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**Implementing Multilateral Environmental
Agreements: An Analysis of EU Directives**

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Implementing Multilateral Environmental Agreements: An Analysis of EU Directives

While a number of different theoretical models have been advanced to explain why states implement, or indeed, do not implement, multilateral environmental agreements (MEAs), very little empirical work has been undertaken to validate their predications. With a view to narrowing this gap, the present paper adopts a large-N, econometric approach to test the explanatory power of four distinct models of compliance – domestic adjustment, reputational, constructivist and managerial – in the context of European Union (EU) environmental policy. Using data on the number of official infringements received by 15 member states for non-implementation of environmental directives over the period 1979-2000, we find that all four models contribute statistically significantly to explaining spatio-temporal differences in legal implementation. Thus, our results suggest that the implementation of MEAs is shaped by a combination of rational calculations of domestic compliance costs and reputational damage, domestically institutionalized normative obligations, and legal and political constraints. We conclude by suggesting a greater need for multi-causal theoretical models of supranational legal compliance.

Introduction

The past three decades have witnessed the rapid proliferation of multilateral environmental agreements (MEAs). Indeed, judged by the number of MEAs, the period since the Second World War has been a spectacular success for proponents of multilateralism¹. Less successful, however, has been the implementation of these agreements. While many governments have been willing to join MEAs, evidence suggests that they have not always fully honoured their legal obligations to put supranational commitments into practice, i.e., by incorporating treaties into domestic law, promulgating regulations, and establishing an adequate monitoring and enforcement infrastructure². The result has been a complex geography of legal compliance³, characterised by spatial and temporal variations in the implementation of multilateral environmental policies.

Such variations have not escaped the attention of academics who have advanced a number of theoretical models to explain why states comply, or indeed, fail to comply, with their legal obligations to implement MEAs. Most relevant in the present context are what are broadly termed the domestic adjustment, reputational, constructivist and managerial models. Within the literature, each of these theoretical models (or approaches) is advanced as providing a distinctive account of variations in states (non-)compliance with multilateral legal obligations. In reality, however, many scholars

¹ Mitchell 2003

² Faure and Lefevre 2005; Hønneland and Jørgensen 2003; Raustiala 2001; Sands 2003; Weiss and Jacobson 1998

³ In the present paper, we use the terms legal compliance and implementation interchangeably

accept that they are not necessarily mutually exclusive⁴. Rather, as argued in the literature⁵, different models focus on different aspects of non-compliant behaviour, and therefore should be seen as potentially complimentary.

Yet, despite no shortage of theoretical debate⁶, very little empirical work has been undertaken to evaluate whether all four models contribute statistically significantly to explaining variations in the implementation of MEAs⁷. To be sure, existing research has found evidence compatible with elements of each model. Consistent with the domestic adjustment model, empirical studies have identified high economic compliance costs as a major factor impeding states' implementation of MEAs⁸. Similarly, past work has found that reputational concerns have underpinned countries' efforts to faithfully implement multilateral environmental commitments⁹. Empirical support for the constructivist perspective, which emphasises the role of socialization, learning and norms in fostering implementation of MEAs, has proved more elusive. Yet the influence of normative factors has been documented in other contexts¹⁰. Finally, confirming managerial expectations, past work has identified an important role for administrative capacity and/or quality in determining states' ability to comply with MEAs¹¹.

Based on different policies, methodologies and samples, however, it is difficult to draw comparable conclusions from these studies. While individually finding evidence for one or the other model, this hardly constitutes conclusive evidence that all four models

⁴ Beach 2005; Cardenas 2004; Knill 2001; Raustiala and Slaughter 2002; Simmons 1998

⁵ See Underdal 1998

⁶ Downs and Jones 2002; Neumayer 2001a; Underdal 1998

⁷ Weiss and Jacobson 1998

⁸ Economy 2004; Gupta 2001

⁹ Comisso et al. 1998; Zhao 2005

¹⁰ Beach 2005; Checkel 2001; Gulbrandsen 2003; Solomon 2006

¹¹ Aguilar-Støen and Dhillon 2003; Economy 2004; Hønneland and Jørgensen 2003; Jacobson and Weiss 1998; Vogel and Kessler 1998

are important determinants. Indeed, without controlling for the influence of other determinants, simply focusing on the relationship between implementation and individual explanatory models runs the risk of generating spurious results¹².

We seek to overcome these shortcomings by including several variables – representing different theoretical approaches to explaining (non-)compliance with legal obligations – within a single econometric model. Our multivariate research design allows us to determine whether all four models are statistically robust predictors of implementation of MEAs. For example, it is quite possible that variables capturing predictions from managerial models might lose their explanatory power once variables associated with domestic adjustment, reputational and constructivist approaches are taken into account. Importantly, our multivariate, statistical approach also allows us to evaluate whether each explanatory approach adds in a statistically significant way to the overall explanatory power of the model.

Our empirical focus is the implementation of European Union (EU) environmental directives. Although originally a predominantly economic agreement, the EU has gone on to develop a large number of environmental laws. We use quantitative techniques to evaluate the influence of ten hypothesised variables – chosen to examine models of legal compliance – on the number of legal infringements received by 15 EU states¹³ for non-implementation of environmental directives. Testing theoretical models through the development and statistical analysis of hypotheses is a widely deployed approach in the social sciences. In the present context, it involves specifying independent variables believed to explain variations in state behaviour (i.e., the dependent variable),

¹² Mitchell 2002

¹³ The 15 members of the EU prior to the accession of 10 new states in May 2004

derived respectively from different causal models¹⁴. The explanatory power of the independent variables can subsequently be examined using various econometric estimation techniques.

Quantitative approaches have been used in past studies to investigate the determinants of policy implementation within the EU, although none of these works has specifically examined environment-related directives¹⁵. Outside the EU, only a handful of studies have applied statistical techniques to understand the conditions facilitating and/or impeding the domestic implementation of MEAs¹⁶. Instead, the majority of studies – whether focused on EU environmental directives or other regional and/or international environmental agreements – have taken the form of qualitative case-studies, typically involving a small number of countries, policies and/or regimes¹⁷.

Yet a large-N quantitative approach offers considerable advantages in the present context. Econometric estimations techniques allow us to investigate large numbers of cases, comprising multiple years, states and environmental policies. They therefore yield insights which are potentially more generalisable than small-N qualitative studies¹⁸. This is of particular advantage in testing theoretical models of compliance where we are interested in clarifying whether specific causal relationships hold across a range of contexts¹⁹. Inevitably, there are trade-offs in our approach, not least because of the limited availability of data. We cannot measure several institutional variables identified in the literature as potential correlates of MEA implementation and, furthermore, are

¹⁴ Young 2004

¹⁵ Guilianani 2003; Lampinen and Uusikylä 1998; Mbaye 2001; Perkins and Neumayer 2007; Zürn and Joerges 2005

¹⁶ Miles et al. (1998) undertake cross-national statistical analyses of MEAs, although their focus is largely on effectiveness, rather than legal implementation

¹⁷ Börzel 2003; Bursens 2002; Knill 2001; Wilson et al. 1999

¹⁸ Haas 2000; Sprinz 2004

¹⁹ Mitchell 2006

forced to rely on several proxies which provide an imperfect measure of underlying mechanisms²⁰. Inevitably, these factors restrict our analysis, meaning that our results should only be read as indicative. Still, we believe that our quantitative approach makes a useful contribution to current understanding. Indeed, to our knowledge, our study is the first to use econometric techniques to explicitly investigate all four compliance theories – domestic adjustment, reputational, constructivist and managerial – within a single estimation model.

The rest of our paper is structured as follows. The nature, enforcement and scale of member state implementation is outlined in section 2. Section 3 briefly describes four widely-discussed theoretical explanations for variations in (non-)compliance with supranational legal commitments and advances a number of hypothesised variables used to capture each of these approaches. Section 4 outlines our variables and estimation model. Results are presented in Section 5. Briefly, we find that all four models contribute statistically significantly to explaining spatio-temporal differences in legal implementation. That is, our estimations suggests that the implementation of EU directives is shaped by a combination of the rational calculations of domestic compliance costs and reputational damage, domestically institutionalized normative obligations, and legal and political constraints. Finally, conclusions and discussion are provided in section 6.

Implementing EU Environmental Law

²⁰ Mitchell 2002

According to Mitchell, an MEA is an ‘intergovernmental document intended as legally binding with a primary stated purpose of preventing or managing human impacts on natural resources.’²¹ MEAs vary considerably, both in terms of their number of participants, geographical scale, target issues and policy requirements. Yet common to the majority of agreements are a set of obligations, actions and constraints, which states consent to follow²².

In the present study, we focus on one particular intergovernmental agreement, or rather, set of agreements. Specifically, we investigate spatio-temporal variations in the implementation of a body of European law, collectively termed EU environmental policy²³. Although not entirely comparable with truly international environmental policy, EU environmental policy makes a useful test-case for scrutinising models of supranational legal compliance for three reasons. First, the EU has a well-developed and diverse set of environmental policies, straddling a range of issues, sectors and regulatory approaches²⁴. Therefore, the EU case has the potential to provide generalisable insights for a range of environmental regulations, capturing some of the diversity of MEAs currently in the international system. Second, unlike the majority of MEAs²⁵, data exist on the implementation of EU policy. Although not a precise measure, these data nevertheless provide an indication of the relative extent of legal implementation by member states, as given by the number of infringement cases launched by the European Commission for suspected non-implementation of directives. Third, the EU is a natural laboratory for comparative social science research. As a collection of countries with

²¹ Mitchell 2003, 423

²² Sands 2003

²³ McCormick 2001; Weale et al. 2000

²⁴ Axelrod and Vig 1999

²⁵ Sprinz 2004

important shared characteristics, but which differ along a number of recognisable and well-documented dimensions, the EU provides researchers with an excellent opportunity to identify the determinants of cross-national variations in state behaviour. Indeed, differences in member state implementation of EU environmental policy have previously been used to derive wider lessons about the determinants of MEA implementation²⁶.

Our specific focus in the present paper is the most important instrument of European environmental policy, namely, the directive. In common with many “hard law” MEAs, European environmental directives do not automatically become part of a state’s legal system²⁷. Rather, in order to become operational, they must first be transposed into domestic law by competent national and/or subnational authorities. Likewise, directives only specify the broader goals and objectives of environmental action, a characteristic shared with many MEAs. The precise ways and means to achieve these obligations are left to competent authorities²⁸.

While granting states considerable discretion, such flexibility also increases the opportunities for non-compliance with Treaty obligations²⁹. In extreme cases, governments can ignore directives altogether, although this is rare³⁰. More commonly, non-compliance arises from the late, incomplete or incorrect transposition of directives into national law; or else, the failure of competent authorities to establish adequate implementation and enforcement mechanisms³¹.

²⁶ Vogel and Kessler 1998; Raustiala and Slaughter 2002

²⁷ Jacobson and Weiss 1998

²⁸ McCormick 2001

²⁹ Bursens 2002

³⁰ Dimitrakopoulos 2001

³¹ Grant et al. 2000

Under Article 211 of the Treaty of Rome, legal responsibility for ensuring compliance with directives falls to the European Commission³². The Commission monitors the implementation of EU law by individual member states. In cases of suspected non-implementation, it also initiates infringement proceedings. Invariably, these proceedings begin informally, with a series of bi-lateral negotiations between the Commission and the concerned state. Typically, this is sufficient to settle legal disputes, with the majority of suspected breaches of EU law resolved without formal recourse³³.

Where dialogue and mediation fail to produce a satisfactory conclusion, proceedings may move to a formal stage, comprising three sequential steps. In the first, the Commission sends a ‘formal letter of notice’, detailing the grounds of the suspected infringement, and inviting feedback from the concerned member state. If a satisfactory response is not forthcoming, the Commission may deliver a ‘reasoned opinion’, laying-out the Commission’s view of how member state action remains inadequate, and establishing a deadline to rectify the infringement. Failure to comply with the reasoned opinion may result in the case being referred to the European Court of Justice (ECJ).

In reality, only a small proportion of actual legal breaches result in infringement proceedings. In fact, anecdotal evidence suggests that member states frequently implement directives late, without evoking a formal investigation by the Commission³⁴. However, because there is little concrete evidence to suggest that the detection and/or prosecution of non-compliance is systematically biased against particular member states³⁵, it is possible to use the number of infringement cases as a relative measure of

³² Hattan 2003

³³ Davies 2001

³⁴ Pagh 1999

³⁵ Börzel 2001

legal implementation between member states³⁶. Indeed, national infringement counts have been adopted as the dependent variable in several recent statistical studies of member state compliance with European law³⁷, although none of these studies specifically investigates environmental directives.

In the present paper, we similarly make use of infringement statistics, and specifically, the annual number of reasoned opinions against individual member states for non-implementation of environmental directives. We opt for reasoned opinions, since of the three possible stages, they best capture differences in genuine breaches of EU law related to member states' willingness and/or ability to comply. Thus, reasoned opinions largely exclude ambiguous infringements arising from misunderstandings between the member state and the Commission, but equally, do not simply count the most persistent and intransigent cases of non-implementation that end-up in the hands of the ECJ. Table 1 reports the number of reasoned opinions related to environmental directives issued to individual member states – aggregated into three-year averages to smooth over yearly variations – for the period 1979-2000. The table shows that all states have been the subject of proceedings. Yet it also reveals considerable variations in the number of breaches of EU environmental law, both within, and between, different member states over time.

While we use these variations in infringement proceedings in the present paper to further understanding of the conditions under which states implement MEAs, it is important to note that the EU case is unique in several respects. Most notably, environmental directives are legally enforceable by courts at the national and European

³⁶ Bursens 2002; Sverdrup 2004

³⁷ Guiliani 2003; Mbaye 2001; Perkins and Neumayer 2007

level³⁸, although as with other MEAs, legal disputes within the EU are often resolved through mediation³⁹. Additionally, the states comprising the EU are arguably less diverse – in terms of their administrative capacity, cognitive setting, etc. – than is the case for truly international MEAs. Yet, in many other respects, EU environmental policy and non-European MEAs share important similarities. Both are characterised by spatio-temporal variations in implementation⁴⁰, both require participants to make potentially costly domestic adjustments, both make demands on states’ legal, political and bureaucratic apparatus, and to a greater or lesser extent, both appeal to states’ normative obligations to ensure compliance. Hence we believe that the EU case contains important, generalisable lessons for MEAs both at the regional and international level.

<<INSERT TABLE 1 ABOUT HERE>>

Deriving Theoretical Predictions

What explains variations in the implementation of MEAs? Why do certain states fully implement environmental agreements, while others do so incompletely, or not at all? At a theoretical level, a number of theoretical models (or approaches) have been advanced to answer such questions. We focus on four widely-discussed approaches in the present paper, namely, domestic adjustment, reputational, constructivist and managerial. In

³⁸ Readers should note that the assumed superiority of binding vis-à-vis non-binding forms of supranational environmental law remains a subject of ongoing debate, see Victor (2006) and Skjærseth et al. (2006) for relevant insights

³⁹ Faure and Lefevre 2005

⁴⁰ Yet, as in the EU case, it is important not to overstate the scale of implementation failure. See Chayes and Handler Chayes 1993; Neyer 2004

reality, considerable diversity exists within each of these explanatory schools, as well as a degree of overlap between them⁴¹. Still, it is possible to identify a number of distinctive assumptions underpinning each approach, although we readily admit that not everyone would agree with our definitions.

In the rest of this section, we detail each of these models, and moreover, formulate hypotheses designed to capture the dynamics of each model. The text is structured into four parts, corresponding to individual theoretical explanations. We begin with domestic adjustment approaches.

Domestic adjustment

The domestic adjustment model⁴², takes its cue from theories of rational choice. Thus, adherents of domestic adjustment-type explanations conceptualise states as rational, calculative and self-interested actors, who make implementation decisions by weighing-up the material costs and benefits associated with compliance. A central prediction is that adjustment costs imposed on domestic stakeholders are a key factor influencing the implementation of legal commitments⁴³. As the costs of implementing policy rise, so it is suggested that actors face growing incentives to delay, dilute or even ignore their legal obligations⁴⁴. These dynamics are potentially significant in the present context to the extent that the costs of implementing multilateral environmental commitments are likely

⁴¹ See Checkel 2001; Raustiala and Slaughter 2002; Sterling-Folker 2000

⁴² For examples of this reasoning, see Börzel 2003; Underdal 1998; Vogel and Kessler 1998

⁴³ Beach 2005; Jacobson and Weiss 1998; Tallberg 2002; Underdal 1998

⁴⁴ Börzel 2003

to vary spatially and temporally⁴⁵. We expect two such factors to influence the costs of implementing EU environmental directives.

The first is the level of ambient environmental quality, with overall compliance costs likely to be higher in states with a higher pollution load, not least because of the need for larger investments in abatement equipment⁴⁶. Of course, EU environmental policy is extensive, covering a range of media, resources and discharges. However, directives governing pollution emissions and/or ambient standards are likely to be especially susceptible to domestic resistance, owing to the fact that they have historically impacted politically influential groups comprising citizens (i.e. voters) and industry⁴⁷. A second – and closely related – factor influencing compliance costs is manufacturing-intensity. Manufacturers have been the target of a large number of EU environmental policies, many of which have potentially significant cost implications⁴⁸. While agricultural producers have also been subject to environmental directives, such policies have often been accompanied by offsetting payments. We therefore expect, all else equal, manufacturing-intensive states to encounter higher overall compliance costs in seeking to implement environmental directives.

Together, the above suggests that regulated parties in heavily polluted and/or manufacturing-intensive states will be more likely to “mobilise” against the introduction of new environmental policies. This, in turn, increases the risk of legal infringements as politicians and regulators respond to pressures from non-state actors to defy, delay and/or dilute environmental directives. Manufacturers are likely to be especially influential in

⁴⁵ Downie 2005

⁴⁶ Zito 2000

⁴⁷ The importance of business opposition in undermining the effective implementation of supranational environmental policy obligations is well documented in the literature, e.g., Weintal and Parag 2003

⁴⁸ Grant et al. 2000

this respect⁴⁹ since they have received comparatively few side-payments from the EU and are typically represented by strong and well-organised lobby groups⁵⁰.

Hence:

Hypothesis 1. The higher the pollution load, the lower the implementation of environmental directives.

Hypothesis 2. Implementation will be lower where manufacturing-intensity is higher.

Reputational

A second broad approach, which we label reputational, is most often associated with theories of neoliberal institutionalism⁵¹. In common with domestic adjustment approaches, reputational ones assume rational, calculative and egoistic behaviour. However, the latter widens the scope of self-interest, focusing on external reciprocity, strategic legitimacy and reputational calculus. Thus, states comply with their legal obligations anticipating that the long-term costs from non-compliance in terms of reputational damage outweigh any short-term gains⁵². More positively, it is suggested that compliance offers states an opportunity to prove their credentials as reliable and legitimate partners in co-operative ventures, with potentially positive payoffs for economic, political and military security⁵³.

⁴⁹ Of course, manufacturers do not always oppose new environmental policies (e.g., see Wurzel 2002). Yet, across the majority of environmental directives, we expect the predominant pattern to be one of resistance.

⁵⁰ Grant et al. 2000

⁵¹ Downs and Jones 2002; Keohane 1984

⁵² Simmons 1998

⁵³ Chayes and Handler Chayes 1993

Within the EU context, we argue that such concerns are likely to be especially important for recent entrants. Keen to prove their credentials as “good” European citizens, and therefore dependable collaborators in EU affairs, newcomers will make greater efforts to faithfully implement environmental directives⁵⁴. Moreover, recent entrants are likely to anticipate higher losses from reneging on their Treaty commitments. Thus, against a backdrop of limited reputational capital, newcomers will be concerned about the negative ramifications – for example, in terms of reduced political influence within EU decision-making institutions – arising from a widely-publicised record of non-compliance with European law.

Long-established member states, on the other hand, are unlikely to rely so heavily on compliance for their legitimacy, standing and reputation. Their position as legitimate members of the EU is frequently taken for granted, owing to their founding status and/or long history of political engagement. Indeed, confident of their standing and with an accumulated stock of reputational capital, long-term members may be tempted to prioritise the protection of domestic economic interests over the legal goals of EU integration⁵⁵.

These predications are consistent with theoretical expectations, which emphasise the importance of faithful compliance amongst new states for signalling their reputation as reliable partners in future co-operative ventures⁵⁶. They are also in line with the literature on Europeanization which emphasises the strategic intent of new accession states to gain legitimacy⁵⁷. Additionally, our expectations are supported by empirical

⁵⁴ Guiliani 2003

⁵⁵ Olsen 2002

⁵⁶ Downs and Jones 2002

⁵⁷ Lægreid et al. 2004

evidence. Several qualitative studies therefore document how concerns to nurture international legitimacy and a reputation as cooperative and responsible actors have led several developing and transition countries to make concerted efforts to fully implement MEAs⁵⁸. More specifically, the idea that more recent entrants to the EU should have a better record of implementing directives is supported by past quantitative work, which has found a positive relationship between membership length and number of legal infringements⁵⁹.

Another claim made in the literature is that the significance of reputational capital is influenced by power status. Underlying this argument is the idea that more powerful states command international legitimacy and influence on account of their political, economic and/or military size, lessening the strategic importance of reputation for cooperative ventures. Along similar lines, it is claimed that powerful countries are more autonomous, in that they are better able to resist international pressures to comply exercised by supranational organisation, non-governmental organisations and other sovereign states⁶⁰.

Applied to the EU context, these insights suggest that more powerful members will be better positioned to defy costly and/or disruptive EU environmental laws⁶¹. Their economic, political and environmental weight means that influence in EU affairs is unlikely to depend greatly on their reputation as faithful implementations. They can, in other words, afford to defect. At the same time, powerful states are less likely to face hostile responses from fellow member states, and particularly weak ones. Fearing

⁵⁸ Comisso et al. 1998; Zhao 2005

⁵⁹ Guiliani 2003; Mbaye 2001

⁶⁰ Cardenas 2004

⁶¹ Sverdrup 2004

negative economic and/or political consequences, weak states might be expected to avoid threatening their self-interests by mobilising shame against their larger, more powerful counterparts.

Conversely, unable to rely on economic and/or political power for influence, weaker states are likely to depend to a far greater extent on their reputation as cooperative, reliable and committed member states. Indeed, their ability to wield political influence may crucially depend on doing so. An important corollary is that less powerful states faces greater incentives to establish and maintain a reputation as good European partners through the timely and/or proper implementation of EU law.

A similar argument has been applied to explain the greater propensity of larger, more powerful member states to breach the Stability and Growth Pact rules of European Monetary Union⁶². Specifically, it is claimed that smaller states are less able to afford the loss of reputational capital arising from non-compliant behaviour compared to their larger counterparts. Likewise, the ability of the US to defy international environmental law has been attributed to its hegemonic status, which has allowed domestic elites to resist external pressure for compliance⁶³. Hence we expect more powerful states to violate EU environmental laws more frequently, an expectation consistent with past quantitative studies into the implementation of all directives⁶⁴.

Summing-up:

Hypothesis 3. More recent entrants to the EU will have a better record of implementation of environmental directives.

⁶² Buti and Pench 2004

⁶³ Falkner et al. 2004

⁶⁴ Mbaye 2001; Sverdrup 2004

Hypothesis 4. More powerful member states are likely to have a worse record of implementation.

Constructivist

A third approach used to explain (non-)compliance with legal obligations, constructivism, emphasises the normative basis of compliance⁶⁵. According to constructivists, choices governing legal implementation are fundamentally guided by norms, beliefs and rules, which collectively provide the foundation for individuals' interests⁶⁶. Constructivist accounts adopt a process-based ontology⁶⁷. Hence, it is suggested that normative commitments are not prefigured, but are frequently learnt, internalised and embedded through a process of transnational engagement⁶⁸. Accordingly, constructivists predict that compliance happens where legalised norms are internalised, meaning that they 'resonate and are considered legitimate locally' (Cardenas 2004, 215), and therefore become institutionalised into accepted practice⁶⁹.

Within the recent literature, considerable importance has been attached to the normative identities, preferences and beliefs of civil society⁷⁰. Thus, it is suggested that civil society plays a pivotal role in embedding, mobilising and sanctioning normative obligations at the domestic level. Constructivist scholars within the European context have similarly emphasised the importance of national publics in determining the

⁶⁵ Sterling-Folker 2000

⁶⁶ Beach 2005; Chayes and Handler Chayes 1993; Faure and Lefevre 2005

⁶⁷ Palan 2004

⁶⁸ Kostakopoulou 2005; Underdal 1998

⁶⁹ Cardenas 2004, 215

⁷⁰ Cardenas 2004; O'Neill et al. 2004

normative “pull” of European law⁷¹. One claim is that positive citizen values, attitudes and beliefs towards Europe enhance the domestic legitimacy of EU forms of polity and governance⁷². In doing so, they increase political actors’ acceptance of EU legal norms, ‘...as being legitimate and part of the ‘law of the land’’ (Beach 2005, 124), and working from a “logic of appropriateness”⁷³, their implementation of directives as a matter of normative obligation⁷⁴. Indeed, these ideas are consistent with notions of Europeanization which emphasise the cognitive basis of institutional change⁷⁵. Hence we expect countries in which the public are more supportive of the EU, in the sense of more approving of its existence, modalities and actions, will be the subject of fewer infringements for non-implementation of environmental directives.

Yet it is not only civil society which is widely implicated in the domestic incorporation of compliance norms. For constructivists working within an International Relations tradition, national political elites internalise new and/or strengthened normative commitments through ‘participation in a norm-governed process’⁷⁶. Involvement in international polity, politics and policy, in particular, is believed to support social communication, learning and the development of new normative understandings. What this suggests is that countries’ involvement in international and/or regional environmental agreements might plausibly shape compliance. With a history of international engagement, signatories to multiple MEAs might be expected to have reconfigured their preferences further from unilateralism, recognising that they hold common interests and

⁷¹ Checkel 2001; Laffan 2001

⁷² Mbaye 2001

⁷³ March and Olsen 1979

⁷⁴ Dyson 2000; Laffan 2001

⁷⁵ Knill and Lehmkuhl 2002

⁷⁶ Raustiala and Slaughter 2002, 546

stand to gain from common solutions. As a result, they are more likely to be accepting of the normative force and legitimacy of multilateral governance, and therefore comply with resulting obligations⁷⁷. Indeed, it seems improbable that signatories to multiple MEAs would be peculiarly adverse to EU directives on the grounds that they represent an unacceptable challenge to national sovereignty⁷⁸. More specifically, domestic political actors in states which are party to larger numbers of MEAs are more likely to have internalised norms regarding environmental policy as a legitimate and worthwhile focus for multilateral policy intervention, fostering institutionalised compliance behaviour. We therefore anticipate that the implementation of environmental directives and states' cumulative experience of MEAs will be closely linked. Hence:

Hypothesis 5. Implementation of environmental directives will be better the higher the approval rate of the EU in a member state's population.

Hypothesis 6. Signatories to a larger number of MEAs are likely to have a better record of implementation.

Managerial

Even where states are compelled, coerced and/or obligated to implement international law, however, there is no guarantee that they will be able to do so⁷⁹. A fundamental claim of the fourth and final approach considered here, the so-called, managerial perspective, is

⁷⁷ Lægreid et al. 2004

⁷⁸ Brunnée 2004

⁷⁹ Chayes and Handler Chayes 1993; Faure and Lefevre 2005; Haas 2000

that compliance problems may continue to arise on account of various constraints⁸⁰. In reality, managerialist accounts capture a broad set of dynamics, several of which are potentially compatible with domestic adjustment, reputational and constructivist models. We restrict our focus here to three constraints widely discussed in the literature on supranational legal implementation and compliance. The first is the domestic political structure. A popular argument is that the number of political veto points has an important influence on the implementation of multilateral agreements. Underlying this belief is the observation that veto players may oppose the introduction of new supranational policy requirements, and therefore their incorporation into national law⁸¹. Since the likelihood of delays is likely to rise with the number of veto players in government, we expect political executives in states that are more constrained by the existence of veto players to find it more difficult to implement multilateral policy requirements. This prediction is supported by case-study evidence⁸², together with recent statistical analyses of EU directives, which have found that states with more veto players have been subject to more formal infringement proceedings⁸³.

Another constraint hypothesised to impede compliance with supranational legal commitments is a country's domestic legal system, traditions and culture⁸⁴. According to several scholars, implementation is likely to run into opposition and/or delays where legal systems are more litigious, complex or tolerant of non-compliance⁸⁵. Conversely, where a country's legal system settles disputes quickly, is respectful of international law and/or

⁸⁰ Dimitrakopoulos 2001

⁸¹ Haverland 2000; Ho 2002; Scruggs 2003

⁸² Falkner 2005; Weale et al. 2000

⁸³ Guiliani 2003

⁸⁴ Ho 2002; Simmons 2000

⁸⁵ Alter 2000

compliance-oriented, implementation will proceed more smoothly⁸⁶. Within the EU, it is the Nordic states whose – Scandinavian – legal system, traditions and culture embody these characteristics most closely⁸⁷. Indeed, their peculiar approach towards conflict management and norms of faithful compliance with international law have previously been identified as factors underlying the comparatively low number of infringement proceedings raised against them, particularly beyond the formal letters stage⁸⁸.

A third set of constraints are administrative in nature. A common suggestion is that making the adjustments required to implement multilateral environmental policy commitments depends on administrative capacity, including an adequate supply of lawyers, bureaucrats and scientists⁸⁹. Along similar lines, it is suggested that the quality of the administrative resources is also important⁹⁰. Of particular relevance in this respect is the ability of government departments, agencies and personnel to facilitate and/or action the steps – legal transportation, promulgation of regulations, creation of enforcement agencies, etc. – required to implement treaty obligations. Indeed, these claims are largely consistent with past empirical studies, which have identified administrative capacity and/or quality as a constraint on the correct and/or timely implementation of both international MEAs⁹¹ and EU environmental directives⁹². We therefore expect states with weak and/or inefficient bureaucratic capacity to encounter more difficulties in implementing EU environmental law.

Summing-up, then:

⁸⁶ c.f. Scruggs 2003, 143

⁸⁷ Bengtsson et al. 2004; Goldsmith and Larsen 2004

⁸⁸ Bursens 2002; Sverdrup 2004

⁸⁹ Carter 2001; Downie 2005; Jacobson and Weiss 1998; Raustiala and Slaughter 2002

⁹⁰ Vogel and Kessler 1998

⁹¹ Comisso et al. 1998; Hønneland and Jørgensen 2003; Weiss and Jacobson 1998

⁹² Bursens 2002; Falkner et al. 2004; Lampinen and Uusikylä 1998; Weale et al. 2000; also see Perkins and Neumayer 2007 for all directives

Hypothesis 7. Countries in which national governments are more constrained by veto players will have a worse record of implementing environmental directives.

Hypothesis 8. States with a Scandinavian legal system are likely to have a better record of implementation.

Hypothesis 9. Greater administrative capacity renders implementation more likely.

Hypothesis 10. Bureaucratic quality will be positively correlated with implementation.

Empirical Research Design

Dependent Variable

Our dependent variable – that is, measure of the extent to which states’ implement environmental directives – is the annual number of environment-related infringement proceedings taken against individual member states over the period 1979-2000. It is important to note that infringement data do not provide a true measure of the actual number of legal breaches committed by member states in any one year. Instead, infringements only record cases of non-implementation detected by the Commission, and moreover, currently under investigation; whether or not the breach was committed during

that year. In reality, these comprise a fraction of the overall number of legal breaches by member states⁹³.

Providing that “unrevealed” cases are randomly distributed across the sample, however, they should not invalidate the use of infringement data as a measure of legal implementation. Börzel investigates this assumption and finds little evidence for the existence of systematic bias⁹⁴. Thus, neither societal activism nor state monitoring capacity – two factors that could plausibly bias the detection and reporting of non-implementation between countries – are correlated with the number of national infringements received by individual member states. Similarly, she finds no consistent relationship between country rankings by total infringements to any of the factors – state power, level of Euro-scepticism, etc. – previously hypothesised to influence the Commission’s willingness to pursue formal proceedings. These observations do not entirely rule out the possibility of systematic bias, but do at least indicate that several of the potential biases sometimes mentioned in the literature⁹⁵ may be relatively unimportant.

Of the possible infringement stages, we opt for reasoned opinions. Our choice was guided by a number of considerations. First, unlike formal letters, reasoned opinions exclude a substantial share of infringement cases arising from ambiguities and misunderstandings between the member state and the Commission⁹⁶, neither of which are relevant in the context of our four explanatory models. At the same time, reasoned opinions do not exclude potentially instructive cases of non-compliance, as is the case

⁹³ Börzel 2001; Bursens 2002; Davies 2001

⁹⁴ Börzel 2001

⁹⁵ See Hattan 2003; Mastenbroek 2003

⁹⁶ Davies 2001

with ECJ referrals. Only the most intransigent cases of non-implementation end-up being referred to the ECJ, meaning that they fail to capture a large number of genuine breaches settled earlier on⁹⁷. Indeed, precisely because there are very few ECJ referrals, and therefore limited variability in the data, they are poorly suited to econometric analysis.

Independent Variables

Beginning with domestic adjustment costs, our measure of a country's pollution performance (H1) is the average per capita pollution load index (PLI) for carbon dioxide, nitrogen oxides and sulphur dioxide emissions⁹⁸. The PLI index measures the average emission load per capita relative to the EU average in percentage terms. Values above (below) zero mean higher (lower) than average EU pollution load⁹⁹. For example, a value of 80 means that the country's per capita pollution load was 80 per cent above the EU average, whereas a value of -20 means that it was 20 per cent below EU average. Ideally, we would have liked to use a more comprehensive measure of pollution load, going beyond air pollution. However, such data are unavailable for our period of study, with comparable indicators for water only available from 1990 onwards. Still, it is plausible to assume that a country's per capita air emissions will be closely correlated with other forms of pollution. As our measure of the manufacturing-intensity of a country's economy (H2), we take the manufacturing value-added share of GDP¹⁰⁰.

With regards to reputational variables, our measure of membership length (H3) is the number of years the country has been a member of the European Union or its

⁹⁷ Börzel 2001

⁹⁸ As calculated by Klein 2005

⁹⁹ There is substantial variation across EU countries – see Neumayer 2001b

¹⁰⁰ Data from World Bank 2003

predecessors. We take the natural log of this variable since we believe that the number of years will have a decreasing impact on countries' non-compliant behaviour. In order to measure a country's power status (H4), we use population size¹⁰¹. Because it is unlikely that a country's power status will have a linearly increasing influence on its ability to shirk treaty obligations to implement EU environmental directives, we take again the natural log of this variable.

Moving on to our variables capturing expectations derived from constructivist theories, we measure public approval for the EU (H5) using the percentage of the population stating that membership of their country in the European Union is "a good thing". Data are taken from the Mannheim Eurobarometer Trend File 1970-2002¹⁰². For our measure of engagement with MEAs (H6), we use the percentage share of multilateral environmental agreements (MEAs) a country has ratified¹⁰³.

In order to measure managerial restrictions imposed on executive authority by the domestic political structure (H7), we use an index of political constraints developed by Henisz¹⁰⁴. Building on a simple spatial model of political interaction, the index captures the structure of government in a given country, together with the political views represented by different levels of government. It measures the extent to which political actors are constrained in their future policy choices by the existence of other political actors with veto power. A dummy variable captures the effect of the prevailing Scandinavian civil law system in Denmark, Finland and Sweden (H8). Rather than lumping all the remaining countries together, we allow for more flexibility in the

¹⁰¹ Data from World Bank 2003

¹⁰² Schmitt et al. 2005

¹⁰³ CIESIN 2004. Due to lack of data, values for 1998 onwards are as 1997.

¹⁰⁴ Henisz 2000

estimations by further distinguishing between French civil law (Belgium, France, Greece, Italy, Luxembourg, Netherlands, Portugal and Spain), German civil law (Austria and Germany) and Common law (Ireland and United Kingdom) countries. With a set of exclusive and complete dummy variables, one dummy needs to be omitted from the estimations to serve as the reference category. In our case, this is the Scandinavian civil law dummy¹⁰⁵.

We measure administrative capacity (H9) using per capita income expressed as gross domestic product in purchasing power parity and constant US\$,¹⁰⁶. Although an indirect measure, it makes sense that states with greater wealth should command (all else equal) more administrative resources to implement environmental directives, an assumption confirmed in past empirical studies¹⁰⁷. Our fourth managerial variable, bureaucratic efficiency (H10), is measured using a score provided by the International Country Risk Guide¹⁰⁸, which runs from 1 (worst) to 4 (best). These data are only available from 1984 onwards, meaning that we use the 1984 value for prior years. However, because there is little variation in expert assessments of bureaucratic quality over time, this should not represent a big problem.

Additionally, we include a control variable to account for the so-called “newcomer” effect, whereby new entrants have historically been exempted from infringement proceedings for a period of approximately two years¹⁰⁹. Granted by the Commission in recognition of the difficulties faced by new member states in adjusting to a large number of directives, we expect the newcomer effect to have a negative influence

¹⁰⁵ Data from La Porta et al. 1999

¹⁰⁶ Data from World Bank 2003

¹⁰⁷ Jacobson and Weiss 1998

¹⁰⁸ PRS Group 2004

¹⁰⁹ Sverdrup 2004

on the number of infringement cases. Our dummy variable is set to one for the first two years of EU membership. Table 2 provides summary descriptive variable information.

<<INSERT TABLE 2 ABOUT HERE>>

Estimation Model

We estimate the following model

$$y_{it} = \alpha + \beta_1 x_{it} + \gamma_t T_t + u_{it}$$

The subscript i represents each member state of the EU in year t , y is the number of reasoned opinions and x is the vector of explanatory variables. The year-specific dummy variables T are of particular importance in the context of the present study, capturing general developments common to all member states, but changing over time. They include annual increases in the number of environmental directives and other regulations, both of which might plausibly impact member state compliance¹¹⁰. They also include changes in the Commission's willingness to pursue infringement proceedings against member states¹¹¹, developments in the European legal regime for enforcing and sanctioning non-compliance¹¹², and institutional developments such as Treaty revisions and enlargement. Year-specific time dummies can control for all these developments, as long as they affect all member states approximately equally, without the need of formally modelling each factor. The u_{it} is a stochastic error term.

¹¹⁰ Börzel 2001; Neyer 2004

¹¹¹ Hattan 2003

¹¹² Alter 2000

Because the dependent variable is a discrete, strictly positive count variable, ordinary least squares (OLS) is not well-suited as a regression technique, as its underlying distributional assumption is that of a normally-distributed continuous variable. A common technique for count data is an estimator based on the assumption that the underlying data is Poisson distributed. However, it implicitly assumes that the conditional mean and the variance functions of the dependent variable are equal. If this assumption does not hold, then Poisson regression is insufficiently conservative and hugely overestimates the significance of variables¹¹³. We therefore use negative binomial regression, which is more flexible than Poisson, with standard errors that are fully robust toward arbitrary heteroskedasticity and autocorrelation. To deal with potential autocorrelation more directly, we also include the lagged dependent variable, but since it sometimes absorbs a large amount of variation of the data, we report two regression results: one with, and one without, the lagged dependent variable.

Results

Table 3 shows our estimation results. With regards to our hypotheses, our findings are largely consistent with expectations. Thus, we estimate a positive, statistically significant relationship between manufacturing-intensity and number of legal infringements (i.e., reasoned opinions). Similarly, our estimated coefficient for air pollution is positive and statistically significant. That is, according to our estimations, states with a higher pollution load appear to have a worse record of implementing environmental directives.

¹¹³ Cameron and Trivedi 2005

<<INSERT TABLE 3 ABOUT HERE>>

With regards to variables measuring reputational motives, the estimations are consistent with expectations. Thus, we estimate a positive and statistically significant relationship between length of membership and legal infringements. Similarly, we find that population is positively and statistically significantly correlated with legal infringements, indicating that more powerful member states are more likely to ignore and/or defy environmental treaty obligations.

Moving to constructivist variables, we find that public support for European integration is negatively and significantly correlated with the number of reasoned opinions, suggesting that governments of countries whose citizens hold favourable opinions of the EU are more likely to implement its environmental policies. We also find that states which are signatories to a larger number of MEAs have fewer infringements, a relationship which is statistically significant at the .01 level. Again, both results are theoretically consistent.

Finally, with respect to managerial expectations, we estimate a positive and statistically significant relationship between political constraints and number of infringement cases. Likewise, as expected, all the non-Scandinavian legal systems (Common law, French civil law and German civil law) have statistically significantly more infringements than the countries with Scandinavian civil law traditions, the omitted reference category. Yet our other two measures of administrative constraints – namely, bureaucratic efficiency and administrative capacity – fail to assume statistical

significance. It is worth noting that, while the two variables are correlated with each other, multicollinearity is not responsible for this result. Taking out one still leaves the other variable statistically insignificant¹¹⁴. The results thus fail to confirm part of the expectations derived from managerial theories of compliance, as well as several recent case-studies¹¹⁵. However, it may of course be that our highly generalised measures of administrative resources are a poor measure of the capacity/efficacy of a state's institutions involved in implementing environmental directives. Unfortunately, more sector-specific measures of administrative resources – for example, the number of employees working in environmental protection agencies – are simply unavailable for our sample countries and years.

Our dummy control variable for newcomer status is statistically significant with the anticipated positive sign. This is the only variable that becomes marginally insignificant when the lagged dependent variable is included in the estimations. Otherwise results are robust toward inclusion of the lagged dependent variable, which itself is statistically insignificant.

What can we say about the relative explanatory power of each theory? Because the negative binomial is not a linear regression, one cannot use a measure of fit such as adjusted R-squared. Instead one needs to employ statistical information criteria such as the Akaike information criterion (AIC) and the Bayesian information criterion (BIC). Similar to adjusted R-squared, these information criteria assess the goodness of fit by assessing the explanatory power of non-linear models with reference to their log-likelihood, adjusting for the fact that models with more explanatory variables will usually

¹¹⁴ Using the log of per capita income makes no difference

¹¹⁵ Bursens 2002; Falkner et al. 2004

fit the data better. The criteria differ in the extent to which they penalize model complexity (more variables typically explain more variation in the data¹¹⁶). If only the variables of each theory are entered into a regression on their own, then the managerial model has the lowest AIC and BIC, followed by the domestic adjustment, constructivist and reputational models¹¹⁷. Since lower AIC and BIC values are preferred, this would suggest that the managerial model is the most and the reputational model the least preferred. However, such a comparison assumes that the explanatory models are mutually exclusive, which, neither in theory nor in reality, is necessarily true. A more pertinent question might therefore be whether each theory adds to the overall explanatory power of the model. One can test with the same criteria whether dropping the variables from any single model from the regression that includes all variables leads to a more preferred model. The test results suggest that dropping the variables of any one of the theories would lead to a less preferred model according to both AIC and BIC¹¹⁸. The conclusion is therefore that all models add significantly to the model and should be included together in estimation.

Discussion and Conclusions

¹¹⁶ Cameron and Trivedi 2005

¹¹⁷ Managerial (AIC: 1191.2; BIC: 1300.0); domestic adjustment (AIC: 1243.3; BIC: 1336.1); constructivist (AIC: 1246.9; BIC: 1339.6); reputational (AIC: 1247.6; BIC: 1340.3)

¹¹⁸ The full model has an AIC of 1176.0 and a BIC of 1304.4. Dropping the domestic adjustment model variables increases the AIC to 1184.6 and the BIC to 1305.9. Dropping the reputational model variables raises the AIC to 1189.9 and the BIC to 1311.2. Excluding the managerial model variables increases the AIC to 1211.5 and the BIC to 1318.5. Finally, dropping the constructivist model variables raises the AIC to 1187.5 and the BIC to 1308.8. In all cases, the nested, more parsimonious models have higher AIC and BIC than the complete model, which renders the complete model the preferred one

While scholarship has gone a long way in resolving the question of why states sign-up to MEAs, far less is known about the reasons for differences in the implementation of these agreements¹¹⁹. Indeed, when it comes to understanding why states do – or indeed, do not – comply with their treaty obligations to implement MEAs, it would be fair to say that theorisation has run ahead of empirical testing. Although scholars have advanced a number of theoretical models to explain differences in legal compliance, comparatively little research has been undertaken to empirically validate their respective predications¹²⁰.

In this paper, we seek to reduce this gap between theoretical and empirical understanding. To this end, we use econometric techniques to statistically test the value of four distinct theoretical approaches – domestic adjustment, reputational, constructivist and managerial – in explaining differences in the implementation of EU environmental directives. Our study makes a number of important contributions to current understanding of the conditions under which MEAs are (not) implemented. First, we provide systematic empirical support for the predictive power of two dominant rationalist explanations, notably, domestic adjustment and reputational models. While several authors have cast doubt over the idea that compliance decisions are subject to rational, calculative logic¹²¹, our study suggests otherwise. Thus, we find that states with a higher share of manufacturing industry and/or air pollution load – characteristics which might plausibly increase the economic costs of implementing EU environmental policy requirements, and therefore opposition from governmental and non-governmental actors – have a worse record of implementing environmental directives.

¹¹⁹ Carter 2001; Raustiala and Slaughter 2002; Simmons 1998

¹²⁰ Raustiala and Slaughter 2002

¹²¹ Weiss and Jacobson 1998 Chayes and Handler Chayes 1993; Hønneland and Jørgensen 2003

Similarly, our statistical estimations validate predications derived from reputational models¹²². Recent entrants to the EU club, who presumably face strong, self-help motives to establish and maintain a reputation as “good” European partners, are more likely to implement environmental directives. Conversely, we find that more populous states have a worse record of compliance, a finding consistent with theoretical predications regarding the lower reputational penalty faced by more powerful states in defecting from treaty obligations.

Compared with the preceding two explanations, constructivist accounts have largely been ignored in the empirical literature¹²³. Our findings, however, suggest that constructivist explanations are potentially instructive in understanding cross-national variations in the implementation of MEAs. According to constructivists, therefore, we should expect political actors to internalise wider societal norms in making implementation decisions. Presumably, this explains our finding that member states whose citizens hold more positive sentiments towards EU integration have fewer infringements. According to the same perspective, we should expect norms regarding the role of supranational governance and environmental protection to influence compliance activity. Again, this is consistent with our finding that member states who have signed-up to a larger number of MEAs have fewer infringements.

Finally, our findings lend systematic, empirical support for managerial models of compliance, which emphasise various implementation constraints. Consistent with previous empirical work¹²⁴, we find that countries where political actors are impeded by the presence of veto players in national government are less likely to successfully

¹²² Downs and Jones 2002

¹²³ See Börzel 2003; Weiss and Jacobson 1998

¹²⁴ Guiliani 2003; Haverland 2000

implement environmental policy. Similarly, we find that countries with a Scandinavian legal system have fewer infringements for non-compliance, presumably because of their less adversarial, compliance-oriented legal culture.

Yet, while our estimation results corroborate past findings highlighting the importance of political and legal constraints¹²⁵, we find no support for the oft-made claim that administrative capacity and/or efficiency explains variations in the implementation of MEAs. Of course, it may be that our result is simply a product of our generalised measure of administrative resources, or alternatively, that our sample does not contain countries with very limited and/or inefficient bureaucratic capacity¹²⁶. Still, our results should caution against the widely-held assumption that implementation failures can be automatically blamed on administrative shortcomings. A similar conclusion has been reached by Börzel in her study of alleged non-compliance in Southern Europe¹²⁷.

Taken together, our findings lead us to three key conclusions. First, the reasons for states' implementation – or indeed, non-implementation – of MEAs are multiple and complex¹²⁸. Accepting our premise that insights from the EU case are generalisable, it is clear that variations in implementation cannot be reduced to a single variable, suggesting a need for multivariate explanations. Indeed, given that our study is limited by the number of quantifiable variables for which data are available, we expect the underlying determinants to be even more complex than portrayed here. In particular, we expect governance-related factors – such as national bureaucratic traditions, policy styles, etc. –

¹²⁵ Haverland 2000; Lampinen and Uusikylä 1998; Weale et al. 2000

¹²⁶ Note, past research documenting the constraining role of administrative resources on MEA implementation is largely based on case-study evidence from low-income developing countries. See for example Blaikie and Simo 1998

¹²⁷ Börzel 2003

¹²⁸ Mbaye 2001; Raustiala and Slaughter 2002

to account for some of the unexplained variations in compliance with environmental directives¹²⁹. A challenge for future research is to investigate the role of these contextual and institutional determinants using a large-N approach.

A second important conclusion is theoretical and follows closely from the first. While different conceptual models of compliance – rational choice, reputational, constructivist and managerial – offer important insights into (non-)compliance with treaty obligations to implement environmental policy, they need not, and should not, be seen as mutually exclusive. By themselves, none of the models offers a satisfactory explanation for the observed variations in the implementation of EU environmental directives. Together, however, they provide a more complete account of variations in implementation. We are not the first to recognise this point¹³⁰. Yet our study is unique in providing statistical support for the value of four leading models of compliance in explaining cross-national variations in the implementation of supranational treaty obligations designed to protect the environment. Of course, this does not mean that different states comply for the same set of reasons, and that the above models will be relevant in understanding (non-)compliance in all instances. Rather, our study suggests that domestic adjustment, reputational, constructivist and managerial models offer important insights in understanding variations between countries in the degree of compliance with supranational policy commitments.

A third conclusion centres on data. Our study examines a single example of supranational environmental policy implementation, and moreover, one with very specific characteristics. Yet recognising the variety of multilateral environmental

¹²⁹ Knill 2001

¹³⁰ See Beach 2005; Raustiala and Slaughter 2002; Sverdrup 2004; Underdal 1998

agreements, and associated governance structures, it would seem imperative to examine compliance models in a broader range of settings. Unfortunately, statistical work in this direction is restricted by a basic lack of data. We therefore finish by pointing to the urgent need to assemble new implementation datasets covering a wide range of MEAs, and furthermore, that include a number of different measures of compliance.

References

- Aguilar-Støen, Mariel and Shivcharn S. Dhillon. 2003. Implementation of the Convention on Biological Diversity in Mesoamerica: Environmental and Developmental Perspectives. *Environmental Conservation* 30 (2): 131-38.
- Alter, Karen J. 2000. The European Union's Legal System and Domestic Policy: Spillover or Backlash? *International Organization* 54 (3): 489-518.
- Axelrod, Regina S. and Norman J. Vig. 1999. The European Union as an Environmental Governance System. In *The Global Environment: Institutions, Law, and Policy*, edited by Norman J. Vig and Regina S. Axelrod. London: Earthscan.
- Beach, Derek. 2005. Why Governments Comply: An Integrative Compliance Model That Bridges the Gap between Instrumental and Normative Models of Compliance. *Journal of European Public Policy* 12 (1): 113-42.
- Bengtsson, Rikard, Ole Elgström and Jonas Tallberg. 2004. Silencer or Amplifier? The European Union Presidency and the Nordic Countries. *Scandinavian Political Studies* 27 (3): 311-34.
- Blaikie, Piers and John Mope Simo. 1998. Cameroon's Environmental Accords: Signed, Sealed but Undelivered. In *Engaging Countries: Strengthening Compliance with International Environmental Accords*, edited by Edith B. Weiss and Harold K. Jacobson. London: MIT Press.
- Börzel, Tanja A. 2003. *Environmental Leaders and Laggards in Europe: Why There Is (Not) a 'Southern Problem'*. Ashgate: Aldershot.

- . 2001. Non-Compliance in the European Union: Pathology or Statistical Artefact? *Journal of European Public Policy* 8 (5): 803-24.
- Brunnée, Jutta. 2004. The United States and International Environmental Law: Living with an Elephant. *European Journal of International Law* 15 (4): 617-49.
- Bursens, Peter. 2002. Why Denmark and Belgium Have Different Implementation Records: On Transposition Laggards and Leaders in the EU. *Scandinavian Political Studies* 25 (2): 173-95.
- Buti, Marco and Lucio R. Pech. 2004. Why Do Large Countries Flout the Stability Pact? And What Can Be Done About It? *Journal of Common Market Studies* 42 (5): 1023-59.
- Cameron, A. Colin, and Pravin K. Trivedi. 2005. *Microeconometrics*. Cambridge: Cambridge University Press.
- Cardenas, Sonia. 2004. Norm Collision: Explaining the Effects of International Human Rights Pressure on State Behavior. *International Studies Review* 6 (2): 213-31.
- Carter, Neil. 2001. *The Politics of the Environment: Ideas, Activism, Policy*. Cambridge: Cambridge University Press.
- Chayes, Abram and Antonia Handler Chayes. 1993. On Compliance. *International Organization* 47 (2): 175-205.
- Checkel, Jeffrey T. 2001. Why Comply? Social Learning and European Identity Change. *International Organization* 55 (3): 553-88.
- CIESIN. 2004. Environmental Treaties and Resource Indicators. At <http://sedac.ciesin.columbia.edu/entri/>.

- Comisso, Ellen, Peter Hardi and Laszlo Bencze. 1998. Hungary: Political Interest, Bureaucratic Will. In *Engaging Countries: Strengthening Compliance with International Environmental Accords*, edited by Edith B. Weiss and Harold K. Jacobson. London: MIT Press.
- Davies, Karen. 2001. *Understanding European Union Law*. London: Cavendish Publishing.
- Dimitrakopoulos, Dionyssis G. 2001. The Transposition of EU Law: 'Post-Decisional Politics' and Institutional Autonomy. *European Law Journal* 7 (4): 442-58.
- Downie, David Leonard. 2005. Global Environmental Policy: Governance through Regimes. In *The Global Environment: Institutions, Law, and Policy*, edited by Norman J. Vig, Regina S. Axelrod and David Leonard. Washington, D.C.: CQ Press.
- Downs, George W. and Michael A. Jones. 2002. Reputation, Compliance, and International Law. *Journal of Legal Studies* 31 (1): S95-S114.
- Dyson, Kenneth. 2000. EMU as Europeanization: Convergence, Diversity and Contingency. *Journal of Common Market Studies* 38 (4): 645-66.
- Economy, Elizabeth. 2004. *The River Runs Black: The Environmental Challenge to China's Future*. London: Cornell University Press.
- Falkner, Gerda, Miriam Hartlapp, Simone Leiber and Oliver Treib. 2004. Non-Compliance with EU Directives in the Member States: Opposition through the Backdoor? *West European Politics* 27 (3): 452-73.
- Falkner, Robert. 2005. American Hegemony and the Global Environment. *International Studies Review* 7: 585-99.

- Faure, Michael and Jürgen Lefevre. 2005. Compliance with Global Environmental Problems. In *The Global Environment: Institutions, Law, and Policy*, edited by Norman J. Vig, Regina S. Axelrod and David Leonard. Washington, D.C.: CQ Press.
- Goldsmith, Mike and Helge Larsen. 2004. Local Political Leadership: Nordic Style. *International Journal of Urban and Regional Research* 28 (1): 121-33.
- Grant, Wyn, Duncan Matthews and Peter Newell. 2000. *The Effectiveness of European Union Environmental Policy*. Macmillan Press: Basingstoke.
- Guiliani, M. 2003. Europeanization in Comparative Perspective: Institutional Fit and National Adaptation. In *The Politics of Europeanization*, edited by Kevin Featherstone and Claudio M. Radaelli. Oxford: Oxford University Press.
- Gulbrandsen, Lars H. 2003. The Evolving Forest Regime and Domestic Actors: Strategic or Normative Adaptation? *Environmental Politics* 12 (2): 94-114.
- Gupta, Joyeeta. 2001. *Our Simmering Planet: What to Do About Global Warming?* London: Zed Books.
- Haas, Peter M. 2000. Compliance Theories. Choosing to Comply: Theorizing from International Relations and Comparative Politics. In *Commitment and Compliance: The Role of Non-Binding Norms in the International Legal System*, edited by Dinah Shelton. Oxford: Oxford University Press.
- Hattan, Elizabeth. 2003. The Implementation of EU Environmental Law. *Journal of Environmental Law* 15 (3): 273-88.
- Haverland, Markus. 2000. National Adaptation to European Integration: The Importance of Institutional Veto Points. *Journal Public Policy* 20 (1): 83-103.

- Henisz, Witold J. 2000. The Institutional Environment for Economic Growth. *Economics and Politics* 12 (1): 1-31.
- Ho, Daniel E. 2002. Compliance and International Soft Law: Why Do Countries Implement the Basle Accord? *Journal of International Economic Law* 5 (3): 647-88.
- Hønneland, Geir and Anne-Kristen Jørgensen. 2003. Implementing International Environmental Agreements in Russia: Lessons from Fisheries Management, Nuclear Safety and Air Pollution Control. *Global Environmental Politics* 3 (1): 72-98.
- Jacobson, Harold K. and Edith B. Weiss. 1998. Assessing the Record and Designing Strategies to Engage Countries. In *Engaging Countries: Strengthening Compliance with International Environmental Accords*, edited by Edith B. Weiss and Harold K. Jacobson. London: MIT Press.
- Keohane, Robert. 1984. *After Hegemony: Cooperation and Discord in the World Political Economy*. Princeton, N.J.: Princeton University Press.
- Klein, Florian. 2005 *The Implicit Cost of Environmental Protection: Pollution Performance and Chemical Industries in the European Union*. Ph.D. Dissertation, Department of Geography and Environment, London School of Economics.
- Knill, Christoph. 2001. *The Europeanisation of National Administrations: Patterns of Institutional Change and Persistence*. Cambridge: Cambridge University Press.
- Knill, Christoph and Dirk Lehmkuhl. 2002. The National Impact of European Union Regulatory Policy: Three Europeanization Mechanisms. *European Journal of Political Research* 41 (2): 255-280.

- Kostakopoulou, Dora. 2005. Ideas, Norms and European Citizenship: Explaining Institutional Change. *The Modern Law Review* 68 (2): 233-67.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Rober Vishny. 1999. The Quality of Government. *Journal of Law, Economics and Organization* 15 (1): 222-79.
- Læg Reid, Per, Runolfur Steinthorsson and Baldur Thorhallsson. 2004. Europeanization of Central Government Administration in the Nordic States. *Journal of Common Market Studies* 42 (2): 347-69.
- Laffan, Brigid. 2001. The European Union Polity: A Union of Regulative, Normative and Cognitive Pillars. *Journal of European Public Policy* 8 (5): 709-27.
- Lampinen, Risto and Petri Uusikylä. 1998. Implementation Deficit - Why Member States Do Not Comply with EU Directives? *Scandinavian Political Studies* 21 (3): 231-51.
- March, James G. and Johan P. Olsen. 1979. *Rediscovering Institutions: The Organizational Basis of Politics*. New York: Free Press.
- Mastenbroek, Ellen. 2003. Surviving the Deadline: The Transposition of EU Directives in the Netherlands. *European Union Politics* 4 (4): 371-95.
- Mbaye, Heather A. D. 2001. Why National States Comply with Supranational Law: Explaining Implementation Infringements in the European Union, 1972-1993. *European Union Politics* 2 (3): 259-81.
- McCormick, John. 2001. *Environmental Policy in the European Union*. Basingstoke: Palgrave.

- Miles, Edward L., Arild Underdal, Steinar Andresen, Jørgen Wettestad, Jon Birger Skjørseth and Elaine M. Carlin, eds. 1998. *Environmental Regime Effectiveness: Confronting Theory with Evidence*. London: MIT Press.
- Mitchell, Ronald B. 2006. Problem Structure, Institutional Design, and the Relative Effectiveness of International Environmental Agreements. *Global Environmental Politics* 6 (3): 72-89.
- 2003. International Environmental Agreements: A Survey of Their Features, Formation, and Effects. *Annual Review of Environmental Resources* 28: 429-61.
- 2002. A Quantitative Approach to Evaluating International Environmental Regimes. *Global Environmental Politics* 2 (4): 58-83.
- Neumayer, Eric. 2001a. How Regime Theory and the Economic Theory of International Environmental Cooperation Can Learn from Each Other *Global Environmental Politics* 1 (1): 122-47.
- Neumayer, Eric. 2001b. Improvement without convergence: Pressure on the environment in European Union countries, *Journal of Common Market Studies* 39 (5): 927-37.
- Neyer, Jürgen 2004. Explaining the Unexpected: Efficiency and Effectiveness in European Decision-Making. *Journal of European Public Policy* 11 (1): 19-38.
- Olsen, Johan P. 2002. The Many Faces of Europeanization. *Journal of Common Market Studies* 40 (5): 921-51.
- O'Neill, Kate, Jörg, Balsiger and Stacy D. VanDeveer. 2004. Actors, Norms, and Impact: Recent International Cooperation Theory and Influence of the Agent-Structure Debate. *Annual Review of Political Science* 7: 149-75.

- Pagh, Peter. 1999. Denmark's Compliance with European Community Environmental Law. *Journal of European Law* 11 (2): 301-19.
- Palan, Ronen. 2004. Constructivism and Globalisation: From Units to Encounters in International Affairs. *Cambridge Review of International Affairs* 17 (1): 11-23.
- Perkins, Richard and Eric Neumayer. 2007. Do Membership Benefits Buy Regulatory Compliance? An Empirical Analysis of EU Directives 1978–99. *European Union Politics* 8 (2): 181-207.
- PRS Group. 2004. International Country Risk Guide. At <http://www.prsgroup.com/icrg/icrg.html>.
- Raustiala, Kal. 2001. *Reporting and Review Institutions in 10 Multilateral Environmental Agreements*. Nairobi: UNEP.
- Raustiala, Kal and Anne-Marie Slaughter. 2002. International Law, International Relations and Compliance. In *Handbook of International Relations*, edited by Walter Carlsnaes, Thomas Risse and Beth A. Simmons. London: Sage.
- Sands, Phillippe. 2003. *Principles of International Environmental Law*. Cambridge: Cambridge University Press.
- Schmitt, Hermann, Evi Scholz, Iris Leim and Meinhard Moschner. 2005. The Mannheim Eurobarometer Trend File 1970-2002. At http://www.gesis.org/en/data_service/eurobarometer/standard_eb_trend/trendfile.htm.
- Scruggs, Lyle. 2003. *Sustaining Abundance: Environmental Performance in Industrial Democracies*. Cambridge: Cambridge University Press.

- Simmons, Beth A. 1998. Compliance with International Agreements. *Annual Review of Political Science* 1: 75-93.
- 2000. The Legalization of International Monetary Affairs. *International Organization* 54 (3): 573-602.
- Skjørseth, Jon Birger, Olav Schram Stokke and Jørgen Wettestad. 2006. Soft Law, Hard Law, and Effective Implementation of International Environmental Norms. *Global Environmental Politics* 6 (3): 104-120.
- Solomon, Ty. 2006. Norms and Human Rights in International Relations. *Political Studies Review* 4: 36-47.
- Sprinz, Detlef F. 2004. Environment Meets Statistics: Quantitative Analysis of International Environmental Policy. In *Models, Numbers and Cases: Methods for Studying International Relations*, edited by Detlef F. Sprinz and Yael Wolinsky-Nahmias. Ann Arbor: University of Michigan Press.
- Sterling-Folker, Jennifer. 2000. Competing Paradigms or Birds of a Feather? Constructivism and Neoliberal Institutionalism Compared. *International Studies Quarterly* 44 (1): 97-119.
- Sverdrup, Ulf. 2004. Compliance and Conflict Management in the European Union: Nordic Exceptionalism. *Scandinavian Political Studies* 27 (1): 23-43.
- Tallberg, Jonas. 2002. Paths to Compliance: Enforcement, Management, and the European Union. *International Organization* 56 (3): 609-43.
- Underdal, Arild. 1998. Explaining Compliance and Defection: Three Models. *European Journal of International Relations* 4 (1): 5-30.

- Victor, David G. 2006. Towards Effective International Cooperation on Climate Change: Numbers, Interests and Institutions. *Global Environmental Politics* 6 (3): 90-103.
- Vogel, David and Timothy Kessler. 1998. How Compliance Happens and Doesn't Happen Domestically. In *Engaging Countries: Strengthening Compliance with International Environmental Accords*, edited by Edith B. Weiss and Harold K. Jacobson. London: MIT Press.
- Weale, Albert, Geoffrey Pridham, Michelle Cini, Dimitrios Konstadakopulos, Martin Porter and Brendan Flynn. 2000. *Environmental Governance in Europe: An Ever Closer Ecological Union?* Oxford: Oxford University Press.
- Weinthal, Erika and Yael Parag. 2003. Two Steps Forward, One Step Backward: Societal Capacity and Israel's Implementation of the Barcelona Convention and the Mediterranean Action Plan. *Global Environmental Politics* 3 (1): 51-71.
- Weiss, Edith B. and Harold K. Jacobson, eds. 1998. *Engaging Countries: Strengthening Compliance with International Environmental Accords*. London: MIT Press.
- Wilson, Geoff A., Jan-Erik Petersen and Andreas Höll. 1999. EU Member State Responses to Agri-Environment Regulation 2078/92/EEC - Towards a Conceptual Framework? *Geoforum* 30 (2): 185-202.
- World Bank. 2003. World Development Indicators Online. At <http://devdata.worldbank.org/dataonline>.
- Young, Oran R. 2004. The Consequences of International Regimes: A Framework for Analysis. In *Regime Consequences: Methodological Challenges and Research Strategies*, edited by Arild Underdal & Oran R. Young. Dordrecht: Kluwer Academic/

- Zhao, Jimin. 2005. Implementing Environmental Treaties in Developing Countries:
China's Compliance with the Montreal Protocol. *Global Environmental Politics* 5
(1): 58-81.
- Zito, Anthony. 2000. *Creating Environmental Policy in the European Union*.
Basingstoke: Palgrave.
- Zürn, Michael and Christian Joerges, eds. 2005. *Law and Governance in Postnational
Europe*. Cambridge: Cambridge University Press.

Table 1*Number of Reasoned Opinions Issued (Aggregated over Three Year Periods)*

Year	1979-82	1983-85	1986-88	1989-91	1992-94	1995-97	1998-2000
Austria	—	—	—	—	—	3	19
Belgium	4	12	15	17	8	41	40
Denmark	0	0	5	2	2	0	5
Finland	—	—	—	—	—	3	11
France	1	8	13	7	11	19	32
Germany	0	5	22	10	25	16	22
Greece	0	14	21	37	15	15	26
Ireland	1	5	17	13	21	10	36
Italy	8	8	33	34	29	21	42
Luxembourg	5	4	15	11	12	11	16
Netherlands	3	3	5	11	14	5	8
Portugal	—	—	0	10	17	40	46
Spain	—	—	4	25	18	33	28
Sweden	—	—	—	—	—	2	8
UK	2	3	12	6	15	10	28

Source: Centre for European Integration, Free University Berlin.

Table 2*Descriptive Statistical Variable Information*

Variable	Obs	Mean	Std. Dev.	Min	Max
# Reasoned opinions	262	4.62	5.42	0	30
Air pollution load	262	22.85	58.41	-52	236
% Manufacturing	262	22.95	6.12	11.47	43
EU membership length (logged)	262	2.97	0.87	0	3.89
Population (logged)	262	16.40	1.48	12.80	18.22
EU approval rates	262	0.63	0.16	0.25	0.90
% MEAs	262	0.75	0.16	0.45	1
Index of political constraints	262	0.47	0.10	0.23	0.72
Common law	262	0.17	0.37	0	1
French civil law	262	0.60	0.49	0	1
German civil law	262	0.11	0.31	0	1
Bureaucratic efficiency	262	3.68	0.54	2	4
GDP p.c.	262	18633	5174	9839	43844
Period of grace	262	0.06	0.23	0	1

Table 3*Estimation Results*

Lagged dependent variable		0.000 (0.04)
Air pollution load	0.003 (1.95)*	0.003 (1.96)**
% Manufacturing	0.039 (3.45)***	0.042 (3.74)***
EU membership length (logged)	0.234 (1.89)*	0.208 (1.68)*
Population (logged)	0.415 (3.73)***	0.416 (3.75)***
EU approval rates	-1.751 (2.94)***	-1.809 (3.06)***
% MEAs	-3.521 (3.36)***	-3.477 (3.35)***
Index of political constraints	1.185 (1.90)*	1.086 (1.76)*
Common law	0.710 (2.45)**	0.717 (2.49)**
French civil law	1.434 (5.85)***	1.446 (5.87)***
German civil law	0.729 (2.57)**	0.737 (2.62)***
Bureaucratic efficiency	0.167 (0.75)	0.162 (0.73)
GDP p.c.	0.000 (1.39)	0.000 (1.54)
Period of grace	-0.729 (1.78)*	-0.615 (1.56)
Observations	262	250
Countries	15	15

Note: Estimation is by negative binomial regression with robust and clustered standard errors. Constant and year-specific time dummies included, but coefficients not reported.

* significant at .1 level ** at .05 level *** at .01 level.