



# Effects of tourism on net social benefits; defining *optimal scale* in the Merse watershed, Italy

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## Abstract

Agrotourism, Nature tourism, and Medieval ruins in the Merse watershed could all be developed to accommodate Siena, Italy's growing number of visitors, *but will tourism expansion in the Merse watershed increase net social benefit?*

With tourism as the world's largest and most rapidly growing industry, this is a question common to host communities in almost every corner of the world. In the past, answers to this question have relied on tourism's fantastic ability to generate employment and profit margins literally overnight. However, the lure of tourism's "fail-safe" method to achieve economic growth has been increasingly shadowed by a growing awareness of the ecological, social, and cultural costs paid in exchange.

Integrated economic development and ecosystem conservation is an attractive and noble aspiration, but tourism practitioners and planners lament the absence of a market model that accounts for all costs, including the environmental and social. This paper reports on a comprehensive conceptual model, against which the relative costs and benefits of tourism expansion can be weighed.

Given the complexity of tradeoffs and consequences, Val di Merse is currently unable to fully perceive, appraise, or control consequences of tourism development. This situation illustrates the central challenge to sustainability, that an inability to monitor, predict, or control impacts resulting from economic growth will eventually threaten the social and natural foundations which support quality of life for residents- and which attract visitors in the first place.



This paper contributes the basis for a theoretically rigorous approach to defining *optimal scale* for Siena's tourism industry.

## 1 Introduction

The Province of Siena, Italy (3,800 km.sq, pop. 250,000) commissioned a report to describe its 23 municipalities according to 5 indicators of sustainability: carbon dioxide balance, ecological footprint, natural capital, emergy, and exergy calculations. The information was to be used as a European Union Agenda 21 benchmark, and to inform the most pressing development challenges: congestion in the historical center of the province, a lack of employment opportunities in rural areas, and overall inefficient resource use. Tourism, having ballooned from 800,000 to 2,020,000 visitors in the past 7 years, was seen to be a key factor in each of these problems- overwhelming infrastructure, and contributing to growing discontent among residents. As a result, two strategies were suggested to maintain economic growth: tax tourist visitation to the historical center, or spread tourism development to rural areas of Siena.

Preliminary results of the above-mentioned report identified four municipalities to have an especially large surplus of renewable natural resources and under-used natural and cultural heritage sites. Provincial leaders thus suggested this area, the Merse watershed, be developed to accept tourism overflow. This development would bring great changes to the Merse, a rural agrarian and forested valley of 140 sq. km, with little industry, and a population of 2000. Some of the changes would be welcome: over the past 50 years, increasing mechanization of agriculture and the declining profitability of the timber industry have led to sharp declines in local employment opportunities and abandonment of country homesteads. Yet Merse residents distinguish their rural townships and lifestyles from categorizations of being economically *depressed* (Patterson [14]). Most residents are proud of their rural way of life- frequently citing the Tuscan agrarian identity, the tendency for social co-operation, and the wealth of natural resources as the historic sustenance of the population- even through the most bleak war and post-war periods (*ibidem*).

Agrotourism, Nature tourism, and Medieval ruins in the Merse watershed could all be developed to help accommodate Siena's visitors- *But will tourism expansion in the Merse watershed lead to an increase net social benefit?*

Tourism is the world's largest and most rapidly growing industry, with high impacts and few regulations. As a pervasive driver of land-use in almost every region of the planet, tourism brings about profound changes to landscapes and communities. Tourism sector activity, as it mimics human activity of residents themselves, is difficult to study in terms of cumulative impacts, or weigh in terms of straightforward costs and benefits.

Host communities may wish to expand their tourism sector, but lack the tools necessary to weigh the extent of considerations at hand. Tourism developments proceed rapidly, and the resulting economic boom manifests itself most visibly in population increases and strains on civil infrastructure. Secondary and often and

unforeseen environmental and social consequences of tourism development, eventually permeate nearly every aspect of the lives of the host community. This situation is particularly relevant for rural tourism, whose impacts are more diffuse and may take more time to manifest themselves in a form observable to those who would control them.

The purpose of this paper is to define the conceptual model against which tourism's various costs and benefits can be weighed. The pervasive and complex nature of tourism impacts has been well documented. As frequent evidence of market failure accumulates (Choy [5]), it is unwise to maintain the illusion that simple tweaking of production functions will resolve the ultimate source of the impacts, or that as destination economies grow, they will be able to reverse deleterious developments. The approach advocated here departs from the neoclassical economic view of negative impacts as 'externalities', and thus suggests that the economic structure requires more profound changes. This entails extending to tourism analysis the analytical approach of ecological economics and political ecology, to carefully account for market and non-market contributions to local welfare. This paper is part of a series, and was followed by extensive interviews, and quantitative data assessments, as outlined in the section titled "Application of the Model" and in the Conclusions section of this paper.

## **2 Defining the model: three criteria for tourism development**

Drawn from among the cardinal concepts of Ecological Economics, this model presents three criteria for weighing the costs and benefits of each aspect of tourism development: I: sustainable scale, II: efficient allocation, and III: just distribution.

### **2.1 Sustainable scale**

During the earliest stages of tourism development, destinations tend to experience impacts in a diffuse manner. These early impacts, which affect broadly dispersed and subtle changes to ecological and cultural regimes, often go unnoticed. However, these early transitions hallmark the beginning of 'the tourism cycle' (Butler [2,3]). The tourism cycle describes tourism visitation growth as a function of tourism assets, the destination becoming increasingly popular over time. As the impacts of tourism development become apparent and crowding develops, the appealing foundations of the destination begin to erode. Gone are the vibrancy of the socio-cultural experience, and the appeal of an ecologically healthy environment. Overtime, as a result, the tourism growth rate flattens, to an extent that the local economy stagnates and eventually experiences a period of declining returns. Barring mitigation or rejuvenation, a destination will 'burn out', as malignant developments impinge upon natural and social capital which sustains positive visitor experience. Retrospective examination and restoration of tourism impacts on host communities and ecosystems are rarely successful.

Marginal consequences of growing levels of tourism development can be best understood by identifying a carrying capacity for tourism. *The goal of this effort is to identify an optimal scale of tourism in relation to the natural, social, and cultural resources that support it, dependent on their absorptive and regenerative capacities.* Maintaining a sustainable scale of tourism requires maintaining the economy within this collective limit. We can underline eight key criteria for the determining sustainable scale for tourism development: Ecosystem Health, Political Economy, Global and Local Market Volatility, Infrastructure ownership and economic leakages, Waste, Local Production/Consumption Balance, Market imbalances between host and visitor, Cultural Resilience.

## **2.2 Allocative efficiency**

Once the dimensions of sustainable scale are determined, it is possible to examine the conditions requisite for efficient resource allocation. The efficient allocation within the market system, in the case of sustainable tourism, is impaired by three complicating factors: the intrinsic complexity of the tourism market, incomplete information, and the indeterminateness of welfare—especially with regard to the role of culture and ecological services.

### **2.2.1 Market complexity**

Tourism is oft cited as a rapid or sure-fire way to bring development to areas rich in cultural and natural capital. However, orienting a community around tourism's economic trends and impacts is a complicated task, due to the fact that tourism has a particularly complicated economic structure. Various conglomerates of vertical and horizontal economic integration result from diverse suppliers offering products and services which span a spectrum of economy scale; from small, independent companies to large multi-nationals. A single supplier can offer a limited, specialized goods or service (eg. a guided tour) or a conglomerate can act in concert to sell packages (eg. all inclusive airfare, lodging, and activities). The tourism market bears out such combinations, and orients them for a variety of niche markets.

In the province of Siena, therefore, planning must address the needs of large providers who are capable of packaging several services or handling high volume, while also providing needed support for small to medium scale businesses. The challenge of assisting such providers becomes more difficult as niche markets are diverse (art and culture, agro-tourism, religious) and require different strategies of coordination, promotion, and regulation.

### **2.2.2 Incomplete information**

A second aspect contributing to market imperfections is mis-information. As mentioned above, tourism product offerings are diverse in content and quality, and are not easily standardized or compared. Tourists collect increasingly sophisticated destination information, yet lack (or receive misleading) information which assist them in considering their impacts globally, or on local

host locations. This leaves the host community with the burdensome task of responding to an uninformed market demand, and bearing the bulk of the negative impacts.

### 2.2.3 Total welfare

The neoclassical economic paradigm often portrays the economic growth from tourism development as a direct contribution to total welfare. While most economists would agree that total welfare is the sum of economic plus non-economic welfare, left unsaid is the assumption that the two always move in the same direction (Daly and Farley [8]).

Regarding the limit to which we should allow tourism to encroach upon ecosystem services which provide local well-being, the market does not provide all the information required to make informed decisions about what kind of environmental quality should be maintained, how much should be invested in maintaining cultural heritage resources, nor what level of risk is acceptable when tourism has such profound impacts on the welfare of future generations (Daly Farley [8]).

As a result, the definition, maintenance, and distribution of societal stocks of *patrimony assets*- those aspects of cultural and natural heritage which will hold increased value to future generations as a result of their paramount importance to identity and well-being, are highly vulnerable when left to rational decisions which do not account for non-market welfare.

**2.2.3.1 Total welfare: the role of cultural integrity** Culture, as defined by the United Nations, includes “creative expression (oral history, language, literature, performing arts, fine arts and crafts) community practices (traditional healing methods, traditional natural resource management, celebrations, and patterns of social interaction that contribute to group and individual welfare and identity) and material or built forms such as (sites, buildings, historic city centers, landscapes, art and objects)”.

As globalization brings about economic growth and opportunities, popular culture becomes infused with a value structure dominated by the drive for economic growth and monetary wealth. As value structures change, community members may find a disconnect with the current ‘globalized’ value structure, and the *ethos* which once formed local identity, reinforced local norms, or imparted esteem or satisfaction.

In many tourism destinations, the need for local attractions sometimes creates a ‘performance culture’, where traditional architecture, activities, dances, or dress are re-created for a tourist audience. In these cases, local residents miss opportunities to contribute aspects of their memory, areas and celebrations, oral traditions of personal experience, which they believe should be passed on as part of cultural patrimony.

Rural tourism development which supports local cultural integrity requires a pointed effort to empower local residents to define that identity and traditions for



themselves. Definitions of cultural heritage should emphasize values and traditions distinct from those of urban areas.

**2.2.3.2 Total welfare: the role of ecosystem services** Ecosystems can be conceptualized as having structure (the actual physical configuration), and function (as components of a living system interact over time, they form patterns of organization). Ecosystem services can be defined as the resulting ecosystem functions which provide human benefit. A list of ecosystem services, as outlined by Costanza *et al.* [6] are Gas Regulation, Climate Regulation, Disturbance Regulation, Water Regulation, Water Supply, Waste Absorption Capacity, Erosion Control and Sediment Retention, Soil Formation, Nutrient Cycling, Pollination, Biological Control, Refugia or Habitat, Genetic Resources, Recreation, and Cultural Material Provision. Daly and Farley [8] note that this list is not complete, that in many cases we are unaware of the many services that ecosystems perform for us until we lose that particular function.

These benefits are provided for little to no direct cost, through the natural functioning of the planet's life support system. For this reason, we tend to assume that these *natural patrimony assets* will always be available, and that they are plentiful enough to guarantee free and fair distribution. In fact, we do not have a complete awareness that many of these services are actually declining in availability, and that our patrimony of ecosystem 'funds' is dwindling as we exceed sustainable scale.

Tourism, specifically, can be seen to have a direct influence on ecosystem services. Airline emissions are leading to profound changes in gas and climate regulation. Construction driven by tourism has caused erosion and reduction in habitat, especially in riverine, coastal and wetland sites (Gormsen [11]). The tourist activity itself has profound influences on water supply, and waste production worldwide (Gossling [12]).

From the moment we weigh costs and benefits of development, we choose some options over others. In an increasingly full world (as outlined by Daly and Cobb [9]), some human activity will encroach upon the functioning of certain aspects of the ecosystem. According to Daly and Farley [8], an optimal allocation of resources implies we will sacrifice the least important ecosystem services first. However, they note that this goal is complicated by the fact that we have little understanding of how ecosystem structure contributes to function. Furthermore, we lack a full awareness of how this function should be valued in terms of human benefit. Optimal allocation also requires consideration of the time necessary to obtain benefit from the investment: in general, to invest in obtaining man-made capital implies that one will obtain benefit rapidly but more probably exclude future generations from that benefit. Vice versa, investing in natural capital often signifies assuming intergenerational equity among the criteria guiding the economic choice.

### **2.3 Just distribution**

Regarding the sustainability of a system, it is necessary to take into consideration not only the complex scale of the system, and the resource allocation, but also the just allocation of the distribution among individuals and generations.

For the purposes of this study, a political ecology perspective makes a necessary contribution, as the field of ecological economics frames questions solely with respect to the services rendered by the biosphere. This leaves issues regarding-intercultural importance in many cases underemphasized, and, in the case of a tourism analysis- incomplete.

Political ecological analysis consists of an integrated explanation of human-environmental interaction linked through different scales from the international/global to the local (Blaike and Brookfield [1]); centers on the relative power of various social actors (Stakeholders) involving access to, and management of, natural resources; and links these actors within and among levels through relations of power (Stonich [15]).

The conceptual model developed for the Val di Merse is meant to present an analysis of historical trends, just distribution of resources, and maintenance of the economy at a sustainable scale. It is not taken for granted, by any means, that tourism development will accomplish this. Tourism development in this sense is presented as an option, a possible scenario of development- under which it is also necessary to make a clearer understanding of which factions of the population will gain or lose. The way by which relative power is shared among actors in Val di Merse, and among rural and urban areas is an aspect of investigation important to understanding the social dynamics controlling tourism development.

### **3 Application of the model**

For each potential host destination, a truly comprehensive assessment of costs and benefits will assist determinations of if, and under which conditions, tourism can raise the welfare of the host population. Following the construction of the conceptual model of three criteria under which to weigh these costs and benefits, an initial survey assessment of information was made for the Merse River Valley. At its most applied level, the attempt to value the real costs and benefits tied to tourism, can be seen as an attempt to give the local community itself instruments with which to choose among the various development paths.

Informed development assessment necessarily bases itself on the knowledge and integration of local culture. Tourism is an activity inherently one of cultural interaction, and this renders the phase of collecting information a particularly delicate one. Values of the host community are not necessarily common to values of those that will have the strongest influence over the final development of the area, nor with the researchers who collect this information. The conceptual model above assisted the development of interview questions, which were eventually posed during interviews with Provincial administrators and local residents.

This approach differs from traditional approaches to tourism development. Most often, an area is selected for tourism development based on private investor perceptions of potential investment costs and returns. Infrequently are communities consulted before development, or included in each of the planning and implementation stages, even though local residents bear many of the associated costs. The perception of what is or is not a tourism asset is often determined by economic actors operating outside the local community (Chambers and Paolisso [4]). Frequently, this contributes to what has been termed 'commodification' of a host destination; where the site is perceived by an outside investor as a commodity, oftentimes for visual or aesthetic attributes (Urry [16]) characters of a site which are more attached to the natural or human history of the area, are therefore underemphasized in development. The consequence in the long-term is what anthropologists refer to as the 'Disneyfication' of tourist destinations; where that which forms the attraction for the tourist is but a distant abstraction of the genuine natural and human attributes of the site.

Visually appealing attributes do lend themselves readily to a large and economically productive mass-tourism market. However, tourism practitioners have yet to perfect the art of identifying locally relevant and genuine host-site attributes which would be strengthened, rather than diluted through promotion. Ideally, tourism should reinforce the culturally unique attributes of the area, thereby reinforcing the integrity of the social fabric. As applied to Val di Merse, the conceptual model focused attention on locally-based knowledge and values, and also assisted in identifying social trends which would weaken or homogenize these characters.

## **4 Discussion**

The subsequent step in this process is to survey the full range of information available for studying Val di Merse in the earliest stages of tourism development, especially aspects which could be used to derive the relationship between tourism and the other dynamics relevant to the landscape. Following an extensive literature survey, interviews should be performed to elicit guiding concerns from the host community. The analysis which results is intended to be an integration of social, ecological, and economic understanding. A research plan should then outline what information will be needed to address all aspects presented by the conceptual model, and an action plan designed to address the most critical ones. The study should attempt to integrate local resident concerns with trends extrapolated from studies over time of land-use, ecological, socio-political and demographic change. While drawing from economic and ecological models, compliment techniques could be culled from the fields of anthropology and quantified subjective science, in order to define the concerns of the host-community in an articulate and rigorous manner.

Tourism development in Val di Merse should be pursued if tourism will increase net social benefit to the local residents, and contribute a net benefit to

the workings of Siena as a province on the whole. Net social benefit entails an increase in welfare for present and future generations. Total welfare is the result of combined economic and non-economic (ie. Socio-cultural and ecological) welfare. Sometimes, investment in one form of welfare is a trade-off with investment in the other. The dominant cost-benefit paradigm currently emphasizes increasing welfare by increasing economic growth. Because tourism development frequently accomplishes this, this paper advocates a concentrated awareness of the aspects which contribute to quality of life which the proposed area risks by undergoing certain forms of tourism development. The impacts should be compared with the diverse forms of tourism which could be developed: the different forms (religious, agricultural, art and culture) and at different scales (mass tourism, backpackers, luxury, etc). This is particularly important for Val di Merse, which has traditionally offered quality of life to its residents through a wealth of natural, social, and cultural capital, and by virtue of the fact that there are few residents with respect to the resources available to support it. Tourism, as it brings an "invisible" population with a tendency for waste and high resource consumption, stands to threaten some aspects of this welfare.

In considering the true costs and benefits of tourism development, the conceptual model developed above can help to evaluate properties of a destination, in this case Val di Merse. A great deal of information, while sometimes in sparse or unconventional forms, is adequate to begin comparison of the conceptual model against collected information. This exercise should assist in identifying sustainable scale (How will "carrying capacity" be determined?), efficient allocation (How will the costs and benefits to stocks of natural, social, cultural, and man-made capital be weighed?), and finally, just distribution (How will the costs and benefits be distributed among present and future generations?). The final weights assigned, should be done so in terms of values held by the local host community. Should these imply that the net social benefit to Val di Merse will decline as a result of tourism, the community should be empowered to opt-out of that form of development.

In any case, as with any complex, living, human-ecosystem, a high degree of uncertainty is involved. This is especially true for highly evolved systems, such as ecological functions and socio-cultural norms and traditions which have developed over a lengthy and intricate history. Because of the risks involved, and the costs and sometimes the impossibility of repairing the damage to these, tourism development should adhere to the precautionary principle.

The approach advocated in this paper departs from the neoclassical economic view of negative impacts as 'externalities', and thus suggests that the economic structure requires more profound changes. The conceptual model above extends to tourism analysis the analytical approach of ecological economics and political ecology, to carefully account for market and non-market contributions to local welfare and thus guide optimal decision making for sustainable tourism.

This paper documents an attempt to construct a conceptual model against which to weigh the potential costs and benefits of tourism expansion in Val di Merse.



As a result of the initial case study assessment, the following interviews and literature and data survey, three areas have emerged: loss of biodiversity, decline in eco-cultural knowledge and cultural homogenization. Subsequent papers report on interview findings, and subsequent quantification efforts.

## References

- [1] Blaikie P.M. and Brookfield H.C. (ed.), *Land degradation and society*, Methuen, London, 1987.
- [2] Butler R.W., "The concept of the tourism area cycle of evolution: implications for management of resources", *Canadian Geographer*, 24(1), pp. 5-12, 1980.
- [3] Butler R.W., "Modelling tourism development: Evolution, growth and decline", in Wahab S. and Pigram J.J. (eds), *Tourism Development and Growth. The Challenge of Sustainability*, Routledge, London, pp. 109-128, 1997.
- [4] Chambers E. and M. Paolisso, unpublished study on "Heritage Definition and the Eastern Shore of Maryland", University of Maryland, 2002.
- [5] Choy D.J.L., "Tourism Planning: The Case for Market Failure", *Tourism Management*, vol. 12 (4) pp. 313-330, 1991.
- [6] Costanza R., d'Arge R., de Groot R. *et al.*, "The value of the world's ecosystem services and natural capital", *Nature*, vol. 387, pp. 253-260, 1997.
- [7] Costanza R., Wainger L. *et al.*, "Modeling complex ecological economic systems: toward an evolutionary, dynamic understanding of people and nature", *BioScience*, v. 43, pp. 545-55, 1993.
- [8] Daly H.E and Farley J., *Textbook for Ecological Economics*, Elsevier Press, in press 2002.
- [9] Daly H.E and Cobb J., *For the Common Good: Redirecting the economy towards community, the environment, and a sustainable future*, Beacon Press, Boston, p. 253, 1989.
- [10] Duffy, R. *One Trip Too Far: Ecotourism, Politics and Exploitation*, Earthscan Pub. Ltd. London, 2002.
- [11] Gormsen, E. "The impact of tourism on coastal areas", *Geojournal* 42 (1) 39-54, 1997.
- [12] Gossling S., "The globalization of tourism and its environmental consequences", *Journal of Global Environmental Change*, v. 12 pp. 283-302, 2002.
- [13] Lundberg D. E., Krishnamoorthy M. and Stavenga M.H., *Tourism Economics*, John Wiley & Sons, New York, 1995.
- [14] Patterson, T., A Report on the Sustainability of Tourism in Siena, *Rapporto SPIN-ECO*, Provincia di Siena, 2002.
- [15] Stonich S., "The Political Ecology of Tourism", *Annals of Tourism Research*, vol. 25(1), pp. 25-54, 1998.
- [16] Urry J., *Consuming Places*, Routledge, London, 1995.