

CURRENT DATA ON THE TOURISM INDUSTRY

**Tourism Satellite Account for Economy
and Environment (TSA-EE) 2015-2021**

Short version



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Abbreviations and acronyms

CEPA 2000	Classification of Environmental Protection Activities and Expenditure, 2000
CH ₄	Methane
CO ₂	Carbon dioxide
EEA	Environmental-economic accounts
GDP	Gross domestic product
GHG	Greenhouse gas
GVA	Gross value added
HFC	Hydrofluorocarbons
N ₂ O	Nitrous oxide
NA	National accounts
n.e.c.	Not elsewhere classified
NF ₃	Nitrogen trifluoride
OECD	Organisation for Economic Co-operation and Development
PFC	Perfluorocarbons
RMI	Raw Material Input
SEEA	System of Environmental-Economic Accounting
SF ₆	Sulphur hexafluoride
SF-MST	Statistical Framework for Measuring the Sustainability of Tourism
SNA	System of National Accounts
t	Tons
TJ	Terajoule
TSA	Tourism Satellite Account
TSA-EE	Tourism Satellite Account for Economy and Environment
UN	United Nations
VAT	Value added tax

Explanation of symbols

0	less than half of 1 in the last occupied digit, but more than zero
–	not available
.	numerical value unknown

General note

Totals may vary due to rounding.

1 Introduction

Tourism plays an important role for Germany, as it is a significant driver of the national economy and the labour market. In addition, tourism has an impact on the environment that must not be neglected either. The German tourism industry is primarily characterised by a vast number of small and medium-sized enterprises, making it less visible compared to economic industries dominated by large, influential players. For example, there were more than 179,000 businesses in the hospitality industry in 2021, 79% of which were micro-enterprises with fewer than ten employees.¹ The German tourism industry in its entirety is not represented in any official economic statistics. As a cross-sectional industry, tourism takes place in many different heterogeneous economic industries.

Tourism is multifaceted. It can be a day trip using local public transport, an overnight journey by plane, a restaurant visit or a concert in another city, a business travel to a trade fair or perhaps a jaunt to an amusement park. What do tourists in Germany spend their money on? Do international visitors tend to travel to Germany for business or leisure purposes? How much greenhouse gas is produced by tourism activity in Germany? Which raw materials are needed?

Various interest groups, including tourism associations, policymakers and international organisations such as the EU² or OECD³, have a strong need for reliable and relevant data on the German tourism industry. Such data is crucial for addressing key questions and enabling informed decision-making. Consequently, it is highly important to assess the economic significance of tourism in Germany, as well as to analyse its structure and environmental impact. The Tourism Satellite Account for Economy and Environment (TSA-EE) implemented by Germany's Federal Statistical Office focuses on domestic events (territorial concept) and is methodologically integrated in national and environmental economic accounts. This enables both a joint quantification of the economic, environmental-economic and labour market significance of tourism as well as a direct comparison with reference data on a macroeconomic level.

This report is a short version in English of a more comprehensive project report in the German language (Statistisches Bundesamt, 2024a). In contrast to the comprehensive report, this version does not provide a detailed description of the TSA-EE methodology. Also, for the most current status and the full level of detail of TSA-EE results, please refer to the [GENESIS-online database](#) (Code 81711) or the Statistical Report "Umweltwirkungen des Tourismus" (Statistisches Bundesamt, 2024b).

The basic structure of the TSA-EE project is explained in the following chapter. Chapter 3 summarises the results of all TSA-EE tables on economy and environment. Detailed results, methodological explanations and further information on the project can be found in the comprehensive version of the project report. Chapter 4 concludes the report with a brief summary and outlook.

1 Accessible via the GENESIS online database with the code 48121-0003.

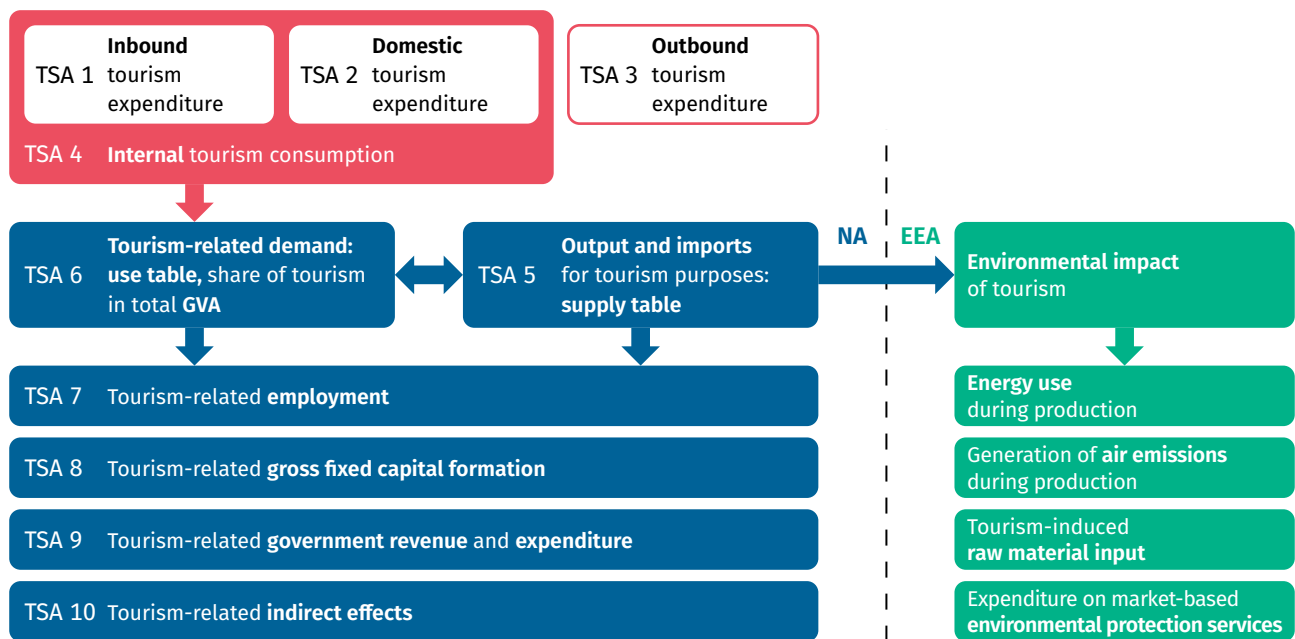
2 Publication "Tourism Satellite Accounts in Europe".

3 Publication "Tourism Trends and Policies".

2 TSA-EE structure

The tables of the TSA-EE aim to highlight the most relevant economic and environmental aspects related to tourism. At the same time, the intention is to make these aspects visible in the context of their “parent” accounting systems – that is, the System of National Accounts (SNA) and the System of Environmental-Economic Accounting (SEEA). This enable results to be interpreted within the broader economic framework. Figure 2-1 gives an overview of all the tables created during the project. The TSA-EE can be broadly divided into three areas, which are colour-coded in the figure: red, blue, and green.

Figure 2-1
Schematic structure of the TSA-EE



The starting point for the TSA calculations are TSA tables 1 to 4 marked in red: namely, inbound tourism expenditure of non-residents (TSA table 1) and domestic tourism expenditure of residents (TSA table 2). These, together with “other components of tourism consumption”, make up the internal tourism consumption (TSA table 4) or the total tourism-related demand. Outbound tourism expenditure of residents (TSA table 3) is not part of internal consumption but part of the TSAs of the respective travel destinations. TSA tables 1 to 4 cover all tourism-related expenditures by both residents and non-residents that are significant to Germany, using a standardised classification for products. These expenditures are divided into private and business trips, as well as into overnight visitors and same-day visitors. These tables are mainly compiled using sources other than those used for the national accounts (NA), such as tourism statistics.

In the second, “blue” step, the total tourism-related demand is embedded into the SNA, and TSA table 4 is connected to the system of supply and use tables. The total tourism-related demand is thus combined with the overall economic supply through TSA tables 5 and 6.

This makes it possible to estimate the tourism-derived shares for each product group. These shares are essential for calculating tourism-related employment (TSA table 7), tourism-related gross fixed capital formation (TSA table 8), tourism-related government revenue and expenditures (TSA table 9), the direct and indirect macroeconomic effects (TSA table 10) and for the calculations of the environmental impacts of tourism, whose results appear in the third, “green” section.

In the “green” step, results from TSA-tables 5 and 6 are connected to data derived from the environmental-economic accounts (EEA) to determine the environmental impacts of tourism. For this purpose, results on the tourism-related gross value added and tourism-related output are used. The calculations rely on the assumption that the share of a tourism product in the total environmental impact of a specific industry is proportional to its share in value added or, respectively, its share in the total output of this industry. The tables on the environmental impacts of tourism contain, on the one hand, material flows that are generated during the production process of tourism-related products. These flows include direct energy use and direct air emissions as well as the direct and indirect raw material input of tourism. On the other hand, these tables depict the environmental protection expenditures associated with the provision of tourism products.

3 Tourism, economy and environment: overview of results

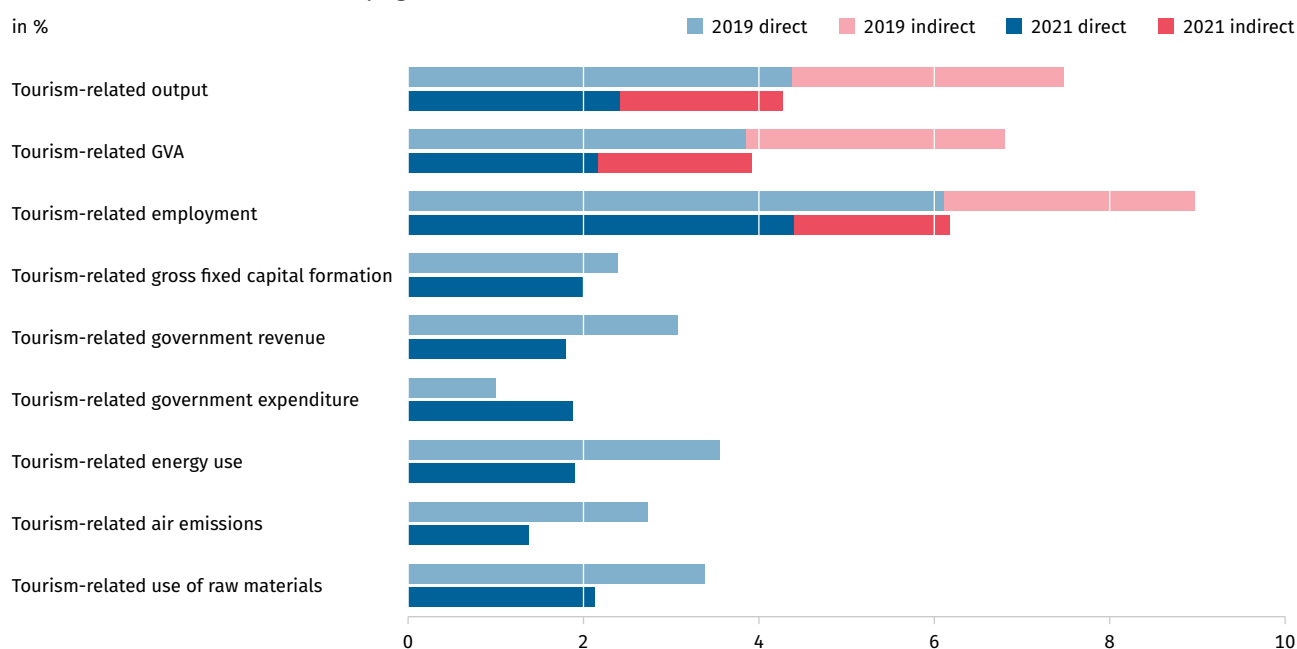
Economy and environment: the key figures

Figure 3-I gives an initial overview of the TSA-EE key figures, shown as tourism shares of the respective macroeconomic aggregates for the years 2019 and 2021. For output, gross value added (GVA), and employment, the indirect effects are shown as well.

For all the figures presented, the tourism shares are in the single-digit percentage range and have decreased between 2019 and 2021. However, these reductions are of varying degrees. The demand-induced, cumulative (that is, direct and indirect) declines in the shares of production and gross value added are especially striking, with decreases of –3.2 and –2.9 percentage points, respectively, as a result of the COVID-19 pandemic. The tourism share of GVA quantifies the economic significance of the tourism industry in Germany. In 2021, this share amounted to 2.2% directly and 3.9% cumulatively. The share of cumulative tourism-related employment declined by 2.8 percentage points between 2019 and 2021. Additionally, the tourism-related share of government revenues decreased from 3.1% to 1.8%, while the tourism-related share of government expenditures rose to 1.9%.

The declines in the environmental impacts of tourism in 2021 compared to 2019 are also clearly noticeable. Tourism-related energy use decreased by 1.7 percentage points to 1.9%, while greenhouse gas emissions were halved to a share of 1.4% of the overall economy. In contrast, the reduction in tourism-related raw material use was slightly smaller, falling by 1.3 percentage points to 2.1%.

Figure 3-I
Tourism shares in macroeconomic key figures, 2019 and 2021



3.1 TSA 1 – Inbound tourism expenditure at purchasers' prices

Non-resident visitors spent 22.6 billion euros on tourism-related activities in Germany in 2021 (see Table 3.1-1). This represents a decline of approximately 53% compared to 2019. However, compared to 2020, the first year of the COVID-19 pandemic, expenditures remained at a similar level. The year-on-year trend was particularly marked by an increase in spending on business trips with overnight stays (+7.5%), driven primarily by expenditures on air travel, while spending on private trips continued to decrease (–2.7%).

In 2021, 59% of non-resident visitors' tourism expenditure was attributable to private trips, while 41% was attributable to business trips, with overnight visitors accounting for the majority in both cases (87% and 86% respectively). A comparison by product group shows that the largest share of spending was in accommodation (31%) and food and beverage serving services (26%). These were followed, at some distance, by expenditures on transportation⁴ (18%) and other products, and by spending on shopping (13%).

In comparison with other European countries, similarly notable declines in inbound tourism expenditure can be observed.⁵

Table 3.1-1

Inbound tourism expenditure by product, category of visitor and type of trip, 2021

	Private trips			Business trips			Inbound tourism expenditure
	Total	Over-night visitors	Same-day visitors	Total	Over-night visitors	Same-day visitors	
	million EUR						
I) Tourism characteristic products	10,394	9,149	1,245	6,402	5,903	498	16,796
1 – Accommodation services for visitors	4,767	4,767	-	2,169	2,169	-	6,936
2 – Food and beverage serving services	4,119	3,295	824	1,680	1,292	387	5,799
3 – Railway passenger transport services	104	83	21	127	101	25	231
4 – Road passenger transport services	387	268	119	72	30	41	458
5 – Water passenger transport services	307	50	257	84	76	8	391
6 – Air passenger transport services	367	367	-	2,185	2,185	-	2,551
7 – Transport equipment rental services	125	117	7	41	39	2	166
8 – Travel agencies and other reservation services	179	170	9	-	-	-	179
9 – Sports, recreational and cultural services	38	31	8	46	11	34	84
II) Country-specific tourism products	652	542	110	768	659	109	1,420
10 – Health services	159	159	-	-	-	-	159
11 – Food	379	303	76	522	418	104	901
12 – Fuel	114	80	34	246	241	5	360
III) Other products	2,190	1,858	331	2,164	1,474	689	4,353
13 – Remaining goods	1,578	1,373	205	1,418	1,233	184	2,996
14 – Remaining services	612	485	126	746	241	505	1,358
Total	13,235	11,549	1,687	9,334	8,037	1,297	22,569

Further results with additional years are provided in tables 81711-0001 in the GENESIS-Online database.

⁴ Tourism products 3–7, 12

⁵ Refer to publications from Sweden, Spain, Austria, the Netherlands and the Czech Republic.

3.2 TSA 2 – Domestic tourism expenditure at purchasers' prices

In 2021, resident travellers spent 143 billion euros on tourism-related activities in Germany (see Table 3.2-1). Compared to 2019, this represents a decline of approximately 42%. Hence, domestic tourism proved to be more stable than inbound tourism (see Chapter 3.1). Between 2020 and 2021, expenditures increased moderately by 2%. The year-on-year development was driven by an increase in expenditures for business trips by 37% and greater spending by private overnight visitors (+4%). In contrast, expenditures for private same-day trips saw a marked decline (of -13%).

Food and beverage serving services accounted for the largest share of expenditure (22%) in 2021, followed by expenditures for remaining goods and for shopping. Additionally, when transportation expenses are aggregated, 21% were spent on mobility within the country. A closer look at the spending pattern shows that in 2021, 82% of domestic tourism expenditure by residents went on private trips, 11% on business trips, and 6% represented domestic expenses relating to outbound trips. In the private trip segment, overnight visitors accounted for the majority of expenditures in 2021, with 61%, while in the business trip segment, day trips involved the highest share of spending, at 53%.

The European comparison shows a diverse picture. While domestic tourism expenditures declined moderately in some countries (like Spain) between 2019 and 2021, other countries (for example Austria) experienced sharper decreases than those observed in Germany.

Table 3.2-1

Domestic tourism expenditure by product, category of visitor and type of trip, 2021

	Private trips			Business trips			Domestic expenses of outbound trips	Domestic tourism expenditure
	Total	Over-night visitors	Same-day visitors	Total	Over-night visitors	Same-day visitors		
	million EUR							
I) Tourism characteristic products	66,919	45,012	21,907	11,048	6,110	4,938	8,747	86,714
1 – Accommodation services for visitors	18,195	18,195	-	1,987	1,987	-	-	20,182
2 – Food and beverage serving services	24,927	14,067	10,859	6,000	2,599	3,401	-	30,927
3 – Railway passenger transport services	2,023	1,585	438	555	319	236	117	2,695
4 – Road passenger transport services	7,516	2,631	4,884	535	233	301	208	8,259
5 – Water passenger transport services	869	769	100	-	-	-	68	937
6 – Air passenger transport services	1,717	1,717	-	582	243	339	5,231	7,530
7 – Transport equipment rental services	896	340	556	650	338	312	115	1,661
8 – Travel agencies and other reservation services	256	256	-	254	165	89	3,007	3,518
9 – Sports, recreational and cultural services	10,520	5,451	5,069	484	225	260	-	11,005
II) Country-specific tourism products	19,187	11,676	7,511	3,400	985	2,414	176	22,762
10 – Health services	5,319	5,319	-	-	-	-	-	5,319
11 – Food	7,086	4,311	2,775	712	250	462	-	7,798
12 – Fuel	6,782	2,045	4,736	2,688	735	1,952	176	9,646
III) Other products	31,515	15,264	16,251	1,822	489	1,333	174	33,512
13 – Remaining goods	24,421	10,252	14,168	1,449	379	1,070	58	25,928
14 – Remaining services	7,094	5,012	2,082	373	110	264	116	7,584
Total	117,621	71,952	45,669	16,269	7,584	8,686	9,098	142,988

Further results with additional years are provided in tables 81711-0001 in the GENESIS-Online database.

3.3 TSA 3 – Outbound tourism expenditure at purchasers' prices

In 2021, resident travellers spent 47.5 billion euros on tourism-related activities abroad (see Table 3.3-1). Compared to 2019, this represents a decline of approximately 56%. However, compared to 2020, expenditure increased by 48%. Hence, the expenditure level in 2021 remains below that of 2019. As a result, in 2021, outbound tourism experienced significantly stronger growth than domestic tourism by residents or inbound tourism by non-residents (see chapters 3.1 and 3.2).

In total, 93% of outbound tourism expenditure was attributed to private trips in 2021, while 7% was spent on business trips. In 2019 these shares were 88% and 12% respectively. Breaking down tourism expenditures by product group shows, as expected, that accommodation services for visitors accounted for the largest share of expenditure (28%). This was followed by expenditures for food and beverage serving services (21%), remaining goods (16%) and air passenger transport services (13%). When the various transportation expenditures are combined, 18% was spent on the mobility of residents abroad.

A look at other European countries shows comparable trends. While the tourism expenditures of residents abroad significantly declined from 2019 to 2021 in many countries (Spain and the Netherlands, for instance), they rebounded strongly compared to their levels in 2020.

Table 3.3-1

Outbound tourism expenditure by product, category of visitor and type of trip, 2021

	Private trips			Business trips			Outbound tourism expenditure
	Total	Over-night visitors	Same-day visitors	Total	Over-night visitors	Same-day visitors	
	million EUR						
I) Tourism characteristic products	32,013	29,973	2,040	2,710	2,631	79	34,723
1 – Accommodation services for visitors	12,004	12,004	-	1,203	1,203	-	13,207
2 – Food and beverage serving services	9,168	8,119	1,050	646	601	46	9,814
3 – Railway passenger transport services	48	41	7	12	9	3	60
4 – Road passenger transport services	1,311	1,188	123	127	117	10	1,438
5 – Water passenger transport services	-	-	-	-	-	-	-
6 – Air passenger transport services	5,531	5,171	360	522	507	16	6,053
7 – Transport equipment rental services	-	-	-	-	-	-	-
8 – Travel agencies and other reservation services	-	-	-	-	-	-	-
9 – Sports, recreational and cultural services	3,952	3,451	501	200	195	5	4,152
II) Country-specific tourism products	3,693	3,240	453	234	176	58	3,927
10 – Health services	462	462	-	-	-	-	462
11 – Food	2,398	2,062	337	125	121	4	2,523
12 – Fuel	833	717	116	110	56	54	942
III) Other products	8,353	6,919	1,434	512	473	40	8,866
13 – Remaining goods	7,005	5,732	1,273	435	400	35	7,440
14 – Remaining services	1,348	1,188	161	77	73	4	1,426
Total	44,059	40,133	3,927	3,457	3,280	177	47,516

Further results with additional years are provided in tables 81711-0001 in the GENESIS-Online database.

3.4 TSA 4 – Internal tourism consumption at purchasers' prices

Table 3.4-1 shows the internal tourism consumption at purchasers' prices for 2021. In total, 201.4 billion euros were spent for tourism-related purposes. Compared to the record year 2019, this represented a decline of about 39%. However, compared to 2020, consumption increased moderately by 3%. The breakdown by product group shows that between 2019 and 2021, consumption of water passenger transport services (–69%), travel agencies and other reservation services (–67%), and air passenger transport services (–51%) saw notable declines.

The large share of domestic travellers shaped overall internal tourism consumption. Of the total internal tourism consumption, 71% was spent by domestic travellers and 11% by inbound travellers. Additionally, 18% was allocated to “other components of tourism consumption”.⁶ In 2019, the share of internal tourism consumption by inbound travellers was 14%. Comparing the consumption patterns of residents with those of non-residents, it becomes apparent that non-residents spent more on accommodation services (31% versus 14%). This was a result particularly of the greater share of domestic same-day visitors. Additionally, non-residents spent around a quarter of their money on restaurant services. For residents, although the share was slightly lower, this was still the largest category of expenditure.

A European comparison shows very different developments in internal tourism consumption. While it declined by 57% in Austria from 2019 to 2021 (Bundesministerium für Arbeit und Wirtschaft, 2024), it only shrank by 19% in Sweden during the same period (Tillväxtverket, 2022).

Table 3.4-1
Internal tourism consumption by product at purchasers' prices, 2021

	Internal tourism expenditure			Other components of tourism consumption	Internal tourism consumption
	Inbound tourism expenditure	Domestic tourism expenditure	Total		
	million EUR				
I) Tourism characteristic products	16,796	86,714	103,510	16,546	120,056
1 – Accommodation services for visitors	6,936	20,182	27,118	4,328	31,447
2 – Food and beverage serving services	5,799	30,927	36,726	-	36,726
3 – Railway passenger transport services	231	2,695	2,926	-	2,926
4 – Road passenger transport services	458	8,259	8,717	-	8,717
5 – Water passenger transport services	391	937	1,328	-	1,328
6 – Air passenger transport services	2,551	7,530	10,082	-	10,082
7 – Transport equipment rental services	166	1,661	1,827	-	1,827
8 – Travel agencies and other reservation services	179	3,518	3,697	-	3,697
9 – Sports, recreational and cultural services	84	11,005	11,089	12,218	23,306
II) Country-specific tourism products	1,420	22,762	24,183	-	24,183
10 – Health services	159	5,319	5,478	-	5,478
11 – Food	901	7,798	8,699	-	8,699
12 – Fuel	360	9,646	10,006	-	10,006
III) Other products	4,353	33,512	37,865	19,322	57,187
13 – Remaining goods	2,996	25,928	28,923	16,753	45,677
14 – Remaining services	1,358	7,584	8,942	2,569	11,510
Total	22,569	142,988	165,557	35,868	201,426

Further results with additional years are provided in tables 81711-0002 in the GENESIS-Online database.

6 These are expenditures not directly related to a certain trip but which still have a tourism-related character. For example, the purchase of recreational vehicles and bicycles for holiday purposes.

3.5 TSA 5 – Supply and output for tourism purposes at basic prices

In total, the tourism-related supply amounted to 187.5 billion euros in 2021, representing a tourism share of 2.3% of the economy's total supply⁷ (see Table 3.5-1). This is closely linked to the COVID-19 pandemic and, compared to 2019, the decrease in total was 42%. In 2019, the tourism share of the total supply was still 4.2%. Compared to 2020, while tourism-related supply increased by 2%, the tourism share in the economy's total supply dropped by 0.1 percentage points.

This indicates that during this period, the overall economic supply grew at a faster rate than tourism-related supply. However, the fact that the tourism-related output does not change in proportion to the total supply is nothing new. Between 2015 and 2019, while tourism-related supply increased by approximately 12%, the tourism share steadily declined by 0.1 percentage points year on year.

The tourism-related supply is obtained by combining output and imports. In 2021, tourism-related output amounted to 164.7 billion euros, representing 2.4% of total output. Imports for tourism purposes came to 22.8 billion euros, or 1.8% of total imports. One reason for the smaller share of tourism-related imports is that tourism typically requires far more domestic services, which cannot easily be imported. With a share of 45%, the product group "remaining goods" was particularly significant for tourism-related imports.

An analysis of the tourism-related domestic output shows that of the total 164.7 billion euros, 19% was spent on food and beverage serving services, 15% on accommodation services, 15% on transportation services including fuels, 13% went on sports, recreational and cultural services, 13% on the remaining goods and 12% on the remaining services.

The tourism product shares in total supply indicate which product groups were particularly influenced by tourism. While the share for the product group "travel agencies and other reservation services" was 100%, as this is of course solely defined by tourism consumption, the share for traditional accommodation services⁸ was only slightly lower at 97%. The tourism share of food and beverage serving services was lower, at 82%. In 2019, this proportion was noticeably higher at 92%. Examples of non-tourism-related activities include lunch in a work canteen or dining out in one's own city.

⁷ This refers to the accounting status of the national accounts for 2023, based on the 2019 benchmark revision.

⁸ The row shows imputed and conventional accommodation services together. However, due to the otherwise distorting effect, the share relates only to conventional accommodation services.

Tourism, economy and environment: overview of results

Table 3.5-1

Supply and output for tourism purposes at basic prices, 2021

	Tourism related output in tourism industries												Tourism industries total	Other industries total	Tourism-related output total	Tourism-related imports	Tourism-related supply total	Share of tourism in total supply
	Accommodation	Real estate activities	Food and beverage service activities	Rail transport	Road transport	Water transport	Air transport	Rental and leasing activities	Travel agencies and tour operator acitivites	Sport, re-creational and cultural services	Other economic services	Human health activities						
	million EUR																	
I) Tourism characteristic products	20,653	4,326	31,978	2,513	7,967	577	8,546	1,538	10,651	16,983	-	-	105,732	5,216	110,948	7,526	118,474	22
1 – Accommodation services for visitors	20,653	4,326	-	-	-	-	-	-	-	-	-	-	24,979	340	25,319	3,897	29,217	97
2 – Food and beverage serving services	-	-	31,978	-	-	-	-	-	-	-	-	-	31,978	-	31,978	1,137	33,116	82
3 – Railway passenger transport services	-	-	-	2,513	-	-	-	-	-	-	-	-	2,513	-	2,513	120	2,634	74
4 – Road passenger transport services	-	-	-	-	7,949	-	-	-	7	-	-	-	7,955	88	8,043	18	8,061	20
5 – Water passenger transport services	-	-	-	-	-	577	-	-	-	-	-	-	577	-	577	709	1,286	41
6 – Air passenger transport services	-	-	-	-	-	-	8,546	-	-	-	-	-	8,546	-	8,546	1,128	9,674	65
7 – Transport equipment rental services	-	-	-	-	18	-	-	1,538	-	-	-	-	1,556	23	1,578	89	1,667	4
8 – Travel agencies and other reservation services	-	-	-	-	-	-	-	-	10,644	-	-	-	10,644	-	10,644	96	10,740	100
9 – Sports, recreational and cultural services	-	-	-	-	-	-	-	-	-	16,983	-	-	16,983	4,766	21,749	332	22,080	44
II) Country-specific tourism products	1	-	2	-	-	-	-	-	-	-	-	5,465	5,468	7,036	12,504	3,383	15,887	3
10 – Health services	-	-	-	-	-	-	-	-	-	-	-	5,465	5,465	-	5,465	2	5,466	4
11 – Food	1	-	2	-	-	-	-	-	-	-	-	-	3	3,944	3,947	1,653	5,600	2
12 – Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	3,092	3,092	1,728	4,820	11
III) Other products	4	295	60	51	325	158	59	167	608	64	800	869	3,460	37,740	41,201	11,939	53,139	1
13 – Remaining goods	0	1	0	0	5	4	0	1	0	6	2	2	22	20,890	20,911	10,322	31,234	1
14 – Remaining services	4	294	60	51	320	154	58	166	608	59	799	867	3,439	16,851	20,289	1,616	21,905	1
Total	20,658	4,621	32,040	2,564	8,292	734	8,605	1,705	11,258	17,047	800	6,334	114,660	49,993	164,653	22,847	187,500	2.3

Further results with additional years are provided in tables 81711-0003 in the GENESIS-Online database.

3.6 TSA 6 – Tourism use table and tourism-related gross value added at purchasers' prices

Uses

Tourism use at purchasers' prices totalled 209.9 billion euros in 2021, accounting for 2.4% of the overall economy's use. Compared to 2019, this represented a decrease of 151 billion euros, or 42%.

Two-thirds of the tourism-related expenditure came from households' final consumption expenditure, representing the largest share of the demand for tourism goods and services. 33.2 billion euros, or 16%, were intermediate inputs. These are tourism-related expenses incurred by businesses, which are required as intermediate inputs in the production process (such as expenditure relating to business trips) and not inputs for the production of tourism products.

Gross value added

Table 3.6-1 presents the gross value added from 2015 to 2021, along with the direct share of tourism in total GVA. This key figure quantifies the economic significance of the tourism industry in Germany. In 2021, the direct share of tourism in total GVA was at 2.2%, which represented a decrease of 1.7 percentage points compared to 2019. This reflects the sharp decline in tourism activities triggered by the COVID-19 pandemic. Compared to the previous year, the decrease was 0.2 percentage points.

Table 3.6-1

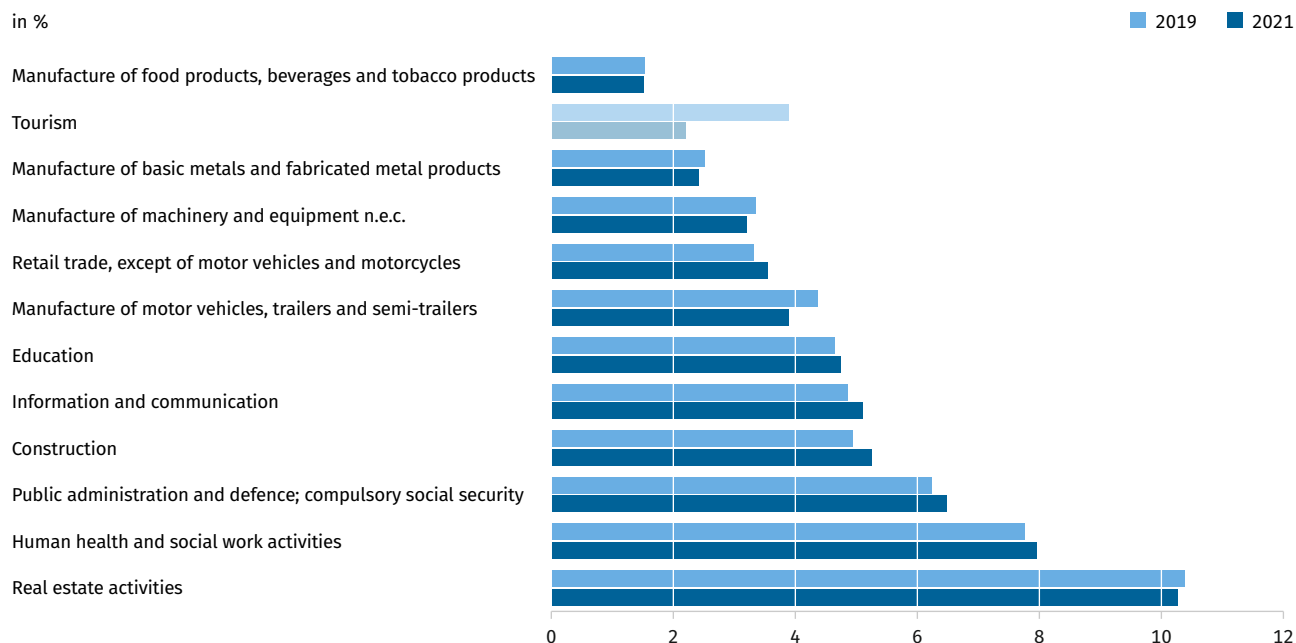
Tourism-related gross value added by industry

	2015	2016	2017	2018	2019	2020	2021
	million EUR						
Tourism industries	78,823	79,667	83,188	86,095	86,392	51,052	50,322
Accommodation	14,598	15,292	15,857	16,274	16,535	8,079	6,748
Real estate activities	3,712	3,813	3,925	4,051	4,148	4,269	4,378
Food and beverage service activities	20,282	21,231	22,928	23,976	24,229	14,962	15,112
Rail transport	887	763	793	841	953	208	442
Road transport	8,075	7,682	7,574	7,373	7,783	4,203	4,000
Water transport	395	377	506	505	751	195	321
Air transport	5,049	4,839	4,491	3,948	3,916	1,601	2,004
Rental and leasing activities	1,334	1,556	1,722	1,869	1,957	1,169	1,198
Travel agencies and tour operator activities	6,785	5,887	6,369	7,233	5,531	1,624	1,341
Sport, recreational and cultural services	11,713	11,792	12,186	12,978	13,275	10,440	10,404
Other economic services	581	693	742	849	843	344	315
Human health activities	5,411	5,742	6,094	6,198	6,471	3,957	4,059
Other industries	31,628	33,100	33,872	34,433	34,223	21,483	20,450
Total tourism-related gross value added	110,451	112,767	117,060	120,529	120,616	72,535	70,771
	%						
Share of tourism in total GVA	4.1	4.0	4.0	4.0	3.9	2.4	2.2

Further results are provided in tables 81711-0005 in the GENESIS-Online database.

Figure 3.6-I shows a comparison of tourism's direct GVA share with the GVA shares of selected economic industries. It is evident that the tourism industry can compete with other economically strong industries. However, in terms of GVA, the significance of tourism has declined more sharply because of COVID-19 pandemic effects compared to the other industries presented. In direct comparison, the tourism share in total GVA in 2021, at 2.2%, was lower than that of the manufacturing of motor vehicles, trailers and semi-trailers, which stood at 3.9%. In 2019, before the pandemic, the proportions were more similar, at 3.9% and 4.4% respectively. It should be noted in the analysis that double counting cannot be ruled out, and the GVA attributed to the tourism industry may at the same time be allocated to other economic industries.

Figure 3.6-I
GVA shares of selected industries⁹ and direct share of tourism in total GVA, 2019 and 2021



A comparison with other European countries is also illuminating. While not all countries publish tourism shares of gross value added, the tourism shares of gross domestic product (GDP) can be used as approximate values. In 2021, the tourism share of GDP stood at 2.2% (2019: 5.5% (Bundesministerium für Arbeit und Wirtschaft, 2024)) in Austria, at 1.9% in Sweden (2019: 2.5% (Tillväxtverket, 2022)), at 5.5% in Spain (2019: 6.8% (Instituto Nacional de Estadística, 2024)). On the other hand, the Netherlands and the Czech Republic do also publish their tourism shares of GVA. In the Netherlands, this stood at 2.4% in 2021 (2019: 4.3% (Centraal Bureau voor de Statistiek, 2024)) and in the Czech Republic at 1.5% (2019: 2.8% (Český statistický úřad, 2024)).

3.7 TSA 7 – Tourism-related employment

In 2021, nearly 2 million employees were directly involved in the production of goods and services demanded by tourism in Germany (see table 3.7-1). This accounts for a share of 4.4% of total employment. Compared to 2019, this represents a decline of 28%, or 0.8 million employed persons. These results highlight how labour-intensive the domestic tourism industry still is, but they also show that fewer people were working in tourism because of the COVID-19 pandemic. In addition, employment figures have been more robust than demand from tourism alone. This suggests that the far-reaching COVID-19 relief measures, such as easier access to short-time work by reimbursing their social security contributions, have had a positive impact. Between 2015 and 2019, the number employed persons for tourism purposes increased only marginally. The tourism share of total employment went down from 6.4% to 6.1% in the same period.

⁹ Available via the GENESIS online database with the code 81000-0102.

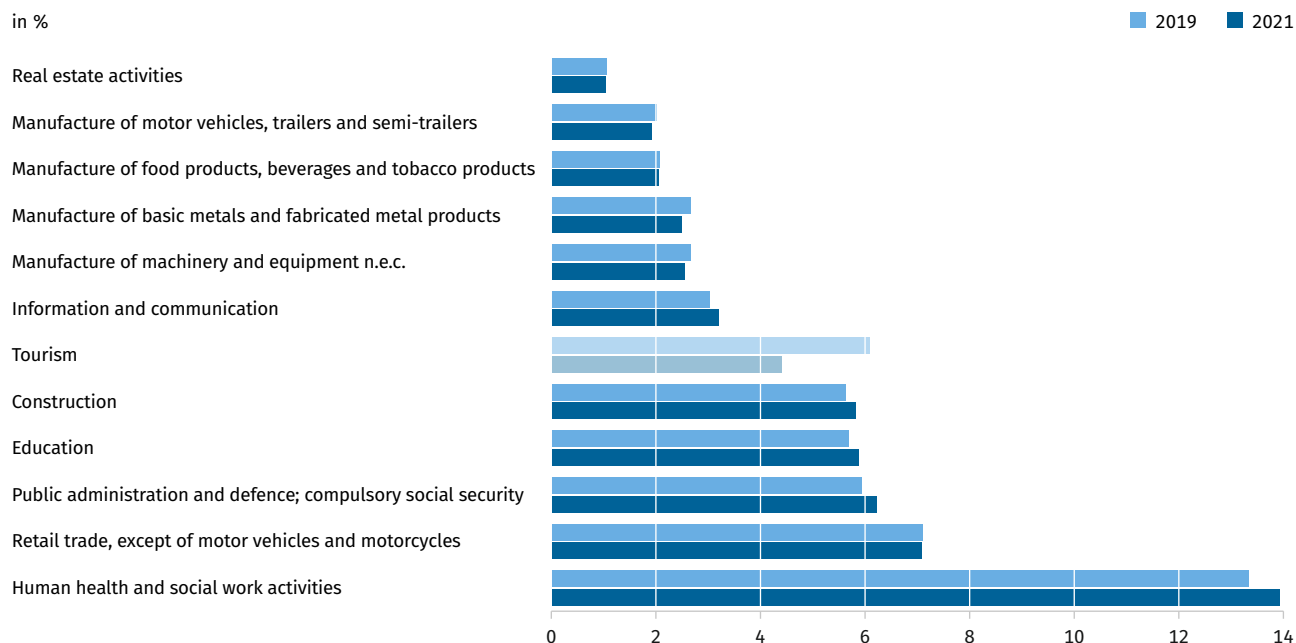
Table 3.7-1
Tourism-related employment

	2015	2016	2017	2018	2019	2020	2021
	in 1,000 employed persons						
I) Tourism characteristic products	2,081	2,068	2,100	2,114	2,085	1,765	1,594
1 – Accommodation services for visitors	477	481	485	488	492	445	409
2 – Food and beverage serving services	1,021	1,014	1,044	1,049	1,020	862	767
3 – Railway passenger transport services	15	15	15	16	16	12	12
4 – Road passenger transport services	147	139	136	131	135	79	72
5 – Water passenger transport services	1	2	2	2	3	1	1
6 – Air passenger transport services	43	43	43	42	41	24	23
7 – Transport equipment rental services	4	4	5	5	6	3	3
8 – Travel agencies and other reservation services	96	94	97	100	100	89	76
9 – Sports, recreational and cultural services	277	274	273	282	274	250	231
II) Country-specific tourism products	187	187	188	185	187	107	111
10 – Health services	96	101	105	104	105	62	65
11 – Food	47	48	48	48	47	30	26
12 – Fuel	44	38	35	33	35	14	20
III) Other products	487	500	497	499	491	302	273
13 – Remaining goods	234	241	236	236	233	149	138
14 – Remaining services	253	259	262	263	258	153	135
Total tourism-related employment	2,755	2,755	2,785	2,798	2,763	2,174	1,979
	%						
Share of tourism in total employment	6.4	6.3	6.3	6.2	6.1	4.8	4.4

Further results are provided in tables 81711-0006 in the GENESIS-Online database.

Comparing tourism's share of total employment with other industries' shares gives valuable insights (see Figure 3.7-I). While many other industries had higher GVA shares than tourism in 2021, the picture is different when it comes to employment. It is clear that the tourism industry plays an important part in domestic employment. For instance, the share of employment in tourism was larger than in the manufacture of food products, beverages and tobacco products, mechanical engineering, motor vehicle and motor vehicle parts manufacturing, and metalworking. However, the risk of double counting cannot be ruled out, as employees attributed to tourism may also be counted in other economic industries.

Figure 3.7-I
Employment shares of selected industries¹⁰ and direct share of tourism in total employment, 2019 and 2021



3.8 TSA 8 – Tourism-related gross capital formation

In 2021, the total value of tourism-related gross fixed capital formation amounted to 15.4 billion euros, representing approximately 2% of the overall gross fixed capital formation. Compared to 2019, this reflected a decrease of 13%. However, compared to the previous year, the figures showed a recovery of +13%. From 2015 to 2019, investments increased by 12%, with 2019 being the record year, with investment totalling 17.7 billion euros (see table 3.8-1).

Investments in motor vehicles and motor vehicle parts, as well as recreational vehicles, have increased compared to 2019, with a rise of 40%. This trend has been driven particularly by the rise in new registrations for RVs (Kraftfahrt-Bundesamt (KBA), 2024) and the increase in their price.¹¹

In 2021, a total of 54% of direct tourism-related gross fixed capital formations was allocated to construction, 38% to machinery and equipment and 8% to other assets, such as intellectual property. In the machinery and equipment category, 10% was invested in motor vehicles and motor vehicle parts, 9% in machinery, 6% in other equipment (such as tools, installation materials, or maintenance) and 5% in furniture, music, and sports equipment.

¹⁰ Available via the GENESIS online database with the code 81000-0123.

¹¹ Available via the GENESIS online database with the code 61111-0005.

Table 3.8-1

Tourism-related gross fixed capital formation

	2015	2016	2017	2018	2019	2020	2021
	million EUR						
I) Construction	7,631	7,898	8,158	8,259	8,717	7,733	8,355
Other goods	6,175	6,357	6,555	6,733	7,366	6,574	7,042
Other services	1,456	1,541	1,603	1,527	1,351	1,159	1,313
II) Machinery and equipment	6,416	6,707	6,694	7,077	6,913	4,666	5,842
1 – Machinery	1,848	2,000	2,006	2,038	1,921	1,050	1,348
2 – Computer- and office equipment	502	509	498	523	526	369	430
3 – Communication equipment	272	307	340	343	326	203	239
4 – Furniture, music and sports equipment	767	797	758	751	787	514	787
5 – Motor vehicles and motor vehicle parts	805	836	854	948	1,045	1,199	1,464
6 – Other vehicles	3	5	5	7	11	11	12
7 – Other machinery and devices	949	975	931	1,065	935	612	687
8 – Other equipment	1,269	1,279	1,302	1,402	1,362	708	875
III) Other assets	1,794	1,893	1,940	2,010	2,101	1,282	1,211
Total tourism-related gross fixed capital formation	15,841	16,498	16,792	17,347	17,732	13,680	15,408
	%						
Share of tourism in total gross fixed capital formation	2.6	2.6	2.5	2.4	2.4	1.9	2.0

Further results are provided in tables 81711-0008 in the GENESIS-Online database.

3.9 TSA 9 – Tourism-related government revenue and expenditure

In 2021, tourism-related government revenue totalled 30.7 billion euros (1.8% total share), 38% less than in 2019 (3.1% total share; see Table 3.9-1). Compared to the previous year, revenue had already stabilised again and increased by 4%, but this is still below the 2019 level.

Value added tax (VAT) revenue had fallen by 39% compared to 2019, but had risen again by 12% compared to 2020. This was due in particular to the temporary change in the standard rates in 2020 (from 19% to 16% and from 7% to 5%) during the pandemic. In 2021, the previous rates were applied again. However, this did not apply to food (excluding beverages) in the accommodation and catering sector with on-site consumption. The reduced tax rate of 7% applied here from 2021 to 2023. Various tax payments were also deferred in 2020 and 2021 as part of tax relief legislation (for example, reduced income tax, corporation tax, excise duties) (Bundesfinanzministerium (BMF), 2021) designed to tackle the economic fallout from COVID-19. These results show that more than half of tourism-related government revenue in 2021 was attributable to VAT revenue, around a quarter to wage tax revenue and roughly a fifth to revenue from taxes on products (not including VAT) such as energy tax.

In 2021, tourism-related government expenditure was 34.5 billion euros (1.9% of the total share), an increase of 120% compared to 2019 (1% of the total share). Expenditure increased by 50% compared to the previous year. The sharp rise in expenditure between 2019 and 2021 is almost exclusively due to the increase in other subsidies on production paid, in this case largely the financial state aids for businesses and the reimbursing of social security contributions for employees on short-time work during the COVID-19 pandemic. This means that 64% or 22.2 billion euros of the government's tourism-related expenditure in 2021 was made up of other subsidies on production. This was followed by some distance by expenditure on employee compensation, at 15% or 5.1 billion euros.

Table 3.9-1
Tourism-related government revenue and expenditures

	2015	2016	2017	2018	2019	2020	2021
	million EUR						
Total tourism-related government revenue	48,890	47,520	47,980	49,530	49,670	29,520	30,690
Taxes on products (without value added tax)	12,600	11,860	11,380	11,130	11,070	6,790	6,480
Value added tax	24,770	24,120	24,910	25,510	25,790	14,010	15,640
Other taxes on production	870	880	840	870	960	740	850
Wage tax	9,310	9,650	10,050	10,480	10,840	7,490	6,930
Corporation tax	580	870	930	1,050	930	520	860
	%						
Share of tourism in total government revenue	3.6	3.3	3.2	3.2	3.1	1.9	1.8
	million EUR						
Total tourism-related government expenditure	14,260	14,580	14,860	15,430	15,680	22,930	34,480
Intermediate consumption	5,010	5,170	5,320	5,560	5,750	4,960	4,930
Employee compensation	6,290	6,420	6,510	6,790	6,930	5,450	5,120
Subsidies on products	10	10	10	-	-	0	810
Other subsidies	1,310	1,340	1,280	1,280	1,180	11,090	22,220
Investment grants	-	-	-	-	-	-	-
Gross fixed capital formation	1,620	1,640	1,740	1,800	1,820	1,430	1,400
	%						
Share of tourism in total government expenditure	1.1	1.0	1.0	1.0	1.0	1.3	1.9

Further results are provided in tables 81711-0009 and -0010 in the GENESIS-Online database.

3.10 TSA 10 – Direct and indirect macroeconomic effects

3.10.1 TSA 10 – Direct and indirect tourism-related output

As well as the direct tourism-related output of 164.7 billion euros (2.4% of the total share, as set out in Chapter 3.5), a further 126.3 billion euros (1.9% total share) was estimated as indirect tourism-related output by considering the demand for intermediate inputs for the manufacture of tourism products (see Table 3.10-1). Overall, cumulative tourism-related output came to 290.9 billion euros, a total share of 4.3%. Compared to 2019, this represents a decrease amounting to -39% or -3.2 percentage points of total share.

Table 3.10-1
Direct and indirect tourism-related output

	2015	2016	2017	2018	2019	2020	2021
	million EUR						
Total tourism-related output	429,035	437,312	454,535	468,195	478,999	291,215	290,929
Direct output	251,218	256,193	266,218	273,988	280,240	163,628	164,653
Indirect output	177,817	181,119	188,317	194,207	198,759	127,587	126,277
	Share of tourism in total output %						
Total tourism-related output	7.7	7.6	7.6	7.5	7.5	4.6	4.3
Direct output	4.5	4.5	4.4	4.4	4.4	2.6	2.4
Indirect output	3.2	3.2	3.1	3.1	3.1	2.0	1.9

3.10.2 TSA 10 – Direct and indirect tourism-related gross value added

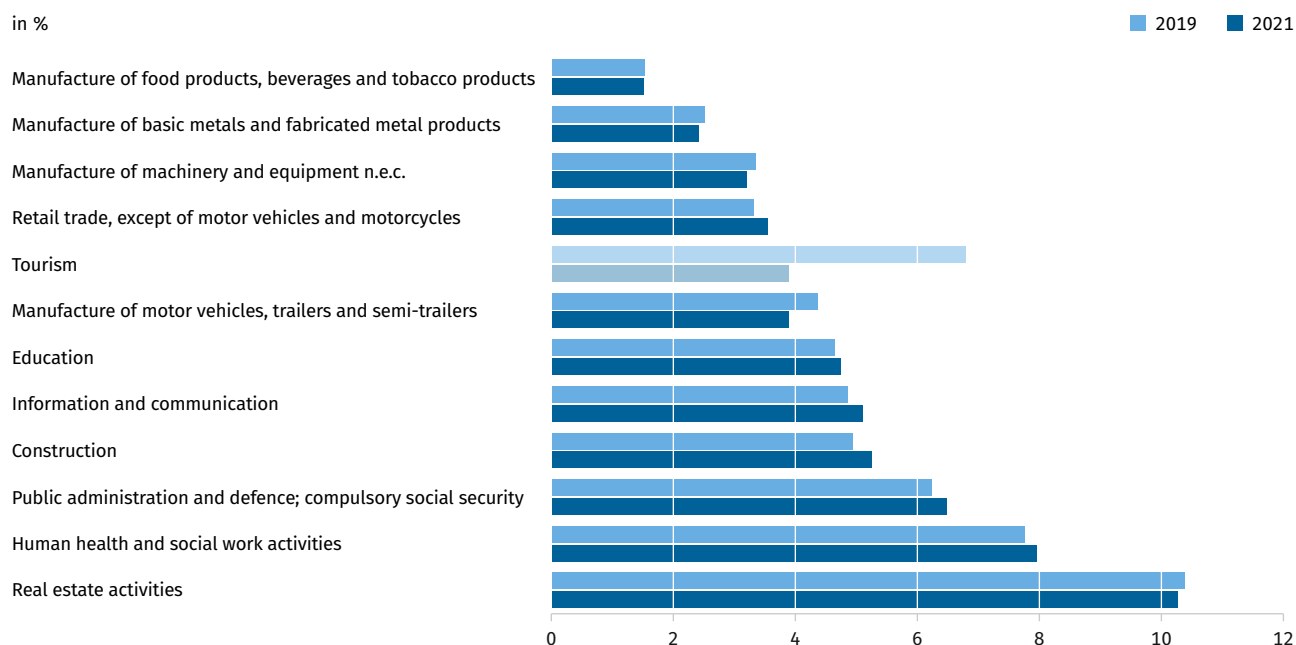
The economic importance of tourism in 2021, measured directly as the tourism share of GVA, stood at 2.2% (see Chapter 3.6). This key figure rose to 3.9% when indirect domestic supply sectors were included (see Table 3.10-2). In absolute terms, this meant 70.8 billion euros in direct value added effects and 57.8 billion euros in indirect value added effects. Thus, total tourism-related gross value added in 2021 amounted to 128.6 billion euros, a decrease of 40% compared to 2019. The share of the overall economy decreased by 2.9 percentage points in the same period.

Table 3.10-2
Direct and indirect tourism-related gross value added

	2015	2016	2017	2018	2019	2020	2021
	million EUR						
Total tourism-related gross value added	191,907	196,190	203,815	210,021	212,850	132,010	128,599
Direct gross value added	110,451	112,767	117,060	120,529	120,616	72,535	70,771
Indirect gross value added	81,456	83,423	86,755	89,492	92,234	59,475	57,828
	Share of tourism in total gross value added %						
Total tourism-related gross value added	7.1	7.0	6.9	6.9	6.8	4.3	3.9
Direct gross value added	4.1	4.0	4.0	4.0	3.9	2.4	2.2
Indirect gross value added	3.0	3.0	3.0	3.0	2.9	1.9	1.8

Figure 3.10-I shows the total gross value added share in comparison with selected industries. The cumulative share is comparable to the GVA share of the manufacturing of motor vehicles, trailers and semi-trailers, also at 3.9%. However, no comparable indirect effects were determined for the other industries, and double counting cannot be ruled out.

Figure 3.10-I
GVA shares of selected industries¹² and cumulative (direct + indirect) tourism shares in total GVA, 2019 and 2021



12 Available via the GENESIS online database with the code 81000-0102.

3.10.3 TSA 10 – Direct and indirect tourism-related employment

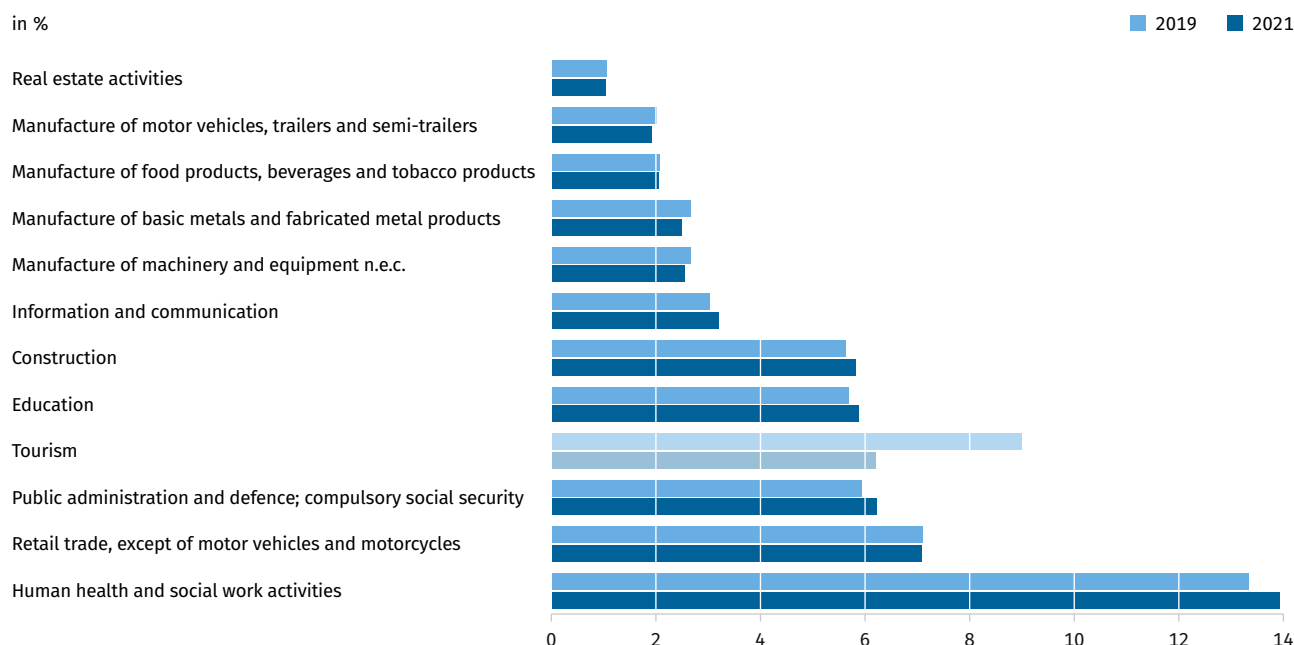
Tourism supply chains also have an impact on employment. In 2021, around 2 million people were directly employed in the production of goods and services demanded by tourism (see Chapter 3.7), indirectly involving a further 0.8 million employees (see Table 3.10-3). So roughly 2.8 million employed person were either directly or indirectly dependent on tourism in Germany, or 6.2% of the total labour force. But in 2019, the share was 9%. The total tourism-related labour force has fallen by around a third since then. The figures are also declining compared to the previous year (-8%).

Table 3.10-3
Direct and indirect tourism-related employment

	2015	2016	2017	2018	2019	2020	2021
	in 1,000 employed persons						
Total tourism-related employment	4,020	4,017	4,069	4,088	4,062	3,031	2,779
Direct employment	2,755	2,755	2,785	2,798	2,763	2,174	1,979
Indirect employment	1,265	1,262	1,284	1,290	1,299	857	801
	Share of tourism in total employment %						
Total tourism-related employment	9.3	9.2	9.2	9.1	9.0	6.7	6.2
Direct employment	6.4	6.3	6.3	6.2	6.1	4.8	4.4
Indirect employment	2.9	2.9	2.9	2.9	2.9	1.9	1.8

Comparing employment figures with other economic industries (see Figure 3.10-II) confirms the extensive employment impact. Even though tourism-related employment has declined due to COVID-19 pandemic, more persons were still employed in the tourism industry in 2021 than in education, construction, manufacture of machinery and equipment n.e.c. or manufacture of motor vehicles, trailers and semi-trailers.

Figure 3.10-II
Employment shares of selected industries¹³ and cumulative (direct + indirect) tourism shares in total employment, 2019 and 2021



13 Available via the GENESIS online database with the code 81000-0123.

3.11 Energy use

Calculations of the direct final energy use within Germany by the tourism industry are based on considering the value added process for products by individual industries that satisfy tourism demand. In 2021, the production of goods and services in Germany demanded by tourism required 198,351 terajoules (TJ, see Table 3.11-1). This represents a share of about 1.9% of total domestic energy use.

Despite the pandemic-related reduction in energy use by passenger transport industries, the tourism-related use of mineral oils accounted for 39% (77,951 TJ) of the total tourism-related energy use. Around a quarter of the energy use was of electricity (48,049 TJ) and gases (50,851 TJ). These energy sources are particularly relevant in the production of accommodation services as well as food and beverage services for visitors, whereas the use of district heating, renewable energy sources,¹⁴ coal and other energy sources has only minor importance for the production of goods and services demanded by tourism.

Use of district heating (2.7%) and electricity (2.5%) is above average in the tourism industry compared to the tourism-related share of total final energy use (1.9%). On the other hand, the use of renewable energy sources (0.6%), coal (0.8%) and other energy sources (0.8%) is relatively low in the production of goods and services that satisfy tourism demand.

14 Other energy sources include the energy production from fossil, non-renewable waste.

Tourism, economy and environment: overview of results

Table 3.11-1

Tourism-related energy use by product group and energy source, 2021

	Total energy sources	of which						
		Coal	Gases	Mineral oils	Renewable energies	Electricity	District heating	Other energy sources
	Terajoule							
I) Tourism characteristic products	153,532	527	39,646	61,929	2,687	38,151	10,503	88
1 – Accommodation services for visitors	32,423	20	14,242	2,971	61	11,215	3,912	3
2 – Food and beverage serving services	47,182	-	20,929	4,303	72	16,106	5,773	-
3 – Railway passenger transport services	6,262	-	534	820	55	4,681	173	-
4 – Road passenger transport services	18,103	8	409	14,398	990	2,252	44	1
5 – Water passenger transport services	1,385	-	3	1,369	1	11	0	-
6 – Air passenger transport services	35,228	-	201	34,726	12	272	17	-
7 – Transport equipment rental services	183	3	28	102	8	39	3	1
8 – Travel agencies and other reservation services	3,469	-	1,263	395	12	1,695	103	-
9 – Sports, recreational and cultural services	9,296	496	2,037	2,845	1,476	1,880	479	83
II) Country-specific tourism products	4,657	242	1,503	1,263	180	1,229	198	41
10 – Health services	1,590	-	746	175	13	570	86	-
11 – Food	2,413	190	596	856	132	518	88	32
12 – Fuel	654	52	161	232	36	140	24	9
III) Other products	40,162	2,988	9,702	14,759	2,113	8,669	1,429	502
13 – Remaining goods	15,842	1,250	3,907	5,636	864	3,398	578	210
14 – Remaining services	24,320	1,738	5,795	9,123	1,250	5,271	851	292
Total tourism-related energy consumption	198,351	3,757	50,851	77,951	4,981	48,049	12,130	631
Non-tourism-related energy consumption	6,400,640	463,955	1,518,748	2,403,479	335,103	1,376,338	225,136	77,882
Energy consumption of private households	3,822,483	14,584	1,038,236	1,603,621	451,371	500,954	213,717	-
Final energy consumption (final consumption concept)	10,421,474	482,296	2,607,836	4,085,051	791,455	1,925,341	450,983	78,512
Statistical difference	-74,519	-	-730	-64,934	-8,641	-214	-	-
Final energy consumption (sales concept)	10,346,955	482,296	2,607,106	4,020,116	782,814	1,925,127	450,983	78,512
	%							
Tourism-related share in final energy consumption	1.9	0.8	2.0	1.9	0.6	2.5	2.7	0.8

Further results for additional years are provided in the statistical report on the environmental impact of tourism (Statistisches Bundesamt, 2024b).

Figure 3.11-I compares the share in final energy use of tourism to the shares of other industries in Germany. As a caveat to the analysis, for methodological reasons double counting cannot be precluded. More precisely, because tourism is a cross-cutting economic activity, marginal shares of the energy use of all industries are attributed to tourism even though they may not be directly related to it.

In 2021, the share in final energy use of tourism (1.9%) was between those of the industries “Retail trade, except of motor vehicles and motorcycles” (1.4%) and “Construction” (2.1%). In contrast, the share of tourism was much higher (3.5%) in 2019 and was located between the industries “Manufacture of food products, beverages and tobacco products” (2.2%) and “Manufacture of basic metals and fabricated metal products” (6.3%). The figure exemplifies the reduced importance of tourism regarding the energy use of the economy due to the effects of the COVID-19 pandemic, especially compared to the pandemic-related impacts on the energy use of other industries.

Figure 3.11-I

Shares of selected industries and share of tourism in final energy use in Germany, 2019 and 2021

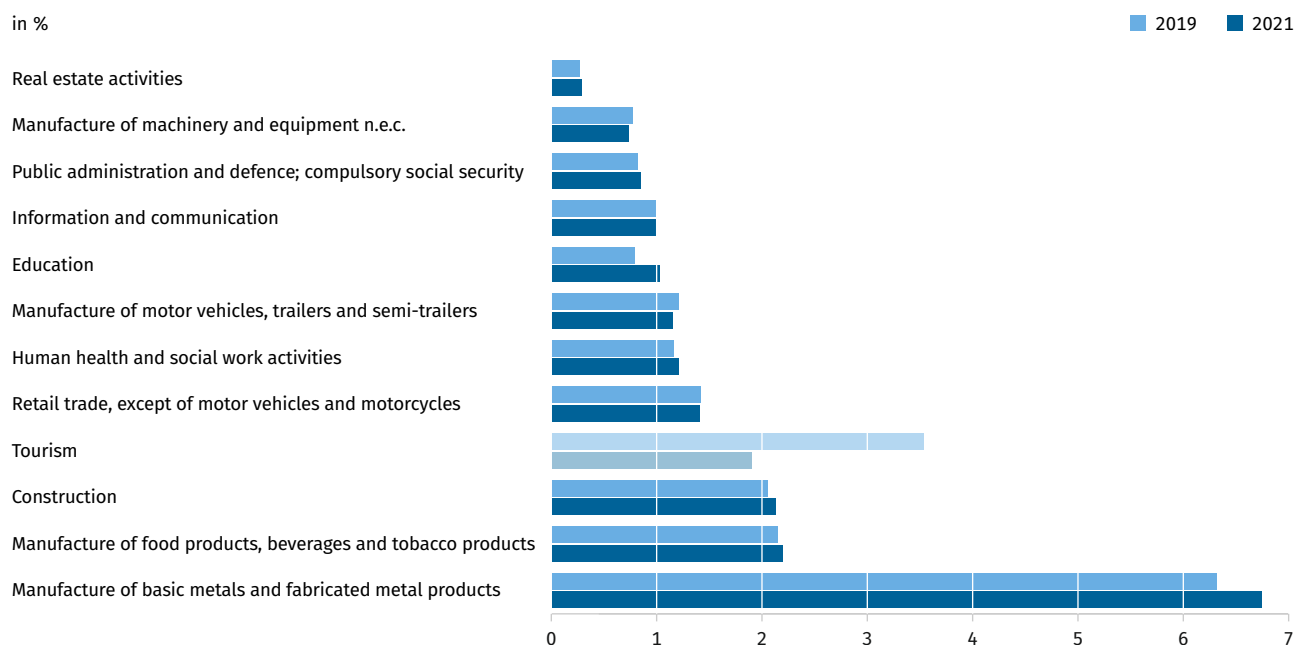
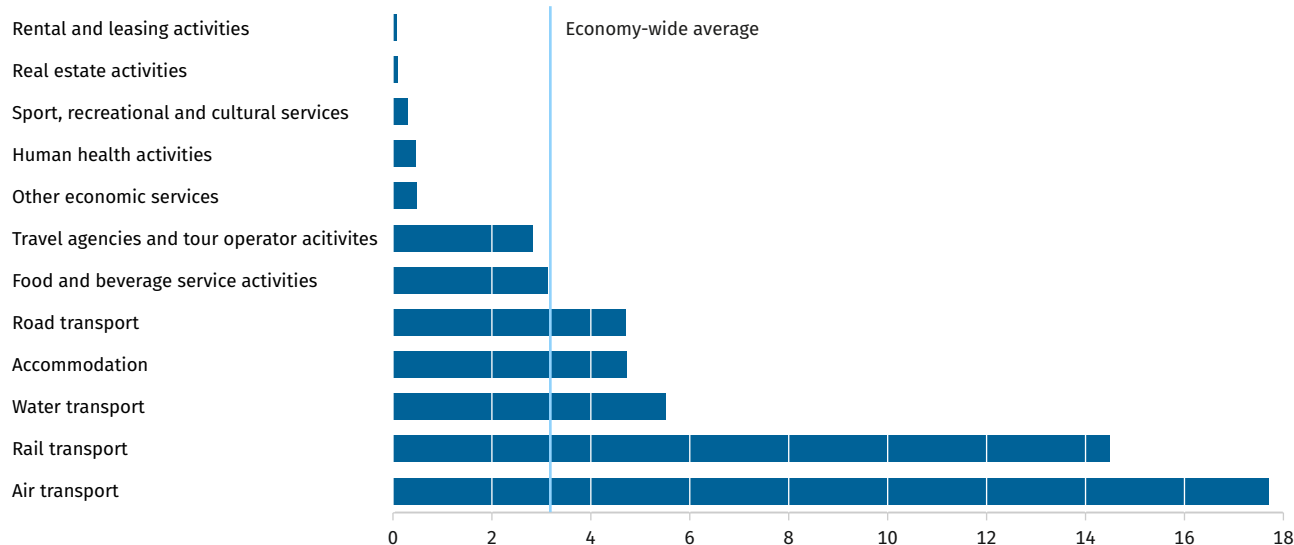


Figure 3.11-II links the tourism-related energy use to the added value generated by tourism industries. The figure depicts the energy consumption in terajoules per million euro value added for each tourism industry. This ratio can be interpreted as the tourism-related energy intensity. The figure includes the average energy use per million euro value added of the entire economy as a benchmark.

In 2021, the average energy intensity of the economy was 3.2 TJ per million euro value added. The tourism-related energy intensities of the different modes of transport were well above the economy-wide average. Especially the energy intensities of passenger air transport and rail transport, with 18 and 15 TJ per million euro value added respectively, were not only above the economy-wide average, but also significantly higher than the intensities of the other tourism industries. In contrast, the energy intensities of tourism-related services were well below the economy-wide average. These industries require far less energy for the production of their tourism-related services in relation to the value added they generated.

Figure 3.11-II
Energy use in terajoules per million euro value added, 2021



3.12 Air emissions

Table 3.12-1 breaks down tourism-related emissions by individual greenhouse gases (GHGs) for 2021. The table differentiates between carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄) and fluorinated greenhouse gases (F gases). The F gases include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃). Each greenhouse gas is converted into tons CO₂ equivalents by using a specific factor which represents its impact on climate compared to the impact of CO₂, to illustrate the cumulative climate effect of all GHGs.

In 2021, the production of goods and services demanded by tourism in Germany generated emissions of 12.4 million tons CO₂ equivalents, representing a share of 1.4% in total GHG emissions within the domestic territory. CO₂ accounted for 93% of the total tourism-related GHG emissions, whereas the emissions of methane (3.7%), nitrous oxide (1.7%) and F gases (1.4%) have only minor importance.

Despite the effects of the COVID-19 pandemic, the share of passenger air transport services in all tourism-related GHG emissions in 2021 amounts to a remarkable 21%. However, their share decreased significantly compared to in pre-pandemic years. The largest proportion of tourism-related GHG emissions was generated by the remaining goods and services, with a share of 35% (4.3 million tons CO₂ equivalents). This aggregated group was responsible for 67% (144,000 tons CO₂ equivalents) of the tourism-related emissions of nitrous oxide and 62% (282,000 tons CO₂ equivalents) of the emissions of methane. The remaining goods and services include agricultural products, which generate large quantities of methane and nitrous oxide during their production. Due to methodological reasons, small amounts of these emissions have been attributed to tourism demand, which is reflected in the present results.

Hydrofluorocarbons accounted for a large proportion of the total emissions of the group of F gases. HFCs are used as production input in particular for the manufacturing of refrigerators, insulation materials and air conditioning systems. In 2021, road passenger transport services had a share of 22% (38,000 tons CO₂ equivalents) of the total tourism-related emissions of F gases, while 21% (37,000 tons CO₂ equivalents) were emitted by food and beverage serving services.

Table 3.12-1

Tourism-related greenhouse gas emissions by product group and greenhouse gas, 2021

	Total	of which			
		CO ₂	CH ₄	N ₂ O	F gases
	1,000 tons of CO ₂ equivalents				
I) Tourism characteristic products	7,695	7,367	151	58	119
1 – Accommodation services for visitors	1,095	1,047	18	3	27
2 – Food and beverage serving services	1,569	1,504	24	3	37
3 – Railway passenger transport services	102	95	1	0	6
4 – Road passenger transport services	1,339	1,241	54	5	38
5 – Water passenger transport services	105	103	0	1	0
6 – Air passenger transport services	2,585	2,560	5	20	0
7 – Transport equipment rental services	24	22	1	0	0
8 – Travel agencies and other reservation services	90	88	1	0	0
9 – Sports, recreational and cultural services	788	706	47	24	10
II) Country-specific tourism products	395	353	24	13	6
10 – Health services	61	56	1	1	2
11 – Food	263	233	18	9	3
12 – Fuel	71	63	5	2	1
III) Other products	4,257	3,779	282	144	51
13 – Remaining goods	1,728	1,530	117	60	21
14 – Remaining services	2,529	2,249	165	84	31
Total tourism-related greenhouse gas emissions	12,348	11,499	457	215	176
Non-tourism-related greenhouse gas emissions	672,121	597,242	44,102	22,455	8,322
Greenhouse gas emissions of private households	216,741	211,351	2,071	920	2,399
Domestic greenhouse gas emissions	901,210	820,092	46,631	23,590	10,897
Greenhouse gas emissions of residents abroad	43,902	43,425	43	434	0
Greenhouse gas emissions of non-residents on domestic territory	-36,103	-35,644	-21	-438	0
Greenhouse gas emissions of residents	909,009	827,873	46,653	23,586	10,897
%					
Tourism-related share in domestic greenhouse gas emissions	1.4	1.4	1.0	0.9	1.6

Further results for additional years are provided in (Statistisches Bundesamt, 2024b).

Figure 3.12-I compares the share of tourism in total GHG emissions in Germany to other industries, analogously to figure 3.11-I. Once again, for methodological reasons double counting cannot be precluded. More precisely, because tourism is a cross-cutting economic activity, marginal shares of the GHG emissions of all industries are attributed to tourism even though they may not be directly related to tourism.

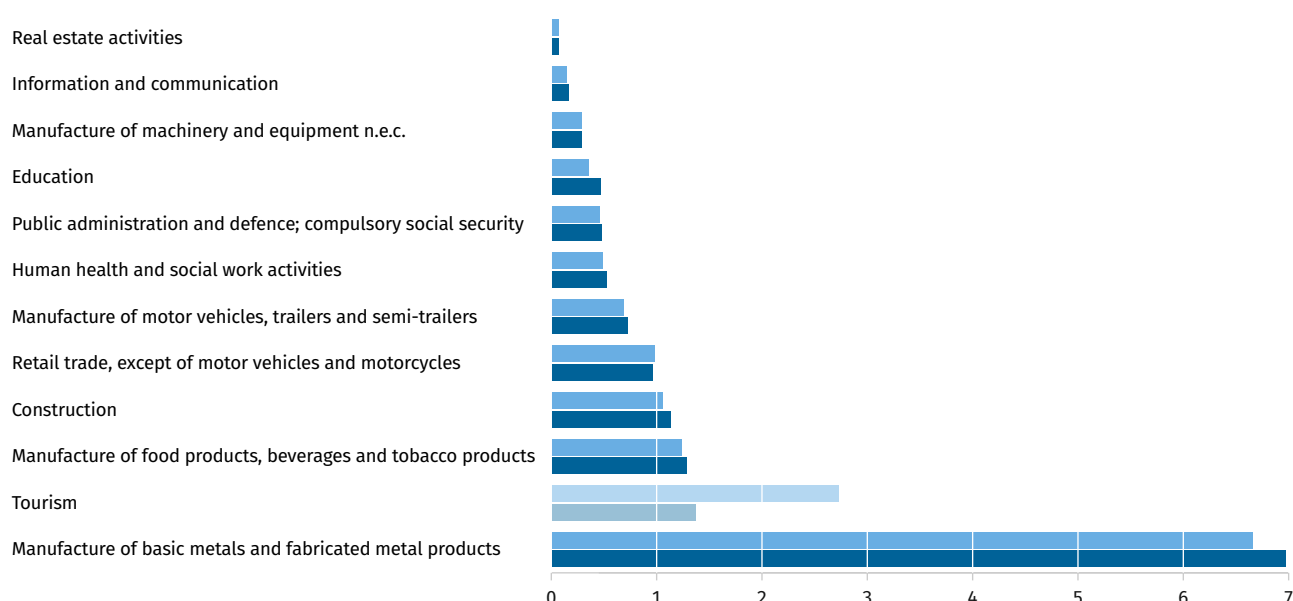
With a share of 1.4% in total GHG emissions in 2021, tourism was roughly on the same level as the industry “Manufacture of food products, beverages and tobacco products”, whereas the share of tourism was more than twice as high in 2019. However, a comparison with “Manufacture of basic metals and fabricated metal products” shows that industries belonging to the section “Manufacturing” partly account for a considerably higher share in GHG emissions of Germany.

Figure 3.12-I

Shares of selected industries and share of tourism in total GHG emissions in Germany, 2019 and 2021

in %

■ 2019 ■ 2021



3.13 Raw material input

Chapter 3.13 offers an insight into the raw material input that industries use directly or indirectly along the entire value chain for manufacturing products demanded by tourism in Germany. Raw material input (RMI) encompasses the use of fossil energy carriers, metal ores, stones, earth and industrial minerals as well as biomass from agriculture, hunting, forestry and fishing.

The total tourism-related raw material input was quite stable between 2015 and 2019, in the 96 to 100 million tons range (see table 3.13-1). In the same period, the economy-wide raw material input increased by 4.5% (122 million tons), thus leading to a slight decrease in the share of raw material input for products demanded by tourism from 3.5% to 3.4%.

Comparing the tourism-related energy use and GHG emissions to the raw material input, a significant disparity is noticeable in the results for travel agencies and other reservation services. On the one hand, travel agencies and other reservation services had a share of 2% in the tourism-related energy use and 1% in the tourism-related GHG emissions, but, on the other hand, were responsible for 15% of the total tourism-related raw material input in 2021. This disparity stems from conceptual differences between the calculation methods used for the various environmental impacts. The calculations of raw material input for products demanded by tourism covers both the direct use of raw material in the manufacture of the products and the indirect use as intermediate consumption. The high raw material input for travel agencies and other reservation services originates from the individual components of package holidays which are factored in as intermediate consumption by these services. For example, the raw material input accruing from outward and return journey as well as catering during package holidays is fully attributed to travel agencies and other reservation services.

The raw material input for products demanded by tourism decreased by 38% compared to 2019. In particular, the raw material input for air passenger transport services fell significantly by 73%, primarily due to a reduction in the usage of mineral oil. Likewise, the raw material input for water passenger transport services declined from about three to less than half a million tons. Like for tourism-related energy use, it is evident from the data on raw material input that the tourism industry was particularly affected by the COVID-19 pandemic compared to the rest of the economy. The reduction of the tourism-related raw material input accounted for a share of 58% in the total reduction of raw material input for domestic and foreign final demand, which fell by 64 million tons between 2019 and 2021.

Table 3.13-1

Tourism-related raw material input by product group

	2015	2016	2017	2018	2019	2020	2021
	million tons						
I) Tourism characteristic products	55	58	58	56	57	38	37
1 – Accommodation services for visitors	12	12	12	11	11	8	8
2 – Food and beverage serving services	16	16	16	15	14	11	11
3 – Railway passenger transport services	0	0	0	0	0	0	0
4 – Road passenger transport services	1	1	1	1	1	1	1
5 – Water passenger transport services	1	2	2	2	3	1	0
6 – Air passenger transport services	8	10	10	11	11	3	3
7 – Transport equipment rental services	0	0	0	0	0	0	0
8 – Travel agencies and other reservation services	11	11	11	10	11	9	9
9 – Sports, recreational and cultural services	6	6	6	6	6	5	5
II) Country-specific tourism products	7	7	7	7	7	4	4
10 – Health services	1	1	1	1	1	0	0
11 – Food	3	4	4	4	3	2	2
12 – Fuel	3	3	3	2	3	1	1
III) Other products	33	35	34	35	33	20	19
13 – Remaining goods	17	18	17	18	17	10	10
14 – Remaining services	16	17	17	17	16	10	9
Total tourism-related raw material input	96	100	99	98	97	61	60
Non-tourism-related raw material input	2,640	2,744	2,752	2,801	2,762	2,680	2,734
Total raw material input (RMI)	2,736	2,844	2,851	2,899	2,858	2,741	2,794
	%						
Tourism-related share in RMI	3.5	3.5	3.5	3.4	3.4	2.2	2.1

Further results are provided in (Statistisches Bundesamt, 2024b).

3.14 Environmental protection expenditures

The environmental protection expenditures of the tourism industry are categorised by environmental domain according to the European Classification of Environmental Protection Activities and Expenditure (CEPA 2000). Table 3.14-1 shows the use of market-based environmental protection services of CEPA classification 2 and 3 by tourism enterprises in Germany. These waste water management (CEPA 2) and waste management (CEPA 3) services are provided predominantly by specialised producers from the private or public sector, which supply these market-based products as their main economic activity.

Tourism businesses obtain environmental protection services related to CEPA classifications 1 and 4 to 9 almost entirely from the non-market output of the public sector or from non-specialised producers, which produce these services as an ancillary or secondary activity. In this context, non-market output means the provision of services free of charge or for a token price. For the purpose of calculating the TSA-EE, no adequate data sources for the environmental protection expenditures of tourism businesses regarding these services were available. Thus, table 3.14-1 contains only the environmental protection expenditures for market-based services provided by specialised producers.

Between 2015 and 2019, the total tourism-related expenditures for market-based environmental protection services, which represent intermediate consumption for the production of goods and services demanded by tourism, increased by 10%, from 1.7 to 1.9 billion euros. More than 70% of the expenditures over this period were associated with the use of waste water management services. Until 2019, these expenditures remained virtually unchanged (+1.6%), whereas the use of waste management services increased by more than a third (+38%).

The use of market-based environmental protection services by tourism industries lessened in 2020 and 2021 due to the decline in demand for tourism products. For example, the expenditures for waste disposal of the accommodation industry shrank due to the lower occupation rate and the associated reduction in the generation of waste. However, the decrease of tourism-related environmental protection expenditures by 29% (–531 million euros) in 2021 compared to 2019 was of a smaller scale than the reduction in other environmental impacts of tourism. Around 74% of the reduction in expenditure was associated with less use of waste water management services. Even though tourism-related expenditures for waste management services were substantially reduced in 2020 compared to 2019 (–32%), expenditures increased again by 10% in 2021.

Table 3.14-1

Tourism-related use of market-based environmental protection services by environmental domain

	2015	2016	2017	2018	2019	2020	2021
	million EUR						
CEPA 1 – Protection of ambient air and climate	.	.	.	.	.	.	.
CEPA 2 – Waste water management	1,271	1,302	1,279	1,367	1,291	921	897
CEPA 3 – Waste management	405	446	463	534	558	382	421
Waste collection	190	196	228	248	265	148	193
Waste treatment and disposal	178	214	194	233	233	193	187
Elimination of environmental pollution and other disposal	37	37	41	52	60	41	41
CEPA 4 – Protection and remediation of soil, groundwater and surface water	.	.	.	.	.	.	.
CEPA 5 – Noise and vibration abatement	.	.	.	.	.	.	.
CEPA 6 – Protection of biodiversity and landscapes	.	.	.	.	.	.	.
CEPA 7 – Protection against radiation	.	.	.	.	.	.	.
CEPA 8 – Research and development for CEPA 1-7 and 9	.	.	.	.	.	.	.
CEPA 9 – Other environmental protection activities	.	.	.	.	.	.	.
Total	1,676	1,748	1,742	1,901	1,849	1,303	1,318

Further results are provided in (Statistisches Bundesamt, 2024b).

4 Conclusion and outlook

The Tourism Satellite Account for Economy and Environment offers a comprehensive repertoire of data on economic and environmental aspects of tourism in Germany. A significant advantage of the calculations provided by the Federal Statistical Office is that key conceptual definitions are harmonised. The results of different aspects are therefore compatible with each other and can be combined as required. Because the national accounts and national environmental-economic accounts form the data basis for the TSA-EE, numerous links can also be drawn to these accounting systems.

The time series currently covers 2015 to 2021. Compared to the previous project, which provided results up to 2019 at the end of 2021, the effects of the COVID-19 pandemic on tourism can now for the first time be quantified at a macroeconomic level.

The TSA-EE provides results at a macro level. It does not claim to quantify consumer spending in a specific holiday destination or greenhouse gas emissions in a ski hotel during the winter months. Other calculation approaches, for instance bottom-up methods, are more suitable for such additional questions on regional and seasonal differences or microeconomic considerations.

Nevertheless, there is still room for further developing the TSA-EE with its established calculation methodology. One of the main wishes of users of this data is to reduce the time delay of around three years and provide more up-to-date TSA-EE results faster. To achieve this, the calculation methodology and the repertoire of data sources used would need to be expanded. In addition, the close link between the TSA-EE, national accounts and environmental-economic accounts opens up development opportunities. Since the calculations of the TSA tables are based on input-output data from national accounts, methodological changes to national accounts, such as the 2024 general revision, should be consistently reflected in the TSA-EE. It would also be valuable to be able to compare the economic performance of tourism with Germany's gross domestic product as the key national accounts figure. Calculations of energy use and emissions according to the national concept would help in offering additional options for analysis in connection with results from the environmental-economic accounts, which are also delimited according to the national concept – quite apart from the fact that, for example, the question of emissions from air travel by German tourists abroad is interesting in itself. The environmental effects of German tourism abroad can be analysed even further – for example, the energy or CO₂ footprint of tourism could provide information in that respect. The Federal Statistical Office will therefore continue its work on the TSA-EE on behalf of the Federal Ministry for Economic Affairs and Climate Action in the years 2025 to 2027. It is thus worth continuing to keep a close eye on the work of the Federal Statistical Office regarding the TSA-EE.

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