

Economic Impacts of Tourism in German Biosphere Reserves

Summary of the results Research & Development project (FKZ 3510 0870 200)

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Biosphere Reserves are internationally recognized protected areas, which are designated by the UNESCO to promote sustainable development. As places that seek to reconcile conservation of biological and cultural diversity and economic and social development through partnerships between people and nature, they are ideal to test and demonstrate innovative approaches to sustainable development. In this context tourism can be seen as an important instrument to fulfill these objectives. The present research and development (R&D) project "Economic Impacts of Tourism in Biosphere Reserves" was funded by the "German Environment Ministry's Environmental Research Plan". The research study aimed to evaluate the tourism in selected Biosphere Reserves and to extrapolate these figures on a national level. Additionally, the potential of nature-based tourism in these protected areas was analyzed.

In general, studies of economic impact model the recursive effects on income, output and employment caused by the injection of cash into an economy by a new activity. From an international perspective four approaches to regional economic impact assessment are common, e.g. cost-benefit analysis, multiplier models and input-output analysis. Since the 1990s, an adaption of the Keynesian multiplier approach has gained most attention in Germany and other European countries e.g. Austria and Switzerland. The main challenge for the evaluation of the regional economic impact of tourism are the diverse links to different sectors. From a production perspective, a lot of players interact to develop and make the final tourism service. Therefore total tourism demand as well as value added and its structure are gathered by studying the consumption patterns of tourists. The first task is the determination of visitor numbers, which is crucial variable for the evaluation. In German protected areas there is a lack of information on visitor behaviour, which makes it necessary to conduct extensive visitor counting throughout a whole tourism season. The assessment of daily expenditures of tourists and their structure is done with the help of face-to-face interviews. These interviews also give useful information about e.g.

trip motivation, significance of the regions' status as protected area and socio-demographics.

In order to perform an impact analysis for German Biosphere Reserves, six out of 15 Biosphere Reserves were selected. The study areas were chosen to represent the whole variety of German Biosphere Reserves and their entire range of tourism.

A categorization of all German Biosphere Reserves on the basis of tourism and management parameters showed that there are four types of Biosphere Reserves (*italics = research area*):

- Type I Very Large, Traditional Tourism Region: Berchtesgadener Land, Niedersächsisches Wattenmeer, *Südost-Rügen*
- Type II Large Tourism Region: *Rhön, Pfälzerwald*
- Type III Medium Tourism Region: Flusslandschaft Elbe, Schwäbische Alb, *Spreewald*
- Type IV Small Tourism Region: Bliesgau, Oberlausitzer Heide- und Teichlandschaft, *Schaalsee*, Schleswig-Holsteinisches Wattenmeer und Halligen, Schorfheide-Chorin, Karstlandschaft Südharz, *Vessertal-Thüringer Wald*

During a period of one entire year, 52.571 short and 8.253 long interviews were conducted, which were used to calculate tourism demand. In total, all six study areas reach 20.293 million visitor days. This figure shows that Biosphere Reserves are important destinations on the German tourism market.

The Biosphere Reserve "Südost-Rügen", representative for Type I, reaches one of the highest numbers of visitor days with 5.288 million in total, but still remains behind the bigger Biosphere Reserves "Rhön" (6.370 million) and "Pfälzerwald" (5.715 million) of Type II (see Table 1). However, taking into account the size of Biosphere Reserves, "Südost-Rügen" reaches by far the highest tourism density. The Spreewald with 1.943 million visitor days does not have such a high visitation rate due to its smaller size. Biosphere Reserves "Schaalsee" and "Vessertal-Thüringer Wald" are classified as small tourism regions and attract not more than 500,000 visitor days within one year.

		Pfälzerwald	Rhön	Schaalsee	Spreewald	Südost- rügen	Vessertal- Thüringer Wald	
Visitor days	All visitors	Total	5.715.000	6.370.000	490.000	1.943.000	5.288.000	487.000
	High BR affinity	Day	99.000	635.000	84.000	73.000	0	38.000
		Overnight	102.000	235.000	22.500	95.500	260.000	16.000
	Low BR affinity	Day	3.361.500	3.700.000	320.000	873.500	355.000	274.000
		Overnight	2.152.500	1.800.000	63.500	901.000	4.673.000	159.000
Expenditures	Mean daily. expenditures in €	Day	17,20	15,80	17,90	24,70	17,20	10,70
		Overnight	75,10	57,60	51,10	67,00	75,60	53,70
Economic Impact	Gross tourist spending in €	Total	228.981.000	185.556.500	11.609.500	89.968.750	379.274.800	12.726.600
	Direct + indirect income in €	Total	116.196.432	94.577.847	5.747.851	47.438.830	203.924.693	6.432.560
	Income equivalents	High BR affinity	165	611	87	251	762	41
	Income equivalents	Total	5.271	4.786	336	2.971	14.281	392

Table 1: Overview about the regional economic impacts of Biosphere Reserves

The ratio of over 60 % between day-trippers and overnight visitors in four out of six Biosphere Reserves under investigation shows the relevance of day-trips for Biosphere Reserves in Germany. The empirical results also demonstrate that the percentage of visitors, who know the status of the protected area is very variable. At least half of the visitors are able to name the protection status of the region. The share of visitors, who are attracted by the label Biosphere Reserve and who have a high Biosphere Reserve affinity, was defined as the percentage of visitors that answered affirmatively three successive questions concerning the status of protection and their motivation (see figure 1).

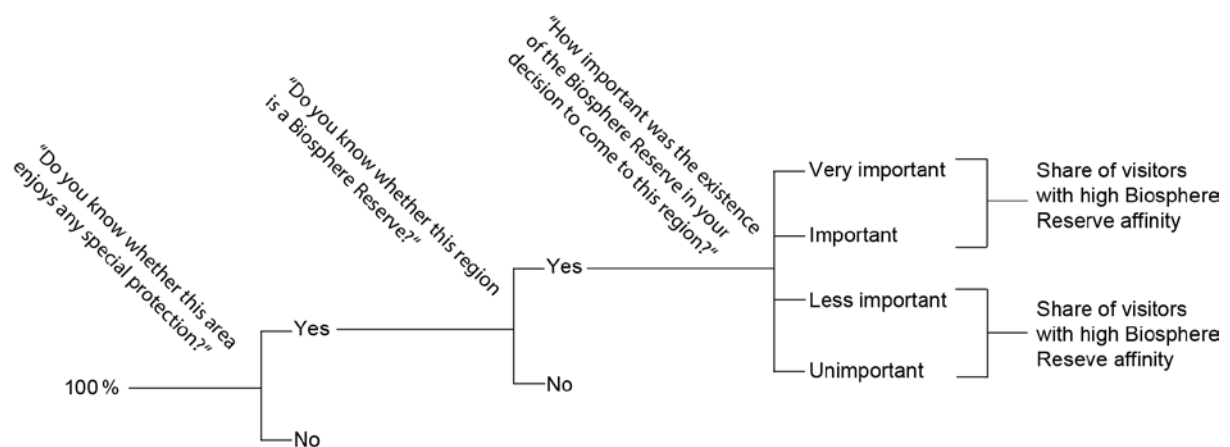


Figure 1: Decision tree to determine visitors with high Biosphere Reserve affinity

This parameter has central importance for the project and is a management tool for Biosphere Reserve administrations to benchmark their marketing activities. The

group of visitors with a high affinity for the Biosphere Reserve varies between 3.5 % for Pfälzerwald and 21.5 % for the Schaalsee region. These values, which are significantly below the level of the German National Parks (average National Park affinity 28.2 %), heavily depend on the historical development of the particular region and the park. In addition, the prevailing conditions in the protected areas are crucial, such as the work of the biosphere reserve administration and their marketing efforts.

In addition to assessing the number of visitors and the various relevant visitor groups, the level of tourist expenditures is of major importance in Keynesian multiplier analysis. The expenditures of day-trippers and overnight visitors in Biosphere Reserves are significantly higher than in German National Parks. In the latter they reach on average a level of about 10 Euros for day-trippers and for overnight guests of approximately 50 Euros. The Biosphere Reserves top these values with 17 Euros for day guests and about 60 Euros for overnight guests (see Table 1). The difference between the expenditures of Biosphere Reserve tourists and National Park tourists can be explained by the relation of Biosphere Reserve tourism to cultural landscape and culture, which opens up more possibilities for consumption than in typically more remote national park environments. In addition, the marketing and development of local quality products and services can help to raise expenditures, which sustains a healthy economy.

The gross tourist spending of the six investigated biosphere reserves sums up to a total of nearly one billion Euros, which results in 28,000 income equivalents. The direct and indirect income has a big range within the group of Biosphere Reserves that varies between 5.7 for the Schaalsee region and nearly 204 million Euros in Südost-Rügen. These figures show that Biosphere Reserves are an economic factor and thus crucial for employment in rural areas.

The extrapolation of empirical figures on a national perspective results in a volume of 65.3 million tourists in Biosphere Reserves in Germany that generate a gross tourist spending of 2.94 billion Euros. Overall, this turnover results in more than 86,200 income equivalents. The impacts, which are directly attributable to the Biosphere Reserve due to the high affinity of visitor's, sums up to approximately 5,300 income equivalents, this equates a share of 6.1 %.

The study has been published in full length in German language:

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