

---

**Gerd Ahlert**

Gesellschaft für Wirtschaftliche Strukturforschung (GWS) mbH

---

**The Contribution of Tourism to Employment in Germany - Assessment within a TSA Employment Module and Impact Analysis.**

Tourism activities of private households and industry lead on the demand side to numerous purchases of a wide variety of goods and services. Due to its cross-sectional economic character this demand is produced on the supply side by a wide, partially very heterogeneous range of industries with very different employment characteristics (e.g. qualification, type of employment). The employment module of the Tourism Satellite Account (TSA) provides a consistent framework for estimating the direct employment within the tourism characteristic industries. For Germany such a TSA employment module has been compiled, some of its results are presented in this paper. Due to the fact that the employment module only specifies the direct employment within the tourism industries the full employment impact of private tourism consumption across the whole economy has been finally estimated within two macroeconomic model calculations.

---

**Key words:** Tourism Satellite Accounts (TSA), TSA employment module, impact analysis

---

Gerd Ahlert

Gesellschaft für Wirtschaftliche Strukturforschung (GWS) mbH

Heinrichstr. 30

49080 Osnabrueck

Tel.: +49 (541) 40933-17

Fax: +49 (541) 40933-11

Email: [ahlert@gws-os.de](mailto:ahlert@gws-os.de)

Internet: [www.gws-os.de](http://www.gws-os.de)

### **Biography**

Gerd Ahlert has worked for several years at the University of Osnabrueck at the Department of Economics. During this time he has developed a sport-specific macroeconomic simulation model with a detailed sport-economic data set. Since 2001 he is working at the Institute of Economic Structures Research (GWS) where he is responsible for the construction of theme-specific national accounts based data systems, so-called satellite accounts, and economic

sector resp. industry analysis. In 2003 he has compiled a first tourism satellite account (TSA) for the Federal Republic of Germany. This study has been extended in 2006 for a detailed TSA employment module. Besides he has estimated a transportation satellite account for the German economy which identifies the contribution of internal firm transportation activities to gross domestic product (GDP).

Tourism and all travel-related activities of private households and industry carried out in the course of day and overnight trips lead on the demand side to numerous purchases of a wide variety of goods. These are not limited merely to the hotel, catering and transport industries, but also account for goods and services in the leisure industry and the retail sector. Based on its cross-sectional economic character, tourism demand obviously consists of goods and services which on the supply side are produced by a wide, partially very heterogeneous range of industries and are often directly related to other very different sectors of the economy as a whole (retail goods and services, among others). This explains why tourism is not listed as an independent sector in the System of National Accounts (SNA).

Such consistent coverage of the direct economic significance of tourism with regard to both supply and demand is provided by the tourism satellite accounts (TSA) developed at an international level in the 1990s (Commission of the EC, et al., 2001; Eurostat, 2001). With the aid of supplementary tourism-related statistics and studies within such a framework the economic dimensions of tourism – which are fully covered in the SNA – are explicitly revealed in a separate tabulating framework designed as a satellite of the SNA (see Smeral, 2005; Heersharp, et al., 2005; Ahlert, 2007). The TSA facilitates the precise definition of the direct economic relevance of tourism and thus creates the possibilities of comparison with other economic activities or economic sectors.

For Germany, the empirical implementation of the TSA concept was carried out as part of a pilot study in 2003 (Ahlert, 2003). The pilot study "Introduction of a Tourism Satellite System in Germany" focused on the estimation of the monetary TSA core tables T1 to T6.

Based on the results of the TSA pilot study, a second study for Germany was commissioned in 2005, taking into account the international recommendations and experiences relating to estimated relevance of tourist demand to employment (OECD, 2000;

Laimer, 2005; Liberos, 2005). The methodological basis of the TSA employment module complies with the specifications of the two internationally accepted TSA manuals (Commission of the EC, et al., 2001; Eurostat, 2001). The TSA employment module with its various tables thus represents a tourism satellite account which has been expanded to include the employment aspect in much more detail. This ensures full comparability with the other tables of the TSA. Its core table is the TSA standard table 7 relating to employment within the tourism industries. It only considers the calculation of the direct employment effects of tourism consumption of private households and industries within the twelve tourism industries (comp. table 1) that are characteristic of tourism. Besides that it takes into account the number of enterprises and undertakes a gender specific split of the employment specific data.

Table 1: The 12 tourism industries in the TSA framework

<b>Tourism industries</b>	
1	Hotels and similar
2	Second home ownership (imputed)
3	Restaurants and similar
4	Railway transport services
5	Road passenger transport services
6	Water passenger transport services
7	Air passenger transport services
8	Transport supporting services
9	Transport equipment rental
10	Tour operators and travel agencies
11	Cultural Services
12	Sporting and other recreational services

In the following some empirical results of the German TSA employment module are presented. For 2005, thanks to the tourism consumption of the private households in Germany as well as the business travel carried out by companies, these twelve tourism

industries were directly responsible for an annual average of roughly 1.8 million gainfully employed persons. If this figure is compared to the number of people employed in the overall economy, a purely arithmetical share of 4.7% is obtained. Solely due to tourism consumption the two core tourism industries alone (hotel and catering industries) employ 493,000 and 842,000 people, respectively. This amounts to more than 73% of all those employed in the twelve tourism industries. The five sectors of the transport industry engage approximately 19% or 345,400 people directly due to tourism activities. The railway sector alone employs 4.4% of those working in tourism, while 11.7% work in the "road passenger transport services" and 2.8% in "air passenger transport services". The "tour operator and travel agency" sector accounts for 3.8% of all employees working directly in tourism activities, corresponding to nearly 70,000 employed people. Taking also into account the employees in the tourist information offices and in the tourism associations, at least 24,000 employed persons can be added additionally. The extremely heterogeneous cross-sectional tourism sector designated as "culture, sports and other recreational services" accounts for approximately 3.1% of all people employed directly in the twelve tourism industries.

Approximately 287,400 persons or just less than 16% of those working in the sectors characteristic of the tourism industry are self-employed. By contrast, the proportion of self-employed people (including the family members who assist them) in the overall German economy (across all sectors) is only 11.2% and thus significantly below that of the twelve sectors of the tourism industry defined according to the TSA concept. The high proportion of self-employed people is also due to the fact that the assisting family members also make a considerable additional contribution to employment within several tourism industries especially in the catering industry.

The tourism consumption of the private households and companies were directly responsible for the employment of an annual average of more than 1.5 million employees in

the twelve sectors of the tourism industry in 2005. The direct employment stimuli were the strongest in the catering services (684,600 employees), the hotel industry (401,200 employees) and in the road passenger transport services (198,500 employees).

Following the very detailed employment specific recommendation of the OECD in the context of the TSA approach (OECD, 2000) the German TSA employment module includes, in addition to the aforementioned quantitative data for employment, supplementary qualitative data for selected employment variables (including gender, type of employment, employment status, and qualifications). This reveals, for example, that the proportion of women employed is significantly higher. On average, within the twelve sectors of the TSA tourism industry, it is roughly 4.5% higher than the overall economy average of 47.3% for all employees. In the two areas designated as the "hotels and similar" and "tour operators and travel agencies", this figure accounts for more than 68% of all employees of the respective sector.

Furthermore, it is shown that the proportion of employees with low skills is significantly higher in the tourism industries. While the proportion of employees without professional training at 17% deviates only slightly from the average value for the overall economy, it is striking that only 48% of all employees paying have completed a practical vocational training. The average for the economy overall was 61% in 2005. Moreover, at 31% the proportion of employees who provided no information about their professional education was significantly higher compared with the average value of just under 14% for the economy overall. The proportion of those with higher qualifications within the twelve tourism industries, at roughly 4.1%, was over 5% below the average value for the national economy. Against this background, however, it is an extremely positive sign that the educational performance in the tourism industry has continuously improved in the last years.

Currently it is approximately 1.7 percentage points above the corresponding figure for employment in the overall economy.

Since the TSA employment module is limited to the quantification of the direct production effects of the tourism consumption on employment in the twelve tourism industries (Smeral, 2006), the overall impact of private tourism consumption to employment in Germany was furthermore determined in two supplementary model calculations. The direct and indirect effects, as well as the effect of tourism on the overall national economy, can be established in an input-output-analysis. Such a calculation using the static Leontief employment model makes it possible to compute not just direct but also indirect employment effects (see Miller & Blair, 1985). These appear due to indirect production effects via remuneration for purchased products in those companies which supply goods and services to the companies that produce the directly demanded tourism specific consumption products, i.e. in the corresponding suppliers and sub suppliers for intermediate products. Based on the tourism consumption of private households in Germany stemming from domestic production in the year 2000 (Ahlert, 2007), which added up to approximately € 114.5 billion (US\$ 105.8 billion), the calculation shows that there was a direct and an indirect effect on employment due to tourism related expenditures by private households amounting to 2.14 million employed people. This corresponds to approximately 5.5% of all employees in the year 2000. In addition to the aforementioned analysis a supplementary analysis using the sectoral disaggregated dynamic macroeconomic model INFORGE developed by GWS mbH<sup>1</sup> was also performed (Meyer, et al., 2007). In this model, in addition to the effects on production, value added and employment that results directly and indirectly from the interindustry interrelationships within the production process, indirectly induced effects can be estimated

---

<sup>1</sup> Institute of Economic Structures Research (GWS)

from the multiplicative linkages of the income cycle. The partial redbursement of the direct and indirect income earned in the course of the production process trigger a multiplier process which induces further production and employment. The model INFORGE contains a complex model structure, which simultaneously depicts the interindustry connections, the generation, distribution, and redistribution of income, as well as its use for the demand of goods (Distelkamp, et al., 2003). The simulation results show that tourism consumption of the private households in one year during a five-year analysis period can account for 6.9% of employment in the German economy overall, or more than 2.6 million employed persons.

The presented results to the contribution of tourism to employment in Germany show that by the extensive empirical realization of the TSA employment module many employment policy relevant facets, which distinguish the tourism industry of other industries strikingly, clearly become evident. The determined numbers of the TSA employment module offer a good starting point for developing economic recommendations. Furthermore, for estimating the total employment impact of tourism activities its results can be perfectly applied in policy simulations on the basis of empirically founded structural models.

## References

- Ahlert, G. (2003). Einführung eines Tourismussatellitensystems in Deutschland. Abschlussbericht zum Forschungsauftrag Nr.33/02 (EU-Projekt) des Bundesministeriums für Wirtschaft und Arbeit (BMWA), Osnabrück.
- Ahlert, G. (2006): TSA-Ergebnisse zur volkswirtschaftlichen Bedeutung des Tourismus in Deutschland. *Tourismus Journal*, 8(4), 519-532.
- Ahlert, G. (2007): Methodological aspects of preparing the German TSA, empirical findings and initial reactions. *Tourism Economics*, 13(2), 275-287.
- Commission of the EC, Organization for Economic Co-operation and Development, United Nations & World Trade Organization (2001). *Tourism Satellite Account: Recommended Methodological Framework*. New York, Brussels.
- Distelkamp, M., Lutz, C., Meyer, B. & Wolter, M. I. (2003). *Forecasting the Interindustry Development of the German Economy: The Model INFORGE*. GWS Discussion Paper 2003/2, Osnabrück.
- Eurostat (2001). *European Implementation Manual on Tourism Satellite Accounts (TSA)*. Luxemburg.
- Heershap, N., de Boer, B., Hoekstra, R., van Loon, A. and Tromp, L. (2005). A Tourism Satellite Account for the Netherlands: approach and results. *Tourism Economics*, 11(3), 393-409.
- Laimer, P. (2005). A TSA- Employment Module for Austria Employment in Tourism Industries 2003. Paper presented at the WTO conference 2005, 3-6 October, Iguazu Falls, Argentina/Brazil/Paraguay.
- Liberos, M. (2005). The Tourism Satellite Account (TSA): Information on Employment derived from the assessment on the TSA implementation. Paper presented at the WTO conference 2005, 3-6 October, Iguazu Falls, Argentina/Brazil/Paraguay.
- Meyer, B., Lutz, C., Schnur, P. & Zika, G. (2007). Economic Policy Simulations with Global Interdependencies: A Sensitivity Analysis for Germany. *Economic Systems Research*, 19(1), 37-55.
- Miller, R. E., & Blair, P. D. (1985). *Input-Output-Analysis: Foundations and Extensions*. Eaglewood Cliffs.
- Organization for Economic Co-operation and Development (OECD) (2000). *Measuring the Role of Tourism in OECD Economies, The Manual on Tourism Satellite Accounts and Employment*. Paris.
- Smeral, E. (2005). The Economic Impact of Tourism: Beyond Satellite Accounts. *Tourism Analysis*, 10, 55-64.

Smeral, E. (2006). Tourism Satellite Accounts: A Critical Assessment. *Journal of Travel Research*, 45(8), 92-98.