ARGUMENTS IN FAVOR OF TAXING TOURISM:
THE LANZAROTE CASE STUDY

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This work discusses the theoretical foundation for the introduction of a taxation mechanism capable of collecting the necessary and indispensable financial resources to carry out public policies aimed at planning and managing tourism development. The research focuses on some dynamics observable in Lanzarote (Spain), where different aspects and impacts of tourism development are identified and analyzed to demonstrate the existence of external costs. The ascertainment of external costs in Lanzarote leads the research to examine the theory of the “rent capture” as Hartwick proposes to reach some conclusions as the use of tax revenues for the enlargement of the carrying capacity of physical facilities or the funding of research for improving destination management strategies. The originality of this article is to delve into the theoretical justification for the implementation of a taxation mechanism at tourism destinations.

Keywords: Tourism destination management, external costs, taxation mechanism

JEL Classification: L83, M1, O1

INTRODUCTION

Environmental degradation generated by tourism development along with a lack of specific and integrated management for the preservation of natural resources has brought about economic decline to many tourism destinations (Hall, 1998; Boyra, 2009; Dodds & Butler, 2010). In particular, the progressive depletion of natural resources generated by the impact of mass tourism in coastal areas have shown limits, which confirm
what is stated in the theory of the cycle of life of the tourist area (Butler, 1980).

To avoid economic decline in tourist areas is necessary therefore to develop an efficient and sustainable planning of territorial resources based on a coordinated management strategy.

This article focuses on the theoretical foundation for the introduction of a taxation mechanism to develop appropriate policies and procedures for a more sustainable use and consumption of local tourism services and assets. Tourists, who are generally considered large users of local resources, consistently generate external costs for the local host communities. In fact, the latter often bear financial expenditures aimed at organizing their territories for adequate tourism reception, while normally very little contribution comes from the tourism sector. The capturing rent is the impact that tourists have on the local resources and specifically on those related to the natural environment. If we consider the natural environment as a non-renewable resource, then the rules set by natural resource economics theory should be followed if the sustainable management of the local economy is to be pursued.

We may fairly state that where governmental obligations in maintaining and providing public goods and services to satisfy tourists public authorities should naturally call for their contribution. There is therefore a justification for tourism taxation. However, when environmental goods are also taken into account further considerations must be made. In fact, taxation is not only a tool that aims to recover costs generated by the presence of tourists. It can also represent a sort of pricing mechanism through which it is possible to assign an economic value to normally common environmental goods. In this way, it would be possible to rationalize their accessibility to avoid their overexploitation.

Open access resource exploitation drives resource rents to zero and leads to the overuse of the resource (Barbier, et al., 1994). The lack of resource rents constrains investment opportunities to somehow rejuvenate or substitute the exploited resource. In this way, once the resource has been thoroughly depleted, the community whose existence it was based on, finds itself impoverished and with no other possibilities of productively exploiting that resource or finding other alternatives.

It is generally recognized that tourism generates economic rents that are much higher than the marginal social cost of the locally provided services (Bird, 1992). Furthermore, it is also quite normal for private suppliers of tourist services to try to maximize these rents above normal level. As a result, a policy aimed at drawing out much of the rent by taxing economic agents involved in tourism activities could generate a
flow of money from the tourism sector to the local government in order to meet the local community needs.

LANZAROTE CASE STUDY

The Canary Archipelago is one of the most popular Spanish tourist destinations. During 2007 around 9.4 million foreign arrivals were registered. Likewise the Canary Islands represent, in terms of accommodation capacity supply, the fourth Spanish tourist destination with more than 150,000 hotel beds. These figures show the importance of tourism in the Canary Archipelago economy.

An almost ideal year round climate has contributed to transform the "Fortunate Islands" in an affordable and popular subtropical tourist destination. The volcanic origin of the archipelago explains the attractiveness of its landscape. The particular isolation of this insular system explains the preservation of a series of major and unique ecosystems within its borders.

The magnificence of these natural assets has been recognized both by the Spanish and local government since the 1970 decade with the declaration of an important number of protected areas. The Canary Archipelago is an autonomous region, which enjoys a decentralized system of government and has its own parliament. Its legislative effort tends to preserve the biodiversity value of its territory. Nevertheless some areas have already been overdeveloped.

Lanzarote is the easterly and northernmost island of the seven major ones that constitute the Canary Archipelago. The island lies in the Atlantic Ocean at only 100 km distance from the coast of Africa and 1000 km distance from the Iberian Peninsula. It runs 60 km from north to south and only 20 km at its widest point from west to east, covering an area of 846 km square with an altitude rising from 0 to 670 m above sea level at its highest point. Meteorological data for 2001 (see table 1) give an idea of weather conditions and its remarkable suitability for tourism development.

With almost 100 sand beaches Lanzarote became a main tourist destination from the decade of 1970. The Timanfaya National Park declaration in 1974 implied the recognition to preserve a share of the unique and pristine natural environment of Lanzarote. During the decades of 1980 and 1990 tourism growth consolidated and brought economic welfare to the islanders as well as revolutionary changes in their social, cultural and consumption patterns. Urbanization developed fast and a series of major tourist resorts were built while an increasing influx of
people both foreign and national began to settle permanently on the island mainly attracted by job opportunities directly or indirectly generated by tourism development.

**Table 1** Meteorological Data of Lanzarote in 2001.

<table>
<thead>
<tr>
<th>Month</th>
<th>Windspeed (km/h)</th>
<th>Humidity %</th>
<th>Rain (mm)</th>
<th>Rain (days)</th>
<th>Temp. C°</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>19</td>
<td>73</td>
<td>0.9</td>
<td>4</td>
<td>17.9</td>
</tr>
<tr>
<td>February</td>
<td>19</td>
<td>71</td>
<td>0.0</td>
<td>0</td>
<td>17.9</td>
</tr>
<tr>
<td>March</td>
<td>22</td>
<td>75</td>
<td>0.1</td>
<td>1</td>
<td>19.4</td>
</tr>
<tr>
<td>April</td>
<td>30</td>
<td>73</td>
<td>0.3</td>
<td>3</td>
<td>19.7</td>
</tr>
<tr>
<td>May</td>
<td>22</td>
<td>74</td>
<td>0.0</td>
<td>3</td>
<td>20.2</td>
</tr>
<tr>
<td>June</td>
<td>30</td>
<td>69</td>
<td>0.0</td>
<td>0</td>
<td>22.5</td>
</tr>
<tr>
<td>July</td>
<td>34</td>
<td>65</td>
<td>0.0</td>
<td>1</td>
<td>23.2</td>
</tr>
<tr>
<td>August</td>
<td>29</td>
<td>67</td>
<td>0.0</td>
<td>0</td>
<td>26.2</td>
</tr>
<tr>
<td>September</td>
<td>19</td>
<td>67</td>
<td>0.5</td>
<td>3</td>
<td>25.3</td>
</tr>
<tr>
<td>October</td>
<td>18</td>
<td>68</td>
<td>0.2</td>
<td>1</td>
<td>23.7</td>
</tr>
<tr>
<td>November</td>
<td>21</td>
<td>66</td>
<td>32.2</td>
<td>10</td>
<td>20.6</td>
</tr>
<tr>
<td>December</td>
<td>15</td>
<td>73</td>
<td>3.8</td>
<td>5</td>
<td>19.4</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>23.2</strong></td>
<td><strong>70</strong></td>
<td><strong>3.2</strong></td>
<td><strong>2.6</strong></td>
<td><strong>21.3</strong></td>
</tr>
</tbody>
</table>

*Source: Instituto Nacional de Meteorología (2002).*

In October 1993 the whole island of Lanzarote was declared Reserve of the Biosphere by UNESCO at the request of the local government called Cabildo. Its aim is to mitigate the negative environmental impact due mass tourism on the island. A year later, in 1994, the Cabildo modified the Nature Protected Areas Law to enable the preservation of over 40% of the insular territory from further urban development (UNESCO, 2002). Despite the planning efforts of the local government, the gradual growth of residents and tourist flows towards Lanzarote increases day to day the pressure upon its natural resources (Spilanis & Karayiannis, 2009; Brida, 2011). Throughout the decade of 1990 a fast growing foreign tourist demand partially switched into a demand for permanent second residence on the island. At present, more than 3,641 houses in Lanzarote are owned by foreigners most of them (57.4%) are located in the municipality of Tias. Demographic figures registered a spectacular growth of the population between 1988 and 2008 (see table 2). The island is visited annually by almost 2 million tourists, mainly coming from United Kingdom, Germany and Spain. The accommodation
offer, basically concentrated in hotel units, exceeds the number of 65,000 beds, located basically in 3 major tourist areas, Puerto del Carmen, Costa Teguise and Playa Blanca (see chart 1).

Table 2 Population of Lanzarote (1988-2008).

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Daily tourist average</th>
<th>Total population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>65.503</td>
<td>17.182</td>
<td>82,685</td>
</tr>
<tr>
<td>1993</td>
<td>72.755</td>
<td>36.188</td>
<td>108,943</td>
</tr>
<tr>
<td>1998</td>
<td>84.849</td>
<td>45.539</td>
<td>130,388</td>
</tr>
<tr>
<td>2003</td>
<td>114.715</td>
<td>48.798</td>
<td>163,513</td>
</tr>
<tr>
<td>2008</td>
<td>139.506</td>
<td>48.026</td>
<td>187,532</td>
</tr>
</tbody>
</table>

Source: Cabildo de Lanzarote (2009a).

During the period 1986-2008 tourist flows grew spectacularly multiplying by four the total number of arrivals to the island. The number of holidaymakers in 1986 was below half a million, in 1991 tourists were over one million, in 1997 over one million and a half, whereas in 2008 almost 2 million tourists visited the island (Cabildo de Lanzarote, 2009b).

This trend implies a major challenge for the management of Lanzarote natural resources since tourists and non-official residents are not directly subject to a taxation mechanism.

In addition, foreign population growth implies an integration challenge for the local community as well as an increasing demand on goods and services like public health, education, among others. A survey carried out in 2007 about local population opinion in relation to tourism development in the island obtained the following results; more than 50% of the respondents believed that the situation of tourism in the island had gone to worse whereas about 32% answered that any substantial improvement was been achieved.

Taking into account the result of this survey it seems even more crucial for the future development of tourism in the island to strengthen the practice of a taxation mechanism. This practice should improve funds redistribution towards local population needs including the protection of its fragile insular system. Despite local government efforts to regulate land uses through its Insular Plan for Land Planning and its successive adjustments, tourist growth is still difficult to manage due tourist accommodation facilities development.
In fact, the tourist moratorium 2000-2010 was meant to establish limits to the increase of new tourist accommodation facilities for the following ten years, nevertheless about 8000 tourist beds have been built outside legal framework and 4000 have been stopped before construction during this period. Still, another major threat persists this is the recovery of previously granted building rights that require compensative payments.

An ecological reform of the tax system could generate extraordinary funds with which to meet the expenditure necessities to restrain environmental impoverishment and, in particular, to curb the trend towards increasing urbanization as a result of tourist growth (González Morales & Hernández, 2005).

THE NON-RENEWABLE RESOURCES DEPLETION THEORY AND THE HARTWICK RULE FOR THE IMPLEMENTATION OF TOURISM ECONOMIC SUSTAINABILITY

From an economic analysis, the non-renewability condition brings some problems to the management of resources. These are mainly seen in
aspects such as how quickly the resource is depleted. Indeed, reasoning in terms of the exploitation of a mine, a unit of resource extracted today implies that a smaller amount of that resource will be available tomorrow.

For this reason, an efficient resource exploitation path this is the amount extracted or exploited in each period of the resource lifetime must be identified.

The theory on non-renewable resource use basically refers to an analysis drafted by Gray in 1914 (Hartwick & Olewiler, 1998) where the hypothetical manager of a non-renewable resource – a mine is his specific example – decides the quantity of resource to extract and for how long, on the basis of certain assumptions.

The result of his analysis showed that a company, in deciding how to extract a certain resource stock, must choose an extraction path represented by \((q^*_t, q^*_{t+1}, ..., q^*_T)\), that is quantity \(q\) at each point of the resource lifetime \((t, t+1, ..., T)\) which maximizes its profits.

Since extraction takes place over more than one period of time, then what has to be maximized is the present value of profits, which can be expressed as follows:

\[
\pi = pq_0 - TC(q_0) + \frac{[pq_1 - TC(q_1)]}{(1 + r)} + ... + \frac{[pq_T - TC(q_T)]}{(1 + r)^T}
\]

where \(p\) is the market price of a resource unit extracted; \(TC\) represents the total costs of extracting a quantity \(q_t\) of resource.

The problem finds its solution in correspondence of the condition for which the extraction rate \([(q_{t+1} - q_t)/q_t]\) must satisfy the \(r\) percent extraction rule on \([p - MC(q_t)]\) which is given by:

\[
\frac{[p - MC(q_{t+1})] - [p - MC(q_t)]}{[p - MC(q_t)]} = r
\]

where the new notation \(MC\) is the marginal cost of extraction. The value decline of the resource, \([p - MC(q_t)]\) is the rent at time \(t\) which corresponds to any gap between price and marginal cost. In other words, on the basis of marginal profits equality across periods, the \(r\) percent rule tells us that across two periods the rent \([p - MC(q_t)]\) increases at a \(r\) percent rate.
Hence, the extraction problem finds its solution in correspondence with that extraction rate \[ \frac{(q_{t+1} - q_t)}{q_t} \] so that \[ p - MC(q_t) \] increases at \( r \) percent.

This can be represented in the following figures 3 and 4:

**Figure 3** Period t

**Figure 4** Period t+1

The \( r \) percent rule can also be interpreted as rent on the marginal resource quantity extracted in period \( t \) which equals the discounted rent extracted in the next period. The rent issue is strictly related to the value of the non-renewable resource. From what we have said, the use of a non-renewable resource stock is managed on the basis of a profit maximizing reasoning which is based on an agreed upon extraction program, which in turn implies an agreed current value of the resource.

In green accounting studies, which have focused on computing values associated with natural capital stocks, such as mineral deposits and timber stocks, there is a general agreement on how to define the value of such natural assets. In fact, the current value (or selling price) \( V_t \) is given by the discounted future profit along a maximizing extraction path \( (q^*_t, q^*_{t+1}, ..., q^*_T) \), which can be formally written in the following way:
\[ V_t = pq_t^* - TC(q_t^*) \]

where again \( p \) is the market price of a unit of extracted resource, \( q^* \) is the optimal quantity extracted at each point in time, \( TC \) is the total extraction cost and \( r \) is the discount rate. From this expression, and on the basis of the consideration that the resource value in the next period \( V_{t+1} \) is less because a certain quantity \( q_t \) has been removed, it follows that a change in the value of the natural asset is given by:

\[ \Delta V_t = \frac{rV_{t+1}}{1 + r} - [pq_t^* - TC(q_t^*)] \]

where \( V_{t+1} - V_t \) is the capital decreasing variation due to the extraction of quantity \( q_t^* \) (which is negative since \( V_t < V_{t+1} \)), \( rV_{t+1}/(1 + r) \) is the discounted interest on the resource value, and \( [pq_t^* - TC(q_t^*)] \) represents the current income achieved by the actual resource use. Following the “net price method” for valuing non-renewable resources, a consequence of the above expression representing the “correct” extraction is the following:

\[ \Delta V_t = -(p_t - MC_t)q_t^* \]

where \( MC \) is the marginal cost. What is expressed by this last equation is the fundamental relation between the decline in value of a non-renewable resource and the rent associated with the current extraction level. Indeed, the decline in the resource value, this is its economic depreciation, is equal to the rent associated with \( q_t^* \).

The intuitive explanation between economic depreciation and rent lies in Hartwick rule playing an enforcing role in the argument for tax implementation. Under certain conditions, an economy which extracts a non-renewable resource can pursue a non-declining consumption over time. Supposing that a non-renewable resource stock is not addressed to direct consumption, it can be used as an input factor in a production process together with physical capital and the output of this process can be either consumed or accumulated as capital, a positive amount of consumption over time can be maintained (Hartwick, 1977).
Hartwick rule states that if the owner of a non-renewable resource, for example a mine or a tourism resource, invests each year the rents obtained from the resource use in an interest bearing account, then by the time the resource is completely exhausted he will have accumulated enough money to acquire another equally valuable mine and sustain his mining business.

Acting in this way he will be able to guarantee his economic sustainability although facing resource depletion. To achieve the result provided by Hartwick theory, three basic conditions must occur. The first two are strictly linked to each other. At each point in time the extraction of an exhaustible resource should be based on an efficient and non wasteful program.

When this first condition is satisfied, then the second one can take place: all generated rents should be saved and reinvested in man-made or physical capital. Finally, although the third condition has not been expressly reported it lives implicitly in the model since it represents the basic theoretical assumption for the existence of Hartwick idea.

This condition is based on a very weak idea of sustainability, as referring to the high substitutability degree between the exhaustible resource this is the natural resource and the man-made capital since these are thought to be perfect substitutes for one another. In other terms, this condition requires that while the exhaustible resource is depleted a compensating increase of the man-made capital must take place and that the latter substitutes the former in the production processes so that the output does not decrease.

As is easy to see Hartwick rule is based on assumptions that are difficult to support. In particular, the third condition which refers to the perfect substitution between natural and man-made capital cannot be considered true in the real world. For this reason, Hartwick was subject to criticism (Barbier & Markandya, 1990; Common & Perrings, 1992; Hanley et al., 1997).

CONCLUSION

Despite that Lanzarote has been protected as a Biosphere Reserve by UNESCO its evolution does not differ much from those registered in other mass model tourist destinations and therefore tourism overdevelopment is threatening its own socioeconomic future.

That is why effective management, offered by legal and urban bodies and powered by the Insular Plan for Land Planning with the support of the
Guidelines of General and Tourist Planning Canaries Authority is fundamental to mitigate environmental and tourist experience decline.

Tourism has brought hitherto higher incomes and increasing consumption patterns among its population. However islander consciousness and participation in decision-making is also a fundamental requirement to achieve long-term environmental and socioeconomic benefits (Skanavis & Sakellari, 2011).

Taxation mechanisms for planning and managing tourism development are necessary to avoid risks like gradual natural resources degradation or vice versa to enhance the environmental quality of destinations (Fennell & Ebert, 2004; Brida & Pereyra, 2009).

According to the theoretical analysis discussed a taxation mechanism needs to be implemented and its funds used to promote environmental and social plans that can guarantee more sustainable practices on the destination. However, tourism taxation is not easy to implement.

Although an appropriate way of taxing tourism should be based on the daily spending capacity of tourists, it is difficult to identify each stage of tourist spending activity on a tax basis. Basically, tourism can be taxed in two different ways: either indirectly through the general tax system – particularly profits and sales taxes – or directly through the introduction of special taxes imposed on tourism activities, in particular arrival and departure taxes and hotel taxes.

Among the many forms of taxation, relevant attention in literature is paid to the hotel tax – or bed-night tax – because it best responds to some good taxation principles. In fact, the hotel tax is important because it is roughly proportional to the use of tourism resources, since it is related to length of stay, and has a discriminatory nature, in that it falls on visitors and not on residents.

Furthermore, it generates various other advantages, such as that – if taxation is considered within certain percentage (i.e. 5%) – of showing no statistically significant negative impact on tourist arrivals with the result of not harming the competitiveness of the travel industry (Bonham, 1991; Bird, 1992; Wicks et al., 1994; Bonham & Byron, 1996). Hotel room tax is widely applied (World Travel and Tourism Council, 1999) and is often nominated as the best tool for tourism taxation.

The application of a hotel room tax in Lanzarote can be supported for the reasons we have discussed, however due to the features of local tourism, which is characterized not only by hotel accommodation but also by non hotel facilities we need to consider a bed night tax rather than a hotel room one including, this way, all categories of tourism accommodation facilities.
Another important aspect is represented by the assignment of the financial resources arising from the tax application. The form and level of taxation are sensibly dependent on how the tax revenues are spent. The specific literature refers to strong evidence suggesting that in particular activities, like tourism, it may be possible to levy higher tax levels if a portion of the obtained revenues are employed to benefit the taxpayers (Bird, 1990).

The introduction of a tax on tourism can be more generally accepted by both the industry and tourists if there is tangible evidence that a consistent proportion of its revenue is used for the improvement of tourism facilities, human resources and preservation of the intrinsic quality of the natural environment of the area.

There is an unequivocal conflict between the maintenance of a natural system and the exploitation of that system for tourism purposes. As we have extensively discussed above, such conflict is clearly mirrored in a wider context and also have negative impacts on the well-being of the local population in time (Bird, 1992). As a consequence, it is worth compensating the local population for the loss of unrestricted access to the resource, and for the unavoidable discomfort and sense of deprivation arising from the mix of people and lifestyles. In other words, tourism tax revenue should be redistributed on a basis that ensures local tourism industry benefits while at the same time guarantees the provision of the local community; investments for the enlargement of the carrying capacity of physical facilities could be financed as well as research to improve and modernize destination planning and management strategies to guarantee the success of the tourism destination in the long term.

REFERENCES


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