to descriptively present the findings, whilst the following discussion section elaborates and relates the findings to theory.

4.1. Unconditional models

Firstly, it is a good idea to observe the bivariate relationship graphically to get a better sense of how the data is distributed and whether or not the relationship seems feasible. Consequently, a scatter plot is shown below. The average number of voluntary organizational memberships is shown on the X-axis and the percentage of contracts including a single bidder is shown on the Y-axis. The data labels are the NUTS-codes for each region, where the first

two letters indicate the country. A trend line is included to show the estimated linear relationship between the two variables.

Figure 2. Bivariate relationship between civil society and single bidder ratio.



From the graph, a few different aspects should be noted. Firstly, according to the fitted line, there does seem to exist a negative relationship between the variables; greater number of organizational memberships is associated with lower levels of single bidder ratio. Secondly, some clustering is seen at relatively low levels of both strength of civil society and single bidder ratio; but a smaller cluster, consisting mostly of Danish and Dutch regions, is also identified at relatively high levels of civil society and low levels of single-bidder contracts. Thirdly, the graph shows that there is quite a lot of variation around the fitted line, especially for low levels of civil society. This alludes to the presence of variation that is not explained by the bivariate model. Nonetheless, although a lot of things can be said with regards to the graph above, it is not possible to make out whether the observed relationship is statistically significant. Considering that it only captures the bivariate relationship, nor is it possible to know whether the observed relationship is spurious to the inclusion of controls.

Consequently, it is relevant to study the regression in a table to be able to assert the significance of the relationship and whether it holds for the inclusion of control variables. The

regression table below includes five different models, the first shows the bivariate relationship and each subsequent model includes more variables. Clustered robust standard errors are used throughout all regressions in the study.

Table 2. Unconditional model, single bidder ratio as the dependent variable.

	(1) Single bidder ratio	(2) Single bidder ratio	(3) Single bidder ratio	(4) Single bidder ratio	(5) Single bidder ratio
Civil society	-0.236** (0.0619)	-0.121 (0.0792)	-0.0730 (0.0779)	-0.0687 (0.0705)	-0.0689 (0.0717)
Social trust		-0.314 (0.154)	-0.167 (0.142)	-0.0960 (0.0786)	-0.141 (0.0753)
GDP per capita (ln)			-0.0494 (0.0482)	-0.0224 (0.0410)	-0.0143 (0.0464)
Population density (ln)			-0.00397 (0.00795)	-0.0110 (0.00851)	-0.0128 (0.00962)
Politically relevant region			0.0176 (0.0419)	0.0207 (0.0350)	0.0121 (0.0365)
Post-communist region			0.0662 (0.0738)	0.0317 (0.0576)	0.0320 (0.0543)
Transparency				-0.224 (0.169)	-0.157 (0.174)
Meritocracy				-0.0850** (0.0240)	-0.0745** (0.0195)
Local media				-0.00866 (0.240)	-0.0637 (0.253)
Women in local parliaments					-0.00248 (0.00157)
EU funds					-0.0653 (0.124)
Intercept	0.230*** (0.0388)	0.338*** (0.0618)	0.744 (0.475)	1.020* (0.481)	0.978 (0.534)
Observations	175	175	175	175	175
Adjusted R ²	0.164	0.302	0.401	0.511	0.523

Clustered robust standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Model 1 presents the bivariate relationship, the same that was plotted in *Figure 2*. It shows a significant and negative correlation between the strength of civil society and the ratio of single-bidder contracts. The coefficient can be substantially interpreted as though an increase of mean voluntary organizational memberships by one in a region is associated with a decrease in the percentage of single-bidder contracts by 23.6 percentage points if all else is kept constant. Considering that single bidder ranges from 0% to 69.05% and that an increase of one in the independent variable roughly represents transitioning from the region with

lowest civil society strength to one of the highest³³, the effect is deemed substantial. Nonetheless, it is still unclear whether it is a spurious relationship. Consequently, in *model 2*, social trust is included as the first of the control variables. With the inclusion, the previous explanatory power of 0.164 in *model 1* is increased and the adjusted R² value shows that the model now explains roughly 30% of the variation in the dependent variable. Although improving the fit of the model, the inclusion causes civil society to become insignificant. Social trust is also insignificant. *Model 3* includes four more control variables. R² increases again and estimates that the model explains 40% of the variation in single bidder ratio. Simultaneously, no significant correlations are shown, and civil society remains insignificant. In *models 5 and 6*, the moderating variables and the last control variables are included in sequence. Civil society stays insignificant in both models and the only coefficient that achieves significance is meritocracy. *Model 5* estimates that a one-point increase in meritocracy is associated with a 7.45 percentage points decrease in single bidder ratio. R² increases continuously with the inclusion of more variables, signifying that each addition serves to strengthen the explanatory power of the model. *Model 5* explains 52.3% of the variation in the dependent variable.

In summary, from these results, there does not seem to exist a clear correlation between strength of civil society and single bidder ratio. Although achieving significance in the bivariate model, the relationship becomes insignificant with the inclusion of control variables. Considering that *model 5* includes all the control variables and achieves the highest explanatory power, the results from this model are held as the most accurate. Consequently, the results do not support an unconditional relationship between strength of civil society and single bidder ratio. The effectiveness of societal accountability in addressing procurement corruption does not seem to be independent of context. Rather, these results further warrant looking at contextual conditions of civil society.

4.2. Conditional models

Following the lack of significant results with regards to civil society from the unconditional models, the study moves on to the conditional models; testing the contextual factors of societal accountability. The different interactions are tested according to the order in which the hypotheses were stated. Considering that the interpretation of interaction models is

³³ This can be seen in the *Table 1*

somewhat more complicated than regular OLS, the results are first presented in a regression table and, subsequently, the conditional effect of civil society is illustrated graphically; to improve understanding and allow for substantive interpretation of the effect.

The study first tests the hypothesis that the effect civil society on procurement corruption is conditional on transparency (H2). Five separate interaction models using transparency are specified, where each subsequent model includes more control variables, following the structure of *Table 2*.

Table 3. Conditional model, transparency as the moderating variable and single bidder ratio as the dependent variable.

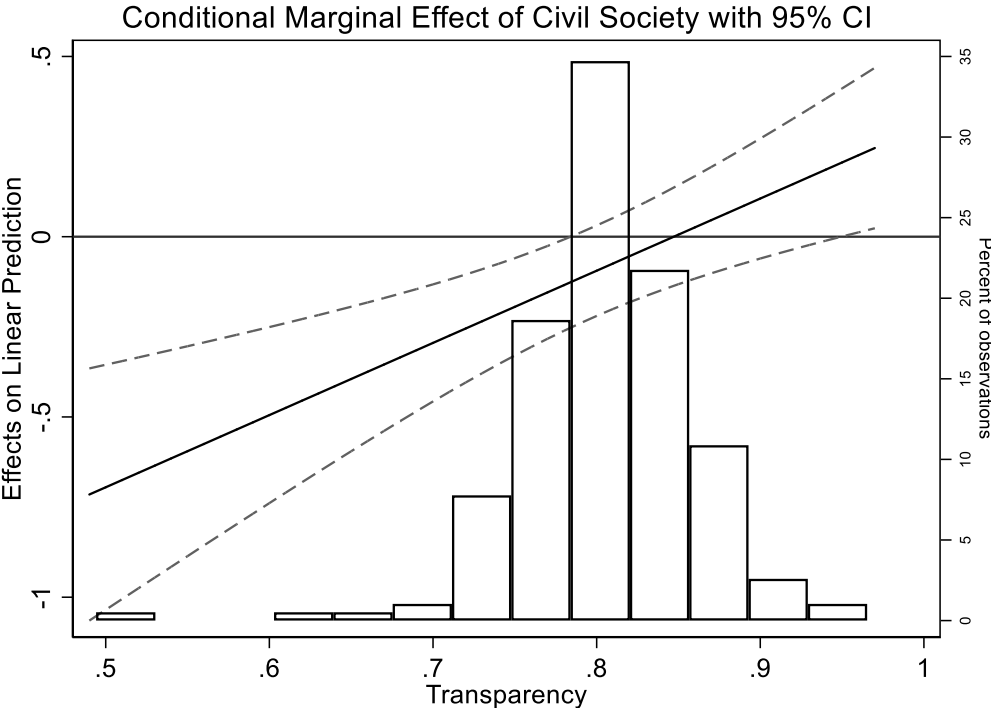
	(6) Single bidder ratio	(7) Single bidder ratio	(8) Single bidder ratio	(9) Single bidder ratio	(10) Single bidder ratio
Civil society	-2.495** (0.770)	-2.409*** (0.620)	-2.117** (0.609)	-1.697** (0.458)	-1.696*** (0.409)
Transparency	-1.009* (0.362)	-0.926** (0.301)	-0.847** (0.259)	-0.617* (0.222)	-0.560* (0.227)
Civil society # Transparency	2.783** (0.901)	2.814*** (0.723)	2.511** (0.727)	2.003** (0.557)	2.002*** (0.508)
Social trust		-0.302* (0.143)	-0.171 (0.131)	-0.108 (0.0778)	-0.156 (0.0777)
GDP per capita (ln)			-0.0527 (0.0441)	-0.0234 (0.0410)	-0.0161 (0.0463)
Population density (ln)			-0.00754 (0.00820)	-0.0128 (0.00869)	-0.0148 (0.00978)
Politically relevant region			0.0178 (0.0365)	0.0188 (0.0330)	0.00791 (0.0344)
Post-communist region			0.0483 (0.0681)	0.0260 (0.0563)	0.0275 (0.0524)
Meritocracy				-0.0803** (0.0228)	-0.0710** (0.0185)
Local media				-0.00669 (0.229)	-0.0604 (0.244)
Women in local parliaments					-0.00230 (0.00149)
EU funds					-0.0903 (0.119)
Intercept	1.046** (0.310)	1.084*** (0.256)	1.489* (0.529)	1.347* (0.518)	1.327* (0.563)
Observations	175	175	175	175	175
Adjusted R ²	0.231	0.360	0.447	0.528	0.540

Clustered robust standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Firstly, it should be noted that the variable of most interest is the interaction term: *Civil society # Transparency*. This term is statistically significant throughout all five models, demonstrating that there does seem to exist an interaction effect between civil society and transparency. However, the sign of the interaction effect is not as expected. A negative interaction was hypothesized, considering that transparency was thought to enhance the effect of civil society. Moreover, both transparency and civil society are negatively correlated with single bidder ratio and statistically significant in all five models. Nonetheless, substantive interpretation of the coefficients is made difficult given that a change in one of the components is conditional upon the level of the other, due to the interaction effect. Consequently, substantive interpretation is more easily shown graphically. However, before showing such a figure, it should be noted that apart from the previously mentioned variable only two other estimates achieve statistical significance: social trust and meritocracy. They are both negatively associated with single bidder ratio and significant in *model 7* as well as in *model 9 and 10*, respectively. Similar to the models presented in *Table 2* adjusted R^2 is increased with the inclusion of more explanatory variables; *model 10* explains 54% of the variation in the dependent variable, which is an improvement over the fully-specified unconditional model in *Table 2*.

The figure below presents the marginal effect of civil society based on the regression results of the fully-specified *model 10*. All variables are kept at their mean, except for transparency which is allowed to vary. A histogram of the different observations is included in the figure; this enables to see the distribution of observations in terms of transparency.

Figure 3. Marginal effect of civil society on single bidder ratio given different levels of transparency.



The marginal effect of civil society on single bidder ratio dependent on transparency is depicted by the bold black line. The bold line, thus, shows the estimated association between civil society and single bidder ratio at different levels of transparency. The surrounding dotted lines represent the 95% confidence intervals; the marginal effect is significant at the 0.05 level where the confidence intervals do not overlap 0 according to the scale on the left-hand Y-axis. The left-hand Y-axis shows the marginal effect of civil society, whilst the X-axis shows the range of transparency included in the sample. Lastly, the Y-axis on the right shows the percent of observations and corresponds to the histogram included; enabling to see the distribution of observations with regards to their level of transparency.

The figure shows that for relatively low levels of transparency³⁴, the marginal effect of civil society is both negative and statistically significant. This implies that an increase in the strength of civil society at these levels of transparency is associated with a decrease in the percentage of single-bidder contracts³⁵. However, for higher values of transparency, the model estimates lower marginal effect of civil society and for values of about 0.78 the

³⁴ Roughly between 0.49 and 0.78.

³⁵ For example, the model predicts that the marginal effect of civil society to be roughly -0.295 when transparency is 0.7.

marginal effect becomes insignificant; where the confidence interval starts to overlap 0 on the Y-axis. The figure illustrates that most cases are concentrated around 0.8 in terms of transparency³⁶, around the threshold for when the effect becomes insignificant. Consequently, it is in a smaller number of cases that the effect of civil society is significant and with a substantial as well as negative impact on corruption³⁷. Lastly, the model estimates a positive marginal effect of civil society at the highest levels of transparency, i.e. 0.95 or greater. Nonetheless, only one observation in the sample achieves such a level; thus, the positive effect of civil society on corruption should not be overstated.

The third hypothesis (H3) of the thesis concerns the moderating effect of meritocracy. In accordance with testing H2, H3 is first tested and presented in a regression table.

³⁶ The average level of transparency in the sample is 0.807

³⁷ About 23% of cases.

Table 4. Conditional model, meritocracy as the moderating variable and single bidder ratio as the dependent variable.

	(11) Single bidder ratio	(12) Single bidder ratio	(13) Single bidder ratio	(14) Single bidder ratio	(15) Single bidder ratio
Civil society	-1.605*** (0.347)	-1.687*** (0.347)	-1.578*** (0.371)	-1.562*** (0.357)	-1.617*** (0.344)
Meritocracy	-0.163*** (0.0241)	-0.149*** (0.0224)	-0.136*** (0.0293)	-0.132*** (0.0305)	-0.122*** (0.0268)
Civil society # Meritocracy	0.335*** (0.0792)	0.364*** (0.0813)	0.342*** (0.0871)	0.338*** (0.0841)	0.350*** (0.0820)
Social trust		-0.162 (0.105)	-0.130 (0.103)	-0.134 (0.0818)	-0.178* (0.0781)
GDP per capita (ln)			-0.0284 (0.0341)	-0.0306 (0.0370)	-0.0215 (0.0418)
Population density (ln)			-0.00559 (0.00726)	-0.00599 (0.00753)	-0.00747 (0.00874)
Politically relevant region			0.0246 (0.0266)	0.0273 (0.0311)	0.0210 (0.0319)
Post-communist region			0.0109 (0.0527)	0.00797 (0.0523)	0.00619 (0.0482)
Transparency				-0.202 (0.180)	-0.121 (0.180)
Local media				0.0351 (0.215)	-0.0219 (0.228)
Women in local parliaments					-0.00277 (0.00140)
EU funds					-0.0398 (0.121)
Intercept	0.880*** (0.101)	0.882*** (0.0918)	1.101** (0.371)	1.256* (0.448)	1.198* (0.497)
Observations	175	175	175	175	175
Adjusted R ²	0.516	0.544	0.553	0.554	0.569

Clustered robust standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Again, the term of most interest is the interaction term between civil society and the moderating variable, meritocracy in this case. In all the estimated models, the interaction term, as well as its components, are significant at the highest significance level. The components, i.e. civil society and meritocracy, are both negatively correlated with single bidder ratio. However, the interaction term shows a positive interaction. A negative interaction was expected, considering that the variables were thought to enhance one another in addressing procurement corruption. In any case, the relationship appears robust, seeing as it remains despite the inclusion of all control variables. Apart from the mentioned variables, only social trust achieves significance in *model 15*. Lastly, *model 11* accounts for 51.6% of

the variation in the dependent variable, whilst the fully-specified model achieves an adjusted R^2 -value of 0.569. Comparing R^2 -values between models tells us that *model 15* explains more of the variation in the dependent variable than both previous fully-specified models; *model 5* and *10*.

The figure below presents the marginal effect of civil society based on the regression results from *model 15*. All variables are kept at their mean, except for meritocracy, which is allowed to vary.

Figure 4. Marginal effect of civil society on single bidder ratio given different levels of meritocracy.

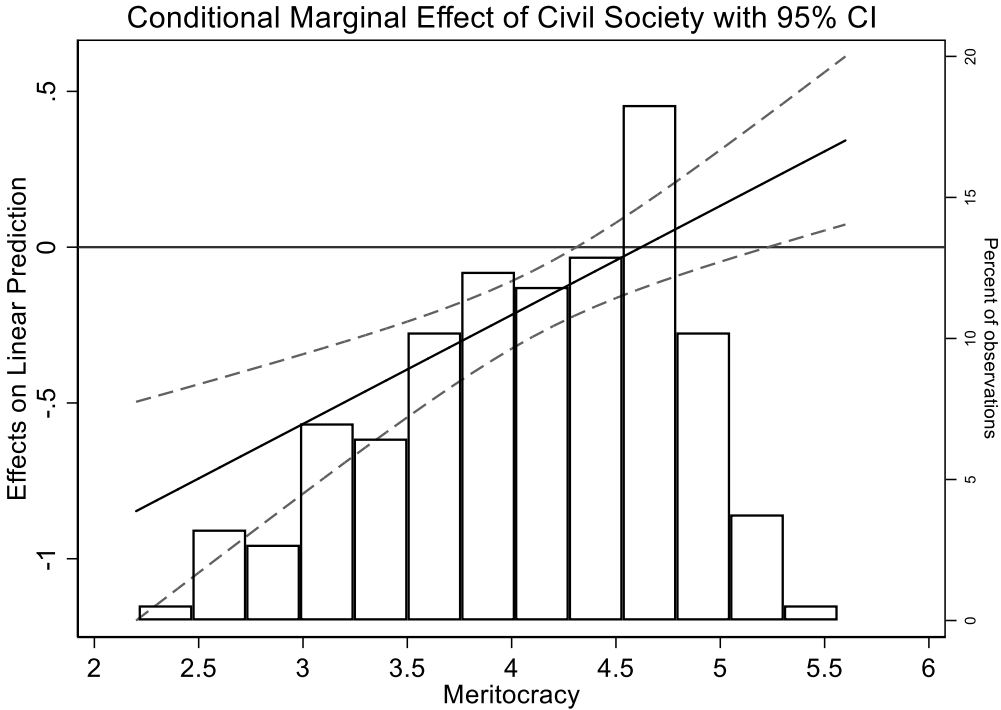


Figure 4 reads the same way as *Figure 3*. From the figure, it is possible to discern that for low and medium levels of meritocracy³⁸, the marginal effect of civil society is statistically significant and negative. For example, if meritocracy is held at 3.5, the model estimates the marginal effect of civil society to about -0.39; consequently, an increase in civil society strength by one at this level of meritocracy is associated with a decrease in single bidder ratio by 39 percentage points. The effect should be considered highly substantial given that single bidder ratio ranges from 0% to 69.05% in the sample. At the average value of meritocracy

³⁸ Between 2.2 and 4.3

(about 4.1), the estimated marginal effect of civil society is -0.182. The marginal effect of civil society on single bidder ratio diminishes for higher values of meritocracy; the effect becomes insignificant at about a meritocracy score of 4.3. However, it becomes significant once more for the highest values of meritocracy³⁹, but here a positive marginal effect of civil society is estimated. Even so, only one observation in the sample achieves such a high meritocracy score, where the marginal effect of civil society is estimated to be positively correlated with single bidder ratio. Finally, it should be noted that most observations, roughly 55%, have meritocracy scores below 4.3, for which the model estimates a significant and negative marginal effect of strength of civil society.

The fourth hypothesis (H4) concerns the moderating effect of local media on the relationship between civil society and procurement corruption. The regression table below tests the hypothesis.

³⁹ Above 5.3

Table 5. Conditional model, local media as the moderating variable and single bidder ratio as the dependent variable.

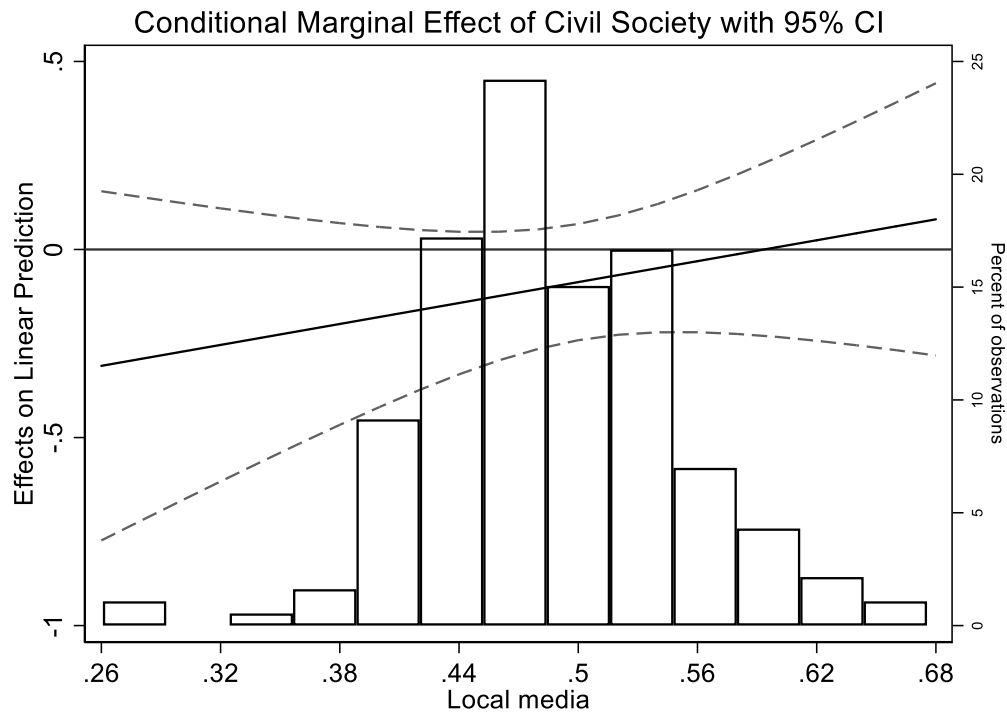
	(16) Single bidder ratio	(17) Single bidder ratio	(18) Single bidder ratio	(19) Single bidder ratio	(20) Single bidder ratio
Civil society	-0.832 (0.763)	-0.390 (0.690)	-0.389 (0.532)	-0.222 (0.393)	-0.550 (0.442)
Local media	-0.406 (0.581)	0.0236 (0.404)	-0.217 (0.473)	-0.0689 (0.360)	-0.261 (0.370)
Civil society # Local media	1.180 (1.441)	0.506 (1.299)	0.620 (1.051)	0.295 (0.788)	0.928 (0.871)
Social trust		-0.325* (0.141)	-0.146 (0.109)	-0.0936 (0.0779)	-0.139 (0.0716)
GDP per capita (ln)			-0.0543 (0.0507)	-0.0235 (0.0419)	-0.0166 (0.0465)
Population density (ln)			-0.00312 (0.00741)	-0.0107 (0.00841)	-0.0120 (0.00911)
Politically relevant region			0.0150 (0.0486)	0.0211 (0.0346)	0.0124 (0.0357)
Post-communist region			0.0635 (0.0735)	0.0311 (0.0576)	0.0300 (0.0527)
Transparency				-0.227 (0.171)	-0.156 (0.170)
Meritocracy				-0.0845** (0.0244)	-0.0714** (0.0200)
Women in local parliaments					-0.00284 (0.00166)
EU funds					-0.0709 (0.120)
Intercept	0.426 (0.286)	0.335 (0.209)	0.888 (0.625)	1.058 (0.534)	1.092 (0.565)
Observations	175	175	175	175	175
Adjusted R ²	0.167	0.298	0.397	0.509	0.524

Clustered robust standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Unlike the two previously tested interaction terms, the interaction between civil society and local media is not significant in any of the five specified models. In line with previous models, the two independent variables that reach significance are meritocracy as well as social trust in different models. It should also be noted that adjusted R² of the fully-specified model is lower than for the previously tested interaction terms as well as for the unconditional model in Table 2.

Nonetheless, the marginal effect of civil society is illustrated in the figure below.

Figure 5. Marginal effect of civil society on single bidder ratio given different levels of local media credibility.



As made evident by the figure, the effect of civil society is insignificant regardless of the value of local media credibility; illustrated by the confidence intervals constantly overlapping 0. However, as mentioned in passing in the data section, Annoni & Charron (2017) find, in an evaluation of the EQI data, that the measure could be problematic; producing suspicious results (Charron & Lapuente, 2018). One potential issue could be that the survey question⁴⁰ is relatively broad and as such can be interpreted in various ways by respondents. Nonetheless, regardless of the potential issues with the measure, it was necessary to include a measure of local media due to its theoretical importance. In this sense, the EQI measure of local media provided the best coverage for the purposes of this study. However, as a consequence of the potential issues with the measure, drawing conclusions regarding the interaction between civil society and media is made difficult.

In summary, two of the three contextual factors are statistically significant when interacted with civil society. None of the two, however, demonstrate the hypothesized amplifying interaction effect. Rather, both show the opposite interaction effect, where civil society is

⁴⁰ "I trust the information provided by the local mass media in reporting on matters of politics and public services in my area"

estimated to have a more substantial effect in contexts of low transparency and meritocracy respectively. The results remain with the inclusion of all control variables, which reduces the likelihood of spurious relationships and other endogeneity-related problems. Local media credibility, on the other hand, is not significant in any of the estimated models. Whether this is due to problems with the measure of local media or because no such interaction effect exists in the observed context is hard to say. Finally, meritocracy, when treated as a control, is the only other independent variable to consistently achieve significance. A popular explanation such as women in local parliaments does not appear correlated with procurement corruption in the regressions.

4.3. Robustness tests

Although the inclusion of control variables as well as the use of clustered robust standard errors are done to ensure the validity of the results, a few further tests of robustness are still warranted. This section outlines and performs four such tests. In addition, diagnostics tests are performed and discussed briefly.

Firstly, it was noted in the methodology section that one of the biggest flaws with the measure of civil society strength is that it is not adapted to the regional context; in certain contexts, relatively few respondents are surveyed. Consequently, the concern is that in some regions, the average number of organizational memberships is driven by few respondents that diverge from the general population. It is reasonable to expect that in regions with more surveyed respondents, the average number of organizational memberships comes closer to the true value than in regions with fewer respondents. To account for this, analytical weights are included in one version of the models. Analytical weights are suitable to use when observations are averages of a population and allow the models to account for the number of components that make up the average (Mehmetoglu & Jakobsen, 2017, pp. 331-333; Dupraz, 2013). In this study, the number of components is the number of respondents in each region. Consequently, using analytical weights results in regions with more surveyed respondents to be weighted higher than those with fewer respondents (Mehmetoglu & Jakobsen, 2017, pp. 331-333).

Secondly, control variables are included to account for spuriousness and differences between regions/countries that could affect the observed relationship. Nonetheless, it is hard to accurately capture all aspects that could be important to control for; consequently, there is

always a risk of omitted variable bias. In order to further alleviate such a risk, country fixed effects are used as a robustness test. Although fixed effects are typically associated with panel data, it can be used in the current setting as the data has two dimensions; considering that regions are nested within countries, it is possible to control for country-specific factors. Thus, by introducing dummy variables for each country, the models control for factors that vary between countries, whilst still allowing the models to explain variation between regions within countries. The drawback of the method is that it is not possible to know exactly what is being controlled for, and a lot of variation is removed from the models; potentially causing problems with finding significant results (Mehmetoglu & Jakobsen, 2017, pp. 240-249). Nonetheless, it is suitable to use as a robustness test.

Thirdly, it has been mentioned repeatedly that not all of the regions included in the sample are politically relevant; some are merely statistical products without administrative function within the state (Eurostat, 2018). Although the aim here is to observe variation at the regional level, regardless of whether observing existing administrative units or not; it can, nonetheless, be important to see if the results hold when only observing politically relevant regions (Charron, et al., 2017). Consequently, the third robustness test entails estimating the models for the 120 regions that are politically relevant.

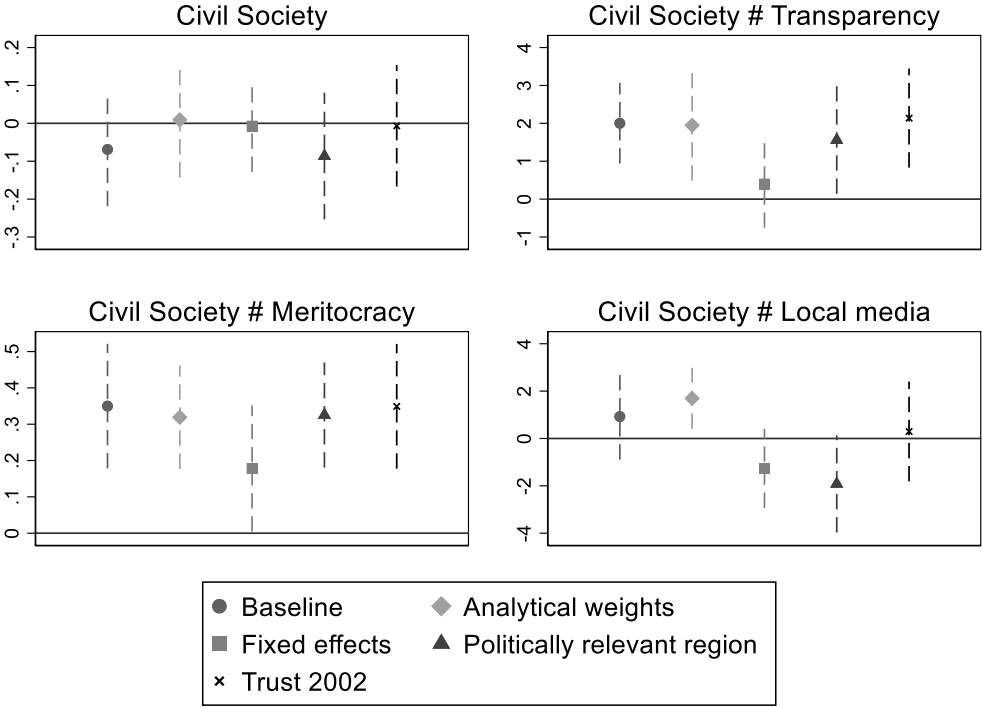
Finally, this thesis has tried to account for endogeneity issues of the regression models; by ruling out counterarguments through the use of control variables and by ensuring that the main independent variable is measured before the dependent. The approach reduces the risk that the models are plagued by endogeneity. However, ruling out reverse causality altogether is difficult. To further ensure that result can be interpreted causally, social trust measured in 2002 is included as a fourth robustness test in the models. Previous research that has argued in favour of corruption affecting civil society has suggested that it does so via social trust (Charron & Rothstein, 2018). Consequently, in controlling for social trust from a previous period, it is possible to at least in part control for the presence of reverse causality; considering that this would be the causal mechanisms through which such a relationship would operate. The data is gathered from the European Social Survey conducted in 2002-2003 (ESS, 2002). Similar to the EQI variable of social trust, respondents are asked whether most people can be trusted⁴¹. Responses are aggregated to create a mean value of trust for

⁴¹ They are asked to rate it on a scale from 0-10, same as the EQI measure.

each region. Due to limitations in the coverage of the ESS data, the number of observations is reduced to 133 when including social trust from 2002.

The graphs below summarize the results from all four robustness tests. Considering that the coefficients of interest are the interaction terms as well as the coefficient of civil society in the unconditional model, these are in focus in the figure below. The tests are based on the fully-specified models shown in *Table 2,3,4 and 5*, these estimations are also included and referred to as the “Baseline”. The regressions tables for the robustness tests in their entirety are placed in Appendix II.

Figure 6. Robustness tests, single bidder ratio as the dependent variable in all regression models.



Each graph illustrates how the term in focus behaves in each of the robustness tests and should be compared to the baseline. The dashed lines passing through each dot represent the 95% confidence intervals; if the lines overlap 0 on the Y-axis, the effect is insignificant at the 0.05 significance level.

Firstly, the unconditional effect of civil society remains insignificant in all four robustness tests. Secondly, from

Figure 6 it is possible to make out that the interaction between civil society and transparency is significant and positive throughout all robustness tests, except for when including fixed effects. Nonetheless, the interaction effect should be considered robust, given that it holds up to several tests. Similar robust results are found for the interaction with meritocracy, which is significant and positive in all robustness test. Consequently, the interaction is considered as highly robust. Finally, regarding local media, the conclusion that can be drawn from these tests is that there does not seem to exist a clear effect, considering the variation in the outcomes. Although achieving significance when including analytical weights, the effect cannot be considered robust. In conclusion, the robustness tests allow this thesis to say with more certainty that the significant results found in previous sections appear robust. In addition, it also enables to more boldly say that it appears to be a causal relationship that is observed, i.e. that civil society in fact influences procurement corruption and not the other way around. Although it should be recognized that it is impossible to draw conclusions regarding the causality with absolute certainty based on these results.

As some final notes, a few diagnostics tests have also been conducted; testing for the normality of residuals, multicollinearity as well as the presence of influential observations. The models do not show any signs of such issues plaguing the models; consequently, it is considered not to pose a problem. The tests are placed and discussed in Appendix III.

5. Discussion

The main takeaway from the results section is that civil society given certain contextual conditions can be expected to contribute to substantially reduce procurement corruption. However, in contrast to previous research, the analyses presented here do not find that societal accountability is more likely to occur under the most favourable conditions, but instead under the least favourable conditions. Consequently, this discussion serves to make sense of these result and to consider how they extend previous understandings of societal accountability.

In accordance with previous studies on civil society and corruption, this thesis finds that civil society cannot be expected to be a source of accountability regardless of context. Although providing some hints at being negatively correlated with procurement corruption in the bivariate regression, the unconditional relationship does not hold up to further tests. The fact that this study replicates the results of previous research (see e.g. Grimes, 2013) with the use

of an objective indicator of corruption and with a different sample gives further weight to the notion that societal accountability seems to occur in some settings but not in others.

Nonetheless, the case studies demonstrate that a well-organised civil society can contribute to reducing procurement corruption, through both monitoring and holding officials accountable. The results of this study do not refute occasional successful attempts of civil society involvement in procurement. Instead, these findings suggest that the strength of civil society is not in all settings a reliable predictor of societal accountability. Moreover, these results further warrant the assessment of the ability for civil society to demand accountability to be made on a contextual basis.

Before discussing the results in more detail, the aspect of causality needs to be addressed. This thesis has presented both theoretical arguments and cases that suggest that civil society can affect procurement corruption. In addition, the study deals with endogeneity by ruling out counterarguments and conducts a robustness test to address the aspect of simultaneity further. Despite these efforts, it is not possible to definitively state that the study observes a causal relationship; considering that there might be other ways in which corruption affects civil society that has not been controlled for. What can be said is that these results suggest the presence of a causal link between civil society and procurement corruption; and is discussed as such throughout this discussion. Nonetheless, if future research can measure the causal mechanism of societal accountability directly, it would enable to say with more certainty that civil society affects corruption and not the other way around.

Previous literature hails media as an important ally and facilitator of civil society, especially in the case of procurement corruption. However, the results of this study do not support such a claim, the models display no significant interaction. The results section dealt with the potential issue of the media indicator and perhaps the results could have confirmed or nuanced the findings of previous research given the availability of another measure of local media. Consequently, this study leaves it up to future research to further explore the contextual impact of local media on societal accountability. Nonetheless, the other two interactions present interesting results. In contrast to popular thought within this line of research, that institutional aspects enhance the capabilities of civil society to demand accountability, the results of this study suggest that these aspects do not, in fact, seem to amplify one another in a monotonic fashion.

Starting with transparency, the results from the regressions suggest that civil society is negatively associated with procurement corruption in regions characterized by low procurement transparency; in regions with higher transparency, the effect of civil society is statistically insignificant. It was hypothesized that the ability to demand accountability would increase with the degree of transparency in a given region, considering that civil society would be facilitated in detecting irregularities of procurement if given more data. Nonetheless, the results, in fact, show the opposite; civil society appears more effective when access to information is lower. Consequently, what the results showcase is a form of substitution effect between transparency and civil society; wherein the absence of institutional conditions that provide transparency, civil society monitoring can play an important role in ensuring the availability of information. However, in institutional contexts of greater transparency, the role of civil society in ensuring transparency is less acute and organizations are presented with fewer incentives for monitoring. This line of reasoning provides somewhat different answers to the motivations of civil society in pursuing accountability compared to previous research. Rather than viewing transparency as a determinant of the ability for societal accountability, this thesis interprets the results as suggestive of transparency affecting the willingness of civil society to engage in monitoring; civil society should in high-transparency contexts be more inclined to defer responsibility to the institutions as organizations see less of a need to get involved.

Significant results were also found for the moderating effect of meritocracy, although not the synergistic effect expected. The thesis hypothesized an amplifying effect, the rationale being that meritocracy creates sympathetic bureaucrats, interested and capable of addressing corruption. Sympathetic bureaucrats should not only be responsive to civil society triggering fire alarms but also capable of providing access to information and opening up public space for scrutiny. Nonetheless, similar to the results from the interaction with transparency, the regressions estimate that civil society has a negative and statistically significant effect on procurement corruption for low and medium levels of meritocracy, but no significant effect for high levels of meritocracy. This is arguably the most robust effect found, consistent throughout all robustness test and with an estimated significant effect applicable to most observations. This thesis interprets the results to imply that in regions characterized by low levels of meritocracy, bureaucrats are less adept as well as interested in detecting and addressing corruption in procurement. In these contexts, civil society can play an important role in reducing monitoring costs and assist in the detection of procurement corruption as well

as in demanding accountability. However, in regions characterized by a high degree of meritocracy, bureaucrats can be expected to be both more competent and more interested in detecting as well as combatting corruption; consequently, the need for civil society monitoring and triggering of fire alarms is reduced, given that bureaucrats themselves should deal with the issue of procurement corruption more forcefully. Not only could there be less of an urgency for civil society involvement, but civil society might also organize around topics other than corruption; issues that are more pressing and higher on the agenda in the given context. Lastly, the results of this study suggest that meritocracy has an unconditional effect on procurement corruption; unlike any other variable tested, the models consistently estimate a negative and significant effect of meritocracy. This is consistent with the findings of Charron et al. (2017).

So far, the discussion has dealt with the results concerning transparency and meritocracy separately, however, viewing the interaction results collectively enables this study to draw more general conclusions. Transparency of procurement and meritocracy in the public sector are both consequences of the institutional conditions in a region and are referred collectively as such. Consequently, the results suggest that in the most institutionally sound regions, in terms of transparency and meritocracy, civil society does not contribute to curbing corruption. As mentioned previously, these results present something completely new from previous research, which to a large degree has entertained the view that various institutional features and other dimensions of accountability enhance the effectiveness of societal accountability. However, the results from this study also suggest that in certain contexts, civil society can be important in controlling procurement corruption; persuasively shown by the substantial impact of civil society in settings of low transparency and low meritocracy respectively. Consequently, it would seem as though these results are completely at odds with previous findings.

Nonetheless, these results do not necessarily imply that previous research has been wrong in its perception of civil society combatting corruption and the influence of contextual factors. Rather, the divergent results between this study and previous are likely due to differences in the observed sample. Although this study has argued and, undoubtedly, shown that considerable variation can be found throughout the regions of Europe; it should be recognized that the sample, nonetheless, contains some of the most well-governed regions in the world. Consequently, it is likely that the current sample to a large degree favours units at the very

end of the spectrum in terms of institutional conditions, more so than previous studies. In such settings the need for a watchdog civil society is likely limited; considering that the institutional arrangement to deal with procurement corruption likely is in place and that civil society is more probable to organize around matters other than corruption. Thus, the strength of civil society will not be a deciding factor for controlling procurement corruption. Furthermore, at the far other end of the spectrum, in the poorest institutional conditions, the necessary conditions for successful use of societal accountability are likely absent. As convincingly argued by other scholars, civil society requires both access to information and responsive government control functions to be successful. Both of which are likely absent in the worst governed contexts. Subsequently, at both ends of the spectrum in terms of institutional conditions, civil society seems incapable, unwarranted or possibly even unmotivated in monitoring and combatting corruption. However, as shown here and in previous research, civil society can have a substantial impact on corruption in certain contexts. Combining the findings of this study with previous research, this thesis suggests that the marginal effect of civil society on corruption dependent on the institutional context, in general, can be represented by a U-shaped curve.

Figure 7. Marginal effect of civil society on corruption given different institutional conditions.

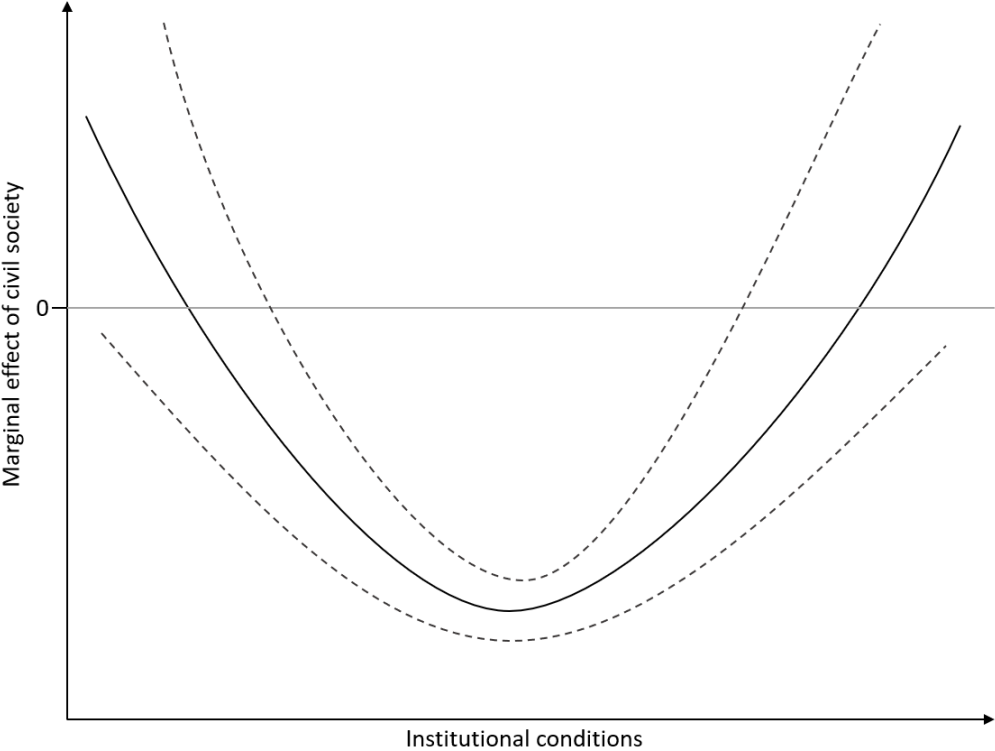


Figure 7 presents a graphic representation of the arguments above, structured similar to the marginal plots presented in the results section⁴². The left side of the figure illustrates the point that certain institutional conditions are necessary for civil society to be effective. In addition, the figure depicts that at the right end of the spectrum in terms of institutional conditions, an increase in civil society is unlikely to contribute to further reduction in corruption; considering that civil society at that level is likely to defer the responsibility to the institutions in place. Rather, it is in between these extremes that civil society is effective as a force of accountability; where the minimal contextual prerequisites are satisfied, whilst the institutional arrangements are not robust enough to counter corruption on its own and, consequently, create disincentives for civil society engagement. The sample of this thesis should be considered representative of the right side of the U-shaped relationship illustrated in *Figure 7*; encompassing some of the most well-governed regions in the world and not including contexts characterized by the worst institutional conditions. Consequently, the U-shaped relationship should be viewed as the general picture, but the same curvilinear marginal effect cannot be seen in the current sample⁴³.

In summary, this study argues that not only do institutions impact the *ability* of civil society to exercise societal accountability, as argued by previous research, institutions also affect the *willingness and need* for civil society to demand accountability. In poor institutional contexts, the ability aspect is the most decisive; considering that civil society should be willing to limit corruption in that context but is not facilitated in doing so by the institutional conditions. In strong institutional conditions, the decisive factor is the willingness and need for civil society engagement; the institutional conditions should ensure the ability to exercise accountability, but the incentives for civil society to engage in monitoring are lower as institutions are more able to cope on their own. Finally, between these two positions, civil society should be both able and willing to demand accountability; considering that the necessary institutional prerequisites are in place, whilst not robust enough to reduce the need and, thus, the willingness of civil society to demand accountability. Consequently, this thesis suggests that despite its contextual reliance, civil society can play an important role in improving both procurement and corruption. However, the greatest impact of civil society is not found in the most well-governed contexts, but rather in transitioning countries.

⁴² Note that figure is only an illustration of the hypothesized conditional relationship.

⁴³ Appendix V test this statement and finds no such relationship.

6. Conclusion

The thesis posed two research questions regarding the possible effect of civil society on procurement and the contextual considerations of such an effect. Although civil society does not seem to have an unconditional effect on procurement corruption, the study finds that it has a substantial and negative impact on procurement corruption at low levels of both transparency and meritocracy. Consequently, two of the three contextual factors appear to be highly relevant in explaining under what conditions societal accountability can be effective. Nonetheless, the thesis does not find the synergistic interaction effects that were expected. Thus, in contrast with H1, none of the conditional hypotheses (H2-H4) are confirmed.

Previous research has viewed institutions as something that influences the ability and likelihood of societal accountability. This study extends this line of reasoning, arguing that institutions also impact the willingness and need for societal accountability. Consequently, these findings suggest the presence of an upper limit in terms of institutional conditions for when an increase in strength of civil society can be expected to aid in reducing corruption; beyond which the institutional arrangement instead decreases the willingness and need for civil society to exercise societal accountability. Combining these results with previous studies, which have studied other samples, the thesis suggests a U-shaped relationship regarding the marginal effect of civil society on corruption conditional on institutional conditions as presenting the general case. Further studies should, nonetheless, be conducted with other samples to verify such a hypothesis.

Moreover, the results from this study confirm the conclusions of previous research that relying solely on civil society as an agent of change, regardless of contextual considerations, is ill-advised. Nonetheless, a strong civil society can achieve substantial change in terms of reducing procurement corruption, convincingly demonstrated in contexts of low transparency and meritocracy. These results should be considered generalizable to other forms of corruption as well, considering the discussed difficulties in monitoring and addressing procurement corruption. Although not presenting a universal solution, civil society can play an important role in improving governance.

Lastly, apart from further studying the conditional prerequisites of civil society in other settings, future research should be directed at evaluating initiatives for formal inclusion of

civil society in monitoring procurement. If civil society can become a part of the formal monitoring functions, it might present a more direct pathway in which it can influence the procurement process and other government functions. Thus, the presence of initiatives aimed at the formal inclusion of the public in decision-making should be assessed as a facilitator of societal accountability. This point also serves as a policy suggestion, considering that the inclusion of civil society in procurement can reduce the cost of monitoring and aid public officials in demanding accountability. Finally, this thesis follows a promising line of research, in observing procurement corruption through objective indicators. The methodology not only allows to more accurately capture variation in corruption, but it is well-suited to replication in other settings. Consequently, future research should continue to build on this type of methodology.

7. References

- Aneshensel, C. S., 2013. *Theory-Based Data Analysis for the Social Sciences*. 2nd ed. London: Sage Publication Ltd.
- Ankamah, S. S., 2016. Toward a framework of improving horizontal and social mechanisms: Case studies in Asia. *Asian Education and Development Studies*, 5(3), pp. 288-304.
- Annoni, P. & Charron, N., 2017. Measurement assessment in cross-country comparative analysis: Rasch modelling on a measure of institutional quality. *Social Indicators Research*, pp. 1-30.
- Basheka, B., 2008. Public procurement reforms in Africa: a tool for effective governance of the public sector and poverty reduction. In: K. V. Thai, ed. *International Handbook of Public Procurement*. London: Routledge, pp. 162-187.
- Bauhr, M., Czibik, A., Fazekas, M. & de Fine Licht, J., forthcoming. Lights on the Shadows of Public Procurement: Transparency as an antidote to corruption.
- Behrend, J., 2006. Mobilization and Accountability: A Study of Societal Control in the Cabezas Case in Argentina. In: E. Peruzzotti & C. Smulovitz, eds. *Enforcing the Rule of Law: Social Accountability in the New Latin American Democracies*. Pittsburgh: University of Pittsburgh, pp. 213-248.
- Berliner, D. & Dupuy, K., 2018. *The promise and perils of data for anti-corruption efforts in international development work*, Bergen: U4 Anti-Corruption Resource Centre, Chr. Michelsen Institute.
- Boulding, C. E., 2010. NGOs and Political Participation in Weak Democracies: Subnational Evidence on Protest and Voter Turnout from Bolivia. *The Journal of Politics*, 72(2), pp. 456-468.
- Brown, S. & Neumann, G., 2017. *Paraguay's transparency alchemists: How citizens are using open contracting to improve public spending*. Available at: <https://medium.com/open-contracting-stories/paraguays-transparency-alchemists-623c8e3c538f>
Accessed 15 March 2019.
- Caneppele, S. & Martocchia, S., 2013. Italian mafias, public procurement and public works in southern Italy. In: S. Caneppele & F. Calderoni, eds. *Organized Crime, Corruption and Crime Prevention: Essays in Honor of Ernesto U. Savona*. Cham: Springer, pp. 293-299.
- Charron, N., 2013. QoG at the sub-national level and the EQI. In: N. Charron, V. Lapuente & B. Rothstein, eds. *Quality of Government and Corruption from a European Perspective: A Comparative study of Good Government in EU Regions*. Cheltenham: Edward Elgar Publishing, pp. 70-140.
- Charron, N., Dahlström, C., Fazekas, M. & Lapuente, V., 2017. Careers, Connections, and Corruption Risks: Investigating the Impact of Bureaucratic Meritocracy on Public Procurement Processes. *The Journal of Politics*, 79(1), pp. 89-104.

Charron, N., Dahlström, C. & Lapuente, V., 2016. Measuring meritocracy in the public sector in Europe: a new national and sub-national indicator. *European journal on criminal policy and research*, 22(3), pp. 499-523.

Charron, N., Dijkstra, L. & Lapuente, V., 2015. Mapping the regional divide in Europe: A measure for assessing quality of government in 206 European regions. *Social Indicators Reserach*, 122(2), pp. 315-346.

Charron, N. & Lapuente, V., 2018. *Quality of Government in EU Regions: Spatial and Temporal Patterns*, Göteborg: Quality of Government Institute.

Charron, N. & Rothstein, B., 2018. Regions of Trust and Distrust: How Good Institutions Can Foster Social Cohesion. In: U. Bernitz, M. Mårtensson, L. Oxelheim & T. Persson, eds. *Bridging the Prosperity Gap in the EU: The Social Challenge Ahead*. Cheltenham: Edward Elgar Publishing, pp. 220-242.

CORDIS, 2016. *Project information: The Digital Whistleblower*. Available at: <https://cordis.europa.eu/project/rcn/194398/reporting/en> Accessed 19 March 2019.

Cornell, A. & Grimes, M., 2015. Institutions as Incentives for Civic Action: Bureaucratic Structures, Civil Society, and Disruptive Protests. *The Journal of Politics*, 77(3), pp. 664-678.

Coviello, D., Guglielmo, A. & Spagnolo, G., 2017. The effect of discretion on procurement performance. *Management Science*, 64(2), pp. 715-738.

Dahlström, C. & Sundell, A., 2013. *Impartiality and corruption in Sweden*, Göteborg: Quality of Government Institute.

De Simone, F. & Shah, S., 2012. Civil Society Procurement Monitoring: Challenges and Opportunities. In: E. B. a. D. Devrim, ed. *A New Role for Citizens in public Procurement*. Mexico City: Transparencia Mexicana, pp. 41-49.

Decarolis, F. & Giorgiantonio, C., 2015. Local public procurement regulations: The case of Italy. *International review of law and economics*, Volume 43, pp. 209-226.

DG GROW, 2016. *Public Procurement Indicators 2014*, Brussels: European Union.

DIGIWHIST, 2018a. *Resources: Public procurement data*. Available at: <http://digiwhist.eu/resources/data/> Accessed 6 January 2019.

DIGIWHIST, 2018b. *About the project: DIGIWHIST*. Available at: <http://digiwhist.eu/about-digiwhist/> Accessed 19 March 2019.

Dupraz, Y., 2013. *Using weights in Stata*, Paris: Paris School of Economics.

Esarey, J. & Schwindt-Bayer, L. A., 2018. Women's representation, accountability and corruption in democracies. *British Journal of Political Science*, 48(3), pp. 659-690.

ESS, 2002. *SS Round 1: European Social Survey Round 1 Data*, Bergen: Norwegian Centre for Research Data.

European Commission, 2014. *EU Anti-Corruption Report*, Brussels: European Commission.

European Commission, 2018. *Integrity Pacts*.

Available at: https://ec.europa.eu/regional_policy/en/policy/how/improving-investment/integrity-pacts/#1

Accessed 19 March 2019.

European Commission, 2019. *Why a transparency register?*.

Available at:

http://ec.europa.eu/transparencyregister/public/staticPage/displayStaticPage.do?locale=en&reference=WHY_TRANSPARENCY_REGISTER

Accessed 26 February 2019.

Eurostat, 2018. *Regions in the European Union: Nomenclature of territorial units for statistics - NUTS 2016/EU-28*, Luxembourg: Publications Office of the European Union.

Eurostat, 2019. *Regional database*.

Available at: <https://ec.europa.eu/eurostat/web/regions/data/database>

Accessed 27 February 2019.

EVS, 2016. *European Values Study 2008: Integrated Dataset*. Cologne., GESIS Data Archive.

Fazekas, M. et al., 2013. Are EU funds a corruption risk? The impact of EU funds on grand corruption in Central and Eastern Europe. In: A. Mungiu-Pippidi, ed. *The Anticorruption Frontline. The ANTICORRP Project, vol. 2*. Berlin: Barbara Budrich Publishers, pp. 68-89.

Fazekas, M. & Kocsis, G., 2015. *Uncovering High-Level Corruption: Cross-National Corruption Proxies Using Government Contracting Data*, Budapest: Government Transparency Institute.

Fazekas, M. & Kocsis, G., 2017. Uncovering High-Level Corruption: Cross-National Objective Corruption Risk Indicators Using Public Procurement Data. *British Journal of Political Science*, pp. 1-10.

Fazekas, M., Tóth, I. J. & King, L. P., 2013. *Anatomy of grand corruption: A composite corruption risk index based on objective data*, Budapest: Corruption Research Center.

Flyvbjerg, B., 2006. Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, 12(2), pp. 219-245.

Fox, J., 2007. The uncertain relationship between transparency and accountability. *Development in Practice*, 17(4-5), pp. 663-671.

- Fox, J. A., 2015. Social Accountability: What Does the Evidence Really Say?. *World Development*, Volume 72, pp. 346-361.
- Fox, J., Aceron, J. & Guillán, A., 2016. *Doing accountability differently. A proposal for the vertical integration of civil society monitoring and advocacy*, Bergen: U4, Chr. Michelsen Institute.
- Grandia, J., 2017. Public Procurement in Europe. In: E. Ongaro & S. Van Thiel, eds. *The Palgrave Handbook of Public Administration and Management in Europe*. London: Palgrave Macmillan, pp. 363-380.
- Grimes, M., 2008. *The conditions of successful civil society involvement in combating corruption: A survey of case study evidence*, Göteborg: The Quality of Government Institute.
- Grimes, M., 2013. The contingencies of societal accountability: Examining the link between civil society and good government. *Studies in comparative international development*, 48(4), pp. 380-402.
- Grimes, M. & Wängnerud, L., 2012. *Good Government in Mexico: The Relevance of the Gender Perspective*, Göteborg: Quality of Government Institute.
- Grødeland, Å. B. & Aasland, A., 2011. Fighting corruption in public procurement in post-communist states: Obstacles and solutions. *Communist and Post-Communist Studies*, 44(1), pp. 17-32.
- Hafner, M. et al., 2016. *The Cost of Non-Europe in the area of Organised Crime and Corruption*, Brussels: European Union .
- Hainmueller, J., Mummolo, J. & Xu, Y., 2019. How much should we trust estimates from multiplicative interaction models? Simple tools to improve empirical practice. *Political Analysis*, 27(2), pp. 163-192.
- Heinrich, V. F., 2005. Studying civil society across the world: Exploring the thorny issues of conceptualization and measurement. *Journal of Civil Society*, 1(3), pp. 211-228.
- Hoskins, B. L. & Mascherini, M., 2009. Measuring Active Citizenship through the Development of a Composite Indicator. *Social indicators research*, 90(3), pp. 459-488.
- Houtzager, P. P. & Joshi, A., 2008. Introduction: Contours of a Research Project and Early Findings. *IDS Bulletin* , 38(6), pp. 1-9.
- Howard, M. M., 2003. *The Weakness of Civil Society in Post-Communist Europe*. Cambridge: Cambridge University Press.
- Johnston, M. & Kpundeh, S. J., 2005. Building Social Action Coalitions for Reform. In: M. Johnston, ed. *Civil Society and Corruption*. Lanham, Maryland: University Press of America, pp. 149-168.

- Kpundeh, S. J., 2005. The Big Picture: Building a Sustainable Reform Movement against Corruption in Africa. In: M. Johnston, ed. *Civil Society and Corruption: Mobilizing for Reform*. Lanham, Maryland: University Press of America, pp. 73-94.
- Kumlin, S. & Rothstein, B., 2005. Making and breaking social capital: The impact of welfare-state institutions. *Comparative political studies*, 38(4), pp. 339-365.
- Kutlina-Dimitrova, Z., 2018. *Government Procurement: Data, Trends and Protection Tendencies*, Brussels: European Commission.
- Lambsdorff, J. G., 2006. Causes and consequences of corruption: What do we know from a cross-section of countries?. In: S. Rose-Ackerman, ed. *International handbook on the economics of corruption*. Cheltenham: Edward Elgar Publishing Limited, pp. 3-52.
- Lee, C.-S., 2007. Labor Unions and Good Governance: A Cross-National, Comparative Analysis. *American Sociological Review*, 72(1), pp. 585-609.
- Lemos-Nelson, A. T. & Zaverucha, J., 2006. Multiple Activation as a Strategy of Citizen Accountability and Role of the Investigating Legislative Commissions. In: E. Peruzzotti & C. Smulovitz, eds. *Enforcing the Rule of Law: Social Accountability in the New Latin American Democracies*. Pittsburgh: Pittsburgh University Press, pp. 75-114.
- Machado, F., Scartascini, C. & Tommasi, M., 2011. Political institutions and street protests in Latin America. *Journal of Conflict Resolution*, 55(3), pp. 340-365.
- Mainwaring, S., 2003. Introduction: Democratic Accountability in Latin America. In: S. Mainwaring & C. Welna, eds. *Democratic Accountability in Latin America*. Oxford: Oxford University Press, pp. 1-32.
- Mehmetoglu, M. & Jakobsen, T. G., 2017. *Applied Statistics Using Stata: A Guide for the Social Sciences*. London: Sage Publication Ltd.
- Mondo, B. V., 2016. Measuring Political Corruption from Audit Results: A New Panel of Brazilian Municipalities. *European Journal on Criminal Policy and Research*, 22(3), pp. 477-498.
- Mungiu-Pippidi, A., 2006. Corruption: Diagnosis and Treatment. *Journal of Democracy*, 17(3), pp. 86-99.
- Mungiu-Pippidi, A., 2013. Controlling Corruption Through Collective Action. *Journal of Democracy*, 24(1), pp. 101-115.
- O'Donnell, G., 2006. Notes on Various Accountabilities and Their Interrelations. In: E. Peruzzotti & C. Smulovitz, eds. *Enforcing the Rule of Law: Social Accountability in the New Latin American Democracies*. Pittsburgh: Pittsburgh University Press, pp. 334-343.
- OECD, 2015. *Government at a Glance 2015*, Paris: OECD Publishing.

- Pande, S., 2008. The right to information and societal accountability: the case of the Delhi PDS Campaign. *IDS Bulletin*, 38(6), pp. 47-55.
- Paxton, P., 2002. Social Capital and Democracy: An Interdependent Relationship. *American Sociological Review*, 67(2), pp. 254-277.
- Persson, A., Rothstein, B. & Teorell, J., 2013. Why Anticorruption Reforms Fail: Systemic Corruption as a Collective Action Problem. *Governance*, 26(3), pp. 449-471.
- Peruzzotti, E., 2006. Media Scandals and Social Accountability. In: E. Peruzzotti & C. Smulovitz, eds. *Enforcing the Rule of Law: Social Accountability in the New Latin American Democracies*. Pittsburgh: University of Pittsburgh Press, pp. 249-307.
- Peruzzotti, E. & Smulovitz, C., 2006. Social Accountability: An Introduction. In: E. Peruzzotti & C. Smulovitz, eds. *Enforcing the Rule of Law: Social Accountability in the New Latin American Democracies*. Pittsburgh: University of Pittsburgh Press, pp. 3-33.
- Przeworski, A., 2006. Social Accountability in Latin America and Beyond. In: E. Peruzzotti & C. Smulovitz, eds. *Enforcing the Rule of Law: Social Accountability in the New Latin American Democracies*. Pittsburgh: University of Pittsburgh Press, pp. 323-333.
- Putnam, R. D., Leonardi, R. & Nanetti, R. Y., 1992. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton: Princeton University Press.
- Ramkumar, V., 2008. *Our Money, Our Responsibility: A Citizens' Guide to Monitoring Government Expenditures*, Washington D.C.: International Budget Partnership.
- Rose-Ackerman, S. & Palfika, B. J., 2016. *Corruption and Government: Causes, Consequences and Reform*. 2nd ed. Cambridge: Cambridge University Press.
- Rothstein, B. & Teorell, J., 2008. What is quality of government? A theory of impartial government institutions. *Governance*, 21(2), pp. 165-190.
- Rothstein, B. & Uslaner, E. M., 2005. All for all: equality, corruption and social trust. *World Politics*, 58(1), pp. 41-72.
- Schapper, P. R., Veiga Malta, J. N. & Gilbert, D. L., 2006. An analytical framework for the management and reform of public procurement. *Journal of Public Procurement*, 6(1), pp. 1-26.
- Schultz, J. & Søreide, T., 2008. Corruption in Emergency Procurement. *Disasters*, 32(4), pp. 516-536.
- Smulovitz, C. & Peruzzotti, E., 2003. Societal and Horizontal Controls: Two cases of a fruitful relationship. In: S. Mainwaring & C. Welna, eds. *Democratic Accountability in Latin America*. Oxford: Oxford University Press, pp. 309-331.
- Snyder, R., 2001. Scaling Down: The Subnational Comparative Method. *Studies in Comparative International Development*, 36(1), pp. 93-110.

Sundström, A., 2013. *Women's Local Political Representation within 30 European Countries: A Comparative Data Set on Regional Figures*, Göteborg: QoG Working Paper.

Sundström, A. & Wängnerud, L., 2016. Corruption as an obstacle to women's political representation: Evidence from local councils in 18 European countries. *Party Politics*, 22(3), pp. 354-369.

Søreide, T., 2002. *Corruption in public procurement: Causes, consequences and cures*, Bergen: Christian Michelsen Institute.

Thai, K. V., 2008. *Measuring losses to public procurement corruption: The Uganda case*. Amsterdam, University of Twente.

Thai, K. V., 2009. International Public Procurement: Concepts and Practices. In: K. V. Thai, ed. *International Handbook of Public Procurement*. Boca Raton: Auerbach Publications, pp. 1-26.

Torsello, D., 2012. *The New Environmentalism? Civil Society and Corruption in the Enlarged EU*. Farnham: Ashgate Publishing Limited.

Transparency International, 2018. *Corruption by topic: Public Procurement*. Available at: https://www.transparency.org/topic/detail/public_procurement Accessed 13 March 2019.

Treisman, D., 2007. What Have We Learned about the Causes of Corruption from Ten Years of Cross-National Empirical Research?. *Annual Review of Political Science*, 10(1), pp. 211-244.

Tukamuhabwa, B. R., 2012. Antecedents and Consequences of Public Procurement Non-compliance Behavior. *Journal of Economics and Behavioral Studies*, 4(1), pp. 34-46.

Uyarra, E. & Flanagan, K., 2010. Understanding the Innovation. *European Planning Studies*, 18(1), pp. 123-143.

Ware, G. T., Moss, S., Campos Edgardo, J. & Noone, G. P., 2007. Corruption in public procurement: A perennial challenge. In: J. Campos Edgardo & S. Pradhan, eds. *The many faces of corruption: Tracking vulnerabilities at the sector level*. Washington DC: World Bank, pp. 295-334.

Williams-Elegbe, S., 2018. Systemic corruption and public procurement in developing countries: are there any solutions?. *Journal of Public Procurement*, 18(2), pp. 131-147.

World Bank, 2009. *Civic engagement in procurement: a review of eight international case studies*, Washington, DC: World Bank.

Wängnerud, L., 2012. Why women are less corrupt than men. In: S. Holmberg & B. Rothstein, eds. *Good Government: The Relevance of Political Science*. Edward Elgar Publishing: Cheltenham, pp. 230-250.

8. Appendices

Appendix I – Descriptive statistics

Firstly, the sample consists of 175 regions from 20 EU countries. The table below provides information on the countries and regions used in the study.

Table 6. Countries and regions in the study.

Country	Country code	Number of regions	NUTS level	Politically relevant regions
Austria	AT	9	2	9
Belgium	BE	3	1	3
Bulgaria	BG	6	2	0
Czech Republic	CZ	8	2	0
Denmark	DK	5	2	5
Finland	FI	4	2	0
France	FR	21	2	21
Germany	DE	16	1	16
Greece	GR	4	1	0
Hungary	HU	3	1	0
Ireland	IE	2	2	0
Italy	IT	19	2	19
Netherlands	NL	12	2	12
Poland	PL	16	2	16
Portugal	PT	4	2	0
Romania	RO	8	2	0
Slovak Republic	SK	4	2	0
Spain	ES	16	2	16
Sweden	SE	3	1	0
United Kingdom	UK	12	1	3*
Total		175		120

* Only Scotland, Northern Ireland and Wales are politically relevant.

Secondly, the table below shows the correlations between the variables presented in *Table 1*, excluding the number of respondents. The coefficients in the table below estimate the correlation between two variables, measured by Pearson's R. 1 indicates perfect correlation, whilst 0 implies no correlation (Aneshensel, 2013, pp. 138-139). The stars indicate the statistical significance of the correlations.

Table 7. Correlation matrix.

	Single bidder ratio	Civil society	Social trust	GDP per capita (ln)	Population density (ln)	Politically relevant region	Post-communist region	Transparency	Meritocracy	Local media	Women in local parliaments	EU funds
Single bidder ratio	1											
Civil society	-0.411***	1										
Social trust	-0.525***	0.469***	1									
GDP per capita (ln)	-0.574***	0.442***	0.551***	1								
Population density (ln)	-0.149*	0.0806	0.0727	0.347***	1							
Politically relevant region	-0.172*	0.142	0.180*	0.383***	0.132	1						
Post-communist region	0.550***	-0.362***	-0.534***	-0.775***	-0.0761	-0.362***	1					
Transparency	-0.198**	0.0169	0.0931	0.0524	-0.0756	0.0889	-0.145	1				
Meritocracy	-0.662***	0.343***	0.520***	0.597***	0.0236	0.249***	-0.603***	0.207**	1			
Local media	-0.207**	0.330***	0.431***	0.0275	-0.0524	-0.243**	-0.0934	0.123	0.167*	1		
Women in local parliaments	-0.370***	0.0614	0.0272	0.338***	0.0103	0.154*	-0.323***	0.257***	0.419***	-0.159*	1	
EU funds	0.361***	-0.274***	-0.519***	-0.514***	-0.182*	-0.486***	0.509***	-0.164*	-0.435***	-0.111	-0.185*	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Lastly, the table below presents the correlation between single bidder ratio and two other measures of corruption, which are observed in both 2010 and 2013.

Table 8. Correlation between single bidder ratio and other measures of corruption.

	Single bidder ratio	Observations
EQI 2013	-0.669***	173
EQI Corruption pillar 2013	-0.709***	173
EQI 2010	-0.689***	173
EQI Corruption pillar 2013	-0.710***	173

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

EQI, as mentioned previously, stands for the European Quality of Government Index. It measures quality of government based on survey data, encompassing three different pillars of quality of government: quality, impartiality, and corruption (Charron, et al., 2015). The EQI measure is suggested as the most comprehensive of its kind (Charron, et al., 2017). In the table above, EQI scores for 2013 and 2010 along with the corruption pillar of EQI for the same years, are correlated against the ratio of single-bidder contacts. Due to some slight differences in regional coding, 173 observations are included above. The table shows high correlations, suggesting that the indicators appear to measure similar concepts.

Appendix II – Robustness tests

The study conducts four robustness tests that are included in the analysis. The first of which is the use of analytical weights to account for the number of respondents surveyed in each region. The table below presents four regression models, one for each of the four hypotheses. Each model is based on the fully-specified models found in *Table 2,3,4 and 5*.

Table 9. Robustness test, analytical weights.

	(5a) Single bidder ratio	(10a) Single bidder ratio	(15a) Single bidder ratio	(20a) Single bidder ratio
Civil society	0.00928 (0.0728)	-1.590* (0.563)	-1.415*** (0.281)	-0.877** (0.305)
Social trust	-0.193 (0.0929)	-0.223* (0.0936)	-0.249* (0.0907)	-0.182 (0.0894)
Population density (ln)	-0.0116 (0.00934)	-0.0149 (0.00920)	-0.00811 (0.00835)	-0.0101 (0.00850)
GDP per capita (ln)	-0.0274 (0.0329)	-0.0240 (0.0324)	-0.0277 (0.0294)	-0.0319 (0.0327)
Politically relevant region	-0.00993 (0.0326)	-0.0162 (0.0316)	0.000136 (0.0281)	-0.00551 (0.0309)
Post-communist region	0.0190 (0.0485)	0.0209 (0.0460)	0.000365 (0.0436)	0.0170 (0.0448)
Meritocracy	-0.0447* (0.0204)	-0.0413* (0.0195)	-0.0874** (0.0249)	-0.0409 (0.0199)
Local media	-0.373 (0.248)	-0.315 (0.237)	-0.258 (0.215)	-0.682* (0.262)
Transparency	-0.208 (0.210)	-0.618* (0.263)	-0.211 (0.208)	-0.187 (0.201)
Women in local parliaments	-0.00325 (0.00188)	-0.00286 (0.00179)	-0.00348 (0.00170)	-0.00353 (0.00177)
EU funds	-0.0469 (0.110)	-0.0859 (0.101)	-0.0423 (0.103)	-0.0448 (0.104)
Civil society # Transparency		1.949* (0.698)		
Civil society # Meritocracy			0.319*** (0.0680)	
Civil society # Local media				1.694* (0.616)
Intercept	1.205** (0.412)	1.492** (0.419)	1.351** (0.379)	1.366** (0.415)
Observations	175	175	175	175
Adjusted R^2	0.638	0.651	0.676	0.649

Clustered robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The results are similar to those of previous models without analytical weights. Civil society is insignificant in the unconditional model. Both the interaction with transparency and meritocracy are statistically significant, and with the same signs as in previous models. The result that stands out from the regression table above is the significant interaction between civil society and local media. The inclusion of analytical weights provides a better fit of the models, evident by the increased adjusted R^2 value of all regression models, compared to the baseline models.

The second robustness test involves the use of country fixed effects, introducing country dummies in the regressions. Similar to the previous robustness test, four models are estimated based on the fully specified models in *Table 2,3,4 and 5*. The dummy variables for each country are suppressed in the output.

Table 10. Robustness test, country fixed effects.

	(5b) Single bidder ratio	(10b) Single bidder ratio	(15b) Single bidder ratio	(20b) Single bidder ratio
Civil society	-0.00730 (0.0578)	-0.331 (0.446)	-0.798* (0.371)	0.624 (0.403)
Social trust	0.107 (0.0896)	0.101 (0.0962)	0.0816 (0.0996)	0.0872 (0.0847)
Population density (ln)	-0.00332 (0.0132)	-0.00346 (0.0133)	-0.00140 (0.0129)	-0.00318 (0.0135)
GDP per capita (ln)	-0.0142 (0.0445)	-0.0145 (0.0451)	-0.0291 (0.0439)	-0.00992 (0.0443)
Politically relevant region	0.0247* (0.0115)	0.0258* (0.0122)	0.0308* (0.0125)	0.0248* (0.0109)
Post-communist region	0.0102 (0.0143)	0.00973 (0.0144)	0.00380 (0.0130)	0.0108 (0.0141)
Meritocracy	-0.0133 (0.0110)	-0.0130 (0.0110)	-0.0408* (0.0162)	-0.0133 (0.0103)
Local media	0.0339 (0.288)	0.0442 (0.289)	0.0483 (0.280)	0.308 (0.345)
Transparency	-0.155 (0.0956)	-0.225 (0.135)	-0.113 (0.0822)	-0.152 (0.0988)
Women in local parliaments	-0.000910 (0.00251)	-0.000953 (0.00254)	-0.00102 (0.00263)	-0.000592 (0.00249)
EU funds	-0.160 (0.0895)	-0.161 (0.0903)	-0.175 (0.0899)	-0.154 (0.0865)
Civil society # Transparency		0.399 (0.552)		
Civil society # Meritocracy			0.178* (0.0830)	
Civil society # Local media				-1.264 (0.798)
Intercept	0.326 (0.412)	0.386 (0.448)	0.565 (0.432)	0.142 (0.428)
Observations	175	175	175	175
Adjusted R ²	0.746	0.745	0.755	0.749
Country fixed effects	YES	YES	YES	YES

Clustered robust standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Firstly, the introduction of country fixed effects increases the explanatory power of the models and suggest that all models explain around 75% of the variation in the dependent variable. The only model to showcase significant results, for the coefficients of interest, is *model 15b* and the interaction between civil society and meritocracy. It presents results similar to those of the baseline model. The interaction between civil society and transparency is no longer statistically significant. Pinpointing the exact cause of why it becomes

insignificant when introducing fixed effects is difficult. One possibility is that the inclusion of country fixed effects removes variation to such a degree that achieving significance for the other coefficients is made difficult. The rest of the results are in line with previous models, except for political relevance, which is statistically significant and positively correlated with single bidder ratio.

For the third robustness test, the models are run for the regions that are politically relevant. Consequently, the number of observations drops to 120 as opposed to 175 in previous models. Considering that the sample only deals with politically relevant regions, political relevance serves no purpose as a control variable.

Table 11. Robustness test, politically relevant regions.

	(5c) Single bidder ratio	(10c) Single bidder ratio	(15c) Single bidder ratio	(20c) Single bidder ratio
Civil society	-0.0864 (0.0738)	-1.358* (0.485)	-1.533*** (0.272)	0.905 (0.449)
Social trust	-0.000779 (0.0793)	-0.0206 (0.0802)	-0.0498 (0.0779)	0.0143 (0.0780)
Population density (ln)	-0.000488 (0.0158)	0.000671 (0.0161)	0.00541 (0.0145)	0.000970 (0.0159)
GDP per capita (ln)	-0.156* (0.0530)	-0.158* (0.0552)	-0.156** (0.0453)	-0.162* (0.0524)
Post-communist region	0.0162 (0.0423)	0.00306 (0.0438)	-0.0171 (0.0314)	0.0170 (0.0429)
Meritocracy	-0.0537 (0.0264)	-0.0491 (0.0270)	-0.104** (0.0292)	-0.0589* (0.0247)
Local media	0.327 (0.351)	0.308 (0.349)	0.358 (0.310)	0.779 (0.446)
Transparency	0.00855 (0.133)	-0.306 (0.166)	0.0384 (0.145)	0.0230 (0.133)
Women in local parliaments	-0.000307 (0.000953)	-0.000532 (0.000942)	-0.000843 (0.000930)	0.000628 (0.000763)
EU funds	-0.604** (0.150)	-0.583** (0.157)	-0.577** (0.127)	-0.580** (0.152)
Civil society # Transparency		1.559* (0.628)		
Civil society # Meritocracy			0.325*** (0.0640)	
Civil society # Local media				-1.918 (0.908)
Intercept	1.866** (0.502)	2.150** (0.596)	2.058** (0.444)	1.674** (0.509)
Observations	120	120	120	120
Adjusted R^2	0.532	0.546	0.586	0.544

Clustered robust standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

All models display results in line with the previous models for the variables of interest. Apart from these results, the models show that both the coefficients of GDP and EU funds are statistically significant throughout all four models.

The last of the four robustness tests concerns the inclusion of a control variable measuring social trust in 2002. Due to differences in data coverage, social trust from 2002 is only available for 133 regions.

Table 12. Robustness test, social trust from 2002.

	(5d) Single bidder ratio	(10d) Single bidder ratio	(15d) Single bidder ratio	(20d) Single bidder ratio
Civil society	-0.00647 (0.0752)	-1.744** (0.474)	-1.553*** (0.369)	-0.159 (0.488)
Social trust	-0.124 (0.0810)	-0.167* (0.0758)	-0.191* (0.0775)	-0.118 (0.0771)
Social trust 2002	-0.168 (0.173)	-0.199 (0.188)	-0.164 (0.149)	-0.178 (0.180)
Population density (ln)	-0.00852 (0.0112)	-0.0112 (0.0105)	-0.00655 (0.0101)	-0.00877 (0.0115)
GDP per capita (ln)	-0.0849 (0.0495)	-0.0809 (0.0496)	-0.0774 (0.0423)	-0.0839 (0.0503)
Politically relevant region	-0.0226 (0.0327)	-0.0214 (0.0310)	-0.0166 (0.0292)	-0.0231 (0.0331)
Post-communist region	0.00541 (0.0398)	-0.00200 (0.0377)	-0.0166 (0.0329)	0.00590 (0.0395)
Meritocracy	-0.0821** (0.0221)	-0.0738** (0.0233)	-0.134** (0.0340)	-0.0815** (0.0224)
Local media	-0.220 (0.242)	-0.220 (0.232)	-0.156 (0.201)	-0.282 (0.385)
Transparency	0.0356 (0.142)	-0.382* (0.164)	0.0727 (0.156)	0.0306 (0.148)
Women in local parliaments	-0.00191 (0.00115)	-0.00186 (0.00107)	-0.00205* (0.000954)	-0.00195 (0.00123)
EU funds	-0.236* (0.0943)	-0.256* (0.0912)	-0.225* (0.0832)	-0.235* (0.0932)
Civil society # Transparency		2.139** (0.614)		
Civil society # Meritocracy			0.349*** (0.0806)	
Civil society # Local media				0.296 (0.989)
Intercept	1.711** (0.490)	2.026** (0.545)	1.818*** (0.415)	1.737** (0.517)
Observations	133	133	133	133
Adjusted R^2	0.578	0.601	0.630	0.575

Clustered robust standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The inclusion of social trust from 2002 increases the explanatory power of all four models compared to the baseline models, although the coefficients do not achieve statistical

significance in any of the models. The results for the moderating effect of transparency and meritocracy hold when including the new measure of social trust.

Appendix III – Diagnostic tests

As mentioned in both the methodology and results section, the study performs several diagnostic tests to ensure that the models are not affected by various issues that lead to the breach of one or several of the assumptions of OLS.

Firstly, heteroskedasticity and spatial autocorrelation are both likely to be affecting the models; considering that the sample includes relatively many observations and that the regions are nested within regions, such issues are probable to arise. Nonetheless, the use of clustered robust standard errors alleviates the risk that these problems affect the results (Mehmetoglu & Jakobsen, 2017, pp. 231-235).

Secondly, the use of interaction terms typically causes the models to showcase multicollinearity; considering that the variables that comprise the interaction terms naturally correlate with the interaction term. Consequently, when estimating an interaction model, controlling for the presence of multicollinearity can seem futile. Nonetheless, if the components that make up the interaction term are mean centred, i.e. transformed to have a mean of 0, it is possible to test for multicollinearity amongst the independent variables in a meaningful way. Mean centring does not change the interpretation of the interaction terms, consequently, the same interaction effects are produced as for previous models (Mehmetoglu & Jakobsen, 2017, pp. 129-130). The fully-specified models are re-run with mean centred variables, except for the unconditional model, which does not require the use of mean centring. Variance Inflation Factor (VIF) measures the correlation between independent variables and the mean VIF score is estimated for each model.

Table 13. Diagnostic test, multicollinearity.

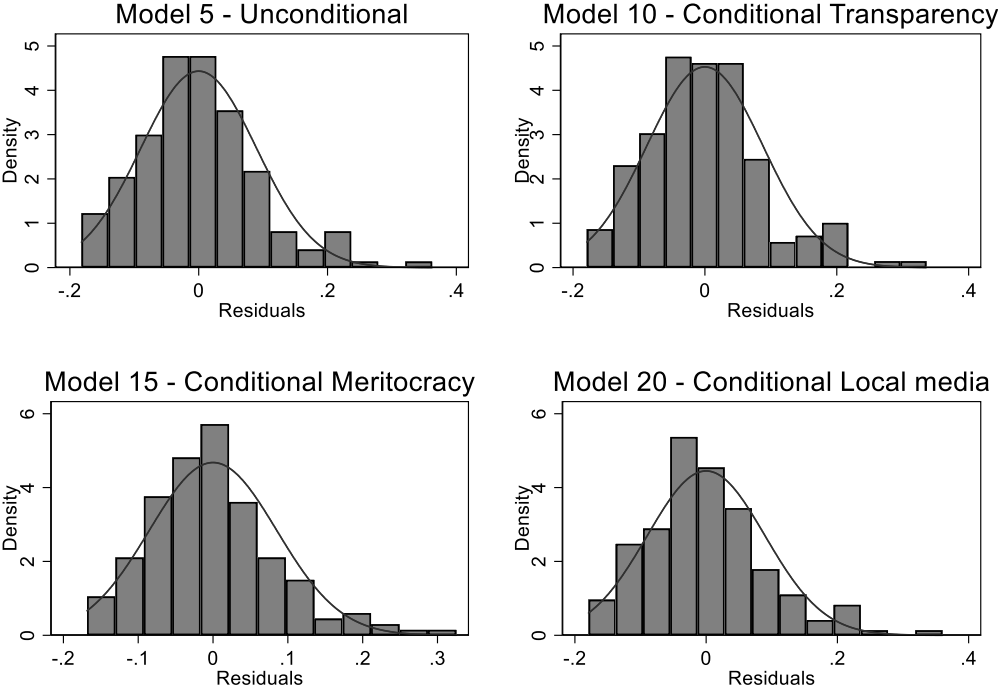
	Model 5	Model 10 (centred)	Model 15 (centred)	Model 10 (centred)
Mean VIF	2.03	1.97	2.18	2.11

There is no agreed-upon cut-off value for when multicollinearity constitutes an issue, but varied approaches can be seen depending on the source that is consulted. Mehmetoglu and

Jakobsen (2017, pp. 146-147) suggest using 5 as the cut-off value, above which estimates are considered to be affected by multicollinearity. None of the models produce VIF values close to 5 and none of the independent variables in any of the models reach this level either, although GDP produces VIF values of around 4.2 in all models. Consequently, this thesis concludes that multicollinearity does not affect the estimates in any of the models.

Another assumption of OLS concerns the distribution residuals, requiring them to be normally distributed for the models to produce the most accurate p-values. Nonetheless, this is typically an issue for small samples (Mehmetoglu & Jakobsen, 2017, pp. 151-153), and should not present too much of an issue in the current study. In any case, the study tests the distribution of residuals in all four fully-specified models to ensure that they conform to a normal distribution.

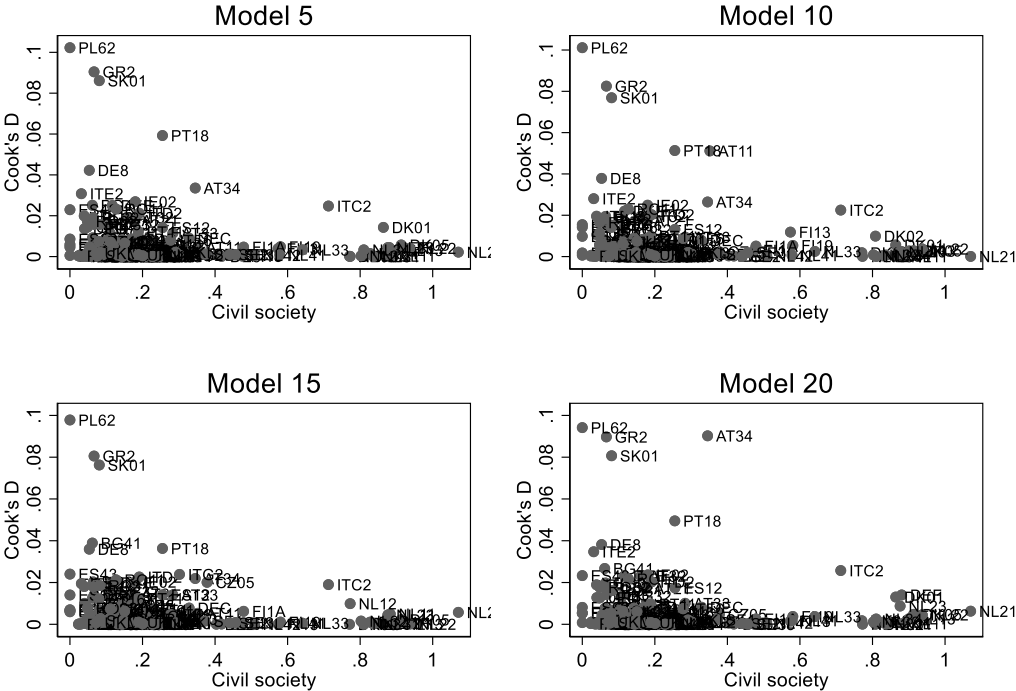
Figure 8. Diagnostic test, distribution of residuals.



From the figure above, it appears as though residuals are normally distributed in all models, seen by the fact that the distributions of residuals conform relatively well to the normal distribution curve inserted in each of the four graphs. Consequently, this study concludes that non-normal distribution of residuals should not constitute a problem in the regression models.

Lastly, the study tests for the presence of influential observations that might be driving the observed relationships. In order to measure an observation’s influence on a model, Mehemtoglu and Jakobsen (2017, pp. 155-157) suggest using Cook’s Distance. Similar to the discussion of cut-off values with regards to VIF test, no single value is agreed to indicate the presence of influential observations. Nonetheless, Mehmetoglu and Jakobsen (ibid) suggest using 1 as the cut-off.

Figure 9. Diagnostic test, influential observations.



As made evident by the figure above, no observation in any of the four models comes close to a Cook’s D value of 1. Hence, influential observations should not constitute an issue in the study.

Appendix IV – Data

This appendix includes some extra information on a few of the variables presented in the data section.

The study estimates procurement transparency on the basis of missing fields in Contract Award Notices (CAN). The thesis applies the following formula to calculate transparency of an individual contract:

$$\text{Transparency} = 1 - 1 \times ((\text{missing submission period} + \text{missing product} + \text{missing price weight} + \text{missing procedure} + \text{missing foreign winner})/5)$$

Table 14 below explains what each of the components that make up the transparency score entails.

Table 14. Definition of transparency components.

Transparency component	Definition
Missing submission period	Information regarding the length of the submission period for bids is missing from the CAN (0: Not missing, 1: Missing)
Missing price weight	Information regarding the weight applied to the price in evaluating bids is missing from the CAN (0: Not missing, 1: Missing)
Missing procedure	Information regarding the type of procurement process conducted, e.g. open or restricted, is missing from the CAN (0: Not missing, 1: Missing)
Missing foreign winner	Information regarding whether or not the winning bidder is from another country is missing from the CAN (0: Not missing, 1: Missing)

CANs are required to include all of the fields above, and the exclusion of this information provides less hindsight information on the procurement process. The exclusion of price weight makes it difficult to know on what grounds a winner has been selected; if the procedure is missing, it is not possible to make out what type of process that has been carried out; if the submission period is missing, it is not possible to evaluate whether or not the period was long enough to enable competition; if the information regarding the country of origin of the winner is missing, it is not possible to evaluate if e.g. the firm is based in a tax haven, which typically is a clear red flag with regards to corruption. Consequently, all four fields are important for external monitors to assess procurement contacts.

With regards to data on women's political representation, Sundström (2013) collects data on the gender ratio of local councillors for NUTS regions. No official figure of this distribution exists for the regional level; consequently, Sundström gathers and combines data from various national sources. In the cases when the NUTS regions do not correspond to politically relevant regions, the figures constitute aggregations of the distribution in administrative entities at a lower level. See Sundström (2013) for more details on data sources.

Appendix V – Test of curvilinearity

Figure 7, in the discussion section, presents a curvilinear relationship that illustrates the hypothesized marginal effect of civil society on corruption dependent on institutional conditions. At the same time, the thesis argues that the sample of this study does not encompass the entire spectrum of institutional conditions, hence curvilinearity should not be present in the current sample to any greater extent. Consequently, the sample of this study can be illustrated by the following figure that elaborates Figure 7.

Figure 10. Marginal effect of civil society on corruption given different institutional conditions, including current sample.

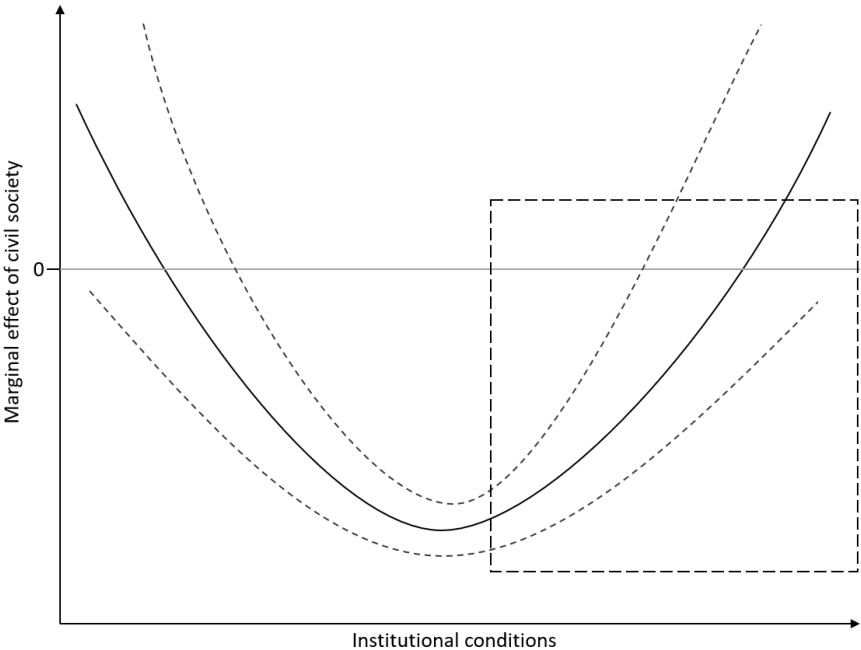


Figure 10 illustrates how the current sample is argued to fit into the general picture, exemplified by the dashed square. If this assumption holds, modelling curvilinearity on the current data sample should not produce results that differ from those provided in the results section.

Modelling curvilinearity in interaction models is not entirely straightforward. However, Hainmueller et al. (2019) present a tool that allows interactions to take on forms other than linear without the need to transform the data. Using Kernel smoothing technique, the method allows for flexibility in the shape of the conditional marginal effect as it does not assume a bilinear distribution. It estimates a series of local effects, which enables the conditional marginal effect to take on different functional forms for various values of the moderating

variable (Hainmueller, et al., 2019). Applying this statistical technique to *models 10 and 15* results in the following two marginal effects plots.

Figure 11. Marginal effect of civil society on single bidder ratio given different levels of transparency, non-linear interaction.

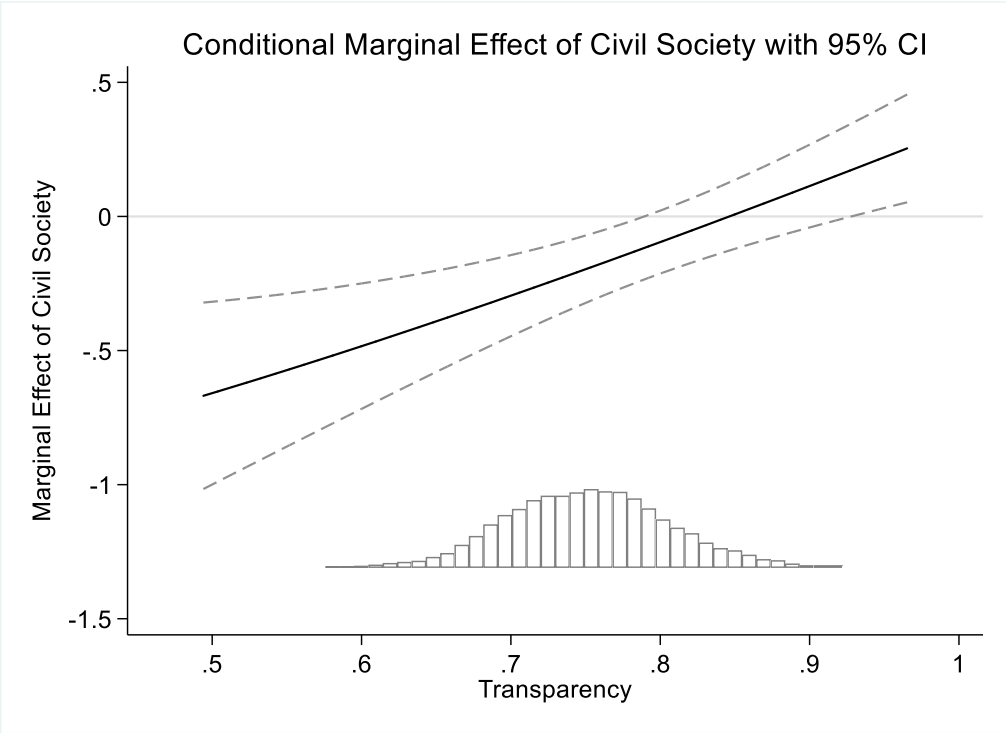
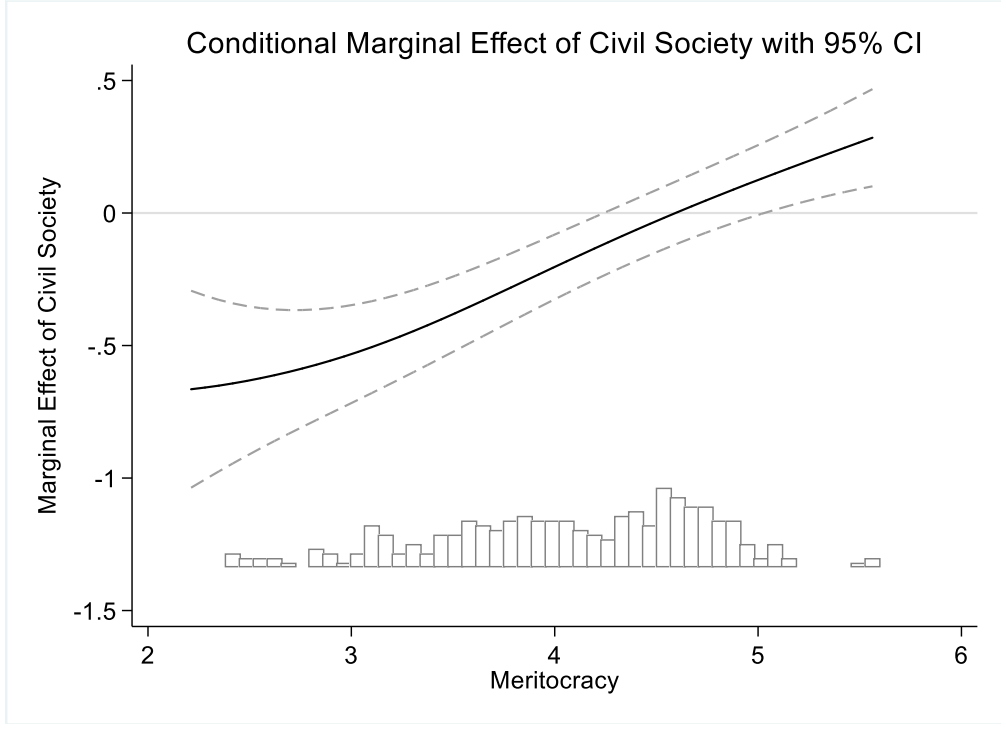


Figure 12. Marginal effect of civil society on single bidder ratio given different levels of meritocracy, non-linear interaction.



The structure of the two marginal plots is similar to that of the previous marginal plots that are presented in the results section. The thing that differs is that the technique used to estimate these figures allows the moderating effect to take on other forms than strictly bilinear.

Starting with *Figure 11* concerning transparency, the graph is very similar to that of *Figure 3* in the results section. This implies that there does seem to exist a bilinear interaction effect. Moving on to the moderating effect of meritocracy in *Figure 12*, the figure again shows a quite similar interaction effect to that demonstrated by the corresponding *Figure 4* in the results section. Nonetheless, the marginal effect does seem to plateau for low values of meritocracy. Such a curve fits well into the picture painted by *Figure 10*. In summary, these results show that no distinct curvilinear interaction effect is present in the current sample and further enables making the argument that the sample constitutes the right side of *Figure 7*. However, considering that the sample is limited, it is not possible to shed any further light of the presence of a U-shaped interaction effect in the general case.