

# U.S. Travel and Tourism Satellite Accounts for 1992

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**T**HIS ARTICLE presents prototype travel and tourism satellite accounts (TTSA's), which are a second set of extensions developed in 1998 to the U.S. input-output (I-O) accounts.<sup>1</sup> Satellite accounts are rearrangements of information from the national economic accounts and other sources for the purpose of analyzing specific economic activities more completely than is possible within the structure of the basic accounts (see the box "Satellite Accounts").<sup>2</sup> The TTSA's integrate information on the flows of commodities that are related to travel and tourism activities but that are not identified in the standard presentation of the I-O accounts.<sup>3</sup>

There is strong motivation to develop analytical measures of travel and tourism activities in the United States. Travelers are important consumers of U.S. production, and the industries that cater to travelers use a substantial share of output from other industries, add substantial economic value to other industries' outputs, and employ large numbers of people. Furthermore, both travel in the United States by foreigners and travel abroad by U.S. residents have grown dramatically in recent years.

The TTSA's define travel and tourism as the economic activity generated inside the United States by "visitors" of all types—for business and pleasure, by residents and nonresidents alike—and

outside the United States by U.S. residents.<sup>4</sup> The TTSA's extend the I-O accounts in that they attempt to measure an economic activity (travel and tourism) undertaken by only a subset of purchasers (visitors) and involving only a subset of purchases (tourism demand). This task first requires the identification of the commodities that are purchased by visitors and the corresponding industries that produce these commodities. This task is further complicated because tourism is inherently defined in relative geographic terms—like distance from home—and because many of the activities that are undertaken by visitors—such as dining out in restaurants—are also undertaken by nonvisitors, that is, people who are close to their homes. Therefore, deriving the output and value added of tourism industries is less straightforward than for a conventional industry producing a conventional commodity, such as iron and steel.

The basic building blocks of I-O accounts are commodities, most of which are not readily distinguishable by type of consumer. Therefore, in developing the TTSA's, the share of each commodity purchased by visitors had to be estimated. The information available to allocate commodities between visitors and nonvisitors is generally based on relatively small sample surveys and indirect methods. In the prototype TTSA's, three different methodologies were used, and estimates

1. The first set of extensions covered transportation activities; see Bingsong Fang, Xiaoli Han, Ann M. Lawson, and Sherlene K.S. Lum, "U.S. Transportation Satellite Accounts for 1992," *SURVEY OF CURRENT BUSINESS* 78 (April 1998): 16–27. These accounts were developed jointly with the Bureau of Transportation Statistics, U.S. Department of Transportation.

The TTSA's were developed by the Bureau of Economic Analysis with the support of the Tourism Industries Office of the International Trade Administration, U.S. Department of Commerce.

2. For descriptions of the other satellite accounts that have been developed by BEA, see "Integrated Economic and Environmental Satellite Accounts" and "Accounting for Mineral Resources: Issues and BEA's Initial Estimates," *SURVEY* 74 (April 1994): 33–72; and "A Satellite Account for Research and Development," *SURVEY* 74 (November 1994): 37–71.

3. For a description of the I-O accounts, see Ann M. Lawson, "Benchmark Input-Output Accounts for the U.S. Economy, 1992: Make, Use, and Supplementary Tables," *SURVEY* 77 (November 1997): 36–82; and Ann M. Lawson, "Benchmark Input-Output Accounts for the U.S. Economy, 1992: Requirements Tables," *SURVEY* 77 (December 1997): 22–47.

4. The term "visitor" is used because it is more descriptive of the travel activities included in the TTSA's than the term "tourist," which connotes a person who travels for leisure only.

**Table 1.—Key Indicators of Tourism Activity: Range of Estimates, 1992**

	Demand (billions of dollars)	Value added (billions of dollars)	Employment (thousands)	Percent		
				Share of GDP		Share of employment
				Demand	Value added	
Method 1 .....	284.2	120.5	3,749	4.6	1.9	3.2
Method 2 .....	294.9	124.5	3,933	4.7	2.0	3.3
Method 3 .....	332.8	135.7	4,353	5.3	2.2	3.7

NOTE.—See the section "Methodological Overview" for a discussion of the three methods.

are presented as a range, rather than as a single estimate.

The following are highlights from the new TTSA's for 1992 (table 1):

- Value added in travel and tourism represented 1.9–2.2 percent of U.S. gross domestic product (GDP). The industry with the highest value added was the hotels and lodging industry.
- Expenditures for travel and tourism accounted for 4.6–5.3 percent of U.S. GDP. The largest category of expenditures was expenditures for passenger air travel services.
- Employment in travel and tourism activities accounted for 3.2–3.7 percent of total employment in the United States. The average compensation per tourism employee was \$21,400 per year, but compensation varied widely by industry.

The first section of this article describes the development of the TTSA's. The second section provides a conceptual overview of the TTSA's, including their relationship to the I-O accounts. The third section describes the major components of the TTSA's. The fourth section provides an overview of the methodology used to estimate the TTSA's. The fifth section summarizes the TTSA estimates for 1992. The final section outlines future work and extensions.

## Background

The activities of travel and tourism are covered in the national economic accounts, but the system underlying the classification of output in the I-O accounts—the Standard Industrial Classification (SIC) system—does not facilitate separately identifying tourism, as the SIC was primarily designed to present industry statistics without regard to the purpose of the purchase of output. A measure of tourism activities would be understated if it included only the output of industries that are typically associated with tourism activities—hotels and air, water, and rail transportation—because it would exclude expenditures on other types of commodities, such as eating and drinking places, that represent a relatively important share of tourism expenditures but that cannot be separately identified. On the other hand, that measure would be grossly overstated if it included all the expenditures on eating and drinking because it would also include expenditures by local residents.

Various measures of tourism have been developed, including the number of travelers, the number of trips made by U.S. residents in the United States and abroad, and the level of expenditures of U.S. resident and nonresident visitors on passenger fares, lodgings, and other goods and services.<sup>5</sup> However, these measures do

5. U.S. Travel Center, Travel Industry Association, *National Travel Survey* (Washington, DC: Travel Industries Association of America, 1992); U.S. Department of Commerce, International Trade Administration, Tourism In-

## Satellite Accounts

BEA has developed several satellite accounts for transportation services, environment and mineral resources, and research and development. Satellite accounts are frameworks designed to expand the analytical capacity of the national accounts without overburdening them or interfering with their general-purpose orientation. In this role, satellite accounts organize information in an internally consistent way that suits the particular analytical focus at hand, yet they maintain links to the existing national accounts. Further, because they supplement the existing accounts, rather than replace them, they can serve as a laboratory for economic accounting in that they provide room for conceptual development and methodological refinement.

Satellite accounts can add detail or other information about a particular aspect of the economy to that in the existing accounts; for instance, they can integrate monetary and physical data. They can arrange information differently, perhaps by cutting across sectors to assemble information on both intermediate and final consumption. For example, a satellite account can

assemble business expenditures on training—treated as intermediate consumption in the existing accounts—and education-related expenditures by households and government to analyze the role of education in the economy. They can use a classification other than that used in the existing accounts. For example, they can identify expenditures on “research in education” as part of research expenditures even though they are included in education expenditures in the national accounts.

The terminology and concepts associated with satellite accounts reflect the experiences of several countries that have constructed them, largely on an ad hoc basis, for fields such as health, education, agriculture, research and development, and transportation. The *System of National Accounts 1993*, which presents the newly revised international accounting guidelines, includes a chapter that provides a general framework for satellite accounts and demonstrates how that framework can be used for some of the fields in which such accounts would be most useful. This chapter represents, in a real sense, the coming of age of satellite accounts as an analytical tool.

not provide a consistent way to compare travel and tourism with other economic activities.

A White House Conference on Travel and Tourism, held in October 1995, highlighted the difficulty in linking these measures to other production and consumption activities in the economy. The Conference delegates recommended that the U.S. Department of Commerce, in partnership with the travel and tourism industries, develop travel and tourism satellite accounts to provide measures that are consistent with the U.S. national economic accounts. This recommendation was strongly supported by the Tourism Policy Council, headed by the Secretary of Commerce. As a result, in 1997, the Tourism Industries Office of the International Trade Administration, U.S. Department of Commerce, entered into an agreement with the Bureau of Economic Analysis to develop the U.S. TTSA's.

#### *Efforts to develop travel and tourism satellite accounts*

The definitions, framework, and estimating methods used for the U.S. TTSA's follow, as closely as practicable, the guidelines for similar accounts that were developed by the World Tourism Organization (WTO) and the Organisation for Economic Co-operation and Development (OECD). Over the past decade and a half, the WTO and the OECD have prepared a series of reports that define tourism, provide recommendations on the

industries Office, *Summary and Analysis of International Visitors to the United States* (Washington, DC: U.S. Government Printing Office, 1992); U.S. Department of Transportation, Bureau of Transportation Statistics, *American Travel Survey* (Washington, DC: U.S. Government Printing Office, 1995).

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At BEA, Mark A. Planting, Branch Chief, Industry Economics Division, developed the framework for the production, demand, and value-added accounts, and the estimates of these accounts. David I. Kass developed the method for estimating tourism expenditures on eating and drinking places, the framework for measuring tourism employment and compensation of employees, and the estimates for the accounts for employment and compensation of employees; he also drafted the sections of the article describing tourism employment and compensation of employees. John Turner assisted in the data processing of the accounts. Michael Mann from the Balance of Payments Division provided assistance on evaluating data from the In-Flight Survey, and Clint McCully from the National Income and Wealth Division, on evaluating the data from the Consumer Expenditures Survey.

collection and organization of tourism statistics, and establish guidelines for estimating travel and tourism satellite accounts.<sup>6</sup> The definitions and concepts developed by the WTO have been followed, with minor modifications, by the OECD, by the Statistical Office of the European Communities (EUROSTAT), and by countries collecting tourism statistics and estimating tourism satellite accounts. The WTO and the OECD are working cooperatively to develop manuals for estimating tourism satellite accounts. With these TTSA's, the United States joins Canada and Norway as countries that have designed and implemented travel and tourism accounts in accord with the WTO and OECD initiatives.<sup>7</sup>

The OECD and WTO frameworks include sets of tables that measure similar aspects of travel and tourism. The measures common to both frameworks include the production and value added of tourism industries, purchases of tourism commodities and other commodities by domestic and international visitors, employment in tourism industries, and investment and capital stock in tourism industries.<sup>8</sup>

#### **Conceptual Overview of Travel and Tourism Satellite Accounts**

The purpose of the travel and tourism satellite accounts is to provide a framework for analyzing tourism expenditures in a systematic and consistent way that links tourism demand expenditures to the industries that produce tourism goods and services.

6. See World Tourism Organization, "Tourism Satellite Account (TSA)," 3rd Draft, Rev. 1 (Madrid, January 1998) for the most recent description of WTO definitions and guidelines, and Tourism Committee, Organisation for Economic Co-operation and Development, *Manual on Tourism Economic Accounts*, OECD/GD(91)82 (Paris, 1991).

7. See Jocelyn Lapierre and Duane Hayes, "The Tourism Satellite Account," *National Income and Expenditure Accounts, Quarterly Estimates*, Second Quarter 1994 (Ottawa: Statistics Canada); and Trude Nygaard, "Satellite Accounts for Tourism in Norway" (Division of National Accounts, Statistics Norway, August 1996). Other OECD countries that are currently developing their own accounts include Australia, Spain, France, New Zealand, Switzerland, and Poland.

More recently, the European Union issued a directive to its member states to collect harmonized European Community statistical information on tourism supply and demand; EUROSTAT began collecting data in 1997.

8. The OECD recommends a set of 13 tables that show the following: the production account of tourism industries; the demand for tourism commodities; the value added of tourism industries; employment in tourism industries; visitor characteristics; investment by tourism industries; capital stock; and 6 other tables measuring these variables in real terms. The WTO recommends a set of 12 tables that consist of the following: Domestic tourism consumption by commodity and origin (domestic and foreign); outbound tourism consumption; inbound tourism consumption; internal and national tourism consumption by forms—summary; tourism consumption by payer (by sector, or households, business, government); tourism consumption by function (domestic tourism, outbound tourism, and inbound tourism); importance of tourism consumption within supply; supply of tourism commodities according to activities; production accounts of tourism industries; tourism-related net acquisition of nonfinancial assets; employment in tourism industries; and imports and exports of goods and services generated by tourism.

**T TSA definitions**

The T TSA’s for the United States rely primarily on the WTO and OECD definitions of visitors, tourism, and tourism expenditures (table 2). The T TSA’s define visitors as persons taking a trip or traveling outside of their “usual environment,” and tourism as the activities of visitors while traveling. The accounts require the following definitions: The visitor and the usual environment.

**Visitor.** A visitor is a person who either travels outside of his or her “usual environment” for a period of less than 1 year or who stays overnight in a hotel or motel. The visitor may travel for personal pleasure or on industry or government business. Visitors do not include travelers whose main purpose is to be compensated within the place visited—such as migrant workers, persons traveling to new assignments, and diplomatic and military personnel traveling between their duty stations and home countries. The 1-year time period is consistent with the internationally accepted limit that is usually used to define a “resident.”

**Usual environment.** The usual environment is defined as the place of normal (or everyday) activities—such as residence, leisure, study, and work—and the criterion is distance. For the U.S. T TSA’s, the usual environment is defined as the area within 50–100 miles of home, depending on available data sources.<sup>9</sup>

9. The distance criterion differs by survey: The Consumer Expenditures Survey (Bureau of Labor Statistics) uses 75 miles from home; the American Travel Survey (Bureau of Transportation Statistics), 100 miles from home;

**Tourism demand, commodities, and industries**

In the T TSA’s, tourism activities are measured by tourism demand, which is defined as the travel-related expenditures made by all visitors, before, during, and immediately after each trip taken. Tourism demand consists of business travel and travel by government employees inside and outside the United States, U.S. resident household travel inside and outside the United States, and travel in the United States by nonresidents (international visitors).<sup>10</sup>

Tourism commodities are the commodities that are typically purchased by visitors directly from producers. The identification of tourism commodities partly depends on the locale and the activities of visitors, but several commodities, such as hotels and transportation services, are obvious. Classification of tourism commodities in the T TSA’s is based on a list of predominant activities of visitors that was developed from WTO and OECD recommendations and from five different sets of surveys of U.S. visitors.<sup>11</sup> The commodities so classified are grouped into the following broad

private surveys by the Travel Industry Association, 50 or 100 miles from home; and surveys by D.K. Shifflet and Associates, 50 miles from home.

10. Resident household travel refers to tourism of residents within the country, and travel by nonresidents refers to tourism of nonresidents within the country (inbound international tourism).

11. The WTO and OECD recommendations were modified to agree with the U.S. national income and product accounts and expanded where additional data on tourism demand were available. The five sets of surveys reviewed were the Consumer Expenditures Survey, prepared by the Bureau of Labor Statistics; the In-Flight Survey, prepared by the International Trade Administration, U.S. Department of Commerce; the American Travel Survey, prepared by the Bureau of Transportation Statistics, U.S. Department of Transportation; the National Travel Survey of the Travel Industry Association; and surveys by D.K. Shifflet and Associates.

**Table 2.—Alternative Frameworks For Measuring Travel And Tourism Activities**

	BEA	OECD	WTO
Statistical unit .....	Visitor .....	Visitor .....	Visitor
Concept of visitor .....	Person traveling outside of usual environment for less than 12 months.	Same as BEA .....	Same as BEA
Concept of usual environment .....	Place of usual activities—residence, work, leisure. Minimum distance determined by available data sources—between 50 and 100 miles from residence.	Place of usual activities—residence, work, leisure. Tourism determined by minimum distance from usual environment. Minimum distance defined by country	Same as OECD
Criteria distinguishing tourism from non-tourism expenditures.	Direct contact between visitor and supplier of tourism commodities.	Same as BEA .....	Same as BEA
Tourism demand .....	Expenditures by visitors .....	Same as BEA .....	Same as BEA
Tourism commodities/tourism industries .....	Determined by what U.S. visitors do .....	Determined by share of commodity purchased by visitors or produced primarily as an attraction for visitors.	Same as OECD
Infrastructure investments—private and public.	Future extension of T TSA’s .....	Private purchases of fixed assets, for example, capital investment in hotel structures. Public purchases include airports, long-distance bus stations. List still under discussion	Private purchases of fixed assets are same as OECD Public purchases not discussed

categories: Tourism commodities, such as hotels and lodging, eating and drinking places, other types of leisure activities, and modes of transportation; and non-tourism commodities, such as gasoline and oil (see table 3).

Several commodities are included in order to account for shopping and other purchases and to provide estimates in purchasers' prices (that is, to compute values in producers' prices from the production table). These commodities are petroleum products retail margins, other retail margins, gasoline and oil, and wholesale trade margins and transportation costs. Petroleum retail margins and other retail margins are classified as tourism commodities because the retailers have direct contact with visitors. Other commodities, while supplying tourism demand, are classified as nontourism commodities because the producers do not have direct contact with visitors.

The TTSA's exclude a number of commodities that could be viewed as tourism commodities—

consumer durables, imputed rents from vacation homes, skiing, health spas, financial services, and retail food (off-premise food consumption); many of these commodities are not separately identified in the I-O accounts. However, two of these commodities—consumer durables and imputed rents from vacation homes and related lodging accommodations, such as time-shares—are important tourism commodities, and their exclusion results in an understatement of travel and tourism activities. Including them would require additional analysis to develop estimates of tourism's share and, in the case of consumer durables, to determine which items to include.

Tourism industries are identified by analyzing the relationships shown in the I-O accounts between tourism commodities and the producing industries. Industries that include tourism commodities as a primary product are classified as tourism industries. These industries generally sell a significant portion of their output to visitors,

Table 3.—Classification of Commodities in the Travel and Tourism Accounts

Description of commodity	Content
Tourism commodities:	
Hotels and lodging places .....	Includes lodging receipts from hotels, motels, guestrooms, and rooming and boarding houses serving the general public; other receipts of hotels and motels, sporting and recreational camps, and recreational vehicle parks and camp sites Excludes meals served by hotels or motels
Eating and drinking places .....	Includes food and beverage receipts and tips Excludes catering services and school lunch sales by State and local governments
Passenger rail .....	Includes receipts from rail passengers for travel and dining and tips
Passenger bus and other local transportation .....	Includes receipts from passengers for intercity, charter, and local bus services and subway and limousine services
Taxicabs .....	Includes taxi fares and tips
Domestic passenger air fares .....	Includes receipts from domestic air passengers for airfares, meals and beverages, movies, and other receipts
International air fares .....	Includes receipts from international air passengers
Passenger water .....	Includes receipts from passengers for water transportation
Auto and truck rental .....	Includes receipts for rental of automobiles and trucks
Other vehicle rental .....	Includes receipts for rental of recreational vehicles and utility trailers
Arrangement of passenger transportation .....	Includes commissions for the arrangement of passenger transportation and net receipts for tours
Recreation and entertainment .....	Includes miscellaneous entertainment receipts such as amusement parks, fairs, museums, gambling, and other recreation and amusements
Participant sports .....	Includes participant sports such as golf and tennis
Movie, theater, ballet, and musical events .....	Includes receipts for admissions to movies and theater and music programs
Sports events .....	Includes admissions to sports events
Petroleum retail margins .....	Includes retail margins on petroleum sales
Other retail margins .....	Includes retail margin on all other goods
Travel by U.S. residents abroad .....	Includes travel expenditures by U.S. residents abroad
Nontourism commodities: <sup>1</sup>	
Gasoline and oil .....	Includes sales of gasoline, diesel fuel, lubricating oils, and grease
PCE nondurable commodities .....	Includes sales of all other nondurable commodities
Selected services .....	Includes receipts for selected services that may be used by tourists on, during, or after a trip, such as parking, tolls, and automotive repair services
Wholesale trade margins and transportation costs .....	Includes wholesale margins and transportation costs on all goods
All other commodities .....	Includes all other commodities not considered above

1. Nontourism commodities are commodities not classified as tourism commodities.  
PCE Personal consumption expenditures

where “significant” indicates that the industries’ revenues and profits would be substantially affected if tourism ceased to exist. Examples include airline transportation, hotels, and local public transportation.

With modifications, the TTSA’s follow the tables developed by the OECD. Of the 13 tables suggested by the OECD, the TTSA’s include 4 that are considered high priority—the tables for production, demand, value added, and employment. A fifth table, on estimates of gross domestic investment in tourism industries, is also considered high priority but is left for future work. The WTO and OECD definitions, classification of tourism commodities and industries, and tables have been modified to account for differences in U.S. national accounting practices, tourism activities in the United States, and the availability of data on tourism.

**Relationship to the I-O accounts**

The I-O accounts formed the basis of the preparation of the TTSA’s in three ways. First, the I-O accounts provided detailed measures of output by commodity and industry that were used to identify commodities purchased by visitors. Second, the I-O accounts provided the detailed estimates of industry and final use expenditures required to

identify tourism expenditures by type of visitor. Third, the I-O accounts provided the analytical framework that links these expenditures to industry output and to national aggregates, such as GDP.

The TTSA’s are adapted from the I-O accounts by rearranging selected outputs and inputs in the I-O accounts to fit the classification of the TTSA’s. The TTSA’s generally maintain the conventions of the I-O accounts, but they differ in the following ways:

- I-O industries and commodities are re-grouped to follow the classification system for the TTSA’s.
- Personal consumption expenditures (PCE) for tourism commodities is disaggregated into resident and nonresident purchases—a distinction that is not made in the I-O accounts.
- Resident household and nonresident tourism expenditures from nonprofit institutions and from government—primarily admissions to national parks, museums, and other services sold to visitors—are included as admissions paid by visitors. In the I-O accounts, the outputs of nonprofit institutions and of govern-

**Table 4.—TTSA Industries and Commodities**

Industry	Commodity
Hotels and lodging places .....	Hotels and lodging places
Eating and drinking places .....	Eating and drinking places
Railroads and related services .....	Passenger rail
Local and suburban transit and interurban highway passenger transportation, except taxicabs .....	Passenger bus and other local transportation
Taxicabs .....	Taxicabs
Air transportation .....	Domestic passenger air fares International air fares
Water transportation .....	Passenger water
Automotive rental and leasing, without drivers .....	Auto and truck rental Other vehicle rental
Arrangement of passenger transportation .....	Arrangement of passenger transportation
Miscellaneous amusement and recreation services (except membership sports and recreation clubs); racing, including track operation; marinas; libraries, museums, art galleries, and botanical and zoological gardens.	Recreation and entertainment
Membership sports and recreation clubs .....	Participant sports (golf, tennis, etc.)
Motion picture theaters; dance studios, schools, and halls; theatrical producers (except motion pictures), bands, orchestras, and entertainers.	Movie, theater, ballet, and musical events
Professional sports clubs and promoters .....	Sports events
Gasoline service stations .....	Petroleum retail margins
Retail, excluding eating and drinking places and gasoline service stations .....	Other retail margins
Industries producing nondurable PCE goods .....	PCE nondurable commodities
Automobile parking, automotive repair shops and services, and toll highways .....	Parking, automotive repair, and highway tolls
All other industries .....	Wholesale trade margins and transportation costs Gasoline and oil
(1)	Travel by U.S. residents abroad

1. Travel by U.S. residents abroad has no industry counterpart. U.S. residents traveling abroad purchase commodities that are produced abroad, and the TTSA’s include only domestically produced commodities.  
PCE Personal consumption expenditures

ment are measured as current expenditures.<sup>12</sup> Estimates of employment for tourism industries are included; the I-O accounts do not include employment by industry. Employee and business travel expenditures are included in tourism demand. The I-O accounts include these expenditures as intermediate inputs and not as final expenditures.

In the TTSA's, there is generally a one-to-one relationship between industries and commodities (table 4). Exceptions are the "passenger air transportation" and "automotive rental" industries, both of which produce more than one tourism commodity. In addition, the commodity "travel by U.S. residents abroad" has no industry counterpart, because no U.S. production is associated with overseas expenditures by U.S. residents.

### Components of TTSA's

The TTSA's expand the four "priority" OECD tables to five tables to show clearly the major compo-

12. In the I-O accounts, government expenditures are the net of expenditures less government sales.

nents of tourism. The production of tourism commodities is shown in table 5; the supply and consumption of tourism commodities, in table 6; tourism demand, in table 7; tourism gross domestic product (GDP), in table 8; and tourism employment, in table 9.

### The production account of tourism industries

The production table (table 5) is similar to the I-O make table, but with three modifications. First, the rows and columns are reversed; TTSA commodities are shown across the rows, and TTSA industries down the columns. Second, detail is shown only for TTSA commodities and industries; the production for all other commodities and industries is aggregated. Third, the intermediate inputs and the value-added components—compensation of employees, indirect business taxes, and other value added—are shown as rows at the bottom of the table.

Similar to the I-O make table, the TTSA production table shows the value of each commodity produced by each industry in producers' prices. Each cell on the main diagonal (that is, from

Table 5.—Production Account of Tourism Industries and All Other Industries, 1992  
[Millions of dollars]

Commodity	Industry <sup>1</sup>														Domestic production (producers' prices) <sup>5</sup>				
	Hotels and lodging places	Eating and drinking places	Railroads and related services <sup>2</sup>	Local and sub-urban transit and inter-urban highway passenger transportation, except taxicabs <sup>2</sup>	Taxicabs	Air transportation	Water transportation <sup>2</sup>	Automotive rental and leasing, without drivers	Arrangement of passenger transportation	Industries producing recreation and entertainment commodities <sup>3</sup>	Membership sports and recreation clubs	Industries producing movies, theaters, ballet, and musical events <sup>4</sup>	Professional sports clubs and promoters	Gasoline services stations		Retail excluding eating and drinking places and gasoline services stations	Industries producing non-durable personal consumption expenditures other than gasoline and oil	Automobile parking, automotive repair shops and services, and toll highways <sup>2</sup>	All other industries
Hotels and lodging places .....	55,913									1,222	239							68	56,220
Eating and drinking places .....	16,613	220,685								3,256	13			2,165	14,484			9,710	268,148
Passenger rail .....			1,226																1,226
Passenger bus and other local transportation .....				13,158															13,158
Taxicabs .....					6,614														6,614
Domestic passenger air fares .....						48,449													48,466
International air fares .....						22,605													22,605
Passenger water .....							4,000												4,000
Auto and truck rental .....								14,318						31				58	15,094
Other vehicle rental .....								420						628	30				454
Arrangement of passenger transportation .....									13,030					4					13,030
Recreation and entertainment .....	10,428									27,595	10				295	553		1,054	39,935
Participant sports .....										1,956	8,231								10,187
Movie, theater, ballet, and musical events .....											21,468								21,566
Sports events .....													2,867						1,660
Petroleum retail margins .....		13								48			25,488					95	4,527
Other retail margins .....	531	579						84		1,111	184	79	27	482,384				783	2,516
Travel by U.S. residents abroad .....																		14,165	499,927
Gasoline and oil .....																			
Personal consumption expenditures nondurable commodities other than gasoline and oil .....															106,426				7,653
Parking, automotive repair, and highway tolls .....														9,511	821,872			43,796	875,179
Wholesale trade margins and transportation costs .....			30,110	6		9,522	7,416							2,939	39,123			4,566	114,982
All other commodities .....	758	14,847	2,506	2,714		7,252	15,265	6,588	78	3,868		2,086	3,550	530	13,653	381,576	1,443	7,538,648	7,995,362
Industry output .....	84,243	236,124	33,842	15,878	6,614	87,828	26,681	21,410	13,108	35,800	11,920	23,646	6,444	31,157	560,108	1,325,888	70,733	8,231,223	10,822,647
Intermediate inputs .....	32,449	124,678	12,934	10,222	2,853	50,188	17,108	10,669	4,781	13,788	5,026	13,252	1,844	9,307	185,152	817,218	32,236	3,245,037	
Compensation of employees .....	32,615	81,265	14,727	13,635	2,258	29,740	4,650	3,733	5,037	10,973	5,348	6,042	3,716	10,038	228,000	237,576	19,474	2,936,215	
Indirect business taxes .....	6,372	14,115	815	111	24	5,629	492	1,621	520	2,249	640	1,043	265	3,720	71,394	28,492	3,040	365,049	
Other value added .....	12,807	16,066	5,366	-8,090	1,479	2,271	4,431	5,387	2,770	8,790	906	3,309	619	8,092	75,562	242,602	15,983	1,684,922	

1. Industries are defined on an SIC basis.

2. Includes government enterprises.

3. Miscellaneous amusement and recreation services (except membership sports and recreation clubs); racing including track operation; marinas; and libraries and museums, art galleries, and botanical and zoological gardens.

4. Motion picture theaters; dance studios, schools, and halls; theatrical producers (except motion pictures), bands, orchestras, and entertainers.

5. The industry output for domestic production is in purchasers' prices because it includes margins and transportation costs.

the top left to bottom right) shows the value for the commodity produced by the industry that has been designated its primary producer. For example, the “hotels and lodging places” industry (column) produces mostly the commodity “hotels and lodging places” (row). “Eating and drinking places” are the main producers of meals and beverages (the “eating and drinking places” commodity). The other cells in each column show the value of production by that industry of commodities for which the industry is a secondary producer. For example, the industry “participant sports” is a secondary producer of “hotels and lodging.” The sum of the row entries is the total output for the commodity. Because tourism industries are the primary producers of tourism commodities, and only a few other industries are secondary producers, most of the cells outside of the main diagonal are zero. For example, the “railroad” industry produces only transportation services sold to visitors.

**Supply and consumption of tourism commodities**

The table on supply and consumption of tourism commodities (table 6) rearranges and modifies the I-O use table to show the supply of tourism commodities and all other commodities, as well as the intermediate and final demand for these same commodities. Supply is defined as the total

amount of the commodity available to be purchased by business, households, and government and to be exported. It is the sum of domestic production, imports, government sales, inventory changes, wholesale and retail margins, and transportation costs. On the consumption side, it shows the intermediate (business) and final purchases (personal consumption expenditures, investment, exports, and government expenditures excluding sales) of these commodities in purchasers’ prices. The categories of consumption in the TTSA’s are the same as in the I-O use table.

**Tourism demand by type of commodity and type of visitor**

The TTSA demand table (table 7), a subset of the I-O use table, rearranges information from the supply and consumption table (table 6) and separates tourism demand from nontourism demand. It shows the major components of tourism demand in purchasers’ prices, including the following: Consumption by business as intermediate use and consumption by government, resident households, and nonresidents as final uses. Household consumption is equivalent to PCE that has been adjusted to exclude the expenses of nonprofit institutions that are not covered by admissions fees and to exclude travel by nonresidents in the United States. Nonresident tourism includes PCE nonresident travel

**Table 6.—Supply and Consumption of Tourism and All Other Commodities, 1992**  
[Millions of dollars]

Commodity	Supply						Consumption						
	Domestic production (producers’ prices) <sup>1</sup>	Imports	Government sales	Change in business inventories	Wholesale trade margins and transportation costs	Retail margins	Total supply <sup>2</sup>	Intermediate	Personal consumption expenditures	Gross private domestic fixed investment	Exports of goods and services	Government expenditures excluding sales <sup>3</sup>	Total consumption
Hotels and lodging places .....	56,220	.....	357	.....	.....	.....	56,577	27,260	23,680	.....	.....	5,637	56,577
Eating and drinking places .....	268,148	.....	.....	.....	.....	.....	268,148	32,335	231,193	.....	309	4,311	268,148
Passenger rail .....	1,226	.....	.....	.....	.....	.....	1,226	310	829	.....	.....	87	1,226
Passenger bus and other local transportation .....	13,158	.....	.....	.....	.....	.....	13,158	2,612	10,455	.....	.....	91	13,158
Taxicabs .....	6,614	.....	.....	.....	.....	.....	6,614	3,641	2,586	.....	.....	387	6,614
Domestic passenger air fares .....	48,466	.....	.....	.....	.....	.....	48,466	21,971	21,308	.....	.....	5,187	48,466
International air fares .....	22,605	9,808	.....	.....	.....	.....	32,413	3,073	12,377	.....	16,395	568	32,413
Passenger water .....	4,000	301	.....	.....	.....	.....	4,301	.....	4,125	.....	176	.....	4,301
Auto and truck rental .....	15,094	.....	.....	.....	.....	.....	15,094	10,668	3,234	.....	.....	1,192	15,094
Other vehicle rental .....	454	.....	.....	.....	.....	.....	454	245	209	.....	.....	.....	454
Arrangement of passenger transportation .....	13,030	.....	.....	.....	.....	.....	13,030	9,004	2,814	.....	1,107	105	13,030
Recreation and entertainment .....	39,935	.....	3,708	.....	.....	.....	43,643	770	42,057	.....	.....	816	43,643
Participant sports .....	10,187	.....	.....	.....	.....	.....	10,187	1,284	8,903	.....	.....	.....	10,187
Movie, theater, ballet, and musical events .....	21,566	145	.....	.....	.....	.....	21,711	8,194	13,313	.....	43	161	21,711
Sports events .....	4,527	101	444	.....	.....	.....	5,072	1,303	3,096	.....	320	353	5,072
Petroleum retail margins .....	25,916	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other retail margins .....	499,927	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Travel by U.S. residents abroad .....	.....	39,964	.....	.....	.....	.....	39,964	10,361	29,603	.....	.....	.....	39,964
Gasoline and oil .....	114,079	5,283	.....	518	62,204	25,916	206,964	78,264	115,234	.....	2,994	10,472	206,964
Personal consumption expenditures nondurable commodities other than gasoline and oil .....	875,179	137,493	1,219	9,432	197,752	299,313	1,501,524	415,108	972,568	2,564	72,583	38,701	1,501,524
Parking, automotive repair, and highway tolls .....	114,982	.....	181	.....	.....	.....	115,163	37,134	75,560	.....	17	2,452	115,163
Wholesale trade margins and transportation costs .....	671,972	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
All other commodities .....	7,995,362	438,542	121,167	-4,520	412,016	200,614	9,172,221	3,925,205	2,635,574	788,427	508,665	1,314,350	9,172,221
<b>Total .....</b>	<b>10,822,647</b>	<b>631,637</b>	<b>127,076</b>	<b>5,430</b>	<b>671,972</b>	<b>525,843</b>	<b>11,575,930</b>	<b>4,588,742</b>	<b>4,208,718</b>	<b>790,991</b>	<b>602,609</b>	<b>1,384,870</b>	<b>11,575,930</b>

1. The total for domestic production is in purchasers’ prices because it includes margins and transportation costs.  
 2. Total supply in purchasers’ prices is equal to domestic production in producers’ prices plus imports, government sales, wholesale trade margins and transportation costs, and retail margins less change in business inventories.  
 Wholesale and retail margins and transportation costs are not shown explicitly in this column, because they are

included in the purchasers’ values for the gasoline and oil, personal consumption expenditure nondurable commodities other than gasoline and oil, and all other commodities.  
 3. Includes consumption and investment expenditures and excludes government sales. Government sales are included as part of supply.



expenditures plus exports of international air and water transportation fares.

Table 7 also shows the proportions of tourism commodities compared with nontourism commodities. These proportions provide the basis for estimating tourism value added and tourism employment. They are also used to derive the "tourism-commodity ratio" for each tourism commodity—that is, the proportion of the supply of the commodity that is purchased by visitors. For example, 100 percent of supply of "hotels and other lodging" was used by visitors, but only 18 percent of the supply of "eating and drinking places" was purchased by visitors.

### *Tourism GDP of tourism industries and other industries*

The tourism GDP table (table 8), which is derived from the supply and consumption table (table 6) and the demand table (table 7), shows the relative importance of tourism industries and

other industries in producing tourism output and tourism value added. For each tourism industry and for "all other industries," it shows intermediate consumption, value added, and the "tourism-industry ratio," that is, the share of an industry's output that is purchased by visitors.

The tourism-industry ratio for each industry is derived by applying the tourism-commodity ratio to each of the tourism commodities produced by that industry. For example, the hotel industry's ratio is derived by summing the output of hotel services times 1.0 (the tourism-commodity ratio for hotel services), the output of eating and drinking places times 0.18, the output of recreation and entertainment (gambling) times 0.90, and the output of other retail times 0.03 and then dividing that sum by hotel industry output. The tourism-industry ratio for each industry is applied to the industry output, intermediate consumption, and value added. The ratio ap-

**Table 7.—Tourism Demand by Type of Visitor, 1992**

[Millions of dollars in purchasers' prices]

Commodity	Total demand	Tourism demand								
		Total tourism demand			Business			Government expenditures excluding sales		
		Method 1	Method 2	Method 3	Method 1	Method 2	Method 3	Method 1	Method 2	Method 3
Hotels and lodging places .....	56,577	56,577	56,577	56,577	27,260	27,260	27,260	5,637	5,637	5,637
Eating and drinking places .....	268,148	45,431	48,685	58,484	17,917	17,917	17,917	3,696	3,696	3,696
Passenger rail .....	1,226	1,226	1,226	1,226	310	310	310	87	87	87
Passenger bus and other local transportation .....	13,158	3,367	3,934	4,898	583	698	893	55	57	61
Taxis .....	6,614	1,478	3,002	4,624	748	1,592	2,490	71	152	237
Domestic passenger air fares .....	48,466	48,466	48,466	48,466	21,971	21,971	21,971	5,187	5,187	5,187
International air fares .....	32,413	32,159	32,159	32,159	3,073	3,073	3,073	314	314	314
Passenger water .....	4,301	4,150	4,150	4,150	.....	.....	.....	.....	.....	.....
Auto and truck rental .....	15,094	12,132	12,132	12,689	8,400	8,400	8,400	1,055	1,055	1,055
Other vehicle rental .....	454	125	209	209	.....	.....	.....	.....	.....	.....
Arrangement of passenger transportation .....	13,030	2,919	2,919	2,919	.....	.....	.....	105	105	105
Recreation and entertainment .....	43,643	14,509	15,500	17,547	.....	.....	.....	.....	.....	.....
Participant sports .....	10,187	3,575	3,678	4,781	1,207	1,207	1,207	.....	.....	.....
Movie, theater, ballet, and musical events .....	21,711	3,973	4,673	6,475	820	820	820	.....	.....	.....
Sports events .....	5,072	1,464	1,385	1,800	413	413	413	.....	.....	.....
Travel by U.S. residents abroad .....	39,964	39,964	39,964	39,964	10,361	10,361	10,361	.....	.....	.....
Gasoline and oil .....	206,964	11,208	11,864	17,485	2,067	2,210	3,434	181	194	300
Personal consumption expenditure nondurable commodities other than gasoline and oil .....	1,501,524	35,384	37,362	47,443	.....	.....	.....	.....	.....	.....
Parking, automotive repair, and highway tolls .....	115,163	6,077	7,008	10,852	109	197	303	61	101	158
All other commodities .....	9,172,221	.....	.....	.....	.....	.....	.....	.....	.....	.....
<b>Total .....</b>	<b>11,575,930</b>	<b>324,184</b>	<b>334,893</b>	<b>372,748</b>	<b>95,239</b>	<b>96,429</b>	<b>98,852</b>	<b>16,449</b>	<b>16,585</b>	<b>16,837</b>

Commodity	Tourism demand				Nonresidents	Nontourism demand			Tourism commodity ratio <sup>1</sup>		
	Resident households			Method 1		Method 2	Method 3	Method 1	Method 2	Method 3	
	Method 1	Method 2	Method 3								
Hotels and lodging places .....	11,342	11,342	11,342	12,338	.....	.....	.....	1.00	1.00	1.00	
Eating and drinking places .....	13,812	17,066	26,865	10,006	222,717	219,463	209,664	.17	.18	.22	
Passenger rail .....	653	653	653	176	.....	.....	.....	1.00	1.00	1.00	
Passenger bus and other local transportation .....	2,170	2,620	3,385	559	9,791	9,224	8,260	.26	.30	.37	
Taxis .....	531	1,130	1,769	128	5,136	3,612	1,990	.22	.45	.70	
Domestic passenger air fares .....	16,773	16,773	16,773	4,535	.....	.....	.....	1.00	1.00	1.00	
International air fares .....	12,377	12,377	12,377	16,395	254	254	254	.99	.99	.99	
Passenger water .....	3,138	3,138	3,138	1,012	151	151	151	.96	.96	.96	
Auto and truck rental .....	2,207	2,207	2,764	470	2,962	2,962	2,405	.80	.80	.84	
Other vehicle rental .....	101	185	185	24	329	245	245	.28	.46	.46	
Arrangement of passenger transportation .....	1,975	1,975	1,975	839	10,111	10,111	10,111	.22	.22	.22	
Recreation and entertainment .....	9,820	10,811	12,858	4,689	29,134	28,143	26,096	.33	.36	.40	
Participant sports .....	1,747	1,850	2,953	621	6,612	6,509	5,406	.35	.36	.47	
Movie, theater, ballet, and musical events .....	2,326	3,026	4,828	827	17,738	17,038	15,236	.18	.22	.30	
Sports events .....	775	696	1,111	276	3,608	3,687	3,272	.29	.27	.35	
Travel by U.S. residents abroad .....	29,603	29,603	29,603	.....	.....	.....	.....	1.00	1.00	1.00	
Gasoline and oil .....	7,251	7,751	12,042	1,709	195,756	195,100	189,479	.05	.06	.08	
Personal consumption expenditure nondurable commodities other than gasoline and oil .....	18,599	20,577	30,658	16,785	1,466,140	1,464,162	1,454,081	.02	.02	.03	
Parking, automotive repair, and highway tolls .....	5,769	6,572	10,253	138	109,086	108,155	104,311	.05	.06	.09	
All other commodities .....	.....	.....	.....	.....	9,172,221	9,172,221	9,172,221	.....	.....	.....	
<b>Total .....</b>	<b>140,969</b>	<b>150,352</b>	<b>185,532</b>	<b>71,527</b>	<b>11,251,746</b>	<b>11,241,037</b>	<b>11,203,182</b>	<b>.....</b>	<b>.....</b>	<b>.....</b>	

1. The tourism commodity ratio is total tourism demand divided by total demand.

NOTE.—See the section "Methodological Overview" for a discussion of the three methods.

plied to the industry value added is the estimated tourism-industry contribution to GDP.

**Tourism employment and compensation of employees**

The tourism employment and compensation of employees table (table 9) has no counterpart in the I-O accounts, but it includes I-O compensation values. Total employment is equal to the number of full- and part-time employees; com-

penensation of employees consists of wages and salaries and supplements to wages and salaries, such as employer contributions to pension plans, social security, and fringe benefits. The table shows total employment, tourism employment, tourism compensation, and average compensation in each tourism industry. Tourism employment is determined by the total employment in each industry and the tourism-industry ratio (from table 8). Similarly, tourism compensation

**Table 8.—Tourism GDP of Tourism Industries and Other Industries, 1992**  
(Millions of dollars)

Industry	Industry output	Inter-mediate consumption	Value added	Tourism industry ratio <sup>1</sup>			Tourism output			Tourism industry intermediate consumption			Tourism industry value added		
				Method 1	Method 2	Method 3	Method 1	Method 2	Method 3	Method 1	Method 2	Method 3	Method 1	Method 2	Method 3
Hotels and lodging places .....	84,243	32,449	51,794	0.80	0.81	0.82	67,603	68,326	69,457	26,039	26,318	26,754	41,563	42,008	42,704
Eating and drinking places .....	236,124	124,878	111,446	.16	.17	.20	37,403	40,082	48,149	19,749	21,164	25,424	17,653	18,918	22,726
Railroads and related services .....	33,842	12,934	20,908	.04	.04	.04	1,226	1,226	1,226	469	469	469	757	757	757
Local and suburban transit and interurban highway passenger transportation, except taxicabs .....	15,878	10,222	5,656	.21	.25	.31	3,367	3,934	4,898	2,168	2,533	3,153	1,199	1,401	1,745
Taxicabs .....	6,614	2,853	3,761	.22	.45	.70	1,478	3,002	4,624	638	1,295	1,995	840	1,707	2,629
Air transportation .....	87,828	50,188	37,640	.81	.81	.81	70,877	70,877	70,877	40,426	40,426	40,426	30,451	30,451	30,451
Water transportation .....	26,681	17,108	9,573	.14	.14	.14	3,860	3,860	3,860	2,475	2,475	2,475	1,385	1,385	1,385
Automotive rental and leasing, without drivers .....	21,410	10,669	10,741	.54	.55	.57	11,626	11,704	12,322	5,793	5,832	6,096	5,832	5,871	6,137
Arrangement of passenger transportation .....	13,108	4,781	8,327	.22	.22	.22	2,919	2,919	2,919	1,065	1,065	1,065	1,854	1,854	1,854
Miscellaneous amusement and recreation services (except membership sports and recreation clubs); racing including track operation; marinas; and libraries and museums, art galleries, and botanical and zoological gardens .....	35,800	13,788	22,012	.18	.19	.24	6,465	6,963	8,738	2,490	2,682	3,365	3,975	4,281	5,372
Membership sports and recreation clubs .....	11,920	5,026	6,894	.31	.32	.40	3,686	3,810	4,821	1,554	1,606	2,033	2,132	2,203	2,788
Motion picture theaters; dance studios, schools, and halls; theatrical producers (except motion pictures), bands, orchestras, and entertainers .....	23,646	13,252	10,394	.17	.20	.27	3,932	4,625	6,408	2,204	2,592	3,591	1,729	2,033	2,817
Professional sports clubs and promoters .....	6,444	1,844	4,600	.13	.12	.16	828	763	1,018	237	224	291	591	559	727
Gasoline service stations .....	31,157	9,307	21,850	.07	.07	.11	2,199	2,328	3,285	657	695	981	1,542	1,632	2,304
Retail excluding eating and drinking places and gasoline services stations .....	560,108	185,152	374,956	.02	.03	.03	13,376	14,140	16,916	4,422	4,674	5,592	8,954	9,466	11,324
<b>Total tourism industries .....</b>	<b>1,270,477</b>	<b>529,045</b>	<b>741,432</b>				<b>230,844</b>	<b>238,578</b>	<b>259,517</b>	<b>110,384</b>	<b>114,049</b>	<b>123,708</b>	<b>120,460</b>	<b>124,528</b>	<b>135,720</b>
Total all other industries .....	9,552,170	4,059,697	5,492,473												
<b>Total .....</b>	<b>10,822,647</b>	<b>4,588,742</b>	<b>6,233,905</b>												

1. The industry tourism ratio is equal to tourism output divided by industry output.  
 2. The industry tourism output is derived from table 5 and table 7. The tourism-commodity ratio (table 7) is multiplied by the tourism commodities produced by industries (table 5) and summed by industry. For example, the air industry produces \$48,449 million domestic passenger air fares of which 100 percent is tourism; it also produces \$22,605 million international air fares of which 99 percent is tourism. The total tourism output of the industry is \$70,877 million.  
 NOTE.—See the section "Methodological Overview" for a discussion of the three methods.

**Table 9.—Tourism Employment and Compensation of Employees, 1992**

Industry	Total employment (thousands of employees)	Tourism industry ratio			Tourism employment (thousands of employees)			Compensation (millions of dollars)	Tourism compensation (millions of dollars)			Average compensation per tourism employee (dollars) <sup>1</sup>
		Method 1	Method 2	Method 3	Method 1	Method 2	Method 3		Method 1	Method 2	Method 3	
Hotels and lodging places <sup>2</sup> .....	1,661	0.80	0.81	0.82	1,329	1,347	1,362	32,615	26,092	26,453	26,744	19,636
Eating and drinking places <sup>3</sup> .....	6,819	.16	.17	.20	1,091	1,158	1,364	81,265	13,002	13,795	16,253	11,917
Railroads and related services .....	243	.04	.04	.04	10	9	9	14,727	589	534	534	60,605
Local and suburban transit and interurban highway passenger transportation, except taxicabs <sup>4</sup> .....	416	.21	.25	.31	87	103	128	13,635	2,863	3,378	4,206	32,776
Taxicabs <sup>5</sup> .....	32	.22	.45	.70	7	15	22	1,088	239	494	761	34,000
Air transportation .....	625	.81	.81	.81	506	506	506	29,740	24,089	24,060	24,060	47,584
Water transportation .....	100	.14	.14	.14	14	14	14	4,650	651	673	673	46,500
Automotive rental and leasing, without drivers .....	178	.54	.55	.57	96	97	101	3,733	2,016	2,041	2,128	20,972
Arrangement of passenger transportation <sup>6</sup> .....	191	.22	.22	.22	43	43	43	5,037	1,122	1,122	1,122	26,372
Miscellaneous amusement and recreation services (except membership sports and recreation clubs); racing, including track operation; marinas; and libraries and museums, art galleries, and botanical and zoological gardens .....	633	.18	.19	.24	114	120	152	10,973	1,975	2,085	2,634	17,335
Membership sports and recreation clubs .....	297	.31	.32	.40	92	95	119	5,348	1,658	1,711	2,139	18,007
Motion picture theaters; dance studios, schools, and halls; theatrical producers (except motion pictures), bands, orchestras, and entertainers .....	282	.17	.20	.27	48	56	76	6,042	1,027	1,208	1,631	21,426
Professional sports clubs and promoters .....	46	.13	.12	.16	6	6	7	3,716	483	446	595	80,783
Gasoline service stations .....	632	.07	.07	.11	44	47	67	10,038	703	750	1,064	15,883
Retail excluding eating and drinking places and gasoline services stations .....	12,572	.02	.03	.03	262	318	383	228,000	4,750	5,762	6,941	18,136
<b>Total tourism industries .....</b>					<b>3,749</b>	<b>3,933</b>	<b>4,353</b>		<b>81,260</b>	<b>84,511</b>	<b>91,483</b>	<b>21,393</b>
Total industries .....					117,998	117,998	117,998		3,645,042	3,645,042	3,645,042	30,891
Tourism share (percent) .....					3.2	3.3	3.7		2.2	2.3	2.5	

1. Average compensation per tourism employee was calculated as the arithmetic mean of the average compensation per tourism employee for methods 1, 2 and 3.  
 2. Self-employment for SIC 70 (Hotels and lodging) for 1992 is estimated at 56,000. (Source: Derived from Bureau of Labor Statistics, Current Population Survey, 1992.)  
 3. Self employment for SIC 58 (Eating and drinking places) for 1992 is estimated at 490,000. (Source: Derived from Bureau of Labor Statistics, Current Population Survey, 1992.)  
 4. Employment for this category includes 206,000 State and local government "transit" employees. (Source: Table 7.—Employment and Payrolls of State and Local Governments by Type of Government and Function: October 1992, 1992 Census of Governments, Compendium of Public Employment), Compensation for the State and local government "transit" employees is estimated at \$9,804,000,000, which is added to the national income and product account estimate for compensation.  
 5. Self employment for SIC 41 for 1992 is estimated at 54,000, all of which is assumed to occur in SIC 4120 (Taxicabs). (Source: Derived from Bureau of Labor Statistics, Current Population Survey, 1992.)  
 6. Self-employment for SIC 47 for 1992 is estimated at 27,000, all of which is assumed to occur in SIC 4720 (Arrangement of Passenger Transportation).  
 NOTE.—See the section "Methodological Overview" for a discussion of the three methods.  
 Sources: Bureau of Labor Statistics, U. S. Department of Labor, Employment and Wage Annual Averages, 1992; Bureau of the Census, U. S. Department of Commerce, 1992 Census of Governments, Compendium of Public Employment, and Bureau of Labor Statistics, U. S. Department of Labor, Current Population Survey, 1992.

is derived by multiplying compensation of employees in each industry by the tourism-industry ratio for that industry. Average compensation in each tourism industry is tourism compensation divided by tourism employment.

### Methodological Overview

The TTSA estimates were based on the 1992 benchmark I-O accounts, but not all were taken directly from them. The estimates that were taken directly from the I-O accounts include the output of tourism and nontourism commodities, the output of the industries that produce these commodities, the value added of these industries, compensation of employees in these industries, and the consumption of the tourism and nontourism commodities (tables 5 and 6). The tables show the supply of output of tourism commodities that are produced and are available for purchase, and they identify the economic units that consume TTSA commodities: Business, persons, and government.

The estimates that were not taken directly from the I-O accounts include tourism demand and tourism GDP (tables 7 and 8). For a number of tourism commodities, tourism expenditures were separated from nontourism expenditures on the basis of assumptions about allocations between the two types of expenditures. There are several sources on which to base these allocations, and each provides significantly different allocations. Because BEA was not able to reconcile these differences, three alternative sets of TTSA estimates were prepared.

#### *Tourism expenditures in the I-O accounts*

In the I-O accounts, the expenditures of visitors are included as purchases by business and final users. Expenditures for business travel are included in intermediate purchases, and travel by government employees are included in government final expenditures. Expenditures by nonresidents for international air and water fares are included in exports.

All other travel expenditures by visitors (resident and nonresident) are included in personal consumption expenditures (PCE). PCE for selected commodities consists of all purchases by resident and nonresident visitors in the United States, and it excludes purchases abroad by U.S. residents. In contrast, total PCE consists of all expenditures by U.S. residents, including expenditures made during foreign travel, and it excludes expenditures made in the United States by nonresidents. The

differences between PCE for specific commodities and total PCE are in two PCE categories: "Foreign travel by U.S. residents" and "Expenditures in the United States by nonresidents."<sup>13</sup>

#### *Alternative methods of estimating tourism demand*

The tourism expenditures in the TTSA's were derived from the I-O estimates of consumption. The procedures used to develop the estimates of the visitors' share of consumption depended on the source of demand: Consumer demand, business and government demand, and international demand.

*Consumer demand.*—The tourism commodities purchased by consumers were separated into two types. "Pure-tourism" commodities are commodities for which all or most of the expenditures are by visitors, such as hotels and lodging places. "Mixed-use" commodities are commodities for which the expenditures are by both visitors and nonvisitors, such as restaurant meals.

For *pure-tourism commodities*, commodity-flow estimates taken directly from the relevant PCE categories in the 1992 I-O accounts were used for each of these commodities.<sup>14</sup> To provide separate figures for expenditures of resident households and nonresidents, estimates of the expenditures by nonresidents were subtracted from the total (see the section "Other procedures" for a description of these estimates).

For *mixed-use commodities*, the Bureau of Labor Statistics (BLS) Consumer Expenditure Survey (CEX) is the only national source of data that is available to allocate the shares of consumer spending between visitors and nonvisitors.<sup>15</sup> The CEX is a quarterly survey of 5,000 U.S. households that collects data on consumer expenditures, including expenditures on tourism, or out-of-town trips, for selected categories of commodities.<sup>16</sup>

13. The expenditures in these two PCE categories are also included in net exports. Expenditures in the United States by nonresidents consist of both travel and other (not travel-related) expenditures. For the purposes of the TTSA's, only travel expenditures are included as part of tourism demand. Excluded are medical expenditures by nonresidents, nonresident student expenditures, expenditures by nonresidents in the U.S. working for foreign governments and international organizations, expenditures by Mexican, West Indian, and Puerto Rican workers in the United States, and expenditures by foreign ocean and air crews in the United States.

14. Household tourism expenditures from nonprofit institutions include only the portion of expenses of nonprofit institutions covered by admissions.

15. The acronym "CEX" is used for this survey because the acronym "CES" is usually used for the BLS Current Employment Survey.

16. The CEX includes overseas trips and trips within the United States that are greater than 75 miles and that are not reimbursed by an employer. Data collected on expenditures made on out-of-town trips include lodging, food, alcoholic beverages, intercity train fares, intercity bus fares, local transportation, taxi fares, airline fares, ship fares, auto rental, truck rental, rental of

Surveying households to collect expenditure data is difficult, and several evaluations of the CEX have highlighted some of these problems.<sup>17</sup> The problems include small sample size; the length, complexity, and degree of detail of the questionnaire; high nonresponse rates; and high rates of recall error. As a result, certain types of expenditures tend to be underreported or misreported. Large purchases, such as automobiles, and regular and recurring expenditures, such as rent and utilities, appear to be well reported. However, smaller and/or infrequent expenditures (such as food, apparel, public transportation, alcohol, tobacco, and gambling) appear to be underreported.

Unfortunately, there are few studies that have evaluated the relative accuracy of the individual components of the PCE and the CEX or the completeness of reporting in the CEX.<sup>18</sup> The PCE estimates are largely based on Census Bureau data on sales of goods and services and BEA input-output estimates of the allocation of purchases of goods and services between consumers, business, and government. The PCE estimates may also be subject to errors; for example, some of the PCE estimates may be overstated because they include purchases by businesses not correctly identified in the I-O estimates. For a comparable list of commodities, the CEX estimates tend to be lower than PCE estimates for less frequently consumed or small-value items, but similar for big-ticket and frequently purchased items. Overall, the CEX estimates are about 30 percent lower than the PCE estimates for 1992.

Because the CEX is a general-purpose household survey and was not designed as a travel survey, it is difficult to assess how well tourism expenditures are reported. Some of the limitations of the CEX for use as a travel survey are the following: The questions on out-of-town trips are at the end of the survey; a single respondent, rather than the individual traveler, is asked about all expenditures for the household; the survey is

a large questionnaire that covers all household expenditures rather than a smaller one that focuses on specific types of expenditures such as travel; and the sample size for households reporting travel is likely to be far smaller than the samples for other types of consumer spending. Surveys specific to travel have tended to yield higher estimates of travel expenditures than has the CEX.

Expanding the sample and making other improvements to the CEX may help address some of these issues. In the meantime, for purposes of this study, the following three methods were used to provide a range of estimates for mixed-use TTSA commodities.

- Under "Method 1," the CEX estimates for tourism expenditures were assumed to be fully and accurately reported. Thus, tourism expenditures were estimated under this method as the CEX estimates minus estimated overseas expenditures.
- Under "Method 2," the CEX estimates for tourism expenditures were assumed to be as accurate as the estimates of nontourism expenditures for the same commodities; thus, PCE was used as the control total for total spending for each commodity. Tourism expenditures were estimated under this method as the ratio of CEX expenditures on tourism activities (less estimated overseas expenditures) to total CEX expenditures (less overseas expenditures), multiplied by PCE less nonresident expenditures. Under this method, the tourism estimates for mixed-use commodities were about 16 percent above those under method 1.
- Under "Method 3," the CEX estimates for tourism activities were assumed to be more understated than the estimates of other consumer expenditures; thus, the travel estimates were first adjusted using trade-source data and information on the reporting ratio of CEX to PCE for comparable expenditure categories. The adjustment factor for the CEX was 1.5.<sup>19</sup> Tourism expenditures were estimated under this method as the ratio of adjusted CEX expenditures on out-of-town trips (less estimated overseas expenditures) divided by the total CEX expenditures (less

campers and other vehicles, boat and trailer rental, recreation expenses and other entertainment, participant sports, movie and other admissions, admissions to sports events, gasoline and oil purchases, and parking and tolls. For additional information on this survey, see U.S. Department of Labor, Bureau of Labor Statistics, *BLS Handbook of Methods*, "Consumer Expenditures and Income" (Washington DC: U.S. Government Printing Office, September 1992): 170-175, and U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Expenditure Survey, 1992-93*, Bulletin 2462 (Washington, DC: U.S. Government Printing Office, September 1995): 1-13, 224-234.

17. See E. Raphael Branch, "The Consumer Expenditure Survey: A Comparative Analysis," *Monthly Labor Review* (December 1994): 47-55; Jack E. Triplett, "Measuring Consumption: The Post-1973 Slowdown and the Research Issues," *Federal Reserve Bank of St. Louis Review* (May/June 1997): 15-22; and Constance F. Citro and Robert T. Michael, ed., *Measuring Poverty, A New Approach* (Washington, DC: National Academy Press, 1995): 85-88, 392-95.

18. Triplett, 16.

19. This factor was calculated by (1) computing the average ratio of the CEX estimate to the PCE estimate for all corresponding expenditure categories; (2) identifying the expenditure categories with a CEX-to-PCE ratio that was less than the average ratio; (3) computing the average CEX-to-PCE ratio for the expenditure categories; and (4) dividing the average CEX-to-PCE ratio from (1) by the average CEX-to-PCE ratio from (3).

overseas expenditures), multiplied by  $PCE$  less nonresident expenditures.

For eating and drinking places, the method 3 estimates were further adjusted using estimates from two trade sources—the Travel Industry Association ( $TIA$ ) and D.K. Shifflet and Associates.<sup>20</sup> This adjustment consisted of using a weighted average of the  $TIA$  estimate, the Shifflet estimate, and the method 3 estimate for resident households.

The estimate of  $PCE$  on nondurable commodities, other than gasoline and oil, by resident households was based on an average of the ratios from the D.K. Shifflet and Associates survey and the In-Flight Survey for visitor shopping to the sum of expenditures for hotels, meals, and recreation.<sup>21</sup> This average ratio was applied to the three sets of estimates of the sum of resident household purchases that were based on the three alternative methods of the following  $T TSA$  commodities: Hotels and lodging places; eating and drinking places; arrangement of passenger transportation (tours); recreation and entertainment; participant sports; movie, theater, ballet, and musical events; and sports events (table 7).

For all three methods, the estimate of resident household purchases of auto repair was based on the ratio of  $CEX$  resident household purchases of gasoline on out-of-town trips to  $PCE$  gasoline purchases, multiplied by  $PCE$  purchases of auto repair.

*Business and government demand.*—The estimates of the share of business and government expenditures for tourism were based on a variety of sources and different methods, depending on the commodity.

For pure-tourism commodities, the estimates were taken directly from the  $I-O$  tables, following the method used for consumer demand.

For mixed-use commodities, the business and government tourism expenditures for various commodities were estimated differently from those for consumers. Expenditures on “eating and drinking places” were estimated by applying the ratio of meals and beverage expenditures to hotel expenditures from the American Express Survey of Business Travel Management to  $I-O$  purchases of this commodity.<sup>22</sup> Expendi-

tures for “local transportation,” “taxicabs,” and “gasoline and oil” were estimated using the ratio of resident household tourism purchases to total  $PCE$  by category. Because the resident household tourism purchases were calculated using the three alternative methods (see the discussion on page 19), the business and government expenditures also show three different estimates. Business expenditures on “participant sports, movie, theater, ballet, and musical events” and on “sports events” were estimated from underlying data in the  $I-O$  accounts on expenditures for business travel and entertainment by industries.

*International demand.*—The estimates of total travel expenditures by U.S. residents abroad and by foreign residents in the United States were largely based on  $BEA$  balance of payments data. Data from the In-Flight Survey were used to separate total travel expenditures in the United States into five categories: Hotels and lodging places; eating and drinking places; transportation within the United States; recreation and entertainment; and shopping. Expenditures for transportation, recreation, and entertainment in the United States were disaggregated into  $T TSA$  commodities using weights calculated from resident household tourism expenditures. A single value for each category was estimated under all three methods.

### *Estimating tourism employment and compensation of employees*

The  $T TSA$  estimates of tourism employment were developed from  $BLS$  estimates of average monthly employment by industry at the four-digit  $SIC$  level and from  $BEA$  estimates at the two-digit  $SIC$  level. Employment was estimated at the four-digit  $SIC$  level by applying employment weights from the  $BLS$  estimates to the  $BEA$  estimates.<sup>23</sup> Employment by  $SIC$  industry was assigned to the  $T TSA$  industries. Tourism employment and compensation of tourism employees were each estimated by multiplying industry employment and industry compensation, respectively, by the tourism-industry ratio for each of the three methods. Estimates of compensation of employees were from the  $I-O$  accounts.

20. The  $TIA$  estimate was the product of the number of travelers staying in hotels by state (monthly survey of 20,000) times an average cost for three meals in each state, summed for all states. The D.K. Shifflet estimates were based on a monthly survey sample of 25,000.

21. This ratio equaled 0.35 for the D.K. Shifflet and Associates survey and 0.57 for the In-Flight Survey; see footnote 11.

22. The 1992 American Express Survey of Business Travel Management, unpublished.

23.  $BEA$  adjusts the four-digit  $BLS$  data to extend coverage to partially covered industries, such as membership organizations, and to excluded industries, such as railroads. Other adjustments include the addition of excluded nonprofits as well as misreporting adjustments. (Source: Bureau of Economic Analysis, U.S. Department of Commerce, *State Personal Income, 1929–93* (Washington, DC: U.S. Government Printing Office, 1995): M-9—M-13.)

## Estimates of Travel and Tourism for 1992

The 1992 estimates of tourism expenditures help to gauge the size and importance of travel and tourism in the United States. Because three different methods were used in estimating tourism expenditures (see the section “[Alternative methods for estimating tourism demand](#)”), these estimates are presented as ranges.

In terms of output, travel and tourism represented 2.1–2.4 percent of total U.S. production or output in 1992 (\$230.8–\$259.5 billion as a share of total industry output) and 1.9–2.2 percent of U.S. GDP (tourism value added of \$120.5–\$135.7 billion as a share of GDP). These shares are similar to those derived in Canada’s tourism satellite accounts, which showed a 2.3-percent share of Canadian GDP; Norway’s tourism satellite accounts showed a 4.3-percent share.<sup>24</sup>

The “hotels and lodging” industry had the highest value added among the tourism industries, at \$41.6–\$42.7 billion, or 31–35 percent of tourism GDP ([table 8](#)). The second highest industry was “passenger air” (domestic and international), at \$30.5 billion, or 22–25 percent of tourism GDP. Third was “eating and drinking places,” at \$17.7–\$22.7 billion, or 15–17 percent of tourism GDP. Shopping (“retail excluding eating and drinking places, and gasoline service stations”) was fourth, at \$9.0–\$11.3 billion, or 7.4–8.3 percent of tourism GDP. In terms of employment ([table 9](#)), “hotels and lodging” was the largest tourism industry employer, with 1.3–1.4 million employees, and “eating and drinking places” was the second largest, with 1.1–1.4 million employees. “Air transportation” employment was only 0.5 million, less than half that of hotels.

In terms of demand, the TTSA’s show that tourism purchases in the United States were \$284.2–\$332.8 billion, or 4.6–5.3 percent of GDP. The TTSA’s also show expenditures by type of visitor. In 1992, resident households’ expenditures in the United States accounted for 30–47 percent of domestic tourism expenditures (total tourism demand less travel expenditures by U.S. residents abroad); business sector expenditures, for 27–30 percent; and government expenditures, for 5–6 percent. Expenditures by nonresidents were \$71.5 billion, or 21–25 percent of tourism expenditures in the United States. Expenditures by U.S. residents overseas accounted for 11–12 percent of total tourism purchases ([table 7](#)).

By category, the largest expenditures were in passenger air travel, followed by hotels and lodg-

ing, meals and beverages, and shopping ([table 7](#)). Expenditures for passenger air travel services (domestic air, at \$48.5 billion, plus international air, at \$32.2 billion) were 22–25 percent of total tourism expenditures. Expenditures for hotels and lodging places were \$56.6 billion, or 15–17 percent, and those for meals and beverages were \$45.4–\$58.5 billion, or 14–15 percent. Shopping expenditures (personal consumption expenditures on nondurable, nontourism commodities) were \$35.4–\$47.4 billion, or 11–13 percent.

Tourism employment in 1992 was 3.8–4.4 million in 1992, or 3.2–3.7 percent of total employment in the United States; this is similar to the 3.9-percent share of employment estimated in Canada’s tourism satellite accounts. Tourism’s share of employment is much higher than its share of value added to GDP (1.9–2.2 percent), indicating that tourism industries are more labor intensive than the economy as a whole.

Compensation of tourism employees was 2.2–2.5 percent of total compensation of employees. The average compensation per tourism employee was \$21,393 per year, but it ranged from a high of \$80,783 in professional sports clubs and promoters to a low of \$11,917 in eating and drinking places. The average compensation per tourism employee is lower than the average compensation per employee for the economy as a whole (\$30,891).

## Future Work and Extensions

This prototype satellite account represents a first step in producing satellite accounts for travel and tourism for the United States. Depending on additional funding, the next steps may include the following: Developing point estimates to replace ranges of travel and tourism expenditures; updating the TTSA’s annually; improving the quality of the estimates by collecting additional data; adding estimates of investment in tourism industries; expanding tourism commodities to include consumer durables, imputed rents for vacation homes, and the provision of public facilities used by visitors; and adding estimates by U.S. region (or by State).

### *Point estimates, updates, and additional data requirements*

To develop point estimates, the accuracy and reliability of source data by tourism commodity must be examined to determine the adjustments required for a number of commodities, especially for “eating and drinking places,” “shopping,”

24. See [footnote 7](#).

“recreational” activities, and business expenditures. Over time, the proposed expansion of the CEX should provide improved data on tourism expenditures.

Updates of the TTSA’s could be made annually using NIPA estimates of final uses and gross product by industry estimates. This updating would require assuming that the input-output relationships in producing tourism commodities remain the same, that the proportions of tourism demand for many tourism commodities do not change, and that the mix of output by the tourism industries does not change.

Improved estimates of tourism demand are needed in a number of categories of tourism commodities. Specifically, better estimation approaches or the collection of additional data would improve measures of “eating and drinking places,” “shopping on out-of-town trips,” “recreation and entertainment,” “participant sports,” “movie theater, ballet, and musical events,” “sports events,” and business expenditures made on trips.

### *Investment in tourism industries*

One important estimate that could be added is private and public investment in fixed capital by tourism industries. The OECD- and WTO-recommended criterion for the inclusion of this investment in the satellite accounts is that the main use of the output of the industry should be by tourism or by visitors. For private investment, investment in fixed capital by hotels, airlines, and restaurants should be included. For public investment, investment in airports and long-distance bus stations should be included. Both public and private investment in railroads, highways, and seaports should also be included if a method could be developed to separate use for freight transportation services from use for passenger travel.

### *Consumer durables*

Consumer durables—such as recreation vehicles, automobiles, and sports equipment (for example, skis)—are currently not included in the TTSA’s. Whether and how consumer durables might be incorporated requires additional analysis. First, which consumer durables to include needs to be determined. Should only small, low-value

items such as cameras be included? Should large, single-purpose consumer durables such as recreational vehicles be included, or should multipurpose consumer durables such as personal automobiles be included? Second, how these durables would be included needs to be determined. Should they be treated as a final consumption item, as they are now in the I-O accounts and the NIPA’s, or should they be treated as investment, as is owner-occupied housing and government purchases of plant and equipment?<sup>25</sup>


### *Rental of vacation homes*

Rents from vacation homes used for tourism purposes conceptually should be included in the TTSA’s. The inclusion of imputed rents for owner-occupied homes is a standard treatment in the NIPA’s, but applying this approach to vacation homes is difficult. One difficulty is separating vacation homes from primary residence homes. A second difficulty is the lack of data on the length of time the vacation home is used by the owner and the time it is rented to others. If the home is rented to others, information on rental costs is needed; these costs are not readily available, and indirect estimates are difficult to make.

### *Public facilities used by visitors*

Public facilities, such as parks and museums, are attractions to visitors as well as nonvisitors. However, the costs of providing these public facilities are not included in the TTSA’s. Estimating these expenditures would be a lengthy and time-consuming project.

### *Regional analysis*

One extension of the TTSA’s would be to estimate travel and tourism expenditures by region (or by State) in the United States. It would focus on tourism GDP and employment and employee compensation by State. 

25. If these durables were treated as investment, the services of these assets would be included in GDP. For estimates of the stock of consumer durables that would be used to estimate these services, see U.S. Department of Commerce, Bureau of Economic Analysis, *Fixed Reproducible Tangible Wealth in the United States, 1925–96*, CD-ROM (Washington, DC: Bureau of Economic Analysis, 1998). For the treatment of owner-occupied housing in the I-O accounts and the NIPA’s, see U.S. Department of Commerce, Bureau of Economic Analysis, *Personal Consumption Expenditures*, Methodology Paper Series MP-6 (Washington, DC: U.S. Government Printing Office, 1990): 8.