

Glachant, Matthieu

Working Paper

Voluntary Agreements under Endogenous Legislative Threats

Nota di Lavoro, No. 36.2003

Provided in Cooperation with:

Fondazione Eni Enrico Mattei (FEEM)

Suggested Citation: Glachant, Matthieu (2003) : Voluntary Agreements under Endogenous Legislative Threats, Nota di Lavoro, No. 36.2003, Fondazione Eni Enrico Mattei (FEEM), Milano

This Version is available at:

<https://hdl.handle.net/10419/118047>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Voluntary Agreements under Endogenous Legislative Threats

Matthieu Glachant

NOTA DI LAVORO 36.2003

APRIL 2003

GG – Global Governance

Matthieu Glachant, *CERNA, Ecole des mines de Paris*

This paper can be downloaded without charge at:

The Fondazione Eni Enrico Mattei Note di Lavoro Series Index:
http://www.feem.it/web/attiv/_wp.html

Social Science Research Network Electronic Paper Collection:
http://papers.ssrn.com/abstract_id=XXXXXX

The opinions expressed in this paper do not necessarily reflect the position of
Fondazione Eni Enrico Mattei

Voluntary Agreements under Endogenous Legislative Threats

Summary

The paper analyzes the welfare properties of voluntary agreements (VA) with polluters, when they are obtained under the legislative threat of an alternative stricter policy option. In the model, the threat is an abatement quota. Both the threat and its probability of implementation are endogenous. The latter is the outcome of a rent-seeking contest between a green and a polluter lobby group influencing the legislature. We show that a welfare-improving VA systematically emerges in equilibrium and that it is more efficient than the pollution quota. We also discuss various VA design aspects.

Keywords: Environmental policy, voluntary agreements, bargaining, legislatures, rent seeking, rent-seeking contests.

JEL: D72, Q28

The author thanks Lars Garn Hansen for his comments.

Address for correspondence:

Matthieu Glachant
CERNA, Ecole des mines de Paris
60, boulevard St Michel
75272 Paris Cedex 06
France
Phone: + 33 1 40519229
Fax: + 33 1 44071046
E-mail: glachant@cerna.ensmp.fr

1 Introduction

In the field of environmental policy, the major policy innovation of the nineties is probably the introduction of voluntary agreements (VA). While they were marginal practices in a limited number of countries beforehand (e.g. in Germany, Japan), they are now used almost everywhere. One illustration of this very fast and widespread development is the first generation of climate change policies adopted in OECD countries around the mid-nineties. They mostly relied on voluntary agreements. Japan set the so-called Keidaren voluntary Action Plan covering 37 industry branches and eighty percent of industrial energy consumption. In the US, the Clinton's Administration 1993 Climate Change Action Program was mainly based on voluntary programs including Green Lights, Climate Wise among many others. In the European Union, almost all Member States launched their own voluntary approaches under various names: branch agreements, covenants, environmental agreements, etc.

Although these approaches differ in certain respects,¹ one common feature is that polluters *voluntarily* commit to pollution abatement activities. This use of the term "voluntary" has long been disputed since many agreements are in fact obtained under the threat of an alternative coercive public intervention.² The present paper deals with such agreements. We develop a model of voluntary

¹ We discuss the diversity of VA design in section 2.

² For a comprehensive review of the practice of VAs in OECD countries, see OECD (1999).

agreement in which the threat is a pollution quota and is fully endogenous. We use it to assess the efficiency of the VA and we discuss various design issues – the opportunity to involve the pollution victims in the negotiation, the efficiency potential of veto rights by the Congress over VAs, etc.

As VAs have only been developed recently and by practitioners, the academic literature is still limited but it is growing rapidly. Some of these papers deal with the case, similar to ours, where the motivation of the polluters to accept voluntary agreements is the preemption of future regulations. Hansen (1999) has developed a political economy model in which polluters negotiate with a regulator under a background legislative threat. The key feature of his model is that the regulator's objective is biased and differs from that of the threat-making entity, the Congress. A model by Maxwell, Lyon and Hackett (2000) considers firms that voluntarily abate pollution to preempt lobbying by consumers in favor of environmental policy. In this case, firms do not preempt an explicit threat by a regulator but a risk of new legislation possibly triggered by lobbying. These two models essentially generate positive implications relative to the context in which VAs are likely to emerge. The paper closest to ours is probably the one by Segerson and Miceli (1999). They develop a normative model in which the polluter undertakes voluntary action under the threat made by a benevolent regulator to implement an abatement quota.³

We extend the Segerson & Miceli' model (S&M) in two ways. First, the threat is completely endogenous in our setting. In S&M, the legislative threat is implemented with a probability described by an exogenous parameter. This assumption is disputable because the probability of adoption of a given piece of legislation depends on its precise contents. For instance, a strict pollution quota is less likely to be adopted than a lenient one due to the political opposition of polluters. To account for that, we consider that the probability of adoption is the outcome of a rent-seeking contest between two lobby groups – the polluter and a green group – competing to influence the probability of adoption of the legislation. Second, contrary to S&M, we make conservative cost assumptions meaning that we do not confer any cost advantage to the VA over the regulatory quota. In our model, the VA is thus as cost effective as direct regulation.

The paper is structured as follows. Section 2 presents the model. In section

³ Segerson and Miceli also investigate a so-called "carrot" approach whereby the polluters reduce pollution in exchange of public subsidies. Other papers focus on such subsidy seeking VAs; see for instance Lyon and Maxwell (2002).

3, the case where the threat is an abatement quota is analyzed and we show that the VA is systematically more efficient than the legislative abatement quota in this setting. Section 4 makes three simple extensions of the model to address design issues debated in the policy arena: the efficiency potential of involving a green group in VA, the impact of policy delegation on bargaining outcomes and the usefulness of granting a veto right to the Congress over newly adopted VA. Section 5 concludes.

2 The model

The model depicts a situation in which a benevolent environmental regulator R and a polluter P agree to make a voluntary agreement. The VA specifies a pollution abatement level, denoted B , to be met by the polluter. Before going further, it is worth making two remarks. First, the model is sufficiently general for the polluter to be either a single firm or an industry. In practice, certain VAs are signed with a coalition of polluters, usually represented by an industrial branch association. In that case, the model implicitly assumes that the members of the coalition have solved the free riding problem associated with collective action.

The second remark is related to the diversity of VAs encountered in reality. The literature distinguishes three broad categories. Each type ultimately differs with respect to the degree of involvement of the regulator. Under *public voluntary programs*, the firms agree to make abatement efforts to meet goals which are established by the regulator. In a *negotiated agreement*, the polluter and the regulator jointly devise the commitments through bargaining. Under *self-regulation* or unilateral agreements, the polluter takes the initiative. He freely sets up a program of environmental actions without any formal influence from the regulator.

In our model, the agreement is the outcome of a bargaining process between the polluter and the regulator. So it is a negotiated agreement. However, our results could easily apply to public voluntary programs with minor changes. The reason is that public voluntary programs and negotiated agreements share a key feature which ultimately drives the results: the polluter and the regulator's participation constraints must be satisfied in both cases. On the contrary, self-regulation is not a possible application, the main reason being

probably that unilateral commitments are usually not triggered by legislative threats.

Consider now the costs and benefits associated with the polluter's commitment to meeting an abatement level B . The abatement cost born by the polluter is described by a twice differentiable function $C(B)$. It also generates a benefit in terms of avoided environmental damage. For the sake of simplicity, we assume that the benefit equals the abatement level B . The linearity of the benefit function simplifies the analysis without altering any of the results. We make the usual assumptions that C' , $C'' > 0$, $C'(0) < 1$ and $C(0) = 0$. These hypothesis imply that there are decreasing returns to scale in abatement activities, and that, for low values of B , gross welfare, denoted $W(B) \equiv B - C(B)$, is positive. Therefore, in the absence of political constraints, the environmental regulator selects the optimal policy level, B^* , defined as follows

$$C'(B^*) \equiv 1.$$

The agreement is obtained under the threat of an alternative policy. More specifically, we assume that the environmental regulator is the agenda setter of the Congress. He can thus threaten the polluter with legislation. The threat consists in an abatement quota. We do not assume any cost advantage for the VA: the polluter has the same cost function under the VA and under the legislative quota. Doing otherwise would make it too easy to reach conclusions about the superiority of voluntary agreements.

The threat is uncertain.⁴ This is a crucial feature of this type of models: if the benevolent regulator was able to pass any new legislation with certainty, he would be able to implement the first best policy B^* through the Congress and would have no reason to use a VA instead. Let π be this probability of adoption. It cannot be considered as an exogenous parameter. It certainly depends on the contents of the Law proposal. For instance, for a given level of environmental benefit, a more costly threat has lower chance of being adopted. One central reason for that is that the potential losers of the policy are trying to influence the legislative process through lobbying, media campaigns, etc. To account for that, we model the legislative process as follows.

We suppose that the proposal of legislation is subjected to a rent-seeking

⁴ The fact that passing a Law is uncertain is definitively supported by evidence. During the last legislative term in France (1997-2002), the Government made 476 Law proposals out of which 351 were finally adopted by the Parliament, corresponding to an average probability of adoption of 0.74. In the US, a paper by Zeckhauser (1981) gives many examples in the field of environmental policy.

contest involving two lobby groups as popularized by the rent-seeking literature. A first group G (the "greens") is concerned by the policy benefit B whereas the second group is simply the polluter P who bears the policy cost $C(B)$. Group G and the polluter P make rent-seeking expenditures in order to influence the Congress' voting process. Expenditures may be campaign contributions (monetary or in kind), or may correspond to the cost of transmitting strategic information to the "median" legislator on the consequences of the Law proposal. The level of expenditures of both lobby groups affects π , the probability of adoption, via a so-called *contest success function*. These functions are routinely used in the rent-seeking literature to model lobbying in noisy political environments.⁵ As to the functional form, we use a variant of the standard unit logit function pioneered by Tullock (1980):

$$\pi(x_G, x_P) \equiv \begin{cases} \pi^\circ + (1 - \pi^\circ) \frac{\lambda x_G}{\lambda x_G + x_P}, & \text{if } x_G + x_P > 0 \\ 0, & \text{if } x_G + x_P = 0 \end{cases} \quad (1)$$

where x_G and x_P are the green group's and polluter's rent-seeking expenditures, respectively. λ is a parameter introducing a heterogeneity in lobby groups' influence technology. It is a routine assumption in the rent seeking literature. When λ lies in between 0 and 1, the green group is less influential than the polluters whereas the contrary holds true beyond 1. Finally, π° is a parameter reflecting the responsiveness of the Congress to lobbying. As a result the probability π cannot fall below π° . Put differently, whatever the intensity of lobbying, any welfare-improving policy is adopted *at least* with a probability π° . This is a less classical assumption aiming at introducing some concern for the general interest in Congress' behavior.

Finally, the timing of events is as follows:

- 1) The bargaining stage: The regulator and the polluter bargain over a pollution abatement quota. If they agree, the game stops and the abatement quota is implemented.
- 2) The agenda setting stage: In case of persisting disagreement, the regulator makes a Law proposal to the Congress

⁵ Nitzan (1994) is a comprehensive survey of the rent-seeking literature using such contest success functions.

- 3) The rent-seeking stage: The lobbies simultaneously select their rent-seeking expenditures which determine the probability of adoption of the proposal, π . The Law is adopted with this probability.

3 A VA under the threat of an abatement quota

In this section, we solve the model for the case wherein the threat is a quota. We reason backward, starting with the analysis of the rent-seeking sub-game.

3.1 The rent-seeking stage

Consider any Law proposal involving an abatement quota B . What will be its probability of adoption? According to Eq.(1), it is determined by the rent-seeking expenditures of the two groups. Each simultaneously and non cooperatively selects its level of expenditures by maximizing its expected utility, taking the other's level of expenditures as given. The corresponding maximization problem is:

$$\begin{aligned} \max_{x_G} \pi(x_G, x_P)B - x_G \\ \max_{x_P} -\pi(x_G, x_P)C(B) - x_P \end{aligned}$$

Assuming interior solutions, the equilibrium rent-seeking expenditures are given by the first order conditions:

$$\begin{aligned} (1 - \pi^\circ)B \frac{\lambda x_P}{(\lambda x_G + x_P)^2} &= 1 \\ (1 - \pi^\circ)C(B) \frac{\lambda x_G}{(\lambda x_G + x_P)^2} &= 1 \end{aligned}$$

Algebraic manipulations of these two conditions then lead to the following levels of expenditures:

$$x_G(B) = \frac{(1 - \pi^\circ)}{\lambda} \cdot \frac{B^2 \cdot C(B)}{(B + C(B))^2} \quad (2)$$

$$x_P(B) = \frac{(1 - \pi^\circ)}{\lambda} \cdot \frac{B \cdot C(B)^2}{(B + C(B))^2} \quad (3)$$

Plugging these expenditures in Eq. (1) yields the equilibrium probability of adoption of the rent-seeking game:

$$\pi(B) = \pi^\circ + (1 - \pi^\circ) \frac{\lambda B}{\lambda B + C(B)} \quad (4)$$

3.2 The agenda-setting stage

Having characterized the probability function with respect to B , we consider now the legislation that will be proposed to the Congress. The regulator takes into account the uncertainty of the adoption and makes a Law proposal that maximizes expected gross welfare:⁶

$$\max_B \pi(B)[B - C(B)].$$

The first order condition of this maximization problem then implicitly defines the abatement level under legislation, that we denote \hat{B} :

$$\pi(\hat{B})[1 - C'(\hat{B})] \equiv -\pi'(\hat{B})[\hat{B} - C(\hat{B})]. \quad (5)$$

We then have a very simple lemma which establishes that this level is lower than the first best abatement level.

Lemma 1 Let \hat{B} be the equilibrium regulatory policy under legislation. We have $\hat{B} < B^*$.

Proof. First we show that π' is negative for all λ , π° and B . Differentiating (4) yields $\pi'(B) = (1 - \pi^\circ)\lambda[C(B) - B \cdot C'(B)]/(\lambda B + C(B))^2 < 0$. It follows that $C'(\hat{B}) < 1$, or alternatively $C'(\hat{B}) < C'(B^*)$. Hence, $\hat{B} < B^*$. \square

⁶ Note that rent-seeking activities are not an argument in the welfare function since they are transfers between lobby groups and others (legislators, lawyers, experts, etc.). The rent-seeking literature tends to consider them as wasteful activities to be included in the social welfare function. This does not change lemma 1 as shown in appendix. Therefore it has no impacts on the propositions that follow in the rest of the paper.

Lemma 1 states that the first best policy is not attainable under the legislative route. The intuition is simple. The existence of political constraints lowers the probability of adoption. To mitigate the problem, the environmental regulator needs to make a law proposal diverging from the first best optimum. This proposal is lower because of the negative sign of the marginal probability. It is ultimately rooted in the fact that increasing B leads to larger losses in marginal terms than benefits due to the convexity of the cost function. It then provides the polluter with more incentives to increase rent-seeking expenditures.

It is useful to derive some simple results of comparative statics about the equilibrium abatement level \hat{B} . From Eq.(5), one immediately derives

$$\hat{B} = \frac{-\pi(\hat{B})}{\pi'(\hat{B})}(1 - C'(\hat{B})) + C(\hat{B})$$

Simple calculations then lead to:

$$\begin{aligned} \frac{\partial \hat{B}}{\partial \pi^\circ} &= -\pi'(\hat{B})(1 - C'(\hat{B})) \left(1 - \frac{\lambda \hat{B}}{\lambda \hat{B} + C(\hat{B})} + \frac{\pi(\hat{B})}{1 - \pi^\circ} \right) > 0 \\ \frac{\partial \hat{B}}{\partial \lambda} &= \frac{\pi^\circ \pi'(\hat{B})}{\lambda} (1 - C'(\hat{B})) \left(1 - \frac{\lambda \hat{B}}{\lambda \hat{B} + C(\hat{B})} \right) < 0 \end{aligned}$$

Unsurprisingly, we observe that the less responsive the Congress is to lobbying (a high π°), the higher the equilibrium abatement quota and the closer to the first best B^* . Similarly, when the polluter is less efficient in rent seeking than the greens, the abatement level in equilibrium is higher.

3.3 The bargaining stage

Note that the equilibrium policy under legislation, \hat{B} , corresponds to the disagreement point of the bargaining game, which we consider now. In this game, polluter and regulator's payoffs are the differences between their expected utility under legislation and their utility in the bargaining equilibrium:

$$U_P(B) \equiv \pi(\hat{B}).C(\hat{B}) + x_P(\hat{B}) - C(B) \quad (\text{Polluter's payoff})$$

$$U_R(B) \equiv [B - C(B)] - \pi(\hat{B}) \cdot (\hat{B} - C(\hat{B})) \quad (\text{Regulator's payoff})$$

Given these payoffs, it is obvious that any feasible agreement is more efficient than legislation since it satisfies the participation constraint of the welfare-maximizing regulator. The following result establishes the existence of a unique Nash bargaining solution for the game.

Proposition 1 Let $\Omega = \{B : U_P(B) \geq 0 \text{ and } U_R(B) \geq 0\}$. There exists a unique Nash bargaining solution that solves the following maximization problem

$$\max_{B \in \Omega} \Pi(B) \equiv (W(B) - \pi(\hat{B}) \cdot W(\hat{B})) (\pi(\hat{B}) \cdot C(\hat{B}) + x^P(\hat{B}) - C(B))$$

Proof. First we establish that Ω is not empty. It is convenient to denote B_P the maximal level the polluter is willing to accept and B_R the minimal level the regulator is ready to accept. They are implicitly defined by $U_P(B_P) \equiv \pi(\hat{B}) \cdot C(\hat{B}) + x_P(\hat{B}) - C(B_P) = 0$ and $U_R(B_R) \equiv W(B_R) - \pi(\hat{B}) \cdot W(\hat{B}) = 0$. We have $W(B_R) = \pi(\hat{B}) \cdot W(\hat{B}) < W(\pi(\hat{B}) \cdot \hat{B})$ since $W''(\hat{B}) = -C''(\hat{B}) < 0$. Then $W(B_R) < W(\pi(\hat{B}) \cdot \hat{B})$ implies $B_R < \pi(\hat{B}) \cdot \hat{B}$ since W is strictly increasing below B^* . And so $C(B_R) < C(\pi(\hat{B}) \cdot \hat{B}) < \pi(\hat{B}) C(\hat{B})$ since C' and C'' are strictly positive. Hence, $C(B_R) + x_P(\hat{B}) < \pi(\hat{B}) C(\hat{B}) + x_P(\hat{B}) = C(B_P)$. Since $x_P(\hat{B}) > 0$, we finally obtain that $C(B_R) < C(B_P)$ and thus $B_R < B_P$. Hence, $\Omega = [B_R, B_P] \neq \emptyset$.

The second step of the proof is to show that the Nash product is strictly concave. This is straightforward since the second derivative of the Nash product, $\Pi''(B) = W''(B)U_P(B) - 2C'(B)W'(B) - C''(B)U_R(B)$, is strictly negative.

Finally, let h be the function describing the utility the regulator obtains for a given utility level of the polluter u_P . The last step of the proof consists in establishing that h is strictly decreasing and concave. From the strict monotonicity of U_P , there exists a unique abatement level $\hat{B} \in \Omega$ such that $U_P(\hat{B}) = u_P$; i.e., $\hat{B} = U_P^{-1}(u_P)$, where U_P^{-1} denotes the inverse utility of the polluter. The utility the regulator obtains when the polluter obtains u_P is then given by:

$$h(u_P) \equiv U_P(\hat{B}) = U_P(U_P^{-1}(u_P)) = C^{-1}(\hat{K} - u_P) + u_P - \pi(\hat{B})\hat{B} - x_P(\hat{B}),$$

where $\hat{K} = \pi(\hat{B})C(\hat{B}) + x_p(\hat{B})$. Having characterized h , we can now study the sign of its first and second derivatives. We have:

$$\frac{dh(u_p)}{du_p} = 1 - C^{-1}(\hat{K} - u_p) = 1 - \frac{1}{C'(C^{-1}(\hat{K} - u_p))} = 1 - \frac{1}{C'(\hat{B})}.$$

$$\frac{dh^2(u_p)}{du_p^2} = \frac{2}{C'(\hat{B})^2 U_p'(\hat{B})} = -\frac{2}{C'(\hat{B})^3}.$$

From $\hat{B} < B^*$, it follows $C'(\hat{B}) < 1$ and thus $\frac{dh}{du_p} < 0$. Hence h is strictly decreasing. The second derivative is obviously negative and h is therefore strictly concave. \square

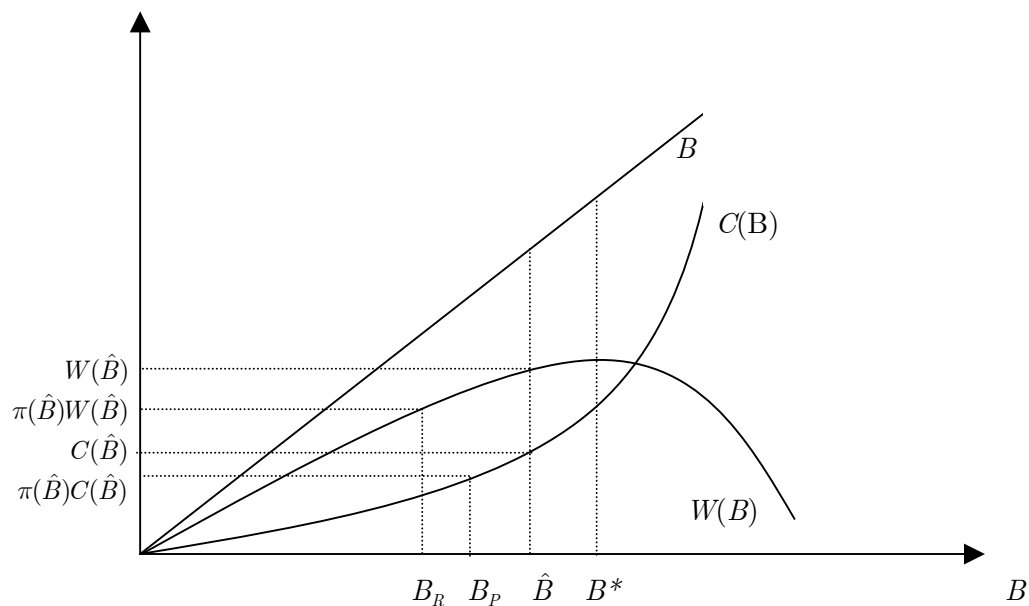
Proposition 1 is the first key result of this paper. It establishes the existence of a VA that is more efficient than the legislative (regulatory) option. The result is very robust in that it does not depend on the stringency of the political constraints, as reflected by the values of λ and π° . In particular, it still holds true when the Congress is very weakly responsive to lobbies' pressure ($\pi^\circ \rightarrow 1$) or when the polluter is much less efficient than the green group in influencing the Congress ($\lambda \rightarrow +\infty$). However, the VA cannot yield the first best optimum as stated by this simple corollary.

Corollary 1 Let \tilde{B} be the abatement level corresponding to the Nash bargaining solution. We have $\tilde{B} < B^*$

Proof. Obvious since $\tilde{B} \leq B_p < \hat{B} < B^*$. \square

What is the intuition underlying proposition 1? In fact the key point in the proof is that the maximal abatement level the polluter is willing to accept, B_p , is lower than the minimal level of abatement for the regulator B_R . One reason for this is the fact that signing a VA provides a specific benefit for the polluter which lowers his reservation level: avoiding the rent-seeking expenditure $x_p(\hat{B})$. This is not the crucial reason, however, since B_p would remain below B_R even if $x_p(\hat{B})$ was equal to zero. The key point lies in the convexity of the cost function as illustrated by Figure 1. It represents the case $\pi(\hat{B})C(\hat{B}) < \pi(\hat{B})W(\hat{B})$, or equivalently $C(B_p) < W(B_R)$. This case is not very favorable to the joint satisfaction of the participation constraints since expected loss associated with

the threat for the polluter is less than the expected gain for the regulator. In this situation, we might fear that the maximal abatement level acceptable for the polluter to be lower than the minimal level acceptable by the regulator. In fact, this is not the case as shown in Figure 1: we have $B_R < B_P$ because C is convex and W is concave.



4 Design issues

Having shown that the VA systematically dominates regulation in a second best world where legislative action is constrained by lobby groups' influence, we use the model to analyze three design issues that arise in the policy debate on VAs: the efficiency potential of involving environmental associations in the negotiation, the impact of policy delegation on bargaining outcomes, and the interest of an ex post veto right of the Congress over any new VA.⁷

⁷ A recent report published by OECD study makes a comprehensive review of these issues (OECD, 2000).

4.1 Associating the green group to the VA

A frequent criticism is that VAs exclude the pollution victims from the negotiation. In this respect, they diverge from classical Coasean bargaining since not all affected parties are around the table. The Coase theorem then suggests that it would improve welfare to include them in the process. The involvement of green associations in the negotiation of VAs is a recurrent policy recommendation even though it rarely happens in practice (OECD, 2000). Does our model plead for such a recommendation? To answer the question, it is necessary to compare the bargaining outcome of the traditional 2-party VA analyzed in the previous section, \tilde{B} , with that of the 3-party VA game involving a green group representing the victims. The payoff to the green group in the bargaining game is

$$U_G(B) \equiv B - \pi(\hat{B}) \cdot \hat{B} - x_G(\hat{B})$$

No simple equilibrium concept is available for 3-player bargaining games without side payments. To bypass the problem, we assume that bargaining only takes place between the two lobby groups. The environmental regulator only influences the outcome through his participation constraint which still needs to hold. Hence, he has no bargaining power and plays a role of arbitrator (or facilitator) of the negotiation. This hypothesis about the allocation of bargaining power actually corresponds to that of a Coasean negotiation. With this assumption the maximization problem of the three-player game is:

$$\max_{B \in \Gamma} \Pi_{ter}(B) \equiv U_P(B) \cdot U_G(B)$$

where $\Gamma = \{B : U_G(B) \geq 0\} \cap \Omega$. The following result establishes the existence of the bargaining outcome of the three-player game and states that it is more efficient than the traditional bilateral VA.

Proposition 2. There exists a unique abatement level, denoted $\tilde{\tilde{B}}$, which is the outcome of the 3-party VA. Furthermore, $\tilde{B} < \tilde{\tilde{B}} < B^*$ for any λ and π° , implying that the 3-party VA is more efficient than the traditional one.

Proof. Establishing the existence and uniqueness of \tilde{B} follows closely the proof of Proposition 1 and is thus left in appendix. As regards the second part of the proposition, consider the Nash product of the 3-party VA game:

$$\Pi_{ter}(B) = \Pi(B) + [\pi(\hat{B}).C(\hat{B}) + x_p(\hat{B}) - C(B)]^2$$

Its first derivative is $\Pi_{ter}'(B) = \Pi'(B) - 2((\pi(\hat{B}).C(\hat{B}) + l(\hat{B})) - C(B))C'(B)$. As \tilde{B} is the maximum of $\Pi(B)$, then $\Pi'(\tilde{B})=0$. Hence we have $\Pi_{ter}'(\tilde{B}) = -2((\pi(\hat{B}).C(\hat{B}) + l(\hat{B})) - C(\tilde{B}'))C'(\tilde{B}')$, which is strictly negative. It implies $\tilde{B} < \tilde{B} < B^*$. \square

Proposition 2 establishes that the involvement of green groups in VAs is a relevant policy recommendation. This is so because, in the case of a simple VA excluding the green group, the participants are the polluter – who only cares about abatement costs - and the regulator – who is concerned with both costs and benefits. In this setting, the cost is taken into account twice in bargainers' payoffs while the benefit is only counted once. This is reflected in the bargaining outcome which places more weight on the cost side. Involving the greens - who are only concerned with the benefit - suppresses this distortion since costs and benefits are both taken into account twice in participants' payoffs.

4.2 Delegating the negotiation of VA

The intuition behind proposition 2 is the starting point for discussing a further design aspect. In practice, the government often delegates the negotiation of VAs to specialized environmental agencies (e.g., the EPA in the US) or Ministries of the Environment. In comparison with the ideal benevolent regulator of the basic model, it is reasonable to assume that these entities are biased in favour of the environment. The model can illustrate the fact that such a policy delegation and the bias it introduces in the objective of the bargaining regulator in fact promote the efficiency of the VA. Put differently, an *inefficient* regulator leads to more *efficient* VA outcomes. The reason is the same as the one supporting the involvement of the greens in VAs. A pro-environment regulator pays more attention to the benefit than to cost, resulting in a more efficient bargaining outcome. Let us investigate this point.

Consider that, for efficiency purposes, the benevolent regulator delegates VA bargaining to a biased agency denoted A . To organize the delegation relationship, he devises a contract, which specifies the bias. More specifically, the delegation contract attributes to the bargaining agency the following objective function

$$\beta B - (1-\beta)C(B) \quad \text{with } \beta \in [0,1]$$

The bias is reflected by the parameter β which equals 0, if the contract requires the agency to care only about abatement cost, and 1, if the contract requires paying only attention to environmental benefit. We assume that the delegation contract is perfectly enforceable. More generally, we neglect all the transaction costs potentially attached to policy delegation. The question we address is then as follows: what should be the bias β^* so that the bargaining outcome maximizes social welfare?

There is a simple way to answer the question by considering the participation constraints. Keeping the notations previously introduced, the maximal level the polluter is willing to accept, B_p , and the minimal level for the bargaining agency, B_β , are now given by:

$$U_P(B_p) \equiv \pi(\hat{B}).C(\hat{B}) + x_P(\hat{B}) - C(B_p) = 0. \quad (6)$$

$$U_A(B_\beta) \equiv \beta B_\beta - (1-\beta)C(B_\beta) - \pi(\hat{B})(\beta \hat{B} - (1-\beta)C(\hat{B})) = 0 \quad (7)$$

Note that the threat policy \hat{B} is the same as before since the benevolent regulator is still the agenda-setter of the Congress. Assume that there exists an agreement involving an equilibrium abatement level \tilde{B} . It follows that we necessarily have $B_\beta \leq B_p$ and $\tilde{B} \in [B_\beta, B_p]$. From Eq. (6), we see that B_p does not depend on β . Hence, modifying the bias will not affect the upper bound of the interval $[B_\beta, B_p]$. It only influences the lower bound. Moreover, we know from proposition 1 that $B_p < B^*$. Hence the VA equilibrium abatement level \tilde{B} is thus necessarily below the first best level. In this context, the higher \tilde{B} and the closer to the first best B^* , the more efficient the VA. In particular, if we are able to show that there exists a bias β such that $\tilde{B} = B_p$, we would have characterized the efficient bias β^* . In fact, this bias exists and is given by

$$B_\beta = B_p \quad (8)$$

This is so because, in this case, the bargaining set is restricted to one point and

we are sure that $\tilde{B} = B_p$. Substituting Eq.(6) and (7) in Eq.(8) then yields the efficient bias:

$$\beta^* = 1 - \frac{B_p - \pi(\hat{B})\hat{B}}{[B_p - \pi(\hat{B})\hat{B}] + [C(B_p) - \pi(\hat{B})C(\hat{B})]} \quad (9)$$

We are then able to establish the following result.

Proposition 3 The efficient bias, β^* , of the VA delegation contract is such that $\beta^* > 1/2$. The bargaining agency is thus biased in favor of the environment.

Proof. From Eq.(6), we know that $C(B_p) - \pi(\hat{B})C(\hat{B}) = x_p(\hat{B})$ and is thus positive. It follows that the legislative quota is less costly in terms of expected abatement cost than the VA. Put differently, gross VA abatement cost relative to the legislation is negative. Since the VA is overall welfare improving, the environmental benefit of the VA relative to the legislation $B_p - \pi(\hat{B})\hat{B}$ is necessarily positive and higher in absolute terms than the associated gross abatement cost, that is: $B_p - \pi(\hat{B})\hat{B} > \pi(\hat{B})C(\hat{B}) - C(B_p)$. This inequality implies that the last term of Eq.(9) is strictly inferior to $1/2$. Hence $\beta^* > 1/2$. \square

This proposition essentially relies on the same intuition as the one justifying the involvement of the green group in the VA. A pro-environment bias compensates for the polluter's bias in favor of the abatement cost and then leads the bargaining outcome to be more efficient in the end. This proposition has institutional implications: VA negotiation should be preferably delegated to environmental agencies. There exist instances where VA are in fact delegated to the ministries or agencies in charge of industrial or economic affairs. The Dutch CO2 Long Term Agreements is an example. Our model suggests that it is not the best choice.

4.3 Granting a veto right to the Congress

A further design question refers to the interest of granting a veto right to the Congress over every new VA. Belgium or the Netherlands are countries which have already adopted this rule. The underlying rationale is to compensate for the lack of democratic legitimacy of the VA process as compared to traditional legislative action. Is it justified on economic efficiency grounds? In our setting, it adds a further (veto) stage to the sequential game. At this final stage, we must assume that, like any proposal made in the Congress, the adoption of the VA is the subject of a further rent-seeking contest between the two lobby groups.

Basically, there is no difference with the rent-seeking sub-game analyzed in section 3.1. The probability that the VA is definitively adopted is therefore equal to $\pi(B)$ given by Eq.(4) and the corresponding rent-seeking expenditures are $x^P(B)$ and $x^G(B)$ for the polluter and the green group, respectively given by Eq.(2) and Eq.(3). Moving on to the bargaining sub-game, the bargainers' payoffs are now:

$$U_P(B) = \pi(\hat{B})C(\hat{B}) + x^P(\hat{B}) - \pi(B)C(B) - x^P(B)$$

$$U_R(B) = \pi(B)W(B) - \pi(\hat{B})W(\hat{B})$$

We then have the following proposition:

Proposition 4 When the Congress enjoys a veto right, no VA emerges in equilibrium.

Proof. Keeping using B_R to denote the minimal level the regulator is ready to accept, defined by $\pi(\hat{B}).W(\hat{B}) \equiv \pi(B_R).W(B_R)$. The left-hand side and the right-hand side of this condition have the same functional form. Furthermore $\pi(.)W(.)$ is strictly monotonic below \hat{B} . Hence $B_R = \hat{B}$. Consider now B_P defined by $\pi(\hat{B}).C(\hat{B}) + x_P(\hat{B}) \equiv \pi(B_P).C(B_P) + x_P(B_P)$. The same argument applies to establish that $B_P = \hat{B}$ if $\pi(.)C(.) + x_P(.)$ is monotonic. To show that this is the case, consider the Nash product $\Pi(B) = U_P(B).U_R(B)$. If there exists a VA, we have $\Pi'(B) = U_P'(B).U_R(B) + U_P(B).U_R'(B) = 0$. As we are below \hat{B} , $U_R'(B) > 0$ and

thus $U_P'(B) = -(\pi(B)C(B) + x_P(B))' < 0$. Therefore, $\pi(\cdot)C(\cdot) + x_P(\cdot)$ is monotonic and $B_P = \hat{B}$. In the end, $B_P = B_R$ and the bargaining set is restricted to the disagreement point. \square

Therefore, introducing a veto right damages social welfare, preventing VAs from emerging in equilibrium. Intuitively, this is so because, in the absence of veto right, the gains for both sides are ultimately rooted in bypassing the legislative route. Offering a veto on the result of the negotiation *de facto* re-introduces the legislative option in the VA route. As a result, the interest for making a VA vanishes for both parties.

5 Conclusion

We have developed a model of voluntary agreement under legislative threat wherein the regulator sets the threat while its probability of adoption is the outcome of a rent-seeking contest between the polluter and a green group influencing the legislature. The model demonstrates that, in this setting, the VA is systematically more efficient than the threat abatement quota.

We also use the model to analyze a set of design issues that are frequently discussed in the policy arena. First, it is shown that involving a green group in the negotiation of the VA improves welfare. The underlying intuition is that this (partly) compensates for the bias in favor of pollution abatement cost attached to the participation of the polluter in the VA decision process. The same intuition applies for the second extension of the model, which considers the interest for the benevolent regulator to delegate the negotiation of the VA to a biased agency. Such a delegation frequently takes place in practice when the responsibility for developing VA lies upon specialized environmental agencies or ministries. We demonstrate that this strategy improves welfare if the agency is biased in favor of the environment. The last extension of the model assesses the relevancy of granting a veto right to the Congress over each new VA as done in certain countries (e.g., Belgium, the Netherlands). The model demonstrates that this prevents the emergence of any welfare-improving VA.

All in all, these results are quite favorable to voluntary agreements in

comparison with the traditional Command and Control approach. It should however be noted that potential drawbacks of the approach are not taken into account in this modeling exercise. For instance, the polluters perfectly comply with their commitments in the model whereas many commitments are in fact non-binding in reality. Furthermore, the model does not address free riding issues which can hinder the emergence of VAs when, as it is frequent in practice, they involve a group of polluters. A further limit providing the opportunity for future work is that we only consider a threat consisting in an abatement quota. It would be interesting to consider more efficient policy options, such as a pollution tax or an emission-trading program.

References

Hansen L.G. (1999), "Environmental regulation through voluntary agreements" in *Voluntary Approaches in Environmental Policy*, Carlo Carraro and François Lévêque (eds.), Kluwer Academic Press.

Lyon T., Maxwell J.W. (2002), "Self-regulation, taxation and public voluntary environmental agreements", forthcoming in the *Journal of Public Economics*, available on <http://www.sciencedirect.com/>.

Maxwell J.W., T.P. Lyon, S.C. Hackett (2000), "Self regulation and social welfare: the political economy of corporate environmentalism", *Journal of Law and Economics*, 43, pp. 583-618

Nitzan, S. (1994) "Modeling rent-seeking contests", *European Journal of Political Economy*, 10, pp 41-60

OECD (1999) *Voluntary approaches for Environmental Policy*, OECD, Paris

Segerson, K. and Miceli, T.J. (1999) "Voluntary environmental agreements: good or bad news for environmental protection?", *Journal of Environmental Economics and Management*, 36(2), pp. 109-30

Tullock G. (1980) "Efficient rent seeking", in *Towards and Theory of the Rent Seeking Society*, eds J.M. Buchanan, R. Tollison, and G. Tullock, Texas A&M Press, pp 269-282

Zeckhauser, R. (1981) " Preferred policies when there is a concern for probability of adoption", *Journal of Environmental Economics and Management*, 8(3), Sept., pp. 215-37

Appendix

Proof of lemma 1 when when rent-seeking is wasteful

If the regulator considers that rent-seeking is a wasteful activity, it enters negatively in his objective function and he maximizes

$$\pi(B)[B - C(B)] - x_G(B) - x_P(B),$$

which leads to

$$\pi'(B)[B - C(B)] + \pi(B)[1 - C'(B)] - x_G'(B) - x_P'(B) = 0$$

\hat{B} , the welfare maximizing regulatory policy under legislation, still satisfies $\hat{B} < B^*$ since $\pi(\hat{B})(1 - C'(\hat{B})) = -\pi'(\hat{B})[\hat{B} - C(\hat{B})] + x_G'(\hat{B}) + x_P'(\hat{B})$. Furthermore, we have:

$$x_G'(\hat{B}) + x_P'(\hat{B}) = \frac{1 - \pi''}{\lambda} \cdot \frac{\hat{B}^3 \cdot C'(\hat{B}) + \hat{B} \cdot C^2(\hat{B}) + \hat{B}^2 \cdot C(\hat{B}) \cdot C'(\hat{B}) + C^3(\hat{B})}{(\hat{B} + C(\hat{B}))^3} > 0$$

As $\pi' < 0$, then $1 - C'(\hat{B})$ is positive implying that $\hat{B} < B^*$. \square

Proof of Proposition 2

First we show that Γ is non-empty. Let B_G denote the abatement level corresponding to the green group's participation constraint, that is $U_G(B_G) \equiv B_G - \pi(\hat{B})\hat{B} - x_G(\hat{B}) = 0$. We use the notation as in proposition 1 for the abatement levels corresponding to the polluter's and regulator's participation constraints, B_P and B_R respectively. Proposition 1 has already established that $B_R < B_P$. Therefore, for Γ to be non-empty only requires that $B_G < B_P$, i.e., the polluter's and green group's participation constraints jointly hold. From $U_G(B_G) = 0$, we derive that $x_P(\hat{B}) = C(\hat{B})(B_G - \pi(\hat{B})\hat{B})/\hat{B}$ since $x_G(\hat{B}) = \hat{B}x_G(\hat{B})/C(\hat{B})$. Plugging $x_G(\hat{B})$ in $U_P(B_P) = \pi(\hat{B}) \cdot C(\hat{B}) + x_P(\hat{B}) - C(B_P) = 0$, we obtain that $C(B_P) = (C(\hat{B})/\hat{B}) \cdot B_G$ and thus $C(\hat{B})/\hat{B} = (C(B_P)/B_P)(B_P/B_G)$. From $B_P < \hat{B}$ and $C'' > 0$, it follows that $C(\hat{B})/\hat{B} < C(B_P)/B_P$. Hence $B_G < B_P$. Γ is thus non-empty.

Second it is straightforward to show that the Nash product is strictly concave: $\Pi''(B) = -C''(B)U_G(B) - 2C'(B) < 0$. Last, we need to establish the existence and uniqueness of the equilibrium. If g denotes the green group's utility, we have to show that it is a strictly decreasing and concave function of

the polluter's utility u_p . We have:

$$g(u_p) \equiv U_G(U_P^{-1}(u_p)) = C^{-1}(\hat{K} - u_p) - \pi(\hat{B})\hat{B} - x_G(\hat{B}) ,$$

where $\hat{K} = \pi(\hat{B})C(\hat{B}) + x_P(\hat{B})$. The first and second derivative are respectively:

$$\frac{dg}{du_p} = C^{-1}'(\hat{K} - u_p) = -1/C'(\hat{B})$$

and

$$\frac{d^2g}{du_p^2} = -2/C'(\hat{B})^3 ,$$

which are both strictly negative. Therefore the Nash bargaining solution exists and is unique. \square

NOTE DI LAVORO DELLA FONDAZIONE ENI ENRICO MATTEI

Fondazione Eni Enrico Mattei Working Paper Series

Our working papers are available on the Internet at the following addresses:

http://www.feem.it/web/attiv/_wp.html

<http://papers.ssrn.com>

SUST	1.2002	<i>K. TANO, M.D. FAMINOW, M. KAMUANGA and B. SWALLOW: <u>Using Conjoint Analysis to Estimate Farmers' Preferences for Cattle Traits in West Africa</u></i>
ETA	2.2002	<i>Efrem CASTELNUOVO and Paolo SURICO: <u>What Does Monetary Policy Reveal about Central Bank's Preferences?</u></i>
WAT	3.2002	<i>Duncan KNOWLER and Edward BARBIER: <u>The Economics of a "Mixed Blessing" Effect: A Case Study of the Black Sea</u></i>
CLIM	4.2002	<i>Andreas LÖSCHEL: <u>Technological Change in Economic Models of Environmental Policy: A Survey</u></i>
VOL	5.2002	<i>Carlo CARRARO and Carmen MARCHIORI: <u>Stable Coalitions</u></i>
CLIM	6.2002	<i>Marzio GALEOTTI, Alessandro LANZA and Matteo MANERA: <u>Rockets and Feathers Revisited: An International Comparison on European Gasoline Markets</u></i>
ETA	7.2002	<i>Effrosyni DIAMANTOUDI and Eftichios S. SARTZETAKIS: <u>Stable International Environmental Agreements: An Analytical Approach</u></i>
KNOW	8.2002	<i>Alain DESDOIGTS: <u>Neoclassical Convergence Versus Technological Catch-up: A Contribution for Reaching a Consensus</u></i>
NRM	9.2002	<i>Giuseppe DI VITA: <u>Renewable Resources and Waste Recycling</u></i>
KNOW	10.2002	<i>Giorgio BRUNELLO: <u>Is Training More Frequent when Wage Compression is Higher? Evidence from 11 European Countries</u></i>
ETA	11.2002	<i>Mordecai KURZ, Hehui JIN and Maurizio MOTOLESE: <u>Endogenous Fluctuations and the Role of Monetary Policy</u></i>
KNOW	12.2002	<i>Reyer GERLAGH and Marjan W. HOFKES: <u>Escaping Lock-in: The Scope for a Transition towards Sustainable Growth?</u></i>
NRM	13.2002	<i>Michele MORETTO and Paolo ROSATO: <u>The Use of Common Property Resources: A Dynamic Model</u></i>
CLIM	14.2002	<i>Philippe QUIRION: <u>Macroeconomic Effects of an Energy Saving Policy in the Public Sector</u></i>
CLIM	15.2002	<i>Roberto ROSON: <u>Dynamic and Distributional Effects of Environmental Revenue Recycling Schemes: Simulations with a General Equilibrium Model of the Italian Economy</u></i>
CLIM	16.2002	<i>Francesco RICCI (I): <u>Environmental Policy Growth when Inputs are Differentiated in Pollution Intensity</u></i>
ETA	17.2002	<i>Alberto PETRUCCI: <u>Devaluation (Levels versus Rates) and Balance of Payments in a Cash-in-Advance Economy</u></i>
Coalition Theory Network	18.2002	<i>László Á. KÓCZY (IIV): <u>The Core in the Presence of Externalities</u></i>
Coalition Theory Network	19.2002	<i>Steven J. BRAMS, Michael A. JONES and D. Marc KILGOUR (IIV): <u>Single-Peakedness and Disconnected Coalitions</u></i>
Coalition Theory Network	20.2002	<i>Guillaume HAERINGER (IIV): <u>On the Stability of Cooperation Structures</u></i>
NRM	21.2002	<i>Fausto CAVALLARO and Luigi CIRAOLO: <u>Economic and Environmental Sustainability: A Dynamic Approach in Insular Systems</u></i>
CLIM	22.2002	<i>Barbara BUCHNER, Carlo CARRARO, Igor CERSOSIMO and Carmen MARCHIORI: <u>Back to Kyoto? US Participation and the Linkage between R&D and Climate Cooperation</u></i>
CLIM	23.2002	<i>Andreas LÖSCHEL and ZhongXIANG ZHANG: <u>The Economic and Environmental Implications of the US Repudiation of the Kyoto Protocol and the Subsequent Deals in Bonn and Marrakech</u></i>
ETA	24.2002	<i>Marzio GALEOTTI, Louis J. MACCINI and Fabio SCHIANTARELLI: <u>Inventories, Employment and Hours</u></i>
CLIM	25.2002	<i>Hannes EGLI: <u>Are Cross-Country Studies of the Environmental Kuznets Curve Misleading? New Evidence from Time Series Data for Germany</u></i>
ETA	26.2002	<i>Adam B. JAFFE, Richard G. NEWELL and Robert N. STAVINS: <u>Environmental Policy and Technological Change</u></i>
SUST	27.2002	<i>Joseph C. COOPER and Giovanni SIGNORELLO: <u>Farmer Premiums for the Voluntary Adoption of Conservation Plans</u></i>
SUST	28.2002	<i><u>The ANSEA Network: Towards An Analytical Strategic Environmental Assessment</u></i>
KNOW	29.2002	<i>Paolo SURICO: <u>Geographic Concentration and Increasing Returns: a Survey of Evidence</u></i>
ETA	30.2002	<i>Robert N. STAVINS: <u>Lessons from the American Experiment with Market-Based Environmental Policies</u></i>

NRM	31.2002	<i>Carlo GIUPPONI and Paolo ROSATO: <u>Multi-Criteria Analysis and Decision-Support for Water Management at the Catchment Scale: An Application to Diffuse Pollution Control in the Venice Lagoon</u></i>
NRM	32.2002	<i>Robert N. STAVINS: <u>National Environmental Policy During the Clinton Years</u></i>
KNOW	33.2002	<i>A. SOUBEYRAN and H. STAHN : <u>Do Investments in Specialized Knowledge Lead to Composite Good Industries?</u></i>
KNOW	34.2002	<i>G. BRUNELLO, M.L. PARISI and Daniela SONEDDA: <u>Labor Taxes, Wage Setting and the Relative Wage Effect</u></i>
CLIM	35.2002	<i>C. BOEMARE and P. QUIRION (lv): <u>Implementing Greenhouse Gas Trading in Europe: Lessons from Economic Theory and International Experiences</u></i>
CLIM	36.2002	<i>T.TIETENBERG (lv): <u>The Tradable Permits Approach to Protecting the Commons: What Have We Learned?</u></i>
CLIM	37.2002	<i>K. REHDANZ and R.J.S. TOL (lv): <u>On National and International Trade in Greenhouse Gas Emission Permits</u></i>
CLIM	38.2002	<i>C. FISCHER (lv): <u>Multinational Taxation and International Emissions Trading</u></i>
SUST	39.2002	<i>G. SIGNORELLO and G. PAPPALARDO: <u>Farm Animal Biodiversity Conservation Activities in Europe under the Framework of Agenda 2000</u></i>
NRM	40.2002	<i>S.M. CAVANAGH, W. M. HANEMANN and R. N. STAVINS: <u>Muffled Price Signals: Household Water Demand under Increasing-Block Prices</u></i>
NRM	41.2002	<i>A. J. PLANTINGA, R. N. LUBOWSKI and R. N. STAVINS: <u>The Effects of Potential Land Development on Agricultural Land Prices</u></i>
CLIM	42.2002	<i>C. OHL (lvi): <u>Inducing Environmental Co-operation by the Design of Emission Permits</u></i>
CLIM	43.2002	<i>J. EYCKMANS, D. VAN REGEMORTER and V. VAN STEENBERGHE (lvi): <u>Is Kyoto Fatally Flawed? An Analysis with MacGEM</u></i>
CLIM	44.2002	<i>A. ANTOCI and S. BORGHESI (lvi): <u>Working Too Much in a Polluted World: A North-South Evolutionary Model</u></i>
ETA	45.2002	<i>P. G. FREDRIKSSON, Johan A. LIST and Daniel MILLIMET (lvi): <u>Chasing the Smokestack: Strategic Policymaking with Multiple Instruments</u></i>
ETA	46.2002	<i>Z. YU (lvi): <u>A Theory of Strategic Vertical DFI and the Missing Pollution-Haven Effect</u></i>
SUST	47.2002	<i>Y. H. FARZIN: <u>Can an Exhaustible Resource Economy Be Sustainable?</u></i>
SUST	48.2002	<i>Y. H. FARZIN: <u>Sustainability and Hamiltonian Value</u></i>
KNOW	49.2002	<i>C. PIGA and M. VIVARELLI: <u>Cooperation in R&D and Sample Selection</u></i>
Coalition Theory Network Coalition Theory Network	50.2002	<i>M. SERTEL and A. SLINKO (liv): <u>Ranking Committees, Words or Multisets</u></i>
ETA	51.2002	<i>Sergio CURRARINI (liv): <u>Stable Organizations with Externalities</u></i>
ETA	52.2002	<i>Robert N. STAVINS: <u>Experience with Market-Based Policy Instruments</u></i>
ETA	53.2002	<i>C.C. JAEGER, M. LEIMBACH, C. CARRARO, K. HASSELMANN, J.C. HOURCADE, A. KEELER and R. KLEIN (liii): <u>Integrated Assessment Modeling: Modules for Cooperation</u></i>
CLIM	54.2002	<i>Scott BARRETT (liii): <u>Towards a Better Climate Treaty</u></i>
ETA	55.2002	<i>Richard G. NEWELL and Robert N. STAVINS: <u>Cost Heterogeneity and the Potential Savings from Market-Based Policies</u></i>
SUST	56.2002	<i>Paolo ROSATO and Edi DEFRANCESCO: <u>Individual Travel Cost Method and Flow Fixed Costs</u></i>
SUST	57.2002	<i>Vladimir KOTOV and Elena NIKITINA (lvii): <u>Reorganisation of Environmental Policy in Russia: The Decade of Success and Failures in Implementation of Perspective Quests</u></i>
SUST	58.2002	<i>Vladimir KOTOV (lvii): <u>Policy in Transition: New Framework for Russia's Climate Policy</u></i>
SUST	59.2002	<i>Fanny MISSFELDT and Arturo VILLAVICENCO (lvii): <u>How Can Economies in Transition Pursue Emissions Trading or Joint Implementation?</u></i>
VOL	60.2002	<i>Giovanni DI BARTOLOMEO, Jacob ENGWERDA, Joseph PLASMANS and Bas VAN AARLE: <u>Staying Together or Breaking Apart: Policy-Makers' Endogenous Coalitions Formation in the European Economic and Monetary Union</u></i>
ETA	61.2002	<i>Robert N. STAVINS, Alexander F. WAGNER and Gernot WAGNER: <u>Interpreting Sustainability in Economic Terms: Dynamic Efficiency Plus Intergenerational Equity</u></i>
PRIV	62.2002	<i>Carlo CAPUANO: <u>Demand Growth, Entry and Collusion Sustainability</u></i>
PRIV	63.2002	<i>Federico MUNARI and Raffaele ORIANI: <u>Privatization and R&D Performance: An Empirical Analysis Based on Tobin's Q</u></i>
PRIV	64.2002	<i>Federico MUNARI and Maurizio SOBRERO: <u>The Effects of Privatization on R&D Investments and Patent Productivity</u></i>
SUST	65.2002	<i>Orley ASHENFELTER and Michael GREENSTONE: <u>Using Mandated Speed Limits to Measure the Value of a Statistical Life</u></i>
ETA	66.2002	<i>Paolo SURICO: <u>US Monetary Policy Rules: the Case for Asymmetric Preferences</u></i>
PRIV	67.2002	<i>Rinaldo BRAU and Massimo FLORIO: <u>Privatisations as Price Reforms: Evaluating Consumers' Welfare Changes in the U.K.</u></i>
CLIM	68.2002	<i>Barbara K. BUCHNER and Roberto ROSON: <u>Conflicting Perspectives in Trade and Environmental Negotiations</u></i>
CLIM	69.2002	<i>Philippe QUIRION: <u>Complying with the Kyoto Protocol under Uncertainty: Taxes or Tradable Permits?</u></i>
SUST	70.2002	<i>Anna ALBERINI, Patrizia RIGANTI and Alberto LONGO: <u>Can People Value the Aesthetic and Use Services of Urban Sites? Evidence from a Survey of Belfast Residents</u></i>
SUST	71.2002	<i>Marco PERCOCO: <u>Discounting Environmental Effects in Project Appraisal</u></i>

NRM	72.2002	<i>Philippe BONTEMS and Pascal FAVARD</i> : <u>Input Use and Capacity Constraint under Uncertainty: The Case of Irrigation</u>
PRIV	73.2002	<i>Mohammed OMRAN</i> : <u>The Performance of State-Owned Enterprises and Newly Privatized Firms: Empirical Evidence from Egypt</u>
PRIV	74.2002	<i>Mike BURKART, Fausto PANUNZI and Andrei SHLEIFER</i> : <u>Family Firms</u>
PRIV	75.2002	<i>Emmanuelle AURIOL, Pierre M. PICARD</i> : <u>Privatizations in Developing Countries and the Government Budget Constraint</u>
PRIV	76.2002	<i>Nichole M. CASTATER</i> : <u>Privatization as a Means to Societal Transformation: An Empirical Study of Privatization in Central and Eastern Europe and the Former Soviet Union</u>
PRIV	77.2002	<i>Christoph LÜLSFESMANN</i> : <u>Benevolent Government, Managerial Incentives, and the Virtues of Privatization</u>
PRIV	78.2002	<i>Kate BISHOP, Igor FILATOTCHEV and Tomasz MICKIEWICZ</i> : <u>Endogenous Ownership Structure: Factors Affecting the Post-Privatisation Equity in Largest Hungarian Firms</u>
PRIV	79.2002	<i>Theodora WELCH and Rick MOLZ</i> : <u>How Does Trade Sale Privatization Work? Evidence from the Fixed-Line Telecommunications Sector in Developing Economies</u>
PRIV	80.2002	<i>Alberto R. PETRUCCI</i> : <u>Government Debt, Agent Heterogeneity and Wealth Displacement in a Small Open Economy</u>
CLIM	81.2002	<i>Timothy SWANSON and Robin MASON (Ivi)</i> : <u>The Impact of International Environmental Agreements: The Case of the Montreal Protocol</u>
PRIV	82.2002	<i>George R.G. CLARKE and Lixin Colin XU</i> : <u>Privatization, Competition and Corruption: How Characteristics of Bribe Takers and Payers Affect Bribe Payments to Utilities</u>
PRIV	83.2002	<i>Massimo FLORIO and Katuscia MANZONI</i> : <u>The Abnormal Returns of UK Privatisations: From Underpricing to Outperformance</u>
NRM	84.2002	<i>Nelson LOURENÇO, Carlos RUSSO MACHADO, Maria do ROSÁRIO JORGE and Luis RODRIGUES</i> : <u>An Integrated Approach to Understand Territory Dynamics. The Coastal Alentejo (Portugal)</u>
CLIM	85.2002	<i>Peter ZAPFEL and Matti VAINIO (Iv)</i> : <u>Pathways to European Greenhouse Gas Emissions Trading History and Misconceptions</u>
CLIM	86.2002	<i>Pierre COURTOIS</i> : <u>Influence Processes in Climate Change Negotiations: Modelling the Rounds</u>
ETA	87.2002	<i>Vito FRAGNELLI and Maria Erminia MARINA (Iviii)</i> : <u>Environmental Pollution Risk and Insurance</u>
ETA	88.2002	<i>Laurent FRANCKX (Iviii)</i> : <u>Environmental Enforcement with Endogenous Ambient Monitoring</u>
ETA	89.2002	<i>Timo GOESCHL and Timothy M. SWANSON (Iviii)</i> : <u>Lost Horizons. The noncooperative management of an evolutionary biological system.</u>
ETA	90.2002	<i>Hans KEIDING (Iviii)</i> : <u>Environmental Effects of Consumption: An Approach Using DEA and Cost Sharing</u>
ETA	91.2002	<i>Wietze LISE (Iviii)</i> : <u>A Game Model of People's Participation in Forest Management in Northern India</u>
CLIM	92.2002	<i>Jens HORBACH</i> : <u>Structural Change and Environmental Kuznets Curves</u>
ETA	93.2002	<i>Martin P. GROSSKOPF</i> : <u>Towards a More Appropriate Method for Determining the Optimal Scale of Production Units</u>
VOL	94.2002	<i>Scott BARRETT and Robert STAVINS</i> : <u>Increasing Participation and Compliance in International Climate Change Agreements</u>
CLIM	95.2002	<i>Banu BAYRAMOGLU LISE and Wietze LISE</i> : <u>Climate Change, Environmental NGOs and Public Awareness in the Netherlands: Perceptions and Reality</u>
CLIM	96.2002	<i>Matthieu GLACHANT</i> : <u>The Political Economy of Emission Tax Design in Environmental Policy</u>
KNOW	97.2002	<i>Kenn ARIGA and Giorgio BRUNELLO</i> : <u>Are the More Educated Receiving More Training? Evidence from Thailand</u>
ETA	98.2002	<i>Gianfranco FORTE and Matteo MANERA</i> : <u>Forecasting Volatility in European Stock Markets with Non-linear GARCH Models</u>
ETA	99.2002	<i>Geoffrey HEAL</i> : <u>Bundling Biodiversity</u>
ETA	100.2002	<i>Geoffrey HEAL, Brian WALKER, Simon LEVIN, Kenneth ARROW, Partha DASGUPTA, Gretchen DAILY, Paul EHRlich, Karl-Goran MALER, Nils KAUTSKY, Jane LUBCHENCO, Steve SCHNEIDER and David STARRETT</i> : <u>Genetic Diversity and Interdependent Crop Choices in Agriculture</u>
ETA	101.2002	<i>Geoffrey HEAL</i> : <u>Biodiversity and Globalization</u>
VOL	102.2002	<i>Andreas LANGE</i> : <u>Heterogeneous International Agreements – If per capita emission levels matter</u>
ETA	103.2002	<i>Pierre-André JOUVET and Walid OUESLATI</i> : <u>Tax Reform and Public Spending Trade-offs in an Endogenous Growth Model with Environmental Externality</u>
ETA	104.2002	<i>Anna BOTTASSO and Alessandro SEMBENELLI</i> : <u>Does Ownership Affect Firms' Efficiency? Panel Data Evidence on Italy</u>
PRIV	105.2002	<i>Bernardo BORTOLOTTI, Frank DE JONG, Giovanna NICODANO and Ibolya SCHINDELE</i> : <u>Privatization and Stock Market Liquidity</u>
ETA	106.2002	<i>Haruo IMAI and Mayumi HORIE (Iviii)</i> : <u>Pre-Negotiation for an International Emission Reduction Game</u>
PRIV	107.2002	<i>Sudeshna GHOSH BANERJEE and Michael C. MUNGER</i> : <u>Move to Markets? An Empirical Analysis of Privatisation in Developing Countries</u>
PRIV	108.2002	<i>Guillaume GIRMENS and Michel GUILLARD</i> : <u>Privatization and Investment: Crowding-Out Effect vs Financial Diversification</u>
PRIV	109.2002	<i>Alberto CHONG and Florencio LÓPEZ-DE-SILANES</i> : <u>Privatization and Labor Force Restructuring Around the World</u>
PRIV	110.2002	<i>Nandini GUPTA</i> : <u>Partial Privatization and Firm Performance</u>
PRIV	111.2002	<i>François DEGEORGE, Dirk JENTER, Alberto MOEL and Peter TUFANO</i> : <u>Selling Company Shares to Reluctant Employees: France Telecom's Experience</u>

PRIV	112.2002	<i>Isaac OTCHERE</i> : <u>Intra-Industry Effects of Privatization Announcements: Evidence from Developed and Developing Countries</u>
PRIV	113.2002	<i>Yannis KATSOULAKOS and Elissavet LIKOYANNI</i> : <u>Fiscal and Other Macroeconomic Effects of Privatization</u>
PRIV	114.2002	<i>Guillaume GIRMENS</i> : <u>Privatization, International Asset Trade and Financial Markets</u>
PRIV	115.2002	<i>D. Teja FLOTTO</i> : <u>A Note on Consumption Correlations and European Financial Integration</u>
PRIV	116.2002	<i>Ibolya SCHINDELE and Enrico C. PEROTTI</i> : <u>Pricing Initial Public Offerings in Premature Capital Markets: The Case of Hungary</u>
PRIV	1.2003	<i>Gabriella CHIESA and Giovanna NICODANO</i> : <u>Privatization and Financial Market Development: Theoretical Issues</u>
PRIV	2.2003	<i>Ibolya SCHINDELE</i> : <u>Theory of Privatization in Eastern Europe: Literature Review</u>
PRIV	3.2003	<i>Wietze LISE, Claudia KEMFERT and Richard S.J. TOL</i> : <u>Strategic Action in the Liberalised German Electricity Market</u>
CLIM	4.2003	<i>Laura MARSILIANI and Thomas I. RENSTRÖM</i> : <u>Environmental Policy and Capital Movements: The Role of Government Commitment</u>
KNOW	5.2003	<i>Reyer GERLAGH</i> : <u>Induced Technological Change under Technological Competition</u>
ETA	6.2003	<i>Efrem CASTELNUOVO</i> : <u>Squeezing the Interest Rate Smoothing Weight with a Hybrid Expectations Model</u>
SIEV	7.2003	<i>Anna ALBERINI, Alberto LONGO, Stefania TONIN, Francesco TROMBETTA and Margherita TURVANI</i> : <u>The Role of Liability, Regulation and Economic Incentives in Brownfield Remediation and Redevelopment: Evidence from Surveys of Developers</u>
NRM	8.2003	<i>Elissaios POPYRAKIS and Reyer GERLAGH</i> : <u>Natural Resources: A Blessing or a Curse?</u>
CLIM	9.2003	<i>A. CAPARRÓS, J.-C. PEREAU and T. TAZDAÏT</i> : <u>North-South Climate Change Negotiations: a Sequential Game with Asymmetric Information</u>
KNOW	10.2003	<i>Giorgio BRUNELLO and Daniele CHECCHI</i> : <u>School Quality and Family Background in Italy</u>
CLIM	11.2003	<i>Efrem CASTELNUOVO and Marzio GALEOTTI</i> : <u>Learning By Doing vs Learning By Researching in a Model of Climate Change Policy Analysis</u>
KNOW	12.2003	<i>Carole MAIGNAN, Gianmarco OTTAVIANO and Dino PINELLI (eds.)</i> : <u>Economic Growth, Innovation, Cultural Diversity: What are we all talking about? A critical survey of the state-of-the-art</u>
KNOW	13.2003	<i>Carole MAIGNAN, Gianmarco OTTAVIANO, Dino PINELLI and Francesco RULLANI (Ivix)</i> : <u>Bio-Ecological Diversity vs. Socio-Economic Diversity. A Comparison of Existing Measures</u>
KNOW	14.2003	<i>Maddy JAASSENS and Chris STEYAERT (Ivix)</i> : <u>Theories of Diversity within Organisation Studies: Debates and Future Trajectories</u>
KNOW	15.2003	<i>Tuzin BAYCAN LEVENT, Enno MASUREL and Peter NIJKAMP (Ivix)</i> : <u>Diversity in Entrepreneurship: Ethnic and Female Roles in Urban Economic Life</u>
KNOW	16.2003	<i>Alexandra BITUSIKOVA (Ivix)</i> : <u>Post-Communist City on its Way from Grey to Colourful: The Case Study from Slovakia</u>
KNOW	17.2003	<i>Billy E. VAUGHN and Katarina MLEKOV (Ivix)</i> : <u>A Stage Model of Developing an Inclusive Community</u>
KNOW	18.2003	<i>Selma van LONDEN and Arie de RUIJTER (Ivix)</i> : <u>Managing Diversity in a Globalizing World</u>
Coalition Theory Network	19.2003	<i>Sergio CURRARINI</i> : <u>On the Stability of Hierarchies in Games with Externalities</u>
PRIV	20.2003	<i>Giacomo CALZOLARI and Alessandro PAVAN (Ivix)</i> : <u>Monopoly with Resale</u>
PRIV	21.2003	<i>Claudio MEZZETTI (Ivix)</i> : <u>Auction Design with Interdependent Valuations: The Generalized Revelation Principle, Efficiency, Full Surplus Extraction and Information Acquisition</u>
PRIV	22.2003	<i>Marco LiCalzi and Alessandro PAVAN (Ivix)</i> : <u>Tilting the Supply Schedule to Enhance Competition in Uniform-Price Auctions</u>
PRIV	23.2003	<i>David ETTINGER (Ivix)</i> : <u>Bidding among Friends and Enemies</u>
PRIV	24.2003	<i>Hannu VARTAINEN (Ivix)</i> : <u>Auction Design without Commitment</u>
PRIV	25.2003	<i>Matti KELOHARJU, Kjell G. NYBORG and Kristian RYDQVIST (Ivix)</i> : <u>Strategic Behavior and Underpricing in Uniform Price Auctions: Evidence from Finnish Treasury Auctions</u>
PRIV	26.2003	<i>Christine A. PARLOUR and Uday RAJAN (Ivix)</i> : <u>Rationing in IPOs</u>
PRIV	27.2003	<i>Kjell G. NYBORG and Ilya A. STREBULAEV (Ivix)</i> : <u>Multiple Unit Auctions and Short Squeezes</u>
PRIV	28.2003	<i>Anders LUNANDER and Jan-Eric NILSSON (Ivix)</i> : <u>Taking the Lab to the Field: Experimental Tests of Alternative Mechanisms to Procure Multiple Contracts</u>
PRIV	29.2003	<i>TangaMcDANIEL and Karsten NEUHOFF (Ivix)</i> : <u>Use of Long-term Auctions for Network Investment</u>
PRIV	30.2003	<i>Emiel MAASLAND and Sander ONDERSTAL (Ivix)</i> : <u>Auctions with Financial Externalities</u>
ETA	31.2003	<i>Michael FINUS and Bianca RUNDSHAGEN</i> : <u>A Non-cooperative Foundation of Core-Stability in Positive Externality NTU-Coalition Games</u>
KNOW	32.2003	<i>Michele MORETTO</i> : <u>Competition and Irreversible Investments under Uncertainty</u>
PRIV	33.2003	<i>Philippe QUIRION</i> : <u>Relative Quotas: Correct Answer to Uncertainty or Case of Regulatory Capture?</u>
KNOW	34.2003	<i>Giuseppe MEDA, Claudio PIGA and Donald SIEGEL</i> : <u>On the Relationship between R&D and Productivity: A Treatment Effect Analysis</u>
ETA	35.2003	<i>Alessandra DEL BOCA, Marzio GALEOTTI and Paola ROTA</i> : <u>Non-convexities in the Adjustment of Different Capital Inputs: A Firm-level Investigation</u>
GG	36.2003	<i>Mathieu GLACHANT</i> : <u>Voluntary Agreements under Endogenous Legislative Threats</u>

- (l) This paper was presented at the Workshop “Growth, Environmental Policies and Sustainability” organised by the Fondazione Eni Enrico Mattei, Venice, June 1, 2001
- (li) This paper was presented at the Fourth Toulouse Conference on Environment and Resource Economics on “Property Rights, Institutions and Management of Environmental and Natural Resources”, organised by Fondazione Eni Enrico Mattei, IDEI and INRA and sponsored by MATE, Toulouse, May 3-4, 2001
- (lii) This paper was presented at the International Conference on “Economic Valuation of Environmental Goods”, organised by Fondazione Eni Enrico Mattei in cooperation with CORILA, Venice, May 11, 2001
- (liii) This paper was circulated at the International Conference on “Climate Policy – Do We Need a New Approach?”, jointly organised by Fondazione Eni Enrico Mattei, Stanford University and Venice International University, Isola di San Servolo, Venice, September 6-8, 2001
- (liv) This paper was presented at the Seventh Meeting of the Coalition Theory Network organised by the Fondazione Eni Enrico Mattei and the CORE, Université Catholique de Louvain, Venice, Italy, January 11-12, 2002
- (lv) This paper was presented at the First Workshop of the Concerted Action on Tradable Emission Permits (CATEP) organised by the Fondazione Eni Enrico Mattei, Venice, Italy, December 3-4, 2001
- (lvi) This paper was presented at the ESF EURESCO Conference on Environmental Policy in a Global Economy “The International Dimension of Environmental Policy”, organised with the collaboration of the Fondazione Eni Enrico Mattei, Acquafredda di Maratea, October 6-11, 2001
- (lvii) This paper was presented at the First Workshop of “CFEWE – Carbon Flows between Eastern and Western Europe”, organised by the Fondazione Eni Enrico Mattei and Zentrum für Europäische Integrationsforschung (ZEI), Milan, July 5-6, 2001
- (lviii) This paper was presented at the Workshop on “Game Practice and the Environment”, jointly organised by Università del Piemonte Orientale and Fondazione Eni Enrico Mattei, Alessandria, April 12-13, 2002
- (lvix) This paper was presented at the ENGIME Workshop on “Mapping Diversity”, Leuven, May 16-17, 2002
- (lvx) This paper was presented at the EuroConference on “Auctions and Market Design: Theory, Evidence and Applications”, organised by the Fondazione Eni Enrico Mattei, Milan, September 26-28, 2002

2002 SERIES

CLIM	<i>Climate Change Modelling and Policy</i> (Editor: Marzio Galeotti)
VOL	<i>Voluntary and International Agreements</i> (Editor: Carlo Carraro)
SUST	<i>Sustainability Indicators and Environmental Valuation</i> (Editor: Carlo Carraro)
NRM	<i>Natural Resources Management</i> (Editor: Carlo Giupponi)
KNOW	<i>Knowledge, Technology, Human Capital</i> (Editor: Dino Pinelli)
MGMT	<i>Corporate Sustainable Management</i> (Editor: Andrea Marsanich)
PRIV	<i>Privatisation, Regulation, Antitrust</i> (Editor: Bernardo Bortolotti)
ETA	<i>Economic Theory and Applications</i> (Editor: Carlo Carraro)

2003 SERIES

CLIM	<i>Climate Change Modelling and Policy</i> (Editor: Marzio Galeotti)
GG	<i>Global Governance</i> (Editor: Carlo Carraro)
SIEV	<i>Sustainability Indicators and Environmental Valuation</i> (Editor: Anna Alberini)
NRM	<i>Natural Resources Management</i> (Editor: Carlo Giupponi)
KNOW	<i>Knowledge, Technology, Human Capital</i> (Editor: Gianmarco Ottaviano)
IEM	<i>International Energy Markets</i> (Editor: Anil Markandya)
CSR	<i>Corporate Social Responsibility and Management</i> (Editor: Sabina Ratti)
PRIV	<i>Privatisation, Regulation, Antitrust</i> (Editor: Bernardo Bortolotti)
ETA	<i>Economic Theory and Applications</i> (Editor: Carlo Carraro)
CTN	<i>Coalition Theory Network</i>

NOTE DI LAVORO DELLA FONDAZIONE ENI ENRICO MATTEI

Fondazione Eni Enrico Mattei Working Paper Series

Our working papers are available on the Internet at the following addresses:

http://www.feem.it/web/attiv/_wp.html

<http://papers.ssrn.com>

SUST	1.2002	<i>K. TANO, M.D. FAMINOW, M. KAMUANGA and B. SWALLOW: <u>Using Conjoint Analysis to Estimate Farmers' Preferences for Cattle Traits in West Africa</u></i>
ETA	2.2002	<i>Efrem CASTELNUOVO and Paolo SURICO: <u>What Does Monetary Policy Reveal about Central Bank's Preferences?</u></i>
WAT	3.2002	<i>Duncan KNOWLER and Edward BARBIER: <u>The Economics of a "Mixed Blessing" Effect: A Case Study of the Black Sea</u></i>
CLIM	4.2002	<i>Andreas LÖSCHEL: <u>Technological Change in Economic Models of Environmental Policy: A Survey</u></i>
VOL	5.2002	<i>Carlo CARRARO and Carmen MARCHIORI: <u>Stable Coalitions</u></i>
CLIM	6.2002	<i>Marzio GALEOTTI, Alessandro LANZA and Matteo MANERA: <u>Rockets and Feathers Revisited: An International Comparison on European Gasoline Markets</u></i>
ETA	7.2002	<i>Effrosyni DIAMANTOUDI and Eftichios S. SARTZETAKIS: <u>Stable International Environmental Agreements: An Analytical Approach</u></i>
KNOW	8.2002	<i>Alain DESDOIGTS: <u>Neoclassical Convergence Versus Technological Catch-up: A Contribution for Reaching a Consensus</u></i>
NRM	9.2002	<i>Giuseppe DI VITA: <u>Renewable Resources and Waste Recycling</u></i>
KNOW	10.2002	<i>Giorgio BRUNELLO: <u>Is Training More Frequent when Wage Compression is Higher? Evidence from 11 European Countries</u></i>
ETA	11.2002	<i>Mordecai KURZ, Hehui JIN and Maurizio MOTOLESE: <u>Endogenous Fluctuations and the Role of Monetary Policy</u></i>
KNOW	12.2002	<i>Reyer GERLAGH and Marjan W. HOFKES: <u>Escaping Lock-in: The Scope for a Transition towards Sustainable Growth?</u></i>
NRM	13.2002	<i>Michele MORETTO and Paolo ROSATO: <u>The Use of Common Property Resources: A Dynamic Model</u></i>
CLIM	14.2002	<i>Philippe QUIRION: <u>Macroeconomic Effects of an Energy Saving Policy in the Public Sector</u></i>
CLIM	15.2002	<i>Roberto ROSON: <u>Dynamic and Distributional Effects of Environmental Revenue Recycling Schemes: Simulations with a General Equilibrium Model of the Italian Economy</u></i>
CLIM	16.2002	<i>Francesco RICCI (I): <u>Environmental Policy Growth when Inputs are Differentiated in Pollution Intensity</u></i>
ETA	17.2002	<i>Alberto PETRUCCI: <u>Devaluation (Levels versus Rates) and Balance of Payments in a Cash-in-Advance Economy</u></i>
Coalition Theory Network	18.2002	<i>László Á. KÓCZY (IIV): <u>The Core in the Presence of Externalities</u></i>
Coalition Theory Network	19.2002	<i>Steven J. BRAMS, Michael A. JONES and D. Marc KILGOUR (IIV): <u>Single-Peakedness and Disconnected Coalitions</u></i>
Coalition Theory Network	20.2002	<i>Guillaume HAERINGER (IIV): <u>On the Stability of Cooperation Structures</u></i>
NRM	21.2002	<i>Fausto CAVALLARO and Luigi CIRAOLO: <u>Economic and Environmental Sustainability: A Dynamic Approach in Insular Systems</u></i>
CLIM	22.2002	<i>Barbara BUCHNER, Carlo CARRARO, Igor CERSOSIMO and Carmen MARCHIORI: <u>Back to Kyoto? US Participation and the Linkage between R&D and Climate Cooperation</u></i>
CLIM	23.2002	<i>Andreas LÖSCHEL and ZhongXIANG ZHANG: <u>The Economic and Environmental Implications of the US Repudiation of the Kyoto Protocol and the Subsequent Deals in Bonn and Marrakech</u></i>
ETA	24.2002	<i>Marzio GALEOTTI, Louis J. MACCINI and Fabio SCHIANTARELLI: <u>Inventories, Employment and Hours</u></i>
CLIM	25.2002	<i>Hannes EGLI: <u>Are Cross-Country Studies of the Environmental Kuznets Curve Misleading? New Evidence from Time Series Data for Germany</u></i>
ETA	26.2002	<i>Adam B. JAFFE, Richard G. NEWELL and Robert N. STAVINS: <u>Environmental Policy and Technological Change</u></i>
SUST	27.2002	<i>Joseph C. COOPER and Giovanni SIGNORELLO: <u>Farmer Premiums for the Voluntary Adoption of Conservation Plans</u></i>
SUST	28.2002	<i><u>The ANSEA Network: Towards An Analytical Strategic Environmental Assessment</u></i>
KNOW	29.2002	<i>Paolo SURICO: <u>Geographic Concentration and Increasing Returns: a Survey of Evidence</u></i>
ETA	30.2002	<i>Robert N. STAVINS: <u>Lessons from the American Experiment with Market-Based Environmental Policies</u></i>

NRM	31.2002	<i>Carlo GIUPPONI and Paolo ROSATO: <u>Multi-Criteria Analysis and Decision-Support for Water Management at the Catchment Scale: An Application to Diffuse Pollution Control in the Venice Lagoon</u></i>
NRM	32.2002	<i>Robert N. STAVINS: <u>National Environmental Policy During the Clinton Years</u></i>
KNOW	33.2002	<i>A. SOUBEYRAN and H. STAHN: <u>Do Investments in Specialized Knowledge Lead to Composite Good Industries?</u></i>
KNOW	34.2002	<i>G. BRUNELLO, M.L. PARISI and Daniela SONEDDA: <u>Labor Taxes, Wage Setting and the Relative Wage Effect</u></i>
CLIM	35.2002	<i>C. BOEMARE and P. QUIRION (lv): <u>Implementing Greenhouse Gas Trading in Europe: Lessons from Economic Theory and International Experiences</u></i>
CLIM	36.2002	<i>T. TIETENBERG (lv): <u>The Tradable Permits Approach to Protecting the Commons: What Have We Learned?</u></i>
CLIM	37.2002	<i>K. REHDANZ and R.J.S. TOL (lv): <u>On National and International Trade in Greenhouse Gas Emission Permits</u></i>
CLIM	38.2002	<i>C. FISCHER (lv): <u>Multinational Taxation and International Emissions Trading</u></i>
SUST	39.2002	<i>G. SIGNORELLO and G. PAPPALARDO: <u>Farm Animal Biodiversity Conservation Activities in Europe under the Framework of Agenda 2000</u></i>
NRM	40.2002	<i>S.M. CAVANAGH, W. M. HANEMANN and R. N. STAVINS: <u>Muffled Price Signals: Household Water Demand under Increasing-Block Prices</u></i>
NRM	41.2002	<i>A. J. PLANTINGA, R. N. LUBOWSKI and R. N. STAVINS: <u>The Effects of Potential Land Development on Agricultural Land Prices</u></i>
CLIM	42.2002	<i>C. OHL (lvi): <u>Inducing Environmental Co-operation by the Design of Emission Permits</u></i>
CLIM	43.2002	<i>J. EYCKMANS, D. VAN REGEMORTER and V. VAN STEENBERGHE (lvi): <u>Is Kyoto Fatally Flawed? An Analysis with MacGEM</u></i>
CLIM	44.2002	<i>A. ANTOCI and S. BORGHESI (lvi): <u>Working Too Much in a Polluted World: A North-South Evolutionary Model</u></i>
ETA	45.2002	<i>P. G. FREDRIKSSON, Johan A. LIST and Daniel MILLIMET (lvi): <u>Chasing the Smokestack: Strategic Policymaking with Multiple Instruments</u></i>
ETA	46.2002	<i>Z. YU (lvi): <u>A Theory of Strategic Vertical DFI and the Missing Pollution-Haven Effect</u></i>
SUST	47.2002	<i>Y. H. FARZIN: <u>Can an Exhaustible Resource Economy Be Sustainable?</u></i>
SUST	48.2002	<i>Y. H. FARZIN: <u>Sustainability and Hamiltonian Value</u></i>
KNOW	49.2002	<i>C. PIGA and M. VIVARELLI: <u>Cooperation in R&D and Sample Selection</u></i>
Coalition Theory Network Coalition Theory Network	50.2002	<i>M. SERTEL and A. SLINKO (liv): <u>Ranking Committees, Words or Multisets</u></i>
ETA	51.2002	<i>Sergio CURRARINI (liv): <u>Stable Organizations with Externalities</u></i>
ETA	52.2002	<i>Robert N. STAVINS: <u>Experience with Market-Based Policy Instruments</u></i>
ETA	53.2002	<i>C.C. JAEGER, M. LEIMBACH, C. CARRARO, K. HASSELMANN, J.C. HOURCADE, A. KEELER and R. KLEIN (liii): <u>Integrated Assessment Modeling: Modules for Cooperation</u></i>
CLIM	54.2002	<i>Scott BARRETT (liii): <u>Towards a Better Climate Treaty</u></i>
ETA	55.2002	<i>Richard G. NEWELL and Robert N. STAVINS: <u>Cost Heterogeneity and the Potential Savings from Market-Based Policies</u></i>
SUST	56.2002	<i>Paolo ROSATO and Edi DEFRANCESCO: <u>Individual Travel Cost Method and Flow Fixed Costs</u></i>
SUST	57.2002	<i>Vladimir KOTOV and Elena NIKITINA (lvii): <u>Reorganisation of Environmental Policy in Russia: The Decade of Success and Failures in Implementation of Perspective Quests</u></i>
SUST	58.2002	<i>Vladimir KOTOV (lvii): <u>Policy in Transition: New Framework for Russia's Climate Policy</u></i>
SUST	59.2002	<i>Fanny MISSFELDT and Arturo VILLAVICENCO (lvii): <u>How Can Economies in Transition Pursue Emissions Trading or Joint Implementation?</u></i>
VOL	60.2002	<i>Giovanni DI BARTOLOMEO, Jacob ENGWERDA, Joseph PLASMANS and Bas VAN AARLE: <u>Staying Together or Breaking Apart: Policy-Makers' Endogenous Coalitions Formation in the European Economic and Monetary Union</u></i>
ETA	61.2002	<i>Robert N. STAVINS, Alexander F. WAGNER and Gernot WAGNER: <u>Interpreting Sustainability in Economic Terms: Dynamic Efficiency Plus Intergenerational Equity</u></i>
PRIV	62.2002	<i>Carlo CAPUANO: <u>Demand Growth, Entry and Collusion Sustainability</u></i>
PRIV	63.2002	<i>Federico MUNARI and Raffaele ORIANI: <u>Privatization and R&D Performance: An Empirical Analysis Based on Tobin's Q</u></i>
PRIV	64.2002	<i>Federico MUNARI and Maurizio SOBRERO: <u>The Effects of Privatization on R&D Investments and Patent Productivity</u></i>
SUST	65.2002	<i>Orley ASHENFELTER and Michael GREENSTONE: <u>Using Mandated Speed Limits to Measure the Value of a Statistical Life</u></i>
ETA	66.2002	<i>Paolo SURICO: <u>US Monetary Policy Rules: the Case for Asymmetric Preferences</u></i>
PRIV	67.2002	<i>Rinaldo BRAU and Massimo FLORIO: <u>Privatisations as Price Reforms: Evaluating Consumers' Welfare Changes in the U.K.</u></i>
CLIM	68.2002	<i>Barbara K. BUCHNER and Roberto ROSON: <u>Conflicting Perspectives in Trade and Environmental Negotiations</u></i>
CLIM	69.2002	<i>Philippe QUIRION: <u>Complying with the Kyoto Protocol under Uncertainty: Taxes or Tradable Permits?</u></i>
SUST	70.2002	<i>Anna ALBERINI, Patrizia RIGANTI and Alberto LONGO: <u>Can People Value the Aesthetic and Use Services of Urban Sites? Evidence from a Survey of Belfast Residents</u></i>
SUST	71.2002	<i>Marco PERCOCO: <u>Discounting Environmental Effects in Project Appraisal</u></i>

NRM	72.2002	<i>Philippe BONTEMS and Pascal FAVARD: <u>Input Use and Capacity Constraint under Uncertainty: The Case of Irrigation</u></i>
PRIV	73.2002	<i>Mohammed OMRAN: <u>The Performance of State-Owned Enterprises and Newly Privatized Firms: Empirical Evidence from Egypt</u></i>
PRIV	74.2002	<i>Mike BURKART, Fausto PANUNZI and Andrei SHLEIFER: <u>Family Firms</u></i>
PRIV	75.2002	<i>Emmanuelle AURIOL, Pierre M. PICARD: <u>Privatizations in Developing Countries and the Government Budget Constraint</u></i>
PRIV	76.2002	<i>Nichole M. CASTATER: <u>Privatization as a Means to Societal Transformation: An Empirical Study of Privatization in Central and Eastern Europe and the Former Soviet Union</u></i>
PRIV	77.2002	<i>Christoph LÜLSFESMANN: <u>Benevolent Government, Managerial Incentives, and the Virtues of Privatization</u></i>
PRIV	78.2002	<i>Kate BISHOP, Igor FILATOTCHEV and Tomasz MICKIEWICZ: <u>Endogenous Ownership Structure: Factors Affecting the Post-Privatisation Equity in Largest Hungarian Firms</u></i>
PRIV	79.2002	<i>Theodora WELCH and Rick MOLZ: <u>How Does Trade Sale Privatization Work? Evidence from the Fixed-Line Telecommunications Sector in Developing Economies</u></i>
PRIV	80.2002	<i>Alberto R. PETRUCCI: <u>Government Debt, Agent Heterogeneity and Wealth Displacement in a Small Open Economy</u></i>
CLIM	81.2002	<i>Timothy SWANSON and Robin MASON (Ivi): <u>The Impact of International Environmental Agreements: The Case of the Montreal Protocol</u></i>
PRIV	82.2002	<i>George R.G. CLARKE and Lixin Colin XU: <u>Privatization, Competition and Corruption: How Characteristics of Bribe Takers and Payers Affect Bribe Payments to Utilities</u></i>
PRIV	83.2002	<i>Massimo FLORIO and Katuscia MANZONI: <u>The Abnormal Returns of UK Privatisations: From Underpricing to Outperformance</u></i>
NRM	84.2002	<i>Nelson LOURENÇO, Carlos RUSSO MACHADO, Maria do ROSÁRIO JORGE and Luis RODRIGUES: <u>An Integrated Approach to Understand Territory Dynamics. The Coastal Alentejo (Portugal)</u></i>
CLIM	85.2002	<i>Peter ZAPFEL and Matti VAINIO (Iv): <u>Pathways to European Greenhouse Gas Emissions Trading History and Misconceptions</u></i>
CLIM	86.2002	<i>Pierre COURTOIS: <u>Influence Processes in Climate Change Negotiations: Modelling the Rounds</u></i>
ETA	87.2002	<i>Vito FRAGNELLI and Maria Erminia MARINA (Iviii): <u>Environmental Pollution Risk and Insurance</u></i>
ETA	88.2002	<i>Laurent FRANCKX (Iviii): <u>Environmental Enforcement with Endogenous Ambient Monitoring</u></i>
ETA	89.2002	<i>Tim GOESCHL and Timothy M. SWANSON (Iviii): <u>Lost Horizons. The noncooperative management of an evolutionary biological system.</u></i>
ETA	90.2002	<i>Hans KEIDING (Iviii): <u>Environmental Effects of Consumption: An Approach Using DEA and Cost Sharing</u></i>
ETA	91.2002	<i>Wietze LISE (Iviii): <u>A Game Model of People's Participation in Forest Management in Northern India</u></i>
CLIM	92.2002	<i>Jens HORBACH: <u>Structural Change and Environmental Kuznets Curves</u></i>
ETA	93.2002	<i>Martin P. GROSSKOPF: <u>Towards a More Appropriate Method for Determining the Optimal Scale of Production Units</u></i>
VOL	94.2002	<i>Scott BARRETT and Robert STAVINS: <u>Increasing Participation and Compliance in International Climate Change Agreements</u></i>
CLIM	95.2002	<i>Banu BAYRAMOGLU LISE and Wietze LISE: <u>Climate Change, Environmental NGOs and Public Awareness in the Netherlands: Perceptions and Reality</u></i>
CLIM	96.2002	<i>Matthieu GLACHANT: <u>The Political Economy of Emission Tax Design in Environmental Policy</u></i>
KNOW	97.2002	<i>Kenn ARIGA and Giorgio BRUNELLO: <u>Are the More Educated Receiving More Training? Evidence from Thailand</u></i>
ETA	98.2002	<i>Gianfranco FORTE and Matteo MANERA: <u>Forecasting Volatility in European Stock Markets with Non-linear GARCH Models</u></i>
ETA	99.2002	<i>Geoffrey HEAL: <u>Bundling Biodiversity</u></i>
ETA	100.2002	<i>Geoffrey HEAL, Brian WALKER, Simon LEVIN, Kenneth ARROW, Partha DASGUPTA, Gretchen DAILY, Paul EHRlich, Karl-Goran MALER, Nils KAUTSKY, Jane LUBCHENCO, Steve SCHNEIDER and David STARRETT: <u>Genetic Diversity and Interdependent Crop Choices in Agriculture</u></i>
ETA	101.2002	<i>Geoffrey HEAL: <u>Biodiversity and Globalization</u></i>
VOL	102.2002	<i>Andreas LANGE: <u>Heterogeneous International Agreements – If per capita emission levels matter</u></i>
ETA	103.2002	<i>Pierre-André JOUVET and Walid OUESLATI: <u>Tax Reform and Public Spending Trade-offs in an Endogenous Growth Model with Environmental Externality</u></i>
ETA	104.2002	<i>Anna BOTTASSO and Alessandro SEMBENELLI: <u>Does Ownership Affect Firms' Efficiency? Panel Data Evidence on Italy</u></i>
PRIV	105.2002	<i>Bernardo BORTOLOTTI, Frank DE JONG, Giovanna NICODANO and Ibolya SCHINDELE: <u>Privatization and Stock Market Liquidity</u></i>
ETA	106.2002	<i>Haruo IMAI and Mayumi HORIE (Iviii): <u>Pre-Negotiation for an International Emission Reduction Game</u></i>
PRIV	107.2002	<i>Sudeshna GHOSH BANERJEE and Michael C. MUNGER: <u>Move to Markets? An Empirical Analysis of Privatisation in Developing Countries</u></i>
PRIV	108.2002	<i>Guillaume GIRMENS and Michel GUILLARD: <u>Privatization and Investment: Crowding-Out Effect vs Financial Diversification</u></i>
PRIV	109.2002	<i>Alberto CHONG and Florencio LÓPEZ-DE-SILANES: <u>Privatization and Labor Force Restructuring Around the World</u></i>
PRIV	110.2002	<i>Nandini GUPTA: <u>Partial Privatization and Firm Performance</u></i>
PRIV	111.2002	<i>François DEGEORGE, Dirk JENTER, Alberto MOEL and Peter TUFANO: <u>Selling Company Shares to Reluctant Employees: France Telecom's Experience</u></i>

PRIV	112.2002	<i>Isaac OTCHERE</i> : <u>Intra-Industry Effects of Privatization Announcements: Evidence from Developed and Developing Countries</u>
PRIV	113.2002	<i>Yannis KATSOULAKOS and Elissavet LIKOYANNI</i> : <u>Fiscal and Other Macroeconomic Effects of Privatization</u>
PRIV	114.2002	<i>Guillaume GIRMENS</i> : <u>Privatization, International Asset Trade and Financial Markets</u>
PRIV	115.2002	<i>D. Teja FLOTTO</i> : <u>A Note on Consumption Correlations and European Financial Integration</u>
PRIV	116.2002	<i>Ibolya SCHINDELE and Enrico C. PEROTTI</i> : <u>Pricing Initial Public Offerings in Premature Capital Markets: The Case of Hungary</u>
PRIV	1.2003	<i>Gabriella CHIESA and Giovanna NICODANO</i> : <u>Privatization and Financial Market Development: Theoretical Issues</u>
PRIV	2.2003	<i>Ibolya SCHINDELE</i> : <u>Theory of Privatization in Eastern Europe: Literature Review</u>
PRIV	3.2003	<i>Wietze LISE, Claudia KEMFERT and Richard S.J. TOL</i> : <u>Strategic Action in the Liberalised German Electricity Market</u>
CLIM	4.2003	<i>Laura MARSILIANI and Thomas I. RENSTRÖM</i> : <u>Environmental Policy and Capital Movements: The Role of Government Commitment</u>
KNOW	5.2003	<i>Reyer GERLAGH</i> : <u>Induced Technological Change under Technological Competition</u>
ETA	6.2003	<i>Efrem CASTELNUOVO</i> : <u>Squeezing the Interest Rate Smoothing Weight with a Hybrid Expectations Model</u>
SIEV	7.2003	<i>Anna ALBERINI, Alberto LONGO, Stefania TONIN, Francesco TROMBETTA and Margherita TURVANI</i> : <u>The Role of Liability, Regulation and Economic Incentives in Brownfield Remediation and Redevelopment: Evidence from Surveys of Developers</u>
NRM	8.2003	<i>Elissaios POPYRAKIS and Reyer GERLAGH</i> : <u>Natural Resources: A Blessing or a Curse?</u>
CLIM	9.2003	<i>A. CAPARRÓS, J.-C. PEREAU and T. TAZDAÏT</i> : <u>North-South Climate Change Negotiations: a Sequential Game with Asymmetric Information</u>
KNOW	10.2003	<i>Giorgio BRUNELLO and Daniele CHECCHI</i> : <u>School Quality and Family Background in Italy</u>
CLIM	11.2003	<i>Efrem CASTELNUOVO and Marzio GALEOTTI</i> : <u>Learning By Doing vs Learning By Researching in a Model of Climate Change Policy Analysis</u>
KNOW	12.2003	<i>Carole MAIGNAN, Gianmarco OTTAVIANO and Dino PINELLI (eds.)</i> : <u>Economic Growth, Innovation, Cultural Diversity: What are we all talking about? A critical survey of the state-of-the-art</u>
KNOW	13.2003	<i>Carole MAIGNAN, Gianmarco OTTAVIANO, Dino PINELLI and Francesco RULLANI (Ivix)</i> : <u>Bio-Ecological Diversity vs. Socio-Economic Diversity. A Comparison of Existing Measures</u>
KNOW	14.2003	<i>Maddy JAASSENS and Chris STEYAERT (Ivix)</i> : <u>Theories of Diversity within Organisation Studies: Debates and Future Trajectories</u>
KNOW	15.2003	<i>Tuzin BAYCAN LEVENT, Enno MASUREL and Peter NIJKAMP (Ivix)</i> : <u>Diversity in Entrepreneurship: Ethnic and Female Roles in Urban Economic Life</u>
KNOW	16.2003	<i>Alexandra BITUSIKOVA (Ivix)</i> : <u>Post-Communist City on its Way from Grey to Colourful: The Case Study from Slovakia</u>
KNOW	17.2003	<i>Billy E. VAUGHN and Katarina MLEKOV (Ivix)</i> : <u>A Stage Model of Developing an Inclusive Community</u>
KNOW	18.2003	<i>Selma van LONDEN and Arie de RUIJTER (Ivix)</i> : <u>Managing Diversity in a Globalizing World</u>
Coalition Theory Network	19.2003	<i>Sergio CURRARINI</i> : <u>On the Stability of Hierarchies in Games with Externalities</u>
PRIV	20.2003	<i>Giacomo CALZOLARI and Alessandro PAVAN (Ivix)</i> : <u>Monopoly with Resale</u>
PRIV	21.2003	<i>Claudio MEZZETTI (Ivix)</i> : <u>Auction Design with Interdependent Valuations: The Generalized Revelation Principle, Efficiency, Full Surplus Extraction and Information Acquisition</u>
PRIV	22.2003	<i>Marco LiCalzi and Alessandro PAVAN (Ivix)</i> : <u>Tilting the Supply Schedule to Enhance Competition in Uniform-Price Auctions</u>
PRIV	23.2003	<i>David ETTINGER (Ivix)</i> : <u>Bidding among Friends and Enemies</u>
PRIV	24.2003	<i>Hannu VARTAINEN (Ivix)</i> : <u>Auction Design without Commitment</u>
PRIV	25.2003	<i>Matti KELOHARJU, Kjell G. NYBORG and Kristian RYDQVIST (Ivix)</i> : <u>Strategic Behavior and Underpricing in Uniform Price Auctions: Evidence from Finnish Treasury Auctions</u>
PRIV	26.2003	<i>Christine A. PARLOUR and Uday RAJAN (Ivix)</i> : <u>Rationing in IPOs</u>
PRIV	27.2003	<i>Kjell G. NYBORG and Ilya A. STREBULAEV (Ivix)</i> : <u>Multiple Unit Auctions and Short Squeezes</u>
PRIV	28.2003	<i>Anders LUNANDER and Jan-Eric NILSSON (Ivix)</i> : <u>Taking the Lab to the Field: Experimental Tests of Alternative Mechanisms to Procure Multiple Contracts</u>
PRIV	29.2003	<i>TangaMcDANIEL and Karsten NEUHOFF (Ivix)</i> : <u>Use of Long-term Auctions for Network Investment</u>
PRIV	30.2003	<i>Emiel MAASLAND and Sander ONDERSTAL (Ivix)</i> : <u>Auctions with Financial Externalities</u>
ETA	31.2003	<i>Michael FINUS and Bianca RUNDSHAGEN</i> : <u>A Non-cooperative Foundation of Core-Stability in Positive Externality NTU-Coalition Games</u>
KNOW	32.2003	<i>Michele MORETTO</i> : <u>Competition and Irreversible Investments under Uncertainty</u>
PRIV	33.2003	<i>Philippe QUIRION</i> : <u>Relative Quotas: Correct Answer to Uncertainty or Case of Regulatory Capture?</u>
KNOW	34.2003	<i>Giuseppe MEDA, Claudio PIGA and Donald SIEGEL</i> : <u>On the Relationship between R&D and Productivity: A Treatment Effect Analysis</u>
ETA	35.2003	<i>Alessandra DEL BOCA, Marzio GALEOTTI and Paola ROTA</i> : <u>Non-convexities in the Adjustment of Different Capital Inputs: A Firm-level Investigation</u>
GG	36.2003	<i>Mathieu GLACHANT</i> : <u>Voluntary Agreements under Endogenous Legislative Threats</u>

- (l) This paper was presented at the Workshop “Growth, Environmental Policies and Sustainability” organised by the Fondazione Eni Enrico Mattei, Venice, June 1, 2001
- (li) This paper was presented at the Fourth Toulouse Conference on Environment and Resource Economics on “Property Rights, Institutions and Management of Environmental and Natural Resources”, organised by Fondazione Eni Enrico Mattei, IDEI and INRA and sponsored by MATE, Toulouse, May 3-4, 2001
- (lii) This paper was presented at the International Conference on “Economic Valuation of Environmental Goods”, organised by Fondazione Eni Enrico Mattei in cooperation with CORILA, Venice, May 11, 2001
- (liii) This paper was circulated at the International Conference on “Climate Policy – Do We Need a New Approach?”, jointly organised by Fondazione Eni Enrico Mattei, Stanford University and Venice International University, Isola di San Servolo, Venice, September 6-8, 2001
- (liv) This paper was presented at the Seventh Meeting of the Coalition Theory Network organised by the Fondazione Eni Enrico Mattei and the CORE, Université Catholique de Louvain, Venice, Italy, January 11-12, 2002
- (lv) This paper was presented at the First Workshop of the Concerted Action on Tradable Emission Permits (CATEP) organised by the Fondazione Eni Enrico Mattei, Venice, Italy, December 3-4, 2001
- (lvi) This paper was presented at the ESF EURESCO Conference on Environmental Policy in a Global Economy “The International Dimension of Environmental Policy”, organised with the collaboration of the Fondazione Eni Enrico Mattei, Acquafredda di Maratea, October 6-11, 2001
- (lvii) This paper was presented at the First Workshop of “CFEWE – Carbon Flows between Eastern and Western Europe”, organised by the Fondazione Eni Enrico Mattei and Zentrum für Europäische Integrationsforschung (ZEI), Milan, July 5-6, 2001
- (lviii) This paper was presented at the Workshop on “Game Practice and the Environment”, jointly organised by Università del Piemonte Orientale and Fondazione Eni Enrico Mattei, Alessandria, April 12-13, 2002
- (lvix) This paper was presented at the ENGIME Workshop on “Mapping Diversity”, Leuven, May 16-17, 2002
- (lvx) This paper was presented at the EuroConference on “Auctions and Market Design: Theory, Evidence and Applications”, organised by the Fondazione Eni Enrico Mattei, Milan, September 26-28, 2002

2002 SERIES

CLIM	<i>Climate Change Modelling and Policy</i> (Editor: Marzio Galeotti)
VOL	<i>Voluntary and International Agreements</i> (Editor: Carlo Carraro)
SUST	<i>Sustainability Indicators and Environmental Valuation</i> (Editor: Carlo Carraro)
NRM	<i>Natural Resources Management</i> (Editor: Carlo Giupponi)
KNOW	<i>Knowledge, Technology, Human Capital</i> (Editor: Dino Pinelli)
MGMT	<i>Corporate Sustainable Management</i> (Editor: Andrea Marsanich)
PRIV	<i>Privatisation, Regulation, Antitrust</i> (Editor: Bernardo Bortolotti)
ETA	<i>Economic Theory and Applications</i> (Editor: Carlo Carraro)

2003 SERIES

CLIM	<i>Climate Change Modelling and Policy</i> (Editor: Marzio Galeotti)
GG	<i>Global Governance</i> (Editor: Carlo Carraro)
SIEV	<i>Sustainability Indicators and Environmental Valuation</i> (Editor: Anna Alberini)
NRM	<i>Natural Resources Management</i> (Editor: Carlo Giupponi)
KNOW	<i>Knowledge, Technology, Human Capital</i> (Editor: Gianmarco Ottaviano)
IEM	<i>International Energy Markets</i> (Editor: Anil Markandya)
CSR	<i>Corporate Social Responsibility and Management</i> (Editor: Sabina Ratti)
PRIV	<i>Privatisation, Regulation, Antitrust</i> (Editor: Bernardo Bortolotti)
ETA	<i>Economic Theory and Applications</i> (Editor: Carlo Carraro)
CTN	<i>Coalition Theory Network</i>