

**An Analysis of the Evolution of
Tourism Destinations from the
Point of View of the
Economic Growth Theory**

Javier Lozano, Carlos Gómez
and Javier Rey-Maqueira

NOTA DI LAVORO 146.2005

NOVEMBER 2005

NRM – Natural Resources Management

Javier Lozano, *University of the Balearic Islands, IMEDEA-UIB of CSIC*
Carlos Gómez, *University of Alcalá*
Javier Rey-Maqueira, *University of the Balearic Islands, IMEDEA-UIB of CSIC*

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=861885>

An Analysis of the Evolution of Tourism Destinations from the Point of View of the Economic Growth Theory

Summary

In this paper we try to build a bridge between the traditional analysis of the evolution of tourism destinations and economic growth theory. With such an aim we develop an environmental growth model for an economy specialized in tourism and we derive the pattern of tourism development with numerical calculations. The results of our simulations do not contradict the general pattern of evolution implied in the Tourism Area Life Cycle Hypothesis, being environmental deterioration and public goods congestion the main reasons for the stagnation of the tourism destination. We also show the importance of the quality of private tourism services in the evolution of the tourism destination.

Keywords: Tourism, Economic growth, Tourism lifecycle

JEL Classification: L83, Q26, O41

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:

Javier Lozano
University of the Balearic Islands
Campus Universitari
Cra. de Valldemossa, km 7.5
07071 Palma
Spain
Phone: +34 971 17 30 16
E-mail: javier.lozano@uib.es

1. Introduction

The analysis of the development of tourism destinations is one of the main topics in tourism research. The literature on this topic has been structured around the concept of Tourism Area Life Cycle (TALC) that Butler (1980) put forward. As it is well known, according to the TALC hypothesis a tourism destination experiences several stages of tourism development that end up in the stagnation of the tourism destination. These stages are differentiated by several factors such as the number of visitors, tourists' motivations, the perception of the tourism phenomenon by the residents or the degree of environmental damage. As this last factor is usually stressed as one of the main reasons for the final stagnation of the tourism destination, this literature is closely linked to the concepts of sustainability and carrying capacity.

Most of the literature is aimed to test the adequacy of the TALC hypothesis for specific tourism destinations (for instance, Cooper and Jackson, 1989; Agarwal, 1997, 2002). The methodology is mainly descriptive, without a formal base. An important shortcoming of this literature is that there have been little attempts to base the analysis of the evolution of tourism destinations on sound economic principles. Specifically, it is quite disappointing the disconnection of this literature from the economic growth theory.

In the field of economic growth analysis the so called environmental growth models have been developed as an appropriate tool to consider the role of environmental constraints on economic development (Barbier, 1999; Hettich, 1998; Schou, 2000; Stockey, 1998; Beltratti, 1996 are just some examples). These models have several characteristics that make them useful tools for the analysis of the development of tourism destinations. First their dynamic nature allows for the consideration of the intertemporal effects of resource allocation. Second they are based on optimisation behaviour and therefore allow for an analysis of the impact on welfare of different policies and institutional settings. Third they consider the interdependence among different markets in a general equilibrium framework. Fourth, they explicitly consider the relationship between economic activity and environmental and natural resources. Finally, they allow for a consideration of the different market failures associated with the use of natural and environmental resources.

In this paper we build an environmental growth model for an economy specialized in tourism and analyze the pattern of tourism development that stems from the model. Despite the simplifying assumptions of the model, it gives interesting insights about the dynamics of tourists' inflows, tourism revenues, environmental quality, congestion of public goods and residents' welfare.

The approach we adopt is quite innovative regarding the determinants of the evolution of a tourism destination. In the few papers on the TALC hypothesis that have a formal base it is usually assumed that the evolution of tourists inflows is demand driven (see for example

Lundtorp y Wanhill, 2001) and it is derived from a model of information diffusion that results in a logistic function for the number of tourists. It is therefore assumed that supply will respond adequately to the increase in demand. In our model the incentives to build tourism facilities (due to high returns to investment) are the driving force and we assume that occupation of accommodation capacity is guaranteed. The role of the demand side is to determine the price paid for tourism services and, therefore, the returns to investment in the tourism sector and the building of tourism facilities. The willingness to pay will depend on the characteristics of the tourism destination.

The rest of the paper is organized as follows. Section 2 describes the assumptions of the model and finds the equilibrium. Section 3 shows the pattern of evolution of a tourism destination for different levels of accommodation quality. Finally, section 4 concludes.

2. The model

2.1. International tourism market

We consider an economy that supplies tourism services in an international tourism market where there are a large number of suppliers. Specifically, we assume that in this market several economies or tourism regions participate. In each of these economies there are different firms that supply tourism accommodation. On the other hand, in this market there also are a large number of heterogeneous tourists differentiated by their tastes and their income. In these circumstances, and given the hedonic price theory (Rosen, 1974) there exist an hedonic price function where the equilibrium price depends on the quality of the tourism product. Firms in this market compete in the characteristics space and the large number of suppliers implies zero profits.

We will consider a bounded set of characteristics that are valued by tourists and therefore determine the price of the tourism product:

First, the quality of accommodation services, represented in the model as the amount of capital per unit of accommodation, K_{ij}/T_{ij} , where K_{ij} is total amount of capital of firm i in destination j and T_{ij} is the number of units of accommodation (let us say beds) of the firm.

Second, public goods provided by the government, G_j . We assume that these public goods experience congestion (they are therefore rival but non-excludable) so that their impact on the hedonic price function is given by G_j/T_j , where T_j is the total number of beds in destination j .

Finally, environmental quality of tourism destinations. We represent environmental quality with a single variable, N_j .

Given these assumptions, the hedonic price function is:

$$P_{ij} = P\left(\frac{K_{ij}}{T_{ij}}, \frac{G_j}{T_j}, N_j\right)$$

or, considering a Cobb-Douglas:

$$P_{ij} = \left(\frac{K_{ij}}{T_{ij}}\right)^\alpha \left(\frac{G_j}{T_j}\right)^\beta N_j^\mu \quad (1)$$

We will assume that $0 < \alpha, \beta < 1$; $\mu > 0$; $\alpha + \beta < 1$

Given (1), the tourism revenue function for a firm i in a tourism destination j is:

$$TR_{ij} = T_{ij}^{1-\alpha} K_{ij}^\alpha \left(\frac{G_j}{T_j}\right)^\beta N_j^\mu \quad (2)$$

Whereas the aggregate tourism revenue function for the whole economy is:

$$TR = T^{1-\alpha-\beta} K^\alpha G^\beta N^\mu \quad (2')$$

Therefore, tourism revenues may rise due to increases in accommodation capacity or because of improvements in the attractiveness of the tourism destination thanks to higher quality of private tourism services, higher public expenditure or better environmental quality.

2.2. Public sector

We assume that the government finances the provision of public goods with an *ad-valorem* tax levied on tourism revenues, τ_{TR} , $0 \leq \tau_{TR} < 1$. Public budget is always in equilibrium, that is:

$$\tau_{TR} TR = G \quad (3)$$

2.3. Firm's behaviour

Tourism firms maximize profits choosing the amount of capital and the number of accommodation units. Both decisions determine the quality of services provided by the firm, K_i/T_i . Firms take as given the amount of goods and services provided by the public sector, environmental quality and aggregate accommodation capacity of the economy. Notice that the model allows for two kind of investment. Investment in quality takes place when the firm increases its capital without modifying its accommodation capacity. However, when accommodation capacity is raised in the same proportion as capital we can speak of investment in capacity.

In this paper we simplify firms' decision considering that there is a minimum of capital per unit of accommodation, κ , to which all the firms adjust optimally. This minimum could be justified as a characteristic of tourism preferences. In this case we would assume that

there is a minimum threshold for accommodation quality below which tourist are not willing to visit the tourism destination. Alternatively, we could consider that this minimum is set by the public sector as tool for tourism quality management. In any case, this assumption will allow to compare the evolution of tourism destinations for different alternatives regarding the quality of accommodation facilities.

Given these assumptions, the optimal behavior of the firm is determined by the following expressions:

$$T_i = \frac{K_i}{\kappa}$$

$$(1 - \tau_{TR}) \frac{TR_i}{K_i} = R$$

Where R is the return to capital. Or, in the aggregate:

$$T = \frac{K}{\kappa}$$

$$(1 - \tau_{TR}) \frac{TR}{K} = R \quad (4)$$

2.4. Residents' behaviour

We consider that the economy is populated by a single representative agent that maximizes the following intertemporal utility function:

$$\omega_0 = \int_0^{\infty} e^{-\rho t} \frac{(C_t N_t^v)^{1-\theta}}{1-\theta} dt \quad v, \rho, \theta > 0$$

Where the arguments of the utility function are consumption, C , and environmental quality, N . It is assumed a constant elasticity of intertemporal substitution and a unitary intratemporal elasticity between consumption and environmental quality. We also assume that marginal utility of each argument is positive and decreasing. The parameter ρ is a discount factor while v measures the relative weight of environmental quality on residents' preferences.

Residents own capital. Returns to capital net of depreciation and taxes are r . Income is used for consumption and saving (investment in capital). Therefore, the budget constraint for residents is:

$$\dot{K} = rK - C \quad (7)$$

Applying the usual optimal control conditions we derive the following expressions that, beside the budget constraint, describe the residents' behaviour:

$$\frac{\dot{C}}{C} = \frac{1}{\theta} \left[r - \rho + v(1 - \theta) \frac{\dot{N}}{N} \right] \quad (8)$$

$$\lim_{t \rightarrow \infty} \lambda_t K_t = 0 \quad (9)$$

Where λ_t is a costate variable and r is the returns to capital net of depreciation.

2.6. The environment

We interpret environmental quality as a renewable resource. The quality of the environment accumulates due to the regenerative capacity of nature that depends on the level of environmental quality. We consider that tourism activity has damaging effects on the environment. Davies and Cahill [12] give an account of the environmental impacts of tourism such as energy consumption, water consumption, wastes, impacts on water and air quality, ecosystems alteration and fragmentation, impacts on wildlife and on aesthetic and cultural environment. The intensity of those impacts are closely related to the number of visitors and the building of facilities for their lodging and recreational activities.

We assume that environmental quality evolves over time according to the following function:

$$\dot{N} = \zeta(\bar{N} - N) - zT \quad (10)$$

For simplicity we have considered a linear regeneration function. \bar{N} is the maximum level of environmental quality, ζ is the rate of recovery of the environment due to natural regeneration and z measures the environmental impact associated with a unit of accommodation capacity. Given this specification, investment in capacity has a negative impact on the environment but investment in quality (higher capital for a given capacity of accommodation) has not. We do not differentiate the environmental impact of different types of tourism. For instance, the differences in habits and behavior of tourists with different socio-economic characteristics may imply differences in their environmental impact. Therefore, a change from mass tourism to “quality” tourism would not only affect the environment through the amount of tourists (assumedly in a positive way) but also from a change in z . A constant z is therefore a simplification only justified by our lack of evidence about the magnitude and even the sign of the change in z when the composition of visitors changes.

2.7. Equilibrium

Given our previous assumptions, the revenue function for the whole tourism destination is:

$$TR = \kappa^{\frac{\alpha+\beta-1}{1-\beta}} \tau_{TR}^{\frac{\beta}{1-\beta}} KN^{\frac{\mu}{1-\beta}} \quad (2'')$$

where the public budget constraint has been considered.

The dynamic behaviour of the economy is defined by equations (2''), (7), (9), (10) and the following one that results from the combination of (4) and (8):

$$\frac{\dot{C}}{C} = \frac{1}{\theta} \left[(1 - \tau_{TR}) \frac{IT}{K} - \delta - \rho + \nu(1 - \theta) \frac{\dot{N}}{N} \right] \quad (12)$$

The steady state is defined by the following expressions¹:

$$N = \left[\kappa^{1-\alpha-\beta} (\delta + \rho)^{1-\beta} \left(\frac{1}{1 - \tau_{TR}} \right)^{1-\beta} \left(\frac{1}{\tau_{TR}} \right)^{\beta} \right]^{\frac{1}{\mu}} \quad (13)$$

$$T = \frac{\zeta(\bar{N} - N)}{z} \quad (14)$$

$$K = \kappa T \quad (15)$$

$$IT = \frac{\delta + \rho}{(1 - \tau_{TR})} K \quad (16)$$

$$C = (1 - \tau_{TR})IT - \delta K \quad (17)$$

3. Dynamics of tourism development

In this section we show the pattern of tourism development that follows from our model. With such an aim, we calibrate the model and perform numerical calculations of the dynamic of the relevant variables considering an initial situation of low tourism development².

Before presenting the assumptions of this exercise and its results we explain the working forces of the model dynamics. The evolution of the tourism destination is determined by the interplay of demand and supply factors. The demand factors, through the hedonic price function, determine the price of the tourism services supplied in the economy. This price is a main determinant of the returns to the tourism firms and therefore the accommodation capacity of the tourism destination. Under the assumption of full occupation of capacity, the evolution of this capacity determines how the number of visitors changes. As the model is set up, the economy converges to a steady state or, in TALC terminology, reaches the stagnation stage.

An analysis of expression 2'' helps to understand the reasons for the final stagnation. They are not the usual assumptions of neoclassical growth models about decreasing returns to

¹ See appendix A for a discussion of the stability of the steady state.

² Simulations have been done using the solver CONOPT2 of the program GAMS 2.0. For numerical calculations the version of the model in discrete time is used. See appendix B.

investment since returns to capital are constant once it is considered that investment is in capacity (κ is assumed to be constant) and congestion of public goods is compensated by a higher provision thanks to increases in tourism revenues. The only limitative factor to continuous growth is the negative impact of the increase in capacity on environmental quality and its effect on the price of tourism services and eventually on the return to investment in the tourism business.

After these general comments we show the results of our numerical calculations. Specifically, we show the evolution of the number of visitors, tourism revenues, environmental quality, public expenditure per tourist and instantaneous utility of residents. For all simulations the model is calibrated using the following parameter values:

δ	ρ	α	β	μ	V	ζ	\bar{N}	z	θ	τ_{TR}
0.05	0.05	0.6	0.3	0.5	1	1	1	1	0.9	0.3

Given that we are only interested in the general dynamic patterns and not in precise quantitative results, these values are hypothetical and have been chosen according to the following criteria. The value of δ implies a slow depreciation due to the importance of buildings in total capital stock of tourism. We have assumed that net returns to capital in steady state are 5% ($\rho=0.05$). We assume that the elasticity of tourism revenues with respect to the quality of accommodation (α) is higher than the elasticity with respect to public goods (β) and with respect to environmental quality (μ). It is plausibly assumed that residents give a higher value to the environment than visitors ($v>\mu$). The regenerative capacity of the environment is considered to be high ($\zeta=1$) The highest level of environmental quality and the relationship between tourism flows and environmental damage are normalized to one ($\bar{N}=1$ and $z=1$). As it is usual in the literature, the intertemporal elasticity of substitution is set to a value close to one ($\theta=0.9$). Finally, the tax levied on tourism revenues is at its efficient value equal to the elasticity of tourism revenues with respect to public expenditure.

Obviously, different parameter values would imply different values for the endogenous variables. However, our aim is not to get exact values but to show general patterns of evolution. For different parameter values the shape of the curves will be the same as far as the stability condition is satisfied.

We perform different simulations considering different levels of capital per unit of accommodation. Since this variable is taken as an indicator of accommodation quality, this allows to consider the consequences of specializing in different market segments. As a point

of reference we take the steady state level of capital per unit of accommodation in the central planner solution of the model. Specifically, simulations are done for values of capital per unit of accommodation of 1%, 10%, 30%, 50% y 100% of that value.

As we want to show the complete evolution of the tourism destination, the initial values of the state variables are chosen as to represent a situation of low tourism development. Specifically, we assume that initially environmental quality is at its highest value ($N_0 = \bar{N}$) and tourism capital is very low ($K=0.01$)³.

3.1. Tourism flows

Figure 2 shows the evolution of the annual number of tourists that visit the destination for different levels of accommodation quality. For every case the shape of the curve reproduces the pattern of evolution described by Butler (1980). Therefore, after a first stage when the number of visitors grows slowly the inflows accelerate but sooner or later the number of visitors stagnates at its steady state level. This result is quite interesting since we have not imposed a logistic function to the inflows of tourists as, for instance, in Lundtorp and Wanhill (2001).

Figure 1 also shows that when accommodation quality is higher it takes a longer time to reach the stagnation stage and the number of visitors in the steady state is lower. This last characteristic can also be verified in figure 2.

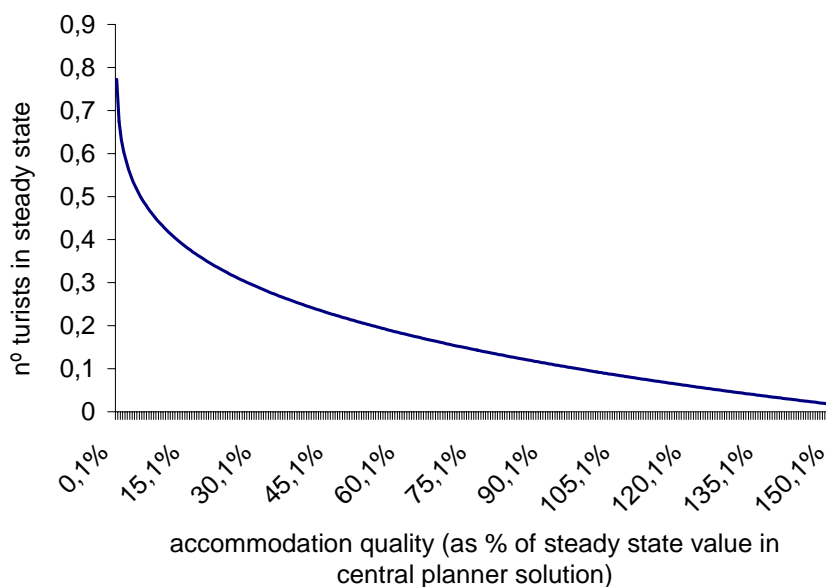


Figure 1. Relationship between number of tourists and accommodation quality in the steady state

³ This is 0.15% of the steady state level of capital in the central planner solution.

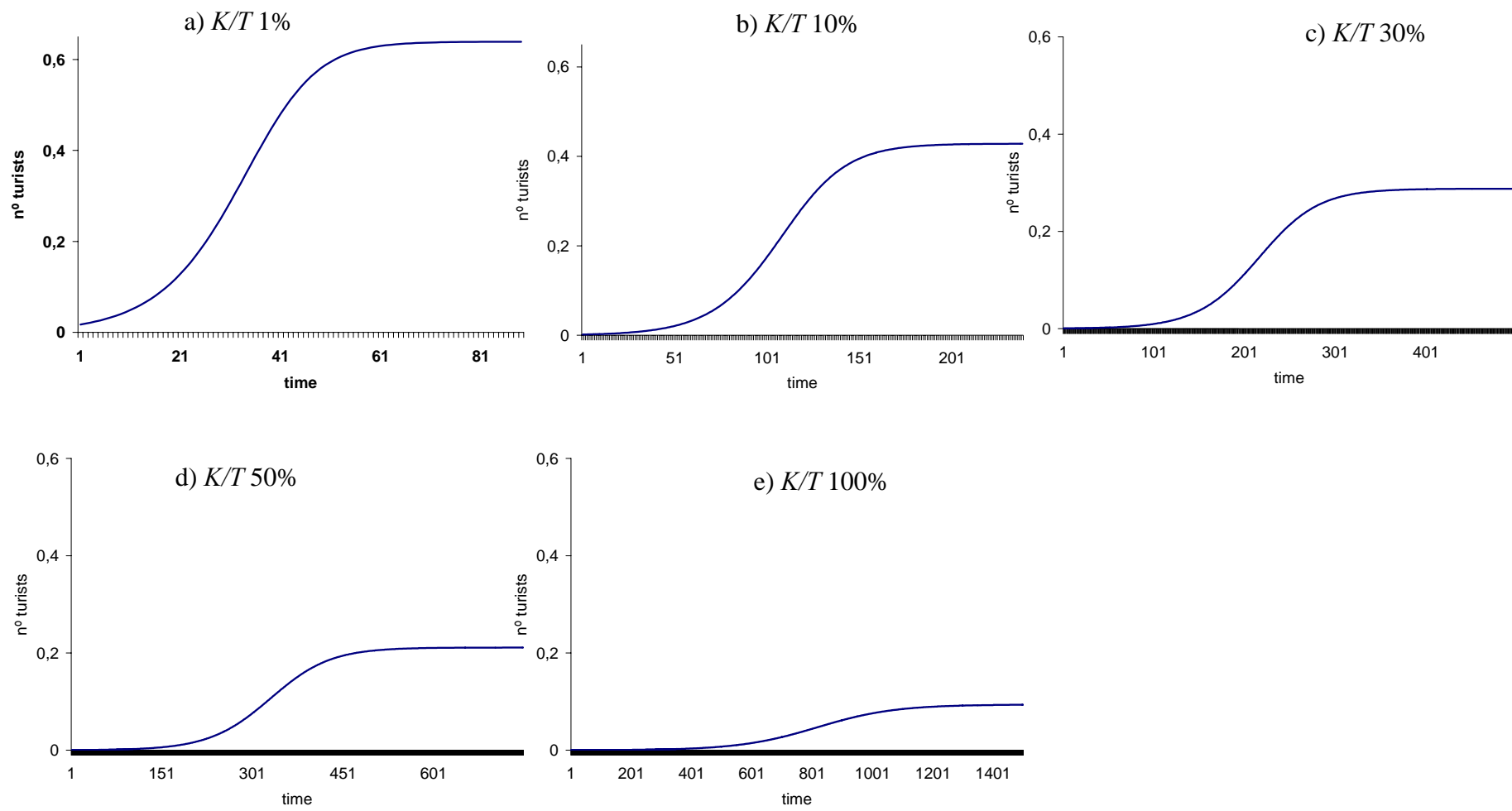


Figure 2. Evolution of tourists inflows for different levels of accommodation quality

3.2. Tourism revenues

Figure 4 shows the dynamics of tourism revenues for different levels of accommodation quality. Again, the pattern of evolutions fits to a logistic and it takes longer to reach the steady state for higher levels of accommodation quality. However, as it is shown in figure 3, the relationship accommodation quality and steady state tourism revenues is not monotonous. When accommodation quality is low, an increase in the quality of private tourism facilities would imply higher long term tourism revenues. However, above a critical threshold higher quality of accommodation means lower long term tourism revenues. This characteristic of the model can be explained in the following way. On the one hand, low accommodation quality is associated in the long term with high tourists' inflows, a very degraded natural environment, high congestion of public goods (as shown below) and therefore a low tourism price. On the other hand, to provide for higher quality private services a larger investment per unit of accommodation is needed and this investment effort may not be compensated by the positive effect on price of a better environment and lower congestion.

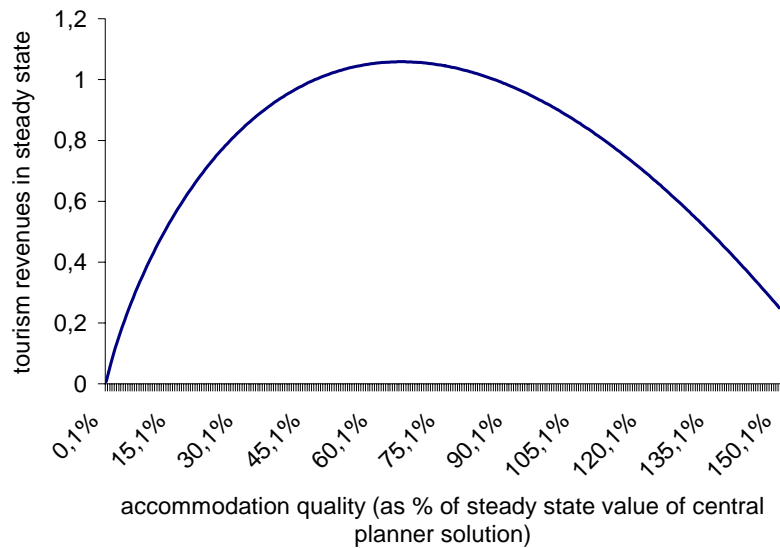


Figure 3. Relationship between tourism revenues and accommodation quality in the steady state.

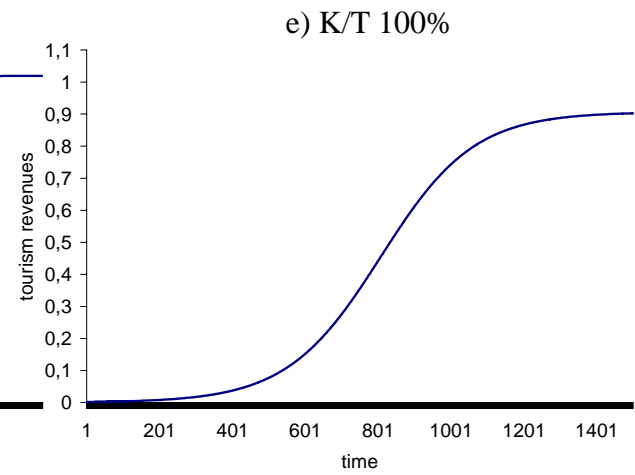
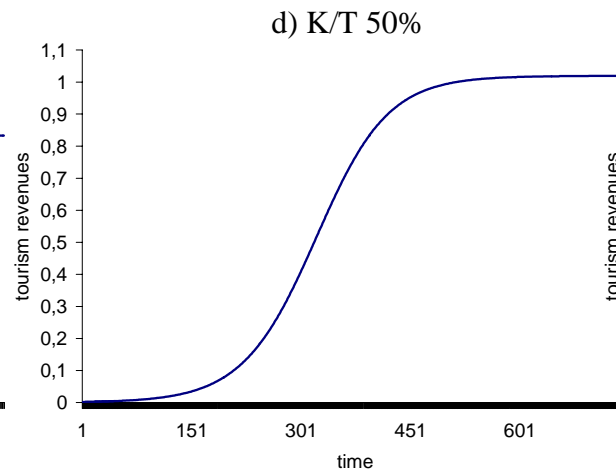
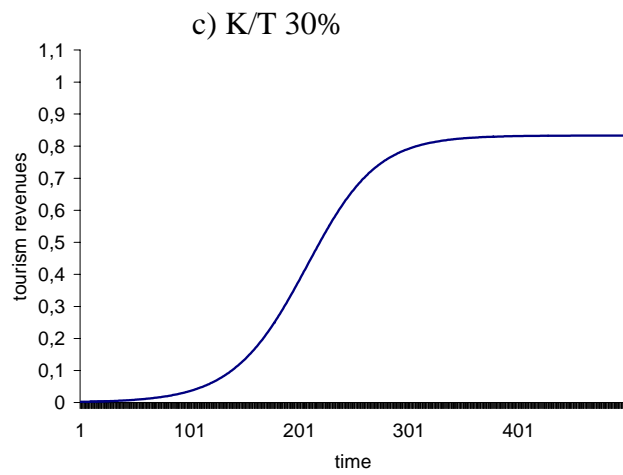
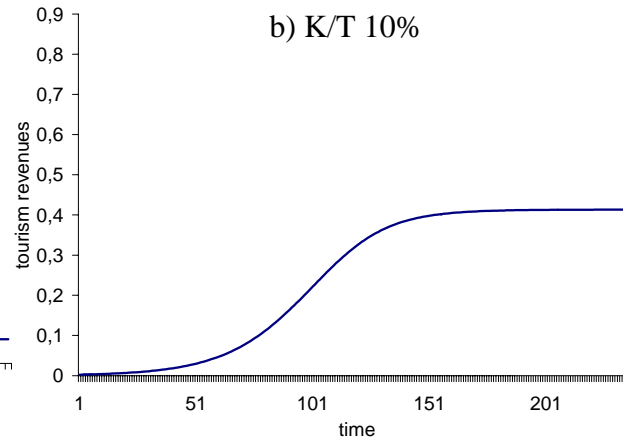
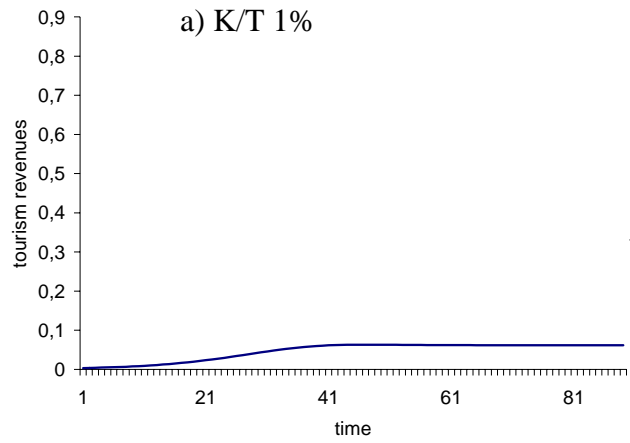


Figure 4. Evolution of tourism revenues for different levels of accommodation quality.

3.3. Environmental quality

Figure 6 shows how environmental quality evolves in the process of tourism development. For every case, environmental quality evolves following three stages that are consistent with the evolution of tourism inflows. In the first stage environmental deterioration is low. This stage is shorter the lower is the quality of accommodation supply. Afterwards, environmental degradation accelerates and eventually environmental quality reaches its steady state value. As can be seen in figure 5, higher accommodation quality is associated with a better environment in the long term.

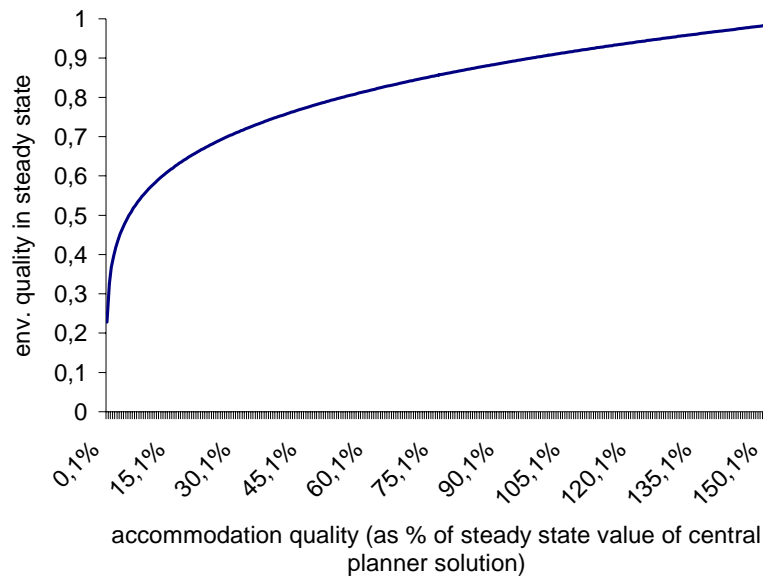


Figure 5. Relationship between environmental quality and accommodation quality in the steady state

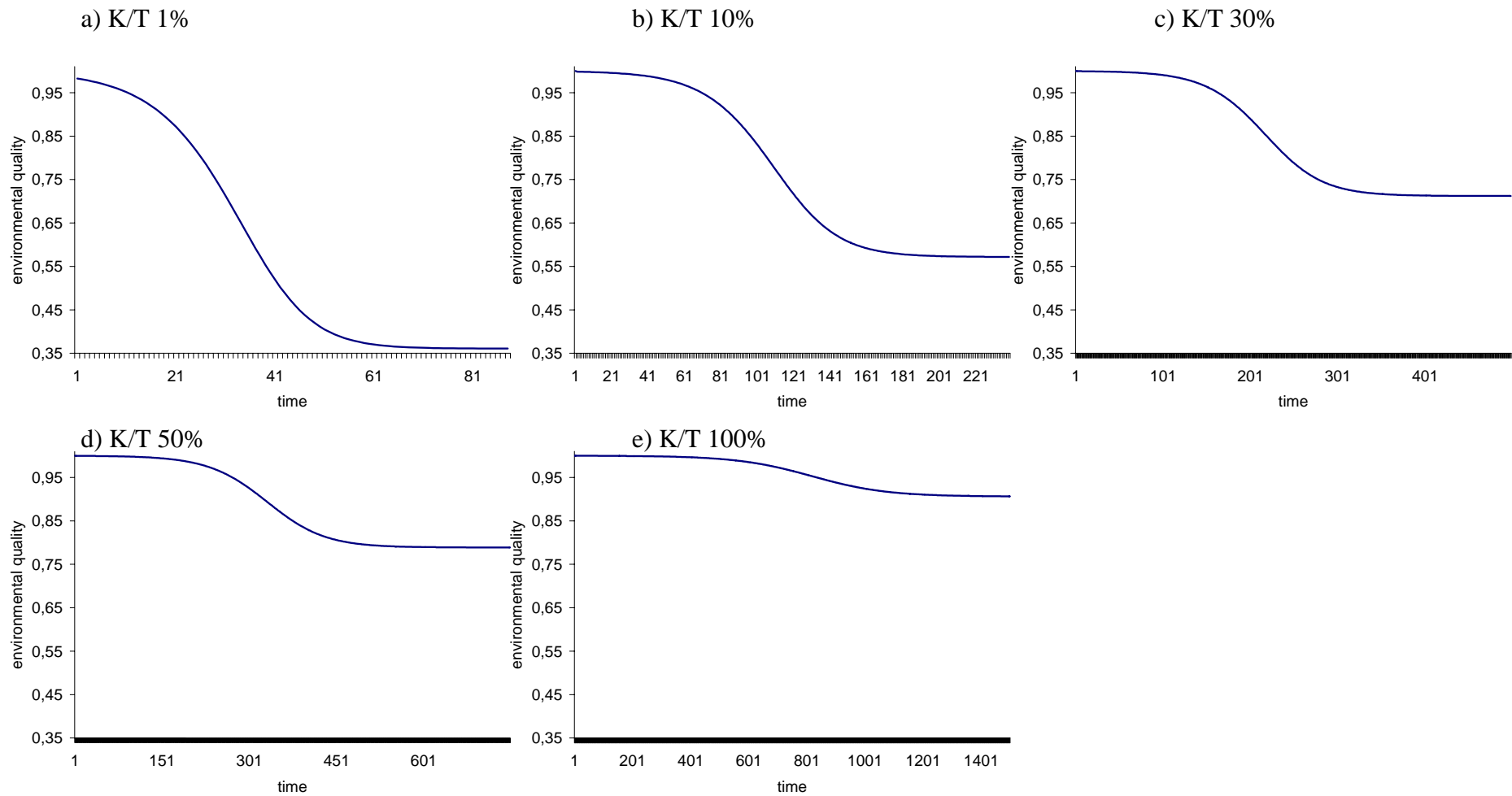


Figure 6. Evolution of environmental quality for different levels of accommodation quality.

3.4. Congestion of public goods

Figure 8 shows that, given a constant tax rate, tourism development implies an increase in public goods congestion. This factor contributes to the final stagnation of the tourism destination. The increase in congestion can be attributed to the faster growth of tourists inflows compared to the growth in revenues due to the fall in the price of tourism services associated to environmental degradation.

Another interesting characteristic is that the increase in congestion is slower and less pronounced when accommodation quality is higher. As can be seen in figure 7, an economy that supplies private tourism services of higher quality can also finance a higher level of public goods per tourist.

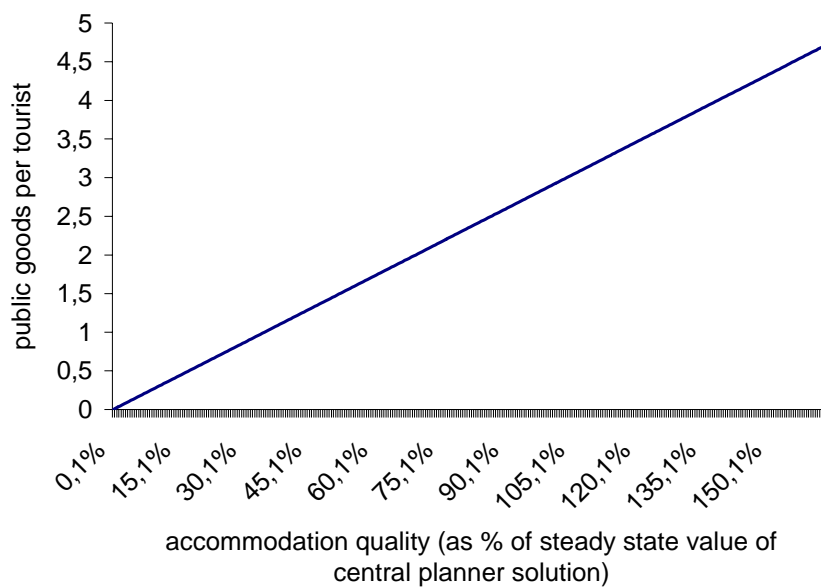


Figure 7. Relationship between environmental quality and accommodation quality in the steady state (constant tax rate)

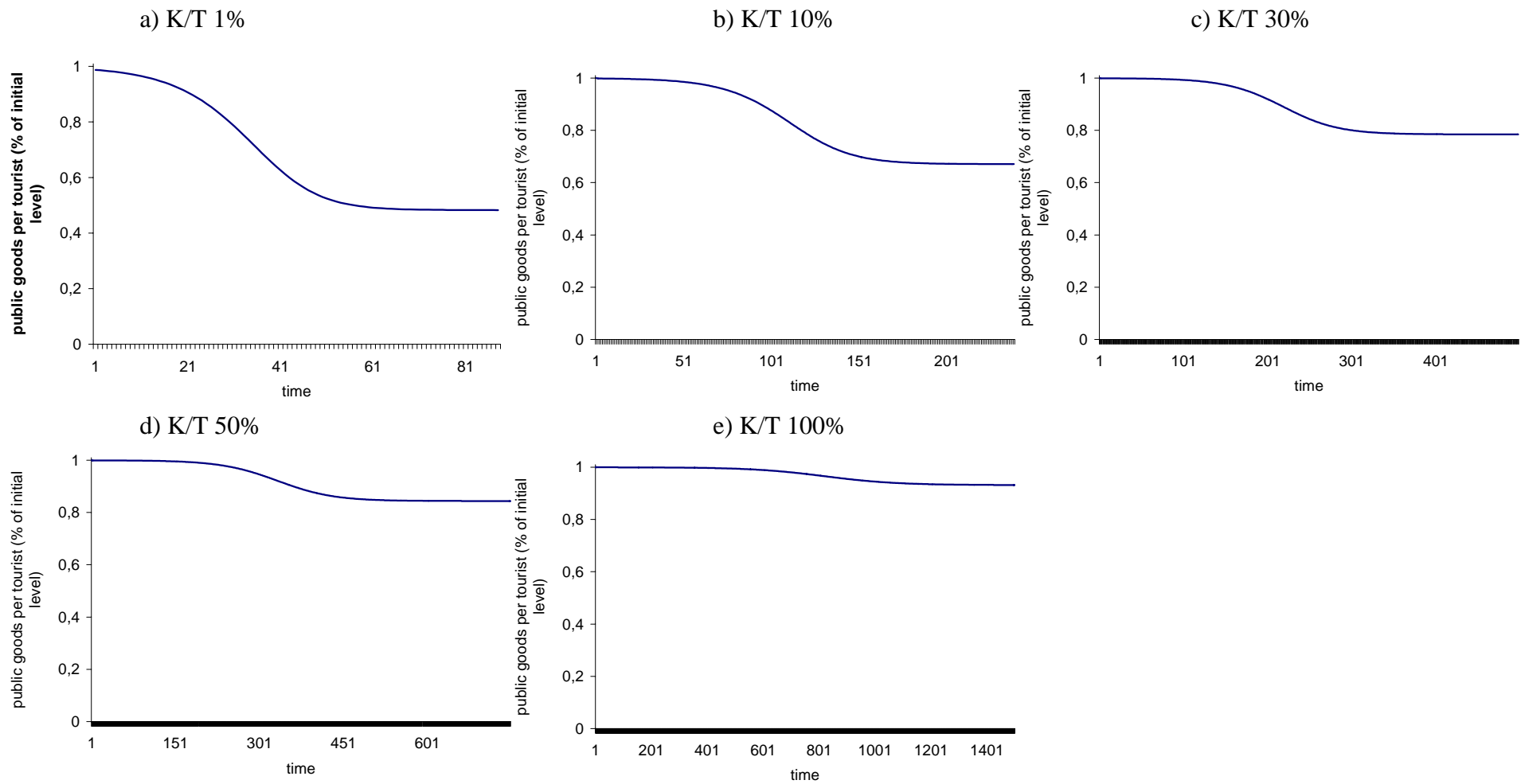


Figure 8. Evolution of public goods congestion for different levels of accommodation quality

3.5. Instantaneous utility

Finally, figure 11 represents the evolution of resident's welfare. The utility function depends on material consumption and environmental quality. Although tourism development implies environmental degradation, the resident's welfare increases through time thanks to the growth in consumption possibilities. As it happens with tourism revenues, long term welfare has a non monotonous relationship with accommodation quality. There is, therefore, an intermediate level of accommodation quality that maximizes steady state welfare⁴.

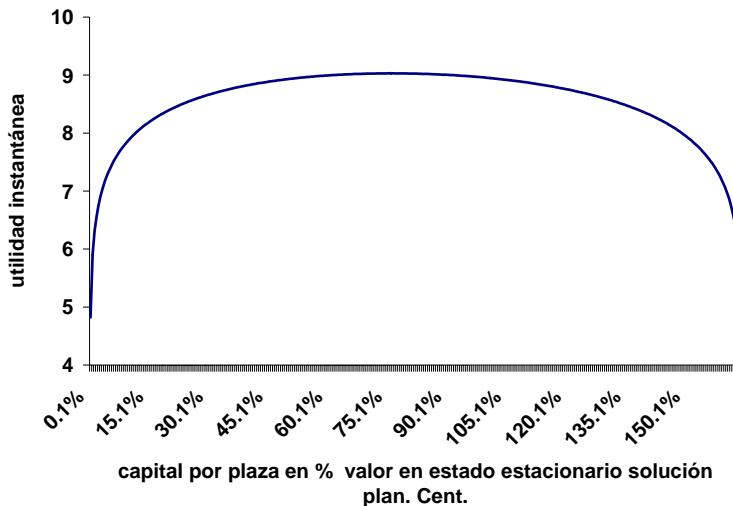


Figura 9. Relationship between accommodation quality and steady state utility.

Finally, figure 10 helps to understand why a “myopic” society with an inadequate perception of the environmental impacts of tourism development may prefer to supply low quality services in the first stages of tourism development. As it is shown, a lower investment effort per accommodation unit allows to reach higher levels of utility in the short run although it implies to reach the stagnation stage quicker and to have a lower long run welfare level.

⁴ It should be stressed that in every case we are dealing with market solutions where there are market failures associated with the environment and the congestion of public goods. Therefore, none of the possible scenarios represented in the figures imply maximum resident's welfare.

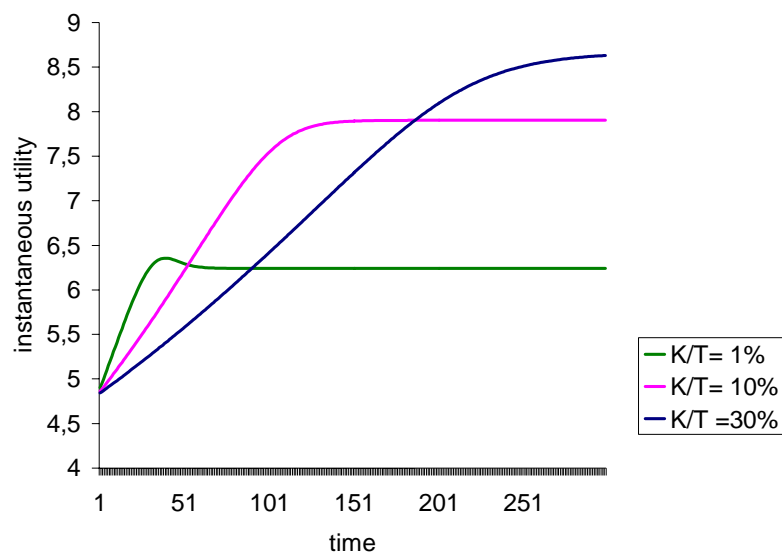


Figura 10. Evolution of resident's welfare for different levels of accommodation quality.

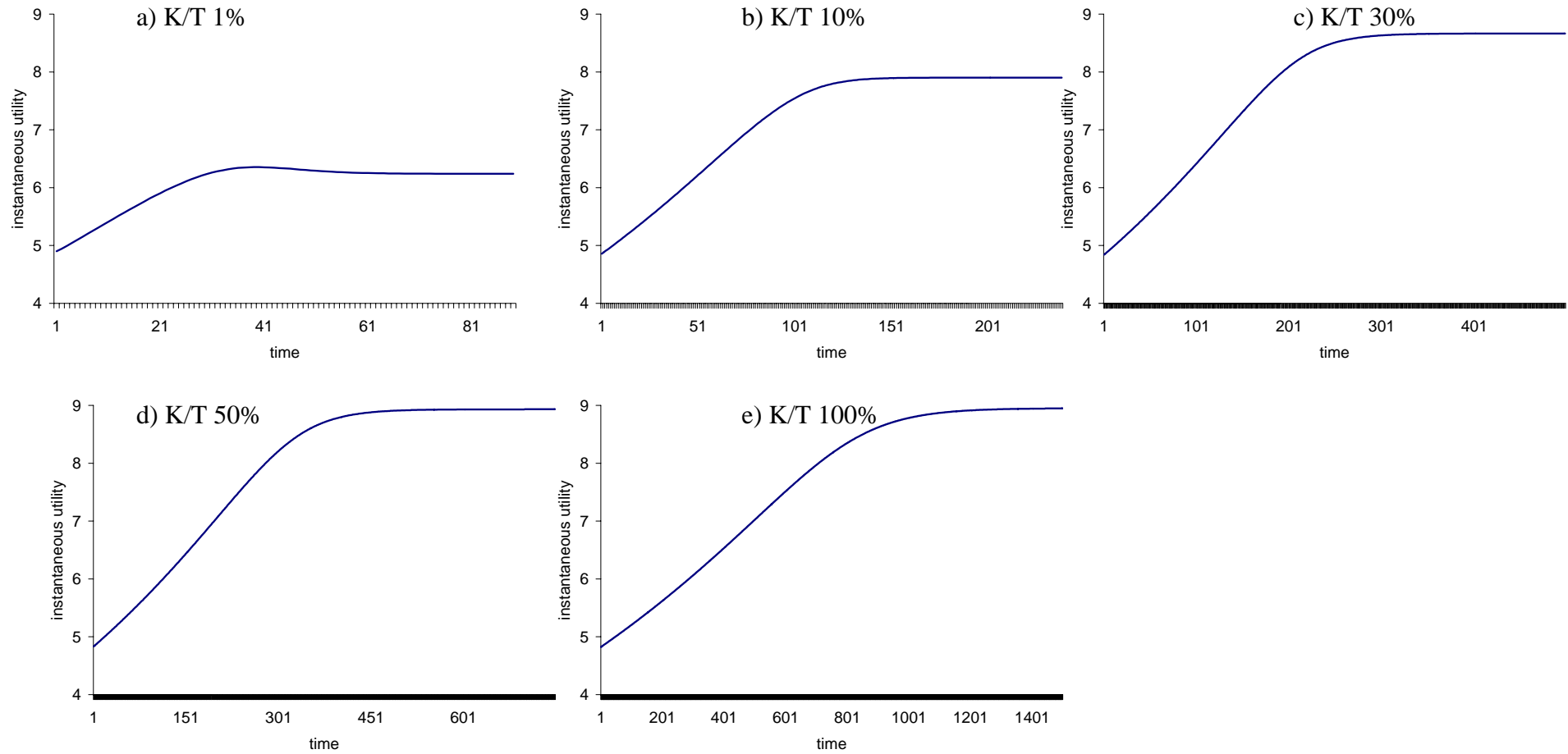


Figura 11. Evolution of instantaneous utility for different levels of accommodation quality

4. Conclusions

In this paper an analysis of the evolution of tourism destinations is made from the point of view of the economic growth theory. Specifically, we build an environmental growth model to give some insights about the dynamics of the number of tourists, tourism revenues, environmental quality, congestion of public goods and welfare. We also show how the pattern of evolution depends on the average quality of private tourism services supplied in the tourism destination.

Our simulations show that the tourism destination eventually reaches a stagnation stage. However, the length of the growth period very much depends on the quality of private tourism services. Specifically, higher accommodation quality implies a longer time to reach the stagnation, lower tourists' inflows, higher environmental quality and lower public goods congestion. In terms of long term tourism revenues and residents' welfare, an intermediate level of accommodation quality is the best option.

Numerical calculations are based on hypothetical data since we just want to highlight general dynamic patterns, not precise quantitative results. Nevertheless, beyond the specific results, the paper is an illustration of how economic growth models may help to understand the dynamic behavior of economies based on the tourism industry. A methodology based on the building of dynamic general equilibrium models and their calibration to real data would yield results to compare with actual patterns of evolution of specific tourism destinations. This methodology has successfully employed in other fields of research as business cycles or international macroeconomics and we think it would help to understand the determinants of the evolution of tourism destinations.

Appendixes

Appendix A. Stability of the steady state

In this appendix we discuss the steady state stability conditions.

Combining (2''), (4), (7) (10) and (12) we arrive at:

$$\begin{aligned}\dot{C} &= \frac{C}{\theta} \left\{ (1 - \tau_{TR}) (\kappa^{\alpha+\beta-1} \tau_{TR}^\beta N^\mu)^{1-\beta} - \delta - \rho + \nu(1-\theta) \left(\zeta \frac{\bar{N} - N}{N} - \frac{z}{\kappa} \frac{K}{N} \right) \right\} \\ \dot{K} &= \left\{ (1 - \tau_{TR}) (\kappa^{\alpha+\beta-1} \tau_{TR}^\beta N^\mu)^{1-\beta} - \delta \right\} K - C \\ \dot{N} &= \zeta (\bar{N} - N) - \frac{z}{\kappa} K\end{aligned}$$

Linearization around the steady state results in a system whose Jacobian is:

$$B = \begin{pmatrix} b_{11} & b_{12} & b_{13} \\ b_{21} & b_{22} & b_{23} \\ b_{31} & b_{32} & b_{33} \end{pmatrix}$$

$$b_{11} = 0$$

$$b_{12} = -\frac{zv(1-\theta)C^*}{\theta\kappa N^*}$$

$$b_{13} = \frac{1}{\theta} \left[\frac{\mu(\delta + \rho)}{1-\beta} - v(1-\theta)\zeta \right] \frac{C^*}{N^*}$$

$$b_{21} = -1$$

$$b_{22} = \rho$$

$$b_{23} = \frac{\mu(\delta + \rho)K^*}{(1-\beta)N^*}$$

$$b_{31} = 0$$

$$b_{32} = -\frac{z}{\kappa}$$

$$b_{33} = -\zeta$$

The determinant of B is:

$$|B| = \frac{\rho\zeta(\delta + \rho)\mu(\bar{N} - N^*)}{(1-\beta)\theta N^*} > 0$$

The determinant is positive and therefore there are two possibilities: three positive eigenvalues or one positive and two negative. The characteristic equation is:

$$\lambda^3 - \{\rho - \zeta\}\lambda^2 + \left\{ \frac{\mu\zeta(\delta + \rho)(\bar{N} - N^*)}{(1-\beta)N^*} - \zeta\rho \right\} \lambda - |B| = 0$$

This equation cannot be solved analytically. However if we set $\theta=1$ the characteristic equation is:

$$(\lambda - \rho) \left[\lambda^2 + \zeta\lambda + \frac{(\delta + \rho)\mu\zeta(\bar{N} - N^*)}{(1-\beta)N^*} \right] = 0$$

and the eigenvalues are:

$$\lambda_1 = \rho$$

$$\lambda_2, \lambda_3 = \frac{-\zeta \pm \sqrt{\zeta^2 - 4 \frac{\mu\zeta(\delta + \rho)(\bar{N} - N^*)}{(1 - \beta)N^*}}}{2}$$

The first eigenvalue is positive. The other two are negative because:

$$\zeta^2 - 4 \frac{\mu\zeta(\delta + \rho)(\bar{N} - N^*)}{(1 - \beta)N^*} < \zeta^2$$

Therefore, provided that the roots are real, the steady state is a saddle-path. Different values for the intertemporal elasticity of substitution mean horizontal shifts of the characteristic equation.

Therefore, this result would hold for a large range of values for θ .

Appendix B. The model in discrete time

The equations of the model in discrete time are the following:

Tourism revenues:

$$TR_t = \kappa_t^{\alpha+\beta-1} K_t^{1-\beta} G_t^\beta N_t^\mu \quad (\text{B.1})$$

Firms' behaviour:

$$T_t = \frac{K_t}{\kappa_t} \quad (\text{B.2})$$

$$(1 - \tau_{IT_t}) \frac{TR_t}{K_t} = (r_t + \delta) \quad (\text{B.3})$$

$$\Pi_t = TR_t - \tau_{TR_t} TR_t - (r_t + \delta) K_t \quad (\text{B.4})$$

Resident:

$$\omega_0 = \sum_{t=0}^{\infty} b^t \frac{(C_t N_t^v)^{1-\theta}}{1-\theta}, \quad b = 1/(1 + \rho) \quad (\text{B.5})$$

$$K_{t+1} = (1 + r_t) K_t + \Pi_t - C_t \quad (\text{B.6})$$

Public sector:

$$\tau_{TR_t} TR_t = G_t \quad (\text{B.7})$$

Environment:

$$N_{t+1} = N_t + \zeta(\bar{N} - N_t) - zT_t \quad (\text{B.8})$$

Residents maximize the following lagrangian:

$$\ell = \sum_{t=0}^{\infty} b^t \frac{(C_t N_t^v)^{1-\theta}}{1-\theta} + \sum_{t=0}^{\infty} b^t \lambda_t [(1+r_t)K_t + \Pi_t - C_t - K_{t+1}]$$

where choice variables are C_t y K_t , $t \in [0, \infty)$ and the remaining variables are given for the resident. Euler equation is:

$$C_{t+1} = C_t \left[b(1+r_{t+1}) \left(\frac{N_{t+1}}{N_t} \right)^{v(1-\theta)} \right]^{\frac{1}{\theta}} \quad (\text{B.9})$$

Combining (B.9) with (B.1) and (B.3) we obtain:

$$C_{t+1} = C_t \left[b \left(1 + (1 - \tau_{TRt}) (\kappa_t^{\alpha+\beta-1} s_t^\beta N_{t+1}^\mu)^{\frac{1}{1-\beta}} - \delta \right) \left(\frac{N_{t+1}}{N_t} \right)^{v(1-\theta)} \right]^{\frac{1}{\theta}} \quad (\text{B.10})$$

Combining (B.6) with (B.1), (B.3), (B.4) and (B.7) we get:

$$K_{t+1} = \left[1 + (1 - \tau_{TRt}) (\kappa_t^{\alpha+\beta-1} \tau_{TRt}^\beta N_t^\mu)^{\frac{1}{1-\beta}} - \delta \right] K_t - C_t \quad (\text{B.11})$$

From (B.2) and (B.8) results:

$$N_{t+1} = N_t + \zeta(\bar{N} - N_t) - \frac{z}{\kappa} K_t \quad (\text{B.12})$$

(B.10)-(B.12) is the system of difference equations that determines the dynamic behaviour of the economy.

References

- Agarwal, S. (1997) "The Resort Cycle and Seaside Tourism: An Assessment of its Applicability and Validity." *Tourism Management* 18:65–73.
- Agarwal, S. (2002). Restructuring Seaside Tourism. The Resort Lifecycle. *Annals of Tourism Research*, 29 (1)
- Barbier, E.B. (1999), 'Endogenous growth and natural resource scarcity'. *Environmental and Resource Economics*", **14** (1), 51-74.
- Beltratti, A. (1996): *Models of Economic Growth with Environmental Assets*, Dordrecht: Kluwer Academic Publishers.
- Butler, R.W. (1980): "The Concept of a Tourist Area Cycle of Evolution: Implications for Management of Resources", *Canadian Geographer*, XXIV (1), págs. 5-12.
- Cooper, C. and Jackson, S. (1989), "The Destination Area Lifecycle: The Isle of Man Case Study". *Annals of Tourism Research* 16:377–398.
- Hettich, F. (1998), 'Growth effects of a revenue-neutral environmental tax reform', *Journal of Economics* **67**, 287--316.
- Lundtorp, S. and Wanhill, S. (2001), "The Resort Life Cycle Theory. Generating Processes and Estimation", *Annals of Tourism Research*, 28(4)
- Schou, P. (2000), 'Polluting non-renewable resources and growth'. *Environmental and Resource Economics*, **16** (2), 211-227.
- Stokey, N. (1998), 'Are there limits to growth?', *International Economic Review* **39**, 1--31.

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

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 GRASSEN</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 BURGNET (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>
NRM	145.2005	<i>Sauveur GIANNONI and Marie-Antoinette MAUPERTUIS (lxxviii): <u>Environmental Quality and Long Run Tourism Development a Cyclical Perspective for Small Island Tourist Economies</u></i>
NRM	146.2005	<i>Javier LOZANO, Carlos GÓMEZ and Javier REY-MAQUIEIRA (lxxviii): <u>An Analysis of the Evolution of Tourism Destinations from the Point of View of the Economic Growth Theory</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>