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Leading the blind

A cross-country analysis of the effect of transparency on environmental performance

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Abstract

The aim of this thesis was to investigate whether government transparency has an independent effect on environmental performance. Transparency is being promoted by policymakers and international institutions alike as a key feature of good governance with the potential to enhance environmental performance. The question that remains is whether transparency alone can reach these ambitious objectives, or if enabling factors are needed to enhance the effect of transparency. This thesis investigated the direct effect of transparency but also whether it can be said to have an indirect effect by decreasing corruption, an issue which is known for its negative impacts on environmental performance. This thesis employed principal-agent theory, which is the main theoretical explanation for the alleged success of transparency. To investigate whether transparency is more efficient with enabling factors in place three such enabling factors were suggested that might enhance the effect of transparency by empowering potential principals with information. These factors were a strong civil society, an educated population and openness to trade. The method used was a large-N cross-country statistical investigation, employing Ordinary Least Squares Regressions to examine the relationship between government transparency and environmental performance. Interactions were subsequently included to investigate the potential effect of enabling factors.

The results can be summarized in three main points. First, the result suggest that transparency does not have an independent effect on environmental performance. Second, the enabling factors suggested do not possess the strength to generate an effect and third, the hypothesis regarding the indirect effect receives some support.

Keywords: Transparency, Environmental Performance, Civil Society, Education, Trade Openness, Corruption, Governance, Principal-Agent.

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1. Introduction

"There can be no faith in government if our highest offices are excused from scrutiny - They should be setting the example of transparency"

Edward Snowden

Climate change and environmental degradation have become key concerns for economic growth and human development. The world has seen an increased awareness of the fragility of nature and the problems connected to ecosystem destruction. The impacts of environmental devastation are felt across the globe but with a disproportionate intensity in poor developing countries, where the reliance on natural resources often is high (Ölund Wingqvist, Drakenberg, Sjöstedt, Slunge, & Ekbom, 2012). Effectively managing the environment and implementing protective legislation have therefore become a top priority on the international agenda and is addressed by governments, NGOs and international organisations.

The pressing need for environmental protection and the failure of previous attempts of environmental management through command and control efforts have led to a shift in management techniques from technical solutions in favour of governance measures (Ölund Wingquist et al., 2012). Within this shift, transparency has gained a prominent position in matters of environmental governance. Transparency is believed to increase accountability, generate participation and enable detection of malpractice. The theoretical pathway in which transparency prompts change is through principal-agent framework where the agents are believed to act in a self-maximising way unless under scrutiny of the principal. Transparency, supposedly, enhances accountability by decreasing the information asymmetry between the principals and the agents (Florini, 2002).

With regard to environmental governance, transparency has gained its position mostly through the theoretical promise of its effectiveness (Gupta & Mason, 2014) and is promoted by international organisations such as the World Bank (2016), the International Monetary Fund (2016) and the United Nations (1992). Government transparency theoretically provide citizens (principals) with information on the actions of public officials (agents), and thereby enable citizens to hold government officials responsible for mismanagement of environmental resources. There is consequently a possibility that transparency has an independent direct effect on environmental performance, but there is also a possibility that the effect of transparency is dependent on enabling factors being in place. Since the

theoretical explanation for the alleged positive effect of transparency mostly build on principal-agent theory, factors that strengthens the abilities of principals could potentially enhance the effect of transparency. An engaged citizenry is more likely to demand information, an educated citizenry has a higher potential of interpreting information and openness to trade offers the possibility of additional principals. It is therefore possible that these three factors have the ability to enhance the effect of transparency.

An alternative explanation for the possible effect of transparency could be that it effects environmental performance by decreasing corruption, an issue known for its negative impact on the environment (Peh & Drori, 2010). This would suggest that transparency has an indirect effect on environmental performance and that the effect runs through corruption.

To this point, the promotion of transparency in the environmental field is mostly based on the theoretical promise of its qualities (Gupta & mason, 2014). However, the fact that transparency makes environmental information obtainable does not, in itself, guarantee that the information will be utilized by citizens to hold government officials accountable. Despite the promotion of transparency as an enhancer of environmental performance no large-N cross-country studies examine the actual substantial impacts of transparency concerning the environment. There exists a strong theoretical link, but this link is yet to be tested empirically. The contribution of this thesis is therefore to investigate the effect of transparency on environmental performance across a large sample of countries to determine if the theoretical direct link receives empirical support, or if enabling factors are needed for transparency to have desired effects.

The results of this research can be summarized in three main points. First, the result suggest that transparency does not have an independent effect on environmental performance. Second, the enabling factors suggested do not possess the strength to generate an effect and third, the hypothesis regarding the indirect effect receives some support.

1.1 Purpose of the Thesis

The purpose of this thesis is to investigate whether transparency (both de facto and de jure) has an independent effect on environmental performance or if in fact the effectiveness of transparency is dependent upon, or enhanced by, enabling factors such as an active civil society, education or openness to trade. The main aim of this essay is to investigate the direct effect of transparency, but it will also examine the potential of transparency to demonstrate an indirect effect by influencing corruption levels. A large-N cross country investigation will be utilized employing Ordinary Least Squares Regression with interaction

effects. The aim, specific research questions and hypotheses will be developed further in chapter five but the main research question guiding this essay is: *What effect does transparency have on environmental performance?*

1.2 Disposition

The essay will proceed as follows; chapter two will begin with a short background that discusses the promotion of transparency by different actors but also develops the separation between de facto and de jure transparency. In chapter three, the theoretical foundation linking transparency to environmental performance will be deliberated. The section will, beyond offering a definition and conceptualization of transparency, focus much attention to the arguments behind the effectiveness of transparency and especially principal-agent theory. The theory section will also develop the concept of transparency and its usage across different disciplines and it will address possible enabling factors such as civil society participation, education and openness to trade. Chapter four will then delve into previous research and discuss the two ways in which previous research have connected transparency to environmental performance, mainly as a tool for good governance and as an anti-corruption measure. Chapter five will present the aim of the thesis and the chosen research questions along with hypotheses. Chapter six will discuss the chosen method and provide limitations and strengths with utilizing a large-N cross-country investigation using interactions. The reasoning behind the chosen data and operationalization of variables will also be developed. Chapter seven will then display the results alongside the analysis and argue for a non-existing independent effect of transparency on environmental performance. Chapter eight will finish with a discussion, a conclusion and ideas for ways forward.

2. Background

In order to understand why it is imperative to investigate the effect of transparency this chapter will present a brief overview of different policy actors and institutions promotion of transparency as an enhancer of environmental performance. The chapter will also include a discussion on the separation between de jure and de facto transparency.

The aim of this thesis is to fill a gap in the research field regarding actual substantial effects that potentially stem from transparency. An empirical investigation is vital due to the widespread promotion of transparency as an enhancer of environmental performance, by governments, NGOs, international financial institutions and international organisations alike. The promotion of transparency can be connected to what seems to be a shift in the debate regarding environmental performance where technical solutions are deprioritized in

favour of governance measures. With the enhancement of governance measures, transparency has become an international norm (Ölund Wingqvist et al., 2012: Bauhr & Nasiritousi, 2012), that is advocated by diverse actors such as the Swedish Environmental Protection Agency, the International Monetary Fund (IMF) the World Bank (WB) and the United Nations (UN).

According to The Swedish Environmental Protection Agency environmental performance will be most efficiently enhanced through a national level focus on good governance measures. These measures should be connected to the output side of the governance system, with transparency being one such output (Ölund Wingquist et al., 2012). The agency states that "There is now a growing consensus emphasising that governance has a strong effect on environmental actions and outcomes. Rule of law, citizens' rights of access to information, public participation and equal access to justice is a basis for poverty reduction and sustainable development" (Ölund Wingqvist et al., 2012, p. 12).

Transparency is, according to the IMF (2016), a precondition for good governance and an important aspect of efficient environmental policies. The IMF has included efforts towards greater transparency in management of natural resources in their conditionality for loans (IMF, 2016). The same priorities can be seen in the WB's policy recommendations, where the new environmental and social framework, which is a framework of requirements for borrowers, are developing the existing agendas on transparency and accountability. This new framework aims at strengthening environmental and social development in borrowing countries and two of its key features are increased transparency alongside increased accountability (World Bank, 2016). Through its incorporation in the environmental and social framework, transparency has become a stipulation for borrowers.

The United Nations have actively promoted transparency since the Rio Conference in 1992 where principle 10 states that the environment is best preserved with participation of all citizens. States should therefore make environmental information available in order to encourage public participation (United Nations, 1992). This principle was further strengthened through the Aarhus Convention of 1998 where government transparency and accountability composed key features of the constitution (UNECE, n.d). The Aarhus Convention argues for countries to ensure public access to environmental information held by the public authorities.

Transparency evidently enjoys a high status with a range of different actors concerned with environmental performance. In some of the examples above, such as the Swedish

Environmental Protection Agency and the WB, transparency is discussed as a part of a governance package including factors such as accountability. Nevertheless, there is no further description of how transparency might achieve these ambitious objectives but the positive effects of transparency seem to be taken for granted, possibly due to its theoretical promise of decreased information asymmetry. Something I will return to in section 3.2.

Transparency can, as with any reform effort, be measured in two ways, namely *de jure* and *de facto*. De jure implies the legislated framework for transparency, while de facto describes the actual existence of transparency. The drive for transparency, outlined above, has resulted in the emergence of Access To Information (ATI) laws which is a *de jure* measure for achieving increased transparency. In the 1980s only a handful of countries had enacted such laws (Banisar, 2005) but now, in 2017, over one hundred countries have incorporated freedom of information into their legislation (Global Right to Information Rating, n.d). Sweden was the first country to do so already in 1766, but the real boost in ATI laws came after World War II (Banisar, 2005). According to Banisar (2005) some countries enact ATI laws as a sign of good faith but with no intention of fully implementing them. It can therefore be said to exist a discrepancy, or implementation gap, between *de jure* transparency, with the enactment of ATI laws, and *de facto* transparency, which is the actual level of transparency in the country.

The promotion of transparency described above concerns both de jure and de facto. When the IMF and the WB promote transparency, and include it as a condition for loans it is mainly a question of generating stronger de facto transparency. However, when this is done through offering technical assistance and legal advice it translates into de jure efforts (IMF, 2016; World Bank, 2016). Regarding the UN and the Aarhus Convention, transparency is endorsed as a goal for governments and it is encouraged to be reached through legal frameworks. Parties to the Convention, such as the European Union, therefore promote the enactment of ATI laws in member states (European Commission, 2017).

Despite the lack of empirical research regarding the actual substantive effects of transparency on environmental performance, the concept is raised as a notable feature of environmental governance (Ölund Wingquist et al., 2012; SDG Knowledge Hub, 2015). Transparency, both de jure and de facto, needs to undergo scrutiny to establish if the prominent position is merited, and the possible discrepancy between de jure and de facto transparency needs to be considered. This essay will therefore contribute further insights on this area.

3. *Theoretical Framework*

This section will develop the theoretical framework that constitutes the basis from which testable implications are drawn out. The section will start with a discussion on the definition and conceptualization of transparency in order to establish the meaning of the concept in this dissertation. Thereafter, the importance of transparency in different disciplines will be deliberated in order to display the wide usage and endorsement of the concept. Subsequently, the argument for the connection between transparency and environmental performance will be deliberated, a connection that is theorized to be both direct and indirect. The discussion will start at a global level and subsequently move to state level, which is where this research is located. The section also incorporates a discussion on three possible enabling factors for the effectiveness of transparency, which are an active civil society, education and openness to trade.

3.1 Conceptualizing Transparency

Scholars have argued that we now live in an era of transparency where access to information is seen as a human right (Gupta & Mason, 2014; Kravchenko, 2010). Transparency is discussed as a solution to a diverse set of economic, political and ethical problems in a range of disciplines (Gupta & Mason, 2014). Despite this growing call for transparency in both public and private sectors, definitional precision is still lacking and the concept of transparency is sometimes equated with accountability, good governance, rule of law or public participation which confuses the operationalization of the concept (Gupta & Mason, 2014; Michener & Bersch, 2013).

In the debate regarding what constitutes transparency, the concept is often connected to openness and reduced secrecy which is to be reached through availability of information. The direct meaning of transparency is "rendering visible" or "seeing through" but if transparency is just treated as visibility then notable features such as what is to be rendered visible and for whom is left out of the equation (Gupta & Mason, 2014, p. 5). Many scholars use the definition provided by Ann Florini as a point of departure for inquiry. Florini (2007) defines transparency as "the release of information which is relevant for evaluating institutions". This broad description offers a possibility for both public and private institutions to use the same definition. Another commonly used definition is; "the increased flow of timely and reliable economic, social and political information which is accessible to all relevant stakeholders" (Williams, 2015, p. 805).

An alternative effort to conceptualize transparency is made by Greg Michener & Katherine Bersch (2013), who argue that an agreed upon definition within the research community is essential or policies will be built on weak conceptual grounds and evaluations of transparency policies will miss their target. The authors claim that in order to identify and evaluate transparency two conditions are needed; "visibility of information and inferability (the potential to draw accurate conclusions from it)" (Michener & Bersch, 2013, p. 234). Visibility, as in the presence of information, has been a central pillar of transparency since the concept was first used in academic circles, whilst inferability is an emerging component.

The many suggested definitions of transparency have exposed it to conceptual stretching and, by following the reasoning of Sartori (1970), "increasing the concept's extension diminishes the words intention, or specificity" (Michener & Bersch, 2013, p. 237). This statement is not agreed upon by everyone and a universal definition of transparency might, according to some scholars, not be desirable. Paul Langley (2001) states that "the vague and elusive nature of transparency is itself an important feature of its growing importance" (p. 75-76). Transparency is utilised over a range of structures of governance and it takes on different meaning depending on the context. If a universal definition is used there is a risk of omitting important features of the concept (Langley, 2001). Michener & Bersch (2013), on the other hand, argue that to empirically investigate transparency and its effects it is important to agree as to what transparency is and what it is not.

The definition of transparency applied in this essay is the one presented by Florini (2007); "the release of information which is relevant for evaluating institutions". The conceptualization of transparency that was utilized in this essay is one suggested by Marcia Grimes and Monika Bauhr (2016). Grimes and Bauhr (2016) build on the idea of visibility and inferability but argue that in order to account for situational specifics an empirical investigation of transparency must include the *purpose* of the information and the intended users i.e. the *principals* (Grimes & Bauhr, 2016), something I will return to in section 6.1: *Operationalization of Variables*. This essay will also distinguish between de jure and de facto transparency, as explained previously.

3.2 Transparency in Different Disciplines

As noted in the previous section, transparency is a concept that is used across many different disciplines. Its importance is highlighted in diverse areas of literature such as security, economics, regime effectiveness and good governance literature. Florini (2002) claims that information is the base upon which democratic and market based societies rest. Without

information citizens and stakeholders would not feel safe in voting and investing and therefore, Florini (2002) argues, the goal of good governance should be transparency. Florini (2002) has focused much attention towards transparency and security and claims that nations have increased the use of transparency as a tool to persuade others that it is not a threat. By embracing transparency and being open about their military capability, countries are perceived as less threatening. Military security, an issue area that was once dependent on secrecy, has in many cases embraced the notion of transparency as an instrument for security through openness. In economics, the role of transparency is creating a predictable environment that encourages investment. If stakeholders obtain information on the activities of companies and the state they will feel more inclined to enter the market (Stiglitz, 2002; Florini, 2002). Regarding the field of regime effectiveness, the importance of transparency exists in the regime's ability to learn from previous progress and alter state behavior. "To effectively alter the behavior of states and substate actors, regimes (or the states that compose them) must either have–or create–information about the activities they seek to regulate and the impact of those activities on the ultimate goals of the regime" (Mitchell, 1998, p. 111). Information is needed to assess how well the regime is doing and furthermore, it is vital in creating the foundation for the regime to do better in the future (Mitchell, 1998). Lastly, transparency enjoys a distinct status as a key feature of good governance. Defining *governance* is not simple since an agreed upon definition is still lacking in the research community. However, it is often connected to *how* power is exercised. *Governance* includes participation from citizens and their ability to influence decision making and the distribution of authority. *Good Governance* consequently entails aspects of enhancing participation, strengthening effectiveness of government institutions, promoting transparency, rule of law and most of all accountability. Transparency is often described as the tool by which to reach accountability, which explains the importance of the concept in good governance literature (Ölund Wingquist et al., 2012).

It is evident that transparency plays an influential role in several different disciplines and in order to understand how transparency works in these different disciplines and the reason for its importance, it is vital that the pathway by which transparency informs change is elaborated. Principal-agent theory is the most commonly used explanation of the pathway in which transparency supposedly results in better governance. Principal-agent theory is based on two key assumptions:

> "(1) that a goal conflict exists between so-called principals (who are typically assumed to embody the public interest) and agents (who are assumed to have a

> preference in favour of corrupt transactions insofar as the benefits of such transactions outweigh the costs) and
>
> (2) that agents have more information than the principals, which results in an information asymmetry between the two groups of actors"
>
> (Persson, Rothstein & Teorell, 2013, p. 452).

Principle-agent dilemma can be seen in both governments and corporations where the government (agent) is responsible for acting in a manner that benefits the citizens (principals) and the corporate managers (agents) are responsible for acting in a manner that benefits the shareholders (principals). Public choice theory claims that government officials will not, at all times, serve the interest of the public since they continuously face incentives to increase their own power (Florini, 2002). An information asymmetry can therefore be said to exist between the agent and the principal, where the agent possesses more information than the principal since the agent alone knows how they will act. The reason why transparency theoretically leads to better governance is by decreasing the information asymmetry between the principals and the agents. Transparency will enable detection of bad practice and mismanagement amongst the agents and allow the principals to hold the agents accountable for such measures (Florini, 2002). What the theory fails to address, and therefore by extension what research on transparency sometimes fails to address, is whether access to information in itself is enough to generate accountability through citizen monitoring. I will return to this when discussing enabling factors for transparency induced change in sections 3.3.1.1 – 3.3.1.3. With the importance and diverse applicability of transparency in different disciplines established we now turn to the focus of this dissertation, namely transparency and environmental performance.

3.3 Transparency and Environmental Performance

The purpose of this essay is to investigate whether transparency can be said to have an independent effect on environmental performance, that is whether there exists a direct link between the two. This subsection will therefore develop the theories connecting these two concepts, starting at a global level and moving down to a national level which is where this research is focused.

Global environmental politics have become an expression that highlights the international character of many environmental problems, such as climate change and biodiversity loss (Duit, Feindt, & Meadowcroft, 2015). The international character of environmental problems has led to research prioritizing international environmental governance that

underscores the importance of non-state actors, NGOs and international institutions such as the European Union. The frequent use of the term "governance", in discussions regarding environmental issues, is proof of this multi-level focus. "Governance" is not "government" and implies a multi-stakeholder approach where environmental problems require targeting diverse levels - global, regional, national and local - by different stakeholders and groups (Gupta & Mason, 2014).

Aarti Gupta & Michael Mason (2014) argue that the globalization of environmental governance has seen a transparency turn where transparency is used as a way of governing, namely by "governance by disclosure" (p. 6). This implies that transparency is used to target disclosure of information to steer behaviour, something that is also done at national level. The governance by disclosure tool aims at improving certain behaviour by making that behaviour visible, for example pollution levels of countries and enterprises (Gupta & Mason, 2014). Gupta and Mason (2014) investigate this type of transparency based governance (governance by disclosure) and its effects on environmental performance. They start their inquiry by considering the theoretical explanations for the importance of transparency in global environmental governance, namely that transparency enhances empowerment and participation together with informed choice in decision-making. Transparency theoretically strengthens global environmental governance through enhancement of efficiency, enabling of cooperation and coordination and thereby effectiveness. The increase in efficiency attributed to transparency is due to the widespread opinion that governance by disclosure is more efficient than market-based approaches or command and control efforts that have been part of previous strategies of environmental governance. Gupta and Mason (2014) argue that the promotion of transparency in environmental governance is mostly based on normative claims on its efficiency. Despite the scrutiny that has been directed towards transparency in other disciplines, the authors argue that the impact of transparency in the environmental field has escaped closer examination. A statement that receives support from the lack of empirical studies investigating the direct substantial effects of transparency in this field.

The nature of environmental issues as global problems affecting every individual on the planet has placed the focus on research on the international arena but also at the individual and local level. At the local level, the research conducted by Elinor Ostrom on common pool resource management has displayed the importance of cooperation within and across communities and individual level is addressed through research on consumer behaviour (Duit et al. 2015).

The focus of a considerable amount of research on global, local or individual level is problematic since it is still the nation state that holds the legislative authority and power to enforce laws, and, thereby, the means to address and solve many of the problems connected to environmental performance. One scholar that argues for the importance of bringing the state back into environmental governance research is Andreas Duit et al. (2015). States uphold legal frameworks and they have the ability to shape economic, social and political interactions in a legitimate manner. States have set the foundation upon which environmental management rests and states are also the signatories of important international agreements regarding environmental protection. Again, connecting to the Aarhus Convention, the nation state holds the power to legislate on access to information which is one of the central pillars of the Convention. The nation state is therefore still highly important with regards to environmental performance. Duit et al. (2015) discusses the components of, what he terms, the environmental state and argues for the need of more research on the potential of the environmental state to create substantive positive effects on environmental performance (Duit et al. 2015, p. 7).

Following the reasoning of Duit et al. (2015), and attempting to contribute further knowledge on the capability of government transparency, this study will investigate the ability of the state to produce improved environmental performance through transparency measures. Looking at the national level and the theories on how transparency affects environmental performance two ways can be discerned, a direct- and an indirect effect. The focus of this study is on the direct effect of transparency but I will also, in the analysis, control for the indirect effect.

3.3.1 The Direct Effect of Transparency on Environmental Performance

The direct effect of transparency on environmental performance is twofold. The first one connects to Gupta & Masons (2014) argument that global environmental governance uses transparency as a way of governing by disclosure. The same line of reasoning is presented by Florini (2010) who argues that nations use targeted disclosure as a way of governing, and thereby enhancing environmental performance. Targeted disclosure implies "regulation by revelation" (p. 123) and the idea behind it is instead of pushing regulation targets to accomplish certain standards, regulators require those targets to deliver information on what standards they are actually reaching. By then publishing that same information regulators hope to make those targets perform in a more socially desirable way. Examples of this type of targeted disclosure are Pollution Release and Transfer Registries which are active in most member countries of the Organisation for Economic Cooperation and

Development (OECD) (Florini, 2010, p. 124). This theory is sometimes referred to as the "sunshine is the best disinfectant" theory and simply implies that people will behave if there is a risk of exposure. Targeted disclosure is a measure that impacts both government transparency and private sector transparency. Governments legislate on access to information and then use this type of legislation to demand information from the private sector in order to publish it to citizens. One example of targeted disclosure can be seen in China where the government in 2008 adopted the country´s first Open Government Information Regulations (OGI). These new regulations aimed at increasing government transparency in China and it mandates all government agencies to create their own implementing measures. The Ministry of Environmental Protection (MEP) was the first to do so. The MEP is now obliged to grant access to environmental information such as laws and regulations, statistics and information on polluters. The MEP has consequently used these new regulations to govern by disclosure, through the publication of pollution levels in order to push companies and municipalities to act in a more environmentally beneficial way (Kaiser & Rongkun, 2009; Tan, 2014).

The second direct link in which transparency affects environmental performance is by increasing accountability for mismanagement of the environment through principal-agent framework. Accountability is achieved through release of information that decreases the information asymmetry between the principals (citizens) and the agents (public officials). The theory argues that if principals have access to information about environmental abuse they will demand improvement and therefore, as long as information on environmental harm is obtainable, principals will ensure a stop to the mismanagement and hence environmental performance will be strengthened. In order for the principals to obtain information a transparent government is required (Florini, 2002).

Both direct theoretical links between transparency and environmental performance are based on participation and accountability. In a substantial part of the literature these factors have been taken for granted as obvious effects of transparency (Gupta & Mason, 2014). Some scholars, on the other hand, argue that transparency needs to be accompanied by enabling factors that permit transparency to have desired effects. The next section will therefore elaborate on three factors that potentially could empower transparency.

3.3.1.1 Civil Society Engagement and Environmental Governance

The first enabling factor is an engaged civil society (Ölund Wingquist et al., 2012). As discussed in section 3.2, principal-agent theory is the most commonly used explanation for the pathway in which transparency operates. Civil society, defined as; individuals and organizations in a society which are independent of the government and whose primary aim is not profit making (Peterson & Van, 2004), therefore has a vital role to play as principals that will, through access to information, be able to hold government officials (agents) responsible for mismanagement of public resources (Florini, 2002). According to Ölund Wingquist et al. (2012), the watchdog function of civil society is especially important in environmental governance due to its multi-stakeholder nature. Duit et al. (2015) argue that research on the environmental state opens a discussion on citizenship and the obligations and entitlements that follow from the environmental state. Citizens are for example entitled to environmental information (Duit et al., 2015) but this entitlement is followed by an obligation to hold public officials accountable for misconduct. Civil society will therefore enable positive effects from transparency on environmental performance by functioning as recipients of information regarding environmental performance and using that information to demand best practice.

The question that returns throughout this research is whether the fact that the information is available is a guarantee for its usage. I will therefore investigate whether an *engaged* civil society is needed to enable the positive effects of transparency. I will return to this in section 6.1: *Operationalization of Variables.*

3.3.1.2 Education and Environmental Performance

The level of education in a country has the potential to affect environmental performance through different pathways and will therefore function as the second enabling factor. Connecting to civil society and the ability of citizens to act as principals, education will improve citizen's ability to interpret the information that is received (Gallego-Álvarez, Vicente-Galindo, Galindo-Villardon, & Rodriguez-Rosa, 2014). It is also more likely that environmental programmes will be initiated by an educated population and if environmental problems due rise, it is probable that an educated population will better possess the means to handle them (Gallego-Álvarez et al., 2014). Since citizens have an important function as a watchdog with regards to environmental performance (Ölund Wingquist et al., 2012) it is vital that the information that can be obtained is also understood. Education subsequently

have the ability to foster an understanding of how transparency works and what rights citizens possess to request information from public institutions. A higher level of education in the population might therefore enable transparency to have desired effects on environmental performance through the understanding of the right to information and the interpretability of that same information.

3.3.1.3 Openness to trade and Environmental Performance

A third possible enabling factor is openness to trade. Theories on the impact of trade openness on environmental performance suggests that it can be both positive and negative. Positive effects from trade openness could be cleaner production and, when trade expands, access to better technologies and environmental best practice. Negative effects from trade could be increased pollution and natural resource depletion due to increased production and consumption. Whether trade benefits or harms the environment depends on what kind of market openness to trade leads to, a high-tech service based economy or one based on extraction (Emerson, Esty, Srebotnjak & Connett, n.d.). Connecting trade openness to transparency, there is a possibility that openness to trade increases the number of Multi-National Corporations (MNCs) in a country or with interests in a country, which then creates a new group of potential principals able to generate accountability. MNCs have the possibility to use information made available by governments to demand improved environmental performance of suppliers (Tan, 2014). Openness to trade might therefore enable transparency to have desired effects on environmental performance through the inclusion of a new group of principals, something that will be explored further in the next chapter.

3.3.2 The Indirect Effect of Transparency on Environmental Performance

The theory behind the indirect effect of transparency on environmental performance argues that transparency decreases corruption by enabling detection of bad practice, and in societies with low levels of corruption environmental performance tend to be better. The connection between corruption and environmental performance is by now well established (Pellegrini, 2011; Peh & Drori, 2010; Lisciandra & Migliardo, 2016; Sundström, 2016). Corruption weakens environmental performance by, amongst other things, undermining environmental governance and delaying more stringent environmental laws (Lisciandra & Milgiardo, 2016). It also creates opportunities for profiting on environmental degradation (bribes to forest guards) (Peh & Drori, 2010), it undermines environmental legislation and obstructs implementation when resource users bribe corrupt inspectors (Sundström, 2016). The

environmental realm is especially sensitive to corruption due to the fact that environmental goods are public goods and therefore need to be regulated through state intervention. A common anti-corruption measure is to decrease state intervention but since this is not desirable in environmental regulation, other anti-corruption measures are needed (Pellegrini, 2011). Transparency thus becomes a vital anti-corruption measure to prevent environmental harm (Peh & Drori, 2010).

4. Review of the Evidence

This section will delve into a review of the evidence connecting transparency to environmental performance. The review will be divided into two sections where the first subsection considers the evidence supporting the direct connection between transparency and environmental performance. The second subsection discusses the evidence supporting the role of transparency in enhancing environmental performance through combating corruption.

4.1 The Direct Effect of Transparency on Environmental Performance

As mentioned, there is a deficiency in research on the direct effect of transparency on environmental performance. Transparency is mostly promoted due to the theoretical promise of increased accountability and sunshine as the best disinfectant. This section will discuss two case studies conducted in China that employed the theoretical framework of principal-agent theory and targeted disclosure.

When investigating transparency and environment, China has been used as a case study by two different scholars. One of them, Yeling Tan (2014), examined the effects of transparency under authoritarian settings through an investigation of China's transparency measures. In 2008, the Ministry of Environmental Protection (MEP) adopted China's Open Environmental Initiatives, as a response to the Open Government Information Regulations, which are examples of de jure transparency. Tan (2014) tried to distinguish whether these de jure measures of transparency resulted in de facto transparency and enhanced governance. He also examined whether the information was used by civil society to enhance environmental performance. Tan's (2014) research therefore touched on the effects of transparency on environmental performance through principal-agent framework.

Kaiser & Rongkun (2009) also investigated China and the Open Government Information Regulations to examine if the legislated transparency measures had an impact on de facto

transparency. This was done through investigating whether both governments and businesses disclosed information relevant for assessing environmental performance.

The results of the two case studies were similar. With regards to de jure and de facto transparency both articles discussed the discrepancy existing between the two. According to Tan (2014) the level of de facto transparency with regards to environmental information depends on the goals of the different municipalities. If they are pro-environment they are also more prone to distribute information on environmental performances, but if they are more inclined to prioritize economic growth they are less motivated to distribute information. According to Kaiser and Rongkun (2009) consistent implementation of the different parts of the Open Government Information Regulations is lacking, one example being the production of disclosure reports annually by the different government agencies. The only agency to do so is the MEP. The authors also found a gap between the amount of requested information from citizens and the amount of information disclosed, strengthening discrepancy claims between de jure and de facto transparency.

Turning to the ability of citizens and NGOs to use information to improve outcomes, both articles reported some positive results. Tan (2014) found that NGOs, through disclosure initiatives, were able to engage Multi-National Corporations (MNCs) in monitoring their suppliers and in some cases demand improved environmental efforts. Tan (2014) argued that non-state actor participation and influence worked through unusual pathways with the inclusion of multiple actors to strengthen the environment. For example, one NGO created a database using publicly available information disclosed by government agencies to rate companies on water pollution. This initiative displays the importance of civil society as a watchdog (Kaiser & Rongkun, 2009). The research conducted by Tan (2014) demonstrated that the effect of transparency on environmental performance might be enhanced through the involvement of civil society and trade openness, making these two enabling factors interesting to research further. The research made by Kaiser & Rongkun (2009) stated that NGOs were using transparency regulations to obtain information in order to pressure local factories and foster environmental activism. Also in this article, non-state actors seemed to have an ability to enhance the effect of transparency on environmental governance by demanding information and using it to hold wrongdoers responsible for their actions.

Despite investigating the effects of transparency and whether civil society were able to use information provided to monitor and demand change, these two articles did not shed light on the actual substantive effects on environmental performance. Tan (2014) mentioned that NGO initiatives alongside pressure from MNCs have managed to persuade one local factory

to decrease emission levels. Noteworthy is that it was not until the MNC got involved that the factory agreed to oversee its production in order to reduce pollution (Tan, 2014). Looking at the review of the evidence supports the claim that transparency might not be effective in itself, but needs to be accompanied by enabling factors such as civil society engagement and openness to trade. It is also striking that no research displaying actual substantive effects on environmental performance between countries is obtainable, despite the promotion of transparency as an environmental performance enhancer, which leaves this dissertation with an important gap to fill.

4.2 The Indirect Effect of Transparency on Environmental Performance

Previous research on the indirect effect of transparency on environmental performance brings back the definitional problems connected to the concept of transparency. The economists George Halkos & Nickolaos Tzeremes (2014), argue that there is indeed a statistically significant relationship between public sector transparency and environmental performance when they tested this relationship on 49 countries. The authors investigated transparency by simply describing and operationalizing it as "the inverse of corruption". According to the authors the negative effects of corruption on environmental performance were both direct and indirect. Direct since corruption weakens institutional quality and environmental policy implementation and indirect through the negative effect corruption has on income which in turn negatively affects environmental performance. Since the Halkos and Tzeremes (2014) study measured public sector transparency with an inverted measurement of Transparency International's Corruption Perception Index the results should be treated cautiously and, according to the theoretical discussion on conceptualizing transparency, not as an established relationship. Despite this, the study presents a clear case of the negative effects of corruption on environmental performance and an insight in how transparency might be beneficial in addressing the problem.

Kelvin Peh & Ofir Drori (2010) investigated the levels of corruption in relation to environmental performance in 66 tropical developing countries, along with a case study on the situation in Cameroon. They found that where corruption levels were high, environmental performance was low, even amongst developing countries where GDP levels did not differ as much as between developing and developed countries. The case study of Cameroon showed that poor governance, corruption and a lack of social capital created a situation where environmental performance was extremely weak. The authors concluded that the only way to decrease corruption levels and, by extension, strengthen environmental performance was by increasing public sector transparency. They claimed that transparency

is key to good governance but also important for attracting funds and aid from international donors. If successful environmental projects are visible they will generate trust from the international community in investing further in the protection of the environment in Cameroon (Peh & Drori, 2010). Their arguments on how to improve the situation using transparency are based on theoretical expectations rather than empirics, once again pointing to the need of investigating this topic further.

5. Aim and Research Questions

Transparency has gained a strong position with regard to environmental performance and is promoted as a vital component in good governance and management of public goods. The impact of transparency on environmental performance is frequently discussed through theories on its effectiveness but without much empirical support. This is problematic since transparency in itself might not be enough to achieve enhanced environmental performance and hence, efforts to increase transparency might be futile and insufficient. This is especially pressing considering the discrepancy between de jure and de facto transparency. If transparency is vital for good governance and enhanced environmental performance it is important to investigate if these ambitious goals are reached with the existence and strength of transparency de jure or if it is the de facto levels of transparency that has the greatest effect on the environment. It is therefore the aim of this essay to investigate whether transparency (de jure and de facto) has an independent effect on environmental performance or if, in fact, enabling conditions are needed. It is also my intention to investigate the possibility of an indirect effect where transparency affects the environment through decreasing corruption. The research questions guiding this essay are therefore;

- *What effect does transparency have on environmental performance?*
- *Is the effect of transparency on environmental performance running through corruption?*
- *Is the effect of transparency on environmental performance dependent on an active civil society?*
- *Is the effect of transparency on environmental performance dependent on the level of education in the population?*
- *Is the effect of transparency on environmental performance dependent on trade openness?*

Based on the deliberation in the theoretical framework and the previous research regarding transparency and potential ways enabling factors would affect the results, the following hypotheses have been constructed:

H1a: The existence and strength of de jure transparency i.e. access to information laws will have a visible positive effect on countries environmental performance.

H1b: The higher the level of de facto transparency, the stronger the environmental performance.

H2: The positive effect of transparency on environmental performance will decrease under control for corruption.

H3: The positive effect of transparency on environmental performance will increase with the presence of an active civil society.

H4: The positive effect of transparency on environmental performance will increase with higher levels of education in the population.

H5: The positive effect of transparency on environmental performance will increase with higher degrees of openness to trade.

6. Data and Method

To investigate country differences in de jure and de facto transparency, and whether environmental performance can be seen to be affected by these differences I conducted a large-N cross-country analysis using Ordinary Least Squares (OLS) regressions. OLS allows you to predict values on the Y-axis based on the values on the X-axis by fitting a straight line (Field, 2009). It therefore enables the detection of patterns and relationships in the data. Since the aim also was to investigate whether the effect of transparency is dependent on or can be enhanced by enabling factors, I included interactions in the regressions.

I started by performing bivariate and multivariate OLS regressions to establish whether there is an independent effect of transparency on environmental performance. I also included Control of Corruption as an intervening variable to investigate if there is a possibility that the effect of transparency on environmental performance is running through corruption. In the multivariate regressions, I applied forced entry of the control variables, meaning that there was no hierarchical order in the inclusion of controls. This is a good method for theory testing since the model gives replicable results. If variables are entered in a stepwise method there is a risk of random variation in the data influencing the results (Field, 2009).

I performed interaction regressions in order to account for possible enabling factors for the effect of transparency on environmental performance. An interaction, or moderator, implies that the effect size of one variable is dependent on another variable (Field, 2009). In my case

I argue that the effect size of transparency on environmental performance is dependent on the activity of civil society, the level of education in the population and the degree of openness to trade. The formula for calculating an interaction effect will be presented in section 7.1.1, where I deliberate on the results.

6.1 Data and Operationalization of Variables

The chapter will proceed with an overview of the operationalization's of the variables. The section will begin with a discussion concerning the dependent variables where strengths and weaknesses are elaborated. Thereafter, a discussion regarding the independent variables is presented where the difficulties of measuring transparency are considered. Subsequently follows a discussion on the three variables utilized for the interaction terms, and the chapter is then concluded with a discussion regarding the four control variables.

6.1.1 Dependent Variables

In order to investigate the effect of transparency on environmental performance, a variable that display national differences in environmental performance is needed. I decided to utilize two different variables in order to account for weaknesses in each of the measures. The first dependent variable is the Environmental Performance Index (EPI) created by Yale University. The index is a composite of 20 indicators of environmental performance divided into two issue areas; environmental health and ecosystem vitality (each accounting for 50 percent of the final score). The index ranges from 0–100 where 100 is the best possible environmental performance. The data is collected and aggregated from different institutions such as the UN and national accounts that cover national environmental data (Environmental Performance Index, 2017). I used data from 2014 presented in the QoG Standard Dataset (Teorell, Dahlberg, Holmberg, Rothstein, Khomenko & Svensson, 2017). Since the creation of the index in 2006 it has evolved regarding the inclusion of indicators and the methodology applied in aggregating the results. The index has been used extensively by scholars for investigating, amongst other things, the effect of corruption on environmental performance (Lisciandra & Migliardo, 2014), country differences in environmental performance (Gallego-Álvarez et al., 2014) and the relationship between economic growth and environmental performance (Chang & Hao, 2017).

The attraction of composite indexes such as the EPI is to enable more informed public decision-making and international organizations such as UN, the OECD and the EU are increasingly requesting these types of indexes (Rogge, 2012). However, the index has been exposed to criticism from different researchers arguing that the aggregation of the

indicators produces misleading results. Some of the indicators for which observations are lacking rely on imputation (Athanasoglou, Weziak-Bialowolska & Saisana, 2014). To address these problems, I relied on an evaluation report on the environmental performance index from 2014, conducted by the Joint Research Centre (JRC) (Athanasoglou et al., 2014). The EPI methodology changes between the publications of the data and I therefore chose to use data from 2014 since that data have been evaluated by JRC, which is not the case with the data from 2016. The evaluation deliberates on the weaknesses of the index with regards to aggregation and weight of the indicators. Despite weaknesses this index is the only index giving a comprehensive score on overall environmental performance for a large sample of countries, which is what this essay attempts to investigate. The weaknesses and the issue of noise in this variable nevertheless led me to include a second dependent variable.

The second dependent variable is a measure of carbon dioxide (CO_2) emissions. CO_2 emissions influence environmental performance since it is the largest contributor to global warming and make up the principal part of greenhouse gases in the atmosphere (World Bank, 2017b). CO_2 emissions can therefore be said to be an indicator of environmental performance more generally (Povitkina, 2015). This variable is a thinner indicator that does not fully cover the concept "environmental performance" but it is with less noise than the full EPI variable. It measures one aspect of environmental performance and is therefore more accurate and reliable than the EPI which measures the full phenomenon but with greater inaccuracy. The measure of CO_2 emissions utilized in this essay is an index created by taking the average CO_2 emissions of countries over 5 years (2009–2013). The average measure was created since yearly country estimates have larger error bounds than trends (World Bank, 2017b). The data was collected from the World Bank data on CO_2 emissions[1] (World Bank, 2017b), and is measured in metric tons per capita. Anthropogenic CO_2 emissions are generated mostly from fossil fuel combustion and cement manufacturing and the variable hence measure gases from the burning of fossil fuels and cement manufacturing but excludes emissions that originates from land use, such as deforestation (World Bank, 2017b). For this analysis, the CO_2 average index created was log transformed to account for positive skewness.

6.1.2 Independent Variables

This research paper employed two independent variables measuring *de jure* and *de facto* transparency. De jure transparency is, as discussed, the legislated measures of transparency

[1] Original source: Carbon Dioxide Analysis Centre, Tennessee, United States

such as Access to Information (ATI) laws. Examples of these kind of laws are the Freedom of Information Act in the United States, or the Indian Right to Know law in India (Florini, 2010). De facto transparency is the actual level of transparency in a country.

The first independent variable measures de jure transparency and displays the strength of ATI laws in a country. The data (hereon referred to as the ATI index) is from 2011 and was retrieved from the Global Right to Information Rating (n.d), a programme funded by Access Info Europe (AIE) and the Centre for Law and Democracy (CLD). The ATI index consists of 61 indicators divided into seven categories; Right of Access, Scope, Requesting Procedures, Exceptions and Refusals, Appeals, Sanctions and Protections, and Promotional Measures, and simply measures the strength of the legal framework and not whether the laws are in fact implemented. The index is created by the AIE and the CLD who developed the indicators with support from an Advisory Council of experts. The AIE and CLD then applied the index to countries, given them a score that was later revised by local legal experts. The comments stemming from these reviews were then incorporated into the scoring. The index covers 102 countries who are given scores on all 61 indicators with a maximum score of 150 (Global Right to Information Rating, n.d). This measurement does not bleed into other aspects of de facto transparency but is focused strictly on the legal aspect of ATI. Based on the theoretical frame of this thesis, this variable is expected to enable an investigation of the first research question; *What effect does transparency have on environmental performance*, and hypotheses 1a; *The existence and strength of de jure transparency i.e. access to information laws, will have a visible positive effect on countries environmental performance.*

Measuring de facto transparency is not unproblematic and existing measures contain more or less noise. I therefore chose a relatively new and thin measure of transparency presented by the Quality of Government institute (QoG), which measures government probity through expert assessment of four questions relating to transparency:

- q11_a) public sector employees risk severe negative consequences if they pass on information about abuses of public power to the media,
- q11_b) government documents and records are open to public access,
- q11_c) abuses of power within the public sector are likely to be exposed in the media and

- q11_d) citizens and media actors can track the flow of government revenues and expenditures (Dahlström, Teorell, Dahlberg, Hartmann, Lindberg & Nistotskaya, 2015b, p. 15-16).

This measure is narrower than other measurements of transparency and takes both the purpose of transparency as well as the intended principals into account. The purpose of transparency in this measurement is increased accountability to achieve government probity and the intended principals are; politicians & government agencies, voters, NGOs, firms and the public in off-election periods. The purpose of transparency is not a perfect match considering the purpose of transparency in this dissertation is environmental accountability. The measure of transparency presented here should therefore be considered as a proxy. A government with open records, publicly available documents, where abuses are likely to be exposed and where media and citizens can track flows of revenues and expenditures are not likely to refuse environmental information. Correspondingly, the fact that the purpose of transparency in this measurement is connected to accountability and the intended principals are civil society actors this measurement is a suitable proxy for my dissertation. Specifically considering the theoretical underpinnings connecting transparency and environmental performance through principal-agent theory. That is, transparency produces accountability (purpose) since citizens (principals) use available information to hold public officials responsible for mismanagement.

The data from 2014 were retrieved from the QoG expert survey II, (Dahlström et al., 2015a) conducted by researchers at the QoG institute[2]. The data are gathered through questionnaires answered by selected public administration experts (who each select a country for which to respond) and it covers 159 countries. The questions are answered on a scale of 1–7 with 1 representing: not at all, and 7 representing: to a very large extent. In q11_b, q11_c and q11_d 7 meant higher degrees of transparency and 1 meant lower degrees of transparency but in q11_a the coding ran in the opposite direction. I therefore recoded q11_a to run in the same direction as the other questions. The QoG Transparency Index was thereafter created by taking a mean average of the answers to the four questions, resulting in an average measure of government transparency covering 110 countries. To increase validity of the results, countries with answers from less than 3 experts were excluded from the analysis.

Recent years have seen an increase in efforts to measure de facto transparency. Hollyer, Rosendorff & Vreeland (2014) created an index measuring transparency by investigating the

[2] The QoG Institute is a research institute based at the Department of Political Science at the University of Gothenburg

extent to which countries release indicators requested by the WB for the construction of the World Development Indictors. This measure is interesting since it is an objective measure not relying on expert assessment. Nevertheless, a measure of transparency based on the collection and publication of data inevitably tap into state capacity and government quality. The Hollyer et al. (2014) measurement also does not capture whether the government release information that enables citizens to detect abuse. Another measure of de facto transparency is the Information Transparency Index, created by Andrew Williams (2015). The index measures the quantity, quality and the information infrastructure of countries. This is done by, for example, looking at how much information is being released to international institutions such as the WB and the IMF (same as Hollyer et al., 2014), measuring whether the production of information is appropriate and finally measuring if the information has the potential to reach the public (amount of internet connections and radios) (Williams, 2015). The index is a composite measure with data from the WB, the UN, different governments and other bodies. It is an index constructed from various sources with diverse definitions of transparency, making it difficult to assess what type of transparency that is being measured. It also taps into other fields such as information infrastructure and the capacity of the state to collect and publish information (Williams, 2015). The potential of information to reach the public, through internet and radio connections, is not an aspect that is directly connected to government transparency. For example, the amount of internet connections tells us nothing about whether the government is open and permits citizens to access information, but it could be a factor affecting the efficiency of transparency.

As discussed, the index chosen for measuring de facto transparency is relatively thin and I therefore performed a robustness test using the Information Transparency Index from 2010 (Williams, 2014). This index ranges from 0–100 with 100 being the most transparent. If transparency, when measured with a noisy variable, displays an insignificant effect on environmental performance this strengthens the theory of transparency needing enabling factors to be efficient.

Data on transparency that is more connected to the environment would have been preferred, for example how many countries that legislate on the publication of environmental impact assessments and further, how many that are disclosed. Measuring availability of environmental information would present a clearer picture of what effect this type of information has on environmental performance, however, to my knowledge it does not exist. I would nevertheless argue that since the theoretical direct link between transparency and environmental performance is mostly based on principal-agent framework and the sunshine

is the best disinfectant theory, I contend that a measure of de facto transparency relating to government probity is a fairly reasonable proxy. A government with open records, publicly available documents, where abuses are likely to be exposed and where media and citizens can track flows of revenues and expenditures is not likely to refuse environmental information. Further, in order to investigate whether transparency alone affects environmental performance and isolate the effect, there are strong reasons for choosing a thin index of transparency that does not bleed conceptually into other aspects such as government effectiveness. This variable is expected to generate an answer to question number one; *What effect does transparency have on environmental performance?* and hypothesis 1b: *The higher the level of de facto transparency, the stronger the environmental performance.*

In order to investigate a possible indirect effect of transparency, control of corruption was included as a potentially intervening variable. I used the World Governance Indicator (WGI); Control of Corruption produced by the World Bank Group (2017c). It ranges from -2.5–2.5 where high values indicate more control of corruption. The index measures perceptions of corruption and it is a composite measure made from surveys conducted by several different survey institutes. Over 30 individual data sources were used to produce this composite measure (World Bank Group, 2017c). The WGIs have received criticism from the research community for neither specifying what type of corruption it measures (petty or grand, administrative or political), nor the precise mix of corruption types existing in a country (Thomas, 2010). Nevertheless, it is a measure displaying an *overall* measure of corruption in a country and it covers perceptions of corruption in both the public and the private sector (Grimes, 2013). The data are retrieved from the QoG Standard Dataset (Teorell et al., 2017) and represents the 2013 scores. The variable is expected to generate an evaluation of hypothesis number 2: *The positive effect of transparency on environmental performance will decrease under control for control of corruption.*

6.1.3 Interaction Terms

Since, there might be other variables affecting the success of transparency, as has been displayed in previous research, I operationalized three interaction terms that potentially increase the effect of transparency on environmental performance. The first interaction term used is civil society engagement. I chose to use data from the World Values Survey[3] (WVS) on percentage of population that are members in environmental organizations as a proxy for

[3] The WVS is a global network of social scientists who conduct research on values and their effect on societal and political life. The data collected by the WVS have gained wide knowledge and are used by researchers all over the world (World Value Survey, n.d)

civil society engagement. As noted, the fact that the information is obtainable does not automatically mean that it will be utilized by citizens. An engaged citizenry that is dedicated to environmental issues, on the other hand, might be more prone to use the information provided to demand stronger environmental performance. The effect of transparency on environmental performance might therefore be dependent on, or increased by, an engaged civil society. In order to measure civil society engagement, I created an index from two waves of surveys (since one would have been too small of a sample) in the WVS data. The first wave used was "wave 5" and the data was collected between 2005–2009 (World Value Survey wave 5) and the second wave used was "wave 6" which was conducted between 2010–2014 (World Value Survey wave 6). The data was collected through questionnaires distributed amongst a population sample (no less than 1000 people) in different countries. The question on which I developed the index was "For each organization, could you tell me whether you are an active member, an inactive member or not a member of that type of organization?: Environmental organization" (World Value Survey, 2005). Since this index is based on two waves there is a possible 9-year difference between some observations. I would, however, argue that it is unlikely that civil society participation changes significantly in this amount of time. The variable is measured as the percentage of population that is a member (inactive and active) of an environmental organization, however it was recoded into a dichotomous variable with 0 representing a strong/active civil society and 1 representing a weak/inactive civil society. A strong civil society ranges from 9–36 percentage of the population that are active in an environmental organisation. A weak civil society ranges from 0.3-8.9 percentage of the population. The distinction between strong and weak was made by dichotomizing the measure at the mean value and by doing this, 33 countries represent both categories. Splitting the two in a different way would have rendered one side too small, but since the countries represents a random sample (World Value Survey, n.d.) generalizations should still be possible.

This variable will reduce the sample size since the data cover 80 countries and only 66 of those countries had values for the other variables. A larger sample could have been generated through the inclusion of one more wave but that would have made the difference in time between some of data points 15 years. The starting year would have been 1999 (Wave 4), which is a time that saw a lot of countries transitioning towards democracy and consequently most probably changed civil society. This variable will be used to answer hypothesis number 3, which is: *The positive effect of transparency on environmental performance will increase with the presence of an active civil society.*

The second interaction term is education. To account for educational level I employed the index: Average Schooling Years for Males and Females (+25) from the QoG Standard Dataset (Teorell et al., 2017), originally found in the Barro-Lee Educational Attainment Dataset (2013). The Barro-Lee dataset provides data on educational attainment for 146 countries between 1950–2010 for males and females and was created through a collection of material from UNESCO (amongst others). The data were collected through census observations that report the distribution of educational attainment (Barro-lee, n.d). I used the data from 2010. This variable was dichotomized and divided along the mean. 0 therefore represents a higher level of education (above 8 years) and 1 represents a lower level of education (below 8 years). This variable will be used in answering hypothesis number 4: *The positive effect of transparency on environmental performance will increase with a higher level of education in the population.*

My third and final interaction term is openness to trade, and it is measured by the trade openness index from the QoG Standard Dataset (Teorell et al., 2017). The original data were retrieved from the World Bank Doing Business Data (The World Bank, 2017a). The data measures the degree of regulation with regards to countries external economic activity and is created by taking a mean of standardized data from two Doing Business Data sets. It includes "average number of documents required to export and import and time for exporting and importing", and it ranges from 1–10 with 10 displaying the highest degree of trade openness (Teorell et al., 2017, p. 415). Openness to trade enables MNCs to get invested in countries and thereby function as potential principals by using access to information as a measure to demand better environmental performance by suppliers. The trade openness index does not display the number of MNCs present in a country but researchers claim that a higher degree of trade openness will attract more companies. "Multinational firms engaged in export-oriented investments may prefer to invest in a more open economy since increased imperfections that accompany trade protection generally imply higher transaction costs associated with exporting" (Demirhan & Masca, 2008, p. 359). To enable a clearer interpretation of the interaction this variable was recoded into a dichotomous variable with 0 representing a high degree of openness to trade and 1 representing a low degree of openness to trade. The variable was dichotomized along the mean value (6.9) which means that countries with values below 6.9 are coded 1, whilst countries that display values above 6.9 are coded 0. The third interaction term enables an investigation of hypotheses number 5; *The positive effect of transparency on environmental performance will increase with higher degrees of openness to trade.*

6.1.4 Control Variables

A set of control variables were utilized to ensure that the relationship between transparency and environmental performance is not spurious. The variables range from economic to institutional; electoral democracy, Gross Domestic Product per capita, gas exports and bureaucratic capacity. The rationales and theoretical underpinnings for the choice of variables will be presented in this section.

The first control variable utilized is electoral democracy. Regarding research on environmental performance, effects of regime types have attracted scholarly attention and it is widely agreed that democracies tend to outperform autocracies (Fiorino, 2011; Ölund Wingquist et al., 2012). This is especially true with regards to pollution levels but is also detected in wilderness protection and land use, but with weaker evidence. The reason for the stronger environmental performance of democracies is due to citizens' ability to demand (through voting) decreased pollution and reduced natural resource extraction but also the tendency of democracies to focus on long-term issues that affects future generations (Fiorino, 2011). I controlled for regime type through the index, Electoral Democracy. This index measures to what extent the ideal of electoral democracy is reached in its fullest sense. I used data from 2014 presented in the QoG Standard Dataset (Teorell et al., 2017), but the index is originally taken from the V-Dem database[4]. The electoral democracy index is made by aggregating and taking the average of the sum of the indices measuring "freedom of association (thick), suffrage, clean elections, elected executive (de jure) and freedom of expression; and, on the other, the five-way interaction between those indices" (Teorell et al., 2017, p. 591). The variable is dichotomous and 0 implies that the ideal of electoral democracy is not met and 1 implies that the ideal of electoral democracy is met (V-Dem, 2016b, p. 44).

The second control variable is GDP per capita and according to research, economic wealth is positively correlated with stronger environmental performance. A higher level of Gross Domestic Product (GDP) per capita will increase a country's capacity to provide its citizens with better economic, social and environmental living conditions (Gallego-Álvarez et al., 2014). A higher level of GDP often means that a country can offer its citizens education which is something that is also positively connected to environmental performance. Another

[4] V-Dem is a social science data collection initiative that is run by the Department of Political Science at Gothenburg university and the Kellogg Institute at the university of Notre Dame, USA. The V-Dem dataset is made up by factual documents obtainable from governments and institutions but also by subjective assessments provided by country experts (V-Dem, 2016a)

factor of GDP influenced change is the environmental Kuznets curve (EKC) theory. The EKC theory argues that pollution levels will increase alongside economic growth up until a certain level of income and when this point is passed pollution levels decrease with growth in GDP per capita. The suggested reason for this is market transformation towards developing the service sector and innovative technologies instead of production using crude materials (Gallego-Álvarez et al., 2014). The decline in pollution after a certain level of wealth might also imply that people value other things than material prosperity (Duit, 2005). I controlled for this variable by calculating an average measure of GDP per capita spanning over three years, 2013–2015, to account for yearly fluctuations. Data was derived from the WB national accounts data (The World Bank Group, 2017d) and is measured in current US$. The variable was log transformed in order to account for a skewed distribution and a non-linear relationship with environmental performance.

The third control variable is gas exports, which functions as a proxy for natural resource dependency. Countries that are dependent on natural resources often demonstrate high levels of corruption and poor environmental performance (Ölund Wingquist et al., 2012). The large revenues from natural resources are highly sensitive to elite capture which means that a lot of revenue disappears in corrupt transactions within governments and are not spent on public goods such as environmental protection (NRGI, 2015). In order to control for natural resource dependency, I used an index created by Michael Ross that measures net gas exports value in dollars at constant year 2000 prices. It is not a perfect measure of natural resource dependency but it functions as a proxy displaying whether there is a correlation between how much gas a country exports and its environmental performance. Gas is correspondingly a beneficial resource to discuss due to its long production time, scale and non-renewable nature, which indicates that the effects of gas extraction are notable (NRGI, 2015). The data was retrieved from the QoG Standard Dataset (Teorell et al., 2017) and the values are from 2011. Due to the high values displayed in this variable it was divided by one hundred million (100 000 000) to facilitate interpretation of the coefficients.

The last control variable is measuring bureaucratic capacity. Bureaucratic capacity is theorized to be highly relevant for the efficient provision of public goods. If institutions are faulty the common good will potentially be surpassed by political leaders' self-interest. Since the environment is a public good that, as discussed earlier, needs to be regulated by the state a capable bureaucracy will potentially affect environmental performance. High bureaucratic capacity implies that implementation of environmental regulations and monitoring of compliance will be more obtainable (Povitkina, 2015). Due to lack of data investigating

bureaucratic capacity without bleeding into other concepts such as rule of law, bureaucratic capacity was proxied by meritocratic recruitment. Meritocratic recruitment is a key component of an effective bureaucracy insulated from political pressure. If bureaucrats are hired based on merit and skills this will in turn create a capable effective bureaucracy (Dahlström, Lapuente & Teorell, 2012). I created an index from data on meritocratic recruitment from 2014, taken from the QoG expert survey II dataset (Dahlström et al., 2015a). The index was created as a mean on answers to three questions;

- 2a) "When recruiting public sector employees, the skills and merits of the applicants decide who gets the job",
- 2d)" Public sector employees are hired via a formal examination system" and
- 2e) "The practice of hiring, firing, promoting and paying public sector employees follows provisions of the law and other legal documents regulating these processes" (Dahlström et al., 2015, p.8-9).

All questions range from 1–7 with 1 implying hardly ever and 7 implying almost always. Values closer to 7 therefore indicates more meritocratic recruitment and higher levels of bureaucratic capacity. Since bureaucratic capacity is measured by a proxy, the measurement does not cover the entire concept of bureaucratic capacity. It is therefore possible that bureaucratic capacity has a stronger influence on the variables than is displayed in my results.

6.2 Power and Limitations of chosen Method

By utilizing a large-N cross-country analysis there is a lot to be gained. Contrary to qualitative research the results are more objective and generalizable. A large-N design offers opportunities for identifying patterns and regularities within the data (Field, 2009). Furthermore, interactions offers a possibility to go beyond the variables themselves and investigate whether there is an extra effect by combining variables into interactions. As the goal of my thesis is to investigate whether a relationship exists between two or more variables this is a straight forward method that offers a clear picture of the relationship.

There are, however, some limitations to the method. One of the main limitations for this research project was the lack of data, especially concerning civil society engagement in environmental matters. A greater sample would have rendered the results more reliable and robust. Another limitation with regards to OLS is the fact that if an assumption is violated it jeopardizes the generalizability of the results (Field, 2009).

Considering other potentially beneficial models for exploring the relationship between my variables, cross-sectional time-series analysis could have been a desirable choice. The OLS-method simply provides a snapshot of a moment in time and, considering de jure transparency, it could have been interesting to investigate whether ATI laws that have been in place for a longer period of time has had a significant impact on environmental performance. Time-series analysis would have allowed for a track of changes in the variables over time and thus enabling a consideration regarding whether changes over time in environmental performance could in fact stem from ATI legislation. The reason for not applying this method was due to interactions not being a possibility in time-series analysis.

7. *Results and Analysis*

This section presents the results of the statistical analysis and conducts analyses of the generated results in parallel. In order to answer the first and main research question; *what effect does transparency have on environmental performance*, transparency was divided into *de jure* and *de facto*. The results chapter will consequently be divided between de jure and de facto, and the research questions and hypotheses will be answered with regards to both. Section 7.1 presents the results concerning de jure transparency and addresses the interactions with ATI in section 7.1.1. De jure transparency and the second dependent variable, CO_2 emissions, are discussed in section 7.1.2. Thereafter, section 7.2 presents the results regarding de facto transparency and addresses the interactions with the QoG index in section 7.2.1. Subsequently section 7.2.2 demonstrates the results of the QoG index when the dependent variable is replaced by CO_2 emissions. The chapter concludes with a section, 7.3, discussing diagnostics.

7.1 De jure Transparency

De jure transparency is measured by the existence and strength of ATI laws which thus represents the first independent variable. Starting with a simple correlational test (appendix 1) between the two variables, ATI and EPI, demonstrates that there is a weak negative insignificant correlation between ATI score and environmental performance. Table 1 model 1 displays the same result as the correlational test, but in a bivariate regression between the ATI indicator and environmental performance.

Table 1 – The Effect of de jure Transparency on Environmental Performance

DV: Environmental Performance	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
IV: ATI score	-.158 (.081)	-.064 (.051)	.019 (.051)	.002 (.135)	.028 (.053)	-.002 (.005)
Trade Openness			-8.017* (3.751)	-5.762 (4.036)	-7.052 (3.996)	-19.181 (13.088)
Electoral Democracy			.646 (4.363)	-2.317 (5.047)	.957 (4.411)	-.174 (4.471)
Log average GDP per capita			9.458*** (1.708)	8..903*** (2.117)	8.915*** (1.870)	9.660*** (1.728)
Average years of schooling for males and females (25+)			-3.494 (3.254)	-6.277 (4.870)	6.651 (14.166)	-4.308 (3.389)
Meritocratic recruitment			-.518 (1.244)	1.058 (1.811)	.161 (1.555)	-.975 (1.349)
Gas Exports			-.018 (.036)	-.037 (.038)	-.016 (.036)	-021 (.036)
Control of Corruption		11.946*** (.977)				
Engaged Civil Society				-2.506 (14.969)		
ATI × Civil Society				.064 (.157)		
ATI × Education					-.124 (.169)	
ATI × Trade Openness						.119 (.134)
Constant	69.249***	59.417***	-25.289	-25.579	-24.408	-22.781
R2	.041	.647	.800	.847	.803	.805
N	91	90	44	30	44	44

*p<.05 **p<.01 ***p<.001. Unstandardized coefficients. Standard errors within parenthesis. Interaction coding –Civil society engagement (0= Strong Civil Society, 1= Weak Civil Society), Education (0= high level of education, 1= low level of education), Trade openness (0= high degree of trade openness, 1= low degree of trade openness).

Model 1 demonstrates that there seems to be a weak negative correlation between the two where a 1 unit increase in ATI score results in a .158 unit drop in environmental performance. In order to calculate the total effect of ATI on environmental performance, the top score of ATI, which is 150, was multiplied with the main effect of ATI from model 1. 150×-.158 = -23.7, which indicates that countries with the strongest ATI laws tend on average to score 23.7 units lower on the EPI index than countries with the weakest ATI laws, under control for other relevant factors. Nevertheless, the significance, p = .054, of the results is rendered just outside the 95 percent confidence interval leading the results to be insignificant which indicates that they should be treated with caution, and not as an established relationship.

The r2 value in model 1, which is the amount of explained variance, is only .041, meaning that the ATI score explains approximately 4 percent of the change in the dependent variable. Approximately 96 percent of the change in the dependent variable is consequently explained by other variables. This result is somewhat surprising considering the promotion of de jure transparency as an enhancer of environmental performance. The reason for the weak relationship between de jure transparency and environmental performance supports the claims that a discrepancy exists between the existence and strength of ATI laws and their actual implementation. In order for citizens to access information there is, for example, a need for an effective bureaucracy that can manage and distribute the information, and the mere existence of ATI laws does not imply the existence of a capable bureaucracy.

Table 2 – Pearson's Correlation between de jure and de facto Transparency

		QoG Mean Transparency Index	**ATI score**	**Information Transparency**
QoG Mean Transparency Index	Pearson Correlation	1	-.005	.606**
	N	110	79	109
ATI score	Pearson Correlation	-.005	1	-.025
	N	79	95	93
Information Transparency	Pearson Correlation	.606**	-.025	1
	N	109	93	179

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

Table 2 presents a correlational test between the three variables measuring transparency and it displays that there is a weak to non-existing correlation between the de facto measures and the ATI indicator, suggesting that the ATI variable is measuring something different than transparency. This finding is important since international organisations, such as the WB and IMF, include transparency legislation as a potential conditionality for loans in an effort to increase citizen's opportunities to access information and strengthen environmental performance. The EU is also, in an attempt to incorporate the Aarhus Convention into member state legislation, pushing for ATI laws. Since the Aarhus Convention is aimed at increasing citizens access to information and participation in decision making, and thereby strengthen environmental performance, these results are imperative and suggest that the strive to enhance transparency and environmental performance through ATI legislation might be futile.

Returning to Table 1, model 3 displays the inclusion of control variables which made the significance of the ATI indicator drop even more, leaving only log GDP per capita and trade openness with significant impacts on environmental performance. The positive effect of log GDP per capita follow well in line with previous research arguing for the importance of this variable in explaining differences in environmental performance, through for example the

Environmental Kuznets Curve theory. The negative sign on the trade openness coefficient, b = -8.017, indicates that countries less open to trade perform worse on the EPI with scores, on average, 8 points lower. Since this variable was dichotomized, a one unit change in this variable means going from 0 (high degree) to 1 (low degree), indicating that with a movement from a high to a low degree of openness to trade environmental performance drops 8.017 units. Since previous research has debated whether openness to trade has positive or negative impacts on environmental performance, this result is as expected. The ATI indicator, gas exports, bureaucratic capacity and electoral democracy all demonstrated insignificant results, p >.05, meaning that these variables did not have an ability to predict changes in the outcome.

Models 1 and 3 provide insights for the consideration of hypothesis 1a: *The existence and strength of de jure transparency i.e. access to information laws will have a visible positive effect on countries environmental performance.* According to the results in models 1 and 3 de jure transparency has no independent effect on environmental performance, which therefore means that hypothesis 1a is not accepted. The sample size in the multivariate regression in model 3 is quite small (44 countries) but the fact that the ATI indicator shows no effect on environmental performance even in the bivariate regression (model 1), with a sample of 91 countries strengthens the conclusion that de jure transparency, has no independent effect on environmental performance and consequently supports the null hypothesis.

Moving on to hypotheses 2: *The positive effect of transparency on environmental performance will decrease under control for corruption.* Model 2 in Table 1 displays a multivariate regression with the variable control of corruption. The control of corruption variable is meant to investigate the indirect effect of transparency on environmental performance. This is done by adding control of corruption to the regression to see whether it decreases the effect of transparency on environmental performance, but since transparency in this case has no significant effect to start with it is hard to evaluate whether corruption impacts this variable. The coefficient of the ATI indicator decreases slightly between models 1 and 2, from b = -.158 to b = -.064, but the estimates are insignificant in both models, making the result highly unreliable. The coefficient of control of corruption is large (11.946) and the amount of explained variance increases greatly from $r2$ =.041 to $r2$= .647, which suggests that control of corruption has a relatively strong effect on environmental performance. Regarding de jure transparency, and the fact that its effect is insignificant, it is therefore not possible to accept hypotheses number 2.

7.1.1 De jure Transparency and Interactions

An interaction can be calculated from the following formula; y=A+B+A×B, where A×B is the product of A and B. The regression coefficient of A displays the effect of A when B is zero and the coefficient of B shows the effect of B when A is zero. The coefficient of A×B further display how the effect of A changes with a one-unit increase in B (Field, 2009).

The interaction models were included in the analysis to investigate whether transparency needs favourable conditions to have a greater effect on environmental performance. The variables forming the interaction terms are, an engaged civil society, level of education and openness to trade. They were all coded as dichotomous variables where 0 implies a strong/active civil society, a high level of education and a high degree of openness to trade and 1 implies a weak/inactive civil society, low levels of education and a low degree of openness to trade.

The first interaction model (model 4) displays the effect of transparency with civil society on environmental performance. The civil society index contains 66 countries and adding it to an interaction term with transparency decreases the sample further and leaves 35 cases (30 when control variables are added). The results of model 4 are insignificant, which implies that there is no extra effect on environmental performance when civil society is strong, but if they were significant, the results would indicate that when the civil society variable is 0 (strong civil society) the effect of ATI is .002. This would indicate that with a strong civil society the effect of ATI laws on environmental performance is weakly positive. The coefficient of the interaction term, which presents the difference in the slope of ATI when civil society equals 0 and when it equals 1, is .064. Adding this coefficient to the main effect for ATI displays the slope of ATI when civil society equals 1, .064+.002 = .066. If these results were significant, which they are not, this would indicate that ATI has a small positive effect on environmental performance when civil society is strong and a somewhat larger positive effect when civil society is weak. However, the results are insignificant and this, together with the small sample size makes it difficult to draw accurate conclusions from the results.

It was hypothesised that a civil society engaged in environmental organisations would increase the positive effect of transparency but instead it displays no effect. One potential explanation for this is that countries with great environmental problems attract more people to join environmental organisations. For example, environmental organisation membership constitutes 35.8 percent of the population in Indonesia (World Value Survey Wave 5), a

country that struggles with deforestation and emissions (Vidal, 2014, 29 June). The country with the second highest percentage of the population (28.7 percent) engaged in environmental organisations is the Philippines. The Philippines struggle with emissions in both water and air and are also subject to deforestation problems (Panela, 2014, 31 October). We might therefore be looking at a case of reversed causation where poor environmental performance causes people to join environmental organisations. Nevertheless, at this stage we cannot accept hypotheses number 3; *The positive effect of transparency on environmental performance will increase with the presence of an active civil society.*

The second interaction term is level of education multiplied with ATI (model 5) and these results are also insignificant, which reveals that there is no extra effect on environmental performance when education levels are high. Still interpreting what they would suggest if they were significant, the coefficient of ATI, b = .028, implies that when the coefficient of education is 0 (high level of education) ATI has a small positive effect on environmental performance. The coefficient of the interaction term is -.124. To calculate the slope of ATI when education is 1 (lower level of education) the main effect of ATI was added to the interaction coefficient: .028+-.124= -.096. If the results were significant that would translate into ATI having a small positive effect on environmental performance at higher levels of education and a negative effect at lower levels of education. Due to the theoretical positive effect of education on environmental performance (Gallego-Álvarez et al., 2014) the hypothesis assumed that education would generate a more positive interaction with de jure transparency, but since the ATI variable was uncorrelated with de facto transparency these insignificant results might not be so surprising. If the ATI laws are not implemented properly it might not matter if the population is educated or not since information might still be unavailable. Since the results generated from this interaction model are insignificant, hypotheses number 4: *The positive effect of transparency on environmental performance will increase with a higher level of education in the population*, was not accepted.

The third and last interaction term is openness to trade multiplied with ATI and it is displayed in model 6. The results are again insignificant, suggesting that there is no extra effect on environmental performance with a higher degree of openness to trade. If the results were significant however, the coefficient of the ATI score would suggest that when the trade openness variable is 0 (high degree of openness to trade) the effect of ATI laws on environmental performance would be -.002. The coefficient of the interaction term is .119 and in order to investigate the slope of ATI when trade openness is 1 the coefficient of the interaction was added to the main effect of ATI, .119+-.002 = .117. If the results were

significant this outcome would indicate that ATI has a small negative effect on environmental performance at high degrees of openness to trade and a positive effect at low degrees of openness to trade. Since theory is undecided on whether trade has a positive or negative effect on environmental performance this would be a probable result. Higher degrees of openness to trade could generate more emissions and natural resource depletion due to increased production. Since ATI is uncorrelated with de facto transparency it is difficult to theorize why ATI would have a negative impact on the environment at high degrees of openness to trade, nevertheless, the interaction term is insignificant which means that the results are unreliable. Due to the insignificance of the results, hypotheses number 5: *The positive effect of transparency on environmental performance will display a greater effect with openness to trade*, was not accepted.

7.1.2 De jure Transparency and Carbon Dioxide emissions

As discussed in section 6.1, the EPI has some weaknesses and the variable contains a high degree of noise. In order to account for this and generate robust results I repeated the regressions above using a thinner measurement of environmental performance, namely CO_2 emissions, presented in table 3 on the following page. The results of the regressions with CO_2 support the results generated with the environmental performance index. De jure transparency does not demonstrate an independent effect on environmental performance. The bivariate regression shows an extremely weak negative relationship, b = -.004, between the ATI index and CO_2 emissions and the result is insignificant. The change of dependent variable can therefore not lead to an acceptance of hypothesis 1a. Regarding the indirect effect of transparency on environmental performance this second set of results (table 3) does not provide a more reliant answer to hypothesis number 2, again due to the lack of effect stemming from ATI legislation. Noteworthy is that the coefficient of control of corruption is positive and positive coefficients translate into more CO_2 emissions. This means that a one unit increase in control of corruption increases the log of CO_2 emissions by .448 units, all else equal. This result is significant and goes against theory claiming that higher degrees of control of corruption leads to improved environmental performance. A potential explanation for this result could be that countries with higher levels of control of corruption are developed countries and developed countries commonly generate more emission.

Table 3 – The Effect of de jure Transparency on Carbon Dioxide Emissions

DV: Carbon Dioxide Emissions (metric tons) log	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
IV: ATI score	-.004 (.011)	.001 (.011)	.013 (.011)	-.006 (.024)	.009 (.011)	.009 (.011)
Trade Openness			1.037 (.839)	.858 (.802)	.211 (.938)	-2.001 (2.642)
Electoral Democracy			.533 (998)	1.205 (1.028)	.368 (.972)	.176 (1.034)
Log average GDP per capita			.192 (381)	-.295 (.440)	.576 (.429)	.282 (.386)
Average years of schooling for males and females (25+)			1.190 (.669)	.406 (.927)	-4.179 (3.113)	.958 (.691)
Meritocratic recruitment			.352 (.269)	.475 (.361)	-.108 (.369)	.215 (.290)
Gas Exports			-.023** (.008)	-.016* (.007)	-.025** (.008)	-.022* (.008)
Control of Corruption		.448* (.221)				
Engaged Civil Society				.448 (2.594)		
ATI × Civil Society				-.021 (.027)		
ATI × Education					.068 (.038)	
ATI × Trade Openness						.034 (.028)
Constant	10.534***	10.030***	5.913	12.476*	4.921	6.411
R2	.002	.050	.379	.640	.436	.407
N	83	83	40	27	40	40

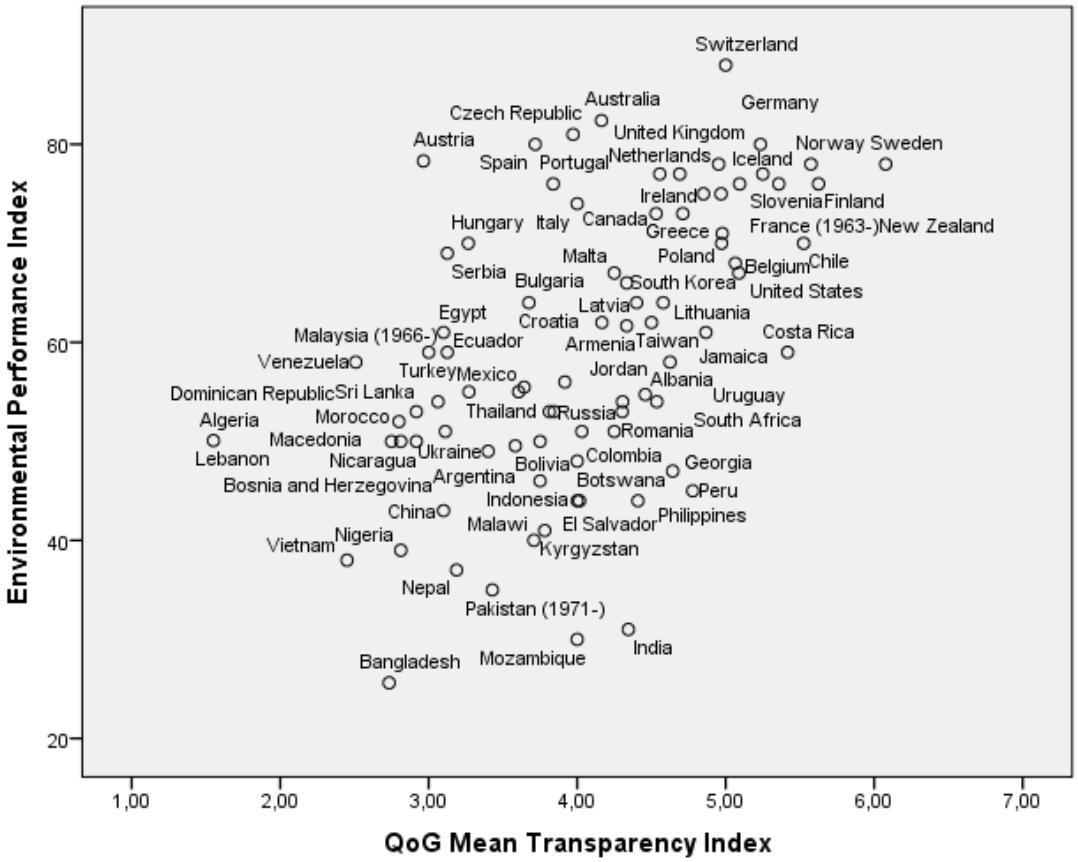
*p<.05 **p<.01 ***p<.001. Unstandardized coefficients. Standard errors within parenthesis. Interaction coding –Civil society engagement (0= Strong Civil Society, 1= Weak Civil Society), Education (0= high level of education, 1= low level of education) and Trade openness (0= high degree of trade openness, 1= low degree of trade openness).

The only control variable, except for control of corruption, that exhibits an effect on CO_2 emissions is the gas exports variable, which is significant throughout all models. The negative sign on the coefficients (in all the models) suggests that gas exports have a negative impact on CO_2 emissions. This result does not support theory that a high dependence on natural resources generates a negative impact on the environment.

7.2 De facto Transparency

De facto transparency is measured through the QoG Mean Transparency Index and, as stated earlier, countries with less than three expert responses have been excluded from the analysis. Starting with a simple scatter plot (figure 1), it is easy to assume that there exists a positive relationship between de facto transparency and environmental performance.

Figure 1 – Relationship between QoG Transparency and Environmental Performance



However, there is also a lot of variation not being explained by transparency. For any number on the x-axis there is a large variation among the observations on their scores on the y-axis, meaning that there are other factors influencing countries environmental performance besides transparency. In Table 4 model 1 the bivariate regression displays a positive and statistically significant, $p < .001$, relationship between de facto transparency and environmental performance, where a one unit increase in the independent variable results in an 8.452-unit increase in the dependent variable. Looking at the amount of explained variance, $r2 = .278$, demonstrates that 27.8 percent of the change in the dependent variable can be explained by the independent variable.

Table 4 – The Effect of de facto Transparency on Environmental Performance

DV: Environmental Performance	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
IV: QoG Transparency Index	8.452*** (1.513)	.230 (1.499)	-1.496 (1.649)	2.603 (3.416)	-1.158 (1.752)	-1.143 (1.759)
Trade Openness			-6.190 (3.116)	-4.635 (3.665)	-6.124 (3.141)	.959 (12.119)
Electoral Democracy			-.230 (3.211)	-1.295 (4.311)	-.048 (3.249)	.124 (3.287)
Log average GDP per capita			9.129*** (1.343)	8.495*** (1.919)	8.804*** (1.454)	8.691*** (1.531)
Average years of schooling for males and females (25+)			-1.543 (3.130)	-1.811 (5.013)	5.313 (11.711)	-1.777 (3.177)
Meritocratic recruitment			.516 (1.321)	.659 (2.130)	.685 (1.360)	.717 (1.371)
Gas Exports			-.014 (.034)	-.026 (.039)	-.015 (.035)	-.010 (.035)
Control of Corruption		10.226*** (1.235)				
Engaged Civil Society				16.889 (14.862)		
QoG Transparency × Civil Society				-2.860 (3.347)		
QoG Transparency × Education					-2.039 (3.354)	
QoG Transparency × Trade Openness						-2.085 (3.414)
Constant	25.091***	55.580***	-18.443	-33.461	-17.706	-16.924
R2	.278	.613	.773	.800	.775	.775
N	83	82	50	34	50	50

*p<.05 **p<.01 ***p<.001. Unstandardized coefficients. Standard errors within parenthesis. Interaction coding –Civil society engagement (0= Strong Civil Society, 1= Weak Civil Society), Education (0= high level of education, 1= low level of education) and Trade openness (0= high degree of trade openness, 1= low degree of trade openness).

The coefficient in model 1, b = 8.452, is large which indicates that it has a noteworthy impact on environmental performance. Calculating the total effect of the QoG index, (top score of QoG index multiplied by main effect in model 1) 7×8.452=59.164, demonstrates that countries with the highest level of de facto transparency tend on average to score 59.164 units higher on environmental performance than countries with the lowest level of de facto transparency, all else equal. Nevertheless, the addition of control variables (model 3) renders the coefficient of the QoG index negative and it loses all significance. As with transparency de jure, only log GDP per capita has a significant impact on environmental performance. Model 1 and 3 assist in examining hypothesis 1b: *The higher the level of de facto transparency, the stronger the environmental performance.* Model 1 points to accepting hypotheses 1b but since the relationship does not hold with the inclusion of control variables hypotheses 1b is not accepted. According to the results in model 3, de facto transparency has no independent effect on environmental performance when controlling for other factors.

Considering the promotion of transparency, the results generated are surprising and suggests that the theoretical promise of transparency does not translate into actual substantial effects.

Moving on to hypotheses 2*: The positive effect of transparency on environmental performance will decrease under control for corruption.* Model 2 lends some support for this hypothesis. Transparency is significantly affecting environmental performance in model 1 until the inclusion of control of corruption in model 2, where the entire effect of transparency disappears. This result suggests that the effect of transparency on environmental performance might be running through corruption and therefore indirectly affects environmental performance. That is, the relationship existing between transparency and environmental performance in model 1 might depend on the fact that transparency decreases corruption and decreased corruption enhances environmental performance. This follows in line with previous research claiming that transparency increases detection of malpractice and therefore decreases corruption, which in extension leads to improved environmental outcomes, but since the effect of transparency disappears when controls are added the relationship cannot be investigated further. I will return to this question in the robustness test with information transparency.

7.2.1 De facto Transparency and Interactions

The interaction terms in table 4 are created the same way as the interactions with de jure transparency, namely by multiplying the QoG index with each one of the enabling variables. The results generated from the interactions, models 4–6, with the QoG index follow the same pattern of insignificance as the interactions created from de jure transparency. The results in section 7.1 pointed to ATI not being correlated to de facto transparency, which means that ATI is in fact measuring something quite different from transparency. The QoG index on the other hand measures the actual existence of transparency in countries and the fact that none of the interaction terms containing the QoG index displayed significant results further questions the promotion of transparency as an enhancer of environmental performance. The hypotheses concerning the interactions assumed increased effects of transparency on environmental performance from a strong civil society, a higher level of education and a higher degree of openness to trade due to the strengthening of principals able to demand best practise. The insignificance of the results implies that none of the hypotheses concerning interactions can be accepted. The result is surprising considering the theoretical links between the enabling factors, transparency and the environment. There is a possibility that a de facto measurement more connected to environmental information could

have generated a different result but the evidence now point to transparency demonstrating no effect despite enabling factors.

Nevertheless, a final important aspect to take into consideration regarding all the interactions with the QoG index is that the exclusion of log GDP per capita as a control variable renders all the interaction terms significant (see appendix 2). GDP per capita measures how evolved a society is in general which makes the fine mechanisms harder to detect and also generates correlations with other variables. The QoG index still exhibit an insignificant effect on environmental performance, even with the exclusion of log GDP per capita, which supports the conclusion that de facto transparency does not have an independent effect on environmental performance. The fact that the interactions become significant with the exclusion of GDP is however highly interesting, and suggests that there is a possibility that de facto transparency could influence environmental performance but only when combined with other factors. Regarding civil society, transparency has a positive effect (b =6.595) on environmental performance when civil society is strong and a negative effect (b =-2.026) when civil society is weak. The interaction containing levels of education shows that transparency has a negative effect on the environment at both higher and lower degrees of education. The interaction containing openness to trade displays that with a high degree of openness to trade transparency has a small positive effect (b =.083) on environmental performance and with a low degree of openness to trade it has a negative effect (b =-11.081) on environmental performance.

7.2.2 De facto Transparency and Carbon Dioxide Emissions

The same procedure as in the de jure section was applied to the de facto section, namely replacing the environmental performance index with CO_2 emissions. The results are displayed in table 5, on the following page.

The findings in this table generate support for the results found in table 4, namely that transparency has no independent effect on environmental performance when other factors are controlled for. In fact, the only variable displaying a significant result is the gas export variable. None of the interaction effects are significant and will therefore not be interpreted further at this point. As in table 3 model 2, control of corruption again displays a positive correlation with CO_2 emissions at a 95 percent confidence level, which means that with a one unit increase in control of corruption the log of CO_2 emissions increase with .522 units.

Table 5 – The Effect of de facto Transparency on Carbon Dioxide Emissions

DV: Carbon Dioxide Emissions (metric tons) log	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
IV: QoG index	-.112 (.244)	-.537 (.318)	-.198 (.354)	-1.071* (.496)	-.241 (.384)	-.112 (.389)
Trade Openness			1.205 (.738)	1.227* (.563)	1.195 (.748)	2.905 (3.064)
Electoral Democracy			.751 (766)	.163 (640)	.686 (.804)	.894 (.813)
Log average GDP per capita			.285 (.313)	.033 (.302)	.339 (.360)	.184 (.361)
Average years of schooling for males and females (25+)			.604 (.719)	-.142 (.827)	-.230 (2.747)	.604 (.726)
Meritocratic recruitment			.224 (.310)	.860* (.362)	.191 (.331)	.260 (.319)
Gas Exports			-.020* (.009)	-.016* (.006)	-.019* (.009)	-.021* (.009)
Control of Corruption		.522* (.259)				
Engaged Civil Society				-3.656 (2.075)		
QoG × Civil Society				.522 (.465)		
QoG × Education					.245 (.776)	
QoG × Trade Openness						-.499 (.873)
Constant	11.301***	12.859***	7.505*	12.779***	7.382*	7.806*
R2	.003	.058	.248	.649	.250	.255
N	73	73	43	30	43	43

*p<.05 **p<.01 ***p<.001. Unstandardized coefficients. Standard errors within parenthesis. Interaction coding –Civil society engagement (0= Strong Civil Society, 1= Weak Civil Society), Education (0= high level of education, 1= low level of education) and Trade openness (0= high degree of trade openness, 1= low degree of trade openness).

7.2.3 Robustness Test with Information Transparency

I also performed a robustness test using a broader measure of transparency, namely the Andrew Williams information transparency index. The robustness test was made both for the environmental performance index and for CO_2 emissions. The results from the robustness test strengthens the findings in both de jure and de facto transparency. Namely that there is no independent effect of transparency on environmental performance. Using the information transparency index also brings in factors such as information infrastructure and thus, according to the conceptualisation used in this essay, covers more than just transparency. The fact that there is no independent effect even with a wider measurement

strengthens the results of my research. The interaction effects were also insignificant and will therefore not be interpreted further at this point (see appendix 3 and 4 for full tables). Model 2 (appendix 3) provides some support for hypothesis 2: *The positive effect of transparency on environmental performance will decrease under control for corruption.* The effect size of transparency decreases with the inclusion of control of corruption from .899 to .509, p<.001. The fact that the effect size decreases implies that some of the effect of transparency runs through corruption. Transparency could hence, in line with the theory of the indirect effect, be an indirect cause for the variation in environmental performance. An intervening variable is a variable that follows the independent variable but precedes the dependent variable. Since there is a strong theoretical link between transparency and corruption and corruption and environmental performance it is likely that corruption could be an intervening variable, but since the effect of transparency does not hold with the addition of control variables the relationship cannot be investigated further.

7.3 Diagnostics

Since the method employed is an OLS regression containing interactions I have explored whether the assumptions connected to OLS where met. The figures and tables can be found in the appendix. The diagnostics for the robustness test will not be discussed but is available in appendix 12 and 13.

The assumptions of OLS are; linearity, normal distribution, homoscedasticity, independence of errors, no multicollinearity and no outliers (Field, 2009). Since some of my variables are categorical the linearity assumption cannot be checked for all of them. I will begin with the diagnostics for de jure transparency (ATI) with environmental performance and go through the steps taken in detail. I will thereafter go through all tables from the results section and their diagnostics but I will only discuss and present graphs and tables that were of concern.

Beginning with de jure transparency and the environmental performance index initial checks such as linearity (in available variables) and distributions where made and, as discussed in the operationalization section some of the variables where log transformed to account for skewness.

Homoscedasticity means that the residuals have a constant variation from the mean (Field, 2009) and it was controlled for by producing a residual plot, see appendix 5. The figure shows some signs of heteroscedasticity which does not create bias but might cause the p-values to be unreliable. The recommendation by Field (2009) is to change the confidence interval to p<.01 instead of p<.05. The only variable displaying significance across the

models in table 1 was log GDP per capita at p<.001 which means that the significance was already stronger than suggested by Field (2009). The same goes for corruption in model 2 and the only other variable that displayed a significant result at a threshold higher than p<.01 was trade openness in model 3, which does not influence the interpretation of the results. If an assumption, such as homoscedasticity, is violated it is harder to generalize the results beyond the sample (Field, 2009, p. 251). For table 1 this assumption has been violated but since the p-values are strong enough it does not seriously affect my results.

Independence of error means that the residual terms should be uncorrelated. It is tested for using the Durbin-Watson test. The Durbin-Watson test ranges from 0–4 with 2 implying uncorrelated residuals. If the value is above 2 it implies a negative correlation and values under two indicates a positive correlation (Field, 2009, p. 220-221). The Durbin-Watson test is presented in appendix 6 and the value 2.145 convinces me that the residuals are sufficiently close to 2 to not be a cause of concern.

I also checked for multicollinearity and the results are displayed in appendix 7. Multicollinearity implies that variables are correlated with each other, and when this occurs it is hard to distinguish what variable is responsible for the effect seen on the dependent variable. VIF values over 10 and Tolerance values under .1 indicate collinearity between variables (Field, 2009, p. 224), which was not an issue in the models from table 1.

Outliers have the potential to influence the results by greatly changing the line of best fit, but the exclusion of outliers is not unproblematic. Some researchers claim that excluding cases results in bias but others argue that in order to generalize results it is important that one or two influential cases does not completely steer the result (Field, 2009). Appendix 8 displays the outlier plot from de jure transparency and environmental performance (with control variables). The average leverage value is calculated by the formula ((k+1)/n) where k is the number of predictors and n is the number of observations. If no case exerted undue leverage over the results all values should lie close to the average leverage value. Cases that are twice the average value should be investigated further (Field, 2009, p.217). The average leverage value in the plot of appendix 8 is ((7+1)/44)=.18, and most of the cases should therefore revolve around that value. The cases that need further investigation should therefore have leverage values of .18×2=.36. Five countries had leverage values higher than .36 but removing the cases did not greatly affect the results of the regressions, which is why they were left for the analysis. Cook's Distance is used to examine whether cases exert undue influence over the results and Cook & Weisberg have proposed that values above 1 should be investigated further, to evaluate whether these cases are candidates for deletion.

Cook's Distance can be used to examine data on a case by case basis to detect if one case has a profound influence over the results (Field, 2009, p. 217). The amount of influence of cases can be seen on the Y-axis in appendix 8, and in this graph no case stands out as an outlier.

There after I performed the same diagnostics but with ATI and CO_2 (including control variables). Appendix 9 displays a leverage plot with potential outliers. Calculating the average leverage value and investigating countries with values twice as high presented five outliers; Norway, Tajikistan, Thailand, India and Dominican Republic. Again, I examined the effect of excluding the cases, but since they didn't affect the interpretation of the results they were left in the analysis. Cook's Distance was calculated for United States, but the value of .469 was too low to cause any concern.

In the diagnostics check regarding the QoG index and environmental performance (including control variables) I also detected some outliers. Again, calculating the average leverage value (=.16) and multiplying it by two (=.32), three potential outliers with high leverage values were distinguished (see appendix 10). Norway, Mozambique and Russia had values greater than .32. Deleting these outliers did not change the result of the regressions in table 4 meaningfully and the only variable that was significant in model 3 (model containing all variables) was log GDP per capita and it is significant even without the countries with high leverage values. Egypt also stood out as an outlier with potentially high influence on the model, but calculating Cook's Distance for this case displayed it had a value of .176 which is below the critical value 1 where deletion should be considered (Field, 2009, p. 217).

Moving on to the QoG index and CO2 (including control variables) (appendix 11) the same problems with outliers were detected. The average leverage value was .18 and the critical value was .18*2= .37. Five countries had leverage values over .37; India, Norway, Mozambique, Kazakhstan and Algeria. The deletion of these variables did not significantly alter the results in table 5 and was therefore left for the analysis. Cook's Distance was again calculated for United States but since the value .890 again escaped the critical value of 1 United States was left in the analysis.

8. Discussion

This section will discuss and conclude the results of the thesis and I will therefore go through the research questions and hypotheses one at a time and discuss them in regard to both transparency de jure and de facto in an attempt to provide an answer.

According to the results, transparency, both de jure and de facto, has no independent effect on environmental performance. Regarding hypothesis 1a there was no correlation between the existence and strength of de jure transparency and environmental performance. The fact that ATI laws correspondingly displayed no correlation with de facto transparency was also quite telling and the policy implications from the results are important to consider. ATI laws are promoted both to ensure transparency but also environmental performance and according to the results presented here such a promotion is futile. The mere existence of access to information laws does not imply 1) that de facto transparency is reached, or 2) that the laws are implemented well enough to strengthen environmental performance. This null result therefore seriously calls into question policy strategies to enhance environmental performance that build on ATI legislation. One such strategy is adopted by the EU where legislation on access to information is the first step towards fulfilling the commitments under the Aarhus Convention to reach enhanced environmental performance. According to the results generate here the mere legislation on access to information will not generate actual substantive effects on the environment. In order to strengthen the results or explore other possible relationships, an investigation of ATI laws over time would be beneficial. There might be a time gap before ATI laws can be said to have a positive effect on the environment. Nevertheless, with the results generated from this thesis we cannot accept hypothesis 1a.

Hypothesis 1b received some support in model 1, table 4, where de facto transparency had a significant and seemingly substantial impact on environmental performance. The result, however, did not hold with the inclusion of control variables (even when excluding log GDP per capita) which means that hypothesis 1b is not accepted. The null result regarding de facto transparency is also important since international treaties, such as the Aarhus Convention or the Paris Agreement, includes transparency as a key component to strengthen environmental performance (UNECE, n.d; Martini, 2016). According to the results transparency in itself will not be able to generate stronger environmental performance. Regarding the theoretical rationale for the success of transparency it might be beneficial to consider the fact that even if transparency decreases the information asymmetry

between the principals and the agents that does not mean the information can and will be used by principals to demand change. The results generated does not prove principal-agent theory wrong but it calls into question the reliance on the theoretical rationale for the success of transparency and generates questions regarding what other factors that need to accompany transparency. As argued by Gupta & Mason (2014), transparency seems to have escaped scrutiny with regards to environmental governance and normative and theoretical rationales seems to dominate the field. The results of my research demonstrate that empirics and theory does not always agree. Connecting to the theories of the effectiveness of transparency, the results of my research questions the disciplinary effect of transparency, as presented in the sunshine is the best disinfectant theory/targeted disclosure. To simply make mismanagement of environmental resources open to public access does not translate into governments, companies and citizens acting in a more socially desirable way to improve environmental performance. So, to clearly answer the main research question: transparency, both de jure and de facto, has no independent effect on environmental performance.

Moving on to the indirect effect of transparency and the question of whether the effect runs through corruption the results are somewhat inconclusive. Regarding de jure transparency there was no opportunity to investigate the potential indirect effect since de jure transparency was not significantly connected to environmental performance to begin with. Concerning de facto transparency hypothesis 2 received some support. In table 4 model 1 transparency displayed a significant impact on environmental performance until the inclusion of control of corruption in model 2, where all significance vanished. The robustness test using the information transparency index and environmental performance also provided some support for the theory of the indirect effect (appendix 3, model 1 & 2). I would therefore argue that hypothesis 2 receives some support, with regards to de facto transparency, but the results do not hold when controls are added. Since transparency is not significantly affecting environmental performance with the inclusion of control variables I could not get further with this research question. The results however display that when transparency does not bleed conceptually into other areas there is no independent effect on environmental performance, which goes against the study conducted by Halkos & Tzeremes (2014).

The results of this research are unable to provide consistent support for any of the hypotheses concerning the interactions. Considering both de jure and de facto transparency the results were insignificant. However, with the removal of log GDP per capita as a control variable I was able to generate significant results of all the interactions with regards to de

facto transparency (table 4). As have been discussed, there exists a strong theoretical link between transparency and enhanced environmental performance and this thesis have investigated whether transparency can be effective on its own. Since this is not the case it is important to explore what factors that have the potential to enable theory to become practice. Since there is some support for civil society and trade openness to enhance the effect of transparency these factors would gain from being investigated further. The answer to the research questions concerning the enabling factors, based on the data and variables used, is no. However, the limitations regarding access to data concerning civil society, and the fact that the interactions were significant with the exclusion of GDP per capita points to further investigation. Nevertheless, it might be beneficial to investigate institutional factors with the potential to strengthen principals since socioeconomic factors were insufficient.

8.1 Ways Forward

Since an inadequate amount of research on the actual effects of transparency on environmental performance has been conducted, this dissertation is an important first step in uncovering what other factors need to be present in order for transparency to have desired effects. This thesis has investigated whether transparency has an independent effect on environmental performance and, if not, what factors are needed to create or enhance an effect. This essay has merely suggested some potential factors that could have enhanced the effect of transparency but the factors explored might not be the most appropriate. Future research should direct attention towards the specific surroundings that enable transparency to reach its ambitious promise, such as institutional factors. Since the main theory behind the success of transparency in creating accountability is principal-agent theory, the enabling factors that constituted my interactions were focused on the presence and strength of principals. An engaged citizenry is more likely to demand information, an educated citizenry has a higher potential of interpreting information and openness to trade offers the possibility of more principals. Nevertheless, future research should examine not only the non-state factors that might enhance the transformative potential of transparency, but also factors related to the state itself. Bureaucratic capacity could for example be investigated as an interaction with transparency. High bureaucratic quality would most likely strengthen the implementation of de jure transparency and increase the level of de facto transparency by efficiently responding to citizens' requests for information.

A final consideration for future research concerns the production of better data. Measuring societal phenomenon is challenging and more and improved data is imperative for future research. The attempts of scholars over recent years to measure transparency de facto has

produced both thin and noisy measures, but regarding the environmental sphere further measurements are needed that specifically address transparency concerning environmental information. Future research would then have the potential to uncover the specific needs for environmental improvement.

Literature

Data

Barro, R., & Lee, J-W. (n.d). *Data Sources*. Accessed 2017-03-27, from http://www.barrolee.com/

Barro, R., & Lee, J-W. (2013). A New Data Set of Educational Attainment in the World, 1950-2010. *Journal of Development Economics, 104*, 184-198.

Dahlström, C., Teorell, J., Dahlberg, S., Hartmann, F., Lindberg, A., & Nistotskaya, M. (2015a). *The QoG Expert Survey Dataset II*. University of Gothenburg: The Quality of Government Institute.

Dahlström, C., Teorell, J., Dahlberg, S., Hartmann, F., Lindberg, A., & Nistotskaya, M. (2015b). *The QoG Expert Survey Dataset II - Codebook*. University of Gothenburg: The Quality of Government Institute.

Global Right to Information Rating. (n.d.) *The RTI Rating analyses the quality of the world's access to information laws*. Accessed 2017-03-29, from http://www.rti-rating.org/

Teorell, J., Dahlberg, S., Holmberg, S., Rothstein, B., Khomenko, A., & Svensson, R. (2017). *The Quality of Government Standard Dataset, version Jan17*. University of Gothenburg: The Quality of Government Institute. doi:10.18157/QoGStdJan17

The World Bank. (2017a). *Doing Business Data*. Accessed 2017-03-25, from http://www.doingbusiness.org/data

The World Bank. (2017b). *CO2 emissions (kt)*. Accessed 2017-05-01, from http://data.worldbank.org/indicator/EN.ATM.CO2E.KT?page=3

The World Bank Group. (2017c). *Worldwide Governance Indicators*. Accessed 2017-04-07, from http://info.worldbank.org/governance/wgi/#home

The World Bank Group. (2017d). *GDP (Current US$)*. Accessed 2017-03-29, from http://data.worldbank.org/indicator/NY.GDP.MKTP.CD

V-Dem. (2016a). *About V-Dem*. Accessed 2017-03-29, from https://www.v-dem.net/en/about/

V-Dem. (2016b). *V-Dem Codebook – Version 6*. Varieties of Democracy Project.

Williams, A. (2014). *Final Transparency Indices Score 2014*. Accessed 2017-03-25, from https://andrewwilliamsecon.wordpress.com/datasets/

World Value Survey, (2005). *Questionnaire Root Version*. Accessed 2017-03-13, from http://www.worldvaluessurvey.org/WVSDocumentationWV5.jsp

World Value Survey Wave 5. Accessed 2017-03-13, from http://www.worldvaluessurvey.org/WVSOnline.jsp

World Value Survey Wave 6. Accessed 2017-03-13, from http://www.worldvaluessurvey.org/WVSOnline.jsp

Books and book chapters

Field, A. (2009). *Discovering statistics using SPSS: (and sex and drugs and rock 'n' roll).* (3. ed.) Los Angeles: SAGE.

Florini, A. (2007). *The right to know: Transparency for an open world.* New York: Columbia University Press.

Gupta, A., & Mason, M. (2014). *Transparency in Global Environmental Governance. Critical Perspectives.* Massachusetts: The MIT Press.

Pellegrini, L. (2011). *Corruption, development and the environment: Electronic resource.* Netherlands: Springer.

Stiglitz, Joseph. (2002). *Transparency in government.* In R, Islam., S, Djankov., & C, McLeish. (Authors/Editors), *The Right To Tell* (p. 27-44). Washington DC: World Bank.

Webpages and reports

Athanasoglou, S., Weziak-Bialowolska, D., & Saisana, M. (2014). *Environmental Performance Index 2014 JRC Analysis and Recommendations.* Luxembourg: Publications Office of the European Union.

Environmental Performance Index. (2017). *Global Metrics for the Environment.* Accessed 2017-04-07, from http://epi.yale.edu/

European Commission. (2017). *The EU and the Aarhus Convention: in the EU member states, in the Community institutions and bodies.* Accessed 2017-04-23, from http://ec.europa.eu/environment/aarhus/legislation.htm

IMF. (2016). *The IMF and Good Governance. Factsheet.* Accessed 2017-03-15, from http://www.imf.org/en/About/Factsheets/The-IMF-and-Good-Governance

NRGI - Natural Resource Governance Institute. (2015). *The resource curse.* Accessed 2017-05-10, from https://resourcegovernance.org/sites/default/files/documents/nrgi_readers_compilation.pdf

Panela, S. (2014, 31 October). "Too many people": Philippine Island being deforested despite extensive protection. Mongabay.

SDG Knowledge Hub. (2015). *UN Secretary-General Highlights Global Governance for Tackling Poverty, Climate Change.* Accessed 2017-05-04, from http://sdg.iisd.org/news/un-secretary-general-highlights-global-governance-for-tackling-poverty-climate-change/

UNECE. (n.d.). *Aarhus Convention – Introduction.* Accessed 2017-02-23, from https://www.unece.org/env/pp/introduction.html

United Nations Environment Programme. (1992). *Rio Declaration on Environment and Development.* Accessed 2017-02-23, from http://www.unep.org/documents.multilingual/default.asp?documentid=78&articleid=1163

World Bank. (2016). *The New Environmental and Social Framework.* Accessed 2017-02-22, from http://www.worldbank.org/en/news/feature/2016/08/05/the-new-environmental-and-social-framework

World Value Survey. (n.d.) Who we are. Accessed 2017-03-27, from http://www.worldvaluessurvey.org/WVSContents.jsp

Ölund Wingqvist, G., Drakenberg, O., Sjöstedt, M., Slunge, D., & Ekbom, A. (2012). *The Role of Governance for Improved Environmental Outcomes.* Bromma: The Swedish Environmental Protection Agency.

Articles and Working papers

Banisar, D. (2005). The irresistible rise of a right.(right to obtain information). *Index on Censorship*, *34*(3), 79-84.

Bauhr, M., Nasiritousi, N. (2012). Resisting Transparency. Corruption, Legitimacy and the Quality of Global Environmental Policies. *Global Environmental Politics*, *12*(4), 9-29.

Chang, C., & Hao, Y. (2017). Environmental performance, corruption and economic growth: Global evidence using a new data set. *Applied Economics*, *49*(5), 498-514. doi:10.1080/00036846.2016.1200186

Dahlström, C., Lapuente, V., & Teorell, J. (2012). The Merit of Meritocratization. *Political Research Quarterly*, *65*(3), 656-668.

Demirhan , E., & Masca, M. (2008). The determinants of Foreign Direct Investment flows to developing countries; a cross-sectional analysis. *Prague Economic Papers*, *4*, 356-396. doi: 10.18267/j.pep.337

Duit, A. (2005). Understanding Environmental Performance of States: An Institution Centered Approach and Some Difficulties. Working Paper Serie. 7; Gothenburg University: Sweden,

Duit, A., Feindt, P., & Meadowcroft, J. (2015). Greening Leviathan: The rise of the environmental state? *Environmental Politics*, *25*(1), 1-23. doi: 10.1080/09644016.2015.1085218

Emerson, J., Esty, D., Srebotnjak, T., Connett, D, (n.d.). *Exploring Trade & the Environment - An Empirical Examination of Trade Openness and National Environmental Performance.* Yale Centre for Environmental Law and Policy.

Fiorino, D. (2011). Explaining national environmental performance: Approaches, evidence, and implications. *Policy Sciences*, *44*(4), 367-389.

Florini, A. (2002). Increasing transparency in government. *International Journal on World Peace*, *19*(3), 3.

Florini, A. (2010). The National Context for Transparency-based Global Environmental Governance. *Global Environmental Politics*, *10*(3), 120-131. doi: 10.1162/GLEP_a_00017

Gallego-Álvarez, I., Vicente-Galindo, M., Galindo-Villardon, M., & Rodriguez-Rosa, M. (2014). Environmental performance in countries worldwide: Determinant factors and multivariate analysis. *Sustainability*, *6*(11), 7807-7832. doi:10.3390/su6117807

Grimes, M. (2013). The contingencies of societal accountability examining the link between civil society and good government. *Studies in Comparative International Development*, *48*(4), 380-402. doi: 10.1007/s12116-012-9126-3

Grimes, M. & Bauhr, M. (2016). *Government Transparency: From conceptual dispersion to delimitation.* Unpublished Manuscript. Gothenburg: University of Gothenburg

Halkos, G., & Tzeremes, N. (2014). Public sector transparency and countries' environmental performance: A nonparametric analysis. *Resource and Energy Economics*, *38*, 19-37. doi: doi.org.ezproxy.ub.gu.se/10.1016/j.reseneeco.2014.06.001

Hollyer, J.R., Rosendorff, P., & Vreeland, J.R. (2014). Measuring Transparency. *Political Analysis, 22(4)*, 413-434. doi: https://doi.org/10.1093/pan/mpu001

Kaiser, T., & Rongkun, L. (2009). Taking the Pulse: The One-Year Anniversary of China's Open Government Information Measures. Woodrow Wilson International Center for Scholars. Accessed 2017-04-11, from, https://www.wilsoncenter.org/publication/taking-the-pulse-the-one-year-anniversary-chinas-open-government-information-measures

Kravchenko, S. (2010). Is Access to Environmental Information a Fundamental Human Right? *Oregon Review of International Law, 11(2)*, 227-266.

Langley, P. (2001). Transparency in the Making of Global Environmental Governance. *Global Society, 15*(1), 73-92.

Lisciandra, M., & Migliardo, C. (2016). An Empirical Study of the Impact of Corruption on Environmental Performance: Evidence from Panel Data. *Environmental and Resource Economics*, 1-22. doi: 10.1007/s10640-016-0019-1

Martini, C. (29 May 2016). *Transparency: the backbone of the Paris Agreement.* Yale Centre for Environmental Law and Policy. Accessed 2017-05-04, from http://envirocenter.yale.edu/transparency-the-backbone-of-the-Paris-Agreement

Michener, G., & Bersch, K. (2013). Identifying transparency. *Information Polity, 18*(3), 233-242.

Mitchell, R. (1998). Sources of Transparency: Information Systems in International Regimes. *International Studies Quarterly, 42*(1), 109-130. doi: 10.1111/0020-8833.00071

Peh, K. S., & Drori, O. (2010). Fighting corruption to save the environment: Cameroon's experience. *Ambio, 39*(4), 336-339. doi: 10.1007/s13280-010-0053-0

Persson, A., Rothstein, B., & Teorell, J. (2013). Why Anticorruption Reforms Fail—Systemic Corruption as a Collective Action Problem. *Governance, 26*(3), 449-471.

Peterson, T.J., & Van, J. (2004). Defining Characteristics of Civil Society. *The International Journal of Not-For-Profit Law, 6*(2).

Povitkina, M. (2015). Democracy, Bureaucratic Capacity and Environmental Performance. Working Paper Series 2015:13, The Quality of Government Institute, University of Gothenburg.

Rogge, N. (2012). Undesirable specialization in the construction of composite policy indicators: The Environmental Performance Index. *Ecological Indicators, 23*, 143-154. doi:10.1016/j.ecolind.2012.03.020

Sartori, G. (1970). Concept Misformation in Comparative Politics. *The American Political Science Review 64(4)*, 1033– 1053.

Sundström, A. (2016). Corruption and violations of conservation rules a survey experiment with resource users. *World Development*, 85, 73-83.

Tan, Y. (2014). Transparency without Democracy: The Unexpected Effects of China's Environmental Disclosure Policy. *Governance: An international Journal of Policy, Administration and Institutions, 27*(1), 37-62.

Thomas, M. (2010). What do the Worldwide Governance Indicators measure? *The European Journal of Development Research : Journal of the European Association of Development Research and Training Institutes EADI*, *22*(1), 31-54.

Vidal, J. (2014, 29 June). Rate of deforestation in Indonesia overtakes Brazil, says study. *The Guardian*. Accessed 2017-05-01, from https://www.theguardian.com/environment/2014/jun/29/rate-of-deforestation-in-indonesia-overtakes-brazil-says-study

Williams, A. (2015). A global index of information transparency and accountability. *Journal of Comparative Economics*, *43*(3), 804-824. doi: 10.1016/j.jce.2014.10.004

Appendices

Appendix 1 – Pearson's Correlation between ATI score and Environmental Performance Index

		ATIscore	Environmental Performance Index
ATIscore	Pearson Correlation	1	-,203
	Sig. (2-tailed)		,054
	N	95	91
Environmental Performance Index	Pearson Correlation	-,203	1
	Sig. (2-tailed)	,054	
	N	91	168

Appendix 2 – QoG index and interactions with an exclusion of log GDP per capita

DV: Environmental Performance	**Model 1**	**Model 2**	**Model 3**
IV: QoG index	6.595 (4.351)	-.267 (2.374)	.083 (2.304)
Trade Openness	-9.921* (4.576)	-11.763** (4.079)	26.845 (14.826)
Electoral Democracy	-3.427 (5.658)	.838 (4.414)	1.863 (4.321)
Average years of schooling for males and females (25+)	-13.599* (5.611)	21.890 (15.482)	-10.362** (3.689)
Meritocratic recruitment	4.892 (2.514)	4.284* (1.663)	4.245* (1.614)
Gas Exports	.000 (.050)	.004 (.047)	.025 (.045)
Engaged Civil Society	41.087* (18.253)		
QoG * Civil Society	-8.621* (4.072)		
QoG * Education		-9.496* (4.242)	
QoG * Trade Openness			-11.164** (3.983)
Constant	15.056	47.656***	45.502***
R2	..637	.573	.597
N	34	50	50

Appendix 3 – Robustness test with Information Transparency and Environmental Performance Index

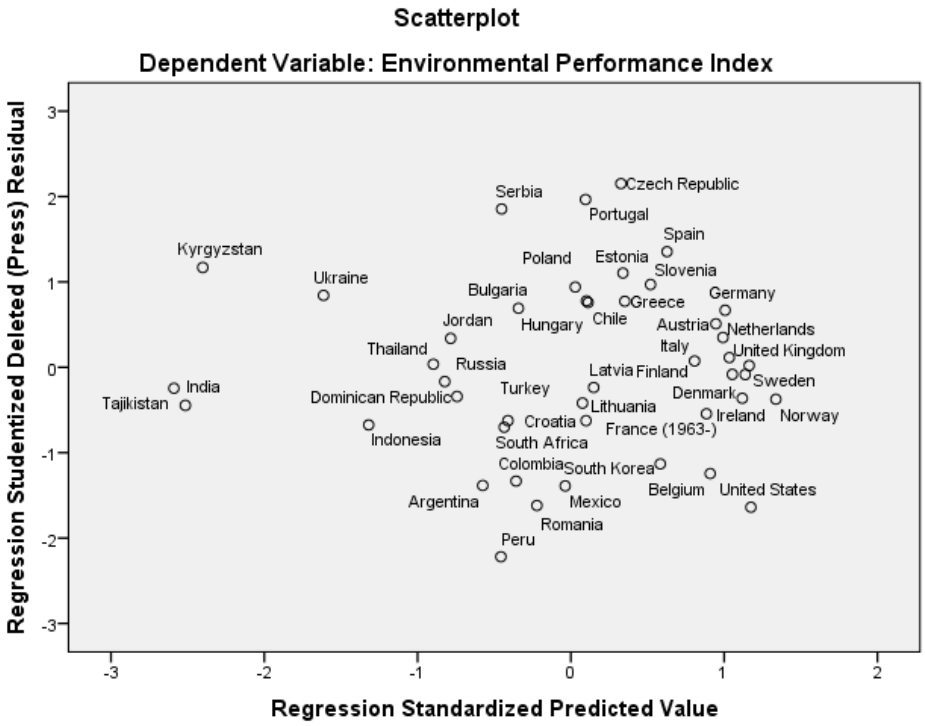
DV: Environmental Performance	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
IV: Information Transparency	.899*** (.064)	.509*** (.074)	.362 (246)	.373 (.444)	.365 (.249)	.464 (.290)
Trade Openness			-4.679 (3.201)	-1.323 (3.792)	-4.775 (3.283)	13.517 (27.066)
Electoral Democracy			-2.346 (2.902)	-5.051 (4.332)	-2.374 (2.939)	-2.093 (2.944)
Log average GDP per capita			8.743*** (1.356)	8.942*** (2.078)	8.741*** (1.371)	8.763*** (1.364)
Average years of schooling for males and females (25+)			.279 (2.813)	.409 (4.030)	5.710 (30.896)	.891 (2.971)
Meritocratic recruitment			-.807 (1.162)	-.125 (1.678)	-.787 (1.180)	-.928 (1.182)
Gas Exports			-.022 (.032)	-.032 (.033)	-.023 (.032)	-.019 (.033)
Control of Corruption		7.700*** (.971)				
Engaged Civil Society				-22.991 (35.236)		
InfoTrans * Civil Society				.369 (.474)		
InfoTrans * Education					-.081 (.461)	
InfoTrans * Trade Openness						-.272 (.402)
Constant	-4.134	20.418***	-40.514*	-48.022	-40.748*	-48.163*
R2	.540	.664	.815	.842	.815	.817
N	168	166	52	35	52	52

Appendix 4 – Robustness test with Information Transparency and Carbon Dioxide Emissions

DV: Carbon Dioxide Emissions	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
IV: Information Transparency	.108*** (.011)	.130*** (.015)	.028 (.061)	-.034 (.105)	.028 (.061)	-.039 (.067)
Trade Openness			.867 (.809)	.253 (.844)	1.039 (.839)	-11.879 (6.382)
Electoral Democracy			.407 (.772)	.247 (.912)	.422 (.775)	-.066 (.778)
Log average GDP per capita			.425 (.329)	.020 (.425)	.431 (.330)	.438 (.316)
Average years of schooling for males and females (25+)			.947 (.693)	-.352 (1.001)	-4.956 (7.178)	.439 (.713)
Meritocratic recruitment			.054 (.306)	.652 (.409)	.015 (.311)	.169 (.300)
Gas Exports			-.021 (.009)	-.021* (.008)	-.019* (.009)	-.020* (.009)
Control of Corruption		-.482* (.198)				
Engaged Civil Society				6.421 (7.450)		
InfoTrans * Civil Society				-.099 (.100)		
InfoTrans * Education					.088 (.107)	
InfoTrans * Trade Openness						.193 (.096)
Constant	2.823***	1.413	4.198	11.471	4.343	9.133
R2	.385	.404	.252	.430	.266	.328
N	148	147	45	31	45	45

Diagnostics - ATI and Environmental Performance Index

Appendix 5 - Residual plot checking for heteroscedasticity



Appendix 6 – Durbin-Watson test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,895[a]	,800	,762	6,631	,800	20,630	7	36	,000	2,145

a. Predictors: (Constant), Trade openness dummy divided 50/50 , Education dummy split at mean, ATIscore, ross_gas divided by hundred million, Mean index of meritocratic recruitment, Electoral democracy index, Log Average GDP

b. Dependent Variable: Environmental Performance Index

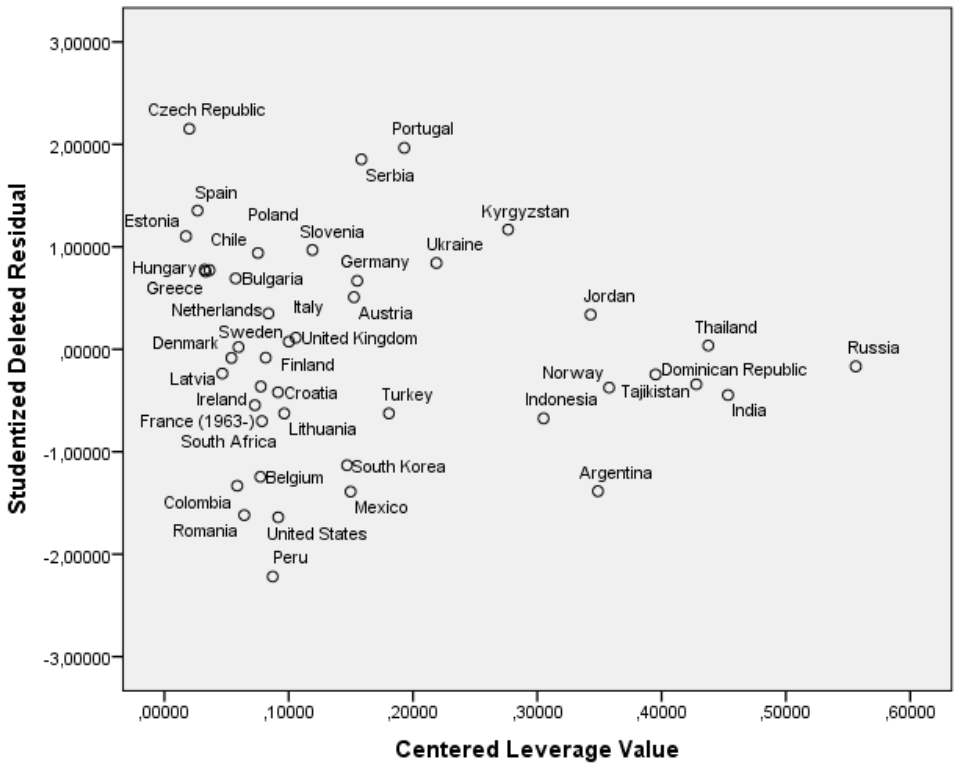
Appendix 7 – Multicollinearity

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-24,915	18,010		-1,383	,176		
	ATIscore	,024	,063	,047	,388	,701	,656	1,524
	Electoral democracy index	-1,682	8,411	-,023	-,200	,843	,729	1,371
	Log Average GDP	9,581	1,987	,798	4,823	,000	,353	2,832
	Mean index of meritocratic recruitment	-,484	1,675	-,042	-,289	,775	,448	2,233
	Education dummy split at mean	-2,015	4,686	-,047	-,430	,670	,827	1,210
	Trade openness dummy divided 50/50	-6,257	5,254	-,144	-1,191	,243	,658	1,521
	ross_gas divided by hundred million	-,016	,042	-,038	-,368	,715	,928	1,078

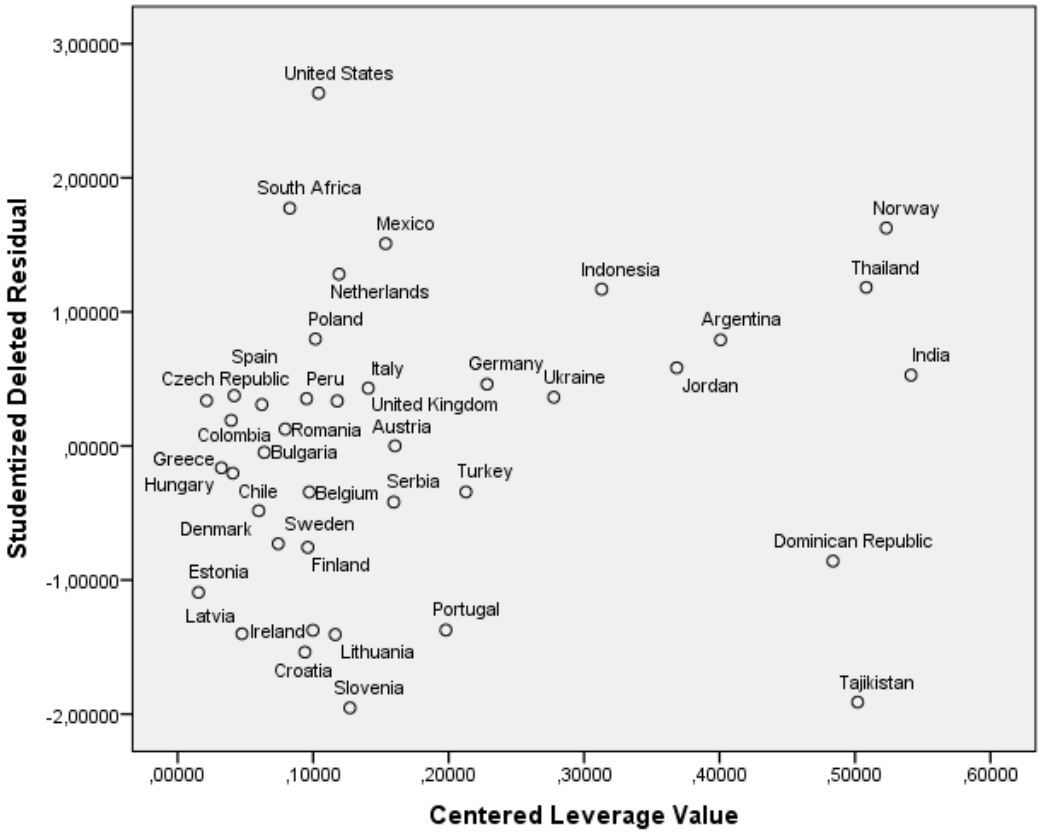
a. Dependent Variable: Environmental Performance Index

Appendix 8 – Leverage plot displaying potential outliers



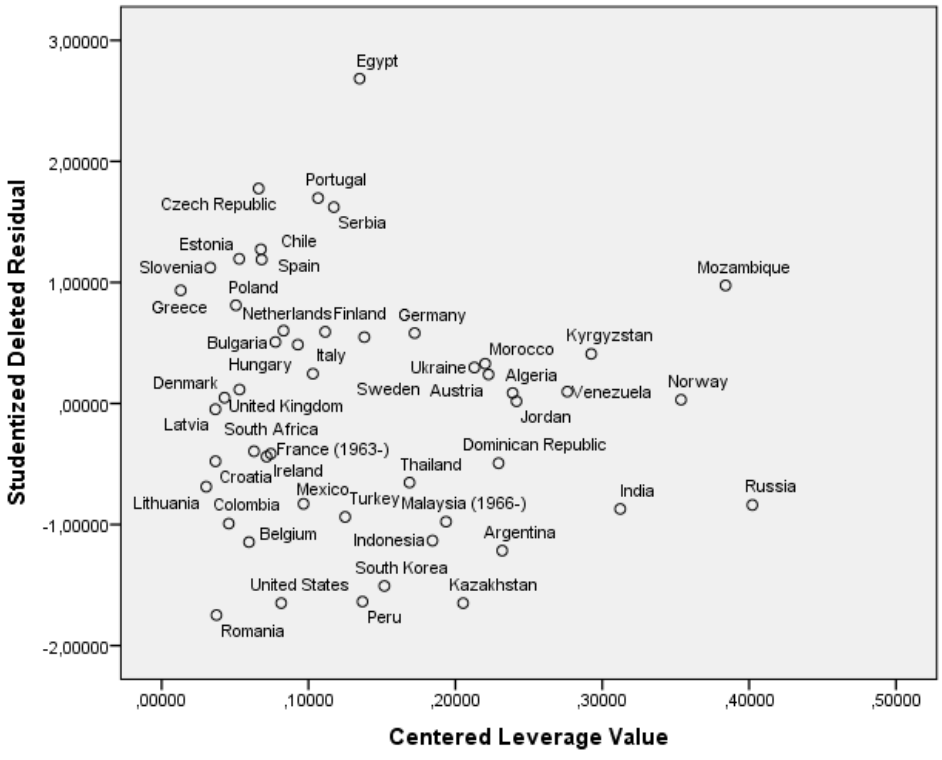
Diagnostics - ATI and Carbon Dioxide Emissions

Appendix 9 – Leverage plot displaying potential outliers



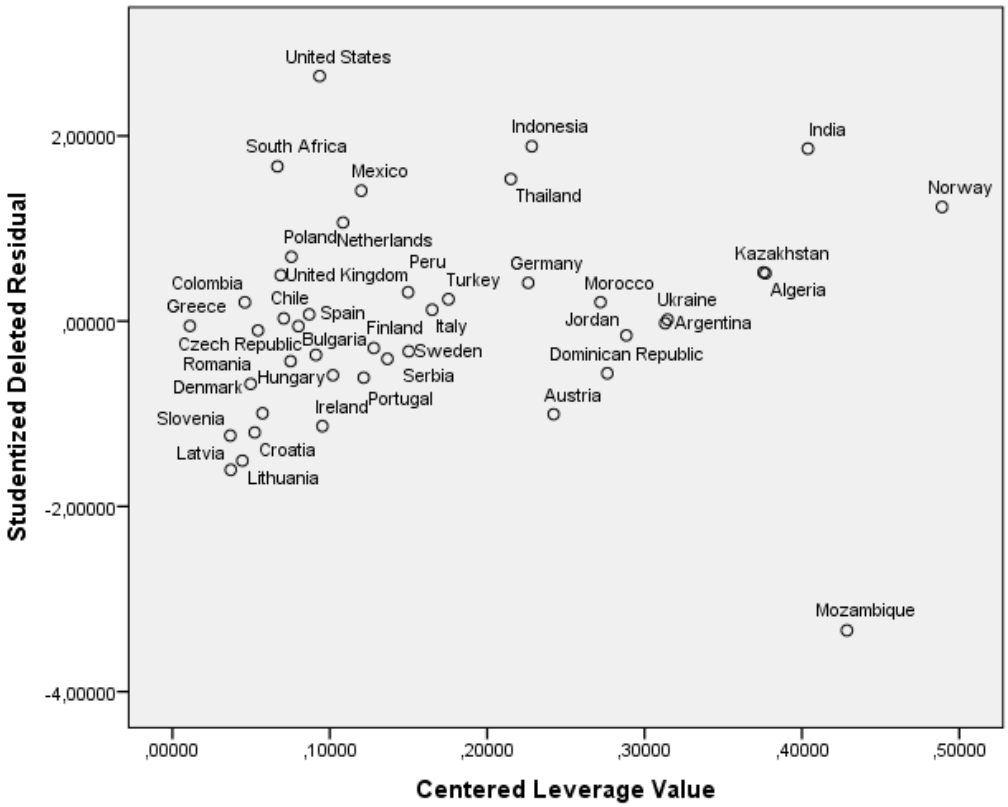
Diagnostics – QoG and Environmental Performance Index

Appendix 10 – Leverage plot displaying potential outliers



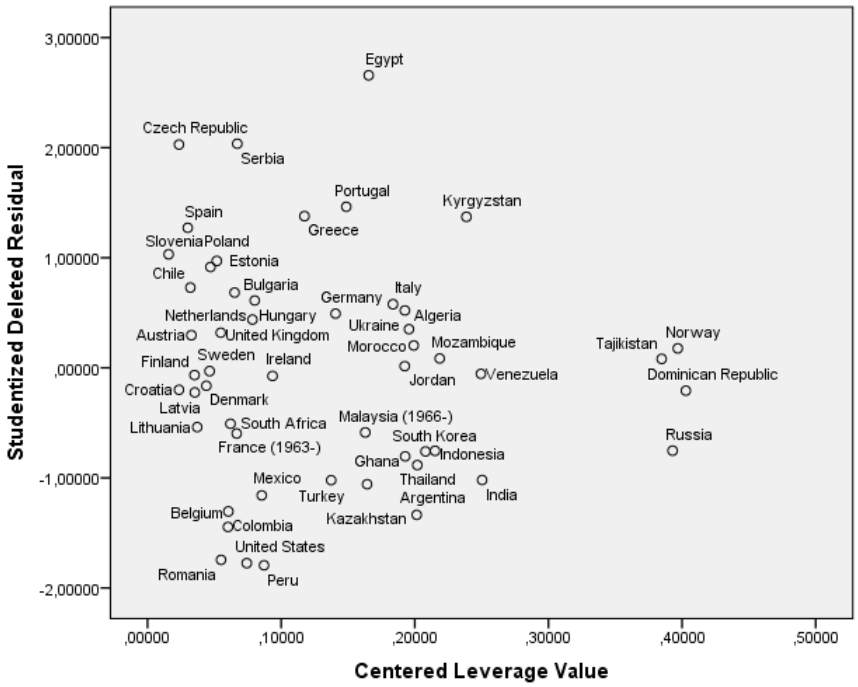
Diagnostics – QoG and Carbon Dioxide Emissions

Appendix 11 – Leverage plot displaying potential outliers



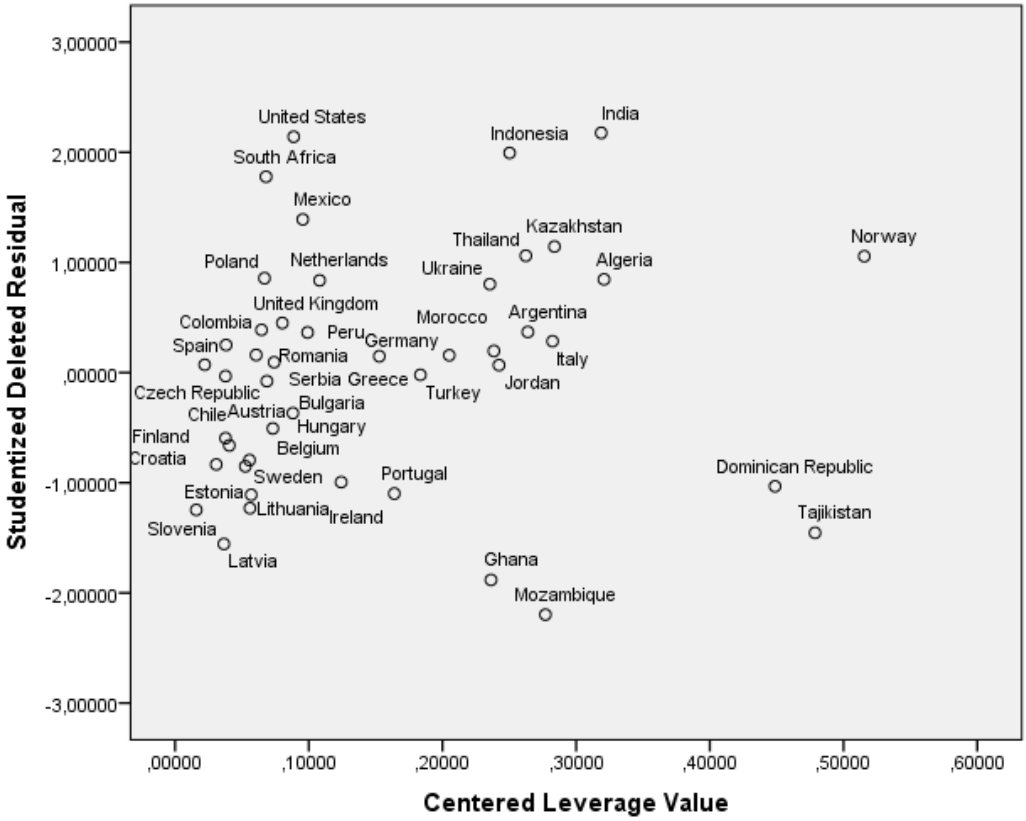
Diagnostics – Williams Information Transparency and Environmental Performance Index

Appendix 12 – Leverage plot displaying potential outliers



Average leverage value = .15. 15*2=.30. 4 outliers have high leverage values (Tajikistan, Norway, Dominican Republic and Russia). Deleting these cases did not affect the results of annex 3, which is why they were left in the analysis. Egypt was also detected as an outlier with a potential high influence on the results but its value from Cook's Distance, .176, was not a cause for concern.

Appendix 13 - Leverage plot displaying potential outliers



Average leverage value = .17. .17*2=.35. 3 outliers have high leverage values (Tajikistan, Norway, Dominican Republic). Deleting these cases did not affect the results in annex 4, which is why they were left in the analysis.