

The economic impact of tourism in Swiss parks

Many rural and regional economies have been affected by decreasing availability of jobs in the forestry and agricultural sectors. This has led to increases in commuter numbers and depopulation. The negative impact of such structural change may be mitigated by the wide range of activities offered by parks and protected areas, which may lead to the creation of jobs in many sectors. This potential is one of the premises of the Swiss Parks Ordinance (Federal Council 2007), whose explicit purpose it is both to conserve natural habitats and landscapes, and to encourage sustainable regional business activities. In

this context, touristic activities can be highly relevant as their economic benefit can be spread across numerous sectors. Moreover, social or political resistance to tools that promote tourism tends to be low and the implementation of such tools requires relatively little technological and financial input. What is usually less clear, however, is the actual economic impact that park-related tourism may be able to create in regional economies. This Fact Sheet intends to close this information gap by providing recommendations that have been retrieved from various existing value-added studies.

Why conduct economic impact studies?

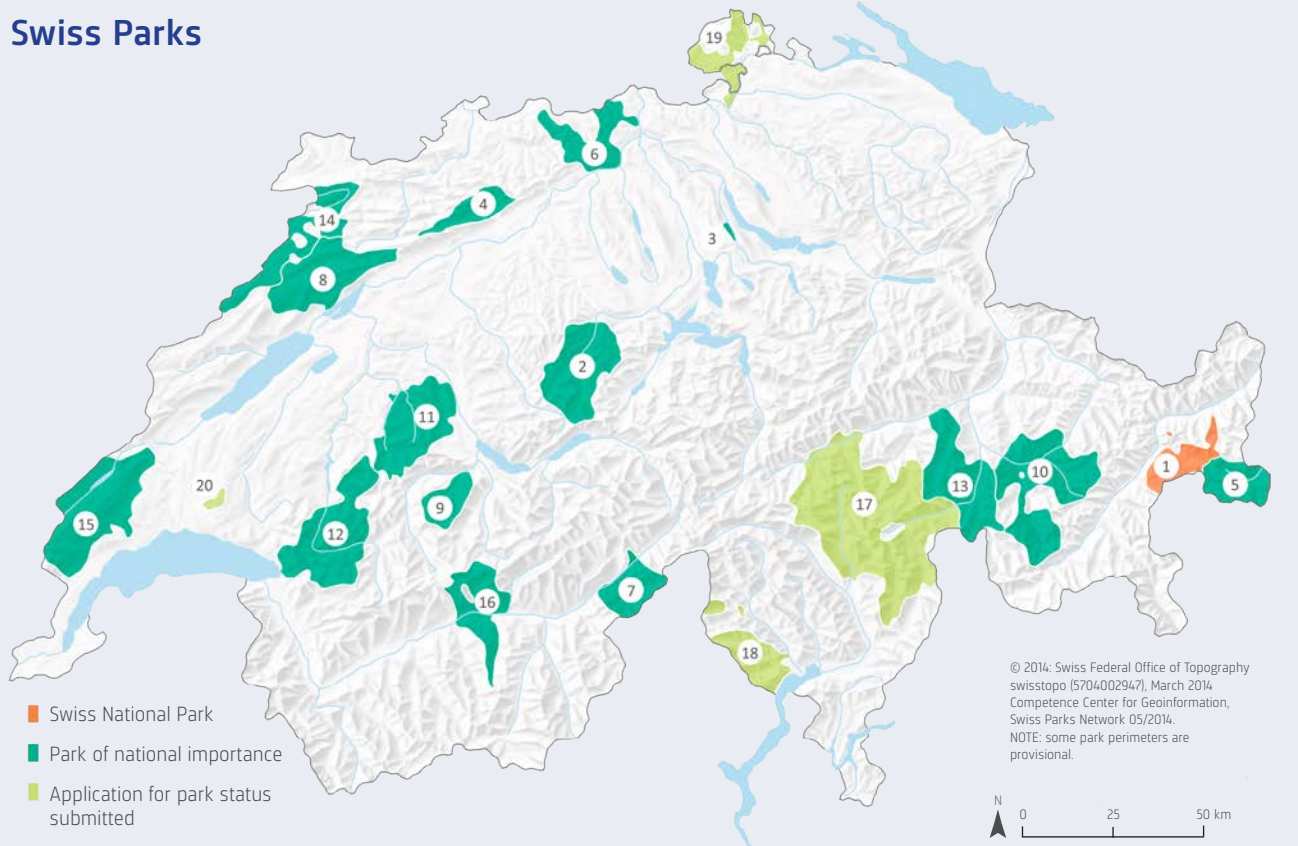
Studies of this type can provide information on the size of the economic impact created by park-related tourism, and on how tourism affects the economy of an entire park region. Moreover, such studies can provide park managements with useful and specific data on the effectiveness of various touristic activities. Surveys repeated at regular intervals also allow the monitoring of tourist demand over time to assess changes in its impact on the regional economy. In the Swiss National Park, for example, surveys in 2000 and 2013 found that while the economic value-added of tourism had remained stable for fifteen years, tourists had changed their spending behaviour.

Value-added increases economic value

The economic impact of tourism is measured in the value-added it creates in a region. 'Value-added' describes the increase in economic value of a good that goes through a production process (FSO 2013). Studies usually discern between gross and nett value-added; gross value-added (GVA) includes nett value-added plus depreciation costs. For reasons of simplicity and missing data, practically all studies use gross value-added in their calculations.

Total tourism-induced gross value-added corresponds to the sum of all value increases of 'goods' demanded by visitors to a

Swiss Parks



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|----|--|----|---|
| 1 | Swiss National Park (since 1914) | 11 | Gantrisch Nature Park (Regional Nature Park since since 2012) |
| 2 | UNESCO Biosphere Entlebuch (Biopshere Reserve since 2001, Regional Nature Park since 2008) | 12 | Gruyère Pays-d'Enhaut Regional Nature Park (since 2012) |
| 3 | Wildnispark Zurich Sihlwald (Natrue Discovery Park since 2009) | 13 | Beverin Nature Park (Regional Nature Park since 2013) |
| 4 | Thal Nature Park (Regional Nature Park since 2009) | 14 | Doubs Nature Park (Regional Nature Park since 2013) |
| 5 | Biosfera Val Müstair (Biosphere and Regional Nature Park since 2010) | 15 | Jura vaudois Nature Park (Regional Nature Park since 2013) |
| 6 | Argovia Jurapark (Regional Nature Park since 2012) | 16 | Pfyn-Finges Nature Park (Regional Nature Park since 2013) |
| 7 | Binntal Nature Park (Regional Nature Park since 2012) | 17 | Parc Adula (Candidate National Park) |
| 8 | Chasseral Nature Park (Regional Nature Park since 2012) | 18 | Locarnese National Park Project (Candidate National Park) |
| 9 | Diemtigtal Nature Park (Regional Nature Park since 2012) | 19 | Schaffhausen Nature Park (Candidate Regional Nature Park) |
| 10 | Parc Ela (Regional Nature Park since 2012) | 20 | Jorat (Candidate Nature Discovery Park) |

park region. 'Goods' are products such as local cheese or craft objects, and services such as guided tours, or services provided by tourist offices, etc. Labour and technological inputs generate value increase in any specific 'goods'. Not included in the value-added are production inputs purchased outside the region; taxes such as VAT that leave the region; nor the costs of depreciation and investments that serve as a foundation to create value-added.

Total value-added

Total gross value-added (TGVA) of tourism is the result of tourism's direct, indirect and induced value-added on a given region. Direct VA is the immediate result of goods demanded by tourists (GVA, see above). Indirect VA is generated by companies purchasing goods (production inputs) within the region in order to produce their goods or provide their services in the park region, and by investments made in the region by these companies. Induced VA is the result of a demand created for goods by persons in tourism-related employment, whose spending in turn generates regional value-added. Given that both induced and indirect VA extend across several economic stages, such effects are also known as multiplier processes (see Job et al 2005).

How can value-added be measured?

Essentially, there are two different ways of measuring total tourism-induced TGVA (see Job et al 2005):

- Supply-oriented approach: Operational data, especially salaries, turnovers and production inputs, of businesses in tourism-related activities are used in model calculations made to assess tourism-induced GVA (see Siegrist 2009). However, as it requires many businesses to disclose their operational data, this approach is complex and rather unpopular.
- Demand-oriented approach: Visitor spending is assessed through regional visitor surveys that distinguish between day and overnight visitors. Taking into account the number of overnight stays, type of accommodation and average visitor spending allows to estimate gross turnover. GVA can be calculated by means of conversion factors from literature that indicate the share of production inputs and investments to be deduced from GVA. Rütter et al (1996) use a conversion factor of 50 per cent; this corresponds to an average value of all sectors affected by tourism in Switzerland.

Taking both cost-benefit considerations and comparability with existing studies into account, the demand-oriented approach offers several advantages. It has already been applied in two Swiss parks (for the UNESCO Biosphere Reserve Val Müstair Park, see Küpfer 2000 and Backhaus et al 2013; for UNESCO Biosphere Reserve Entlebuch, see Knaus 2012); and is widely applied in German parks as well (Job et al 2013).

Multipliers from comparative studies

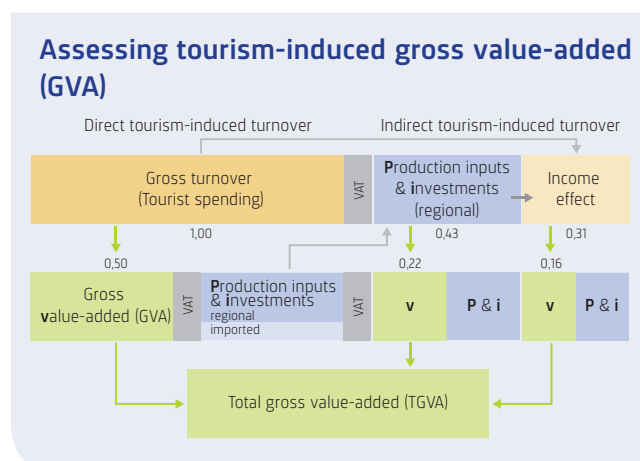
Both approaches require the calculation of indirect and induced value-added to ascertain tourism-induced TGVA. Multipliers from comparative studies can be used to calculate production inputs, investments and income effects based on GVA. Summed-up, they reflect the TGVA. Rütter et al (1996) use a multiplier of 0.43 to calculate production inputs and investments from gross revenue, and one of 0.31 to calculate income effects. Although it is possible to calculate regional multipliers directly, doing so is quite complex (see, for example, Rütter et al 2001), which is why it is uncommon.

What are the challenges in assessing value-added?

The demand-oriented approach involves several critical elements inherent in the methodology:

- Daily spending: visitors are asked to provide personal information. However, answers may be imprecise or even falsified owing to perceptions of social desirability.
- Visitor categories: to obtain more precise gross revenue figures, various visitor categories, such as day and overnight visitors, need to be defined, as well as sub-categories in terms of accommodation type (hotel, guest house, B&B, self-catering, etc). Although these categories ought to be representative, no representative samples exist in the kinds of undefined populations examined in these studies (see Job et al 2005). While increasing sample size will enhance sample representativeness, this will also lead to additional expense.
- Total visitor numbers: Gross revenue is the result of multiplying total visitor spending by total visitor numbers, which are therefore a key factor in assessing the TGVA of tourism. Given that most parks have several access points and assembly areas for visitor activities, exact day visitor numbers in particular are difficult to record. Extrapolating one's own data from existing data such as overnight visitor numbers, however, may lead to significant uncertainty. For example, despite fairly precise baseline data, Lehar et al (2004) note an uncertainty factor of +/- 22 per cent in their extrapolation of visitor numbers for the Hohe Tauern National Park and the Riesengebirge National Park.
- Multipliers: Calculating TGVA from gross revenue requires multipliers which are essentially dependent on economic factors that vary from one region to the next (see Siegrist 2009). Generic multipliers provided by relevant literature are often used, which creates further uncertainty while, however, enhancing inter-regional comparability of TGVA assessments.

Given the uncertainties listed above, it is impossible to quantify accumulated errors in the results. Therefore, any TGVA calculation should only be interpreted as an estimate.



How can value-added be attributed to individual parks?

In order to define the proportion that a specific park contributes to tourism-induced TGVA, we need to know the reasons why visitors come to the area. If they state that the park has played an important or very important part in their decision to visit, generated TGVA may be attributed to the park. Things get more complex when visitors state that the existence of the park is only one among several reasons for their visit. In such cases, only part of the generated TGVA may be attributed to the park.

Information on reason(s) for visits is essential

Tourists have many different reasons for travel to a park. They may include criteria such as scenic beauty, proximity to residential home, available tourist activities, etc. In order to assess how strongly the park has influenced their visit, and how much of their TGVA can therefore be allocated to the park, detailed information about motivation must be obtained. This, however, includes a detailed analysis of the weight that visitors attribute to different decision criteria, which can only be assessed through individualised surveys that go beyond the scope of GVA studies. Hence, the share of their TGVA needs to be obtained from other data, including data on the proportion of accessed information sources, and use of tourist activities or park infrastructure, for example.

How high is the value-added created in parks?

Tourism-induced TGVA of parks in Switzerland is comparable to that in other countries (see Table below). It depends on various factors such as park size and location, year established, name recognition, available tourist activities and infrastructure, and regional price levels. In terms of establishing future parks, the extent of touristic use prior to obtaining the park label will be a key element in the park's potential impact on TGVA. Given that the low marketing budgets of parks must compete with major tourist destinations, both at home and abroad, additional tourism-induced TGVA generated by regions with little or no tourist activity will most likely be lower and slow to increase. The recommendation therefore is for parks to cooperate with local tourist destinations (see Siegrist 2009).

Full-time job equivalents

Reference values are required to evaluate park tourism-induced TGVA. Comparisons with other parks need to be treated with caution as local economy, landscape and history will be different from other parks, which will affect comparability.

One way of evaluating TGVA is to calculate the number of full-time job equivalents created by TGVA by dividing TGVA by labour productivity (GDP per worker per year). The Swiss Federal Statistical Office only produces statistics on labour productivity by economic sector rather than by region. Regional estimates therefore require secondary data provided by Regional Economic Analyses (see www.bakbasel.com, for example).

In 2013, summer tourism to the Swiss National Park created some 240 full-time jobs; 56 jobs were created in the UNESCO Biosphere Reserve Val Müstair, and 63 in the UNESCO Biosphere Reserve Entlebuch. For further evaluation, these figures can be set in relation to regional full-time job equivalents, which are usually known.

Comparisons with public funding

Moreover, TGVA results can be set in relation to public funding contributions. Parks whose tourist activities generate multiple amounts of the funds invested can strengthen the regional economy. Moreover, regional tax revenues will return to public coffers.

In 2013, annual federal contributions to the Swiss National Park amounted to 3.2 million Swiss francs. The UNESCO Biosphere Reserve Val Müstair receives annual federal and cantonal contributions of over 600,000 Swiss francs, and the UNESCO Biosphere Reserve Entlebuch, 700,000 Swiss francs. These parks generate tourism-induced TGVA of between two and six times the public funds invested.

Parks generate other sources of value-added

Parks generate not only tourism-induced value-added but other sources of value-added as well. Production and sales of regional products; construction of renewable energy production facilities; implementation of research and nature conservation projects; and tax revenues from incomers can also generate substantial benefits to regional economies.

Taken together, policies implemented in parks not only aim to promote regional economies but also to strengthen, sustain and conserve landscapes as well as cultural and social values. The latter are rarely monetised and tend to be overlooked by economic studies. Nevertheless, these values also constitute significant regional capital.



Branded local products can generate tourism-induced value-added.

Table: Annual value-added in various Swiss parks (as well as Germany, Austria, Italy, USA)

Study	Park; year established	Visitor days/ Visitor numbers	Visitors with high park affinity ² (in %)	Annual economic impact (million CHF) ³			Area (sqkm/ sqmi)
				direct	direct and indirect	direct, indirect, induced	
Küpfer (2000)	Swiss National Park (SWI); 1914	546,000	4.2			19.3 ⁴	169 / 65.3
Backhaus et al (2013)	Swiss National Park (SWI); 1914	544,000	35			19.7	198 / 76.5
Backhaus et al (2013)	UNESCO Biosphere Reserve Val Müstair (SWI); 2010	80,000	12			3.8	198 / 76.5
Knaus (2012)	UNESCO Biosphere Reserve Entlebuch (SWI); 2001	600,000	16			5.2	400 / 154.4
Job et al (2013)	UNESCO Pfälzerwald Biosphere Reserve (GER); 1992	5,715,000	4	4.5			1788 / 690.4
Job et al (2013)	UNESCO Röhn Biosphere Reserve (GER); 1991	6,370,000	14	14.8			1852 / 715
Job et al (2013)	UNESCO Schaalsee Biosphere Reserve (GER); 2000	490,000	22	1.8			309 / 119.31
Job et al (2013)	UNESCO Spreewald Biosphere Reserve (GER); 1991	1,943,000	9	4.9			475 / 183.4
Job et al (2013)	UNESCO Vessertal–Thuringian Forest Biosphere Reserve (GER); 1979	487,000	11	0.8			170 / 65.6
Mayer et al (2010)	Bavarian Forest National Park (GER); 1970	760,000	46	9.0			242 / 93.4
Mayer et al (2010)	Eifel National Park (GER); 2004	480,000	27	1.9			107 / 41.3
Mayer et al (2010)	Müritz National Park (GER); 1990	400,000	44	3.9			322 / 124.3
Mayer et al (2010)	Hainich National Park (GER); 1997	260,000	41	1.6			75 / 29
Lehar et al (2004)	Hohe Tauern National Park (AUT); 1981	1,750,000	16	3.2			1856 / 716.6
Lehar et al (2004)	Naturpark Rieserferner-Ahrn (ITA); 1988	570,000	17	3.3			313
Stynes (2007)	Yosemite National Park (USA); 1864	3,300,000	75	175			3027

² Definition: Visit to region motivated by high affinity to park.

³ Value-added created by visitors with high park affinity; conversion of Euros and USD into CHF at annual average exchange rates in year of publication.

⁴ 2012; in CHF after adjustment to inflation.

Annual value-added in various Swiss parks (as well as Germany, Austria, Italy, USA).

Value-added was assessed by different methods; hence, results are comparable only by order of magnitude. Most notable differences concern the definition of visitors with high park affinity, and the inclusion of VAT, which in the Swiss examples was not deducted (in Switzerland, VAT on accommodation: 3.8 per cent since 2011). For Mayer et al (2010), the value-added was calculated based on information gleaned from the study (income equivalents for Biosphere Reserve tourists (in the literal sense), multiplied by primary per-capita household income).

Recommendations

Items for consideration in demand-oriented added-value studies:

- Use standardised surveys to assess average spending by day visitors, and average spending and numbers of nights in accommodation (for sample questionnaires, see Knaus 2012, and Backhaus et al 2013).
- Surveys should aim at highly representative samples for all visitor segments, and at the largest-possible numbers of samples; stratified surveys should be conducted across each season, all seasonal segments and each day of the week.
- If the visitor-group structure (number of day and overnight visitors, etc.) is known, targeted short interviews may help reduce required respondent numbers.
- Any extrapolations of total visitor numbers must be based on existing statistics: day visitors (estimates as and if required); lodging sector (hotel data collected by the Swiss Federal Statistical Office; estimates as and if required for other types of lodging such as guest houses, B&Bs, self-catering accommodation, etc.).
- In order to assess park-induced TGVA, any survey must include information about visitors' park affinity, that is, the extent to which recreation visits were motivated by the existence of or activities available at the park; surveys should include questions regarding park relevance, how information was obtained and what activities were planned.
- Tourism-induced TGVA must be correlated to total regional value-added (such as regional GDP or total number of jobs in the region, via full-time job equivalents).
- Survey reports must clearly state any theoretical assumptions.
- Survey costs will vary greatly depending on survey area and staff numbers. Costs may be reduced if visitors take part in targeted surveys (short survey, for example) at specific times and in specific locations.
- Data evaluation can be complex and costly. Fewer questions and careful evaluation planning prior to survey launch will help reduce costs.

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