

The Link between Economic Growth and Environmental Quality in the Case of Coastal Tourism in the Rural Areas

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Abstract

Carrying out many intensive human activities in different areas including closed and semi-closed basins has consequences on long-medium term, with a strong environmental impact on the coastal and marine zone degradation. In many coastal regions these aspects - on the long term - caused rapid alterations and severely influenced the sustainability of the coastal ecosystems. Urbanization, mainly produced by tourist activities, causes an increase of the overcrowding costs. It is important to observe that the relation between tourism and environment is not immediate, but it is connected, both to the changes of the production processes of tourist services, and to the changes of residents and of the tourists consumptions. If the direction of these effects is the same, an economic growth based on tourism will have positive effects. Therefore, the flows of tourists along the coasts have an important impact on the ecosystem and an approach based on the Kuznets's Curve would allow us to highlight the relation between the cost of the environmental degradation (environmental damage or as lack of monetary incomes) and the advantages of the economic growth.

Keywords: rural tourism, coastal tourism, environmental impact, economic growth, Kuznets' Curve

1 Introduction

This paper explores the relationship between economic development and environ-

mental quality in the case of coastal tourism. Taking into account the principles of environmental economics, a greater amount of goods is achievable by a reduction of the environmental quality (Asciuto *et al.*, 2014). The empiric evidence, confirms the economic theory, that considers the economic development, in its initial phase, as a reduction of the environmental quality, seeing that an income increase implies a higher level of polluting emissions. However, from a certain point forward, a radical change of direction has been observed, and other income increases with lower levels of emission, are obtainable through some structural changes and a greater environmental sensibility of people. Therefore, in opposition to the past, an improvement of the environment represents one of the conditions for economic development (Cembalo, *et al.*, 2013).

The methodologies adopted in this research involve the identification and subsequent evidence of the effects caused by an uncontrolled increase of the tourist phenomenon along the coastal line. On the basis of the methodological criteria and by analyzing some recommendations resulting from the bibliographic review on the environmental theme, regarding the relation between economic increase and environment, we try to find out a possible complementary relationship between tourist specialization and environmental protection (Loizou *et al.*, 2014).

2 Background: materials and methods

In the last few decades, many coastal areas have known periods of big structural changes, passing from economies mostly based on primary activities (agriculture, fishing), to a pre-eminent tourist vocational system.

Coastal tourism is one of the most ancient types of tourism. Some resorts, in fact, have been attended since the XIX century. In the past, it was considered a type of “*élite tourism*”, but nowadays, it is “characterized by a strong concentration of tourists who stay in the same place during the summer time”. However, the growth of the tourist field, in these areas, has been often followed by a worsening of the environmental conditions and a continuous urbanization of the coast. The steady increase of urban population along the coast caused a big competition for the limited resources, as well as pollution, habitat destruction and coastal erosion. The coastal systems are sensitive areas, mainly based on fragile ecosystems. These systems, in spite of their various genesis and constitution, basically share and face the same problems (quality of the resources, a fragile and easily degradable environment). The importance that the tourism has in the economy of these territories, has driven the tourist sector to be the main factor of economic growth. However, it is necessary to emphasize how the tourist activity, whether from the demand side (wastes, overcrowding) or from the supply (edification), introduces changes in the environment which can lower its quality. Moreover, the tourism, in these territories, uses natural resources (climate, nature, historical and artistic resources), often characterized by absolute scarcity, because considered as consumption goods instead of production ones. The conservation of these resources

can be threatened with an excessive and uncontrolled development of the tourist activity. Moreover in many areas there is a tendency to specialize in one or a few activities (tourist monoculture), and this contributes to make them more vulnerable. The recent data show that the most part of the tourist demand is oriented towards the best conserved ecologically areas. Today, the coastal zones are more than inner areas, subject to a continuous and constant entropic pressure. This trend, also encouraged by the absence of the re-balance policies, has led to a constant increment of the receptive structures along the coasts and to an implementation of the policies supporting the tourist industry, where the environment is not considered of primary importance. Therefore, an unavoidable process has started: beautiful natural areas become the destination of “alternative tourism”, and then, discovered by the mass tourism, they progressively lose their natural characteristics and become anonymous receptive areas. If at the beginning these territories suffered an absence of tourist infrastructures (from the lack of rooms to the absence of the most elementary tourist services), then they tend to change into areas repressed by structures that caused irreversible damages to the environment. Afterwards, they evolve to a stage of “growth without development”, contributing to accelerate the process of saturation, overcrowding or decline of those tourist places. As a matter of fact, the tourist activity, during the last few years, has been directed by immediate profit and by short-term aims, creating therefore a fast growth of social and environmental whose costs are far higher than its economic benefits. During the last century, various localities, have offered their own natural and cultural resources in order to answer the increasing request of mass tourism, a considerable phenomenon of mass exploitation that has characterized the greatest part of shorelines. In that case, an extensive tourism, of low profile, has contributed in a substantial way to deface the natural landscape and the environment in their main components. On the other hand, an élite tourism has transformed wide coastal areas in “artificial villages” where the local vegetation has been completely cancelled by gardens with not autochthons species that require a lot of environmental and economic energy (Lanfranchi and Giannetto, 2014). Therefore, the coasts are the areas that suffer a high degree of degradation of the territory and, paradoxically, the damage is due to a demand of natural tourism (SgROI *et al.*, 2014). The phenomenon, encouraged from a tendency to maximize the tourist income, is overburdened by the speculative residential but also home construction which in the 1960’s interested the territory, and has found on the coast its highest expansion. The better coasts’ accessibility, due to the reclaimed lands and the development of transport systems, the aggressive expansion of urban settlements with “sea view”, the uncontrolled drawing of materials from water courses, have often caused irreparable damages to the coastal ecosystem. For example, the continuous urbanization of coastal areas, above all as a consequence of a wide construction of receptive structures, is not always associated with depuration systems for drainages and wastes. The ethnic and historical resources of wide coastal zones have been destroyed by the construction of motor-ways, residences, power plants and large settlements. Natural resources have been used beyond their regeneration capacity in order to

satisfy the request of mass tourism (Lanfranchi, Giannetto, and De Pascale, 2014). During the last few years, the increase of pleasure boating has allowed the building of numerous harbour infrastructures. It has often happened without a correct section programme and above all, without a study of the effects that these new constructions would have produced on the modification of the coast line. In this way, the areas with a high environmental value, because of the presence of fragile ecosystems, have been damaged by the uncontrolled flows of visitors who exceed the carrying capacity of the territory and beyond the realization of sea side constructions (according to forecasts, for example, within 2025, 137 million of tourists will join the 175 million who, actually, a Mediterranean shorelines, in summer time, in World Travel and Tourism Council, London).

In the Mediterranean Region, the concentration of entropic activities along the coasts has caused an increment of population density in the coastal regions up to 10% higher than the inner zones (Crescimanno *et al.*, 2013). In some countries such percentage reaches up to 50%. Moreover, the conversion of the coastal zones in artificial lands, is increasing to a higher rate than the density of population (in many areas, above all second houses, services and recreational activities, are responsible for 61% of the whole ground composed by artificial lands), these phenomena, irreversible, are considered as the main threats to the sustainability of the coastal zones. In many coastal areas, in Europe, the percentage of the artificial lands exceeds 45% the total area of the coast line (1 Km from the shoreline). The zones more exploited are situated along the Mediterranean coast (France, Spain and, above all, some Italian coasts. The expansion of the urban areas contributes, at the same time, to intensify the use of lands and waters of the neighbouring zones. This means that an inadequate or absent planning of the tourist development, affects the increase of the water pressure in those areas in which this resource is lacking, and causes problems to the insufficient distribution or to the absence of fresh water (Lanfranchi, Giannetto and De Pascale, 2014).

This paper will discuss the problem of the economic development of sensitive areas, that use their cultural and environmental diversity as the main element of attraction with a prevalent tourist vocation. In such cases the need to guarantee, at the same time, an increase and protection of the resources, obliges people to think in terms of a sustainable management of tourism.

3 Methodology and Analytic Approach

Environment represents a fundamental component of the tourism supply; that is why the relative industry is more and more directly interested to safeguard its high quality. Apart from representing an important resource for the economic activity (the tourist one in particular), the environment also represents a “value”, a good that needs a specific preservation: the greatest parts of the environmental resources, in fact, are represented by the public goods, therefore by their specific markets and price. Such condition does not determine any optimal use.

While a social responsibility has been attributed to the industry with respect to the resources it employs, tourism can have typical resources and landscape without

legal or institutional limitations (Martinez-Zarzoso, and Maruotti, 2013).

The problem mainly concerns those regions made accessible to mass-tourism in the last fifty years in which, the model of the “tourist place” has extended in the form of self-sufficient communities (mostly international investors), where the local community only represents a resource to be exploited and the tourist baskets are essentially based on natural beauties and resources.

In economically disadvantaged countries, tourism, focused above all in the coastal areas is very important because, much more than any other sector, it can contribute to the social and economic development of those zones otherwise degraded (places like the Maldives Islands where tourism represents 74% of GDP, Thailand 12% of GDP, Indonesia 10.3% of GDP, etc). At the same time, it is also a source of considerable environmental negative impacts, since it has been traditionally developed according to the growth model less attentive to the carrying capacity of the destinations and more interested in immediate incomes.

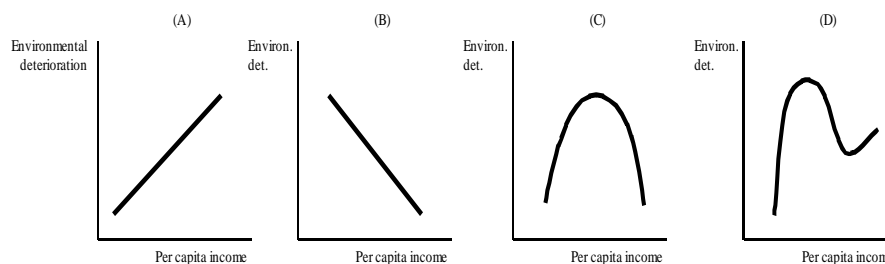
As regards the life-cycle model of the tourist destinations, for these places where the hosting community does not appear as an active variable of the system, in literature, an extra phase of development has been indicated. Some studies have identified four stages, on life-cycle model of the tourist, destinations based on the relationship between tourists, environment and local communities: (a) the first one said idyll (or Gauguin’s), (b) the second stage of competition/conflict, (c) the third stage of separation and at last (d) a stage of assimilation. The situation is not even comforting for the Old Continent, with about 15 square kilometres of coast disappearing every year. The erosive trend, in rapid growth, influences a coast line which generates a business, between 500 and 1,000 billions of euros, mainly constituted by tourism, agriculture and industrial installations, equally under threat to disappear. About 20% of European coasts are involved in erosive phenomena and in a significant regression, the sector mainly threatened is the sun-bathing tourism. It represents about 50% of the tourist field and has an annual revenue of 152.354 million euro, 11,7% on total GDP. Investing in the supposed complementary relation between tourism and environment is crucial. Tourist specialization, with its positive effects on the environment, contributes to the diversification and the improvement of the services’ quality, allowing the competition on markets where the success is conditioned, above all, by the natural resources and the quality of the services (Lanfranchi *et al.*, 2014). For over a decade the relationship between economic growth and environmental impact has been the main focus of many debates about environmental topics: the existence of an Environmental Kuznets Curve (EKC) (López-Menéndez, *et al.*, 2014).

Some empiric studies, while analysing the relationship among various indicators of environmental quality (emissions or concentration of pollution) and per capita income, have noticed the existence of an inverted U-shaped relationship: the results show, at an initial stage, an income rise associated to an environmental worsening, then an improvement of environmental quality (Lanfranchi, Giannetto, and Zirilli, 2014). Environmental quality and economic growth are generally considered to be incompatible phenomena. The increment of production and consumption need natural resources that can reduce their future availability and can

operate on the ecosystem capability of assuring the fundamental ecological functions of sustaining life. Several authors have a pessimistic vision, they argue that economic growth could compromise the environmental quality and could destroy not only the non-renewable resources, but also the renewable ones. On the contrary, the supporters of an optimistic vision of the relationship between economic growth and environment, assert that sustainability is a realizable object (Li, 2014).

The relationship between per capita income and environmental impacts can assume different functional shapes. We can distinguish between two basic qualitative behaviours: monotonic relations and non monotonic relations. The first one can be represented by a monotonically increase, at an increasing rate: for any income increase correspond proportional increases of pollution (a) (e.g. municipal wastes per capita), or monotonically increase, at a decreasing rate, (b) (e.g. access to the services of water supply). Among the non monotonic functions the ones with an inverted U shaped (c) seem to prevail (the environmental impact, initially, grows with income rise and then begins to decrease when the per capita income catches up a de-linking level) and the type at N-shaped (d) (the phenomenon of de-linking is only temporary).

Fig. 1 The relationship between environmental quality and economic growth



The empiric evidence is widely supporting the inverted U-shaped relationship, the Environmental Kuznets Curves, rather than the N-shaped one.

According to Cole (2003), the EKC curve equation can be written as follows:

$$E_{it} = (\alpha + \beta_i + F_i) + \delta Y_{it} + \varphi (Y_{it})^2 + \varepsilon_{it}$$

Where E (environment) represents the environmental indicator, Y represents the per capita income and F represents the specific effects of rural tourism, i and t indicate, respectively, the rural area and the year. If in this equation $\delta > 1$ and $\varphi < 1$ the EKC curve has a *turning point* calculated as:

$$Y^* = (-\delta/2 \varphi)$$

Environmental performance analyses, often use *decoupling indicators* to evaluate the use of rural tourism resources in favour of the environment. Delinking trends have been under scrutiny for some time and, particularly, recent research, has pro-

posed a link between pollution generated by human activity in a rural area, including also tourism, and economic growth of rural areas. The literature on EKC represents a natural extension of delinking analysis. The relationship between delinking and EKC derived from the model IPAT. This model of valuation was proposed by Ehrlich and Holdren in 1971 (Holdren and Ehrlich, 1973). The formula synthesizes the environmental impact through 3 independent variables (I) is the product of population (P) affluence i.e. economic wellbeing (A) and technology (T):

$$I = P * A * T$$

In this study, I represents the level of pollution generated by tourism, P represents the rural area population, A is the wealth expressed in GDP per capita and T represents the technology applied to the rural tourism system. The breakdown of this formula allows us to evaluate the role played by the components involved. While the weight of A and P is quite explicit, T can be considered the most aggregated way to represent the state of the technology in the economy of a rural area. The variable T is considered as an index of intensity, because it gives us a measure of the quantity of the units of environmental impact sacrificed in the economic system to produce a unit of GDP. In terms of environmental impact variations in T reflect the different combination of technology in the various economic sectors that require different intensity of resources. The analysis of T can lead to ambiguous results, because, for example, a decrease in T suggests a greater efficiency of the economy, but it does not provide indications of the reasons which have generated the *delinking*. Furthermore, the IPAT model assumes that the variables are independent, when, in fact, the observations show that there is a high correlation between the four variables. It would be useful to try to catch the influences that I and GDP, have on the performance of T. The EKC analysis is addressed precisely to evaluate this aspect (the relationship between T and I, or GDP, or between T and GDP per capita). In this context, the EKC literature expands the basic reasoning of decoupling, by analyzing the relationship between income and environment.

With regard to the application of three dimensional EKC elaborated and proposed by Lanfranchi it becomes possible to analyze the evolution of an economic system through an explication of the relationship between economic growth and environmental quality, taking into account the key role played by technology development (Lanfranchi 2010). This study analyzes the reasons on which this relationship is based. They are related to three factors easily identified by the Gaussian curve.

In the first phase, corresponding to the ascending portion of the curve, the negative impacts on the environment are caused by the development of the economies of scale.

The second factor is due to the effect of the structure of the production process, initially characterized by a progressive transfer of inputs from the agricultural sector to the industrial sector, with some evident consequences on the environmental quality; when the economic system reaches the stage of maturity,

we can observe a slowly transition from industrial production to the post-industrial production and to the tertiary sector, characterized by a lower pressure on the environment.

The last factor is related to the effect of technology development, because the initial stage of growth manufacturing processes causes significant environmental pollution. However, at a subsequent time, the introduction and use of sustainable technology leads to some production systems which are more compatible with the environmental quality.

The descending part of the curve is representative of an asymptotic behaviour, that means that the introduction of sustainable technology significantly reduces the degradation of environmental quality and leads to a socially optimal level, thanks to a greater awareness and sensitivity to environmental issues and to a legislation aimed at regulating severely polluting activities, even though it will never be possible to avoid pollution completely. This latter consideration explains the reason why most polluting activities or processes are often located in developing countries and, conversely, the developed countries are characterized by an increased environmental awareness (it reflects the willingness to pay for improved environmental quality). In that way, they aim at preserving the environment and non-renewable resources by adopting pollution abatement technologies and efficient recycling methods.

4 Results of Study

Various implications can derive from what emerged from this paper. For the poor countries, the existence of an EKC implies that the reduction of poverty, through the economic growth, is coherent with the improvement of the environmental quality, although a transitory period is necessary, in which there is an increment of environmental degradation before simultaneously achieving the two aims. For the emerging countries, the economic growth can constitute a remedy for their pollution problems, which go with this initial stage of growth. Finally, for the developed countries which have both elevated income levels and high environmental standards, the trans-national and trans-generational environmental problems, like the climate changes will be solved by higher incomes (Zander *et al.*, 2013). Most researchers, who have studied the problem of the existence of an EKC, are not inclined to support these conclusions and emphasize that the de-linking phenomenon between growth and environmental impacts, cannot be automatically manifested. By shifting the attention to the tourism sector, it could be possible to show if a de-linking level exists and if the environment/income relationship is influenced, somehow, by the tourist specialization. The tourist specialization, in theory, would have to strengthen every effect of the economic growth, both because it increases the revenue of sector services and it is an economic manifestation of the demand of natural resources and beauties. Coherently the tourist demand produces an incentive for the conservation. In this case, the hypothesis would consider the tourist flows mainly concerning coastal places. The assumption is referred to a typology of summer-bathing tourism, coherent-

ly with the carried out analysis, that determines the height of the curve in the per capita income-environmental impacts function. If the complementary hypothesis is valid, the coastal localities curve is situated under the one of the non coastal localities, and that indicates that in correspondence of every level of the per capita income variable, the environmental degradation (e.g. municipal waste per capita) is lower, thanks to (major) tourist presences with respect to non coastal localities, as our initial hypothesis showed. In this direction, the conversion to collateral activities to fishing, such as fishing tourism, or to jobs with less impact also contributes to the conservation of renewable resources of the sea.

5 Conclusions

The theory regarding the existence of a Kuznets Curve for the environment has a clear mark: the fundamental result is that we could overcome the environmental degradation problems through the economic growth.

However, tourist specialization cannot be considered the solution to overcome the development problems or the environmental issues. If the development based on this kind of specialization wants to be durable, it is not necessary to attribute, the role of environment safeguard exclusively to tourism: it is necessary to create the conditions to change the "environmental consumptions" of residents and tourists. It is necessary to plan the instruments, so that the management of tourism will be coherent with conservations and environmental sustainability. This is, probably, an objective that brings effects also in the short term.

Large urbanization and industrial development of coastal areas, tourist expansion, excessive exploitation of the fishing resources, are the main entropic pressures responsible for the degradation of environmental quality of the coast-line.

Only an integrated action can contribute to address the social and economic development towards compatible directions with the environment protection. Since the coastal areas are found on complex ecosystems, characterized by elevated biological diversity and by a high variability of their natural processes, the conservation of their environmental integrity and of their inner stability must be, today, the primary objective of every social and economic development policies all over the world. If it is true that the solution of environmental problems cannot come from an automatic realization and cannot set aside a modification of the residents and tourists' consumption behaviours, this will only be possible when the cost of the environmental degradation (in terms of worsening life quality or of lacking monetary income deriving from tourism) will not exceed the advantages of the growth. Therefore it is up to the tourist forecast to reduce the difference between economic benefits and social costs, arranging mechanisms to consider these costs as standard management ones.

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