

Marzetti, Silvia; Mosetti, R.

Working Paper

Social Carrying Capacity of Mass Tourist Sites: Theoretical and Practical Issues about its Measurement

Nota di Lavoro, No. 144.2005

Provided in Cooperation with:

Fondazione Eni Enrico Mattei (FEEM)

Suggested Citation: Marzetti, Silvia; Mosetti, R. (2005) : Social Carrying Capacity of Mass Tourist Sites: Theoretical and Practical Issues about its Measurement, Nota di Lavoro, No. 144.2005, Fondazione Eni Enrico Mattei (FEEM), Milano

This Version is available at:

<https://hdl.handle.net/10419/73931>

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.

**Social Carrying Capacity of Mass
Tourist Sites: Theoretical and
Practical Issues about its
Measurement**

S. Marzetti Dall'Aste Brandolini and R. Mosetti

NOTA DI LAVORO 144.2005

NOVEMBER 2005

NRM – Natural Resources Management

S. Marzetti Dall'Aste Brandolini, *Department of Economics, University of Bologna*
R. Mosetti, *Istituto Nazionale di Oceanografia e Geofisica Sperimentale, OGS, Trieste*

This paper can be downloaded without charge at:

The Fondazione Eni Enrico Mattei Note di Lavoro Series Index:
<http://www.feem.it/Feem/Pub/Publications/WPapers/default.htm>

Social Science Research Network Electronic Paper Collection:
<http://ssrn.com/abstract=856024>

The opinions expressed in this paper do not necessarily reflect the position of
Fondazione Eni Enrico Mattei
Corso Magenta, 63, 20123 Milano (I), web site: www.feem.it, e-mail: working.papers@feem.it

Social Carrying Capacity of Mass Tourist Sites: Theoretical and Practical Issues about its Measurement

Summary

Congestion is an important management problem at mass tourist sites. This essay focuses on the social carrying capacity (SCC) of a tourist site as indicator of residents' and visitors' perception of crowding, intended as the maximum number of visitors (MNV) tolerated. In case of conflict between the residents' MNV tolerated and the visitors' MNV tolerated, the policy-maker has to mediate. We consider the case in which the residents' SCC is lower than the visitors' SCC, and the site SCC is the result of a compromise between these two aspects of the SCC. This can be measured by making reference to two criteria of choice: the utility maximisation criterion and the voting rule. The use of one method rather than the other depends on the data available about the individual preferences on crowding. Assuming that individual preferences are known, a maximisation model for the computation of the site SCC is conceived. It represents the case in which the residents' SCC is the limiting factor. The site SCC is intended as the number of visitors which maximises the social welfare function. Because a local policy-maker maximises the welfare of residents, in this model visitors are represented by those residents whose welfare wholly depends on the tourism sector, while the social costs due to crowding are borne by those residents who are partially or totally independent from tourism. Nevertheless, in practice, the individual preferences about crowding are not always known. In this case, the MNV tolerated can be computed by applying the majority voting rule. It is shown that, under certain conditions, the optimum number of visitors, obtained through a maximisation model, is equal to the MNV tolerated by the majority of voters.

Keywords: Sustainable tourism development, Tourism carrying capacity, Social carrying capacity, Maximisation criterion, Majority voting rule, Overcrowding, Mass tourist site

JEL Classification: L83, Q01, Q26, Q58

This paper was presented at the Second International Conference on "Tourism and Sustainable Economic Development - Macro and Micro Economic Issues" jointly organised by CRENoS (Università di Cagliari and Sassari, Italy) and Fondazione Eni Enrico Mattei, Italy, and supported by the World Bank, Chia, Italy, 16-17 September 2005.

Address for correspondence:

Silvia Marzetti
Department of Economics
University of Bologna
P.zza Scaravilli 2
40126 Bologna
Italy
Phone: +39 512098130
Fax: +39 51221968
E-mail: marzetti@economia.unibo.it

Social Carrying Capacity of Mass Tourist Sites: Theoretical and Practical Issues about its Measurement

S. Marzetti Dall'Aste Brandolini^a and R. Mosetti^b

^a *Department of Economics, University of Bologna, Italy.*

^b *Istituto Nazionale di Oceanografia e Geofisica Sperimentale, OGS, Trieste, Italy.*

Abstract

Congestion is an important management problem at mass tourist sites. This essay focuses on the social carrying capacity (SCC) of a tourist site as indicator of residents' and visitors' perception of crowding, intended as the maximum number of visitors (MNV) tolerated. In case of conflict between the residents' MNV tolerated and the visitors' MNV tolerated, the policy-maker has to mediate. We consider the case in which the residents' SCC is lower than the visitors' SCC, and the site SCC is the result of a compromise between these two aspects of the SCC. This can be measured by making reference to two criteria of choice: the utility maximisation criterion and the voting rule. The use of one method rather than the other depends on the data available about the individual preferences on crowding. Assuming that individual preferences are known, a maximisation model for the computation of the site SCC is conceived. It represents the case in which the residents' SCC is the limiting factor. The site SCC is intended as the number of visitors which maximises the social welfare function. Because a local policy-maker maximises the welfare of residents, in this model visitors are represented by those residents whose welfare wholly depends on the tourism sector, while the social costs due to crowding are borne by those residents who are partially or totally independent from tourism. Nevertheless, in practice, the individual preferences about crowding are not always known. In this case, the MNV tolerated can be computed by applying the majority voting rule. It is shown that, under certain conditions, the optimum number of visitors, obtained through a maximisation model, is equal to the MNV tolerated by the majority of voters.

Keywords: sustainable tourism development, tourism carrying capacity, social carrying capacity, maximisation criterion, majority voting rule, overcrowding, mass tourist site.

1 Introduction

Tourism¹ is one of the fastest expanding sectors of the world economy. In the EU its contribution to the total GDP is about 4.7%. Visitors influence the social, cultural and economic activities of a site, resident life style and public policy-making. They are very sensitive to social, cultural and environmental quality; therefore tourist sites have to be

¹ The tourism sector is intended in the broad sense, in that it is made up of both tourists or overnight visitors (people who visit the site and stay at least one night) and same-day visitors (people who visit the site, but do not sleep there) (World Tourism Organization, 1998).

managed according to sustainable criteria otherwise they will lose their ability to generate welfare.

Every process of tourism growth has to be sustained by the tourism carrying capacity (TCC) of the site. In this way, policy-makers must pursue sustainable tourism through ‘a rational distribution of tourism activity...without exceeding the saturation limits of each area...according to its vulnerability and characteristics’ (Decleris, 2003, p.86).

In general, the concept of carrying capacity applied to the human species ‘is foremost socially determined, rather than biologically fixed due to the important influence of human consumption patterns, technologies, infrastructure, and impacts on the environment or food availability’ (Seidl & Tisdell, 1999). Applied to tourism, the TCC means that tourist economic growth has to be responsible towards local society and its cultural values, and compatible with the preservation and improvement of the local natural environment and with the conservation of the local traditional economic activities.

A tourist system is an integrated system constituted by different sub-systems, such as the ecological (biological and physical), social, cultural, infrastructural and management (institutional and economic) sub-systems (World Tourism Organization, 1998, 2004). Therefore the TCC is the result of the carrying capacities of all these sub-systems. The levels of these different carrying capacities may be in conflict; for example, mass tourism may be desirable from the economic point of view because it increases the local aggregate income, but from the social and ecological point of view it can be damaging if criminality increases and dunes are destroyed. This means that, in practice, policy-makers have to mediate between these different carrying capacities, also stimulating discussion about society values in order to change their plans and actions if necessary.

In this paper we focus on the social aspect of the carrying capacity. In literature, the social carrying capacity (SCC) is in general analysed both from the point of view of residents and from that of visitors. We consider mass tourism sites, because high-density recreational activities today are the predominant kind of tourism in Europe. Tourism is generally a seasonal economic activity and, on the most crowded days of the year, traffic, criminality, waiting time, and noise by day and by night are major causes of residents’ discomfort, and the quality of the visitors’ recreational experience deteriorates. Therefore, we present a joint analysis of these two aspects of the SCC in order to establish the site SCC by using a cost-benefit analysis (CBA) model based on the maximisation of individual preferences. Nevertheless, because sustainable tourism development means that real choices have to be made, we also highlight that a further criterion of choice is needed when preferences about crowding are unknown.

Section 2 briefly describes the CBA in order to measure the TCC as indicator of sustainable tourism. In section 3 the focus is on the site SCC as indicator of residents’ and visitors’ perception of crowding. We make particular reference to the case of conflict given by the situation in which the residents’ SCC is lower than the visitors’ SCC. Assuming that it is possible to measure the utility loss due to crowding, a solution of this conflict is described by a CBA model in which the policy-maker mediates between residents’ and visitors’ claims. Section 4, instead, focuses on the case in which the utility loss due to crowding cannot be estimated, and the voting criterion of the majority rule is applied. We present the conditions to be satisfied in order to make the optimum number of visitors obtained through a maximisation model equal to the MNV tolerated by the majority of voters.

2. Tourism Carrying Capacity and Cost-benefit Analysis

Different indicators are used for the TCC measurement because not only the number of visitors, tourist density and length of stay, but also visitors’ life style and their impact on the natural environment, facilities, infrastructures and residents’ life style have to be considered.

Nevertheless there continues to be the demand for representing the TCC with a single indicator. In economic literature the number of visitors is generally used (Fisher and Krutilla, 1972; Cicchetti and Smith, 1973; Canestrelli and Costa, 1991). Given the specific characteristics of tourism in the site considered, the TCC is defined as the maximum number of visitors (MNV) that can be contained in a tourist area. We make reference to the number of visitors present on a site per day.

In order to estimate a sustainable and efficient MNV, the CBA is applied. Economic efficiency states that tourist resources are rationally used if the difference between their benefits and costs is maximised; while sustainability requires social and environmental goods that the market does not evaluate to be considered in this computation. Therefore, by making reference to a CBA model the TCC is identified with the optimum number of visitors which maximises the social net benefit (Fisher and Krutilla, 1972). Let us consider the following very simple static model:

$$\max_Q \quad \Pi(Q) = NB(Q) - C_S(Q) - C_E(Q), \quad (1)$$

where: $\Pi(Q)$ is the total net benefit from tourism activity, $NB(Q)$ the private net benefit from tourist production, $C_S(Q)$ the social costs (such as noise, pollution, stress from crowding, and so on), $C_E(Q)$ the value of environmental losses (a loss of biodiversity such as dune reduction, for example), and Q the number of visitors per day. It is, in general, assumed that the net marginal private benefit from tourism decreases with the number of visitors, while the social marginal cost and the environmental marginal cost increase. The optimum number of visitors Q^* has to satisfy the condition of equality between the net marginal benefit and the sum of the social and environmental marginal costs.

3. Social Carrying Capacity: the Maximisation Criterion

We cannot deal here with all the different aspects of the TCC. Our attention is devoted to the SCC computation in situations in which mass tourism determines crowding effects. Noise, criminality and waiting time represent social aspects of the TCC. Residents' quality of life and visitors' recreational experience can deteriorate as the number of visitors increases. As regards the optimal level of use from the ecological point of view, we assume that it is not a limiting factor. For example, natural resources used for recreational activities, such as numerous beaches, are very extensive, or the ecological aspect has greatly lost its importance because the natural environment has already been sacrificed heavily to tourist growth.

According to the CBA, the SCC of a tourist site can be in general defined as the optimum number of visitors per day to which the maximum social utility due to congestion corresponds. More specifically, in literature the SCC of a tourist area is defined from two different points of view. From the point of view of residents, the SCC represents the social interaction between residents and visitors, and it is the MNV tolerated by the host population without reducing their quality of life. From the point of view of visitors, the SCC describes the interaction between the visitors themselves, and is defined as the MNV tolerated by the visitors themselves without reducing the quality of the recreational experience or desiring to go to an alternative site or return home. These two aspects of the SCC may be in conflict, since the MNV tolerated by the visitors themselves may be different from the MNV tolerated by residents.

The shape of the individual utility curve highlights the psychological nature of the perception of overcrowding. In general, when an overcrowding sensation begins to be felt, the individual total utility U starts to reduce, the marginal utility becomes negative, and this means that the total number of visitors on the site exceeds the maximum number tolerated. In addition, different individuals (whether residents or visitors) may be sensitive to different level of crowding. Figure 1 shows, as an example, two different situations: curve (a)

represents the total utility U of an individual whose satisfaction from the presence of visitors is quite low, and who is quite sensitive to crowding because the overcrowding sensation begins to occur to the right of the fairly low daily number of visitors Q_1 ; while curve (b) represents a person whose satisfaction is high and who becomes sensitive to crowding with large numbers of visitors (overcrowding begins at Q_2) (Clawson and Knetsch, 1978; Marzetti, 2003).

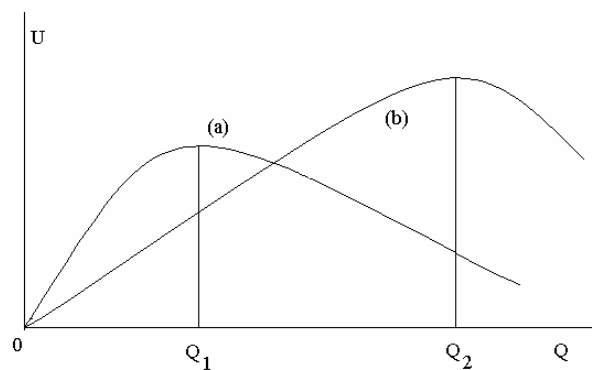


Figure 1: Residents' or visitors' utility

3.1 Measuring the utility loss due to crowding

Residents' and visitors' losses of welfare due to overcrowding are not generally evaluated by the market. Nevertheless, measuring the SCC through the CBA requires them to be estimated with a specific method.

The CVM is a technique conceived by economists to estimate in monetary terms those values which are not established by the market. It is based on the economic theory of demand (individual preferences) and its philosophy is: when the value of something is unknown, go to those who might value it and ask how much they evaluate it (Price, 2000). Through a survey by questionnaire the CVM creates a hypothetical market which permits respondents to elicit, according to their preferences, the value of the non-marketable consequences of a change in the number of visitors to a site. The value so elicited is contingent to the scenario created through the questionnaire. The CVM is generally applied in the willingness to pay version (WTP), where the respondent is asked how much s/he is willing to pay for a certain change in crowding (Cicchetti and Smith, 1973). More specifically the WTP, for a project which reduces crowding, represents the value of the avoided loss of utility due to overcrowding. Nevertheless it can also be applied in the value of enjoyment (VOE) version². In this CVM version the evaluation question asks respondents the value of enjoyment (dissatisfaction) of a change in the daily number of visitors. Compared with the WTP version, the VOE version has

² The VOE method have been applied by Penning - Rowsell *et al.* (1992) for estimating the use value of British beaches. With the same purpose, in Italy this method has been used by Marzetti and Zanuttigh (2003), and Marzetti and Lamberti (2004).

the advantage that no payment vehicle, which might be unpopular, is specified; so the number of protest answers may be lower³.

The CVM (in whichever version) permits an estimate of the value of the individual preferences about crowding, which depends on a number of variables. A model of resident's/visitor's satisfaction (dissatisfaction) is as follows:

$$U = r(Q, C, A, L, R, S, I), \quad (2)$$

where: U = individual satisfaction (utility); Q = daily number of visitors; C = crowding consequences (advantages and disadvantages); A = a vector of site attributes, such as infrastructure capacity and facilities; L = factors representing individual quality of life; R = reactions to overcrowding; S = socio-economic attributes, such as total household income per year, sex, age, education, employment, marital status; I = survey influences, such as interviewer characteristics. Taking other variables as constant, it is expected that the resident or visitor relation between U and Q is represented by an individual utility curve such as one of those indicated in figure 1.

Guidelines for the specification of model (2) cannot be provided by the economic theory. Validity and reliability of the survey results are, in general, tested by correlation and regression analysis, and extensive literature exists on this topic (see Bateman and Willis, 1999, for example).

3.2. The site SCC: a maximisation model

The site SCC is obtained by comparing the visitors' SCC, which we indicate with Q^* , with the residents' SCC, indicated with Q^{**} . It may be the result of a compromise between these two carrying capacities, which is reached by the mediation of the local policy-maker responsible for the sustainable management of the site. In general, three situations are possible:

- a) $Q^* = Q^{**}$, which is the ideal situation because it is a social equilibrium and only one indicator represents the SCC.
- b) $Q^* < Q^{**}$, which indicates that visitors reach the maximum utility before residents. This can be the result of an inadequate quality of tourist services or a lack of adequate infrastructures and facilities. The policy-maker's action could be promoting the organisation of crowd-attracting activities, and building (or improving) infrastructures and facilities.
- c) $Q^* > Q^{**}$, where residents reach the maximum utility before visitors. Our attention is on this last case. It represents a situation of congestion, quite frequent in mass tourism sites, which we model in the following way.

The task of policy-makers is pursuing social welfare. Local policy-makers are elected by residents not by visitors, and they identify the social welfare with residents' welfare. Therefore, in this essay we consider that in the local political context visitors' interests are represented by those residents who produce tourist services (the tourist offer)⁴. We distinguish three kinds of residents: i) those who are directly and wholly tourism-dependent (the local tourist sector), and who represent visitors' needs, ii) those who are in part indirectly tourism-dependent (such as those who benefit from the fact that a well developed tourist sector increases the local economic welfare), and iii) those who are totally independent from tourism (such as those who work in the public administration or pensioners). In addition, for simplicity, we suppose that residents who belong to category i) do not feel irritated by the presence of tourists; while those who belong to categories ii) and iii) suffer a loss of enjoyment in overcrowded situations due to tourism.

³ In particular, if survey studies describe scenarios that respondents find unclear or unrealistic, or are based on relatively small samples, the estimates obtained could differ widely from the true value; therefore great attention has to be paid to these last two aspects.

⁴ Canestrelli and Costa (1991, p. 298) highlight that the WTP of tourists 'can be easily translated' into the incomes of the 'tourist-dependent population'.

Supposing that valid and reliable estimates of the monetary value of the utility losses due to crowding are available, we specify two aggregated utility functions about residents: i) the utility function of residents wholly dependent on tourism; and ii) the utility function of partially or totally independent residents. Thus we suppose that the optimum number of visitors tolerated by fully dependent residents is obtained by maximising their aggregated utility curve. This optimum number represents not only their own SCC but also the visitors' SCC, and for simplicity we refer to it as the visitors' SCC. Instead, the residents' SCC is for simplicity assumed to be the optimum number of visitors which maximises the utility function of partially or wholly independent residents.

An aggregation procedure assumes that all individuals are alike and have the sample mean characteristics, such as the sample mean income (Cicchetti and Smith, 1973). Let us assume, for simplicity, that the local tourist sector is a perfect competition market which offers a basket of tourist goods (such as recreational activities and accommodation) per visitor at the price p . The representative wholly tourism-dependent resident does not suffer from crowding and maximises her/his utility U_1 . Utility depends on income y_1 , and for simplicity we write $U_1(y_1) = y_1$. We consider $y_1 = pQ - C(Q)$, where $C(Q)$ is the production cost, Q the tourist production measured in number of visitors per day. The optimal problem of this representative wholly tourism-dependent resident is:

$$\max_Q [U_1(y_1) \equiv pQ - C(Q)]. \quad (3)$$

The first order condition is:

$$p = C'(Q), \quad (4)$$

where $C'(Q)$ is the first order derivative of $C(Q)$, which for simplicity we assume to increase with Q . The solution is the tourist offer:

$$Q^* = h(p). \quad (5)$$

As regards the ii) and iii) categories of residents we use the following model. Their individual utility is $U_2(y_2) = y_2$, where income y_2 is equal to the sum of the non-tourism income y_0 and the tourism-dependent income $a(pQ - C(Q))$, where $0 \leq a < 1$. When $a=0$, it means that a resident is wholly tourism-independent. In addition, their social loss of utility due to crowding is $C_s(Q)$. Therefore, the optimal problem of the representative resident who partially depends on - or is wholly independent of - tourism is:

$$\max_Q [U_2(y_2) - C_s(Q) \equiv y_0 + a(pQ - C(Q)) - C_s(Q)]. \quad (6)$$

The first order condition is:

$$p = C'(Q) + C_s'(Q)/a, \quad (7)$$

where $C_s'(Q)$ is assumed to increase with Q ⁵. The solution can be written:

$$Q^{**} = f(p). \quad (8)$$

⁵ The utility function U , described in figure 1, is consistent with the residents' utility here defined. In fact, by assuming the marginal costs to be linearly increasing, it follows that U is strictly convex since U'' is negative being $a > 0$. In the more general case, the requirement is that $C''_s(Q) > 0$ and $C''(Q) > 0$.

According to equation (5), given the price p , Q depends on the ratio between the marginal utility loss due to crowding and the coefficient of tourism benefit a . If there is no loss due to overcrowding, $C_s'(Q)/a = 0$, and Q^* is equal to Q^{**} ; while when $C_s'(Q)/a > 0$, $Q^{**} < Q^*$. In other terms, when the utility loss $C_s'(Q)/a > 0$, the maximum number of visitors tolerated by partially or wholly tourism-independent residents is lower than that claimed by wholly tourism-dependent residents (or by visitors themselves). In this situation it is a policy-maker's task to mediate between them.

Let us assume that a policy-maker wants to know the number of visitors which maximises the social welfare, here intended as the sum of all residents' utilities:

$$\max_Q \{U_1(y_1) + U_2(y_2) - C_s(Q) \equiv (pQ - C(Q)) + [y_0 + a(pQ - C(Q)) - C_s(Q)]\}. \quad (9)$$

The first order condition is:

$$p = C'(Q) + C_s'(Q)/(1+a), \quad (10)$$

and we write

$$Q^\circ = g(p). \quad (11)$$

At the price p , Q° represents the ideal site SCC. It is between Q^* and Q^{**} because $C_s'(Q)/(1+a) < C_s'(Q)/a$, as shown in figure 2 (by assuming the marginal cost to be linear in Q).

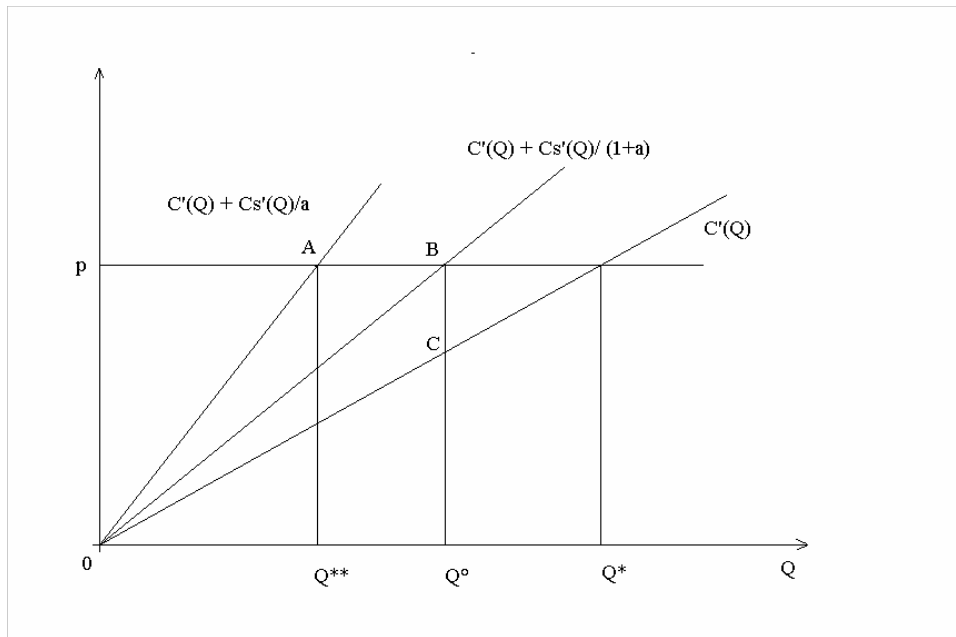


Figure 2: Site SCC

According to equation (10), the price p is the social price of the tourist basket because it is comprehensive of the social cost due to crowding.

In order to pursue a sustainable management of the tourist resort, let us finally assume that a policy-maker decides to internalise the social loss due to crowding by taxing the tourist sector. According to our model, we can write $\tau = C_s'(Q)/(1+a)$, where τ is a Pigouvian tax; so τQ° is the total tax that the tourist sector should pay the policy-maker. In figure 2 the tax amount τ is equal to BC.

4. Social Carrying Capacity: the Voting Criterion

According to our model, the MNV which represents the ideal site SCC is obtained by maximising the local social welfare. From the practical point of view, if this model is to be useful, individual preferences have to be known. As regards the visitors' SCC, the optimum Q^* can be estimated because the economic variables p and a , and the $C'(Q)$ economic function are known to the policy-maker. Nevertheless, experience shows that a CVM survey is not always successful, and in this case the estimate of the actual preferences represented by the $C_s'(Q)$ social function is not always possible. More specifically, a respondent may declare that s/he is unable to reply to the valuation questions, or may behave like a "free-rider"⁶. If the number of no responses and protest answers is high, it is not possible to estimate the aggregated utility curve of residents⁷, and it is not possible to estimate the site SCC through a CBA model. Therefore Q^{**} has to be estimated by some other method.

A different method for estimating Q^{**} is by directly asking residents, partially or wholly tourism-independent, the MNV tolerated on the site considered, by means of a survey by questionnaire. We call this method a MNV survey in order to distinguish it from a CVM survey. Experience shows that residents generally have no problem in establishing the MNV tolerated on the site considered (Severiades, 2000; Medoro, 2004-5). More specifically, through this method, no questions are asked about the monetary value of the respondent's satisfaction (dissatisfaction) due to crowding. Making reference to the most crowded days of the year, respondents are asked if they would prefer a daily number of visitors greater or lower than those present on the site so as not to feel irritated, or if they prefer the same number. In addition they are asked how comfortable (uncomfortable) they feel about the number of visitors present on the site considered, and their reaction to overcrowding.

The passage from the individual MNV tolerated to the SCC requires the specification of a criterion of social choice. The closest substitute for the maximisation criterion is a voting rule. Different voting rules exist for social deliberations. The majority rule⁸ is generally used for social choices. In politics the majority rule is applied to results obtained by the universal suffrage; while here this rule is applied to the results of a less costly survey based on a representative random sample of the relevant population (Marzetti and Mosetti, 2004). In order to distinguish this method from that of the CBA, we call it the majority rule method (MRM).

As regards the general management of social goods, Bowen (1943, p.33) discusses - when preferences are unknown - the 'possible use of voting as a means of measuring or inferring marginal rates of substitution and hence of determining ideal output', and highlights the conditions under which the ideal or optimum output of a social good obtained by a maximisation utility model is equal to the output preferred by the majority of voters. As regards the specific social losses due to overcrowding we highlight that, if it is assumed that each resident, partially or wholly tourism-independent, declares as MNV tolerated the number corresponding to her/his maximum net satisfaction, the optimum number of visitors obtained by maximising their utility is equal to the MNV obtained with the MRM even if respondents are unable to establish the monetary value of their satisfaction.

⁶ Some respondents may give a false response or no response to the evaluation questions if they fear that they will be asked to pay for the good under evaluation, even when assured that no payment will be asked.

⁷ In addition, even if a main survey of at least 500-600 interviews is carried out in order to estimate values with a confidence level of at least 95%, some coefficients - important from the economic point of view - may be statistically non-significant. Furthermore, even where most coefficients are statistically significant, the overall explanatory power of the relationship considered may be quite low. Finally, some simplifications might be needed for aggregating the individual preferences in a social utility function (Bowen, 1943; Cicchetti and Smith, 1973; Mueller, 1979).

⁸ Rawls (1971, revised 1999, p.313) claims that the best available way of ensuring 'just and effective' choices is some form of majority rule.

Therefore, in order to establish the site SCC, when $Q^* > Q^{**}$ and $C_s'(Q)$ cannot be estimated through a CVM survey, a policy-maker - aiming to internalise the residents' social loss caused by the tourist sector - is rationally limited by the fact that the monetary values of the utility loss due to crowding is unknown. More specifically, as regards the social function $C'(Q) + C_s'(Q)/a$, only the point A in figure 2 is known because Q^{**} is obtained through the MRM. In the case of linearly increasing marginal costs, as assumed in the model presented in section 3.2 it is easy to show that the ideal site SCC Q° and the optimal amount of the Pigouvian tax τ can be computed.

6. Conclusions

In this essay two methods for measuring the SCC are presented: the cost-benefit analysis and the voting rule method. They are based on two different criteria of choice of the MNV tolerated in crowded situations. The CBA is based on the maximisation criterion, and the SCC is computed by considering the individual preferences. The voting rule method is based on the majority voting rule as procedure for obtaining a social preference when individual preferences cannot be estimated. The use of one method rather than the other depends on the data available about the individual preferences.

Assuming that individual preferences about crowding are known, and that the residents' SCC is the limiting factor, we have presented a CBA model in which the site SCC is the result of a compromise between the residents' and visitors' SCCs. In order to internalise the social losses due to crowding, this model permits the computation of the Pigouvian tax.

The ideal situation is to know the monetary value of the individual preferences. Nevertheless experience shows that, if residents generally have no problem in establishing the MNV tolerated on the site, many of them instead may be incapable of eliciting a monetary value for the correspondent utility. In this case, the MNV tolerated is established by applying the MRM. Through this method, partially or wholly tourism-independent residents are directly asked the MNV tolerated, and the residents' SCC is the MNV tolerated by the majority of them. When marginal social costs are linearly increasing and under certain conditions, the optimum number of visitors, obtained through a maximisation model, is equal to the MNV tolerated by the majority of voters.

References

- Bateman I.J. and Willis K.G. (1999), *Valuing Environmental Preferences: Theory and Practice of the Contingent Valuation Method in the US, EU and Developing Countries*, Oxford University Press, Oxford.
- Bowen H.R. (1943), The Interpretation of voting in the allocation of economic resources, *The Quarterly Journal of Economics*, 58, pp. 27-48.
- Clawson M. and Knetsch J.L. (1978), *Economics of Outdoor Recreation*, John Hopkins University Press, London.
- Cicchetti and Smith (1973), 'Congestion, Quality Deterioration and optimal Use', *Social Science Research*, n.2, pp.15-31.
- Decleris M. (2003), *The law of Sustainable Development, General Principles*, European Commission, Luxemburg.
- De Ruyck, M.C., Soares & A.G., McLachlan, A (1997), Social carrying capacity as a management tool for sandy beaches, *Journal of Coastal Research*, 13(3), pp. 822-830.
- Fisher A. C. and Krutilla J. V. (1972), Determination of Optimal Capacity of Resources-based Recreation Facilities, *Natural Resources Journal*, vol. 12, pp. 417-44.

- Marzetti Dall'Aste Brandolini S.(2003), *Microeconomia. Un'applicazione al settore turistico*, CLUEB, Bologna.
- Marzetti Dall'Aste Brandolini S. and Zanuttigh B. (2003), Economic and Social Valuation of Beach Protection in Lido di Dante (Italy), *Proceedings of the Sixth International Conference on the Mediterranean Coastal Environment*, 2003, Ozhan E. (ed.), vol. I, Ankara, pp. 319-29.
- Marzetti Dall'Aste Brandolini S. and Lamberti, (2004), Evaluation of the Recreational Use of Barcola Beach in Trieste (Italy), in Pineda F.D. and Brebbia C.A. (eds.), *Sustainable Tourism*, WIT PRESS, Southampton, pp. 221-30.
- Marzetti Dall'Aste Brandolini S. and Mosetti R. (2004), Sustainable Tourism Development and Social Carrying Capacity: a Case-study on the North-Western Adriatic Sea, in Pineda F.D. and Brebbia C.A. (eds.), *Sustainable Tourism*, WIT PRESS, Southampton, pp. 211-20.
- Medoro Manuela (2004-5), Sviluppo sostenibile e capacità di carico turistica: un caso di studio, Laurea thesis, co-ordinator Prof. Marzetti S., University of Bologna.
- Mueller D.C. (1979), *Public Choice*, Cambridge University Press, Cambridge.
- O'Reilly A.M. (1986), Tourism carrying capacity. Concept and issues, *Tourism Management*, December, pp. 254-258.
- Penning-Rowsell E.C., Green C.H., Thompson P.M., Coker A.M, Tunstall S.M., Richards C. and Parker D.J. (1992), "The Economics of Coastal Management: a Manual of Benefit Assessment Techniques" (Yellow Manual), Belhaven Press, London.
- Price C. (2000), Valuing of Unpriced Products: Contingent Valuation, Cost-benefit Analysis and Participatory Democracy, *Land Use Policy*, 17, pp. 187-96.
- Rawls J. (1971, revised 1999), *A Theory of Justice. Revised edition*, Oxford University Press, Oxford.
- Saveriades A. (2000), Establishing the Social Carrying Capacity for the Tourist Resorts of the East Coast of the Republic of Cyprus, *Tourism Management*, 21, pp. 147-156.
- Seidl I. and Tisdell C. A. (1999), Carrying capacity reconsidered: from Malthus' population theory to cultural carrying capacity, *Ecological Economics*, 31, pp. 395-408.
- Vitali E. (2002-3), Turismo sostenibile: le conseguenze economiche dell'affollamento a Marina di Ravenna.
- World Tourism Organisation (1998), *Guide for Local Authorities on Developing Sustainable Tourism*, A Tourism and Environment Publication, World Tourism Organization.
- (2004), *Indicators of Sustainable Development for Tourism Destinations. A Guidebook*, World Tourism Organisation, Madrid.

NOTE DI LAVORO DELLA FONDAZIONE ENI ENRICO MATTEI

Fondazione Eni Enrico Mattei Working Paper Series

Our Note di Lavoro are available on the Internet at the following addresses:

<http://www.feem.it/Feem/Pub/Publications/WPapers/default.html>

<http://www.ssrn.com/link/feem.html>

<http://www.repec.org>

NOTE DI LAVORO PUBLISHED IN 2004

IEM	1.2004	<i>Anil MARKANDYA, Suzette PEDROSO and Alexander GOLUB: <u>Empirical Analysis of National Income and So2 Emissions in Selected European Countries</u></i>
ETA	2.2004	<i>Masahisa FUJITA and Shlomo WEBER: <u>Strategic Immigration Policies and Welfare in Heterogeneous Countries</u></i>
PRA	3.2004	<i>Adolfo DI CARLUCCIO, Giovanni FERRI, Cecilia FRALE and Ottavio RICCHI: <u>Do Privatizations Boost Household Shareholding? Evidence from Italy</u></i>
ETA	4.2004	<i>Victor GINSBURGH and Shlomo WEBER: <u>Languages Disenfranchisement in the European Union</u></i>
ETA	5.2004	<i>Romano PIRAS: <u>Growth, Congestion of Public Goods, and Second-Best Optimal Policy</u></i>
CCMP	6.2004	<i>Herman R.J. VOLLEBERGH: <u>Lessons from the Polder: Is Dutch CO2-Taxation Optimal</u></i>
PRA	7.2004	<i>Sandro BRUSCO, Giuseppe LOPOMO and S. VISWANATHAN (lxv): <u>Merger Mechanisms</u></i>
PRA	8.2004	<i>Wolfgang AUSENNEGG, Pegaret PICHLER and Alex STOMPER (lxv): <u>IPO Pricing with Bookbuilding, and a When-Issued Market</u></i>
PRA	9.2004	<i>Pegaret PICHLER and Alex STOMPER (lxv): <u>Primary Market Design: Direct Mechanisms and Markets</u></i>
PRA	10.2004	<i>Florian ENGLMAIER, Pablo GUILLEN, Loreto LLORENTE, Sander ONDERSTAL and Rupert SAUSGRUBER (lxv): <u>The Chopstick Auction: A Study of the Exposure Problem in Multi-Unit Auctions</u></i>
PRA	11.2004	<i>Bjarne BRENDSTRUP and Harry J. PAARSCH (lxv): <u>Nonparametric Identification and Estimation of Multi-Unit, Sequential, Oral, Ascending-Price Auctions With Asymmetric Bidders</u></i>
PRA	12.2004	<i>Ohad KADAN (lxv): <u>Equilibrium in the Two Player, k-Double Auction with Affiliated Private Values</u></i>
PRA	13.2004	<i>Maarten C.W. JANSSEN (lxv): <u>Auctions as Coordination Devices</u></i>
PRA	14.2004	<i>Gadi FIBICH, Arieh GAVIOUS and Aner SELA (lxv): <u>All-Pay Auctions with Weakly Risk-Averse Buyers</u></i>
PRA	15.2004	<i>Orly SADE, Charles SCHNITZLEIN and Jaime F. ZENDER (lxv): <u>Competition and Cooperation in Divisible Good Auctions: An Experimental Examination</u></i>
PRA	16.2004	<i>Marta STRYSZOWSKA (lxv): <u>Late and Multiple Bidding in Competing Second Price Internet Auctions</u></i>
CCMP	17.2004	<i>Slim Ben YOUSSEF: <u>R&D in Cleaner Technology and International Trade</u></i>
NRM	18.2004	<i>Angelo ANTOCI, Simone BORGHESI and Paolo RUSSU (lxvi): <u>Biodiversity and Economic Growth: Stabilization Versus Preservation of the Ecological Dynamics</u></i>
SIEV	19.2004	<i>Anna ALBERINI, Paolo ROSATO, Alberto LONGO and Valentina ZANATTA: <u>Information and Willingness to Pay in a Contingent Valuation Study: The Value of S. Erasmo in the Lagoon of Venice</u></i>
NRM	20.2004	<i>Guido CANDELA and Roberto CELLINI (lxvii): <u>Investment in Tourism Market: A Dynamic Model of Differentiated Oligopoly</u></i>
NRM	21.2004	<i>Jacqueline M. HAMILTON (lxvii): <u>Climate and the Destination Choice of German Tourists</u></i>
NRM	22.2004	<i>Javier Rey-MAQUIEIRA PALMER, Javier LOZANO IBÁÑEZ and Carlos Mario GÓMEZ GÓMEZ (lxvii): <u>Land, Environmental Externalities and Tourism Development</u></i>
NRM	23.2004	<i>Pius ODUNGA and Henk FOLMER (lxvii): <u>Profiling Tourists for Balanced Utilization of Tourism-Based Resources in Kenya</u></i>
NRM	24.2004	<i>Jean-Jacques NOWAK, Mondher SAHLI and Pasquale M. SGRO (lxvii): <u>Tourism, Trade and Domestic Welfare</u></i>
NRM	25.2004	<i>Riaz SHAREEF (lxvii): <u>Country Risk Ratings of Small Island Tourism Economies</u></i>
NRM	26.2004	<i>Juan Luis EUGENIO-MARTÍN, Noelia MARTÍN MORALES and Riccardo SCARPA (lxvii): <u>Tourism and Economic Growth in Latin American Countries: A Panel Data Approach</u></i>
NRM	27.2004	<i>Raúl Hernández MARTÍN (lxvii): <u>Impact of Tourism Consumption on GDP. The Role of Imports</u></i>
CSRM	28.2004	<i>Nicoletta FERRO: <u>Cross-Country Ethical Dilemmas in Business: A Descriptive Framework</u></i>
NRM	29.2004	<i>Marian WEBER (lxvi): <u>Assessing the Effectiveness of Tradable Landuse Rights for Biodiversity Conservation: an Application to Canada's Boreal Mixedwood Forest</u></i>
NRM	30.2004	<i>Trond BJORN DAL, Phoebe KOUNDOURI and Sean PASCOE (lxvi): <u>Output Substitution in Multi-Species Trawl Fisheries: Implications for Quota Setting</u></i>
CCMP	31.2004	<i>Marzio GALEOTTI, Alessandra GORIA, Paolo MOMBRINI and Evi SPANTIDAKI: <u>Weather Impacts on Natural, Social and Economic Systems (WISE) Part I: Sectoral Analysis of Climate Impacts in Italy</u></i>
CCMP	32.2004	<i>Marzio GALEOTTI, Alessandra GORIA, Paolo MOMBRINI and Evi SPANTIDAKI: <u>Weather Impacts on Natural, Social and Economic Systems (WISE) Part II: Individual Perception of Climate Extremes in Italy</u></i>
CTN	33.2004	<i>Wilson PEREZ: <u>Divide and Conquer: Noisy Communication in Networks, Power, and Wealth Distribution</u></i>
KTHC	34.2004	<i>Gianmarco I.P. OTTAVIANO and Giovanni PERI (lxviii): <u>The Economic Value of Cultural Diversity: Evidence from US Cities</u></i>
KTHC	35.2004	<i>Linda CHAIB (lxviii): <u>Immigration and Local Urban Participatory Democracy: A Boston-Paris Comparison</u></i>

KTHC	36.2004	<i>Franca ECKERT COEN and Claudio ROSSI</i> (Ixviii): <u>Foreigners, Immigrants, Host Cities: The Policies of Multi-Ethnicity in Rome. Reading Governance in a Local Context</u>
KTHC	37.2004	<i>Kristine CRANE</i> (Ixviii): <u>Governing Migration: Immigrant Groups' Strategies in Three Italian Cities – Rome, Naples and Bari</u>
KTHC	38.2004	<i>Kiflemariam HAMDE</i> (Ixviii): <u>Mind in Africa, Body in Europe: The Struggle for Maintaining and Transforming Cultural Identity - A Note from the Experience of Eritrean Immigrants in Stockholm</u>
ETA	39.2004	<i>Alberto CAVALIERE</i> : <u>Price Competition with Information Disparities in a Vertically Differentiated Duopoly</u>
PRA	40.2004	<i>Andrea BIGANO and Stef PROOST</i> : <u>The Opening of the European Electricity Market and Environmental Policy: Does the Degree of Competition Matter?</u>
CCMP	41.2004	<i>Micheal FINUS</i> (Ixix): <u>International Cooperation to Resolve International Pollution Problems</u>
KTHC	42.2004	<i>Francesco CRESPI</i> : <u>Notes on the Determinants of Innovation: A Multi-Perspective Analysis</u>
CTN	43.2004	<i>Sergio CURRARINI and Marco MARINI</i> : <u>Coalition Formation in Games without Synergies</u>
CTN	44.2004	<i>Marc ESCRHUELA-VILLAR</i> : <u>Cartel Sustainability and Cartel Stability</u>
NRM	45.2004	<i>Sebastian BERVOETS and Nicolas GRAVEL</i> (Ixvi): <u>Appraising Diversity with an Ordinal Notion of Similarity: An Axiomatic Approach</u>
NRM	46.2004	<i>Signe ANTHON and Bo JELLES MARK THORSEN</i> (Ixvi): <u>Optimal Afforestation Contracts with Asymmetric Information on Private Environmental Benefits</u>
NRM	47.2004	<i>John MBURU</i> (Ixvi): <u>Wildlife Conservation and Management in Kenya: Towards a Co-management Approach</u>
NRM	48.2004	<i>Ekin BIROL, Ágnes GYOVAI and Melinda SMALE</i> (Ixvi): <u>Using a Choice Experiment to Value Agricultural Biodiversity on Hungarian Small Farms: Agri-Environmental Policies in a Transition al Economy</u>
CCMP	49.2004	<i>Gernot KLEPPER and Sonja PETERSON</i> : <u>The EU Emissions Trading Scheme. Allowance Prices, Trade Flows, Competitiveness Effects</u>
GG	50.2004	<i>Scott BARRETT and Michael HOEL</i> : <u>Optimal Disease Eradication</u>
CTN	51.2004	<i>Dinko DIMITROV, Peter BORM, Ruud HENDRICKX and Shao CHIN SUNG</i> : <u>Simple Priorities and Core Stability in Hedonic Games</u>
SIEV	52.2004	<i>Francesco RICCI</i> : <u>Channels of Transmission of Environmental Policy to Economic Growth: A Survey of the Theory</u>
SIEV	53.2004	<i>Anna ALBERINI, Maureen CROPPER, Alan KRUPNICK and Nathalie B. SIMON</i> : <u>Willingness to Pay for Mortality Risk Reductions: Does Latency Matter?</u>
NRM	54.2004	<i>Ingo BRÄUER and Rainer MARGGRAF</i> (Ixvi): <u>Valuation of Ecosystem Services Provided by Biodiversity Conservation: An Integrated Hydrological and Economic Model to Value the Enhanced Nitrogen Retention in Renaturated Streams</u>
NRM	55.2004	<i>Timo GOESCHL and Tun LIN</i> (Ixvi): <u>Biodiversity Conservation on Private Lands: Information Problems and Regulatory Choices</u>
NRM	56.2004	<i>Tom DEDEURWAERDERE</i> (Ixvi): <u>Bioprospection: From the Economics of Contracts to Reflexive Governance</u>
CCMP	57.2004	<i>Katrin REHDANZ and David MADDISON</i> : <u>The Amenity Value of Climate to German Households</u>
CCMP	58.2004	<i>Koen SMEKENS and Bob VAN DER ZWAAN</i> : <u>Environmental Externalities of Geological Carbon Sequestration Effects on Energy Scenarios</u>
NRM	59.2004	<i>Valentina BOSETTI, Mariaester CASSINELLI and Alessandro LANZA</i> (Ixvii): <u>Using Data Envelopment Analysis to Evaluate Environmentally Conscious Tourism Management</u>
NRM	60.2004	<i>Timo GOESCHL and Danilo CAMARGO IGLIORI</i> (Ixvi): <u>Property Rights Conservation and Development: An Analysis of Extractive Reserves in the Brazilian Amazon</u>
CCMP	61.2004	<i>Barbara BUCHNER and Carlo CARRARO</i> : <u>Economic and Environmental Effectiveness of a Technology-based Climate Protocol</u>
NRM	62.2004	<i>Elissaios POPYRAKIS and Reyer GERLAGH</i> : <u>Resource-Abundance and Economic Growth in the U.S.</u>
NRM	63.2004	<i>Györgyi BELA, György PATAKI, Melinda SMALE and Mariann HAJDÚ</i> (Ixvi): <u>Conserving Crop Genetic Resources on Smallholder Farms in Hungary: Institutional Analysis</u>
NRM	64.2004	<i>E.C.M. RUIJGROK and E.E.M. NILLESEN</i> (Ixvi): <u>The Socio-Economic Value of Natural Riverbanks in the Netherlands</u>
NRM	65.2004	<i>E.C.M. RUIJGROK</i> (Ixvi): <u>Reducing Acidification: The Benefits of Increased Nature Quality. Investigating the Possibilities of the Contingent Valuation Method</u>
ETA	66.2004	<i>Giannis VARDAS and Anastasios XEPAPADEAS</i> : <u>Uncertainty Aversion, Robust Control and Asset Holdings</u>
GG	67.2004	<i>Anastasios XEPAPADEAS and Constadina PASSA</i> : <u>Participation in and Compliance with Public Voluntary Environmental Programs: An Evolutionary Approach</u>
GG	68.2004	<i>Michael FINUS</i> : <u>Modesty Pays: Sometimes!</u>
NRM	69.2004	<i>Trond BJØRNDAL and Ana BRASÃO</i> : <u>The Northern Atlantic Bluefin Tuna Fisheries: Management and Policy Implications</u>
CTN	70.2004	<i>Alejandro CAPARRÓS, Abdelhakim HAMMOUDI and Tarik TAZDAÏT</i> : <u>On Coalition Formation with Heterogeneous Agents</u>
IEM	71.2004	<i>Massimo GIOVANNINI, Margherita GRASSO, Alessandro LANZA and Matteo MANERA</i> : <u>Conditional Correlations in the Returns on Oil Companies Stock Prices and Their Determinants</u>
IEM	72.2004	<i>Alessandro LANZA, Matteo MANERA and Michael MCALEER</i> : <u>Modelling Dynamic Conditional Correlations in WTI Oil Forward and Futures Returns</u>
SIEV	73.2004	<i>Margarita GENIUS and Elisabetta STRAZZERA</i> : <u>The Copula Approach to Sample Selection Modelling: An Application to the Recreational Value of Forests</u>

CCMP	74.2004	<i>Rob DELLINK and Ekko van IERLAND</i> : <u>Pollution Abatement in the Netherlands: A Dynamic Applied General Equilibrium Assessment</u>
ETA	75.2004	<i>Rosella LEVAGGI and Michele MORETTO</i> : <u>Investment in Hospital Care Technology under Different Purchasing Rules: A Real Option Approach</u>
CTN	76.2004	<i>Salvador BARBERÀ and Matthew O. JACKSON</i> (lxx): <u>On the Weights of Nations: Assigning Voting Weights in a Heterogeneous Union</u>
CTN	77.2004	<i>Àlex ARENAS, Antonio CABRALES, Albert DÍAZ-GUILERA, Roger GUIMERA and Fernando VEGA-REDONDO</i> (lxx): <u>Optimal Information Transmission in Organizations: Search and Congestion</u>
CTN	78.2004	<i>Francis BLOCH and Armando GOMES</i> (lxx): <u>Contracting with Externalities and Outside Options</u>
CTN	79.2004	<i>Rabah AMIR, Effrosyni DIAMANTOUDI and Licun XUE</i> (lxx): <u>Merger Performance under Uncertain Efficiency Gains</u>
CTN	80.2004	<i>Francis BLOCH and Matthew O. JACKSON</i> (lxx): <u>The Formation of Networks with Transfers among Players</u>
CTN	81.2004	<i>Daniel DIERMEIER, Hülya ERASLAN and Antonio MERLO</i> (lxx): <u>Bicameralism and Government Formation</u>
CTN	82.2004	<i>Rod GARRATT, James E. PARCO, Cheng-ZHONG QIN and Amnon RAPOPORT</i> (lxx): <u>Potential Maximization and Coalition Government Formation</u>
CTN	83.2004	<i>Kfir ELIAZ, Debraj RAY and Ronny RAZIN</i> (lxx): <u>Group Decision-Making in the Shadow of Disagreement</u>
CTN	84.2004	<i>Sanjeev GOYAL, Marco van der LEIJ and José Luis MORAGA-GONZÁLEZ</i> (lxx): <u>Economics: An Emerging Small World?</u>
CTN	85.2004	<i>Edward CARTWRIGHT</i> (lxx): <u>Learning to Play Approximate Nash Equilibria in Games with Many Players</u>
IEM	86.2004	<i>Finn R. FØRSUND and Michael HOEL</i> : <u>Properties of a Non-Competitive Electricity Market Dominated by Hydroelectric Power</u>
KTHC	87.2004	<i>Elissaios PAPHAKIS and Reyer GERLAGH</i> : <u>Natural Resources, Investment and Long-Term Income</u>
CCMP	88.2004	<i>Marzio GALEOTTI and Claudia KEMFERT</i> : <u>Interactions between Climate and Trade Policies: A Survey</u>
IEM	89.2004	<i>A. MARKANDYA, S. PEDROSO and D. STREIMIKIENE</i> : <u>Energy Efficiency in Transition Economies: Is There Convergence Towards the EU Average?</u>
GG	90.2004	<i>Rolf GOLOMBEK and Michael HOEL</i> : <u>Climate Agreements and Technology Policy</u>
PRA	91.2004	<i>Sergei IZMALKOV</i> (lxv): <u>Multi-Unit Open Ascending Price Efficient Auction</u>
KTHC	92.2004	<i>Gianmarco I.P. OTTAVIANO and Giovanni PERI</i> : <u>Cities and Cultures</u>
KTHC	93.2004	<i>Massimo DEL GATTO</i> : <u>Agglomeration, Integration, and Territorial Authority Scale in a System of Trading Cities. Centralisation versus devolution</u>
CCMP	94.2004	<i>Pierre-André JOUVET, Philippe MICHEL and Gilles ROTILLON</i> : <u>Equilibrium with a Market of Permits</u>
CCMP	95.2004	<i>Bob van der ZWAAN and Reyer GERLAGH</i> : <u>Climate Uncertainty and the Necessity to Transform Global Energy Supply</u>
CCMP	96.2004	<i>Francesco BOSELLO, Marco LAZZARIN, Roberto ROSON and Richard S.J. TOL</i> : <u>Economy-Wide Estimates of the Implications of Climate Change: Sea Level Rise</u>
CTN	97.2004	<i>Gustavo BERGANTIÑOS and Juan J. VIDAL-PUGA</i> : <u>Defining Rules in Cost Spanning Tree Problems Through the Canonical Form</u>
CTN	98.2004	<i>Siddhartha BANDYOPADHYAY and Mandar OAK</i> : <u>Party Formation and Coalitional Bargaining in a Model of Proportional Representation</u>
GG	99.2004	<i>Hans-Peter WEIKARD, Michael FINUS and Juan-Carlos ALTAMIRANO-CABRERA</i> : <u>The Impact of Surplus Sharing on the Stability of International Climate Agreements</u>
SIEV	100.2004	<i>Chiara M. TRAVISI and Peter NIJKAMP</i> : <u>Willingness to Pay for Agricultural Environmental Safety: Evidence from a Survey of Milan, Italy, Residents</u>
SIEV	101.2004	<i>Chiara M. TRAVISI, Raymond J. G. M. FLORAX and Peter NIJKAMP</i> : <u>A Meta-Analysis of the Willingness to Pay for Reductions in Pesticide Risk Exposure</u>
NRM	102.2004	<i>Valentina BOSETTI and David TOMBERLIN</i> : <u>Real Options Analysis of Fishing Fleet Dynamics: A Test</u>
CCMP	103.2004	<i>Alessandra GORIA e Gretel GAMBARELLI</i> : <u>Economic Evaluation of Climate Change Impacts and Adaptability in Italy</u>
PRA	104.2004	<i>Massimo FLORIO and Mara GRASSENI</i> : <u>The Missing Shock: The Macroeconomic Impact of British Privatisation</u>
PRA	105.2004	<i>John BENNETT, Saul ESTRIN, James MAW and Giovanni URGA</i> : <u>Privatisation Methods and Economic Growth in Transition Economies</u>
PRA	106.2004	<i>Kira BÖRNER</i> : <u>The Political Economy of Privatization: Why Do Governments Want Reforms?</u>
PRA	107.2004	<i>Pehr-Johan NORBÄCK and Lars PERSSON</i> : <u>Privatization and Restructuring in Concentrated Markets</u>
SIEV	108.2004	<i>Angela GRANZOTTO, Fabio PRANOVI, Simone LIBRALATO, Patrizia TORRICELLI and Danilo MAINARDI</i> : <u>Comparison between Artisanal Fishery and Manila Clam Harvesting in the Venice Lagoon by Using Ecosystem Indicators: An Ecological Economics Perspective</u>
CTN	109.2004	<i>Somdeb LAHIRI</i> : <u>The Cooperative Theory of Two Sided Matching Problems: A Re-examination of Some Results</u>
NRM	110.2004	<i>Giuseppe DI VITA</i> : <u>Natural Resources Dynamics: Another Look</u>
SIEV	111.2004	<i>Anna ALBERINI, Alistair HUNT and Anil MARKANDYA</i> : <u>Willingness to Pay to Reduce Mortality Risks: Evidence from a Three-Country Contingent Valuation Study</u>
KTHC	112.2004	<i>Valeria PAPPONETTI and Dino PINELLI</i> : <u>Scientific Advice to Public Policy-Making</u>
SIEV	113.2004	<i>Paulo A.L.D. NUNES and Laura ONOFRI</i> : <u>The Economics of Warm Glow: A Note on Consumer's Behavior and Public Policy Implications</u>
IEM	114.2004	<i>Patrick CAYRADE</i> : <u>Investments in Gas Pipelines and Liquefied Natural Gas Infrastructure What is the Impact on the Security of Supply?</u>
IEM	115.2004	<i>Valeria COSTANTINI and Francesco GRACCEVA</i> : <u>Oil Security. Short- and Long-Term Policies</u>

IEM	116.2004	<i>Valeria COSTANTINI and Francesco GRACCEVA: <u>Social Costs of Energy Disruptions</u></i>
IEM	117.2004	<i>Christian EGENHOFER, Kyriakos GIALOGLOU, Giacomo LUCIANI, Maroeska BOOTS, Martin SCHEEPERS, Valeria COSTANTINI, Francesco GRACCEVA, Anil MARKANDYA and Giorgio VICINI: <u>Market-Based Options for Security of Energy Supply</u></i>
IEM	118.2004	<i>David FISK: <u>Transport Energy Security. The Unseen Risk?</u></i>
IEM	119.2004	<i>Giacomo LUCIANI: <u>Security of Supply for Natural Gas Markets. What is it and What is it not?</u></i>
IEM	120.2004	<i>L.J. de VRIES and R.A. HAKVOORT: <u>The Question of Generation Adequacy in Liberalised Electricity Markets</u></i>
KTHC	121.2004	<i>Alberto PETRUCCI: <u>Asset Accumulation, Fertility Choice and Nondegenerate Dynamics in a Small Open Economy</u></i>
NRM	122.2004	<i>Carlo GIUPPONI, Jaroslaw MYSLAK and Anita FASSIO: <u>An Integrated Assessment Framework for Water Resources Management: A DSS Tool and a Pilot Study Application</u></i>
NRM	123.2004	<i>Margaretha BREIL, Anita FASSIO, Carlo GIUPPONI and Paolo ROSATO: <u>Evaluation of Urban Improvement on the Islands of the Venice Lagoon: A Spatially-Distributed Hedonic-Hierarchical Approach</u></i>
ETA	124.2004	<i>Paul MENSINK: <u>Instant Efficient Pollution Abatement Under Non-Linear Taxation and Asymmetric Information: The Differential Tax Revisited</u></i>
NRM	125.2004	<i>Mauro FABIANO, Gabriella CAMARSA, Rosanna DURSI, Roberta IVALDI, Valentina MARIN and Francesca PALMISANI: <u>Integrated Environmental Study for Beach Management: A Methodological Approach</u></i>
PRA	126.2004	<i>Irena GROSFELD and Iraj HASHI: <u>The Emergence of Large Shareholders in Mass Privatized Firms: Evidence from Poland and the Czech Republic</u></i>
CCMP	127.2004	<i>Maria BERRITTELLA, Andrea BIGANO, Roberto ROSON and Richard S.J. TOL: <u>A General Equilibrium Analysis of Climate Change Impacts on Tourism</u></i>
CCMP	128.2004	<i>Reyer GERLAGH: <u>A Climate-Change Policy Induced Shift from Innovations in Energy Production to Energy Savings</u></i>
NRM	129.2004	<i>Elissaios POPYRAKIS and Reyer GERLAGH: <u>Natural Resources, Innovation, and Growth</u></i>
PRA	130.2004	<i>Bernardo BORTOLOTTI and Mara FACCIO: <u>Reluctant Privatization</u></i>
SIEV	131.2004	<i>Riccardo SCARPA and Mara THIENE: <u>Destination Choice Models for Rock Climbing in the Northeast Alps: A Latent-Class Approach Based on Intensity of Participation</u></i>
SIEV	132.2004	<i>Riccardo SCARPA Kenneth G. WILLIS and Melinda ACUTT: <u>Comparing Individual-Specific Benefit Estimates for Public Goods: Finite Versus Continuous Mixing in Logit Models</u></i>
IEM	133.2004	<i>Santiago J. RUBIO: <u>On Capturing Oil Rents with a National Excise Tax Revisited</u></i>
ETA	134.2004	<i>Ascensión ANDINA DÍAZ: <u>Political Competition when Media Create Candidates' Charisma</u></i>
SIEV	135.2004	<i>Anna ALBERINI: <u>Robustness of VSL Values from Contingent Valuation Surveys</u></i>
CCMP	136.2004	<i>Gernot KLEPPER and Sonja PETERSON: <u>Marginal Abatement Cost Curves in General Equilibrium: The Influence of World Energy Prices</u></i>
ETA	137.2004	<i>Herbert DAWID, Christophe DEISSENBERG and Pavel ŠEVČIK: <u>Cheap Talk, Gullibility, and Welfare in an Environmental Taxation Game</u></i>
CCMP	138.2004	<i>ZhongXiang ZHANG: <u>The World Bank's Prototype Carbon Fund and China</u></i>
CCMP	139.2004	<i>Reyer GERLAGH and Marjan W. HOFKES: <u>Time Profile of Climate Change Stabilization Policy</u></i>
NRM	140.2004	<i>Chiara D'ALPAOS and Michele MORETTO: <u>The Value of Flexibility in the Italian Water Service Sector: A Real Option Analysis</u></i>
PRA	141.2004	<i>Patrick BAJARI, Stephanie HOUGHTON and Steven TADELIS (lxxi): <u>Bidding for Incomplete Contracts</u></i>
PRA	142.2004	<i>Susan ATHEY, Jonathan LEVIN and Enrique SEIRA (lxxi): <u>Comparing Open and Sealed Bid Auctions: Theory and Evidence from Timber Auctions</u></i>
PRA	143.2004	<i>David GOLDREICH (lxxi): <u>Behavioral Biases of Dealers in U.S. Treasury Auctions</u></i>
PRA	144.2004	<i>Roberto BURGUET (lxxi): <u>Optimal Procurement Auction for a Buyer with Downward Sloping Demand: More Simple Economics</u></i>
PRA	145.2004	<i>Ali HORTACSU and Samita SAREEN (lxxi): <u>Order Flow and the Formation of Dealer Bids: An Analysis of Information and Strategic Behavior in the Government of Canada Securities Auctions</u></i>
PRA	146.2004	<i>Victor GINSBURGH, Patrick LEGROS and Nicolas SAHUGUET (lxxi): <u>How to Win Twice at an Auction. On the Incidence of Commissions in Auction Markets</u></i>
PRA	147.2004	<i>Claudio MEZZETTI, Aleksandar PEKEČ and Ilia TSETLIN (lxxi): <u>Sequential vs. Single-Round Uniform-Price Auctions</u></i>
PRA	148.2004	<i>John ASKER and Estelle CANTILLON (lxxi): <u>Equilibrium of Scoring Auctions</u></i>
PRA	149.2004	<i>Philip A. HAILE, Han HONG and Matthew SHUM (lxxi): <u>Nonparametric Tests for Common Values in First-Price Sealed-Bid Auctions</u></i>
PRA	150.2004	<i>François DEGEORGE, François DERRIEN and Kent L. WOMACK (lxxi): <u>Quid Pro Quo in IPOs: Why Bookbuilding is Dominating Auctions</u></i>
CCMP	151.2004	<i>Barbara BUCHNER and Silvia DALL'OLIO: <u>Russia: The Long Road to Ratification. Internal Institution and Pressure Groups in the Kyoto Protocol's Adoption Process</u></i>
CCMP	152.2004	<i>Carlo CARRARO and Marzio GALEOTTI: <u>Does Endogenous Technical Change Make a Difference in Climate Policy Analysis? A Robustness Exercise with the FEEM-RICE Model</u></i>
PRA	153.2004	<i>Alejandro M. MANELLI and Daniel R. VINCENT (lxxi): <u>Multidimensional Mechanism Design: Revenue Maximization and the Multiple-Good Monopoly</u></i>
ETA	154.2004	<i>Nicola ACOCELLA, Giovanni Di BARTOLOMEO and Wilfried PAUWELS: <u>Is there any Scope for Corporatism in Stabilization Policies?</u></i>
CTN	155.2004	<i>Johan EYCKMANS and Michael FINUS: <u>An Almost Ideal Sharing Scheme for Coalition Games with Externalities</u></i>
CCMP	156.2004	<i>Cesare DOSI and Michele MORETTO: <u>Environmental Innovation, War of Attrition and Investment Grants</u></i>

CCMP	157.2004	<i>Valentina BOSETTI, Marzio GALEOTTI and Alessandro LANZA: <u>How Consistent are Alternative Short-Term Climate Policies with Long-Term Goals?</u></i>
ETA	158.2004	<i>Y. Hossein FARZIN and Ken-Ichi AKAO: <u>Non-pecuniary Value of Employment and Individual Labor Supply</u></i>
ETA	159.2004	<i>William BROCK and Anastasios XEPAPADEAS: <u>Spatial Analysis: Development of Descriptive and Normative Methods with Applications to Economic-Ecological Modelling</u></i>
KTHC	160.2004	<i>Alberto PETRUCCI: <u>On the Incidence of a Tax on PureRent with Infinite Horizons</u></i>
IEM	161.2004	<i>Xavier LABANDEIRA, José M. LABEAGA and Miguel RODRÍGUEZ: <u>Microsimulating the Effects of Household Energy Price Changes in Spain</u></i>

NOTE DI LAVORO PUBLISHED IN 2005

CCMP	1.2005	<i>Stéphane HALLEGATTE: <u>Accounting for Extreme Events in the Economic Assessment of Climate Change</u></i>
CCMP	2.2005	<i>Qiang WU and Paulo Augusto NUNES: <u>Application of Technological Control Measures on Vehicle Pollution: A Cost-Benefit Analysis in China</u></i>
CCMP	3.2005	<i>Andrea BIGANO, Jacqueline M. HAMILTON, Maren LAU, Richard S.J. TOL and Yuan ZHOU: <u>A Global Database of Domestic and International Tourist Numbers at National and Subnational Level</u></i>
CCMP	4.2005	<i>Andrea BIGANO, Jacqueline M. HAMILTON and Richard S.J. TOL: <u>The Impact of Climate on Holiday Destination Choice</u></i>
ETA	5.2005	<i>Hubert KEMPF: <u>Is Inequality Harmful for the Environment in a Growing Economy?</u></i>
CCMP	6.2005	<i>Valentina BOSETTI, Carlo CARRARO and Marzio GALEOTTI: <u>The Dynamics of Carbon and Energy Intensity in a Model of Endogenous Technical Change</u></i>
IEM	7.2005	<i>David CALEF and Robert GOBLE: <u>The Allure of Technology: How France and California Promoted Electric Vehicles to Reduce Urban Air Pollution</u></i>
ETA	8.2005	<i>Lorenzo PELLEGRINI and Reyer GERLAGH: <u>An Empirical Contribution to the Debate on Corruption Democracy and Environmental Policy</u></i>
CCMP	9.2005	<i>Angelo ANTOCI: <u>Environmental Resources Depletion and Interplay Between Negative and Positive Externalities in a Growth Model</u></i>
CTN	10.2005	<i>Frédéric DEROLAN: <u>Cost-Reducing Alliances and Local Spillovers</u></i>
NRM	11.2005	<i>Francesco SINDICO: <u>The GMO Dispute before the WTO: Legal Implications for the Trade and Environment Debate</u></i>
KTHC	12.2005	<i>Carla MASSIDDA: <u>Estimating the New Keynesian Phillips Curve for Italian Manufacturing Sectors</u></i>
KTHC	13.2005	<i>Michele MORETTO and Gianpaolo ROSSINI: <u>Start-up Entry Strategies: Employer vs. Nonemployer firms</u></i>
PRCG	14.2005	<i>Clara GRAZIANO and Annalisa LUPORINI: <u>Ownership Concentration, Monitoring and Optimal Board Structure</u></i>
CSRM	15.2005	<i>Parashar KULKARNI: <u>Use of Ecolabels in Promoting Exports from Developing Countries to Developed Countries: Lessons from the Indian LeatherFootwear Industry</u></i>
KTHC	16.2005	<i>Adriana DI LIBERTO, Roberto MURA and Francesco PIGLIARU: <u>How to Measure the Unobservable: A Panel Technique for the Analysis of TFP Convergence</u></i>
KTHC	17.2005	<i>Alireza NAGHAVI: <u>Asymmetric Labor Markets, Southern Wages, and the Location of Firms</u></i>
KTHC	18.2005	<i>Alireza NAGHAVI: <u>Strategic Intellectual Property Rights Policy and North-South Technology Transfer</u></i>
KTHC	19.2005	<i>Mombert HOPPE: <u>Technology Transfer Through Trade</u></i>
PRCG	20.2005	<i>Roberto ROSON: <u>Platform Competition with Endogenous Multihoming</u></i>
CCMP	21.2005	<i>Barbara BUCHNER and Carlo CARRARO: <u>Regional and Sub-Global Climate Blocs. A Game Theoretic Perspective on Bottom-up Climate Regimes</u></i>
IEM	22.2005	<i>Fausto CAVALLARO: <u>An Integrated Multi-Criteria System to Assess Sustainable Energy Options: An Application of the Promethee Method</u></i>
CTN	23.2005	<i>Michael FINUS, Pierre v. MOUCHE and Bianca RUNDSHAGEN: <u>Uniqueness of Coalitional Equilibria</u></i>
IEM	24.2005	<i>Wietze LISE: <u>Decomposition of CO2 Emissions over 1980–2003 in Turkey</u></i>
CTN	25.2005	<i>Somdeb LAHIRI: <u>The Core of Directed Network Problems with Quotas</u></i>
SIEV	26.2005	<i>Susanne MENZEL and Riccardo SCARPA: <u>Protection Motivation Theory and Contingent Valuation: Perceived Realism, Threat and WTP Estimates for Biodiversity Protection</u></i>
NRM	27.2005	<i>Massimiliano MAZZANTI and Anna MONTINI: <u>The Determinants of Residential Water Demand Empirical Evidence for a Panel of Italian Municipalities</u></i>
CCMP	28.2005	<i>Laurent GILOTTE and Michel de LARA: <u>Precautionary Effect and Variations of the Value of Information</u></i>
NRM	29.2005	<i>Paul SARFO-MENSAH: <u>Exportation of Timber in Ghana: The Menace of Illegal Logging Operations</u></i>
CCMP	30.2005	<i>Andrea BIGANO, Alessandra GORIA, Jacqueline HAMILTON and Richard S.J. TOL: <u>The Effect of Climate Change and Extreme Weather Events on Tourism</u></i>
NRM	31.2005	<i>Maria Angeles GARCIA-VALIÑAS: <u>Decentralization and Environment: An Application to Water Policies</u></i>
NRM	32.2005	<i>Chiara D'ALPAOS, Cesare DOSI and Michele MORETTO: <u>Concession Length and Investment Timing Flexibility</u></i>
CCMP	33.2005	<i>Joseph HUBER: <u>Key Environmental Innovations</u></i>
CTN	34.2005	<i>Antoni CALVÓ-ARMENGOL and Rahmi İLKILIÇ (Ixxii): <u>Pairwise-Stability and Nash Equilibria in Network Formation</u></i>
CTN	35.2005	<i>Francesco FERI (Ixxii): <u>Network Formation with Endogenous Decay</u></i>
CTN	36.2005	<i>Frank H. PAGE, Jr. and Myrna H. WOODERS (Ixxii): <u>Strategic Basins of Attraction, the Farsighted Core, and Network Formation Games</u></i>

CTN	37.2005	<i>Alessandra CASELLA and Nobuyuki HANAOKI</i> (lxxii): <u>Information Channels in Labor Markets. On the Resilience of Referral Hiring</u>
CTN	38.2005	<i>Matthew O. JACKSON and Alison WATTS</i> (lxxii): <u>Social Games: Matching and the Play of Finitely Repeated Games</u>
CTN	39.2005	<i>Anna BOGOMOLNAIA, Michel LE BRETON, Alexei SAVVATEEV and Shlomo WEBER</i> (lxxii): <u>The Egalitarian Sharing Rule in Provision of Public Projects</u>
CTN	40.2005	<i>Francesco FERI</i> : <u>Stochastic Stability in Network with Decay</u>
CTN	41.2005	<i>Aart de ZEEUW</i> (lxxii): <u>Dynamic Effects on the Stability of International Environmental Agreements</u>
NRM	42.2005	<i>C. Martijn van der HEIDE, Jeroen C.J.M. van den BERGH, Ekko C. van IERLAND and Paulo A.L.D. NUNES</i> : <u>Measuring the Economic Value of Two Habitat Defragmentation Policy Scenarios for the Veluwe, The Netherlands</u>
PRCG	43.2005	<i>Carla VIEIRA and Ana Paula SERRA</i> : <u>Abnormal Returns in Privatization Public Offerings: The Case of Portuguese Firms</u>
SIEV	44.2005	<i>Anna ALBERINI, Valentina ZANATTA and Paolo ROSATO</i> : <u>Combining Actual and Contingent Behavior to Estimate the Value of Sports Fishing in the Lagoon of Venice</u>
CTN	45.2005	<i>Michael FINUS and Bianca RUNDSHAGEN</i> : <u>Participation in International Environmental Agreements: The Role of Timing and Regulation</u>
CCMP	46.2005	<i>Lorenzo PELLEGRINI and Reyer GERLAGH</i> : <u>Are EU Environmental Policies Too Demanding for New Members States?</u>
IEM	47.2005	<i>Matteo MANERA</i> : <u>Modeling Factor Demands with SEM and VAR: An Empirical Comparison</u>
CTN	48.2005	<i>Olivier TERCIEUX and Vincent VANNETELBOSCH</i> (lxx): <u>A Characterization of Stochastically Stable Networks</u>
CTN	49.2005	<i>Ana MAULEON, José SEMPERE-MONERRIS and Vincent J. VANNETELBOSCH</i> (lxxii): <u>R&D Networks Among Unionized Firms</u>
CTN	50.2005	<i>Carlo CARRARO, Johan EYCKMANS and Michael FINUS</i> : <u>Optimal Transfers and Participation Decisions in International Environmental Agreements</u>
KTHC	51.2005	<i>Valeria GATTAI</i> : <u>From the Theory of the Firm to FDI and Internalisation: A Survey</u>
CCMP	52.2005	<i>Alireza NAGHAVI</i> : <u>Multilateral Environmental Agreements and Trade Obligations: A Theoretical Analysis of the Doha Proposal</u>
SIEV	53.2005	<i>Margaretha BREIL, Gretel GAMBARELLI and Paulo A.L.D. NUNES</i> : <u>Economic Valuation of On Site Material Damages of High Water on Economic Activities based in the City of Venice: Results from a Dose-Response-Expert-Based Valuation Approach</u>
ETA	54.2005	<i>Alessandra del BOCA, Marzio GALEOTTI, Charles P. HIMMELBERG and Paola ROTA</i> : <u>Investment and Time to Plan: A Comparison of Structures vs. Equipment in a Panel of Italian Firms</u>
CCMP	55.2005	<i>Gernot KLEPPER and Sonja PETERSON</i> : <u>Emissions Trading, CDM, JI, and More – The Climate Strategy of the EU</u>
ETA	56.2005	<i>Maia DAVID and Bernard SINCLAIR-DESGAGNÉ</i> : <u>Environmental Regulation and the Eco-Industry</u>
ETA	57.2005	<i>Alain-Désiré NIMUBONA and Bernard SINCLAIR-DESGAGNÉ</i> : <u>The Pigouvian Tax Rule in the Presence of an Eco-Industry</u>
NRM	58.2005	<i>Helmut KARL, Antje MÖLLER, Ximena MATUS, Edgar GRANDE and Robert KAISER</i> : <u>Environmental Innovations: Institutional Impacts on Co-operations for Sustainable Development</u>
SIEV	59.2005	<i>Dimitra VOUVAKI and Anastasios XEPAPADEAS</i> (lxxiii): <u>Criteria for Assessing Sustainable Development: Theoretical Issues and Empirical Evidence for the Case of Greece</u>
CCMP	60.2005	<i>Andreas LÖSCHEL and Dirk T.G. RÜBBELKE</i> : <u>Impure Public Goods and Technological Interdependencies</u>
PRCG	61.2005	<i>Christoph A. SCHALTEGGER and Benno TORGLER</i> : <u>Trust and Fiscal Performance: A Panel Analysis with Swiss Data</u>
ETA	62.2005	<i>Irene VALSECCHI</i> : <u>A Role for Instructions</u>
NRM	63.2005	<i>Valentina BOSETTI and Gianni LOCATELLI</i> : <u>A Data Envelopment Analysis Approach to the Assessment of Natural Parks' Economic Efficiency and Sustainability. The Case of Italian National Parks</u>
SIEV	64.2005	<i>Arianne T. de BLAEIJ, Paulo A.L.D. NUNES and Jeroen C.J.M. van den BERGH</i> : <u>Modeling 'No-choice' Responses in Attribute Based Valuation Surveys</u>
CTN	65.2005	<i>Carlo CARRARO, Carmen MARCHIORI and Alessandra SGOBBI</i> : <u>Applications of Negotiation Theory to Water Issues</u>
CTN	66.2005	<i>Carlo CARRARO, Carmen MARCHIORI and Alessandra SGOBBI</i> : <u>Advances in Negotiation Theory: Bargaining, Coalitions and Fairness</u>
KTHC	67.2005	<i>Sandra WALLMAN</i> (lxxiv): <u>Network Capital and Social Trust: Pre-Conditions for 'Good' Diversity?</u>
KTHC	68.2005	<i>Asimina CHRISTOFOROU</i> (lxxiv): <u>On the Determinants of Social Capital in Greece Compared to Countries of the European Union</u>
KTHC	69.2005	<i>Eric M. USLANER</i> (lxxiv): <u>Varieties of Trust</u>
KTHC	70.2005	<i>Thomas P. LYON</i> (lxxiv): <u>Making Capitalism Work: Social Capital and Economic Growth in Italy, 1970-1995</u>
KTHC	71.2005	<i>Graziella BERTOCCHI and Chiara STROZZI</i> (lxxv): <u>Citizenship Laws and International Migration in Historical Perspective</u>
KTHC	72.2005	<i>Elsbeth van HYLCKAMA Vlieg</i> (lxxv): <u>Accommodating Differences</u>
KTHC	73.2005	<i>Renato SANSA and Ercole SORI</i> (lxxv): <u>Governance of Diversity Between Social Dynamics and Conflicts in Multicultural Cities. A Selected Survey on Historical Bibliography</u>
IEM	74.2005	<i>Alberto LONGO and Anil MARKANDYA</i> : <u>Identification of Options and Policy Instruments for the Internalisation of External Costs of Electricity Generation. Dissemination of External Costs of Electricity Supply Making Electricity External Costs Known to Policy-Makers</u> <u>MAXIMA</u>

IEM	75.2005	<i>Margherita GRASSO and Matteo MANERA: <u>Asymmetric Error Correction Models for the Oil-Gasoline Price Relationship</u></i>
ETA	76.2005	<i>Umberto CHERUBINI and Matteo MANERA: <u>Hunting the Living Dead A “Peso Problem” in Corporate Liabilities Data</u></i>
CTN	77.2005	<i>Hans-Peter WEIKARD: <u>Cartel Stability under an Optimal Sharing Rule</u></i>
ETA	78.2005	<i>Joëlle NOAILLY, Jeroen C.J.M. van den BERGH and Cees A. WITHAGEN (lxxvi): <u>Local and Global Interactions in an Evolutionary Resource Game</u></i>
ETA	79.2005	<i>Joëlle NOAILLY, Cees A. WITHAGEN and Jeroen C.J.M. van den BERGH (lxxvi): <u>Spatial Evolution of Social Norms in a Common-Pool Resource Game</u></i>
CCMP	80.2005	<i>Massimiliano MAZZANTI and Roberto ZOBOLI: <u>Economic Instruments and Induced Innovation: The Case of End-of-Life Vehicles European Policies</u></i>
NRM	81.2005	<i>Anna LASUT: <u>Creative Thinking and Modelling for the Decision Support in Water Management</u></i>
CCMP	82.2005	<i>Valentina BOSETTI and Barbara BUCHNER: <u>Using Data Envelopment Analysis to Assess the Relative Efficiency of Different Climate Policy Portfolios</u></i>
ETA	83.2005	<i>Ignazio MUSU: <u>Intellectual Property Rights and Biotechnology: How to Improve the Present Patent System</u></i>
KTHC	84.2005	<i>Giulio CAINELLI, Susanna MANCINELLI and Massimiliano MAZZANTI: <u>Social Capital, R&D and Industrial Districts</u></i>
ETA	85.2005	<i>Rosella LEVAGGI, Michele MORETTO and Vincenzo REBBA: <u>Quality and Investment Decisions in Hospital Care when Physicians are Devoted Workers</u></i>
CCMP	86.2005	<i>Valentina BOSETTI and Laurent GILOTTE: <u>Carbon Capture and Sequestration: How Much Does this Uncertain Option Affect Near-Term Policy Choices?</u></i>
CSRM	87.2005	<i>Nicoletta FERRO: <u>Value Through Diversity: Microfinance and Islamic Finance and Global Banking</u></i>
ETA	88.2005	<i>A. MARKANDYA and S. PEDROSO: <u>How Substitutable is Natural Capital?</u></i>
IEM	89.2005	<i>Anil MARKANDYA, Valeria COSTANTINI, Francesco GRACCEVA and Giorgio VICINI: <u>Security of Energy Supply: Comparing Scenarios From a European Perspective</u></i>
CCMP	90.2005	<i>Vincent M. OTTO, Andreas LÖSCHEL and Rob DELLINK: <u>Energy Biased Technical Change: A CGE Analysis</u></i>
PRCG	91.2005	<i>Carlo CAPUANO: <u>Abuse of Competitive Fringe</u></i>
PRCG	92.2005	<i>Ulrich BINDSEIL, Kjell G. NYBORG and Ilya A. STREBULAEV (lxv): <u>Bidding and Performance in Repo Auctions: Evidence from ECB Open Market Operations</u></i>
CCMP	93.2005	<i>Sabrina AUCI and Leonardo BECCHETTI: <u>The Stability of the Adjusted and Unadjusted Environmental Kuznets Curve</u></i>
CCMP	94.2005	<i>Francesco BOSELLO and Jian ZHANG: <u>Assessing Climate Change Impacts: Agriculture</u></i>
CTN	95.2005	<i>Alejandro CAPARRÓS, Jean-Christophe PEREAU and Tarik TAZDAÏT: <u>Bargaining with Non-Monolithic Players</u></i>
ETA	96.2005	<i>William BROCK and Anastasios XEPAPADEAS (lxxvi): <u>Optimal Control and Spatial Heterogeneity: Pattern Formation in Economic-Ecological Models</u></i>
CCMP	97.2005	<i>Francesco BOSELLO, Roberto ROSON and Richard S.J. TOL (lxxvii): <u>Economy-Wide Estimates of the Implications of Climate Change: Human Health</u></i>
CCMP	98.2005	<i>Rob DELLINK, Michael FINUS and Niels OLIEMAN: <u>Coalition Formation under Uncertainty: The Stability Likelihood of an International Climate Agreement</u></i>
CTN	99.2005	<i>Valeria COSTANTINI, Riccardo CRESCENZI, Fabrizio De FILIPPIS, and Luca SALVATICI: <u>Bargaining Coalitions in the Agricultural Negotiations of the Doha Round: Similarity of Interests or Strategic Choices? An Empirical Assessment</u></i>
IEM	100.2005	<i>Giliola FREY and Matteo MANERA: <u>Econometric Models of Asymmetric Price Transmission</u></i>
IEM	101.2005	<i>Alessandro COLOGNI and Matteo MANERA: <u>Oil Prices, Inflation and Interest Rates in a Structural Cointegrated VAR Model for the G-7 Countries</u></i>
KTHC	102.2005	<i>Chiara M. TRAVISI and Roberto CAMAGNI: <u>Sustainability of Urban Sprawl: Environmental-Economic Indicators for the Analysis of Mobility Impact in Italy</u></i>
ETA	103.2005	<i>Livingstone S. LUBOOBI and Joseph Y.T. MUGISHA: <u>HIV/AIDS Pandemic in Africa: Trends and Challenges</u></i>
SIEV	104.2005	<i>Anna ALBERINI, Erik LICHTENBERG, Dominic MANCINI, and Gregmar I. GALINATO: <u>Was It Something I Ate? Implementation of the FDA Seafood HACCP Program</u></i>
SIEV	105.2005	<i>Anna ALBERINI and Aline CHIABAI: <u>Urban Environmental Health and Sensitive Populations: How Much are the Italians Willing to Pay to Reduce Their Risks?</u></i>
SIEV	106.2005	<i>Anna ALBERINI, Aline CHIABAI and Lucija MUEHLENBACHS: <u>Using Expert Judgment to Assess Adaptive Capacity to Climate Change: Evidence from a Conjoint Choice Survey</u></i>
CTN	107.2005	<i>Michele BERNASCONI and Matteo GALIZZI: <u>Coordination in Networks Formation: Experimental Evidence on Learning and Saliency</u></i>
KTHC	108.2005	<i>Michele MORETTO and Sergio VERGALLI: <u>Migration Dynamics</u></i>
NRM	109.2005	<i>Antonio MUSOLESI and Mario NOSVELLI: <u>Water Consumption and Long-Run Urban Development: The Case of Milan</u></i>
SIEV	110.2005	<i>Benno TORGLER and Maria A. GARCIA-VALIÑAS: <u>The Determinants of Individuals’ Attitudes Towards Preventing Environmental Damage</u></i>
SIEV	111.2005	<i>Alberto LONGO and Anna ALBERINI: <u>What are the Effects of Contamination Risks on Commercial and Industrial Properties? Evidence from Baltimore, Maryland</u></i>
SIEV	112.2005	<i>Anna ALBERINI and Alberto LONGO: <u>The Value of Cultural Heritage Sites in Armenia: Evidence from a Travel Cost Method Study</u></i>
CCMP	113.2005	<i>Mikel GONZÁLEZ and Rob DELLINK: <u>Impact of Climate Policy on the Basque Economy</u></i>
NRM	114.2005	<i>Gilles LAFFORGUE and Walid OUESLATI: <u>Optimal Soil Management and Environmental Policy</u></i>

NRM	115.2005	<i>Martin D. SMITH and Larry B. CROWDER (lxxvi): <u>Valuing Ecosystem Services with Fishery Rents: A Lumped-Parameter Approach to Hypoxia in the Neuse River Estuary</u></i>
NRM	116.2005	<i>Dan HOLLAND and Kurt SCHNIER (lxxvi): <u>Protecting Marine Biodiversity: A Comparison of Individual Habitat Quotas (IHQs) and Marine Protected Areas</u></i>
PRCG	117.2005	<i>John NELLIS: <u>The Evolution of Enterprise Reform in Africa: From State-owned Enterprises to Private Participation in Infrastructure — and Back?</u></i>
PRCG	118.2005	<i>Bernardo BORTOLOTTI: <u>Italy's Privatization Process and Its Implications for China</u></i>
SIEV	119.2005	<i>Anna ALBERINI, Marcella VERONESI and Joseph C. COOPER: <u>Detecting Starting Point Bias in Dichotomous-Choice Contingent Valuation Surveys</u></i>
CTN	120.2005	<i>Federico ECHENIQUE and Mehmet B. YENMEZ: <u>A Solution to Matching with Preferences over Colleagues</u></i>
KTHC	121.2005	<i>Valeria GATTAI and Corrado MOLteni: <u>Dissipation of Knowledge and the Boundaries of the Multinational Enterprise</u></i>
KTHC	122.2005	<i>Valeria GATTAI: <u>Firm's Intangible Assets and Multinational Activity: Joint-Venture Versus FDI</u></i>
CCMP	123.2005	<i>Socrates KYPREOS: <u>A MERGE Model with Endogenous Technological Change and the Cost of Carbon Stabilization</u></i>
CCMP	124.2005	<i>Fuminori SANO, Keigo AKIMOTO, Takashi HOMMA and Toshimasa TOMODA: <u>Analysis of Technological Portfolios for CO2 stabilizations and Effects of Technological Changes</u></i>
CCMP	125.2005	<i>Fredrik HEDENUS, Christian AZAR and Kristian LINDGREN: <u>Induced Technological Change in a Limited Foresight Optimization Model</u></i>
CCMP	126.2005	<i>Reyer GERLAGH: <u>The Value of ITC under Climate Stabilization</u></i>
PRCG	127.2005	<i>John NELLIS: <u>Privatization in Africa: What has happened? What is to be done?</u></i>
PRCG	128.2005	<i>Raphaël SOUBEYRAN: <u>Contest with Attack and Defence: Does Negative Campaigning Increase or Decrease Voters' Turnout?</u></i>
PRCG	129.2005	<i>Pascal GAUTIER and Raphael SOUBEYRAN: <u>Political Cycles : The Opposition Advantage</u></i>
ETA	130.2005	<i>Giovanni DI BARTOLOMEO, Nicola ACOCELLA and Andrew HUGHES HALLETT: <u>Dynamic Controllability with Overlapping targets: A Generalization of the Tinbergen-Nash Theory of Economic Policy</u></i>
SIEV	131.2005	<i>Elissaios POPYRAKIS and Reyer GERLAGH: <u>Institutional Explanations of Economic Development: the Role of Precious Metals</u></i>
ETA	132.2005	<i>Giovanni DI BARTOLOMEO and Nicola ACOCELLA: <u>Tinbergen and Theil Meet Nash: Controllability in Policy Games</u></i>
IEM	133.2005	<i>Adriana M. IGNACIUK and Rob B. DELLINK: <u>Multi-Product Crops for Agricultural and Energy Production – an AGE Analysis for Poland</u></i>
IEM	134.2005	<i>Raffaele MINIACI, Carlo SCARPA and Paola VALBONESI: <u>Restructuring Italian Utility Markets: Household Distributional Effects</u></i>
SIEV	135.2005	<i>Valentina ZANATTA, Paolo ROSATO, Anna ALBERINI and Dimitrios REPPAS: <u>The Impact of Speed Limits on Recreational Boating in the Lagoon of Venice</u></i>
NRM	136.2005	<i>Chi-CHUR CHAO, Bharat R. HAZARI, Jean-Pierre LAFFARGUE, Pasquale M. SGRO, and Eden S. H. YU (lxxviii): <u>Tourism, Jobs, Capital Accumulation and the Economy: A Dynamic Analysis</u></i>
NRM	137.2005	<i>Michael MCALEER, Riaz SHAREEF and Bernardo da VEIGA (lxxviii): <u>Risk Management of Daily Tourist Tax Revenues for the Maldives</u></i>
NRM	138.2005	<i>Guido CANDELA, Paolo FIGINI and Antonello E. SCORCI (lxxviii): <u>The Economics of Local Tourist Systems</u></i>
NRM	139.2005	<i>Paola De AGOSTINI, Stefania LOVO, Francesco PECCI, Federico PERALI and Michele BAGGIO (lxxviii): <u>Simulating the Impact on the Local Economy of Alternative Management Scenarios for Natural Areas</u></i>
NRM	140.2005	<i>Simone VALENTE (lxxviii): <u>Growth, Conventional Production and Tourism Specialisation: Technological Catching-up Versus Terms-of-Trade Effects</u></i>
NRM	141.2005	<i>Tiago NEVES SEQUEIRA and Carla CAMPOS (lxxviii): <u>International Tourism and Economic Growth: a Panel Data Approach</u></i>
NRM	142.2005	<i>Francesco MOLA and Raffaele MIELE (lxxviii): <u>An Open Source Based Data Warehouse Architecture to Support Decision Making in the Tourism Sector</u></i>
NRM	143.2005	<i>Nishaal GOOROOCHURN and Adam BLAKE (lxxviii): <u>Tourism Immiserization: Fact or Fiction?</u></i>
NRM	144.2005	<i>S. MARZETTI Dall'ASTE BRANDOLINI and R. MOSETTI (lxxviii): <u>Social Carrying Capacity of Mass Tourist Sites: Theoretical and Practical Issues about its Measurement</u></i>

- (lxv) This paper was presented at the EuroConference on “Auctions and Market Design: Theory, Evidence and Applications” organised by Fondazione Eni Enrico Mattei and sponsored by the EU, Milan, September 25-27, 2003
- (lxvi) This paper has been presented at the 4th BioEcon Workshop on “Economic Analysis of Policies for Biodiversity Conservation” organised on behalf of the BIOECON Network by Fondazione Eni Enrico Mattei, Venice International University (VIU) and University College London (UCL), Venice, August 28-29, 2003
- (lxvii) This paper has been presented at the international conference on “Tourism and Sustainable Economic Development – Macro and Micro Economic Issues” jointly organised by CRENoS (Università di Cagliari e Sassari, Italy) and Fondazione Eni Enrico Mattei, and supported by the World Bank, Sardinia, September 19-20, 2003
- (lxviii) This paper was presented at the ENGIME Workshop on “Governance and Policies in Multicultural Cities”, Rome, June 5-6, 2003
- (lxix) This paper was presented at the Fourth EEP Plenary Workshop and EEP Conference “The Future of Climate Policy”, Cagliari, Italy, 27-28 March 2003
- (lxx) This paper was presented at the 9th Coalition Theory Workshop on "Collective Decisions and Institutional Design" organised by the Universitat Autònoma de Barcelona and held in Barcelona, Spain, January 30-31, 2004
- (lxxi) This paper was presented at the EuroConference on “Auctions and Market Design: Theory, Evidence and Applications”, organised by Fondazione Eni Enrico Mattei and Consip and sponsored by the EU, Rome, September 23-25, 2004
- (lxxii) This paper was presented at the 10th Coalition Theory Network Workshop held in Paris, France on 28-29 January 2005 and organised by EUREQua.
- (lxxiii) This paper was presented at the 2nd Workshop on "Inclusive Wealth and Accounting Prices" held in Trieste, Italy on 13-15 April 2005 and organised by the Ecological and Environmental Economics - EEE Programme, a joint three-year programme of ICTP - The Abdus Salam International Centre for Theoretical Physics, FEEM - Fondazione Eni Enrico Mattei, and The Beijer International Institute of Ecological Economics
- (lxxiv) This paper was presented at the ENGIME Workshop on “Trust and social capital in multicultural cities” Athens, January 19-20, 2004
- (lxxv) This paper was presented at the ENGIME Workshop on “Diversity as a source of growth” Rome November 18-19, 2004
- (lxxvi) This paper was presented at the 3rd Workshop on Spatial-Dynamic Models of Economics and Ecosystems held in Trieste on 11-13 April 2005 and organised by the Ecological and Environmental Economics - EEE Programme, a joint three-year programme of ICTP - The Abdus Salam International Centre for Theoretical Physics, FEEM - Fondazione Eni Enrico Mattei, and The Beijer International Institute of Ecological Economics
- (lxxvii) This paper was presented at the Workshop on Infectious Diseases: Ecological and Economic Approaches held in Trieste on 13-15 April 2005 and organised by the Ecological and Environmental Economics - EEE Programme, a joint three-year programme of ICTP - The Abdus Salam International Centre for Theoretical Physics, FEEM - Fondazione Eni Enrico Mattei, and The Beijer International Institute of Ecological Economics.
- (lxxviii) This paper was presented at the Second International Conference on "Tourism and Sustainable Economic Development - Macro and Micro Economic Issues" jointly organised by CRENoS (Università di Cagliari and Sassari, Italy) and Fondazione Eni Enrico Mattei, Italy, and supported by the World Bank, Chia, Italy, 16-17 September 2005.

2004 SERIES

CCMP	<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)
KTHC	<i>Knowledge, Technology, Human Capital</i> (Editor: Gianmarco Ottaviano)
IEM	<i>International Energy Markets</i> (Editor: Anil Markandya)
CSRM	<i>Corporate Social Responsibility and Sustainable Management</i> (Editor: Sabina Ratti)
PRA	<i>Privatisation, Regulation, Antitrust</i> (Editor: Bernardo Bortolotti)
ETA	<i>Economic Theory and Applications</i> (Editor: Carlo Carraro)
CTN	<i>Coalition Theory Network</i>

2005 SERIES

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