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Thesis

The influence of state's administrative tradition and administrative culture on the implementation of environmental policies in the European Union.

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Abstract

The implementation step of environmental policies has often been disregarded by researchers, who mainly focused on the policy-making process. Yet, implementation is crucial for the success of a policy. I looked at the influence of domestic factors in the implementation process to explain how countries members of the European Union that have similar administrative capacities yet obtain different implementation results. We combined two theoretical lenses: neo-institutionalism with rational choice and complexity theories, to address knowledge gaps in the literature concerning the influence of agent behavior on implementation and see how institutional designs influence these behaviors. Using mixed methods, we first run OLS regressions to analyze correlations between *administrative traditions*, *administrative culture*, and implementation performances, for several EU directives and recommendations. While we found solid evidence that federalist states achieve better performances, results for the correlations concerning the cultural aspects, i.e. the systems of thougst and values of administrations were less consistent. To obtain more explanations, we undertook a qualitative analysis of nine interviews from public-agents working for the German, French and Swedish ministers of environment. Commitment to environmental issues is associated with better implementation performance, while compliance to the EU has a positive effect when this value is present at a very high degree, although it is the association of this factor with other cultural factors whose emergence is possibly favoured by a corporatist administrative tradition, that explains differences across countries, but not only. Studying the emergence and the articulation of these values in a specific institutional design is a complex process that could help to explain differences between EU countries.

Key Words: Implementation, Environmental policies, European Union, Neo-institutionalism with rational-choice, Complexity theories, Administrative traditions, Administrative culture, mix-methods.

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1. Introduction

1.1 Context and problem area

During the past decades, environmental objectives and policies have been the fruit of collective decisions taken at different scales and that have been institutionalized through different governing arrangements also called *regimes* (Keohane and Nye 1987, p. 730).Certain scholars claimed that this process has affected states' capacity to decide how environmental policies should be designed and implemented (Paavlova 2007, p.97). Some even claim that, nowadays, states apply policies uniformly. Globalization, new public management and neo-liberalization would have pushed states to converge in their political practices, applying the same mechanisms, designed by international regimes, uniformly (Bennett 1991, Drezner 2001, Heichel et al. 2005). This is even more salient in the context of the European Union (hereafter EU). The concept of *Europeanization* has been used to show that states are adopting converging implementation practices of European recommendation and directives (Knill and Lehmkuhl 2002, p. 255). On the other hand, some scholars claim that it is not so clear that this process of uniformization occurred. Rodrik (2012, p.9), for instance, claims that the world is less globalized than we believe. The national level still has an impact on how policy-making and implementation is undertaken by bureaucrats (Painter and Peters 2010, p.3).

The role of states' bureaucracies in adapting to environmental problems is crucial to address a collective response to these issues that are transnational by nature (Biesbroeck et al. 2018a, p.3). The EU tries to integrate the need for a collective response to climate change more than every other region in the world (Bondarouk and Mastenbroeck 2018, p.17). This also implies more constraints. Indeed, EU state members have to cope with several regimes at different levels (national, regional and international) (Newig and Fritsh 2009). Although environmental policies and objectives are designed by the European Commission, states remain responsible for the implementation of the directives and recommendations emanating from the European Commission (Bondarouk and Mastenbroeck 2018, p.15). Therefore, it means that domestic issues still matter for the success of policies designed in a multi-level governance framework context in which different kind of actors intervening at different levels have to cope with interdependencies (Newig and Fritsch 2008, p.5).

This observation leads to the following first preliminary hypothesis: ***If states in the European Union have different bureaucratic and administrative particularities, we can expect that the implementation of environmental policies that have been designed by a supranational entity, such as the European Commission, will be realized differently and will produce different results.***

Why is that important to know? The reasons are twofold. On the one hand, if countries have indeed different administrative particularities, it could be that some administrative features are more suitable than others in implementing European directives and recommendations, which means that some are less efficient. Less efficient bureaucratic arrangements are costly for both the EU and national actors (Konig and Luetgert 2008, p. 165). On the other hand, if member states indeed showcase different administrative structure, that is stable through time and is particularly hard to change, perhaps applying universal tools to different geographical contexts is not relevant (Petitimbert and Guimont 2018, p.11, Treib 2006, p.1). It would mean that the approach favored by the Europe Union could be more efficient by paying more attention to these administrative particularities.

Without contributing to this debate now, it is important to stress that implementation studies in themselves are becoming important. In the past decades, a majority of authors paid too much attention to the policy-making process of environmental policies and not enough to the implementation deficit (Dupuis and Knoepfel 2013, p.1). Yet, implementation is critical for

the success of environmental policies (Biesbroeck et al. 2018a, p.3). The factors that conduce to successes or failures in terms of implementation of environmental policies must be investigated. Focusing on the European Union and making a comparison between EU countries is an excellent choice for several practical and theoretical reasons. Indeed, the EU concentrates a large number of states which showcase very diverse administrative regulatory style due to their own historical process of political and economic development (Vogler 2005, p.847). The fact these countries are embedded in the same regulatory regime at the supranational level permits us to focus on the domestic variables that could explain differences in terms of implementation. However, differences in terms of economic development remain persistent between European countries (ibid). If countries do not have the same level of development, then it is likely that they will not have the same *administrative capabilities* (Di Lucia and Kronsell 2010, p.551). Nonetheless, it has been demonstrated that even though some countries in the EU have different levels of economic development, there are some group of countries, which nonetheless, possess a similar level of GDP and human development, similar spending in environmental policies, and yet obtained different results (Thijs et al. 2017). Furthermore, by focusing on the EU, we are able to proceed to a Large-N analysis. It includes more than 20 cases which is a threshold for quantitative research (Biesbroeck et al 2018b, p.2).

1.2 Research questions and purpose of the study

The purpose of this research is to bring more clarity into the scientific debate about the influence of domestic factors on implementation efficiency. The objective is to distinguish what are precisely these factors, how do they impact the implementation process and how do they influence each other. The research will answer the two following questions:

- Do domestic factors still matter for the implementation of environmental policies, or countries in the EU are converging towards a uniform implementation of environmental policies with similar results?

- If domestic factors matter, what are the most important ones, how do they influence the implementation step of a policy and how are they related between each other?

Academically, the literature on the implementation of environmental policies in the EU is rich, but showcases conclusions that are very divergent, even contradictory. This divergence seems to be even more salient when qualitative and quantitative studies are compared. Without pretending to unravel profound debates in the field of implementation, the purpose of this thesis is to see how and why these methods can conflict and how researchers can still benefit from their mutual strengths to address knowledge gaps.

The choice to focus on environmental policies is very relevant, especially when it comes to the implementation step. It is clear that environmental problems represent an important threat to human welfare, which is why it is important to study what are the phenomena that hamper the implementation of environmental policies. For too long, there has been a cognitive bias in the literature concerning the success of environmental policies. Many scholars focused on the policy-making process of environmental policies in the EU while eluding implementation, which led to a certain wave of optimism among scholars, and an over-appreciation of the EU that has often been quoted as the world green leader (Kelemen 2010, p.335, Selin and Vandeveer 2015, p.309). Without contesting the value of EU policy-making, it must be recognized that numerous EU's environmental objectives have not been reached. For instance, some specific environmental areas such as biodiversity have been completely neglected which led to dramatic consequences in recent years (European Environment Agency 2017, p.6, Newig

and Fritsch 2009, p.198). Studying implementation is a good trail to have a better appreciation of the mechanisms that lead to these failures and what are, on the other hand, the mechanisms that lead to the success of policies in certain contexts. Indeed, important decisions, that influence the success or the failures of a policy are often taken during the implementation stage (Treib 2014, p.31).

This research will be guided by a foundationalist ontology, which claims that there are general properties that exist which are external and independent to the researcher (Marsh and Stoker 2010, p.189). In coherence with this approach, this thesis will encompass a deductive approach of doing analysis. This research is epistemologically orientated towards positivism. Positivists claim that regularities in social science can be observed and that it is possible to elaborate general patterns from these observations (ibid, pp. 189-191).

2. Literature Review

2.1 Defining implementation and compliance

Policy implementation is a concept bounded to the "textbook of the policy process" (Nakamura 1987, p. 147). The textbook of the policy process is a conception that divides a political process into different steps. Policy implementation corresponds to the step in which a policy is translated into an action (Barrett 2004, p. 251), after the transposition of a directive (Bondarouk and Mastenbroeck 2018, p.16). Often in the literature, compliance appears as a mirror concept of implementation. Compliance focuses on the outcome of policies while not paying attention to the different ways that have been used to achieve this outcome. Implementation focuses on the processes of translating policies into action without paying attention to the outcome (Knill and Lenshow 1998, p.595). Implementation effectiveness refers to the extent to which the transposition of law and its practical application corresponds to the initial objectives of the policy (ibid, 1998 p.595). Both the processes and the outcomes are crucial when it comes to environmental policies because the process impacts the outcome. This is why both concepts will be considered as equally important. For purposes of clarity, no distinction will be made between these two concepts in this research, as both concepts are bounded and embedded in the same political cycle.

2.2 The different theoretical approaches to study implementation

There are several theoretical lenses that can be used when it comes to studying implementation. The neo-institutionalist approach is generally the most-admitted one. Such theory examines how institutions, defined as formal and informal rules, shape the behavior of political actors, their decisions, state's political agendas, the EU bodies and other actors that cooperate in a political process (Marsh and Stoker 2010). Theories based on neo-institutionalism have been also used to explain under which conditions institutions do not directly adapt to external pressure, but present resilience in spite of a changing environment (Knill and Lenschow 1998, p.595).

The constructivist approach is also used and look at how actors shape a certain vision of the world through communication and social interactions. Multi-level governance research looks at how political actors cooperate at different scales and how authority is spread among different areas of negotiations (Selin and VanDeveer 2015, p.3). Behavioral approaches could also be used. According to Biesbroeck et al. (2018a.), organizational and behavioral theories remains under-used in the environmental policies implementation literature and could be of high interest to bring new theoretical insights that could help researchers to understand the complexity of the mechanisms that lead to good or bad implementation. These theories aim to explain what are the factors that influence agents in their decision-making because preferences have a major role in determining the choices of the agents (Biesbroeck et al. 2018a, p.21).

2.3 The different implementation patterns in the EU

The influence of *administrative traditions* has been largely discussed in the literature. For Biesbroeck et al. (2018a, p.1), *administrative traditions* refer to the stable characteristics of public bureaucracies. They organize both the policy-making process and the implementation step of a policy (Biesbroeck et al 2018a, p.1). *Administrative traditions* have been in many studies a privileged explanatory variable, but studies often present different results regarding the weight of this variable, how does it covariate with other factors. They often showcase

different patterns of administrative traditions, based on different definitions of what is the concept of administrative tradition.

Using qualitative approaches, several studies attempted to distinguish several clusters of administrative traditions. Although limited to Germany and the United-Kingdom (hereafter UK), Knill and Lenschow (1998, p. 597) distinguished Germany and UK as two different ideal types. They analyzed the implementation of four different European directives and found that Germany corresponds to an "interventionist" ideal-type, that showcases formal, legalistic, hierarchical and inflexible pattern of implementation while the UK corresponds to a mediating ideal that showcases an informal, pragmatic and loose pattern of implementation. They also found that some directives are more fitted than others to an interventionist model. For instance, the Drinking Water Directive is more congruent with the German bureaucratic style. They also argue that *political actors* that are involved in the implementation process play a major role in implementing EU arrangements and that the number and interplay of actors will depend on the country's institutional framework (Knill and Lenschow 1998, p.602).

Inspiring themselves from the Esping-Andersen model of welfare state, Falkner et al. (2006) attempted to create several categories of European countries according to their degree of efficiency regarding the implementation of European directives. Using a large-N qualitative analysis that contains 91 cases and collecting 180 elites interviews in the different member states countries (that were 15 during this era), they distinguished three different ideal types of transposition style: the world of law observance, the world of domestic politics and the world of neglects. Scandinavian countries belong to the world of law observance, which means that the implementation of EU directives and recommendations is superior to their domestic interests. Countries such as the Netherlands or Germany try to incorporate their domestic interests in the implementation through bargaining. Countries such as France or Greece suffer from bureaucratic failures, which explains why they do not implement EU environmental policies. In the world of domestic politics, they claim that private and public actors concerned by a policy, party political preferences, changes of government and interest group pressure have a major role and every actor push for their preferences and reach a consensus from bargaining. This would be the main explanatory variable for implementation (Falkner et al. 2006, p.10). In the world of neglect, administrative factors play a crucial role, and it is not a matter of resources but organization. In the world of law observance, it is the presence of a shared culture of compliance, politically and administratively, that determines the good implementation of EU directives in these countries.

However, this model has been criticized by Liefferink et al. (2010), who practiced in-depth case studies to prove that the diversity of national responses is bigger than what has been discussed in previous theories. They took one policy to be implemented that is the Water Framework Directive, and looked at how this policy is implemented in the Netherlands, Denmark and France. They found out that the model presented by Falkner is reductionist. In fact, although they recognized that countries have different *cultures* in appreciating EU obligations, this argument is weak in explaining why all member states have difficulties in implementing EU directives; including Scandinavian countries.

The EU commission itself got interested in comparing and clustering EU countries according to their domestic factors. The European institution ordered a study that has been undertaken by Thijs et al. (2017). It appears that administrative features represent an important explanatory variable (ibid. p.58). It also appears that the managing style that is adopted in an organization might play a role on implementation (quality of coordination, sources of policy advice, coherence of human resource management, openness of the public service system, structure of executive government). This converges with the arguments advanced by Biesbroeck et al (2018a) and Treib (2014), that administrative traits matter. Recognizing the influence of administrative traits is a good track to start with. But, providing a list of factors is

not enough. The challenge is still to provide an explanatory model that unravel mechanisms that can be clearly identifiable in explaining the influence of these factors.

2.4 The quantitative vs. The qualitative divide. Do administrative traditions really matter?

Some researchers tried to look at the influence of a political structure (which includes domestic factors such as administrative traits) on the way it reacts on climate change problems (Vink et al. 2015, Biesbroeck 2014). As explained previously, most of the researches concerning the implementation of environmental policies are based on institutionalist theories. Indeed, from the early '90s, there was a consensus among researchers that structural domestic factors, such as the administrative capacity of a state, have a major impact, as we have seen previously (Koning and Swetgert 2008, p. 167). Then, other researchers started to have some doubts concerning this approach and start to take the institutionalist argument in a reversed way. They claimed that all state members will try, in the long term, to make sure that a policy will be correctly implemented. This process of learning to transpose EU directives from the European Commission would have lead states to a process of uniformization of administrative process called "*Europeanization*" (Knill and Lehmkuhl 2002, p.256). To elucidate this matter, Biesbroeck et al. (2018a) took *administrative traditions* as an explanatory variable and ran out a large-N quantitative analysis of 32 OECD countries. They operationalized the concept of state's administrative traditions into five dimensions: the vertical spread of authority, the horizontal coordination, the interest mediation between state-society, the role of public administrator and the penetration of ideas in bureaucracy. They found out that these dimensions matter, but the predictive power of these variables is relatively weak in comparison to what has been found in qualitative studies. They found that countries tend to implement climate adaptation policies according to their administrative structure, but do not have enough elements to tell which model is more efficient in implementing these policies. For instance, they found that federalist countries are more engaged in cross-departmental coordination, but they think that the administrative traditions as a factor that influence implementation has been over-estimated (Biesbroeck et al. 2018, p.1). Konig and Swetgert (2008, p.169), who have also undertaken Large-N quantitative, also found mitigating results. For instance, if it is true that the political organization of a state (e.g. federal or unitarian) seems to have an influence on the time needed for transposition (Koning and Swetgert 2008, p.188), authors did not obtain enough results to proceed to a satisfying analysis. Yet, they do recognize that domestic factors are eager to have an important influence on policy implementation (ibid, pp. 191-192).

Does it mean that institutional arguments are not good enough at explaining differences in terms of implementation between countries? They are two major reasons that invite researchers to not ignore institutional theories about implementation. The first reason comes from the fact that quantitative studies suffer from an important lack of precision in the measure of the variables. They are characterized by a poor-quality of data and a limited sample size, which is the main problem in implementation studies using quantitative approach (Treib 2014). Moreover, these studies are often incomplete in the sense that they only focus on a particular environmental problem, sector, or step in the implementation. For instance, the study of Biesbroeck et al. (2018a) focuses on climate change mitigation only and not on other major environmental problems such as biodiversity loss or water quality decrease. The study of Konig and Swetgert (2008) is also partial as they only take into account transposition delay as their dependent variable, which does not directly deliver information about implementation that is the outcome. The second reason is that there are new qualitative studies which have investigated how administrative organizational traits influence compliance and found out that the way the executive power is organized, how it is involved in daily politics and the independence of the

national administration vis-à-vis external actors could help the implementation of policies. Liefferink et al. (2011) found that there are numerous domestic factors that influence the implementation process (ibid, p. 721). Without writing clearly what are these factors, it seems that stakeholder participation in the process is important, and the political organization of the country as well (federal or unitarian – decentralized or centralized) (ibid, p.720). While studying the common fisheries policy, Khalilian et al. (2010, pp. 1181-1182) found out that states' domestic selves-interests had an impact on the success of this directive. For instance, the threat of people being fired in the fishery sector pushes ministries to not fully implement the directive (ibid, p.1182). Therefore, the main explanatory variable that led to failure was not stated capacity, but the willingness to implement the directive depending on the actor's preferences. Examining measures designed under the UNCDD regime framework against desertification in Mediterranean countries, Briassoulis (2003, pp.127-128) found that there is a difference between centralized and decentralized countries in the way stakeholders are involved in the implementation process, which in turn, may have an impact on the implementation of a precise policy. Using the EU directive 2003-30-EC about the transport of biofuel, Di Lucia and Kronsell (2010, pp.559-560) found that success of implementation is determined by some conditions that must be reunited: the policy frames and the content between the state and the European Union must fit. The most important actors that are affected by the policy must be reunited and consulted to legitimize the policy for the goodness of the implementation process.

2.5 What must be remembered from the literature

The literature on implementation is pretty rich but has also proven to be relatively confusing, a problem that has been cited by several authors (Van Meter and Van Horn 1995, Kjebellberg and Reitan 1997, cited in Sverdrup 2004, p.28). This literature review attempted to identify the main debates and challenges in the field of environmental policy implementation in the EU context, in order to see how do researchers complemented each other and the recurrent weaknesses that appear in these studies. Through decades, authors tried to apprehend how domestic factors can impact the implementation of policies. Oftentimes, qualitative studies found contradictory patterns of different administrative structures in Europe, although through time, they converge by admitting the importance of certain administrative traits. These studies often conclude that the Europeanization theory is not empirically proven. Quantitative studies showcase more contrasted and moderate conclusions. According to these studies, administrative capacities and traditions matter, but authors such as Biesbroeck et al. (2018a.) stressed that this variable has been over-estimated and that organizational complexity should be taken into account. This also joins Bernstein and Cashore's argument (2012, p.588) who wrote about the need to integrate complexity in implementation effectiveness but it is still hard to integrate. Complexity is a theory based on the following axiom: Behaviour is a product of many variables that are at work and interact between them (Uhl Bien and Marion 2009, p.631). Complexity emerges in organizations where interdependent agents try to find a solution to their common need (ibid p.631), and in which multiple logics that produce different behaviors that produce different actions and then different results are at stake (Bernstein and Cashore's 2012, p.587).

The implementation research field has made progress all along what has been called the four waves of implementation theory. The first wave was looking at institutional efficiency but was not able to explain variation in the implementation between different countries due to its too legalistic approach. Then, in a second wave, came the misfit approach, which stresses that states do not implement policies when their costs are superior to their benefits. However, when this approach has been empirically tested, it was applicable to only very few cases, because the preferences of domestic actors were under-theorized. During the third wave, authors started to

address domestic factors as an important explanatory variable. Domestic preferences have been theorized better during that period. Quantitative analysis, using large data-sets from the EU commission, started to look at the influence of administrative capacities, including administrative capability (Treib 2008, p.8). Although quantitative approaches recognize the need for addressing complexity, they are also deficient, with varying and inconsistent results due to large empirical scope (ibid, p.14). The Fourth wave is aimed at testing new theories such as *Europeanization,* looking at how countries adapt to EU decision-making.

What must be remembered from the literature is that domestic factors seem to matter. The idea of domestic factors has been apprehended with the concept of *Administrative traditions*. Nonetheless, the complexity aspects of public organization have been under-estimated. The challenge will be to find, and using the rich literature about implementation, a good theoretical framework, that can keep the advantages of a neo-institutionalist approach while addressing complexity, which is something that has not been really undertaken yet. This theoretical framework must be clear and complete enough to understand how different domestic factors favor the emergence of certain behaviors within public organizations, that in turns produce different results.

3. Theoretical framework

3.1 Neo-institutionalism with rational choice

The objective of this section is to present and justify the choice of the two following theories: Neo-institutionalism with rational choice and complexity theories. From these theories, several mechanisms applied to the implementation literature will be derived and will structure the theoretical framework. Neo-Institutionalism is a theoretical lens that looks at the relationship between institutional characteristics, political agency, performance and change (Marsh and Stoker 2010, p.61). Neo-institutionalism also takes into account the obstacles and the opportunities provided by a certain institutional design, (ibid, p. 63). This theory is very relevant for the mechanisms that should be explained in this thesis since the objective is to look at how different institutional designs at the level of a country produce different results in terms of implementation. One of the main advantages of neo-institutionalism in comparison to other theories is its compatibility with other theoretical models such as the Rational Actor Model. Indeed, it is possible to combine neo-institutionalism with rational choice, and this combination is particularly interesting because it allows researchers to look at how individuals try to maximize their utility within the institutions (ibid, p.65). For rational choice institutionalist, institutions are human constructions designed to solve collective problems. They do not believe that institutions shape the behavior of individuals as other institutionalists do. However, institutions crystalize certain preferences at a precise moment, while the preferences of political actors change through time. Therefore, institutions also constrain the political actors in their quest of fulfilling their preferences (Marsh and Stoker 2014, p.65). It means that institutions are "*social forces in their own right*" (March and Olsen 1984, p.747). It is reasonable to claim, according to this theory, that the organization of the political life makes a difference, and that political life is organized by formal and informal rules that represent *institutions* (Marsh and Stoker 2014, p.67). In spite of the common institutional framework provided by the EU, countries have different institutional designs and therefore have a different organization of political life which may in turn impact the way they implement policies and their results.

Scholars, such as Biesbroeck et al. (2018a, p.21), have advocated for an alternative to neo-institutionalism that is *behaviourism*, because, according to them, agents working on climate change have their own appreciation about how policies related to climate change adaptation and mitigation should be undertaken, which has consequences in terms of willingness to comply or not to a policy designed by the EU commission. Nonetheless, modern behaviorists now tend to agree with neo-institutionalists on the fact that institutions can constrain individuals in their choices (Marsh and Stoker 2010, p. 61). Taking the argument of March and Olsen (1984, p. 738), although it is true that agents defend their interests, they operate under standards operating procedures that constrain and shape their possibilities to defend their interests (Allison and Zelikow 1999, p.145). Again, neo-institutionalism combines many advantages that were not present in other theories. While it is anchored in a positivist epistemology that encourages the generation of patterns, it also takes into account the behavior of agents, thus making the link between institutions and behavior which is what we are looking for (Marsh and Stoker 2010, p.71). To sum up, according to the rational choice perspective of institutionalism, institutions are constructs that enable political actors to maximize their preferences in a specific framework that also constrain them in the same time.

3.2 The complexity dimension: Bounded rationality and administrative culture

The challenge in the recent implementation literature, as previously explained, is to include the complexity dimension, that authors, such as Biesbroeck et al. (2018) and Berstein and Cashore (2012) have advocated for. If a ladder of complexity must be added, researchers must be aware that institutionalism with a rational choice focus suffers from some limitations. In fact, it does not treat with the problem of bounded rationality, that impacts both the actors that participate in the policy-making process and the public agents who are in charge of the implementation of these policies.

Complexity is a phenomenon that can be studied at both the individual level and organizational level. Authors have tackled complexity at the individual level with the concept of bounded rationality. Modern political science tends to recognize the fact that the "rationality" of political actors is limited. In fact, when individuals are "rational", they will strategically choose, after a process of calculation of advantages, the option that maximizes the possibilities to satisfy their selves-interests (Allison and Zelikow 1999, p. 15). On the other hand, the concept of bounded rationality denotes another reality of the human being, that is linked to its limited knowledge of a situation (ibid, p.20). Humans possess limited attention, that only permits them to treat only one issue at a time. Choices are influenced by random variables in choosing a certain issue among others, such as the effect of emotions, values, and their personal interests regarding a certain issue (Kingdon 2011, p. 127, Allison and Zelikow 1999, p. 298). Time constraints do not permit them to have a full view of all the possible options they have to make the best decision (Allison and Zelikow 1999, p. 299, Sabatier and Weible 2014, p.29). Then, we understand that the nature of public organizations, in which a multiplicity of actors are involved, do not allow people to act rationally, as each actor will present a different solution to the same problem. (Allison and Zelikow 1999, p.271, Kingdon 2010 (Sundstrom, 2017), p.78). This has for consequence that the requirements for rational choice are not reached (Allison and Zelikow 1999, p.271). Public organizations that are in charge of the implementation suffer from the problem of bounded rationality because organizations are formed by an aggregation of individuals. This problem is accentuated by the fact that turnover in public organization is high, which makes preferences hard to stick through time. People do not know the tools at their disposition to solve a problem, and their objectives are unclear (Kingdon 2011, p. 84, Sabatier and Weible 2014, p.27). Public agents will face different problems, such as *peripherality*, which denominates the problem of a lack of support in accomplishing a task, due to complex reasons that are the consequences of bounded rationality, which creates frustration (Sundström and Holmberg 2017, pp. 225-226, 236). Another consequence of bounded rationality is that it affects performance as workers can be distracted, due to limited information and concentration, which provokes negligence (Vroom and Solms 2004, pp.193- 194).

Bureaucrats can also willingly not correctly implement a policy depending on their own appreciation (Allison and Zelikow 1999, p.156). Organizations are not the same as institutions, because organizations do not provide the rules that organize political life. They are collective actors submitted to constrains (Marsh and Stoker 2010, p.67). However, organizations create capabilities for achieving human chosen purposes to compensate for the bounded rationality of humans at the individual scale. They do so by constraining the behavior of individuals. Organizations possess a culture that emerges to shape the behavior of individuals within the organization in ways that conform with informal as well as formal rules (Allison and Zelikow 1999, p.145). The culture of an organization is shaped by the experience of street-level bureaucrats through time. Experiences crystalize the routines and procedures, which sets the culture of an organization which sets the norms of appropriate behavior and the system of value

to adopt (Allison and Zelikow 1999, p. 155). These routines represent a double-edged sword. They can improve the efficiency of an organization or hamper it (ibid). In the EU, national administrations have developed independently due to historical processes (Painter and Peters 2010). States have developed different administrative traditions e.g. some states are federal while other are unitarian. It is also likely that there are differences in terms of administrative culture and that these differences produce different results in terms of implementation.

3.3 Definition of the concepts and their relation

It seems that the most important domestic factors that could explain differences in terms of implementation between countries are related to the nature of their *administration*. The literature has not been very clear in establishing clear concepts concerning the administrative traits of an administration, which can also explain why the complexity dimension of administration is not very well apprehended. What is aimed here is to articulate different concepts that could help to categorize administrative traits and articulate them. First, the *administrative capability* of a state is crucial for the implementation of environmental policies in a multi-governance framework (Di Lucia and Kronsell 2010, p.551). What must be understood by administrative capacity refers to the ability of the state to control public and private actors and make them comply. This comprises the economic capacity of the state, because there is a need for economic resources to implement new reforms (need of personnel, expertise and infrastructure) (ibid, p.551). The availability of the resources is positively correlated with better implementation (ibid). However, if we take t GDP per inhabitant as an indicator of the economic capacity of the state, it can be observed that countries which possess similar GDP per inhabitant such as Belgium and France, or Sweden and Germany showcase performances that are different (Thijs et al. 2017, p.58). Therefore, treating *administrative capacity* alone will not bring new knowledge to the implementation field as it is also a truism to make the assumption that the *administrative capacity* of a state has an influence on his capacity to implement EU directives.

As explained previously and according to the literature, these differences could be due to different *administrative traditions*. *Administrative traditions* encompass several dimensions of administration that correspond to the political organization of the state itself, the implementing style of a policy, how the power is coordinated and how interests are represented in the policy process. In a more general definition, it refers to how state "bureaucratic machinery" work and is organized, either way, to the formal and organizational aspects of the administration of a country (Biesbroeck et al. 2018a, p.2). However, as it has been shown by Biesbroeck et al. (2018a, p.21), *administrative tradition* is a weak concept when it comes to encompass the complexity dimension of administration. Hence the choice to measure complexity in public administration with the concept of *administrative culture,* which refers to the cognitive rules that interreact in the organization and affect the functioning of institutions (Berge and Luckmann 1967 quoted in Swidler 2001, p.3064). In other words, it refers to "*the beliefs and values on the role of the State and its civil servants*" (Pollitt and Bouckaert 2017). These beliefs are transmitted from a generation of public servants to another and are therefore persistent. (Allison and Zelikow 1999, p.153). According to these beliefs and values, public servants can articulate their "*preferences*" and adopt a certain "*behavior*" (Biesbroeck et al. 2018, p.21). For instance, Falkner et al.(2006, p.8) have pointed out the fact that some bureaucracies in Europe are more willing to comply to European directives or not and this is not directly connected to the structure of the bureaucracy, as it is a "*self-reinforcing social mechanisms*". Thijs et al. (2017, pp.34-37) have even identified distinctive traits of administrative culture such as power distance, uncertainty avoidance (which can be measured with the number of routines and their constraining power), individualism, masculinity (refers

to competition) and long-term or short-term orientation. At first glance (perhaps this is due to the lack of theoretical development), it is not clear to see how *administrative culture* is connected to *administrative tradition*, which is why it is a good solution to distinguish these two concepts and operationalize them independently for the goodness of the analysis.

3.4 Causality pathways and hypothesis

Studies are pointing towards the fact that it could be that there is a link between how states respond to environmental problems and their administrative tradition. This link could be even more salient when it comes to governance initiatives, because states have more flexibility in choosing how they implement the policy (loose mechanisms, flexibility and involvement of numerous actors) (Vink et al. 2014, p.14). The main causality pathway that is explained in the literature is that national administrations that function in a way that entails *governance principles* showcase better performances in terms of policy implementation (Jahn 1998, Rabe 2011).

In fact, countries that have a tradition of involving the key actors in the political process representing the interest of the society (corporatism), with a decentralized political decision-making process, and who allow more flexibility for public agents in their decision-making (managerial approach instead of a legalistic) will have better results in terms of implementation. the inclusion of key actors, even before implementation (during the transposition step) could, according to Di Lucia and Kronsell (2010, p.550), lead to better implementation, although it can also lead to delay in terms of transposition. Indeed, difficulties in implementation arise when actors try to impose their own preferences when the policy is already ready for implementation (Biesbroeck et al. 2018a, p.8). The overall positive influence of corporatism on implementation is due to the fact that that the EU political process is based on principles that also derivate from governance (voluntarism, appreciation left to states that corresponds to a form of decentralization, involvement of a plurality of actors who coordinate and cooperate between each other) (Newig and Fritsch 2008, p.3). Therefore, countries that have administrative traditions reproducing to some extent the political process of the EU, will be more experimented in implementing policies that are designed by the EU commission (Treib 2014). In this regard, federalist countries should have several advantages, as they favor the adoption of state mechanisms that allow more flexibility and favor participation and innovation (Biesbroeck et al. 2018a, p.6). Moreover, countries that are open to an approach based on daily management and that are less careful about following the law strictly could also be better implementers because they can take decisions more quickly as public agents do not have to verify if their decisions are in accordance with the law each time they make a decision. They can also take the necessary actions even if these actions do not have a legal base (Biesbroeck et al.2018a, p.8).

Basing ourselves on the idea of the goodness of fit which claims that states are willing to transpose EU directives when the policies goals that are communicated through these directives are already present in the state legislation (Treib 2014), the same could be true when it comes to the *administrative tradition* of a country. Theoretically, the implementation process is more efficient when practices that are similar already exist at the national level (Dovers and Hezri 2010, Runhaar et al. 2017).

Hypothesis 1: **Federal countries are more likely to succeed in the implementation of EU directives and recommendations.**

Hypothesis 2: **Countries whose administration have a more managerial approach are better at implementing EU directives and recommendations.**

Hypothesis 3: **Countries that include all the key actors early in their implementation process are better implementers of EU directives.**

Furthermore, coordination is essential to avoid the damaging effect of overlapping: If too many organizations work on the same issue at the same time, the effect can be damaging if the organization do not cooperate, for instance, by exchanging information about the ongoing policy process. Hence the role of coordination in distributing the tasks that each agency or public organization should undertake etc. However, when too many levels of administration are involved and have to relay information to each other, it will become harder to coordinate. With each level of implementation involved, the probability of misinterpretation by state agents of the original policy program increases (Newig and O-Fritsch 2009, p.202). Thijs et al. (2017,p.34) also highlighted the fact that administrative fragmentation leads to less efficient results in terms of implementation.

Hypothesis 4: **The presence of too many administrative levels and too many actors is an obstacle for the implementation of EU recommendations and directives.**

Concerning the influence of *administrative culture* on implementation, it is not unreasonable to stress that bounded rationality can lead political leaders to adopt the decision that will not favor welfare but personal interests. As seen in the case of the North-Sea fisheries, member-states had incentives to not follow scientific advice, because states prefer to protect their economy (Khalilian et al. 2010). Nonetheless, it appears that self-interests can be mitigated in bureaucracies that present "a culture of compliance" (Falkner et al. 2007, Treib 2014, p.27). Indeed, recent studies tend to pinpoint this factor (Falkner, et al. 2005, Falkner et al. 2007, Treib 2007, Konig and Luetgert 2009). Some countries are more identified and have more interests regarding environmental issues, and thus, will put more effort to comply with environmental policies (Falkner et al. 2008). Why is that? Spendzharova and Versluis (2013, p.1499) found out that the salience of a problem, i.e. how important it appears to the actors, will have an impact on the actual treatment of that issue when it will be transposed at the national level, because policy-makers and street-level bureaucrats will focus on issues that are perceived as urgent. When it comes to environmental policies in the EU, the European Commission is not responsible for the implementation of the policy it has designed (Bondarouk and Mastenbroeck). Therefore, how important environmental problems appear in a country might influence to what extent the policy is really implemented and the quality of the implementation through time. Some political decisions are mainly motivated by short term interests, and some or motivated by the need to achieve welfare. It is not impossible that they are some cultural traits administration that either favor self-interest or general wellbeing (Khalilian 2010, p.1181).

As previously mentioned, administrative culture refers to administrative characteristics that are immaterial, such as the norms, the values and the system of thoughts in an organization (Politt and Bouckaert 2017, Thijs et al. 2017, p.34). According to complexity theories, culture has an impact on the routines of the organization, which by analogy, impacts implementation (Marion and Uhl-Bien 2009, p.633). Then, it does not seem unreasonable to assume that national administrations, that attach more importance to long-term results and attach more importance to complying with the EU directives rather than prioritizing their national interests would implement more EU environmental policies and also in a more efficient way. For instance, the qualitative study that has been undertaken by Falkner et al. (2006). highlighted the importance of values in the implementation of EU directives. According to them, some administrations possess a *culture of compliance*. Transparency should also be a cultural factor that facilitates implementation (Sverdrup 2004), because it enables better circulation of the

information within the agency, which is crucial to avoid certain difficulties that can be avoidable, such as overlapping and technical problems due to a lack of knowledge. Transparency towards the actors involved in the implementation process enables the legitimization of the policy. The support of the concerned actors is crucial for the success of the policy, and the more informed are the actors, the more likely they will support the implementation of a specific environmental policy (Jahn 1998 and Siaroff 1999). The personal commitment of the public agents towards the protection of the environment and the climate is also essential, because employees who are in cohesion with the values of their organization are more willing to comply. Compliance is essential for the implementation of environmental policies (Vroom and Von Solmes 2004, Marion and Uhl 2009).

Hypothesis 5: **Administrations that possess a higher degree of commitment towards environmental issues will be better implementers of EU directives and recommendations.**

Hypothesis 6: **Administrations that are based on a culture of transparency and compliance towards the hierarchy and do not incorporate private interests in their daily actions will be more efficient at implementing EU environmental policies.**

Hypothesis 7: **Administrations that possess a higher degree of compliance to EU policies will be better implementers of EU environmental policies.**

ADMINISTRATRIVE FEATURES OF A STATE

*ADMINISTRATRIVE TRADITION

Vertical Design of Authority

Horizontal coordination

Interest mediation between state and society

Implementing style

*ADMINISTRATIVE CULTURE

Administration transparency

Role of public administration and degree of liberty

Vision (long-term/short-term)

Implementation of environmental policies at the national level

ADMINISTRATRIVE CAPACITY
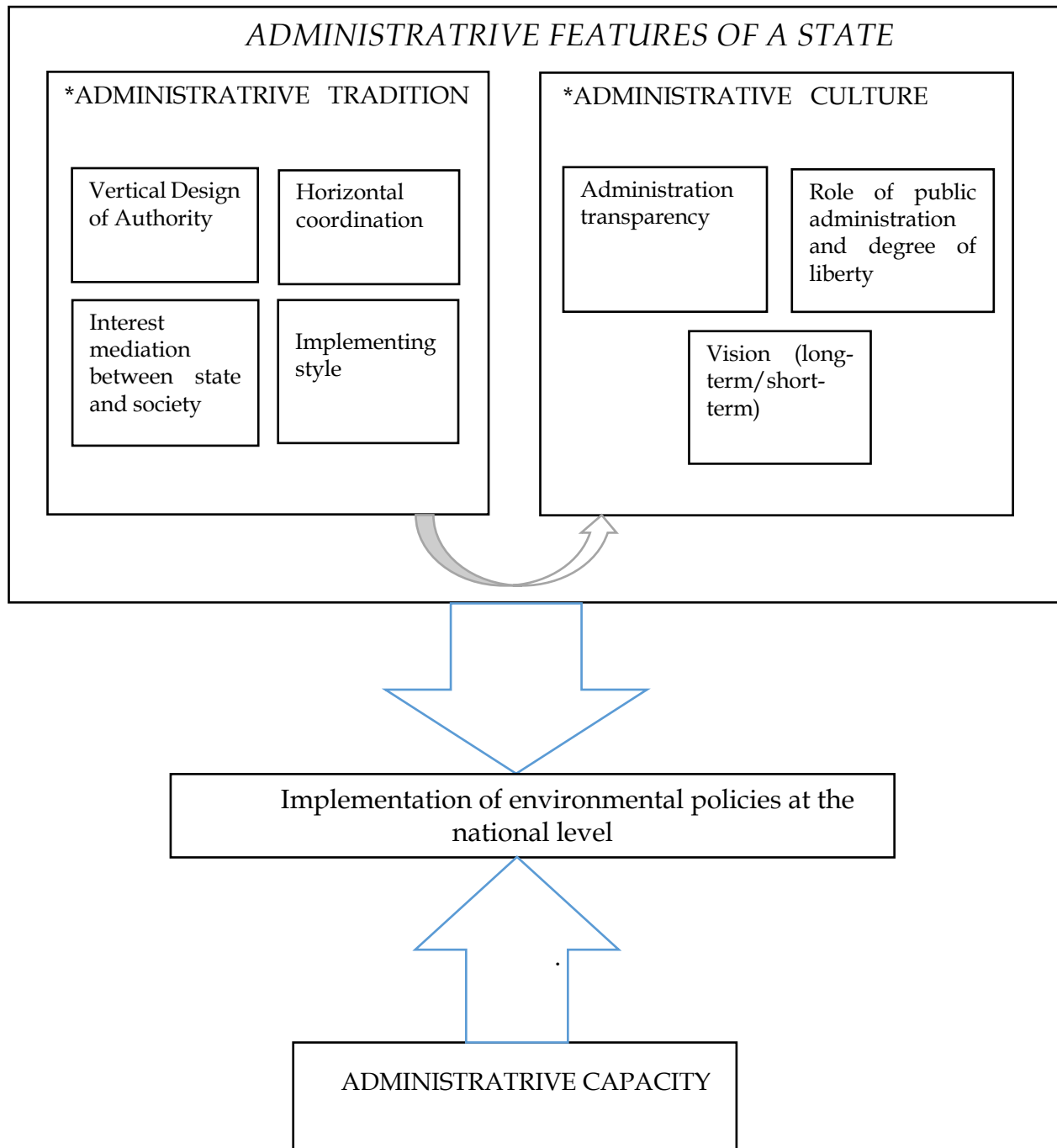
See below the operationalisation of the concepts for a better understanding of the dimensions

Organisations constrain the behavior of public agents to make it fit to the organisational culture. Organisations themselves are shaped by institutions and the institutional design of the state is different according to its own administrative traditions, which that according to the theory we selected, administrative traditions have an impact on the administrative culture of the state.

3.5 Concepts operationalization

Figure 2: Operationalization of administrative tradition (from Biesbroeck et al. 2018a, p.5)

ADMINISTRATRIVE TRADITION			
Vertical design of authority.	Horizontal Coordination.	The interest mediation between state and society.	Style of implementing policies.
Basic structure of the state (federal or unitarian, centralized or decentralized).	Level of coordination between the different administrative structure involved in the process of implementation.	Extent to which are they key actors involved in the implementation process.	In a managerial style of implementation, civil servants emphasize efficiency. Policy instruments are procedural. In a legalistic style, the rule of law is the favoured instrument.
- Formal and informal rules which formalize the organization of the political power. -Share of competences between administrative levels - Budget devoted to territorial entities.	- Number of administrative layers. - Presence of overlapping or fluidity between public agencies. - Degree of communication between the different agencies involved in a policy.	-Degree of corporatism (presence and involvement of key actors in the political process)	- Degree of compliance vis-à-vis the law (a high degree of compliance corresponds to a legalistic style) -the Degree of liberty of welfare workers in their action to realize their objectives (a high degree corresponds to managerial style)
Indicators selected: Being a federal or unitarian, Budget devoted to territorial entities.	**Indicator selected**: Number of administrative layers.	**Indicator selected**: Degree of corporatism.	**Indicator selected**: Degree to which Administration is based on the rule of law or on a managerial approach (liberty is given to the agent to achieve purposes).
- Comparative Political Dataset III. - OECD government at a glance (2013 and 2015). - Corporatism index or EU pack.			

Figure 3: Operationalization of administrative culture, (Thijs et al. 2017, Biesbroeck et al. 2018, Falkner et al. 2005, Allison and Zelikow 1999, p.152).

ADMINISTRATIVE CULTURE		
Administration transparency.	Long-term vs. short term orientation.	Vision of the role of the agent and the liberty given to public agents.
Degree to which the scientific knowledge and information concerning ongoing policies circulate within and outside bureaucracies.	Willingness to comply/interests orientated towards short-term results or general wellbeing.	Degree of Competitiveness Degree of uncertainty avoidance (number and purposes of the routines and procedures) Degree of compliance of public agents with the hierarchy/rules that come from the hierarchy.
Indicator selected: Degree of transparency.	**Indicators selected:** **.** Degree of commitment to environmental issues. .Degree of compliance towards EU commission.	**Indicators selected:** **.** Number of routines and procedures and purpose (useful or meaningless) .Presence of competition .Degree of compliance of public agents towards their hierarchy.
- The quality of government expert survey (Teorell et al. 2011) - Sustainable Governance Index (SGI) (2018).		

Figure 4: Operationalization of Implementation performance (dependent variable) (Bondarouk and Mastenbroeck, 2018).

IMPLEMENTATION PERFORMANCE		
Scope	Substance	Effort
. Territory . Duration . Addresses	. Definitional details . Objectives	. Staff . Expertise . Budget . Prioritization . Monitoring

- coverage in terms of km*2 - period covered - ecological dimensions that are covered by the policy(biodiversity/climate/etc.)	- Does the policy respond correctly to the problem? - Have the objectives of the program been respected?	- Financial resources involved for the policy - Numbers of persons working on the project and profession and qualification of these persons - Position of the policy on the political agenda of the government.
- SGI Index - Eurostats		

Figure 5: Operationalization of administrative capacity (control variable) (Bertelsmann Stiftung 2018, Di Lucia and Kronsell 2010, p.550).

ADMINISTRATRIVE CAPACITY		
Political	Administrative	Economic
Capacity to make public and private actors comply to a policy	Access to experts, personal, and institutional resources	Economic resources to be channeled for the implementation of policies
-Extent to which the government consult with economic and social actors during the elaboration of a policy. -Extent to which policies are correctly implemented. -To what extent does the organization of government provide incentives to ensure that ministers implement the government's program? -To what extent does central government ensure that subnational self-governments realize national standards of public services?	-Extent to which government's decision-making backed by strategic planning and the advice of scholars. -Extent to which decision-making is coordinated across institutional lines. -Use of impact assessment and quality of these assessments. -Effectiveness of the federal and subnational ministries monitor the activities of bureaucracies and executive agencies with regard to implementation?	- Extent to which the central government ensures that tasks delegated to subnational self-governments are adequately funded?
Executive capacity implementation index (Bertelsmann Stiftung 2018)		

4. Research design

The most fitted empirical strategy for our research question is a **quantitative dominant mixed method that will be supplemented by a qualitative analysis**, which is a very appropriate method to explain causality (Johnson et al. 2007, p.124). Large-*N* studies using statistical analysis are a promising alternative in the field of environmental governance, because these analyses are replicable which is coherent with a positivist epistemology of doing research (Newig and O. Fritsch 2009, p.203). The main goal of the large-*N* analysis will be to know if the administrative features we selected are good predictors concerning the implementation of environmental policies. It will also confirm or refute the directions of the correlations that were predicted through the theoretical framework and formulated in the hypothesis. The small-*N* analysis will help us to have more *in-depth* information, and complement the overall quantitative details by giving more details on the influence of *administrative culture* for reasons that will be provided in the next paragraph.

The multivariate method that will be used is OLS regression. This method has several advantages that will be presented later, but has been criticized for making cases "invisible". In fact, the influence of the context is not taken into account when such method is used (Shalev 2015, p.263). This is why the analysis of the variate will be completed using a qualitative analysis of nine interviews that have been collected. Being able to practice in-depth analysis by focusing on specific cases is a good way to take the context into account, but above all, in relation to this study, it is also a good way to measure the complexity dimension of administration as quantitative analysis often fails to take into account this dimension (Konig and Luetgert 2008, p.191).

For the quantitative part of the analysis, we will use the same scientific process that has been used by Biesbroeck et al. (2018a). They combined different datasets from different sources as there is no readable dataset available that includes both the dependent and independent variables that must be used to run the different linear regressions. Building its own dataset in the field of implementation of environmental policies seems to be the norm in the implementation field when quantitative studies are employed (ibid, p.10). As we already have a strong theoretical framework for the analysis, we already know the variables that matter for the analysis and we will compile them. Most of the dependent variables we need for the analysis are present in the datasets that have been selected by Biesbroeck et al. (2018a), which is why we will use datasets that have already been used in their study. The main difference is that we will directly test the influence of the selected independent variables on implementation performance, while Biesbroeck et al. (2018a) focused on the outputs of a policy and not on the outcomes, which did not allow them to look at directly the correlation between administrative traits and implementation performance. Doing so will be riskier as it increases the risk of multicollinearity between variables and the risk of omission of important variables, but it is also more promising in terms of results.

4.1 Complementary research design

Complementary method design is an ideal method when researchers do not want to limit themselves with one kind of knowledge that they can only extract from one kind of data. The assumptions behind this design is that one kind of data can only produce one perspective on the knowledge researchers aim to gain (Small 2011, p.64). Using qualitative method to supplement quantitative analysis is very appropriate when phenomena are complex to study which makes quantitative analysis often partial (Tarrow 1995, p. 143). While the effect of administrative traditions and culture will be measured with OLS regression in a first place, a thematic analysis

to analyse the interviews will be undertaken in a second time that will focus on the cultural aspects of administration to respond to the related hypothesis, since it is a possibility that the following quantitative analysis does not cover this aspect well. Thematic analysis (for qualitative method) is a method that is inherent to this kind of research design. By interpreting both analyses, there will be more room to provide more explanations about the influence of the variables on implementation performance and then possibilities to cover knowledge gaps (ibid).

5. Quantitative analysis

Hair et al. (2014, pp. 22-23) provide different important steps to do a substantive quantitative analysis. The first step is about choosing the multivariate technique for the analysis. OLS regressions are the best method to proceed with when it comes to analyse the relationship between a single dependent variable and several predictors (Hair et al. 2014, p.157). Because it is important to make this analysis replicable for the goodness of the scientific process, all the variables that will be used will be explained in the following section.

5.1 Independent variables

For the independent variables, we will use datasets that are similar to the ones that Biesbroeck et al (2018a.) have used in their analysis. We will use data from the *Expert Survey* Data, that is a database created by the Quality of Government Institute for the year 2015 and that can be found on the webpage of that institute, in order to measure several dimensions of state administrative tradition, such as the implementation style of public agents (legalistic or managerial) and the level of compliance of the administration with the hierarchy. To measure the degree of corporatism for each country, the indicator used in the study of Jahn (2014) will be chosen since this indicator stretches from 1960 to 2010. To measure the structure of the state, the Comparative Political Dataset III, which covers a period from 1960 to 2016 and that measures different state's administrative features is a satisfying database. Statistics from the OECD (2015) will be exploited to know state's government expenditure as a percentage of general government expenditures because it is an indicator of federalism. At that point, the databases used for this analysis are similar to the ones that have been used by Biesbroeck et al. (2016a.), except that another independent variable of state structure, which is the number of administrative layers per country is added (Thijs et al. 2017, p.12), to test one of our hypothesis.

As cultural traits of administration are treated as a distinct concept from administrative traditions, this study will take into account these factors, considering them as independent variables. First of all, to know how public agents attach importance to environmental policies, we will measure the degree of integration of the different countries into global environmental governance. Such indicator is provided by the Sustainable Governance Index from the Bertelsmann Stiftung institute webpage for the year 2018. Then, three different variables from the Quality of Government Institute (QOG) have been chosen. A first variable measures the impartiality of the public sector when it comes to implement a policy (influence of external factors that are not stipulated in the policy). A second variable is a measure of transparency as it looks at the negative consequences that can be expected if a public agent gives an information to the media. A third variable measures the degree of openness of public document to the public. All the variables selected cover different dimensions that arise from the concepts of administrative culture and administrative tradition. These variables are proxies because they measure dimensions of concepts that are scientific construct and therefore are not directly observable. This has for consequence that most of these variables are ordinal.

5.2 Dependent variables

The dependent variables that will be used will reflect different environmental policies that have been designed by the European Commission, or that are at least related to precise European objectives. Five dependent variables will be used. They cover diverse environmental areas, which is an improvement in comparison to the study of Biesbroeck et al. (2018a), that was focusing on climate change adaptation only. The variables will help to reach an eclectic

view on environmental problems by looking at CO2 emissions with the first dependent variable that will be used, that is the population covered by the Convenant of Mayors. The Convenant of Mayors is a European cooperation treaty involving local and regional authorities that aims to meet EU's climate and energy targets. It focuses on reducing CO_2 emission, increasing resilience to climate and ensure access to secure and sustainable energy. This dataset can be found on the Eurostat webpage. The second variable focuses on the recycling rate of municipal waste in 2017 and can be also found on the Eurostat webpage. The last variable we took from the Eurostat databases correspond to the areas under organic farming in 2016 in percentage of utilized agriculture area and is related to environmental issues such as biodiversity and soil quality, and the use of chemicals. These variables are not directly related to EU directives, but are directly connected to recommendations that are part of the "Horizon 2020" project that has for ambition to prepare policies for climate adaptation, environmental policies and policies related to resources efficiency. Another variable is directly related to the implementation of a directive (the habitats directive which looks at the protected areas of a country for biodiversity in percentage of the total area of the country) to observe if consistent differences between the implementation of recommendations and directives exist. All the indicators derivate from the Eurostat webpage. Each of them is related to an area of environmental performance and therefore do not measure implementation performance as a all. Then, I decided to use a variable from the Sustainable Governance Index for the year 2018. This indicator is a composite indicator that looks at the implementation performance for diverse environmental policies (Biodiversity, waste generation, water usage, greenhouse gas emissions, material recycling, particulate matter, energy productivity). This indicator does not correspond to a precise European directive but is in line with EU environmental targets. It presents the advantage to be a very good proxy for environmental performance due to its exhaustiveness. The dependant variables complement well with each other and enable us to have a good view of the diverse environmental problems that exist.

5.3 Control variables

While performing the regressions, we will incorporate control variables that are related to the administrative capacity of the state. The **Sustainable Governance Index** provides a variable for the implementation capacity of the state, that we will complete with another variable that is the GDP per inhabitant provided by the OECD for the year 2016. As explained by Biesbroeck et al (2018a), it would be naïve not to consider the economic resources of a country as a determining factor when it comes to the implementation of environmental policies. However, the GDP per inhabitant is a more solid indicator than the GDP itself because the GDP per inhabitant (PPP) also considers how the resources are spread between the inhabitant of a country which is in itself an indicator of the state capability to maintain a certain quality. We also decided to include political preferences for the year 2016, because governmental decisions are determined by political preferences according to neo-institutionalist with rational choice. (March and Stoker 2010, p.65). However, the power of this control variable will be very limited due to the fact that we do not take into account any activation turn because it is impossible to stretch the selected variables for a longer time period, due to the fact that they come from different databases. When it comes to select variables that represent the evolution of political preferences in a country, the Comparative Political Dataset from Armigeon et al. (2014) is a very exhaustive database which contains variables that can be used to measure the evolution of political preferences in different countries for different time periods. Three different variables for the year 2016 that correspond to government composition have been selected. These three variables will be recoded into a unique dummy variable to indicate a government that is either left orientated or right orientated.

5.4 Analysis plan

The second step provided by Hair et al. (2014, p.23) is about developing the analysis plan. This step consists in bringing precision about the number of cases, the types of variables, and the estimation method we want to use. The method of least squares is an appropriate method regression and we will strive for the use of that method. The variables that we will use will metric, ordinal and dichotomic.

Ordinal variables reduce the precision of the correlations, but are necessary when it comes to measure abstract concepts. When researchers run OLS regressions, the most commonly used method is the coefficient of determination ($R2$). It shows the predictive variable of the independent and control variables by looking at the effects of the variate (independent variable and the intercept). Then, this analysis is often completed by analyzing the standard error of the estimate (SEe), it is used in the construction of the confidence interval, which gives information about the predictive power of the regression (Hair et al 2014, p. 161). The models will be as predictive as possible by using independent variables that have a good predictive power (Hair et al. 2014, p.162). Multicollinearity (mutual influences between independent variables) will also be checked. The database contains 30 observations that correspond to countries, all the countries belong to the EU, except Norway and Switzerland. Norway and Switzerland were included as European countries that are not EU members. We decided to integrate these countries to add more cases and then increase the robustness of the analysis. Although these countries are not part of the EU, both countries are indirectly integrated in a soft EU framework through bilateral agreements, and participate in important EU programs such as Horizon 2020. However, as both countries are not concerned with EU directives, they appear as missing cases for the dependent variable that concerns the implementation of the habitats directive. Biesbroeck et al. (2018b, p.2) consider large-N analysis studies that take into account more than 20 cases, although other authors can consider this number as rather short. However, Hair et al (2014, p.172) have stipulated that regressions can be effective with a sample size of 20. Therefore, we consider that the number of cases is sufficient to run OLS regressions.

Concerning the estimation method, the most suitable and simplest approach is to use a confirmative perspective that makes the researcher responsible for the trade-offs between adding more independent variables and the predictive power and accuracy of the model *(Hair et al. 2014p.186)*. It enables the researcher to have complete control over the regression variate, for both the prediction and the explanation. This approach is very suitable for replication, which is excellent in our case as we partially replicate the study of Biesbroeck et al. (2018a).

5.5 Assumptions underlying the Multivariate technique

Four assumptions that must be examined. The first assumption concerns the phenomenon observed, that must be *linear*. The second assumption is that variances should not be unequal. The third assumption is that the error term of the distribution should be independent (each predicted value should be independent). The fourth assumption is that the distribution should be normal (Hair et al. 2014, p.181).

5.6 Models

Figure 6: Table of the different models

Model group	Theoretical hypothesis	Analytical hypothesis	Method

A	Federal countries, with a tradition of decentralization, are more successful in the implementation of environmental policies.	Federal states have a higher recycling rate per municipality, more population covered by the convenant of mayors, more areas under organic farm in percent of utilized agriculture areas, and will have more areas protected for biodiversity	OLS regression for each dependent variable .Dependent Variables: 1- Recycling rate of municipal. 2- Population covered by the convenant of mayors. 3- Implementation performance. 4- Area under organic farm in percent of utilized agriculture areas. 5- Implementation of the habitats directive. Independent Variable: 1-federalism or unitarian structure 2-State government expenditure as a percentage of general government expenditures .Control Variables: 1- Implementation capacity (SGI index). 2- GDP per inhabitant.
B	Countries that include all the key actors early in their implementation process are more willing to implement EU directives better in the long run.	Countries that are more corporatist showcase a higher recycling rate per municipality, more population covered by the convenant of mayors, more areas under organic farm in percent of utilized agriculture areas, and will have more areas protected for biodiversity	.OLS regression for each dependent variable .Dependant Variables: 1- Recycling rate of municipal. 2- Population covered by the convenant of mayors. 3- Implementation performance. 4- Area under organic farm in percent of utilized agriculture area 5- Implementation of the habitats directive. .Independent Variables: 1-Degree of corporatism 2-Degree of involvement of autonomous agencies in the process of implementation .Control Variables: 1- Implementation capacity. 2- GDP per inhabitant.
C	The presence of too many administrative levels and too many actors in an uncoordinated context can hamper implementation.	Countries that have more administrative levels than average have a lower rate recycling rate per municipality, less population covered by the convenant of mayors, less areas under organic farm in percent of utilized agriculture areas, and will have less areas protected for biodiversity	.OLS regression for each dependent variable .Dependant Variables: 1- Recycling rate of municipalities. 2- Population covered by the convenant of mayors. 3- Implementation performance. 4- Area under organic farm in percent of utilized agriculture area 5- Implementation of the habitats directive. .Independent Variable: Number of administrative ladders .Control Variables: 1- Implementation capacity. 2- GDP per inhabitant.

D	Countries whose administration have a more managerial approach are better at implementing environmental policies	Countries whose administration present a higher degree of managerial approach will have a higher recycling rate per municipality, more population covered by the convenant of mayors, more areas under organic farm in percent of utilized agriculture areas, and will have more areas protected for biodiversity	.OLS regression for each dependent variable .Dependant Variables: 1- Recycling rate of municipal. 2- Population covered by the convenant of mayors. 3- Implementation performance. 4- Area under organic farm in percent of utilized agriculture area 5- Implementation of the habitats directive. .Independent Variables: 1-Rule of law (degree) 2-Management based approach (degree) .Control Variables: 1- Implementation capacity. 2- GDP per inhabitant.
E	Administration that possess a higher degree of commitment towards environmental issues will be better implementers	Countries that are more integrated to global environmental governance through treaties implement EU directives better and also showcase better results in implementing EU recommendations and directives.	.OLS regression .Dependant Variables: 1- Recycling rate of municipal. 2- Population covered by the convenant of mayors. 3- Implementation performance. 4- Area under organic farm in percent of utilized agriculture area 5-Implementation of the habitats directive. .Independent Variable: 1-Insertion in environmental global governance .Control Variables: 1- Implementation capacity. 2- GDP per inhabitant.
F	Administrations that are based on a culture of compliance and transparency, are committed to general well-being and do not incorporate private interests in their daily actions will be more efficient at implementing environmental policies.	Countries whose administration have a higher degree of compliance and transparency and have a higher degree of impartiality showcase better implementation of EU directive and showcase better environmental performances	.OLS regression .Dependent Variables: 1- Recycling rate of municipal. 2- Population covered by the convenant of mayors. 3- Implementation performance. 4- Area under organic farm in percent of utilized agriculture area 5- Implementation of the habitats directive. .Independent Variable: 1- Degree of compliance 2- Degree of transparency and control 3- Degree of impartiality .Control Variables: 1- Implementation capacity. 2- GDP per inhabitant.

5.7 Limitations

Before estimating the regression model and analysing the variate, it must be acknowledged that this study presents important limitations that cannot be ignored. First of all, the sample size of the dataset is very narrow. The study presents 30 cases with no variation through times due to the different databases that did not correspond temporarily. This has consequences on the robustness of the analysis. Furthermore, most of the variables that have been selected are ordinal, which is a problem that is not really avoidable when it comes to measure abstract concepts. Dealing with ordinal variables will have negative consequences on the precision of the regression (Biesbroeck et al. 2018a). Another limitation comes from the fact that, as pointed in the study of Biesbroeck et al. (2018a), some variables have been built through self-reporting, which is the cases for the variables from the Quality of Government Institute. These variables have been built through large survey distribution and are therefore not free from biases because the responses that have been collected are based on the subjective experience of the employees (Biesbroeck et al. 2018a, p.14). Finally, in spite of the control variables that are used, it is still not totally clear what are the other external factors that can influence the relationship between the independent variables and the dependent variables, especially in the models that are treating with cultural aspects of administration as independent variables. Extreme care will be needed when it will come to analyse the variate. Another problem is that it was impossible to find a good proxy to measure countries' compliance with EU. Therefore, the seventh hypothesis will be tested during the qualitative analysis and will not benefit from triangulation.

The anticipated weakness concerning the predictive power of the variable of the models will be compensated by the fact that 5 different regressions will be run for each model, using each time the same independent variables. It will considerably increase the explanatory power of the independent variables when a similar correlation with the dependent variable (positive or negative) will be found.

5.8 Estimation of the regression model and assessment of the overall model fit

Concerning the assumptions of Multiple Regression analysis, they were no violations concerning the linearity of the phenomenon according to the different scatter plots that have been produced for each dependent variable using SPSS. Secondly, they were no problems of unequal variances when we compared the residuals against the predicted values, although some regressions presented minor problems that we could check observing the scatter plots. For the independence of the error time, we did not observe consistent patterns in the residuals for every regression, which means that we do not violate this assumption. Concerning the normality of the error term of the distribution, we did a diagnostic by looking at the normal probability plots. Except for insignificant deviations, we can say that the distribution is normal due to the fact that the residuals follow the diagonals.

We can examine the overall significance of the regressions in our model by examining the model fit doing an ANOVA test to look at the coefficient of determination. This test provides us with the coefficient of determination that enables to test the hypothesis that the amount of variation explained by the regression model is more than the baseline prediction (R^2 is significantly greater than zero). When the F value is weak, it means that we cannot reject the null hypothesis for the variables which indicate that unfortunately our models have weak predictive power. Vigilance will be required when it comes to interpret these results.

Figure 6: Model fit for each model using ANOVA F value and P value of the coefficients

Models / Dependent variable	Model A	Model B	Model C	Model D	Model E	Model F
Implementation performance (SGI)	F value: 4,884	F value: 3,350	F value: 5,148	F value: 4,139	F value: 8,355	F value 3,373
	P value: 0,787	P value: 0,394 0,951	P value 0,134	P Values 0,214 0,469	P value 0,011	P values 0,579 0,250 0,534
Recycling rate of municipal	F value 4,393	F value 4,573	F value 3,801	F value 3,677	F value 4,053	F value 2,713
	P value 0,021	P value 0,010 0,133	P value 0,041	P value 0,137 0,082	P value 0,020	P value 0,136 0,651 0, 114
Population covered by the convenant of mayors.	F value: 1,483	F value 0,396	F value: 2,813	F value 1,751	F value 0,477	F value 1,919
	P value: 0,057	Pvalue 0,531 0,528	P value 0,006	P value 0,020 0,552	P value 0,591	P value 0,360 0,161 0,019
Areas under organic farming	F value 2,223	F value 1,946	F value 1,946	F value 1,385	F value 2,087	F value 1,268
	P value 0,075	P value 0,613 0,324	P value 0,821	P value 0,119 0,580	P value 0,294	P values 0,604 0,465 0,211
Implementation of the habitats directive.	F value: 3, 572	F value 4,523	F value: 3,646	F value 4,225	F value 0,558	F value: 3,028
	P value: 0,796	P value 0,031 0,969	P value: 0,661	P values: 0,190 0,630	P value: 0,882	P values: 0,464 0,864 0,398

the green frameworks indicate the regressions that will be analysed.

5.9 Interpretation of the regression variate

The next table classifies the regressions in the different models that have enough predictive power to be interpreted. Based on these results, models will be refined to increase their predictive power. For instance, we had to remove the independent variable "central government expenditures" as it was hampering the general model fits. As expected, the overall predictive power of all models is rather *weak*. All models seem to be consistent when recycling rate per municipality is the dependent variable in the regression. Now that the regressions are good enough for the analysis have been selected, the beta coefficients (b) will be examined in order to apprehend the effect of a variation in the independent variables on the dependent variable. (Hair et al. 2014, p.207). We will also look at the VIF value to assess potential problems of multicollinearity (Appendix).

Figure 7: Result of the OLS regressions

	Independent variable: 1- federalism or unitarian	1-Degree of corporatism 2-Degree of involvement of autonomous agencies in the process of implementation	1- Number of administrative ladders	1-Rule of law (degree) 2-Management based approach (degree)	1-Insertion in environmental global governance	1- Degree of compliance 2- Degree of transparency and control 3- Degree of impartiality
Implementation performance (SGI)			-0,247 (0,191)		0,499 (0,168)**	
Recycling rate per municipality	0,400(5,864)**	0,515 (2,820)** 0,257 (2,424)	0,369 (0,027)**	0,445 (0,109) 0,110 (0,786)	0,543 (2,641)**	-0,432 (0,046) -0,088 (0,025) -0,327 (0,055)
Population covered by the convenant of mayors.	0,385(5,422)*					
Areas under organic farming	0,341(2,557)**					

Implementation of the habitats directive.		0,450 (0,016)**				
		-0,007 (0,015)				

Standard errors in parentheses; ***P <0.01, **P <0.05, *P <0.1.

Results for model A suggest that federalist countries indeed showcase better results in terms of implementation performance, not only when it comes to recommendations with the recycling rate and the areas under organic farming, but also with a convention that has been directly signed by EU countries such as the convenant of mayors. In fact, the beta coefficients show a positive relation, which indicates that a change in the category "unitarian" to "federalist" is associated with better implementation. These coefficients are associated with low standard errors which means that models 'fit is satisfying. Moreover, we found significant correlations for three different regressions in the same model, which means that evidence is solid enough to confirm the first hypothesis.

We also found positive correlations between *corporatism* for two regressions in Model B that were solid enough to be interpreted, with one that is more affiliated to a general recommendation (recycling) and the other one that is a directive (the habitats directive), which means that we also have good support to confirm our hypothesis. While these positive correlations are salient between the independent variable that measures corporatism in a more aggregative way and are associated with very weak standard errors that show a good model fit, they become less clear when we use more targeted variable such as the degree of autonomy of agencies as an independent variable, for which p values are above 0,1 which means that we cannot reject the null hypothesis in that case.

It becomes also more difficult to confirm or reject our hypothesis for models C, D, E and F, as the regressions were not solid enough when the dependent variable was a directive. Surprisingly, it seems that more administrative layers is associated with overall better performances in terms of implementation by the recycling rate. There was a negative correlation when overall implementation performance was used as the independent variable, but this correlation was associated with a high p-value which means that it has not a strong predictive power as the probability that we meet the null hypothesis are high. The importance of environmental issues for administration is also affiliated with better implementation performances, but these correlations do not relate to a precise EU directive.

We did not find strong evidence for model D, as well as for model F, which means that we cannot confirm that using a more managerial approach is associated with better implementation performance. As expected, except for the cultural dimension of administration approached in model E, we failed to measure the relations between environmental performances and cultural traits of administration. According to our results, the fact that agents act impartially is correlated with better results in terms of implementation. On the other hand, transparency and compliance with the hierarchy showcase a negative correlation with environmental performances, but the fact that we have high p values for these three independent variables prohibit us from drawing consistent conclusions concerning this model.

5.10 Validation of the results with Split-Sample validation of Stepwise estimation

When it is not possible to validate results using a different sample from the population, the best way to validate the results is to split the sample into two subsamples and then compare by doing a comparison of the stepwise estimation (Hair et al. 2014, p.223). The following table shows the results obtained when we tested for model A (federalist or unitarian country as an independent variable).

Figure 8: Split Sample validation (Model A).

	Sample 1	Sample 2
Multiple R	0,797	0,630
Coefficient of determination R2	0,635	0,397
Adjusted R2	0,489	0,155
Standard R2	0,11482	0,1413
F value (ANOVA)	4,352	1,644
Coefficients	0,241	0,406
Standard error	0,086	0,108
P value	0,338	0,236

The comparison of the global model fit between the two samples shows that both model fits are pretty similar, although the F value is not, as for the Adjusted R2, which again highlights the fact that our model is fragile due to the fact that we have only a few cases. However, the coefficients are pretty similar, which shows that being a federal state or a unitarian state is a very good predictor. We can expect fewer similarities if we make a comparison between subsamples with the other models as they are also more fragile. However, it makes more sense to focus on the coefficients and not pay too much attention to the overall model fit as we only have 30 cases, with missing values, and because the correlations indicate trends more than empirical established relations due to the weak model fits.

5.11 Evaluating Alternative Regression Models

An observation of the data was made during the analysis. It has been observed that it was possible to create another model to look for new explanations of what can lead to better implementation, by looking at the influence of being a new state member of the EU. New states could try to comply and make more efforts to implement EU environmental policies to show their willingness to belong to the EU (Treib 2014, p.12). For that purpose, a dummy variable to look at the effect *"of being a new EU member"* has been created, with a category that groups the states that joined the EU before 2000 and another category for the country that joined the EU after 2000. We did not find consistent results which is why it has been decided to not include this model in the analysis.

5.12 Overview of the Results

The regressions have been useful in addressing the hypothesis that have been formulated to answer better the research questions and see what are the factors that can influence the implementation of environmental policies. All models have relatively weak *predictive* power as shown by the F value of the ANOVA-test, but also by looking at the Adjusted R-square value which demonstrates that the models created are weak at explaining the amount of variance explained, i.e. the percentage of variation explained by a variation in the dependant variable which means that these models have a weak predictive accuracy. This weakness of the predictive power of the models was expected as it is a consequence of having a small sample size for the dataset that has been created.

However, it may be more important in this analysis to focus on the coefficients that relate to the *explanatory* dimension of these linear regressions. On the thirty different regressions that have been run, twelve had a level of predictive power that was satisfying enough to proceed to analysis. Moreover, the fact that five different regressions have been used with each model has been a good method to reinforce this *explanatory dimension* of these models. For instance, an increase in corporatism is associated with an increase of the recycling rate of municipal waste and better coverage of the habitats directive, and these coefficient are associated with low p-values which indicates that the null hypothesis is unlikely for these regressions. For model A, three regressions showcased a significant positive correlation between being a federal country and implementation performance, which shows that this variable has a strong influence. We found a positive influence of the degree of corporatism, the number of administrative of layers on implementation performance, and the participation to environmental treaties and agreements using the SGI composite indicator (the Global Environmental protection index) for the two regressions of each model were strong enough to be interpreted. The models concerning the impact of adopting either a legalistic or a managerial approach for the execution of administrative tasks, and for the other cultural aspects of administration that have been already mentioned are too weak to draw any conclusion.

Concerning the influence of the control variables, the GDP per inhabitant was negatively correlated with implementation performance for every model which lead us to create the alternative model mentioned above, with inconsistent results. On the other hand, implementation capacity is without a surprise associated with better results in terms of implementation, although the p values for these are often too high, and the beta coefficient are not as strong as the different independent variables we used to test our hypothesis which is again the sign that the independent variables we used have good explanative power. We did not find any influence concerning political preferences. This is probably due to the fact that we did not take into consideration an activation year because the datasets that have been merged together have different chronologies.

6. Qualitative analysis

6.1 Interviews

The previous quantitative analysis presented consistent for only one model focusing on cultural aspects of administrative tradition, that was the impact of the degree of the insertion of a country in environmental governance as a measure of how salient environmental issues are for the government and the public agents in a country. Nonetheless, the results concerning the other cultural dimensions of administration are inconsistent, which is why it is important to undertake a qualitative analysis. Because we study complexity as a phenomenon that affects the behaviour of welfare workers in public organizations that in turn impacts their action, the use of qualitative methods is justified and supports the previous quantitative analysis, by clarifying the impact of administrative culture on implementation performance (Johnson et al 2007, p. 155).

In the case of this thesis, it would have been interesting to undertake an ethnographic analysis through observations to analyse complexity, because complexity also lies in routines, behaviours and actions that are not conscient (Marion and Uhl Bien 2009, p.636, Donnellon 1994, pp. 21-22). Therefore, interviewing people only provides limited access to the knowledge concerning complexity and its impact in public organisations, since there is always a gap between what is reported by the interviewees and their concrete actions (Jerolmack and Khan 2014, p.179). However, when observation is difficult for different reasons (in the case of this thesis it is due to the short period of time), interview is the best alternative as it forces the researchers to be systematic in their research design and also because it facilitates comparison between different contexts (Lamont and Swidler 2014, p.159).

6.2 Cases selection

The "*Three worlds of compliance*" (Falkner, 2006) is the most important qualitative study that has been made on implementation in the EU context. It also outlines the premises of the mechanisms concerning the influence of administrative culture on the implementation of EU directives. According to this study, certain cultural traits in administration can facilitate the implementation of EU directives (Falkner et al. 2006, p.7). For instance Scandinavian countries systematically implement EU directives and recommendations the most as they do present a *culture of compliance* that is inherent to their administration (ibid.). We could not find a direct indicator for having a "culture of compliance" in the previous quantitative analysis and it is not explained in Falkner's article what could explain this culture of compliance. However, according to the quantitative analysis, we realized that there is a clear correlation between the insertion in environmental governance through the ratification of multilateral treaty and the participation in the elaboration of these treaties, that we consider as a proxy for the commitment of government and the administration of a state into environmental and implementation performance, which shows that countries that participate more in global environmental governance tend to have better implementation performances. Then, still according to Falkner (2006, p.8), some countries put priorities on their national interests before complying to environmental recommendations emanating from the EU, while others do not comply as they present a culture of non-compliance and of "national arrogance" (Falkner et al. 2006, p.8).

The selection of the cases is driven by Falkner's clustering, as it is the best basis qualitative basis concerning the influence of administrative culture so far. One country by cluster has been selected: France (world of negligence), Germany (world of domestic interests) and Sweden (world of compliance). According to Falkner et al. (2006), these countries have

different administrative culture in terms of how they perceive the implementation process of the EU which has a direct consequence on implementation performance (Falkner 2006, pp.11-13). Nonetheless, these countries possess similar *implementation* capacity, which considerably reduces the impact of this variable and therefore dissipates biases in the analysis. (Thijs et al. 2017, p.50). It explains why these countries in particular have been selected.

Based on the previous results of the quantitative analysis, it was also interesting to select countries that have different administrative traditions to see if distinctive *administrative traditions* imply distinctive *administrative culture* and see how these are articulated. Because Federalism seems to be an important predictor for implementation performance, the selection of France and Germany makes sense as France perfectly represents a unitarian structure while Germany is a typical example of a federal organization. Concerning the choice of Sweden to represent the first cluster of countries, it was mainly due to practical reasons as we thought that doing the thesis under the supervision of the Lund University might help to get interviews more easily.

6.3 Methodology for the analysis

In accordance with the ontology and epistemology that guide this research, a neo-positivist conception of doing qualitative analysis will determine the strategy that will be used to analyse the interviews. Adopting such a conception implies several axioms that must be respected. The researcher must stay as neutral as possible, and must treat the data in a systematic way, for instance, by using a pre-defined set of questions, in order to facilitate the coding and the categorization of the data (Roulston 2013, p.53).

Nonetheless, what is aimed above all using triangulation in this specific research design is *complementarity* (Johnson et al. 2007, p.115). We want to clarify the influence of administrative culture using these interviews. For most aspects of administrative culture, we heavily rely on these interviews more than on the previous quantitative research as it shows severe limitations concerning the impact of cultural traits of administration in implementation which is why triangulation does not eliminate uncertainty completely but reduces it. Three outcomes can emerge from triangulation: "*convergence, inconsistency, and contradiction*" (Denzin 1978, p.14). Each outcome can lead to the interpretation of the phenomena that the researcher tries to explain.

To facilitate the comparison between the interviews while having a rich description of human experiences, we will base the interviews on a questionnaire of eight pre-defined opened and composed questions (see appendix), which will also allow us to formulate spontaneous questions if there is a need to react on what the interviewees are saying. Once we will have collected all the answers, we will use different codes that we will use to reduce the data. Then, the codes will be grouped under different dimensions of our concept of "*administrative culture*". Once this process will be completed, the data will be presented in accordance to a thematic representation of analysing qualitative data: First of all, the data will be described i.e. we will present the information derived from the interviews (see appendix). Then the data will be analysed, by having a systematic view of the data which is done by identifying patterns and relationships among different features (Wolcott 1994, p.33). Then we will interpret the data by according to the following question: *"How does it all mean, what it is to be made of it all?"*. The approach used to analyse the data is deductive, which involves "*confirming or falsifying predictive statements about the relationships between variables*" (Roulston 2013, p.151). This is why the following hypotheses will be reiterated:

Hypothesis 5: **Administrations that possess a higher degree of commitment towards environmental issues will be better implementers of EU directives and recommendations.**

Hypothesis 6: **Administrations that are based on a culture of transparency and compliance towards the hierarchy and do not incorporate private interests in their daily actions will be more efficient at implementing EU environmental policies.**

Hypothesis 7: **Administrations that possess a higher degree of compliance to EU policies will be better implementers of EU environmental policies**

According to Falkner's statements and theoretical hypothesis (Falkner 2006, p.11), we should expect the following patterns of implementation performance:

- France should showcase a pattern of administrative inertia that prevents this country to initiate the process of transposition properly. Non-transposition is the typical outcome, although the EU commission can to trigger the transposition process. The internal games of power and processes within the bureaucracy have a negative impact on the implementation of EU environmental policies.
- Germany should showcase a pattern in which transposition is the fruit of negotiations in which political ideology and veto players play an important role.
- Sweden should showcase a pattern in which law is strictly observed, transposition is systematic as politicians and administrators possess a culture of compliance.

Although we will not force data into a prepared coding plan, as advised by Roulston (2013, p.157), these hypotheses and statements should guide the coding scheme at least at the beginning.

6.4 Limitation and solutions

When a researcher adopts a neo-positivist perspective of doing qualitative analysis, it is important to be conscient that there is a gap between what the participants say and what they really do or have done when describing their experience (Roulston 2013, p.137), which is a problem that has been already exposed due to the fact that it also relates to the complexity dimension at the individual level and at the organizational level that has been mentioned in this thesis. Some measures will be taken to limit the effects of the problems mentioned above.

The quantitative analysis will inform, to some extent the qualitative analysis, while in the same time the qualitative analysis will help us to complete the quantitative analysis and verify, to a certain extent, the results of the quantitative analysis. This method, called "triangulation", enables researchers to increase the validity of their results, especially when the triangulation is *between-methods* as it is undertaken in this thesis. Indeed, one method compensates for the weakness of the other one which increases confidence in the results more than any other methods of triangulation (Denzin 1978, p. 14). Concerning the interviews themselves, one problem that could not be avoidable is that the people that have been interrogated have not worked in implementing the same directives and were involved in implementation steps that were different. For instance, some were working on the transposition step that is the first step of implementation, while others were working at later stages of implementation. Fortunately, for each country, different steps of implementation are represented which compensates for that weakness. Biases were also minimized by interrogating people that all work for the minister of environment in their respective country and that present a hierarchical position that is similar which makes the comparison more eased.

6.5 Analysis of the data

For the good process of this thesis, the description of the data is in the appendix: A two-rounds data reduction has been practiced (See Appendix) using codes to sort out the data that is relevant for the analysis (Wolcott 1994, p.13). This process helped the identification of important traits

After this, the main patterns have been identified:

- Sweden is loyal to the EU commission. Agents will try to implement the policy as it has been designed and if something blocks, everything will be made to change the Swedish law. Sometimes when the gap between the EU policy and the reality of the field is too large, resistance can occur. In Sweden, environmental policies are implemented by large independent agencies, which is a tradition that entails several specific cultural traits. First, the internal life of the agencies and the exchanges between the minister are hidden from the public, while every information at the municipal level can be found. These agencies are characterized by a culture of efficiency that is even extreme. The number of procedures people have to respect depends of the agency. Routines can sometimes be avoided but there is a risk of getting a lower salary rate if they are not respected. The competition between the workers is weak and skills are valued. Public agents are highly devoted to the environment and agents will always try to comply to the hierarchy. There is always room to access the hierarchy and present alternative views if some requests are perceived as troublesome for the employees. The political affiliation of the government (left or right) have a large impact on these agencies.

- The relation between the EU commission and Germany is based on collaboration. Germany will try to adapt EU policies to its own national framework but will explain to the commission why it does that. Due to federalism, there is no flow of information between the central government and the landers but there is good regulation and coordination between the ministers. Germany is proactive in making information reachable for the public. Even concerning ongoing negotiations, it is possible for citizens to book appointments to know more about what is going on. Scientific information is fully available for the public. Both the hierarchy and the public agent at a lower level are committed towards environmental protection with a long-term vision. There is no competition between workers but a low level of competition is perceived as positive. Workers will usually obey their hierarchy but can easily reach their superior to "negotiate" when they disagree. They also have the right to "remonstrate", which means that they can report things to another ladder of the hierarchy if they disagree with the tasked they must comply to. Procedures and routines are perceived as essential for the well-functioning of the organization. Everything is done to achieve them and there is a certain degree of liberty to do so. The risks if a procedure is not respected are mainly moral (trust loss). The minister of the environment has to compete with other ministers especially with the minister of agriculture. Oftentimes, short-term interests win. This has negative consequences on the implementation process.

-The commitment of France to the EU is harder to measure. Policies are applied "as long as possible" but difficulties at the local level are often met. France has difficulties in the reporting procedure due to the heaviness of its administration. France can also block the implementation process, but will most of the time try to find a compromise, and will be very devoted to apply the policy once it has been agreed. In one interview, the hierarchy was a real problem for the well-functioning of the service. The chief was not committed to the environment and was qualified as a manipulator. Otherwise the hierarchy is committed but can

give orders that do not help the implementation process. In that case, discussion is possible with the hierarchy if it is judged worth it. In another case, one interviewee, who has the status of functionary (which can be obtained only after succeeding in a specific examination) said that he systematically obeys. All the colleagues of the interviewees are devoted and there is no real competition, although it exists among functionaries. A small amount of competition is positively perceived. Scientific information is fully available but often communicated in a complex way. Even though administrative information circulates well within the services directly in relation with the minister, the departments (which represent the local administrative ladder in France) are disconnected from the minister and then are also cut from the flow of information. There is a lack of fluidity in the communication between the ministers and reporting information to them represent a loss of time because everything must be explained as they are not experts. Procedures and routines are perceived as essential for the well-functioning of the service but are sometimes so extreme that it hampers the welfare of public workers, especially when it goes to deep with the "form". In two interviews, procedures were judged heavy and inefficient. One interviewee does not always respect if they are judged inefficient. Shaming and naming was the main punishment for the very same employee if he does not respect a procedure, but in general, they are not a lot of risks although it employees can go to the administrative court if an important procedure has not been respected. The competition with other ministers to impose preferences is high and the minister of the environment often loses. The influence of government's political affiliation (right or left) is weak although the personality of the minister can have a moderated impact.

Figure 9: Major cultural traits of administration per country

Country	Sweden	France	Germany
SGI Score for environmental policies (2018)*	9,2	7,3	8,5
Relationship with EU commission and salient traits of the administration	Culture of compliance with the EU commission. Administration is inspired by the private sector, where efficiency is maximized and creativity valued.	Culture of compliance accompanied by structural difficulties that can hamper the implementation process. Disconnection with local levels.	Culture of collaboration with the EU with adaptation to national framework More transparent than other countries about political information.
Influence of political preferences	Public agencies are very sensitive to the political orientation of the government although in spite ot their large degree of autonomy.	Administration is not sensitive to political orientation influences and is marked by the heaviness of the procedures. However, the personality of the minister can entail some inflections. Minister of environment dominated by more powerful ministers, in particular the foreign minister	Competition with other ministries. Short-term interests generally win.
Relation with the hierarchy within a service when a public servant find an order problematic	Room to bring alternative views	Discussion with the hierarchy possible when judged "worth it"	Negotiation with the hierarchy is encouraged. Right to "remonstrate".

* This indicator can be found on the webpage of Bertelsmann Stiftung institute (2018). A high value indicates better implementation performance.

Figure 10: Correlations identified.

Cultural Administrative Traits	Impact on implementation
Competition	Positive when moderated
Transparency	1)Positive when information circulates easily between agents and organization. 2)No effect found of transparence with the public

Devotion to environmental issues	Positive impact
Compliance	1)With the EU: A culture of compliance must be associated with other factors to have a positive impact. 2)With the hierarchy: No direct effect found.
Routines and procedures	Positive when moderated Negative when exaggerated

*A green colour signifies a positive correlation. A red colour a negative one.

6.6 Interpretation

After the analysis, comes the interpretation part of qualitative analysis. The results will be explained according to the theory. Sticking to the theory helps not to cross the boundaries of what is aimed to be explained as suggested by Wolcott (1994, p.36).

According to our findings, Sweden is the country that is most loyal to the EU. Not only Sweden possesses a high implementation rate, but Sweden adapts to the EU which is not the case for the other selected countries. However, the effect of this cultural trait on implementation remains uncertain. While it indeed statistically increases the implementation rate, nothing proves that the implementation will be of better quality, and Sweden also faces difficulties when it comes to implement a policy on the field, and these difficulties are sometimes merely ignored which does not permit a full implementation, as it has been said by one interviewee. All countries are transparent concerning scientific information on environmental issues. It is hard to deduce from the interviews is this helps the implementation process. However, transparency about ongoing political processes within a service and between services seems to be important for the well-functioning of the organization, as argued by Sverdrup (2004). This result is well predicted by our theoretical framework: taking the bounded-rationality in a reversed way, the more informed an agent is, the less likely he is to commit mistakes (Allison and Zelikow 1999, p. 20). In Sweden, the implementation of environmental policies is under the responsibility of public agencies that are very autonomous and that work in collaboration with the government. These agencies are characterized by a "culture of efficiency" and opacity. They also value *performance* which is not the case in France or Germany. The precise impact of these values is not well explained by the theoretical framework that informs this thesis, but the combination of this trait with a high degree of compliance is likely to have a positive impact on implementation, and this was already an argument highlighted by Sverdrup (2004, p.27)

One cultural trait that is absent or very weak in the three countries is *competition*, and this is due to the fact that public agents have more secured position than workers of the private sector. However, a bit of competition has been positively perceived in several interviews as it encourages employees to work more and better and this obviously helps the general political process of implementing environmental policies. This effect has not been well predicted by the chosen theoretical arguments. The country that showcases competition the most is France. It comes from the fact that meritocracy is a central value in French administration, and this developed the administrative tradition of having, which led to the development of a special unit in the French administration called "*fonctionnaires*". Not all public agents are "*fonctionnaires"* but there is a real competition between them as very few posts are available (this was reported by one interviewee). This as for consequence that some of them work in a sector for which they do not have a particular interest as it was the case for one of the interviewee. In that case, the "fonctionnaire' had a post of direction in the public organization and was willingly not helping public servants in that organization to accomplish their mission because of a lack of interest. In that case, competition is negatively correlated with performance. This example is an empirical

illustration of bounded rationality: in the presence of competition, public agents will favour their self interest, even though this self-interest does not fit with the objectives of the organization they are working for. This competition emerged through a certain institutional design, which relates to our theoretical framework (Marsh and Stoker 2010, p.65), but in that this example, the institutional design triggers a value that, instead of having positive consequences, deteriorates the efficiency of the organization.
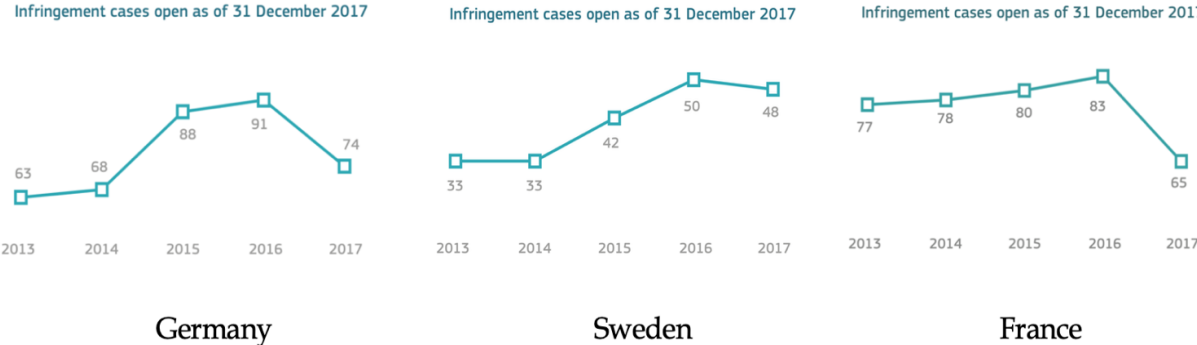
Procedures, although perceived negatively by at least one interviewee in each country, have been recognized by several interviewees in each country to be helpful and essential to make the organization function correctly. Theories taking into account the complexity dimension of human's organizations recognize that routines and procedures are essential to constrain the behavior of the public agents in order to achieve a purpose (Allison and Zelikow 1999, p.153). However, procedures and routines seem to be excessive in the case of France. They seem to be purposeless and "exist to exist" according to one of the interviewee. The effect of an excess of routines is not well explained in the theory. Allison and Zelikow (1999, p.159) wrote that it *"magnifies the consequence of small failures"*. This mechanism was not well retraced in the interviews, but the very same interviewee declared that this excess of routines is damaging for her own welfare and the welfare of her colleagues. The main purpose the procedures in public is to avoid unpredicted scenarios (ibid, p.152). In the case of France, this extreme "uncertainty avoidance", that also has been reported by Thijs et al. (2017 p.35). contributes to this feeling of "heaviness" interviewees had towards the administration. The precise origin of this heaviness in French administration remains unknown.

The relation to the hierarchy is also different between the three countries. All showcase a high degree of compliance with the hierarchy but have different ways to deal with orders that are perceived as troublesome by public agents. German public agents have the right to "remonstrate", which means that they discuss and negotiate with another ladder of the hierarchy if they feel block with a particular order and cannot negotiate with the person who gave the order. Dialogue is also possible in France, but only if it judged worth it because the hierarchy is more distant, and therefore it costs more efforts to reach superior ladders. In Sweden, public agents are encouraged to bring alternative views on a problem and the agency leave enough space for this. Marion and Uhl-Bien (2009, p.633) have theorized that enabling leadership behaviors in every ladder of the hierarchy generate productive outcomes because it favors learning and innovation. But above all, according to the interviewees, it seems that good communication with the hierarchy facilitates welfare at work. It also seems that in the case of Sweden, the fact that employees have room to share alternative views on a problem make them stick to the culture of the organization they are working for. Creativity and room for discussion contribute to make public agents proactive in the decision process, which helped them to be committed to the values of the organization which is essential to reach the objectives of the organization (Vroom and Von Solmes 2004, p.195).

One of the main divergences we found with the study of Falkner et al. (2006) is that there is no country that is a bad implementer, and we did not find the presence of values in administration such as "*national pride*" that could explain implementation problems in France. It has been asked to some French interviewees if they believe that they could do a better job without the EU commission, and they did not imagine that they would be better of without it. Actually, both Sweden and France present a culture of compliance as they generally do their best to transpose the directive as it has been designed by the EU commission. Furthermore, there is no country that totally complies to the EU commission, but countries manifest their resistance in different ways, as it was already argued by Liefferink et al. (2011, p.721). In France for instance, difficulties often appear before the policy is implemented, which is a fact that was

striking in the interviews and already stressed by Liefferink et al. (2011, p.720). In fact, France can block the negotiations until a compromise is found but will then make its best to respect the compromise. Sweden can also resist, but after the procedure has already been adopted and directly on the field. This result is in total contradiction with the results of Sverdrup (2004, p.36), who stressed that Northern European countries will resolve the points of tensions before the implementation of the policy, during negotiations.

Figure 11: Number of infringement cases opened by the EU commission.

Infringement cases open as of 31 December 2017

Germany: 63 (2013), 68 (2014), 88 (2015), 91 (2016), 74 (2017)

Infringement cases open as of 31 December 2017

Sweden: 33 (2013), 33 (2014), 42 (2015), 50 (2016), 48 (2017)

Infringement cases open as of 31 December 2017

France: 77 (2013), 78 (2014), 80 (2015), 83 (2016), 65 (2017)

* Source: Annual Reports on Monitoring the application on Community law

What has been also unraveled when the interviews were analyzed is that the public agents working for their respective environmental are in competition with other ministers. All countries are affected by political preferences but in different manners. For instance, the political orientation of the government (right or left) has a large influence in Sweden, as an interviewee declared that the Swedish performances in terms of implementation would be completely different if a right-wing government would have ruled for the last years. In France and Germany, administrations seem to be less dependent of the government's political orientation, but the environment minister is submitted to a very harsh competition with other ministries such as the minister of agriculture. One of the German interviewee declared that short-term interests and economic interests will be always preponderant, which has a very strong negative impact on the work undertaken by people working for the environment minister. In France, the minister of foreign affairs will always win during environmental negotiations and oftentimes, it does not take into account the requests from the environment minister, which is a factor that also can explain difficulties in terms on implementation because the expertise of the people working on environmental issues is willingly ignored during the policy-making step due to their preference for short-term interests, a situation that has been described in the literature (Khalilian et al. 2010).

In Sweden, this competition exists as well in the agricultural sector as it was said in one interview, but this competition seems to be moderated. Our theoretical framework provides a strong explanation for that: particular interests can be mitigated in countries that present a strong culture of compliance, and Sweden is that presents this culture of compliance the most, a light difference that we could perceive analyzing the interviews (Falkner et al. 2007, Treib 2014, p.27). To validate this argument, a table with the number of infringement cases is presented below (see Figure 11). It is surprising to see how much the results of the interviews perfectly fit the theoretical framework in explaining this difference in that precise case. Nonetheless, the interests at stake differ as Germany and France are bigger exporters of agriculture products which is not the case for Sweden.

7. Discussion

This section aims to reply to each hypothesis using the contributions of the two methods, and then trying to provide broader insights by answering the research questions.

Hypothesis 1: **Federal countries are more likely to succeed in the implementation of environmental policies.**

This hypothesis is largely confirmed by the results of the quantitative analysis. Even though federal states could be more slow at implementing EU policies (Geitzanauer et al. 2017, p.6, Koning and Luetgert 2009, Linos 2007 and Thomson 2009), and this was also stressed by one of the German interviewee while we were asking what happens when a recommendation or a directive from the EU is in conflict with German interest. But, in the long run, the implementation process is more likely to happen and more likely to be of better quality in comparison to a unitarian country. What must be stressed is that only recent datasets from Eurostats have been used in our analysis. Therefore, federalist countries had more time to implement EU directives and recommendations as these policies have been formulated several years ago. Moreover, some states, such as France, are the perfect representation of the unitarian administrative tradition, but yet, showcase a decentralized pattern of implementation, although all decentralized countries showcase a decentralized pattern of implementation (Thijs et al. 2017, p.15). Therefore, in decentralized unitarian countries, the division of power between administrative entities is less clear. One of the French interviewee declared that the departments, which are small administrative entities in France, are very disconnected from the minister of environment. It proves that unitarian states can face the same problem as federal countries but without benefiting from a clear division of competences and can be less more experimented than federal states if their decentralization process is recent (Siedentopf and Ziller 1988, pp.45,60).

Hypothesis 2: **Countries whose administration have a more managerial approach are better at implementing environmental policies.**

We did not find strong evidence that could confirm or refute that hypothesis. Theory supports the claim that management is better than the rule of law because law-based public administrations are more closed to innovation, especially when these innovations are not institutionalized by the state (Biesbroeck et al. 2018a, p.9, Peters 2010 p.10). To some extent, the qualitative analysis partially supports that claim. While interviewees were asked about the perception they have of routines and procedures, one also mentioned his perception of administrative law, declaring that it doesn't help to have "*a long term vision*". Another interviewee declared that EU law is heavy and slow down national processes of implementation. However, two interviewees remain a fragile base for generalization. If quantitative analysis is not appropriate to unravel this correlation, observations and process-tracing could be undertaken in a country that exhibits a tradition of rule of law and in a country whose administration relies on a managerial approach to see how can these different approaches lead to different results.

Hypothesis 3: **Countries that include all the key actors early in their implementation process are better implementers of EU directives and recommendations.**

Solid evidences were found to confirm this hypothesis in the quantitative analysis. Many authors have also pointed out the positive effect of corporatism in the literature (Visser and

Hemerjick 1997, Lijphart, 2012). It was not surprising to find this result, as cooperation with the actors and legitimization of the government action permit to act efficiently in the early stages of implementation, which also enables implementation of quality in the long term (Biesbroeck et al. 2018, p.8)

Hypothesis 4: **The presence of many administrative levels hampers the implementation of EU directives and recommendations.**

In fact, the opposite has been found (positive correlation between the number of administrative ladders). To find some hints about it, we observed the number of administrative layers for each case but no congruent information could be deduced from this observation as there is no theoretical support that could explain this result.

Hypothesis 5: **Administrations that possess a higher degree of commitment to environmental issues will be better implementers.**

This hypothesis is confirmed by the quantitative analysis: the higher is country's participation in global collectives activities to protect the climate and preserve natural resources (measured by the Global Environmental Protection Index), the better are its implementation performance. This result is in accordance to the theoretical framework that has been used: The more salient an issue appears for a government, more efforts will be undertaken to apply this preference (Spendzharova and Versluis 2013, p.1499). The qualitative analysis was not helpful in assessing this effect because all the interviews and their colleagues were very devoted to environmental issues.

Hypothesis 6: **Administrations that are based on a culture of transparency and compliance towards the hierarchy, and that do not incorporate private interests in their daily actions will be more efficient at implementing environmental policies.**

Hypothesis 7: **Administrations that possess a higher degree of compliance to the EU policies will be better implementers**

As expected, no significant results could be extracted, analyzed and interpreted from the quantitative analysis. Therefore we mainly relied on the quantitative analysis to get more information. While we could not establish a precise correlation between transparency towards the public and implementation performance, transparency within and between the public organizations has been reported as important for several interviewees. In Sweden, scientific information and political information is given to the key actors that are involved (interviewee A, 2019), although the internal life of the agencies characterized by a culture of opacity, there is of course an excellent cooperation between which seems to benefit to political processes (interviewee C, 2019)

Germany is more transparent than Sweden and France. In this country, information between the different ministers that are involved on a same issue also circulates well (interviewee F, 2019), but there is no flaw of information between the federal state and the landers due to federalism (interviewee E, 2019). France showcases a good flow of information although this flow is compromised by the fact that the ministers are not experts, which creates losses of time. There is also a lack of fluidity between the ministers (interviewee H 2019). This could explain why France is less performant than Germany and Sweden, and contribute to the feeling of the "heaviness' of the administration.

The three countries that have been selected for the qualitative analysis all showcase a high level of compliance with the hierarchy. A large majority of the interviewees will always comply, and all the interviewees and their colleagues are very committed to their duty as the protection of the environment is part of their personal values. Resilience to the hierarchy is found in specific contexts, when public agents think than an order is in conflict with the values of the organisation (Allison and Zelikow 1999, p.156). For instance, a french interviewevee expressed that his superior is not committed to the culture of the organization and is selfish about its interests, which makes this interviewee not willing to comply to every demands. These situations are more likely to happen in France because *fonctionnaires* do not always share the value of the organization they are working for due to the competition for higher positions.

There are different ways to resolve conflicts with the hierarchy that exist between the three countries. In Sweden, public agents are encouraged to bring alternative views if an order is problematic to them (Interviewees B and C 2019). In Germany, negotiations with the hierarchy is encouraged. If this process is blocked, employees have the right to refer to another level to talk about the problems they meet (interviewees D, E and F 2019). In France, public servants can discuss with their hierarchy in case of problems (interviewee H 2019), but this process takes more time and is less intuitive than in the German and the Swedish cases. Therefore, employees consult their hierarchy on a problem only if they judge that this is worth it. Although the link could not be established directly from the responses of the interviewees, the theory shows that leaving the opportunities to public agents to take initiatives and favour innovation which in turn favour better results in terms of implementation (Uhl-Bien & Marion, 2009).

Procedures and routines are essential to make public agents comply to the hierarchy, which most of the time, work in accordance with the values of the organization. Interviewees reckognize the need of these routines for the the well-functioning of the organization, but routines and procedures can be also damaging for the efficiency of the organisation if they are too numerous, and when employees do not find a purpose attached to them. This is true in the case of France, where interviewees complained about the negative effect of that excess on their daily work (interviewees G and H 2019).

The incorporation of private interests takes the form of a competition with the other powerful ministers in the three countries and it is a problem that administrations face in the three countries face. When economic issues are at stake, the environment ministers will most of the time lose arbitrations in favor of the minister of economics, agriculture, or foreign affairs in the case of France. The preference for short-term interests is a problem that has been theorized and was incorporated in the theoretical framework of this thesis, therefore these situations that are met in every country are not surprising. As it has been said by one of the French interviewees, administration becomes paralyzed when it encounters problems that are "politic" (interviewee H, 2019). As it was also theorized, this problem creates frustration because public agents working for the minister of environment receive orders that cannot be concretized because politicians change the priorities on their political agenda depending on the situation they are confronted to (Khalilian et al. 2010, Sundstrom and Holmberg 2017, pp. 225-226, 236). Frustration creates a lack of motivation that also provokes a decrease in terms of performance. While Germany and France are equally impacted by this problem, the problem appears more moderated in Sweden where the rate of implementation reaches 89% (interviewee C). The fact that culture of compliance towards the EU is slightly higher in Sweden could explain this result.

Therefore, according to the qualitative analysis hypothesis six and seven are confirmed, although some nuances should be brought: transparency with the public does not seem to have a particular effect on implementation, and the three countries do incorporate private interest that takes the form of a competition with other ministers that are in relation with economic sectors such as agriculture or industry. This negative effect is moderated by the culture of compliance with Europe that is highest in the case of Sweden which could explain its better performances. The compliance with the hierarchy does not explain better results in terms of performances, but the way problems are treated with the hierarchy could explain differences.

- Do domestic factors still matter for the implementation of environmental policies, or countries in the EU are converging towards a uniformization of the implementation process?

Both quantitative and qualitative analysis proved that domestic factors still matter. The quantitative analysis have been useful to identify the correlations with the variables corresponding to the different dimensions of the concept of administrative tradition, except for the type of approach public agents adapt to accomplish tasks (managerial or based on the law), which is the result that is similar to Biesbroeck (2018a). Solid indicators were used for the variable "administrative capacity" that was used as a control, and yet, results show that it was not the most important variable in explaining the results we obtained in the different models. "preferences" as a control variable was maybe not correctly apprehended in the quantitative analysis, due to the fact that the database stretched only for one year.

As expected, the quantitative analysis has been pretty weak in unraveling correlations related to what the variables that refer to the concept of administrative culture, due to the fact that the variables that have been used measure behaviors that are imbricated to specific contexts. In spite of existing indicators, it appears that these behaviors cannot be correctly measures using statistics. This is why a qualitative analysis has been undertaken, in order to compensate for this weakness. The results obtained were more nuanced than in the previous well-knows research papers such as the "*three-world of compliance*" from Falkner et al. (2005). The first observation that could be made from our results is that the three countries showcase compliance to the EU, although this relation takes more a form of collaboration in the case of Germany. In that way, we observed some convergence between countries concerning their values towards the EU commission.

Even though convergence could be observed in terms of cultural traits, such as the compliance to Europe and also the willingness to be more transparent towards the public, these cultural traits are present to different degrees and are bounded to other cultural traits that could explain differences in terms of performance. For instance, the combination of the culture of compliance with a culture of efficiency in Sweden could explain the good results. Therefore, the theory of Europeanization (which stresses that EU member-states converge in their implementation practices) is not empirically verified and the domestic factors, that have been conceptualized with the concepts of administrative culture and administrative traditions, matter for the implementation of environmental policies as they influence the results in terms of performance.

- If domestic factors matter, what are the most important ones, how do they influence the implementation step of a policy and how are they related between each other?

Here ordered from the most important administrative factors to the less important ones: Structure of the state (federalist or unitarian), degree of corporatism, degree of commitment to environmental issues, number of administrative layers. All of these independent variables have a positive effect on implementation performance. This was anticipated by our theoretical

framework except for the effect of the number of administrative layers. We expected a negative correlation and found a positive one. No theoretical knowledge explains this result. However, the fact that this correlation was found for only one regression in the corresponding model proves that this model was fragile and then it is maybe not relevant to find a theoretical reason why we obtained this result. Moreover, no evidence was found concerning the influence of adopting an approach to that is based on management to accomplish tasks or based on law, although the qualitative analysis suggests that an approach based on law does not permit to have a long term vision, and it was highlighted in the literature that administration based on law do not accept innovation easily (Biesbroeck et al. 2010a). However, this result found in the qualitative analysis cannot be generalized as it was only stressed in one interview

Political preferences have a strong influence, as it was theorized in neo-institutionalist rational choice theories. However, although the political orientation (right or left) may have a moderate impact in the case of Sweden or Germany, this type of preference does not matter much in comparison to the preferences of private actors, as demonstrated in the quantitative analysis (although we did not stretch the data on several years) but above in the qualitative analysis. The preferences of private actors are institutionalized through a competition between the different ministers, as it was said during numerous of the interviews we had, and particularly well explained in one interview. These private interests are similar between the countries and therefore do not explain differences in terms of implementation themselves. While the ministers of environment defend long-term interests, the minister of agriculture and economic often defend short-term ones (as explained in one interview). Oftentimes, short term interests win which denotes the problem bounded rationality of human according to our theoretical framework, because politicians will treat the problems that they perceived as the more urgent and can benefits the most in the short term by solving them (Allison and Zelikow 1999, p. 299, Sabatier and Weible 2014, p.29). However, the qualitative analysis sheds light on the influence of the cultural aspects of administration in mitigating this influence of private actors. It has shown, in accordance to our theoretical framework, that a culture of compliance towards the EU has a positive effect on the implementation process of environmental policies because, in the case of Sweden it helps to mitigate the negative influence of private interests (Falkner et al. 2007, Treib 2014, p.27) . Nonetheless, France also possesses a culture of compliance and yet do not succeed in overcoming private interests as Sweden does. Therefore, we believe that it is not only the culture of compliance towards EU itself that could explain differences in terms of performance, but also the number or routines, the access to the hierarchy, and the room left to public agents to use their skills and "creativity" (Uhl-Bien & Marion, 2009).

8. Conclusion

The purpose of this research was to bring more clarity into the scientific debate about the influence of domestic factors on implementation efficiency. The objective was to distinguish what are precisely these factors, how do they impact the implementation process and how do they covary between each other. The research questions are answered: Domestic factors still matter for the implementation of environmental policies in the EU. Structure of the state (federalist or unitarian), degree of corporatism, degree of commitment to environmental issues, number of administrative layers (we are not certain about the influence of this variable) have a positive impact on implementation performance

While it seems that federalism is often associated with a corporatist tradition which was salient in the case of Germany, corporatism according to the theory, could explain why some national administration showcase more transparency, and why public agents have more opportunities to negotiate and bring alternative ideas, which, according to complexity theories, is beneficial in terms of innovation and performance (reference), as it helps employees to stick

to the culture of the organization and achieve greater degree of compliance with the hierarchy, which was also reflected in the interviews as public agents in Germany and Sweden showcase less resilience when they are not comfortable with an order that comes from their hierarchy

The main contribution of this thesis was to create a theoretical framework that helps to conceptualize domestic factors, using complexity theories as it was recommended in the most recent literature, while the literature on implementation has remained confused and consisted in identifying a list of factors without articulating them. In accordance with the neo-institutionalist, we tried to prove that differences in implementation performance are the fruits of different institutional design, with all the difficulties it involved. We had to work with databases that are sometimes of poor quality. We also took the risk to used outcomes as dependent variables rather than outputs, increasing the risk that external variables that are not taken into account in our theoretical framework influence the result. Nonetheless, we could validate the correlations we found by running five different regressions for each model, each of them covering different EU policies, recommendations and environmental areas (which is also an innovation). The most solid correlation we can make is between federalism and implementation performance (positive) and was well predicted by our theoretical framework.

We tried to prove that some cultural traits in administration are identifiable across countries and that these traits produce different behaviors that in turn produce different results. Commitment to environmental issues and compliance with the EU are the most important cultural administrative traits. Although the three countries we selected for the quantitative analysis all possess a high degree of compliance and commitment towards the EU, Sweden still achieves higher performances. The association of a very high culture of compliance with a moderate uncertainty avoidance, the possibility of being proactive in decisions participate to a "culture of efficiency"that permit to improve work performance. Although we tried to check empirically, with the help of our qualitative analysis, how certain administrative traditions can favour the emergence of a certain administrative culture, further researches should pay more intention to these connections, as specific institutional design can explain the emergence of specific values, as explained by Falkner et al. (2006).

Future researchers should aim at finding how a certain administrative tradition favor the emergence of specific values and rules and understand what could be the other factors that are not formal but also favour the emergence of certain values and cognitive rules in public administrations. Future researches should also aim at testing the relations between administrative traditions and implementation performance as we did, when new data from the European Commission will be available, in order to increase the validity of the correlations we analysed.

9. Bibliography

Allison, G. & Zelikow, P., 1999. *Essence of the decision: Explaining the Cuban Missile Crisis*. 2nd Edition ed. New-York: Longman.

Armingeon, K. W. D. E. S. (., 2014. *Comparative political data set 1990-2012,* Institute of political science: Bern.

Barrett, 2004. Implementation Studies: Time for a Revival? Personal Reflections on 20 Years of Implementation Studies. *Public Administration,,* 82(2), p. 249–262.

Bennett, C. J., 1991. What Is Policy Convergence and What Causes It?. *British Journal of Political Science,* 21(2), pp. 215-233.

Bernstein, S. & Cahsore, B., 2012. Complex global governance and domestic policies: four pathways of influence. *International Affairs ,* 88(3), pp. 585-604.

Biesbroeck, R., Ford, J., Lesnikowski, A. C. & Berrang-Ford, L., Tanabe, Andrew., E.Austin, Stephanie., Lesnikowski, Alexandra., 2018. Data concepts and methods for large-n comparative climate change adaptation policy research: A systematic literature review. *Wires Climate Change,* pp.1-15.

Biesbroek, R. et al., 2018. Do Administrative Traditions Matter for Climate Change Adaptation Policy? A Comparative Analysis of 32 High-Income Countries. *Review of Policy Research,* 0(0), pp. 1-26.

Bondarouk, E. & Mastenbroeck, E., 2018. Reconsidering EU Compliance: Implementation performance in the field of environmental policy. *Environmental Policy and Governance,* Volume 28, pp. 15-27.

Briassoulis, 2003. The institutional complexity of environmental policy and planning problems: the example of Mediterranean desertification. *Journal of Environmental Planning and Management ,* 47(1), pp. 115-135.

Denzin, N., 1978. *Sociological Methods: A Sourcebook*. NY: McGraw Hill.

Di Lucia, L. & Kronsell, A., 2010. The willing, the unwilling and the unable – explaining implementation of the EU Biofuels Directive. *Journal of European Public Policy ,* 17(4), pp. 545-563.

Drezner, D. W., 2001. Globalization and Policy Convergence. *International Studies Review,* 3(1), pp. 53-78.

Dupuis, J. a. P. K., 2013. The Adaptation Policy Paradox: the Implementation Deficit of Policies Framed as Climate Change Adaptation. *Ecology and Society ,* 18(4), pp. 1-16.

European Commission., 2016. *eurostat*. [Online] Available at: https://ec.europa.eu/eurostat/data/database [Accessed 16 May 2019].

European Environmental Agency., 2017. *Environmental indicator report 2017 In support to the monitoring of the Seventh Environment Action Programme* , Luxembourg: Publications Office of the European Union.

Falkner, G., Harlapp, M. & Treib, O., 2006. Worlds of compliance: Why leading approaches to the implementation of EU legislation are only 'sometimes-true theories'. *EUI WORKING PAPERS*.

Geitzenauer, M. et al., 2017. The challenge of financing the implementation of Natura 2000 – Empirical evidence from six European Union Member States. *Forest policy and economics,* Volume 82, pp. 3-13.

Gelderman, K. & Ghijsen, P. a. S. J., 2010. Expaning Non-compliance with European union Procurement Directives: A Multidisciplinary Perspective.. *Journal of Common Market Studies,* 48(2), pp. 243-264.

University of Gothenburg., 2015. *The quality of Government Institute*. [Online] Available at: https://qog.pol.gu.se/data/datadownloads/qogexpertsurveydata [Accessed 16 May 2019].

Griffin, L., 2008. The North Sea Fisheries Crisis and Good Governance. *Geography Compass,* p. 452–475.

Hair, J., Black, W., Babin, B. & Anderson, R. E., 2014. *Multivariate Data Analysis*. Harlow: Pearson.

Heichel, S., Pape, J. & Sommerer, T., 2005. Is there convergence in convergence research? an overview of empirical studies on policy convergence. *Journal of European Public Policy ,* 12(5), pp. 817-840.

Jönsson, C., 2008. Democracy beyond the nation state? Transnational actors and global governance. *Statsvetenskaplig tidskrift,* 110(1), pp. 83-97.

Jahn, D., 1998. Environmental performance and policy regimes: Explaining variations in 18 OECD-countries. *Policy scuebces,* 31(2), pp. 107-131.

Jahn, D., 2014. Changing of the guard: Trends in corporatist arrangements in 42 highly industrialized societies from 1960 to 2010. *Socio-economic Review,* p. https://doi.org/10.1093/ser/mwu028 .

Jerolmack, Colin and Khan, Shamus., 2014. Talk is cheap: Ethnography and the Attitudinal Fallacy. *Sociological Methods and Research*. Vol 43(2), pp. 278-209/

Johnson, B., 2007. Toward a definition of Mixed Methods Research.. *Journal of Mixed Methods Research,* Volume 1, pp. 112-133.

Kelemen, D., 2010. Globalizing European Union environmental policy. *Journal of European Public Policy,* 17(3), pp. 335-349.

Keohane, R. & Nye, J. N., 1987. Power and Interdependence. *International Organization,* 41(4), pp. 725-753.

Khalilian, S., Froese, R., Proelss, A. & Requate, T., 2010. Designed for failure: A critique of the Common Fisheries Policy of the European Union. *Marine Policy,* Volume 34, pp. 1178-1182.

Kingdon, J., 2010. *Agendas, Alternatives and Public Policies.* New York: Longman.

King, G. K. R. O. &. V. S., 1994. *Designing social inquiry: Scientific inference in qualitative research.* Princeton: Princeton University Press. .

Knill Christoph, L., 2002. The National Impact of EU Regulatory Policy: Three Europeanization Mechanisms. *European Journal of Political Research,* 41(2), pp. 255-280.

Knill, C. & Lenshow, A., 1998. Coping with Europe: the impact of British and German administrations on the implementation of EU environmental policy. *Journal of European Public Policy,* 5(4), pp. 595-614.

Konig, T. & Luetgert, B., 2009. Troubles with Transposition? Explaining Trends in Member-State Notification and the Delayed Transposition of EU Directives. *B.J.Pol.S.,* 39(01), p. 163–194.

Lamont, Michèle and Swidler, Ann., 2014. Methodological Pluralism and the Possibilities and Limites of Interviewing. *Qualitative sociology.,* 37(02), pp. 153-171

Liefferink, D., Wiering, M. & Uitenboogaart, Y., 2011. The EU Water Framework Directive: A multi-dimensional analysis of implementation and domestic impact. *Land Use Policy,* Issue 28, pp. 712-722.

Linos, K., 2007. 2007. *Comparative Political Studies,* 40(5), pp. 547-70.

March, J. G. :. O. J. P., 1984. The New Institutionalism: Organizational Factors in Political Life. *he American Political Science Review,* 78(3), pp. 734-749.

Marsh, D. & Stoker, G., 2010. *Theory and methods in political science.* Theory and methods in political science: Palgrave Macmillan.

Nakamura, R. T., 1987. The Textbook Policy Process and Implementation Research. *Policy Studies,* 7(1), p. 142–154.

Newig, J. & Fritsch, O., 2009. Environmental governance: participatory, multi-level – and effective?. *Environmental policy and governance,* Volume 19, p. 197–214.

OECD, 2016. *OECD Government at a glance report.* [Online] Available at: http://www.oecd.org/gov/govataglance.htm [Accessed 16 May 2019].

Paavola, J., 2007. institutions and environmental governance: A reconceptualization. *Ecological economics,* Volume 63, pp. 93-103.

Painter, M. a. P. B., 2010. *Traditions and public administration*. Basingstoke: Palgrave.

Pellizzoni, L., 2007. Responsibility and Environmental Governance. *Environmental Politics,* 13(3), pp. 541-565 .

Peters, B., 2010. *The politics of bureaucracy: An introduction to comparative public administration*. 6th ed ed. s.l.:Routledge.

Petitimbert, R. & Guimont, C., 2018. Les conséquences politiques de la traduction néomanagériale de la comensation : l'impensé systémique. *Développement durable et territoires,* 9(3), pp. 1-18.

Rabe, B., 2011. Contested federalism and American Climate Policy. *Publius: The journal of Federalism,* 41(3), pp. 494-521.

Rodrik, D., 2012. Who Needs the Nation-State?. *ECONOMIC GEOGRAPHY,* 89(1), pp. 1-19.

Roulston, K., 2013. *Reflective Interviewing: A Guide to Theory and Practice*. London: SAGE Publications Ltd.

Runhaar, H., Wilk, B. & Persson, A., 2017. Mainstreaming climate adaptation: Talking stock about "what works" from empirical research worldwide. *Regional Environmental Change,* pp. 1-10.

Sabatier, P. & Weible, C. 2., 2014. *Theories of the Policy Process. Boulder:*. 3rd Edition ed. Boulder: Westview press.

Selin, Henrik and VanDeveer, Stacy., 2015. Eu Environmental Policy Making and Implementation: Changing Processes and Mixed Outcomes. *Annual Review of ENvironment and Resources*

Shalev, M., 2015. Limits and Alternatives to Multiple Regression in Comparative Research. *Capitalism Compared,* Volume Vol. 24, pp. pp. 343-350.

Siaroff, A., 1999. Corporatism in 24 democracies: Meaning and measurement. *European Journal of Political Research,* 36(2), pp. 175-205.

Small, M. L., 2011. How to Conduct a Mixed Methods Study: Recent Trends in a Rapidly Growing Literature. *Annu. Rev. Sociol.,* Volume 37, pp. 57-86.

Spendzharova, A. a. V. E., 2013. Issue salience in the European policy process: what impact on transposition?. *Journal of European Public Policy,* 20(10), pp. 1499-1526.

Stiftung, B., 2018. *Sustainable Governance Indicatir*. [Online]
Available at:

http://www.sginetwork.org/2018/Policy_Performance/Environmental_Policies/Environment [Accessed 16 May 2019].

Sundstrom, M. a. H. R., 2017. When implementation falters, the challenge of having peripheral stick in organizations. *Journal of science management,* 11(2), pp. 224-240.

Sverdrup, U., 2004. Compliance and Conflict Management in the European Union: Nordic Exceptionalism. *Scandinavian Political Studies,* 27(1).

Swidler, A., 2001. Cultural Expression and Action. *International Encyclopedia of the Social & Behavioral Sciences,* pp. pp. 3063-3069.

Tarrow, S., 1995. Bridging the quantitative-qualitative divide in political science. *American Political Science Review,* 89(2), pp. 471-474.

Theys, J., 2003. La Gouvernance, entre innovation et impuissance Le cas de l'environnement. *Développement durable et territoires,* Volume 2, pp. 1-31.

Thijs, N., Hammerschmid, G. & Palaric, E., 2017. *A comparative overview of public administration characteristics and performance in EU28,* Brussels: European commission.

Thomson, R., 2009. Same effects in different worlds: the transposition of EU direc- tives. *Journal of European Public Policy,* 16(1), pp. 1-18.

Treib, 2006. Implementing and complying with EU governance outputs. *Living Rev. Euro. Gov,* 1(1), pp. 8-26.

Treib, O., 2014. Implementing and complying with EU governance outputs. *Living Reviews in European Governance,,* Volume 9, pp. 1-47.

Uhl-Bien, M. & Marion, R., 2009. Complexity Leadership in Bureaucratic Forms on Organizing: A Meso Model. *Management Department Faculty Publications,* 20(4), pp. 631-650.

Urwin, K. & Jordan, A., 2008. Does public policy support or undermine climate change adaptation? Exploring policy interplay across different scales of governance. *Global Environmental Change,* Volume 12, pp. 180-191.

Vandeveer, S., 2015. European Union and environmental governance. *Annual Review of Environment and Resources,* Volume 40, p. 309–35.

Versluis, A. S. &. E., 2013. Issue salience in the European policy process: what impact on transposition?. *Journal of European Public Policy,* 20(10), pp. 1499-1516.

Vink, M. et al., 2015. Do state traditions matter ? Comparing deliberative governance initiatives for climate change adaptation Dutch corporatism and British pluralism. *Journal of Water and Climate change,* 6(1), pp. 71-88.

Visser, J. a. A. H., 1997. *Dutch miracle: Job growth, welfare reform and corporatism in the Netherland,* Amsterdam: Amsterdam University Press..

Vogler, J., 2005. The European contribution to global environmental governance. *International affairs,* 81(4), pp. 835-850.

Vroom, C. & Von Solm, R., 2004. Towards information security behavioural compliance. *Computers & Security,* Volume 23, pp. 191-198.

Wolcott, H., 1994. *Transforming qualitative data: Description, Analysis and Interpretation.* Thousand Oaks, London, New Delhi: Sage Publications.

Ziller, J. & Siedentopf, H., 1988. Making european policies work : the implementation of community legislation in the member states. *Comparative Syntheses,* Volume 1, pp. 1-87.

10. Appendix

10.1 Table of the types of variable that will be use in the analysis:

Variables	Category
Population covered by the Convenant of Mayors	Metric
Implementation performance	Ordinal
Area under organic farm	Metric
Recycling rate of municipal waste	Metric
Areas protected for their biodiversity "habitats directive' in percentage of the total area (2017).	Metric
Rule of law	Ordinal
Rule of procedure	Ordinal
degree of corporatism	Ordinal
federalism or unitarian state structure	Dichotomic
Central Government Revenue as percentage of GDP	Metric
Number of administrative Tiers	Metric
Degree of compliance of public agents.	Ordinal
Degree of impartiality of public agents.	Ordinal
Degree of transparency (measured by the risks for an employee to communicate things outside of his workplace).	Ordinal
Implementation capacity	Ordinal
GDP per inhabitant	Metric
Political preferences of the governments	Dichotomic

*The green colour correspond to the dependant variables, the red colour relates to the independent variables that correspond to administratrive tradition. Blue correspond to the cultural variables and purple to the control variables.

10.2 Risk of multicollinearity in the quantitative analysis (VIF values)

	Model A	Model B	Model C	Model D	Model E	Model F	Model G
Overall Implementation performance			1,047		1,781		
Recycling rate Per municipality	1,063	1,086 1,452	1,047	2,833 6,385	1,781	2,805 1,347 1,418	1,108
Population covered by the convenant of mayors.	1,021					2,805 1,347 1,418	
Areas under organic farming	1,063						
Implementation of the habitats directive.		1,086 1,452					

10.3 Questionnaire

Question 1: Have you worked on implementing environmental policies? More precisely, what were your tasks regarding implementation and do you know if this was connected to a European policy?

Question 2: How does the hierarchy is perceived in your service/department? Is it an obstacle for the realization of certain objectives that are necessary to the implementation of environmental policies?

Question 3: What happens when the EU recommendation or directive is not fitted to national interests? What is your perception of the EU commission on environmental issues?

Question 4: Do you think that your service is committed towards public wellbeing and environment? Do you think there is a lot of competition between employees for their careers and do you think this hampers or improve the implementation of environmental policies?

Question 5: Do you think that your hierarchy is really committed to the realization of environmental objectives? Do you always comply to what is required even though you know it doesn't bring benefit to the implementation of the environmental policy?

Question 6: Does information circulates between your colleagues and between the different organizations, agencies, you are working with and to what extent this information is available for the public?

Question 7: Are they a lot of routines and procedures that you must respect daily? Do you see them positively or negatively? Do you think they improve your work efficiency in the long run?

Question 8: What do your risk if you do not follow a rule or a routine?

10.4 Reduction of data (second round)

	Sweden	Germany	France
Competition	Weak competition between people, skills are valued	Weak competition between people. A bit of competition is positive	Depends of the status (competition between functionaries), but usually no competition. Competition is perceived as positive.
Transparency and information flow.	Agencies characterized by a culture of opacity. Struggle to be informed of the administrative process as agents. Scientific information easily reachable but could be better. Documents publicly available at the municipal level.	No flaw of information between the central government and the landers. Administration try proactively to be transparent. Information about negotiations can be obtained by citizens if asked (appointments). Good Coordination between the ministries. Scientific information fully available.	Scientific information available but the language used is complicate. Citizens are not aware of the implication of the EU. Departments (local level) is not well connected to the information. Time loss when information is given to the minister because they are not experts. Lack of fluidity between the ministers but good communication within the services
Devotion	High devotion from hierarchy and colleagues. Ambitious government	Both the hierarchy and the workers are committed, with a long term vision.	Problem with the hierarchy in one case. Boss judged as selfish and manipulator. Not supportive when it comes to political decisions. Otherwise workers are devoted.
Commitment to the EU	Loyalty to the EU, adaptation of the Swedish law. Weak resistance. 89% of implementation rate	More can be done, can adapt to the "German Framework". Collaboration relationship. Try to explain things.	EU applied "as long as it possible" in one case. Difficulties at local level and difficulties to report due to the heaviness of French bureaucracy. France can block if it does not correspond to its national interests but the policies that are accepted are implemented with rigor.
Commitment to the hierarchy	Obligation to comply. In case of conflict, always room to bring alternative views and explain it. Agency facilitates this.	Negotiation possible. Right to remonstrate. Communication with the superior.	One interviewee is not systematic with the requests that come from the hierarchy and can resist, because he knows that orders are forgotten. Another interviewee discusses if it is worth it. Another one systematically obey.
Uncertainty avoidance	Culture of efficiency, robot acting (pejorative), rules can be frustrating. Sometimes can be avoided.	Procedures are necessary Everything is done to achieve the procedures Degree of freedom	Procedures are judged essential for implementation even though interviewees do

		62	not like them. However it can becomes very extreme in some services and can even hamper the welfare of workers. In two cases, they are judged heavy and inefficient
Risks	Lower salary rate	Trust loss	Shaming and Naming, warming, disciplinary procedures sometimes.
Influence of political preferences	Very large differences between government (influence of political affiliation)	Competition between the ministers (agriculture for instance). Short-term interests win. Government devoted for a long time.	High Competition between the ministers. Short term interests win. Weak influence of political preferences but personalities of the ministers can have an impact.
administrative tradition (extra)	Agencies in Sweden are very autonomous, they cooperate with the state	Independence of the landers. Federalism.	Tradition of "functionaries".