

# Regulation as the art of intuitive judgment: a critique of the economic approach to environmental regulation

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## Abstract

*This article develops a general critique of the economic approach to environmental regulation, drawing on the insights of systems theory. It highlights, first, the problematic of subjugating the regulatory system to a single purpose – which in the context of environmental economics is interpreted as the utilitarian maximization of collective welfare. Second, it questions the teleological pretence of the regulatory project as it is figured in the economic literature. It highlights in this context the problem of trans-systemic incompatibilities, which impede the incorporation of economic ideas into the systems of law and politics. Environmental economics in both its normative and sociopolitical strands, fails to provide a convincing response to this dilemma. The article discusses two examples of the reconstruction of economic ideas within the legal and political domains, drawing on the EU and US regulatory experience. This twofold critique of the economic approach can be extended, it is argued, to every regulatory project with far-reaching teleological ambitions. The article applies this critique to some alternative regulatory visions, such as self-regulation, reflexive law and responsive regulation, noting in this context the limitations of systems theory itself. It concludes with a discussion of the role of intuition in regulatory decision-making.*

## Introduction

Modernity poses a deep challenge to the regulatory project. The post-modernist ethos seems to have robbed us of any faith in a supreme moral or epistemological authority, which could guide us as we struggle to find solutions to our multiple environmental problems. This spirit of deep scepticism was cultivated by several streams of thought, ranging from critical legal studies to feminist critique, deconstruction and sociology of science.<sup>1</sup> Against this background of normative and epistemological perplexity the regulatory vision of neoclassical economics – environmental economics in our context – emerged as a beacon of objective reason offering a comprehensive programme of rational governance.

Environmental economics argues that economic thinking should guide the entire regulatory process, from rule making (e.g. instrument choice), to enforcement, monitoring and retrospective adaptation.<sup>2</sup> The application of economic principles across the entire regulatory spectrum should bring, it is argued, the maximisation of total social welfare. The economic position thus rests on a teleological interpretation of the regulatory project.<sup>3</sup> In its grand claim for fixing society's ecological malfunctions, the regulatory vision of environmental economics constitutes the most prominent

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1 See, e.g., Teubner (2001), Sunder, (2001), Pinch and Bijker (1984), and Collins (2002).

2 See, e.g., Hahn (2000, p. 376); Goulder and Parry (2008, p. 171) and Lutter (2001).

3 Regulation is viewed from this perspective as a 'system of public governance arising from the failure of private law/private governance to achieve what is considered *desirable*' (Ogus 2006, p. 70). See further Moreau (2004, pp. 850, 868).

representative of the social engineering ethos. The policy prescriptions of environmental economics had a substantial impact on the environmental policy agenda of governments across the world – reflected in more extensive use of market-based instruments and in an increasing reliance on economic methodology in regulatory decision-making.<sup>4</sup>

This article develops a general critique of the economic approach to environmental regulation, drawing on the insights of systems theory. Systems theory provides a systematic framework within which the discursive plurality and deep scepticism that characterises the modern society can be observed and expressed. The theoretical framework of systems theory allows us to unfold the blind spots of the economic approach to regulation and expose the limitations of its policy prescriptions. System theory highlights, first, the problematic of subjugating the regulatory system to a single purpose, which in the context of environmental economics is interpreted as the utilitarian maximisation of collective welfare. Second, it questions the teleological pretence of the regulatory project as it is configured in the economic literature. It highlights in this context the problem of trans-systemic incompatibilities, which lead to the reconstruction of economic ideas, as they are incorporated in the systems of law and politics. The approach of environmental economics to this dilemma has been either a complete disregard, conceptualising the legal and political systems as neutral conduits for transferring the economic signals prescribed by economic theory; or an attempt to reconceptualise the legal and political systems according to the analytical framework of neoclassical economics. Neither of these approaches offers a convincing response to this regulatory dilemma. This twofold critique of the economic approach can be extended, I will argue, to every regulatory project with far-reaching teleological ambitions. Further, it also questions the coherence and efficacy of alternative regulatory visions such as self-regulation, reflexive law and responsive regulation, which offer a more modest teleological vision. Finally, this critical contemplation on regulatory theory also exposes the limits of systems theory itself as a practical social science, leading to an enquiry into the role of intuition in regulatory decision-making.

The article proceeds as follows. The first section outlines the basic principles of the economic approach to environmental regulation, distinguishing between two strands of economic thought: *normative* and *sociopolitical*.<sup>5</sup> The second section develops a general critique of the economic theory of regulation, drawing on the insights of systems theory. The third section considers the problem of trans-systemic disruptions. It discusses two examples of the reconstruction of economic ideas within the legal and political domains, drawing on the EU and US regulatory experience. This section traces the ways in which the legal and political systems reconstruct the conceptual models of environmental economics and explores the impact of these discursive processes on the efficacy of the regulatory project. Section four develops a critique of the *sociopolitical strand* of environmental economics, focusing on the ideas of ‘political economy’. The final section considers the coherence of alternative regulatory models (self-regulation, reflexive law and responsive regulation) and explores the limits of systems theory. It concludes with a discussion of the role of intuition in regulatory judgment.

## 1 The economic approach to environmental regulation

Environmental economics offers a unitary vision of the regulation of environmental problems, based on the claim that economic guided intervention is preferable to alternative regulatory

4 See, for example, EEA (2005), EPA (2001) and Australia National Market-based Instruments Pilots Program, <http://www.napswq.gov.au/mbi/index.html> [last accessed 30 April 2008].

5 See, for this distinction, Pearce (2006, pp. 150, 157).

visions from the point of view of total social welfare.<sup>6</sup> The economic vision is based on two pillars. First, a shift from regulatory intervention based on uniform standards (command and control regulation) to intervention relying on market-based instruments (MBIs). Second, the claim that the entire universe of regulatory decision-making – rule making, enforcement practices and judicial decision-making – should be based on the analytic framework of economic reasoning. It is important to distinguish in this context, as noted above, between two strands of economic analysis: *normative* and *sociopolitical*. The normative approach sees as its mission the development of optimal regulatory solutions. This theoretical exploration is undertaken in a first-best world. In particular, it considers the legal and political systems as neutral fields that can perfectly *employ* the economic ideas and generate the optimal signals that economic theory recommends. As I will argue below, the sociological *naïveté* of the normative approach significantly limits its ability to serve as a guide to policy-makers. The *sociopolitical strand*, which includes the fields of political economy (or public choice), institutional economics and law and economics, accepts the claim that the legal and political systems do not form a neutral medium and their structure and operation should be analysed independently. Yet this sociologically more complex approach suffers from several flaws that limit its usefulness in the resolution of actual regulatory problems. These flaws are discussed in section four.

Consider, first, the call for a more intensive use of MBIs.<sup>7</sup> This intervention model is based on the idea that excessive pollution and the overexploitation of natural resources are caused by a lack of a proper market for environmental goods and services. The response to this problem lies in the creation of artificial markets for environmental goods and services, which will force market players<sup>8</sup> to consider the environmental aspects of their decisions, by providing them with proper economic signals. The economic literature focuses on two central types of economic instruments: environmental taxes and tradable permits.<sup>9</sup> Despite their *laissez-faire* appearance both instruments require intensive and non-trivial governmental intervention. Governments are required to determine the tax rate or the quantity of allocated permits in a manner that would produce the desired results in terms of the total pollutants emitted into the environment. This imposes a difficult informational burden on environmental agencies (environmental agencies do not have information concerning the firms' pollution control cost and are also facing formidable difficulties in estimating the environmental/health damage caused by pollution). The implementation of MBIs raise further challenges involving the administrative costs associated with their operation (especially monitoring), the impact of fiscal interactions (due to the revenue-raising nature of MBIs) and their distributional implications. Despite these non-trivial challenges, economists seem confident in their belief in the superiority of MBIs over direct regulatory instruments.<sup>10</sup>

The second pillar of the economic approach seeks to base environmental decision-making on the methodological framework of economic analysis. It is possible to distinguish in this context between two main methods. Cost-benefit analysis (CBA) addresses the different costs and benefits associated with a particular regulatory choice (from rule-setting to enforcement decisions), setting its projected

6 Environmental economics can thus be considered as a branch of welfare economics. The structure of the social welfare function (SWF) used to aggregate the wellbeing of the population is therefore critical. Economic studies tend to use a simple additive (utilitarian) SWF which gives little regard to distributive concerns or to non-human interests (Waldron 2003, pp. 281, 289).

7 See, further, EPA (2001, p. 254), Stavins (2001) and Gowdy and Erickson (2005).

8 This argument applies to both firms and individuals, to the extent that they are involved in the creation of environmental externalities.

9 See Stavins, above on 7, at pp. 3–4; EPA above on 7, at pp. iv–vii; EEA, above on 4, at pp. 6–9.

10 See, e.g., Goulder and Parry (2008, p. 171).

environmental/health benefits against its estimated costs.<sup>11</sup> The output of this analysis is a ranking of various environmental policy options according to their contribution to aggregate social welfare (measured in monetary terms).<sup>12</sup> The second method takes the environmental goal as a given and examines the relative costs of the various regulatory options, exploring how the designated goal can be achieved at the lowest cost ('cost-effectiveness' method) (EPA, 2000, p. 178). Economic reasoning should also guide, it is argued, the judicial decision-making process. Two leading examples of the use of cost-benefit analysis in legal reasoning are Becker's model of punishment (Becker, 1968) and the Learned Hand's negligence formula (Simons, 2001). I will examine Becker's model and the way in which it was utilised by US courts in more detail in section 3.2.

## 2 The regulatory approach of environmental economics: a systems theory critique

### 2.1 Systems theory: exposition

Systems theory offers a sceptical view of the teleological ambitions underlying the regulatory vision of environmental economics. Before I elaborate this critique, I want to outline the main tenets of the sociological framework of systems theory.<sup>13</sup> The portrait of modern society outlined by systems theory is based on three pillars: functional differentiation, radical autonomy of society's subsystem and multifaceted epistemology. These pillars draw on a critical theoretical shift, which takes communications – rather than people, organisations or rules – as the basic building blocks of society.<sup>14</sup> Social systems are conceived under this view as networks of communications. The thesis of functional differentiation describes the modern society as a polycentric system: an assemblage of autonomous subsystems. The systems include the law, the political system, science, morality, religion, education, art and the mass media.<sup>15</sup> The boundaries of the various social systems are a product of a unique binary code that establishes each system as a separate entity within the social universe (Luhmann, 1992, p. 1428). The political system is characterised by the code power/no-power, or government/opposition (Luhmann, 2004, p. 39), the legal system with legal/illegal (or lawful/unlawful) and the economic system with the code payment/non-payment (Luhmann, 1989, p. 52). A legal operation (the basic communicative element of law) is thus every communication that invokes the binary distinction legal/illegal. Similarly, the communicative units that make up the economic system refer to the payment/non-payment code.<sup>16</sup>

11 EPA, (2000, p. 178). In the US the requirement to conduct an economic analysis of environmental (and other) regulation is included in a number of Presidential directives. The most recent is Exec. Order No. 13422, 'Amendment to Executive Order 12866 for Regulatory Planning and Review'. 72 Fed. Reg. 2763 (18 January 2007). For discussion, see Coglianese (2008). For an economic analysis of enforcement decisions, see Cohen (1999).

12 As noted above, the structure of the social welfare function (SWF) underlying CBA is critical. The SWFs used in CBA tend to be based on a simple additive logic, giving little regard to distributive or purely ecological concerns. See Waldron (2003, p. 289).

13 For a more detailed account see, in particular, Luhmann (1995) and Teubner (1993).

14 For the definition of 'communication', see Luhmann (1995, p. 147).

15 The distinction between the various functional systems does not exhaust the social spectrum, which includes also interaction systems and organisations. See Luhmann (1995, pp. 147, 196, 405–436). Organisations can host multiple communicative streams and different thematic logics (facilitating what Teubner calls 'coupling through organization') (Teubner, 1993, p. 95).

16 Luhmann (1995, p. 461). A distinction should be made in this context between first-order communicative acts (directly associated with an economic transaction) and second-order acts (observations on first-order communicative acts). The elemental autopoietic process that composes the economic system, the one that cannot be broken down any further, is payment. Economic theory is constituted by second- (or higher-) order observations.

The polycentric structure of modern society is the result of an evolutionary process of functional differentiation that culminated in the creation of autonomous systems responding to different social needs.<sup>17</sup> Law, for example, responds to the need to protect certain types of expectations from the uncertainty of the future. The concept of normativity creates expectation structures (normative expectations) that are immune to change even in the face of disappointment.<sup>18</sup> The political system reflects the need for making binding collective decisions and enforcing them (Luhmann, 1989, pp. 85–86; 2004, p. 369). The modern economic system, built on money as a universal medium, represents an evolutionary reaction to the problem of scarcity (Luhmann, 1989, pp. 51–52).

The various social subsystems are conceived as autopoietic: they are constituted through the recursive reproduction of communications.<sup>19</sup> Thus, law as an autopoietic system is made up neither of rules nor of legal decision-makers, 'but of legal communications . . . interrelated to each other in a network of communications that produces nothing but communications' (Teubner, 1990, pp. 739–40).<sup>20</sup>

The conception of social systems as autopoietic has two radical implications: the first involves the relation between the system and its environment. As autopoietic systems, social systems cannot be regulated from outside – their dynamic is determined by their internal, immanent structure. The environment (other social systems, conscious systems) can create perturbations that trigger internal changes – but it cannot control the system's internal dynamic (Letelier, Marin and Mpodozis, 2003). The interaction between the different (social) subsystems and between social and conscious systems is not based therefore on hierarchical relations or linear causality. Despite this condition of operational closure, distinct systems can establish a certain level of co-ordination and mutual sensitivity through processes of structural coupling. Structural coupling represents a process in which distinct systems engaged in recursive interactions undergo congruent structural changes without losing their unique identities.<sup>21</sup> Thus, for example, the interaction between law and the economic system is based on two mechanisms of structural coupling: contracts and property rights.<sup>22</sup> However, structural coupling is an evolutionary achievement, which cannot be easily reproduced through planned intervention.

The second implication of the conception of society's subsystems as autopoietic is epistemological. Each of the social systems – law, politics, the economic system – generates its own world view, contingent upon its binary code. The binary schema enables the social system to create a meaningful picture from the chaotic mixture of stimuli to which it is exposed (Christodoulidis, 1991, p. 383). Human society must cope, according to this view, with a multifaceted epistemology – the result of

17 See, further Luhmann (2004, pp. 381–422). The system's function does not provide, however, a complete explanation of its internal dynamic. Autopoietic systems cannot be defined in terms of external aim (which is a second-order observational attribution), but only with reference to the internal purpose of maintaining their internal organisation. There is especially no assurance that the system's structure will result in the progressive, rational realisation of the system's purpose (Luhmann 1998, p. 16).

18 Luhmann notes, further: 'law deals with the function of the stabilization of normative expectations by regulating how they are generalized in relation to their temporal, factual and social dimensions . . . Given this certainty of expectations, one can take on the disappointments of everyday life with a higher degree of composure . . . One can afford a higher degree of uncertain confidence or even mistrust as long as one has confidence in law. Last but not least, this means that one can live in a more complex society, in which personal or interaction mechanisms to secure trust no longer suffice' (2004, p. 148).

19 People (psychic systems) are also autonomous systems, but the structure of their inner dynamic is different from that of social systems.

20 On the concept of autopoiesis, see further Maturana and Mpodozis (2000, Appendix).

21 See Maturana and Mpodozis (2000, Appendix) and Luhmann (2004, p. 382).

22 See Luhmann (2004, pp. 390–402) and Teubner (1993, pp. 47–63).

competing points of view.<sup>23</sup> There is no meta-discourse or supreme authority that has a privileged cognitive or moral voice.

## 2.2 Teleological illusions: on the limits of social engineering

Systems theory highlights several problems in the regulatory vision of environmental economics. First, it points to the problematic of subjugating the regulatory system to a single purpose – which in the context of economic theory is interpreted as the maximisation of collective welfare. This attempt is incompatible with the pluralistic worldview of systems theory. The lack of meta-discourse which can determine the purpose of the regulatory project casts doubts on the (economic) presupposition that the regulatory project should serve a single goal.<sup>24</sup>

The second aspect of the critique of systems theory focuses on the teleological pretence of the regulatory project as it is presented in the economic literature. It questions the claim that it is possible (optimally) to solve society's multiple environmental dilemmas through planned social intervention. This scepticism is based on two key features of contemporary society: the co-existence of multiple epistemological viewpoints and the complex and non-linear nature of the interaction between distinct subsystems.

Consider in this context the social dynamic underlying a typical regulatory intervention. Regulatory intervention *impinges* on several social systems, and therefore requires the development of a causal model that would perfectly describe the interaction between them. In particular, a theory of regulatory intervention requires an understanding not only of the internal dynamic of the *object of intervention*, but of the systems through which the intervention is *executed*: the legal system, the political system and the organisational system of the state bureaucracy (including regulatory agencies).

Systems theory points to two key difficulties that are facing the social planner as he tries to devise and execute a regulatory programme. First, systems theory emphasises that we do not have at our disposal a meta-epistemology that would enable us to select between competing representations of reality (and this argument holds also for the epistemological conception of systems theory itself) (Maturana, 1988, p. 33). Although science plays a central role in developing theories about the world, other social systems develop competing portraits of reality – whether as interpretations of scientific claims or independently of any scientific mediation. Thus, for example, law creates an idiosyncratic image of reality, which mirrors its self-generated normative grid (covering both substantive and procedural norms) (Teubner, 1993, pp. 77–78). Thus, pollution can be described in the legal realm only within the context of a particular normative structure (e.g. the provisions of the US Clean Air Act), and in view of evidence given in court. This evidence does not have to be necessarily 'scientific'; law can form a picture of reality by direct judgmental impression derived from testimonies given in court (independently of the testimony of experts).<sup>25</sup> Even when the court hears the testimony of experts it retains the power to determine which one to accept and to set standards for distinguishing

23 This is a sociological argument. In terms of the individual operating at the environment of society it means that the realm of communication offers a restricted catalogue of descriptive frames. But systems theory also rejects the idea that we could devise a meta-epistemology that would enable us to select between competing representations of reality. See H. R. Maturana (1988, p. 33) and Heylighen (2007).

24 This plurality is reflected not only in the thesis of functional differentiation, but also in the claim that each of the different subsystems have developed multiple programmes that provide an internal and not necessarily coherent mechanism for applying the system's code – be it the right/wrong of morality or true/false of the science. In the terminology of welfare economics this plurality can be expressed in the structure of the SWF. The problematic of choosing among competing conceptions of wellbeing and modes of aggregation is not given sufficient consideration in the literature of welfare economics (Waldron 2003, p. 295).

25 See, for example, the Israeli Supreme Court ruling in Criminal Appeal 151/84, *Israel Electric Company, Ltd. v. Pinchas Pareshet and 4 others*, P.D. 39(3), 1, (1961).

between 'good' and 'bad' science.<sup>26</sup> Similarly, pollution can be perceived within the economic system only if it can be expressed in the language of cost-benefit calculus (Teubner, 1993, p. 79). This epistemological multiplicity is not limited to nature – it also reflects the way each subsystem develops a portrait of other social subsystems and conscious systems. But without a coherent picture of reality it is unclear how one can design a regulatory scheme that would change reality according to a certain goal.

But the problem for the social planner goes further than establishing a coherent picture of the intervention target. Even if we assume that the regulator has adopted a concrete regulatory *telos* together with a particular image of reality (e.g. a science inspired portrait of environmental risks) he will still have to face the challenge of decoding the exact contours of the interaction between different subsystems. This dilemma is manifested in the complex process of reconstruction and reinterpretation that economic concepts undergo as they are incorporated in the legal, political or bureaucratic domains. The interpretation of economic ideas within the political domain is determined by the power semantics that constitutes the political system. Regulatory proposals will be reconstructed according to the political dialect of protecting, constructing and challenging power structures. Re-election, protection of the coalition, keeping promises to voters (or to influential and powerful supporters) in order to maintain the electoral power base are the algorithms that govern political communication. The political dynamic is also determined by the reflexive mechanisms of political life: public opinion, surveys, media reports and public protests (Christodoulidis, 1991, p. 386).

The state bureaucracy is closely tied to the political system and in that sense the decision programmes of regulatory agencies may invoke the political code as a decision criterion. But administrative agencies also employ additional criteria, such as self-preservation and the enhancement of bureaucratic power (e.g. in terms of the size of the bureaucratic organisation) (Brans and Rosbach, 1997, pp. 428–31). The combination of the power code with bureaucratic self-preservation can yield additional biases in the implementation of economic ideas. In the legal domain, as in politics, the interpretation and application of economic ideas is shaped by the internal legal logic: the legal/illegal distinction and the ethos of normativity. The evolution of legal ideas is not motivated by a standard of efficiency but by a criterion of temporal coherence.

These trans-systemic transpositions – by transforming the meaning of the original economic ideas and distorting the economic signals they ultimately produce – can critically erode the environmental effectiveness of the regulatory scheme. The effectiveness of the regulatory intervention depends, therefore, on the existence of a model correctly describing the interaction between different social systems, and the influence of this interaction on human beings and nature. Without a complete model of the multiple trans-systemic interactions involved in the regulatory process, the ability optimally to plan and execute a social engineering plan is doubtful. It thus makes little sense, for example, to design an optimal ecological tax, without reacting, simultaneously, to the potential 'distortions' associated with the legal, political and administrative domains.

Dealing with these trans-systemic distortions constitutes a major challenge for the social planner. Systems theory argues in this context that the causal dynamic of the interaction between the systems that are involved in environmental regulation – human beings, social systems and the natural environment – is not linear or hierarchical. The complexity of this multifaceted interaction makes it very difficult to model it using formal means.<sup>27</sup> The complexity of these trans-systemic disruptions forms, therefore, an intricate challenge to effective regulation.

26 See *Daubert v. Merrell Dow Pharmaceuticals, Inc.* 509 U.S. 579 (1993).

27 This difficulty reflects both a conceptual dilemma (designing a formal model) and a computational problem (solving the model for different parameters). For initial attempts to respond to these questions see, for example, Paterson and Teubner (1998) and (in the natural sciences context) Lovelock (1991) and Letelier, Marin and Mpodozis (2003).



### 3 Trans-systemic transpositions: economic concepts in law and politics

Systems theory highlights the deep challenges facing the regulatory enterprise in the face of unbridgeable systemic gaps and multiple autonomies.<sup>28</sup> A key expression of this challenge is the semantic process of reconstruction and reinterpretation that accompanies the introduction of economic concepts into the domains of law and politics. These processes of trans-systemic transposition generate a deep cleavage between the original configuration of the regulatory models of environmental economics and the ultimate interpretation and application of these models in the realms of law and politics. This process can considerably *erode* the efficacy of the ultimate regulatory scheme. As I argued above, it is very difficult to predict the exact outcome of these trans-systemic processes; further, given the constancy of the social structures underlying these processes, it is also not possible to prevent them by subjugating law and politics to some form of economic control.

Below I give two examples of these processes of trans-systemic transposition, drawing on the EU and US regulatory contexts. The goal of this empirical examination is not to provide a complete empirical demonstration of the arguments of systems theory. Such empirical analysis is beyond the scope of this article.<sup>29</sup> Rather I want to use the following two case-studies to demonstrate three points. First, I want to give an example of the way in which the systemic differences pointed to by systems theory are translated into incongruities in the application and interpretation of concrete economic models and ideas. Second, drawing on the EU Emission Trading Scheme example, I want to demonstrate the difficulty of predicting the exact contours of the transposition process, highlighting the failure of economic models – despite their ‘scientific’ pretence – to provide concrete predictions. Finally, I want to highlight the extent to which these trans-systemic transposition processes reflect deep-seated social configurations.

#### 3.1 Political transpositions: the EU Emission Trading Scheme

The EU Emission Trading Scheme (ETS)<sup>30</sup> provides an interesting example of the way in which politics reconstructs economic ideas. The EU ETS is considered the cornerstone of the EU fight against climate change. Its aim is to help EU Member States to achieve compliance with their Kyoto Protocol commitments and to create a framework that will allow – as economic theory predicts – the Protocol’s targets to be achieved at least cost.<sup>31</sup> To implement the ETS, Member States were required to set National Allocation Plans (NAPs), which will determine the total quantity of CO<sub>2</sub> emissions that Member States grant to local firms, and can consequently be sold or bought by these firms in a European-wide market. The trading is supposed to take place in three trading

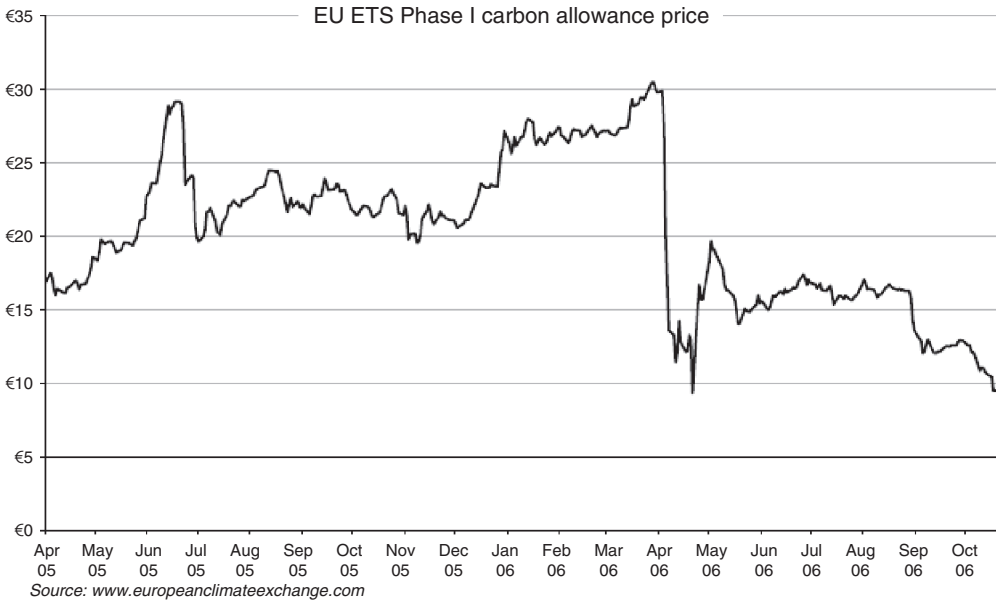
28 See also King (2006).

29 Conducting such an inquiry can only be done through detailed case-studies. The examples below provide only a preliminary sketch of this type of enquiry. Pursuing a detailed empirical examination, drawing on the insights of systems theory, requires a much richer database, covering the political and legal domains in which the transposition process takes place. For example, in the case of the EU Emission Trading Scheme it will require a thick description of the various political thematisations of the emissions rights allocation process, examining different institutional contexts. In the case of the US case-law regarding the sentencing of environmental offenders it will require a systematic catalogue of the relevant case-law, together with an examination of the internal administrative processes that have generated this case-law within the EPA.

30 Directive 2003/87/EC of the European Parliament and the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community; <http://ec.europa.eu/environment/climat/emission.htm> [last accessed 25 April 2008].

31 See ‘Questions & Answers on Emissions Trading and National Allocation Plans’, at <http://ec.europa.eu/environment/climat/emission.htm> [last accessed 11 December 2007].





**Figure 1**

The price of Phase I carbon allowances collapsed in April–May 2006<sup>32</sup>

periods: the first ran from 2005–2007, the second is running from 2008–2012 and the third will start in 2013. Member States had to submit new NAPs for each trading period (to be approved by the EU Commission).

An examination of the results of the first trading period provides interesting insights about the impact of political interference on the ETS's economic model. The first phase of the EU ETS had very little environmental impact. This was due mainly to the 'generous' caps imposed by Member States' NAPs. Most Member States have allocated allowances to industry above the business as usual scenario (that is, more than firms actually needed).<sup>33</sup> The economic result was a volatile market for carbon allowances, with prices of allowances collapsing in mid 2006, reaching the mark of less than 10 euros per tonne of CO<sub>2</sub> in October 2006 (House of Commons Environmental Audit Select Committee, 2007, p. 18). This landslide in the prices of carbon allowances was not predicted by the preliminary economic evaluations regarding the operation of the ETS.<sup>34</sup>

This outcome reflects a deep dissonance between the regulatory reality and the economic projections. The design of the NAPs was driven by a two-level political calculus, which reflected domestic and cross-European political powerplays. In contrast to the prescriptions of economic theory, the design of the national cap was not driven by concerns over the external effects of CO<sub>2</sub> emissions or the possibility of achieving a more efficient allocation of emission reduction burdens. What was at stake were political questions such as the impact of the ETS on unemployment rates

32 House of Commons Environmental Audit Select Committee Report ( House of Commons Environmental Audit Select Committee, 2007, p. 18).

33 See House of Commons Environmental Audit Select Committee (2007, p. 23) and Grubb and Neuhoff (2006, pp. 19–21).

34 See EU Commission (EU Commission, 2000, p. 27), Capros and Mantzos (2000, p. 1) and ECOFYS (2004).

and on the political support of certain (energy intensive) industrial sectors.<sup>35</sup> The NAPs and corporate allowances were reinterpreted as bargaining chips in a political powerplay.<sup>36</sup>

The European Commission has taken into account the political difficulties associated with the implementation of the ETS across the EU multiple jurisdictions. By forcing the Member States to submit new NAPs at each trading phase, the Commission has given itself the opportunity to reflect on the results of the previous phase and to introduce necessary changes. Indeed, in reaction to the failure of the first phase, the Commission has taken a stricter approach in reviewing the NAPs for the second trading period.<sup>37</sup> Further, on 23 January 2008 the Commission put forward a package of proposals for a new climate change policy. Central to the strategy is a strengthening and expansion of the EU ETS.<sup>38</sup> Whether this ambitious plan will be implemented (and survive the political game) is still to be seen.

Systems theory points out that the process of political reconstruction that has characterised the ETS first phase is inevitable and that its exact contours cannot be predicted. This does not mean that the effort to implement the project is futile. It means only that one has to acknowledge (and react to) the institutional constraints in which it takes place.

### 3.2 Legal transpositions: optimal and absolute deterrence in the sentencing of environmental offenders

Similar processes of reinterpretation also take place in the legal domain. The use of economic concepts in US environmental case-law provides an insightful example. This section focuses on US jurisprudence regarding the sentencing of environmental offenders. US environmental laws provide the courts with a broad discretion in determining civil penalties for environmental violations.<sup>39</sup> In assessing a civil penalty the court must consider 'the seriousness of the violation or violations, the economic benefit (if any) resulting from the violation, any history of such violations, any good-faith efforts to comply with the applicable requirements, the economic impact of the penalty on the violator, and such other matters as justice may require'.<sup>40</sup>

In interpreting this provision the courts referred extensively to economic ideas and methodologies. However, as I will demonstrate below, there is a wide gap between the legal use of economic

35 For indications of this political transposition see House of Commons Environmental Audit Select Committee (2007, p. 27) and *Entreprises pour l'Environnement* (2006, p. 19). For the influence of industrial lobbying see also ICC UK Submission to the EU ETS Review, 29 June 2007 (at [http://ec.europa.eu/environment/climat/emission/pdf/solveig/icc\\_uk.pdf](http://ec.europa.eu/environment/climat/emission/pdf/solveig/icc_uk.pdf)); CAN-Europe, WWF, Greenpeace, and Friends of the Earth Europe, *ECCP EU ETS review process: written comments CAN-Europe, Friends of the Earth Europe, Greenpeace and WWF* ([http://www.climnet.org/EUenergy/ET/072007NGO\\_EUETSreview\\_submission.pdf](http://www.climnet.org/EUenergy/ET/072007NGO_EUETSreview_submission.pdf)), (2007, pp. 8–9).

36 Another aspect of the political influence on the ETS performance concerns the fact that over 95% of the carbon allowances were allocated for free, which generated windfall profits to many of the regulated corporations (Sijm, Neuhoff and Chen, 2006).

37 See Communication from the Commission: 'Further guidance on allocation plans for the 2008 to 2012 trading period of the EU Emission Trading Scheme', Brussels, 22.12.2005, COM(2005) 703 final ([http://ec.europa.eu/environment/climat/pdf/nap\\_2\\_guidance\\_en.pdf](http://ec.europa.eu/environment/climat/pdf/nap_2_guidance_en.pdf)) and the decisions taken by the Commission on all NAPs for the 2008–2012 trading period ([http://ec.europa.eu/environment/climat/2nd\\_phase\\_ep.htm](http://ec.europa.eu/environment/climat/2nd_phase_ep.htm)).

38 See Proposal for a Decision of the European Parliament and of the Council on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020, Brussels 23.1.2008, COM(2008) 30 final. According to the new proposal, emissions from the sectors covered by the ETS will be cut by 21% by 2020 (compared with the 2005 baseline); a single EU-wide cap on ETS emissions will be set; and free allocation of emission allowances will be progressively replaced by auctioning of allowances by 2020. See, further, [http://ec.europa.eu/environment/climat/emission/ets\\_post2012\\_en.htm](http://ec.europa.eu/environment/climat/emission/ets_post2012_en.htm).

39 Prominent examples are the Clean Water Act (CWA) 33 U.S.C. § 1319(d) and the Clean Air Act (CAA) 42 U.S.C. § 7413 (e). See *Friends of the Earth, Inc., v. Laidlaw Environmental Services (TO C), Inc.*, 528 U.S. 167 (2000) at 176, 178 (fn. 6).

40 CWA, 33 U.S.C. § 1319(d); CAA, 42 U.S.C. § 7413 (e).

conceptions, and their meaning within the economic domain, as reflected, especially, in Becker's model of optimal punishment.<sup>41</sup> In determining the penalty imposed on environmental offenders US courts relied prominently on an evaluation of the economic benefit gained by the environmental wrongdoer through his non-compliance.<sup>42</sup> It is important to note that while the law allows the courts also to consider the seriousness of the violation, the courts did not make serious attempt to use economic methodology in order to assess the ecological harm (and hence the seriousness of the violation).

Two arguments have been invoked by courts in support of the economic benefit analysis. The first refers to the issue of general and specific deterrence. A penalty must encompass the economic benefit of non-compliance; otherwise 'the violator and potential violators would perceive that it pays to violate the law, creating an obvious disincentive for compliance'.<sup>43</sup> Second, the economic benefit analysis was seen as an instrument allowing courts 'to level the economic playing field and prevent violators from gaining an unfair competitive advantage'.<sup>44</sup> The US Environmental Protection Agency developed a detailed calculative technique – encapsulated in software entitled the BEN model – to calculate a violator's economic benefit from delaying or avoiding compliance.<sup>45</sup> The BEN model received the support of numerous court rulings in the US.<sup>46</sup>

While the jurisprudence of US courts refers widely to economic terminology and methodology, the courts' reasoning deviates in several respects from the principles of environmental economics. In particular, the economic-benefit analysis is driven by the logic of *absolute deterrence*, which is inconsistent with the economic vision of *optimal deterrence*. To make this difference clear consider the structure of Becker's model of optimal deterrence. Becker argues that in order to create optimal deterrence punishment should be calculated as a function of the social harm associated with the offensive behaviour.<sup>47</sup> The expected fine, i.e. the probability of detecting the offence times the fine rate, is set to be equal to the ecological/health damage. Given  $f$  the expected fine,  $p$  the probability of discovering the offender and  $h$  the damage, Becker's model states that:

$$f = h/p$$

Creating a linkage between the fine and the damage ensures that the enforcement system produces efficient deterrence, by deterring only those environmental offences whose damage to society is greater than the benefit they produce for the offender.<sup>48</sup>

41 See Becker (1968).

42 See the references below.

43 *United States v. Municipal Authority of Union Township and Dean Dairy Products Company, Inc. d/b/a Fairmont Products* 929 F. Supp. 800, 806 (1996) and *Student Pub. Interest Research Group, Inc. v. Hercules, Inc., Civil Action* U.S. Dist. LEXIS 16901 (1989) (section II(A)).

44 *United States v. Smithfield Foods, Inc.*, 972 F. Supp. 338, 348 (1997). See also *Pub. Interest Research Group of New Jersey, Inc. v. Powell Duffryn Terminals, Inc.*, 913 F.2d 64, 79 (3d Cir. 1990), cert. denied ('Violators should not be able to obtain an economic benefit vis-a-vis their competitors due to their non-compliance with environmental laws') and *United States v. Allegheny Ludlum Corp.*, 366 F.3d 164, 177 (2004).

45 See EPA Office of Enforcement and Compliance Assurance, *Identifying and Calculating Economic Benefit That Goes Beyond Avoided and/or Delayed Costs*, 25 May 2003 and <http://www.epa.gov/compliance/civil/econmodels/index.html>. The model is used to assess the 'after-tax present value of avoided or delayed expenditures'. *United States v. The Municipal Authority of Union Township*, 150 F.3d 259, 263–264 (3d Cir. 1998); see also *United States v. Allegheny Ludlum Corp.*, above note 44, at 177–178.

46 See, for example, *Titan Wheel Corp. v. United States EPA*, 291 F. Supp. 2d 899 (2003); *Cmty. Ass'n for Restoration of the Env't v. Henry Bosma Dairy*, 2001 U.S. Dist. LEXIS 3579; *Sunoco, Inc. (R & M) v. Dep't of Env'tl. Prot.*, 865 A.2d 960 (2005).

47 Becker's model thus requires translation of the ecological damage into monetary values.

48 See Dana (2001, pp. 740–42); Polinsky and Shavell (1994, p. 429). The economic model of punishment is based on a distinction between *conditionally deterred* offences and *unconditionally deterred* offences. The first type refers to offences – such as environmental offences – which have some positive social value and as such

In contrast, the economic-benefit model takes deterrence as an *absolute* value. Under this framework the punishment should create an incentive assuring that the offence will not be committed in any case. To achieve this goal punishment is conceptualised as a function of the benefit (with an added ‘deterrence’ constant,  $\beta$ ).<sup>49</sup> Thus, if the rate of the fine is  $f$ , the probability of discovering the offender  $p$ , and the offender’s benefit from committing the offence  $b$ ,<sup>50</sup> the absolute deterrence model can be presented as:

$$f = b/p + \beta$$

Note that this model is inconsistent with the efficiency ethos because it can prevent ‘efficient’ pollution (e.g. in cases where the ecological harm is lower than the projected savings from not installing the best available clean technology).<sup>51</sup>

The second justification which is used by the courts to support the economic-benefit model of punishment is that it will create a level playing field, ensuring that violators do not gain an unfair competitive advantage. The terminology used by the courts seems to reflect a concern for the function of the market. It could be interpreted as an attempt to facilitate an ideal competitive market. However, this interpretation is at odds with economic theory. A competitive market will be created not by capturing the counter-factual savings of environmental offenders, but by *attributing proper prices to the use of environmental resources*. Such attribution could be achieved by requiring environmental offenders – as postulated by Becker’s model – to internalise the externalities they create through the imposition of fines reflecting the harm they cause. In other words, the idea of a competitive market requires the law to *attach (proper) prices* to environmental assets – *not to prohibit their usage*.<sup>52</sup> It requires the law to recognise the legitimacy of ‘efficient pollution’. A similar critique of the idea of ‘level playing field’ can be found in the field of international trade law.<sup>53</sup>

The forgoing gap between the legal and economic interpretations is a product of the legal ethos of normativity. Becker’s model empties the environmental standards prescribed by the Clean Water Act and the Clean Air Act of their normative meaning.<sup>54</sup> It seeks to use the legal system as a mechanism for setting prices for the use of environmental resources (be it water or air). In this

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should be deterred only when the social cost is greater than the benefit to the offender. In contrast the latter are those offences which constitute the core of the criminal law codex and should be deterred irrespective of the benefit to the offender. See EPA Science Advisory Board (2005, p. 33).

49 According to the US case-law, the penalty must also include a punitive component in the form of a sum in addition to economic benefit, which should further strengthen the deterrence effect (and reflect the degree of seriousness and/or willfulness of the violations). *United States v. Municipal Authority of Union Township and Dean Dairy Products Company, Inc. d/b/a Fairmont Products*, above n 43, at 806.

50 It is possible to distinguish between three possible types of benefits: (1) benefit from postponing expenses for pollution prevention; (2) benefit from avoiding expenditure on pollution prevention; and (3) benefit from a competitive advantage. I will focus on the first two benefits. For a discussion of the third category, see EPA Science Advisory Board (2005).

51 Indeed US Courts ruled that a court may still impose a penalty – structured on the BEN model – if it finds that there is a potential risk of environmental harm, even absent proof of particularised damage to either the environment or the public. *Pub. Interest Research Group of New Jersey, Inc. v. Powell Duffryn Terminals, Inc.*, 913 F.2d 64, 79 (3d Cir. 1990), cert. denied and *Robert Pound; Pro Products, Inc., Plaintiffs-Appellants, v. Airosol Company Inc.* 498 F.3d 1089, 1099 (2007). On the interpretation of the Clean Air Act see, further, EPA Response to the EPA Science Advisory Board. Report 2005, 19 July 2006, at 4.

52 F. M. Bator (1958, pp. 363–71).

53 ‘A New Vocabulary for Trade’, Jagdish Bhagwati, *The Wall Street Journal*, 4 August 2005, <http://yaleglobal.yale.edu/display.article?id=6109> [last accessed 29 December 2007]. Bhagwati argues that the massive demand for ‘fair trade’ is a seductive phrase that has become a principal ally of protectionism. The demands for enhanced labour and environmental standards in trade treaties are not driven by altruism, but by an effort to reduce the competitiveness of rivals. See also Leamer (2007).

54 See <http://www.epa.gov/air/caa/index.html> and <http://www.epa.gov/watertrain/cwa/>.

model the criminal rule is not conceived as a platform for the construction of stable normative expectations with respect to anti-environmental behaviour. The law is conceived, rather, as a platform for the creation of artificial market in environmental goods (air, water) in which the prices are set *ex post* by the courts (reflecting the cost of the associated externality). Becker's model thus transforms the prescriptions of the CWA and CAA from crisp rules to contingent rules – their behavioural effect depends on the relation between the benefit from the polluting activity and the ecological or health damage. This contingent normative reality is incompatible with the legal drive to create a stable system of expectations concerning appropriate environmental behaviour. Despite their seeming reliance on economic terms, the doctrines of 'economic-benefit' analysis and 'economic level playing field' are incompatible therefore with the logic of environmental economics. The idiosyncratic logic of the law produces, then, substantial discrepancies between the use and interpretation of economic concepts in the economic and legal domains.

## 4 The dissonance between efficiency and pragmatics: the unfulfilled promise of political economy

### 4.1 The myth of the *homo politicus*

I distinguished above between two strands of economic thought: *normative* and *sociopolitical*. The *normative approach*, I argued, is deeply problematic because of its sociological *naïveté*. I argued further that while the *sociopolitical strand* represents a significant theoretical advancement, it also suffers from several flaws that limit its usefulness as a guide to policy-making. This section explores these flaws, focusing on the field of political economy.<sup>55</sup> The most important achievement of political economy was the integration of the analysis of political behaviour (and later, legal) into the larger body of economic analysis. This was achieved by modelling politicians and bureaucrats – similarly to any other economic agent – as self-interested maximisers, who are assumed to maximise a 'political' or 'bureaucratic' welfare function. These welfare functions differ in their underlying components, reflecting the different institutional contexts in which the two actors operate. The political welfare function provides, in effect, an economic definition of the concept of political power. The politician is assumed to be driven by a desire to maximise the prospects of capturing political power.<sup>56</sup> The regulator welfare function represents a complex combination of materialistic and power motivations. He is assumed to be driven by a desire to increase his power within the administrative hierarchy (which may also imply maximising the powers of the administrative unit he heads) or to use his discretionary power to get bribes (or job offers) from the industry.<sup>57</sup> The result of this modelling configuration was the abandonment of the idea that politicians or public officials necessarily work for the common good, and allowing for the possibility that the outcomes of the regulatory process may be influenced by various interest groups through the provision of financial or other support (Peltzman, Levine and Noll, 1989, p. 1). The political economy model assumes that the process of policy formation (and implementation) may be strongly influenced by different interest groups, which will support their claims through the provision of political or financial incentives. This model allows, therefore, for the possibility that the policies recommended by environmental economics may be subverted in the political and administrative processes that underlie any regulatory intervention.<sup>58</sup>

55 For exposition of this strand of economic thought, see Stigler (1971); Peltzman, Levine and Noll (1989); Kirchgässner and Schneider (2003); Oates and Portney (2003).

56 See Martimort (1999, p. 930) and Laffont and Martimort (1999, p. 233). For exposition (and critique) of the use of this approach in the study of judicial behaviour, see Siegel (1999).

57 See Pearce (2006, p. 150) and Peltzman *et al.* (1989, p. 6). For exposition (and critique) of the use of this approach in the study of judicial behaviour, see Siegel (1999).

58 See Markussen and Svendsen (2005) and Pearce (2006).

There is therefore some similarity between the worldview of systems theory and that of political economy: both models take seriously the investigation of the autonomous dynamic of law and politics. However, systems theory differs from the model of political economy in two critical aspects. First, the two models draw on a different conception of society. The gap between the two models is best illustrated by considering their varied interpretations to the model of *homo politicus* (a similar argument can be made with respect to the concept of *homo bureaucraticus*). The political economy literature assumes that this model, which describes the politician as a self-interested maximiser seeking to maximise political power, fully captures (or at least closely enough) the way in which real political agents behave. The *homo politicus* model reflects, in this sense, an ontological claim. This interpretation reflects the commitment of economics to the philosophy of methodological individualism – to the claim that social phenomena can be fully explained through a reduction to individuals. Systems theory argues, in contrast, that it is a *categorical mistake* to conceive the *homo politicus* model as a true description of the internal world of political figures (whether leaders or parties). Rather, the *homo politicus* (and similarly the *homo juridicus* or the *homo bureaucraticus*) represents a fictitious persona giving expression to the discursive logic of the political (or legal/administrative) system. It is a discursive fiction that represents in the world of discourse the characters acting in its environment.<sup>59</sup> The claim that the *homo politicus* model properly describes the political players confuses between the political system (and its unique logic) and the human agents that operate in its environment.

Research conducted in the field of political psychology provides further support to the forgoing argument, demonstrating that political decisions are not simply a product of power calculus, but may also be influenced by differences in personality. These psychological processes characterise decisions taken by both leaders and citizens. In a recent study, Mondak and Halperin provide a detailed account of how personality factors<sup>60</sup> can influence citizens' political choices.<sup>61</sup> Other studies have explored how such factors influence the decisions of political leaders.<sup>62</sup> Factors such as openness to experience, conscientiousness, belief in the ability to control events and the need for power may influence the attitude of politicians toward using economic instruments in environmental schemes.

Analysing actual political processes requires therefore a model that will explore the coupling processes between the political system and the human agents that act in its environment. The discursive distinctions that characterise the political domain operate under this view as *structural constraints*, which limit the way in problems can be thematised politically. The account of political life given by political economy is incomplete because it does not give due regard to the psychological study of political behaviour and to the institutional constraints within which political action takes

59 For a similar critique of the *homo economicus* model, see Frey and Stutzer (2006).

60 Mondak and Halperin refer to the Big Five model which distinguishes between five key personality dimensions: 'extroversion, agreeableness, conscientiousness, emotional stability and openness to experience' (Mondak and Halperin, 2008, p. 340).

61 Mondak and Halperin (2008, pp. 351–60). Mondak and Halperin show, for example, that openness to experience was inversely related to identification with the Republican party, ideological conservatism and approval of President Bush, while positive linkage emerged between these variables and conscientiousness (Mondak and Halperin, 2008, p. 355).

62 Stephen Dyson uses this analytical framework to study of Tony Blair's decision to join the war in Iraq. He finds, drawing on the methodology of at-a-distance personality assessment, that Blair's decision was influenced by several personality traits, such as belief in ability to control events and low conceptual complexity. These personality features were, of course, accompanied by structural constraints such as the special relations between Britain and the US (Dyson, 2006, p. 296). See further on this methodology, Schafer (2000) and Winter (2005).

place. These shortcomings undermine the capacity of political economy models to provide valuable predictions with respect to actual regulatory dilemmas.<sup>63</sup>

#### 4.2 The unbridgeable gap between the normative and political strands of environmental economics

The second problem highlighted by systems theory refers to the dissonance between the normative and political strands of environmental economics. One of the key problems of the field of political economy concerns its failure to develop an integrated theory which could bring together its unique pragmatic insights and the normative prescriptions of (conventional) environmental economics.<sup>64</sup> Such a model should have offered a method to solve the fundamental dilemmas posed by environmental economics, subject to the institutional constraints highlighted by political economy. Without such an integrated model one is left with optimal regulatory solutions, which – as political economists tell us – have no chance of being accepted.<sup>65</sup>

The failure of the political economy research programme to produce an integrated model is manifested most clearly in the idea of ‘government failure’. This idea considers the disruptive processes accompanying the invocation of economic ideas in the political and legal fields as a reflection of deep institutional failure, which calls for corrective intervention.<sup>66</sup> The crude message underlying the idea of *government failure* seems to be that the ‘cure’ to the trans-systemic distortions depicted by political economy lies in the subjugation of the political, administrative and legal systems to economic logic. This message conflicts with one of the basic insights of systems theory: the recognition that the failure – political or legal – referred to by the economic literature is an expression of the systemic attributes that establish the legal and political systems as autonomous systems. The transformation of the economic ideas in the legal and political systems reflects the fundamental attributes of these domains; it is, in other words, a reflection of the deep-seated structure of modern society. Removing the political and legal failures by subjecting them to economic calculations would undermine the autonomy of the legal and political systems, possibly damaging their ability to serve the social functions associated with them.<sup>67</sup> Further, this idea also underestimates the possibility that politics and law will permeate and undermine the new institutional structures which will be erected to implement the new economic order.

But the idea that the problem of government failure could be resolved by subjugating the political and legal systems to some form of economic control is also problematic because it underestimates the cognitive and computational challenges associated with unitary economic governance. The following thought experiment can demonstrate these challenges. Imagine the establishment of a new institution: the Economic Commissioner for Environmental Regulation.<sup>68</sup> The office of the Commissioner would employ a team of economists who will regulate every legal or administrative act concerning the environment (legislation, judicial rulings, licensing decisions).<sup>69</sup> The Commissioner will have the authority to change any such act according to economic principles

63 See Peltzman *et al.* (1989, pp. 3, 40, 57) and Keohane, Revesz and Stavins (1998, p. 366).

64 For initial attempt to cope with this question, see Kirchgässner and Schneider (2003, p. 389) and Estache and Martimort (1999).

65 See Markussen and Svendsen (2005) and Pearce (2006).

66 See, for example, Tietenberg (2003, p. 78), Warford, Munasinghe and Cruz (1997, p. 21), Grand (1991).

67 See also Luhmann (1989, pp. 109–110).

68 For such a proposal see, e.g., Lutter (2001). See also Moreau (2004, pp. 856–60).

69 Randall Lutter, from AEI-Brookings Joint Center for Regulatory Studies, proposed that the EPA should establish a separate Office of Policy Analysis that will be charged with providing cost-benefit analysis, based on the Office of Management and Budget (OMB) guidelines (OMB, Economic Analysis of Federal Regulations



(prominently cost-benefit analysis), using advanced computers and software, and without any budget limits.

The claim that such a model can cure the *illnesses* of the existing system and generate an efficient and consistent regulatory system is not convincing for two reasons. First, the cognitive and computational burden imposed by this model would be insurmountable.<sup>70</sup> As our omniscient economic Commissioner tries to cope with the cognitive and computational challenges involved in conducting a cost-benefit analysis of each and every regulatory act, she will soon find herself entangled with the following dilemma: how many resources (time and money) should she invest in deliberation and information gathering before making a decision (noting not only the cost of deliberation and exploration but also the cost of not acting in time). Instead of producing environmental decisions our Economic Commissioner will be engaged in a desperate attempt to find an optimal way of making decisions – what economists (self-reflectively) term the paradox of deciding how to decide.<sup>71</sup> To cope with this challenge the new institution would have to adopt decision rules (heuristics) reflecting meta-economic considerations.<sup>72</sup> The need for meta-economic considerations will damage the consistency and economic purity of the decisions. The chaos accompanying the decision-making processes in a differentiated society would be replaced by a different chaos generated by a quest for economic purity. The functional differentiation characterising modern society is, in this respect, a response to the difficulty of dealing with the complexity of modern life.<sup>73</sup>

## 5 Regulation as the art of intuitive judgment

Systems theory points to three central challenges that the regulatory project must address: (1) designing regulatory policy in a social environment of multiple causes (recognising the lack of a normative meta-authority which could resolve possible conflicts); (2) facing the radical uncertainty involved in planned intervention in a differential society, where the interaction between different systems is complex and non-linear; and (3) intervening in the inner dynamic of autonomous systems without endangering their autopoietic cycle. As I argued above, the regulatory model of environmental economics does not provide a convincing response to these challenges. It suffers from several fundamental problems. In its normative form environmental economics is characterised by a sociological *naïveté*, which makes it blind to the adverse impact of trans-systemic transpositions. And to the extent that it does seek to develop sociological sensitivities it fails to devise a convincing model that could integrate between the prescriptions of the normative model with the institutional insights of political economy. Further, none of these approaches shows sensitivity to the ideological plurality that characterises contemporary society. These three blind spots cast doubts on the capacity of environmental economics to lead processes of policy reform at the environmental domain.

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Under Executive Order 12866, 1996, <http://www.whitehouse.gov/omb/inforeg/riaguide.html>. He also suggested that the General Accounting Office should provide general oversight for the analysis conducted in-house (Lutter, 2001, pp. 3–5).

70 For the complex considerations facing the policy-maker in designing an optimal environmental scheme, see Hepburn (2006, pp. 231–37). For a general discussion, see Heylighen (2002).

71 For the paradox of deciding how to decide, see Perez (2006, pp. 22–26) and Moreau (2004, pp. 862–63). Note that this problem applies also to the fundamental question of designating the appropriate social welfare function for each and any regulatory dilemma.

72 Drawing on the fields of ethics, esthetics, politics, law, etc.

73 Empirical accounts of the way in which the US Office of Management and Budget implemented its authority to review the creation of new regulations by federal agencies, seems to support this sceptical view. See, e.g., Coglianese (2008).

The difficulties underlying the social engineering effort were of course the subject of intense research. In recent years various models seeking to respond to this problematic were offered, ranging from self-regulation<sup>74</sup> and reflexive law<sup>75</sup> to responsive regulation.<sup>76</sup> From a system-theoretic perspective these models seem appealing. They are based on a common recognition of the limits of regulatory intervention, and on a mutual exploration of circumlocutory forms of regulatory intervention.

Closer inspection reveals, however, that despite their apparent stance of teleological modesty, these alternative models remain bounded by the same epistemological barriers that characterise the economic approach to regulation. This becomes clear as we evaluate the various efforts to implement these ideas in the last twenty years. Consider first the model of self-regulation. This model is based on the creation of legal infrastructure that will encourage internal process of learning and self-improvement within regulated bodies. Legal intervention, in this context, is based on influencing organisational routines, changing decision-making structures in the organisation and the restructuring of the organisational hierarchy (Teubner, 1993, p. 96; Black, 1996, p. 47). However, despite two decades of experimentation with various models of self-regulation, there are still doubts regarding the institutional elements that distinguish between effective and non-effective self-regulatory schemes.<sup>77</sup> These doubts refer both to the internal organisational elements necessary to facilitate credible processes of self-improvement and to the external institutional components required to support them. The scepticism regarding the efficacy of self-regulatory programmes is also reflected in the divergence of approaches among environmental regulators. Thus, while environmental regulators in both the US and Canada have tended to adopt a cautious approach towards self-regulatory schemes,<sup>78</sup> the European Commission has shown greater belief in this approach through its action regarding the EMAS programme.<sup>79</sup> The Commission has encouraged EU Member States to offer comprehensive regulatory benefits to EMAS-certified firms (Dahlstrom, Howes, Leinster and Skea, 2003) and its recent proposal to revise the EMAS Regulation seeks to give a further boost to this programme across the EU.<sup>80</sup> It seems that the difficulty of establishing effective self-regulatory schemes did not receive sufficient attention by the early writings on this issue.

The concepts of reflexive law or responsive regulation raise similar questions. The idea of reflexive/responsive regulation is driven by the recognition that social autonomy constitutes a cognitive problem for the law; it thus attempts to create mechanisms that can cope with this cognitive challenge.<sup>81</sup> However, looking closely at the details of these models reveals that despite

74 See, e.g., Gunningham and Rees (1997).

75 See, e.g., Teubner (1993, pp. 64–99; 1983).

76 See, e.g., Ayres and Braithwaite (1992).

77 It is insightful to compare, in this context between the ISO 14001 and the Responsible Care schemes. See, e.g., King and Lenox (2000) and Prakash and Potoski (2006). See, further, Darnall and Sides (2008).

78 See, e.g., EPA 'Position Statement on Environmental Management Systems' (EPA, 2005), Alberta EnviroVista program (<http://environment.alberta.ca/867.html>) and Ontario 'Environmental Leaders Program' (<http://www.ene.gov.on.ca/envision/general/leadership/index.htm>) [all last accessed 22 August 2007].

79 See Regulation (EC) No 761/2001 of the European Parliament and of the Council of 19 March 2001, allowing voluntary participation by organisations in a Community eco-management and audit scheme ('EMAS regulation').

80 For a detailed survey of Member States promotion actions see the EMAS website ('Member State activities') at [http://ec.europa.eu/environment/emas/activities/index\\_en.htm](http://ec.europa.eu/environment/emas/activities/index_en.htm) [last accessed 22 August 2007]. For the Commission proposal, see *Proposal for a Regulation of the European Parliament and of the Council on the Voluntary Participation by Organisations in a Community Eco-Management and Audit Scheme (EMAS)*, Brussels, COM(2008) 402 final, available at [http://ec.europa.eu/environment/emas/index\\_en.htm](http://ec.europa.eu/environment/emas/index_en.htm). The proposal seeks, among other things, to enhance the incentives given by Member States and EU institutions to EMAS registered companies.

81 Teubner (1993, p. 68).

their proclaimed sensitivity to the cognitive challenges associated with regulatory intervention, their pragmatic solutions exhibit an epistemological pretension that is not very different from the one exhibited by environmental economics.

It is not possible to consider in this article all the various proposals which were promulgated under the heading of reflexive or responsive law. I will therefore focus on three key contributions: Robert Baldwin and Julia Black's recent model of 'really responsive regulation' (Baldwin and Black, 2008), Teubner's 'reflexive law' model and Ayres and Braithwaite's model of 'responsive regulation'. What 'really responsive regulation' sets out to do, Baldwin and Black argue, 'is to offer a framework for regulation which responds to firms' attitudinal settings, recognises the significance of the institutional environment (or "regulatory character"), which develops an awareness of the differential nature of the logics of different regulatory tools and strategies, which is performance sensitive, and which responds to change' (Baldwin and Black, 2008, pp. 75–76). The responsive regulator imagined by Baldwin and Black is much more sophisticated than the omniscient economic ruler of environmental economics. He can not only perfectly grasp all the multiple logics that populate the regulatory domain (both within the regulated bodies and within its own institutional sphere), but can also create a regulatory programme that will be sensitive to these idiosyncratic logics, while simultaneously maintaining a more or less coherent structure (p. 72). The responsive regulator is also equipped with remarkable powers of retrospection; he is capable of reassessing and redesigning his overall regulatory strategy in view of unfolding contingencies (p. 94). Baldwin and Black admit that these are 'fairly formidable tasks' (p. 76), but they quickly move on.

It seems that Baldwin and Black's model of 'really responsive regulation' is inherently paradoxical: while it claims to take seriously the cognitive and computational difficulties facing the social planner, the different requirements it imposes on the regulator, *de facto* disregard them. Teubner's model of reflexive law seems to suffer from a similar irresolvable tension. Teubner suggests that the cognitive dilemmas facing the regulatory endeavour may be resolved by what he terms 'reciprocal observation'. Reciprocal observation requires the external observer (the regulatory agency presumably), to develop knowledge of the "blind" process of co-evolution... regulated by the twofold selectivity of the autopoiesis of the law and that of the social system concerned'. And if there are doubts about the social adequacy of law in relation to the regulated field then 'the "mechanism" must be made "more intelligent"'. The law must improve its knowledge of the processes, functions, and structures within the field of regulation' (Teubner, 1993, p. 80). The epistemological burden underlying this proposal is substantial; further, this proposal seems inconsistent with Teubner's earlier remarks about the cognitive challenge generated by social autonomy (p. 68). Ayres and Braithwaite's model of 'responsive regulation' involves similar (suppressed) epistemological challenges. The essence of 'responsive regulation' is a 'tit for tat' approach of escalatory regulatory responses. But implementing this approach, as Baldwin and Black note, requires the regulator to be able to make various, cognitively demanding, choices. Thus, to give one example, the regulator must be able to correctly evaluate the environmental risks involved. Where regulation is directed at potentially catastrophic risks the appropriate reaction may be immediate resort to the higher-level regulatory reactions, rather than applying the conventional escalatory approach (Baldwin and Black, 2008, pp. 62–63).

Further, neither Baldwin and Black's model of 'really responsive regulation', nor any of its theoretical predecessors, seem to take seriously the fact that we live in a society of multiple causes. This deep pluralism questions not only the capacity of a regulating agency to determine its regulatory objectives, but also cast doubts on its ability to reassess its actions – because according to which criteria will such self-monitoring and re-evaluation take place?

But if we reject both the model of environmental economics and the alternative models of self-regulation and reflexive law, what are we left with? While systems theory provides a convincing warning against the pretence of perfect empirical and moral knowledge, underlying the ethos of

social engineering, it does not offer a solution to this dilemma.<sup>82</sup> Systems theory offers a theoretical framework from which society's multiple epistemological points of view can be observed. However, it does not provide a precise algorithm which could unfold the unique dynamic of each social subsystem or the exact trajectories of trans-systemic interactions. In that sense it is wrong to interpret systems theory as an actual manifestation of Asimov's fictional science of psychohistory (Asimov, 1951). Neither does systems theory provide us with a universal meta-discourse which could resolve modern society's numerous normative quarrels.

Systems theory highlights the deep paradox of the study of regulation. Developing a scientific portrait of regulatory decision-making presents us with a deep paradox. On the one hand, we are driven by a desire – both theoretical and pragmatic – accurately to describe the essence of regulatory judgment and to develop a science of regulation; on the other hand, we are also confronted by the intractable feeling that regulation is ‘essentially (a contradiction in terms) only contingency, singularity, risk . . .’ (Barthes, 1980/1993, p. 20).<sup>83</sup> An inevitable consequence of this paradoxical description is that regulatory decisions and regulatory judgments, in both their instrumental and normative facets, are to a large extent intuitive. They involve the invocation of insight or common sense, which cannot be reduced to rational or algorithmic calculus.<sup>84</sup>

This revised conceptualisation of regulatory judgment sets the ground for a different understanding of reflexive law. Let me offer two tentative theses in this context. The first calls for a shift from a prospective to a retrospective state of mind. This thesis suggests that we should abandon the idea that reflexive law offers a decision-making framework that can produce regulatory decisions, which are a priori superior to those generated (for instance) by economic calculation. Rather, the main goal of reflexive law is to instil institutionally wide sensitivity to mistakes. It is based on a retrospective rather than a prospective approach.

The second thesis invites us to explore the concept of intuitive judgment. The concept of reflexive law should be interpreted as an attempt to cultivate those faculties of intuition and insight, which, as we saw, are integral components of regulatory judgment. Intuition is necessary both to devise regulatory objectives in a world of conflicting causes and to determine the best way to achieve these objectives given the radical uncertainty associated with regulatory intervention. Because the nature of the faculty of intuitive judgment is to some extent inexpressible, one can question, of course, whether this faculty can be cultivated at all. A precondition of such an attempt is an understanding of what intuitive judgment means. Intuitive judgment refers, I would argue, to the ability to transcend the boundaries of a particular point of view; to challenge established categories and recast them in new light. It refers, further, to the ability of an observer to perceive a problem simultaneously through multiple perspectives. Only by breaking our usual manner of looking at the world can we liberate an internal space for intuition to spring forth.<sup>85</sup> But how can we facilitate the development of such faculties within the context of a bureaucratic environment? The key element is the development of an institutional environment that encourages critical debate (both internal and

82 See also Ghoshal (2005, pp. 76–77).

83 Barthes speaks about the paradox of the science of the photograph, but his words seem equally applicable to the study of regulation. For similar observations regarding the shortcomings of the study of regulation see Coglianese (2008, p. 95).

84 My understanding of regulatory judgment is to a large extent similar to the concept of political judgment articulated by Peter Steinberger (although we draw on different theoretical frameworks). See Steinberger (1993, pp. 181–304). By regulatory judgment I refer to the collective (or individual) process of opinion formation, pertaining to any of the various decisions associated with a particular regulatory programme. See, further, Steinberger (1993, p. 89).

85 See Petitmengin-Peugeot (1999, p. 44) and Perez (2003).

external) and is sensitive to different discourses. Succumbing to a single voice – be it economic logic or any other – is clearly inconsistent with this vision.

These concluding observations may seem disappointing – certainly from the perspective of a culture driven by a yearning for control; but they provide, I think, a more credible portrait of our collective capabilities.<sup>86</sup>

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86 The financial crisis of 2008, and the failure of the various financial regulators across the globe to either predict it, or to coherently respond to it, seems to provide additional vindication of this view. For preliminary observations regarding the causes and potential reactions to this crisis, see the special issue of *The Economist's Voice*, 5(5), 'Financial Regulation, Financial Crisis, and Bailouts', available at <http://www.bepress.com/ev/vol5/iss5/>.

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