A Proposal To Include Motor Vehicle Services in the U.S. Travel and Tourism Satellite Accounts

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MOTOR vehicles are widely used for travel and tourism in the United States. By one measure, more than 90 percent of the leisure trips made in the United States recently involved the use of a personal vehicle. For the Bureau of Economic Analysis' Travel and Tourism Satellite Accounts (TTSAs), the dominant use of cars and other motor vehicles for domestic leisure travel presents some interesting economic accounting challenges.[1] While the current travel and tourism accounts include the services that flow from rented motor vehicles, they do not include important services from leased or user-owned vehicles. As this article makes clear, there are sound conceptual and empirical grounds for incorporating such services into the travel and tourism accounts.

Currently, the *Tourism Satellite Account: Recommended Methodological Framework* from the World Tourism Organization (2001) does not include consumer durable goods in the accounts. Only single-purpose consumer durable goods, such as luggage and tents that are used for tourism, are included in the accounts, but multipurpose durable goods, such as motor vehicles, are not. This is consistent with the *System of National Accounts (SNA), 1993,* which are widely used guidelines for national economic accounting. The SNA recommends that consumer durable goods purchased by households for personal use be treated as final consumption, not as investment. According to the SNA, households are not considered producing units and therefore services from consumer durable goods are excluded. Largely for that reason, the current TTSAs generally exclude key travel services from leased or user-owned vehicles, such as depreciation and insurance costs.

1. This article updates a paper that the authors presented at the Tourism Satellite Accounts Conference on May 8–10, 2001, in Vancouver, British Columbia, Canada.

Brian K. Sliker provided conceptual support in developing depreciation patterns. Barbara M. Fraumeni was Chief Economist at the Bureau of Economic Analysis (BEA) from January 1999 until July 2005.

This article proposes a method to expand the TTSAs to include a new industry, "services of purchased and leased motor vehicles," and demonstrates how that would affect the 1998 TTSA estimates. It also discusses how the inclusion of these services would affect the amount of gross domestic product (GDP) that stems from the travel and tourism industry. Generally, the "expanded" TTSAs include the portion of total transportation services from cars, trucks, sports utility vehicles, and minivans that are owned, leased and rented by household, businesses and government and are used for travel and tourism. The current TTSAs exclude such services from owned and leased vehicles.

Currently, BEA has no plans to alter its national income and product accounts (NIPAs) or its annual industry accounts to include an expanded treatment of motor vehicle services, nor does it have firm plans to incorporate such services into the TTSAs. However, as the SNA points out, satellite accounts are good frameworks in which new approaches and methodologies can be worked out. BEA will continue research on this issue.

The rest of the article is organized as follows. The first section outlines the conceptual basis and the methodology for estimating the value of services of motor vehicles in the TTSAs, identifies data sources for producing the estimates, and describes the recalculations and changes in the accounts needed to include these services. The second section provides new TTSA estimates that include the services of motor vehicles and shows how they would affect the 1998 estimates. The third section outlines future research. In addition, a box provides an overview of key methodological issues, notably the incorporation of estimates of motor vehicle capital services flows into the TTSAs.

Why Include Motor Vehicle Services?

There are sound reasons to expand the TTSAs to include more motor vehicle services: The importance of motor vehicles as a travel and tourism mode of transportation in the United States; conceptual consistency in accounting for motor vehicle services; and the accounting benefits of a consistent treatment of leased and owned vehicles.

Motor vehicle dominance. Because motor vehicles are such an important mode of transportation for travel and tourism activities in the United States, extending the TTSAs to include these services would provide a more comprehensive and more consistent measure of travel and tourism. According to the *Highlights of the 2001 National Household Travel Survey*, 90.4 percent of leisure trips made in the United States in 2001 used personal vehicles (U.S. Department of Transportation 2001).[2] Ignoring these services understates travel and tourism activities in the United States thus makes it more difficult to compare the relative importance of various modes of transportation and other tourism industries within the United States.

Conceptual consistency. The World Tourism Organization's *Tourism Satellite Account* recommends including gasoline, parking fees, tolls, and other expenses related to the use of motor vehicles (WTO 2001; see also OECD 2000). This treatment appears inconsistent with the guidelines to exclude motor vehicle services in the TTSAs. In general, the TTSAs currently include a wide array of travel services generated from rented motor vehicles and air, rail, and water travel. Including the travel services of leased and user-owned motor vehicles would logically follow.

In addition, including motor vehicle services would entail a more consistent approach to purchases of motor vehicles by various sectors. Currently, motor vehicle purchases by households are accounted for as consumption. Treating household purchases as investment—as purchases by businesses and government are treated—would be a logical approach. Households respond to many of the same kind of motivations—such as interest rates, tax rules, and expected rates of return—as businesses and governments when buying a motor vehicle. As a durable good, motor vehicles are large, lumpy capital goods that provide a stream of services to their owners for more than a year.

Leased versus owned. In the early 1990s, leasing began to become a common way that motor vehicles were "owned" in the United States, peaking in 1998 when market-based leasing accounted for 32 percent of new-vehicle sales.[3] The TTSAs treat leased vehicles differently from purchased vehicles, even though the use of, and service flows from, leased and purchased motor vehicles are probably close to identical. By treating owned motor vehicles and leased motor vehicles the same, the expanded TTSAs better reflect changes in motor vehicle services in a way that does not depend on the contractual or financial arrangements for obtaining these services. In this regard, recognizing the purchases of consumer durable goods, such as motor vehicles, as investment would parallel the treatment of owner-occupied housing. The proposed treatment keeps GDP invariant to decisions to purchase or lease motor vehicles as the owner-occupied housing imputation keeps GDP invariant to whether homes are rented or owned.

Estimating Motor Vehicle Services

The expanded TTSAs include the part of total transportation services from motor vehicles—mainly cars, pickup trucks, sports utility vehicles, and minivans—that are owned, leased, and rented by households, businesses, and government and that are used for travel and tourism.[4] This is achieved by treating expenditures by households for used and new motor vehicles as investment—the same as expenditures by businesses and government are treated—and then estimating the resulting motor vehicle services using a capital-service-flow method. The services of purchased motor vehicles and leased vehicles are accounted for in the same way.

This method is similar to the rental-equivalent method used for estimating rental values of owner-occupied housing in the national income and product accounts (NIPAs).[5] Thus, a new motor vehicle services industry produces user-owned motor vehicle services, leased motor vehicle services, and rental services, and its output equals the sum of these services and related insurance, maintenance, and repair costs.

Total motor vehicle services in the expanded TTSAs consists of both the imputed services from motor vehicles purchased and leased by households, businesses, and government and the purchases of insurance, maintenance, and repairs. The value included in the TTSAs is a percentage of the total motor vehicle services. Most of rental payments for the short-term use of motor vehicles are assumed to be for travel and are already included in the TTSAs. Accordingly, the expanded TTSAs include not only rented motor vehicle services but also the travel portion of the imputed services of owned and leased vehicles and the related insurance, maintenance, and repair costs.

2. In the TTSAs, leisure trips include long distance trips (50 miles or more from home, one way) for relaxation, sightseeing, outdoor recreation, entertainment, and shopping. Tourism is defined as visitors traveling outside their "usual environment" or between 50 to 100 miles from home.

3. Since 1998, the share has fluctuated downward; in 2006, it stabilized at around 20 percent (Shebesta 2007).

4. Rentals include recreational vehicles.

5. Capital services flows for motor vehicles consist of depreciation, a rate of return, and for the first 3 or 4 years, a monthly acquisition fee. The output of the motor vehicle services in the expanded TTSAs includes these capital services plus insurance, maintenance, and repair costs. It is the sum of the capital services and these costs, not just the capital services, that is similar to owner-equivalent rent.

Estimating methods

Services from the stock of motor vehicles in operation are imputed using a market-based measure. This measure uses the value of motor vehicle leases as a proxy for the market value of motor vehicle services. Four types of "motor vehicle rental equivalents" are computed—for personal cars, personal trucks, business car fleets, and business truck fleets. The terms for business car and truck leases are assumed to be 3 years, and for personal car and truck leases, 4 years.[6] Two methodologies were used: One for the first 3 or 4 years of operation, and another for subsequent years of operation.

6. Consumer lease terms range from 2 to 4 years. The assumed 4-year and 3-year lease terms for households and businesses, respectively, are based on consultations with staff at Runzheimer International, a management consulting firm that specializes in transportation, travel, and living costs, including vehicle purchases and management and standard costs for business vehicle programs.

Methodology for the first 3 or 4 years

Applying the capital-services-flow method requires determining the proportion of motor vehicles in operation that are leased or purchased and then allocating the rental equivalent values to these motor vehicles.[7] For businesses and government, calculations are made for cars and trucks that are less than 3 years old. For personal use, calculations are made for cars and trucks that are less than 4 years old.

For the year of purchase or lease, it is assumed that new personal cars and trucks are purchased in the model year or the year after. All leased vehicles and all new business vehicles are assumed to have been leased or purchased in the model year.

For new motor vehicles, the motor vehicle rental equivalents is calculated using actual "monthly lease

7. According to the R.L. Polk & Co. data, in 1997, leased cars accounted for 40.5 percent of the new-car registrations, and leased trucks accounted for 30.7 percent of the new-truck registrations.

Estimating Travel and Tourism Motor Vehicle Services

The current BEA travel and tourism satellite accounts (TTSAs) are presented as a set of eight tables: (1) Production of commodities by industry, (2) supply and consumption of commodities, (3) demand for commodities by type of visitor, (4) output and value added by industry, (5) output by commodity, (6) employment and compensation of employees by industry, (7) total employment by industry, and (8) real tourism output. The inclusion of the motor vehicle services entails adjustments to tables 1–5.

The expanded TTSAs for 1998, which include motor vehicle services, are derived from the standard TTSAs for 1998. Because the capital-services-flow estimates are based on the data on lease payments for 1997 from the Power Information Network, ideally, the 1997 TTSA tables should have been used for incorporating the capital-services-flow estimates. However, when the 1997 TTSA tables were prepared, the 1997 annual input-output (I-O) tables and the 1997 benchmark I-O tables were not available; therefore, the 1997 TTSAs were extrapolated from 1996 levels using methods similar to those used to estimate output levels for the annual I-O accounts.

As a result, the 1998 TTSAs that are based on the 1998 annual I-O accounts were used to incorporate the capital-services-flow estimates. The 1997 capital-services-flow estimates were extrapolated by the rate of growth in the 1997–98 data on passenger car rentals and leasing and truck, utility trailer, and recreational vehicle rentals and leasing (Census Bureau 1997; Census Bureau 1998).

The 2007 annual update of the TTSA tables, which provide a time series from 1998 to 2005, incorporate a number of improvements, including a new "tourism-gasoline ratio," or the ratio of gasoline consumed by visitors to total gasoline consumption. The most recent TTSAs used a tourism gasoline ratio that was derived from the Consumer Expenditure Survey (CEX) by the Bureau of Labor Statistics. These ratios have ranged from a high of 10 percent in 1998 to a low of 7 percent in 2004, the latest year for which the TTSA estimates have been published. The TTSAs have made significant use of the CEX and will continue to do so, but there has been a concern about its continued use for one commodity, gasoline. Over time, the gasoline expenditures in the CEX survey have declined. Other organizations (public and private) point to a larger percentage of total gasoline consumption by travel and tourism activities.[1] Last year, BEA initiated research to develop its own estimate of tourism's share of consumption of this commodity. As a result, a new gasoline ratio has been developed, which replaces the CEX-based ratio, and is used in the standard and expanded TTSA tables. The new gasoline ratio uses data from the U.S. Department of Transportation and a private source that performs surveys of travelers.[2]

The change in the tourism gasoline ratio affects the computations for tables 3 and 4. The estimates for purposes of this presentation use the newly improved formula.

1. BLS has performed its own research on comparing the CEX to other series, including BEA's personal consumption expenditures data. See Gieseman (1987) and Garner, et al. (2006)
2. D.K. Shifflet

payments" obtained from the Power Information Network.[8] It is assumed that no motor vehicles are retired until after the first 3 or 4 years of operation. The monthly lease payments include depreciation, lease (finance) charges, and in some cases, monthly use taxes or monthly luxury taxes. Monthly acquisition fees, which are one-time upfront fees, are added to the monthly lease payments. The results are annualized. Then, annual insurance, maintenance, and repair costs are added to obtain the value of total motor vehicle services.

For personal vehicles, the capital services flows for the first 4 years are estimated using new registration data from R.L. Polk and vehicles in operation data from Ward's. Ratios of the number of vehicles in operation for each model year to total vehicles for 4 model years are calculated. These ratios are then used to distribute the new personal vehicle registrations to each model year. These distributed registrations are multiplied by the motor vehicle rental equivalents, and the results are summed over the 4 years.

The same methodology is used to develop the distribution pattern for business and government vehicles for 3 model years.

Methodology for subsequent years

After the first 3 years of operation for a business vehicle and after the first 4 years of operation for a personal vehicle, a distribution pattern for the residual value of both business and personal cars and trucks over their expected lives is developed for all "age vintages" in operation in 1997. The maximum life of a motor vehicle is assumed to be 16 years.[9] After 3 years for business motor vehicles and after 4 years for personal motor vehicles, this distribution pattern calculates the value that remains from the residuals in each of the subsequent years through the 16th year; that is, the vehicle residual value is distributed over the expected car (truck) lives by applying the depreciation rates that include market-based real rates of return. The initial depreciation rates are computed from the Power Information Network database. In subsequent years, the depreciation rates are adjusted by the reduction in initial year depreciation rates based on the pattern of depreciation estimates by Wykoff (1970; 1989).[10] As a proxy for the market-based real rates of return, the annual nominal interest rate on the used-car loans charged by auto finance companies is used (Federal Reserve Board of Governors 2000), which is adjusted for inflation by the rates of change in the price indexes for motor vehicles for 1997–98 (BEA 2007).[11]

The depreciation rates account for losses in value from all age-related sources, including retirements. It is assumed that motor vehicles are in operation for 4 years and that none are taken out of operation during these years. The depreciation pattern used also reflects the higher depreciation rates in the final year of a motor vehicle's life.

The distributed residual value is multiplied by the personal vehicles in-operation data from Ward's and is summed over 16 years.[12] The same methodology is used to estimate the post-lease capital services flows for business cars (trucks) and government cars (trucks).

Effects on the TTSAs and GDP

Changes to the TTSAs

Expanding the TTSAs to include owned motor vehicle services would change the accounts in the following ways:

- A new commodity, "owned motor vehicle services," would be created. This new commodity would be produced by a new industry, "owned motor vehicle services." This is analogous to the introduction of the new industry and commodity of "own-account

8. The Power Information Network (PIN) was used for actual market-based lease-payment data, which are essential for estimating the motor vehicle rental equivalents. The purchased database includes the following monthly data for 157 car models and 98 truck models: Acquisition fees, monthly lease payments, base monthly lease payments, internal rates of return, net capitalized costs, lease money factors, residuals, security deposits, lease terms, transaction counts, vehicle costs, vehicle prices, and vehicle prices less customer cash rebates. To annualize the monthly PIN data, the PIN number of transactions—that is, the number of cars (trucks) leased in a month—and the new car (truck) registrations data by model from R.L. Polk & Co. are used as weights.

For information about extrapolating the 1997 PIN-based capital services flows to estimate the 1998 capital services flows, see the box "Estimating Travel and Tourism Motor Vehicle Services."

9. This assumption is based on the data available on cars and trucks by model year between the initial year of operation to the final year of operation. The source of the data is various issues of *Ward's Automotive Yearbook*, which also includes data for all motor vehicles older than 17 years and shows the worth of such vehicles is close to zero.

10. Motor vehicles have high initial depreciation rates; therefore, for the subsequent years, we adjusted the PIN depreciation rates based on the research results and analysis by Wykoff (1989, 280). Wykoff's research shows the first-year depreciation rates to be between 35 and 45 percent, the second-year rates to be close to 20 percent, and the rates in subsequent years to be between 15 and 20 percent.

11. A market-based rate of return is needed for the post-lease period, so the PIN-based internal rates of return are not used beyond the 3-to-4-year lease period, because according to the PIN contact person, these rates apply to all cash flows throughout the term of lease. An internal rate of return is defined as the rate at which the discounted future cash flows of an investment equal the initial cash outlay.

12. The personal cars (trucks) in-operation data are computed by applying the ratio of personal cars (trucks) registrations to total registrations from R.L. Polk & Co. Polk "new" registrations data have been used because they are available in personal, business and government categories; "used" registrations data are not. Therefore, given that households are large net purchasers of used motor vehicles, the estimate of the proportion of the residual value distributed to personal motor vehicles is somewhat understated.

transportation" in the BEA's transportation satellite accounts (Fang, et al. 1998).

- A new set of commodities, "motor vehicle services," would be added to the list of tourism commodities. "Motor vehicle services" would consist of owned motor vehicle services, motor vehicle leasing, and motor vehicle rental (table A).
- A new industry, "motor vehicle services," would consist of "owned motor vehicle services," "long-term auto leasing," "auto and truck rental," and "other vehicle rental" (table B).
- The value added of the "owned motor vehicle services" industry would equal the value of the imputed services of user-owned motor vehicles.
- In the TTSA supply and consumption table, commodities would include "motor vehicle services." User-owned motor vehicle services would be included as household final consumption expenditures for travel for households and as intermediate consumption for business and government use of motor vehicles for travel.
- Purchases of motor vehicles that had been included under household final consumption expenditures would be considered gross private fixed investment. Government purchases of motor vehicles that had been included under government investment would now be considered to be gross private fixed investment.

Table A. Classification of Commodities in the Travel and Tourism Satellite 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 air fares, 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.
Motor vehicle services:	
Owned motor vehicles	Includes imputed receipts of owned motor vehicles.
Auto and truck leasing	Includes receipts for long-term leases of automobiles and trucks.
Auto and truck rental	Includes receipts for short-term rental of automobiles and trucks.
Other vehicle rental	Includes receipts for short-term rental of recreational vehicles and utility trailers.
Operating expenses of motor vehicle services:	
Gasoline and oil	Includes sales of gasoline, diesel fuel, lubricating oils, and grease.
Selected services	Includes receipts for services that may be used by tourists on, during, or after a trip, such as maintenance, repair, car washing, parking, tolls for bridges and roads, and insurance.
Petroleum retail margins	Includes retail margins on petroleum sales.
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	Include admissions to sports events.
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: [1]	
PCE nondurable commodities	Includes sales of all other nondurable commodities.
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.

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

Other costs that are related to operating a motor vehicle—such as gasoline and oil, tolls, and parking—for tourism purposes are already included in the TTSAs.

Recalculating GDP

Treating motor vehicles purchased or leased by households as investment and accounting for the resulting services would result in a change in the amount of GDP that comes from the travel and tourism industry.

Current treatment. In the input-output accounts and the national income and product accounts (NIPAs), motor vehicles are either owned and operated or leased and operated by households, businesses, and government (chart 1).

Purchases and leases of motor vehicles by households are included in household final consumption expenditures, not in investment. In contrast, motor vehicle purchases by businesses and government are treated as investment in the NIPAs. When a business purchases a vehicle that is to be leased, this purchase is treated as investment. The lease itself is a business-to-business transaction, and the payment for the lease is an intermediate expense for the business (lessee) leasing the vehicle. Motor vehicle leases are treated as final consumption expenditures by government.

Thus, although owned motor vehicles and leased motor vehicles provide fundamentally the same services, they are treated asymmetrically in the accounts.

Recalculating the level of GDP that stems from the travel and tourism industry would require reclassifying some expenditures on motor vehicles, recognizing the new commodities and industries discussed previously, and then estimating the value added of motor vehicle services.

Reclassification. Household purchases of motor vehicles would be reclassified from household final consumption expenditures to private fixed investment. This reclassification would not change GDP. However, the newly estimated capital services flows generated by household motor vehicle investment would be included in personal consumption expenditures (in transportation services). In addition, the motor vehicle lease payments by government would be removed from final expenditures (table C); this reclassification

Table B. Travel and Tourism Satellite Accounts 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
Motor vehicle services:	Motor vehicle services:
Owned motor vehicles	Owned motor vehicles
Motor vehicle leasing	Long-term auto and truck leases
Motor vehicle rental	Short-term auto and truck rental
	Short-term other vehicle rental
Gasoline service stations	Petroleum retail margins
Automobile parking, automotive repair shops and services, and toll highways	Parking, automotive repair, and highway tolls
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
Retail, excluding eating and drinking places and gasoline service stations	Other retail margins
Industries producing nondurable PCE goods	PCE nondurable commodities
All other industries	Wholesale trade margins and transportation costs
	Gasoline and oil
	Travel by U.S. residents abroad [1]

PCE Personal consumption expenditures
1. Travel by U.S. residents abroad has no industry counterpart; U.S. residents traveling abroad purchase commodities that are produced abroad, and the travel and tourism satellite accounts include only domestically produced commodities.

would not change the level of GDP. The purchases by businesses and government are already included as investment.

New industries and commodities. In recognizing purchases of motor vehicles as investment, the value of services provided by user-owned motor vehicles must also be recognized. The imputed services of motor vehicles owned by households, businesses, and government would be included in the new industry "owned motor vehicle services." Conceptually, this new industry buys motor vehicles, thus adding to the capital stock. It produces the new commodity "owned motor vehicle services" and "sells" the services to user-owners. The imputed services are an estimated rental equivalent value of motor vehicles.

Value added. The imputed motor vehicle services are treated in the input-output (I-O) accounts as final consumption expenditures for households and intermediate inputs for businesses and government.[13] The services of user-owned motor vehicles for businesses are treated as intermediate inputs to industries, and the value added for these industries is reduced by the amount of the intermediate purchases. The reduction in value added across these industries is then included in the value added of the new industry "owned motor vehicle services."

The net effect of business motor vehicle services on GDP is zero. The level of GDP changes by the value of services of user-owned motor vehicles for households and the value of services of user-owned motor vehicles for government (minus depreciation, which was already included in the TTSAs).

Table C. Current Treatment and Corresponding Proposed Treatment of Motor Vehicles in the National Income and Product Accounts

Types of motor vehicles	Current NIPA treatment		Proposed NIPA treatment	
	Current final expenditures	Investment and capitalized [1]	Current final expenditures	Investment and capitalized
Owned	Households	Government Business	Motor vehicle services (in PCE services)	Households Government Business
Leased	Households Government	Business		Households Government Business

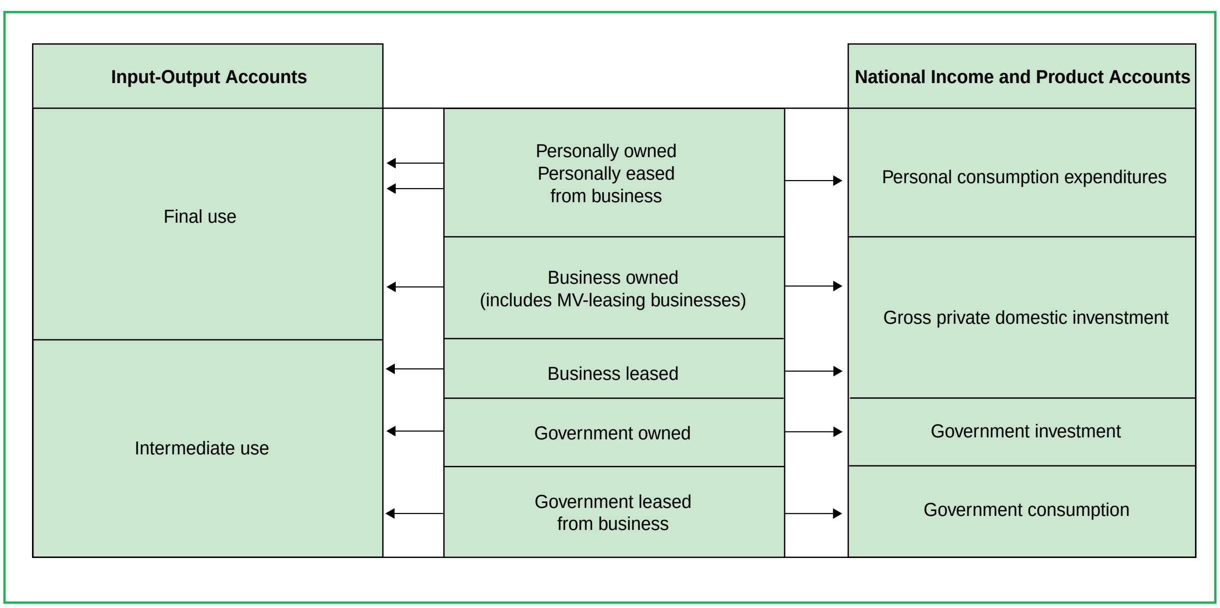
NIPA National income and product accounts
PCE Personal consumption expenditures
1. Although capitalized, no services are imputed.

Estimates of Services of Motor Vehicles

Estimates of motor vehicle services for the 1998 TTSAs indicate the importance of these services. In the expanded TTSAs, the addition of services from motor vehicles raises tourism industries' value added and tourism demand. The expanded TTSAs include only

13. The consumption of fixed capital, which is part of value added and intermediate purchases of motor vehicle insurance, maintenance, and repair costs by the using industries—for example, hotels and airlines—are reallocated to the new industry. This reallocation reduces the value added of using industries, as seen in table 1.

Chart 1. Current Treatment of Motor Vehicles (MV) in Input-Output and National Income and Product Accounts by Type of User



U.S. Bureau of Economic Analysis

the travel and tourism portion of value added for motor vehicle services.

- The inclusion of motor vehicle services adds $54.8 billion to tourism industry value added or gross product (table D).
- The value added of the travel and tourism industries ($298.6 billion) is larger than that of the agriculture ($102.4 billion), transportation and warehousing industries ($273.7 billion), and broadcasting and telecommunications industries ($229.8 billion).[14]

14. The value-added data for the agriculture, mining, and broadcasting and telecommunications industries are from table 1 in Moyer, et al. (2004, 36).

Table D. Tourism Industry Value Added for Selected Industries in the Standard and Expanded TTSAs, 1998

	Tourism industry value added		Share of tourism industry value added	
	(Billions of dollars)		(Percent)	
	Standard TTSAs	Expanded TTSAs: Includes motor vehicle services	Standard TTSAs	Expanded TTSAs: Includes motor vehicle services
Hotels and lodging places	59.0	58.9	22.5	19.7
Passenger air	46.8	46.4	17.9	15.5
Eating and drinking places	31.6	31.6	12.1	10.6
Shopping	16.3	16.2	6.2	5.4
Motor vehicle services	n.a.	54.8	n.a.	18.3
All other	108.2	90.7	41.3	30.4
Total tourism industry	261.9	298.6	100.0	100.0

TTSAs Travel and tourism satellite accounts
n.a. Not applicable

Table E. Key Indicators of Tourism Activity, Estimates of Motor Vehicle Services for the Standard and Expanded TTSAs, 1998

	Value added	Share of GDP	Demand	Share of GDP
	(Billions of dollars)	(Percent)	(Billions of dollars)	(Percent)
Standard TTSAs	261.9	3.0	507.4	5.8
Expanded TTSAs	298.6	3.4	560.4	6.3

TTSAs Travel and tourism satellite accounts

Table F. Key Indicators of Tourism Activity for the Standard and Expanded TTSAs, Household Tourism Demand as a Share of Disposable Personal Income, 1998

	Demand	Share of disposable personal income
	(Billions of dollars)	(Percent)
Standard TTSAs	338.5	5.3
Expanded TTSAs	391.4	6.1

TTSAs Travel and tourism satellite accounts

- The addition of motor vehicle services raises tourism industries' value-added share of total GDP from 3.0 percent to 3.4 percent (table E).[15] Tourism demand's share of GDP rises from 5.8 percent to 6.3 percent.
- Tourism demand as a share of disposable personal income is 6.1 percent in the expanded TTSAs, compared with 5.3 percent in the standard TTSAs (table F).
- The ripple, or indirect, effects from travel and tourism expenditures in the expanded TTSAs generate approximately 79 cents of industry output for every additional dollar of tourism spending on motor vehicle services.
- The value-added ranking of the tourism industries also changes (table D). Hotels and lodging places remain the largest tourism industry in terms of value added. Motor vehicle services is the second largest industry, and passenger air travel drops from second largest to third largest.

Future Research

Estimating the services of other types of capital related to tourism would be one of the next steps in developing a complete set of TTSAs. In general, the criteria for including other types of gross domestic investment in tourism industries in the accounts are somewhat ambiguous, and the link between investment in tourism industries and tourism demand is often indirect. Moreover, except for a few industries, the share of capital formation that can be attributed to tourism activities is likely to be relatively small.

Despite these problems, research could be undertaken in the following areas:

- Services of other types of capital, such as services from fixed public investment (highways, bridges, and roads) that are used by motor vehicles.
- Other public sector capital that could be linked to tourism demand, such as railroad capital (railway beds and train stations), water transport capital (ports), air transport capital (airports), and national parks, national museums, and tourism information bureaus.
- Health and medical tourism and the services from tourism that is undertaken for the purpose of both pleasure and health-related reasons.

15. The shares are derived by dividing the value added of tourism industries by the value of an expanded GDP that is higher than the standard GDP by the value of households' purchases of motor vehicle services. This expanded estimate of the tourism industry is higher than that of the standard TTSAs by the amount of the value added from user-owned motor vehicles.

References

Automotive Fleet Magazine, 1998. 1998. Torrance, CA: Bobit Publications.

Bureau of Economic Analysis (BEA). 2007. "Table 7.2.4B. Price Indexes for Motor Vehicle Output: New Motor Vehicles, Autos, 1997–98." In *Selected NIPA Tables.* (accessed March 8); <www.bea.gov/national/nipaweb>.

Census Bureau. 1997. "Rental and Leasing Services." 1997 Economic Census; <www.census.gov/epcd/ec97/us/US000_53.HTM#N532>.

Census Bureau. 2001. *Service Annual Survey: 1999.* (July); <www.census.gov/prod/2001pubs/sas-99.pdf>.

Commission of the European Communities—Eurostat, International Monetary Fund, Organisation for Economic Cooperation and Development, United Nations, and World Bank. 1993. *System of National Accounts, 1993.* Brussels/Luxembourg, New York, Washington, DC.

Fang, Bingsong, Xiaoli Han, Ann M. Lawson, and Sherlene K. S. Lum. 1998. "U.S. Transportation Satellite Accounts for 1992." Survey of Current Business 78 (April): 16–27.

Federal Reserve Board of Governors. 2000. "Terms of Consumer Credit." *Federal Reserve Bulletin* (December).

Garner, Thesia I., George Janini, William Passero, Laura Paszkiewicz, and Mark Vendemia. 2006. "The CE and the PCE: A Comparison." *Monthly Labor Review* 129 (September): 20–46.

Gieseman, Raymond. 1987. "The Consumer Expenditure Survey: Quality Control by Comparative Analysis." *Monthly Labor Review* 110 (March): 8–14.

Moyer, Brian C., Mark A. Planting, Paul V. Kern, and Abigail M. Kish. 2004. "Improved Annual Industry Accounts for 1998–2003: Integrated Annual Input-Output Accounts and Gross-Product-by-Industry Accounts." Survey of Current Business 84 (June): 21–57.

Organisation for Economic Cooperation and Development (OECD). 2000. *Measuring the Role of Tourism in OECD Economies: The OECD Manual on Tourism Satellite Accounts and Employment.* Paris: OECD.

Power Information Network, J.D. Power and Associates. 2005. Unpublished data for 1997.

Polk, R.L. & Co., 1998. "Firm Name Registrations Versus Total Industry for 1997." Cincinnati, OH: R.L. Polk & Co.

Shebesta, Tarry E. 2007. National Vehicle Leasing Association. "Percent of Leased Motor Vehicles for 1998–2006." Unpublished data.

U.S. Department of Transportation, Bureau of Transportation Statistics. 2003. *Highlights of the 2001 National Household Travel Survey.* Washington, DC.

Ward's Automotive Yearbook, 1993. 1993. Southfield, MI: Ward's Communications.

Ward's Automotive Yearbook, 1997. 1997. Southfield, MI: Ward's Communications.

Ward's Automotive Yearbook, 1998. 1998. Southfield, MI: Ward's Communications.

Ward's Automotive Yearbook, 2000. 2000. Southfield, MI: Ward's Communications.

Ward's Automotive Yearbook, 2001. 2001. Southfield, MI: Ward's Communications.

Ward's Automotive Yearbook, 2002. 2002. Southfield, MI: Ward's Communications.

World Tourism Organization. 2001. *Tourism Satellite Account: Recommended Methodological Framework.* Madrid; <www.unwto.org/statistics/forum/files/updatedTSARMFv.1.pdf>.

Wykoff, Frank C. 1970. "Capital Depreciation in the Postwar Period: Automobiles." *Review of Economics and Statistics* 52 (May): 168–172; <www.jstor.org/view/00346535/di952970/95p00982>.

Wykoff, Frank C. 1989. "Economic Depreciation and the User Cost of Business-Leased Automobiles." In *Technology and Capital Formation,* edited by Dale W. Jorgenson and Ralph Landau, 259–292. Cambridge: MIT Press.

Tables 1 through 5 follow.

Table 1. Production of Commodities by Industry, 1998—Continues

[Millions of dollars]

Commodity	Industry: Traveler accommo-dations	Nonfarm residential tenant-occupied permanent site real estate	Food services and drinking places	Air transpor-tation	Rail transpor-tation	Water transpor-tation	Interurban bus transpor-tation	Interurban charter bus transpor-tation	Urban transit systems and other transpor-tation	Taxi service	Scenic and sight-seeing transpor-tation	**Services of purchased and leased motor vehicles** [1]	Auto-motive equipment rental and leasing	Auto-motive repair services	Parking lots and garages	Toll highways
Traveler accommodations	73,911	8,265	366	....	....	....	....	....	....	....	....	....	....	....	....	....
Food services and drinking places	20,450	....	313,407	....	74	....	....	....	....	....	....	....	....	....	....	....
Domestic passenger air transportation services	....	....	....	60,349	....	....	....	....	....	....	....	....	....	....	....	....
International passenger air transportation services	....	....	....	23,466	....	....	....	....	....	....	....	....	....	....	....	....
Passenger rail transportation services	....	....	....	....	929	....	....	....	....	....	....	....	....	....	....	....
Passenger water transportation services	....	....	....	....	....	4,568	....	....	....	....	9	....	....	....	....	....
Interurban bus transportation	....	....	....	....	....	....	1,089	22	10	....	17	....	....	....	....	....
Interurban charter bus transportation	....	....	....	....	....	....	34	1,411	55	....	12	....	....	....	....	....
Urban transit systems and other transportation services	....	....	....	....	....	....	37	349	15,005	36	27	....	21	....	....	....
Taxi service	....	....	....	....	....	....	....	....	9	10,332	....	....	....	....	....	....
Scenic and sightseeing transportation services	....	....	....	3	....	7	....	53	26	....	2,063	....	....	....	....	....
Motor vehicle services:																
Services of purchased and leased motor vehicles [1]	....	....	....	....	....	....	....	....	....	....	....	**431,013**	....	....	....	....
Automotive rental	....	....	....	....	....	....	....	....	....	....	....	....	18,369	....	....	....
Other vehicle rental	....	....	....	....	....	....	....	....	....	....	....	....	415	....	....	....
Automotive repair services	....	....	....	....	....	....	....	8	18	3	1	....	....	82,504	....	....
Parking lots and garages	....	....	....	....	....	....	....	....	....	....	....	....	....	....	8,121	....
Highway tolls	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5,810
Travel arrangement and reservation services	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Motion pictures and performing arts	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Spectator sports	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Participant sports	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Gambling	14,393	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
All other recreation and entertainment	....	....	349	....	....	1	....	....	....	....	1	....	....	....	....	....
Gasoline	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wholesale trade and transportation margins on gasoline	....	....	....	....	1,207	917	....	....	....	....	....	....	....	....	....	....
Retail trade margins on gasoline	9	....	100	....	....	....	....	....	....	....	....	....	....	21	....	....
Nondurable PCE commodities other than gasoline	....	....	....	1,055	....	....	....	....	....	....	....	....	....	....	....	....
Wholesale trade and transportation margins on nondurable PCE commodities other than gasoline	....	....	....	3,231	17,481	3,503	....	....	....	....	....	....	....	....	....	....
Retail trade margins on nondurable PCE commodities other than gasoline	1,266	....	1,528	....	....	....	....	....	4	3	....	....	....	....	2	....
All other commodities, except all other trade and transportation margins	2,614	195,643	825	13,790	10,209	20,892	45	52	3,299	34	24	....	12,150	8,196	....	152
All other wholesale trade and transportation margins	....	....	....	2,093	15,215	1,845	....	....	....	....	....	....	....	....	....	....
All other retail trade margins	2	....	70	....	....	....	....	....	....	....	7	....	171	1,327	....	....
Travel by U.S. residents abroad	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Industry output	112,644	203,907	316,645	103,988	45,114	31,733	1,204	1,895	18,427	10,409	2,161	**431,013**	31,126	92,048	8,124	5,962
Intermediate inputs	**35,026**	**60,000**	**165,614**	**46,518**	**19,217**	**19,703**	**517**	**1,166**	**14,272**	**5,606**	**901**	**77,982**	**19,883**	**49,507**	**3,703**	**1,003**
Value added	**77,618**	**143,907**	**151,031**	**57,470**	**25,897**	**12,030**	**687**	**729**	**4,155**	**4,803**	**1,261**	**353,031**	**11,243**	**42,541**	**4,421**	**4,959**
Compensation of employees	39,618	7,459	103,898	35,728	17,858	7,009	584	581	14,093	3,571	693	0	5,992	21,817	1,648	1,744
Taxes on production and imports, less subsidies	**10,778**	**21,048**	**17,049**	**4,829**	**565**	**2,138**	**2**	**–33**	**–201**	**248**	**184**	**14,661**	**2,478**	**5,897**	**602**	**0**
Gross operating surplus	**27,222**	**115,400**	**30,084**	**16,913**	**7,473**	**2,884**	**101**	**181**	**–9,738**	**984**	**383**	**338,370**	**2,774**	**14,828**	**2,171**	**3,216**

See the footnotes at the end of the table.

NOTE. The shaded areas reflect the use of expanded TTSA data.

Table 1. Production of Commodities by Industry, 1998—Table Ends

[Millions of dollars]

Commodity	Industry: Travel arrangement and reservation services	Motion pictures and performing arts	Spectator sports	Participant sports	Gambling	All other recreation and entertainment	Petroleum refineries	Industries producing nondurable PCE commodities, excluding petroleum refineries	Wholesale trade and transportation services	Gasoline service stations	Retail trade services, excluding gasoline service stations	All other industries	Domestic production at producers' prices
Traveler accommodations				311								788	83,640
Food services and drinking places		3	4	4,810	960	3,430				3,604	8,431	21,140	376,313
Domestic passenger air transportation services													60,349
International passenger air transportation services													23,466
Passenger rail transportation services													929
Passenger water transportation services													4,577
Interurban bus transportation												2	1,140
Interurban charter bus transportation												47	1,559
Urban transit systems and other transportation services												245	15,719
Taxi service												1	10,343
Scenic and sightseeing transportation services												6	2,158
Motor vehicle services:													
Services of purchased and leased motor vehicles [1]													**431,013**
Automotive rental											844	58	19,271
Other vehicle rental										5	48		468
Automotive repair services								22	5,054	2,885	56,535	107	147,138
Parking lots and garages												277	8,398
Highway tolls													5,810
Travel arrangement and reservation services	27,376												27,376
Motion pictures and performing arts		15,443	7,004		36	122						412	23,016
Spectator sports			8,500										8,500
Participant sports				25,239		2,359						35	27,633
Gambling					19,523	54							33,970
All other recreation and entertainment		28	1,879	49	16	28,296		990			413	6,219	38,243
Gasoline							57,116						57,116
Wholesale trade and transportation margins on gasoline									63,914				66,037
Retail trade margins on gasoline				1		57				26,824	928	110	28,049
Nondurable PCE commodities other than gasoline							44,327	1,147,090	9,863		10,929	34,034	1,247,298
Wholesale trade and transportation margins on nondurable PCE commodities other than gasoline									287,814				312,028
Retail trade margins on nondurable PCE commodities other than gasoline	54	141	176	421	39	1,277		146	15	14,052	390,106	11,529	420,759
All other commodities, except all other trade and transportation margins	48	17,999	5,701	464	4,413	1,440	13,468	631,826	206,436	1,890	25,537	10,818,834	11,995,981
All other wholesale trade and transportation margins							75	21,388	424,465			28,784	493,865
All other retail trade margins		5	9	34		183		1,125		1,032	330,313	12,152	346,428
Travel by U.S. residents abroad													
Industry output	27,478	33,619	23,274	31,329	24,987	37,217	114,986	1,802,587	997,561	50,291	824,082	10,934,779	**16,318,590**
Intermediate inputs	**13,821**	**20,035**	**7,524**	**14,855**	**9,604**	**15,893**	**91,207**	**1,150,789**	**364,371**	**11,997**	**267,092**	**4,788,100**	**7,275,905**
Value added	**13,657**	**13,584**	**15,749**	**16,474**	**15,383**	**21,323**	**23,779**	**651,799**	**633,190**	**38,294**	**556,991**	**6,146,679**	**9,042,684**
Compensation of employees	11,089	9,439	9,629	11,580	7,670	10,544	7,016	328,551	355,354	16,640	325,662	3,668,479	5,023,946
Taxes on production and imports, less subsidies	**583**	**1,235**	**1,137**	**1,691**	**1,435**	**3,053**	**1,253**	**18,768**	**129,305**	**7,733**	**115,948**	**247,181**	**609,568**
Gross operating surplus	**1,985**	**2,910**	**4,983**	**3,204**	**6,279**	**7,727**	**15,510**	**304,480**	**148,530**	**13,920**	**115,381**	**2,231,018**	**3,409,171**

PCE Personal consumption expenditures

1. The 1998 capital-services-flow measure, which includes leased, purchased, and post-lease services of cars and trucks.

NOTE. The shaded areas reflect the use of expanded TTSA data.

Table 2. Supply and Consumption of Commodities, 1998

[Millions of dollars]

Commodity	Supply						Consumption						
	Domestic production at producers' prices	Imports	Change in private inventories	Wholesale trade margins and transportation costs	Retail trade margins	Total supply at purchasers' prices	Intermediate		Personal consumption expenditures	Gross private fixed investment	Government final expenditures	Exports of goods and services	Total consumption
							Private expenditures	Government expenditures					
Traveler accommodations	83,640					83,640	26,181	5,552	51,906				83,640
Food services and drinking places	376,313					376,313	59,656	8,830	307,424			403	376,313
Domestic passenger air transportation services	60,349					60,349	28,425	3,431	28,494				60,349
International passenger air transportation services	23,466	17,713				41,179	4,951	622	18,569			17,037	41,179
Passenger rail transportation services	929					929	406	111	412				929
Passenger water transportation services	4,577	335				4,912			4,590			322	4,912
Interurban bus transportation	1,140					1,140	79	71	990				1,140
Interurban charter bus transportation	1,559					1,559			1,559				1,559
Urban transit systems and other transportation services	15,719					15,719	4,141	108	11,470				15,719
Taxi service	10,343					10,343	6,226	617	3,500				10,343
Scenic and sightseeing transportation services	2,158					2,158	32	2	2,124				2,158
Motor vehicle services:													
Services of purchased and leased motor vehicles [1]	**431,013**					**431,013**	**195,909**	**7,000**	**228,105**				**431,013**
Automotive rental and leasing	19,271					19,271	10,996	1,918	6,358				19,271
Other vehicle rental and leasing	468					468	280	0	187				468
Automotive repair services	147,138					147,138	38,324	3,137	105,668			8	147,138
Parking lots and garages	8,398					8,398	1,435	1,058	5,905				8,398
Highway tolls	5,810					5,810	1,118	297	4,395				5,810
Travel arrangement and reservation services	27,376					27,376	8,833	1,115	16,391			1,037	27,376
Motion pictures and performing arts	23,016	181				23,197	4,066	18	19,034			79	23,197
Spectator sports	8,500	21				8,521	4,633	10	3,869			9	8,521
Participant sports	27,633					27,633	3,900	61	23,673				27,633
Gambling	33,970					33,970	45		33,925				33,970
All other recreation and entertainment	38,243	4	1			38,246	2,996	1,317	33,931			2	38,246
Gasoline	57,116	2,475	606	66,037	28,049	153,071	28,952	5,193	117,858			1,068	153,071
Wholesale trade and transportation margins on gasoline	66,037												
Retail trade margins on gasoline	28,049												
Nondurable PCE commodities other than gasoline	1,247,298	246,397	18,742	312,028	420,759	2,207,740	669,740	80,734	1,306,757	18,079	1,739	130,693	2,207,740
Wholesale trade and transportation margins on nondurable PCE commodities other than gasoline	312,028												
Retail trade margins on nondurable PCE commodities other than gasoline	420,759												
All other commodities, except all other trade and transportation margins	11,995,981	720,529	64,780	493,865	346,428	13,492,023	5,617,990	477,150	**3,495,693**	**1,652,895**	1,516,587	731,708	13,492,023
All other wholesale trade and transportation margins	493,865												
All other retail trade margins	346,428												
Travel by US residents abroad		55,907				55,907	13,706		42,201				55,907
Total	**16,318,590**	**1,043,562**	**84,129**	**871,930**	**795,237**	**17,278,022**	**6,733,019**	**598,352**	**5,874,986**	**1,670,974**	**1,518,325**	**882,366**	**17,278,022**

PCE Personal consumption expenditures
1. The 1998 capital-services-flow measure, which includes leased, purchased, and post-lease services of cars and trucks.
NOTE. The shaded areas reflect the use of expanded TTSA data.

Table 3. Demand for Commodities by Type of Visitor, 1998

[Millions of dollars]

Commodity	Total consumption	Resident households	Business	Government	Nonresidents	Total tourism demand	Nontourism demand	Tourism commodity ratio
Traveler accommodations	83,640	32,961	26,181	5,552	18,945	83,640		1.00
Food services and drinking places	376,313	40,442	19,462	4,494	14,530	78,928	297,384	0.21
Domestic passenger air transportation services	60,349	23,777	28,425	3,431	4,718	60,349		1.00
International passenger air transportation services	41,179	18,569	4,951	622	17,037	41,179		1.00
Passenger rail transportation services	929	344	406	111	68	929		1.00
Passenger water transportation services	4,912	4,280			322	4,602	310	0.94
Interurban bus transportation	1,140	826	79	71	164	1,140		1.00
Interurban charter bus transportation	1,559	1,300			258	1,559		1.00
Urban transit systems and other transportation services	15,719	2,058	758	20	226	3,062	12,657	0.19
Taxi service	10,343	1,400	2,590	257	134	4,381	5,962	0.42
Scenic and sightseeing transportation services	2,158	1,772	32	2	352	2,158		1.00
Motor vehicle services:								
Services of purchased and leased motor vehicles [1]	**431,013**	**34,560**	**16,765**	**1,604**		**52,929**	**378,085**	**0.12**
Automotive rental and leasing	19,271	4,285	10,904	1,902	494	17,584	1,687	0.91
Other vehicle rental and leasing	468	123	280	0	48	452	16	0.97
Automotive repair services	147,138	7,989	3,965	334	1,340	13,628	133,510	0.09
Parking lots and garages	8,398	781	192	141	69	1,183	7,216	0.14
Highway tolls	5,810	408	106	28	76	617	5,193	0.11
Travel arrangement and reservation services	27,376	15,861	8,547	1,079	1,037	26,525	851	0.97
Motion pictures and performing arts	23,197	5,236	1,764		1,160	8,160	15,038	0.35
Spectator sports	8,521	920	2,006		385	3,312	5,209	0.39
Participant sports	27,633	6,033	1,698		795	8,526	19,107	0.31
Gambling	33,970	12,859			4,275	17,134	16,835	0.50
All other recreation and entertainment	38,246	10,796	1,300		1,317	13,413	24,833	0.35
Gasoline	153,071	16,911	8,393	707	1,494	27,505	125,566	0.18
Nondurable PCE commodities other than gasoline	2,207,740	54,415	13,077	1,354	18,610	87,455	2,120,285	0.04
All other commodities	13,492,023						13,492,023	0.00
Total demand less travel by U.S. residents abroad	**17,222,115**	**298,906**	**151,881**	**21,708**	**87,855**	**560,350**	**16,661,766**	
Travel by US residents abroad	55,907	42,201	13,706			55,907		1.00
Total demand	**17,278,022**	**341,107**	**165,587**	**21,708**	**87,855**	**616,258**	**16,661,766**	

PCE Personal consumption expenditures
1. The 1998 capital-services-flow measure, which includes leased, purchased, and post-lease services of cars and trucks.
NOTE. The shaded areas reflect the use of expanded TTSA data.

Table 4. Output and Value Added by Industry, 1998

[Millions of dollars]

Industry	Industry output	Intermediate consumption	Value added	Tourism industry ratio	Tourism output	Tourism intermediate consumption	Tourism value added
Traveler accommodations	112,644	35,026	77,618	0.76	85,511	26,589	58,922
Nonfarm residential tenant occupied permanent site real estate	203,907	60,000	143,907	0.04	8,265	2,432	5,833
Food services and drinking places	316,645	165,614	151,031	0.21	66,302	34,678	31,624
Air transportation services	103,988	46,518	57,470	0.81	83,989	37,572	46,417
Rail transportation services	45,114	19,217	25,897	0.04	1,854	790	1,064
Water transportation services	31,733	19,703	12,030	0.14	4,590	2,850	1,740
Interurban bus transportation	1,204	517	687	0.94	1,129	485	645
Interurban charter bus transportation	1,895	1,166	729	0.82	1,555	956	598
Urban transit systems and other transportation	18,427	14,272	4,155	0.16	3,020	2,339	681
Taxi service	10,409	5,606	4,803	0.42	4,384	2,361	2,023
Scenic and sightseeing transportation	2,161	901	1,261	0.97	2,106	878	1,229
Services of purchased and leased motor vehicles [1]	**431,013**	**77,982**	**353,031**	**0.11**	**47,651**	**8,621**	**39,030**
Automotive equipment rental and leasing	31,126	19,883	11,243	0.55	17,167	10,966	6,201
Automotive repair services	92,048	49,507	42,541	0.08	7,645	4,112	3,533
Parking	8,124	3,703	4,421	0.14	1,144	522	623
Toll highways	5,962	1,003	4,959	0.10	617	104	513
Travel arrangement and reservation services	27,478	13,821	13,657	0.97	26,527	13,343	13,184
Motion pictures and performing arts	33,619	20,035	13,584	0.16	5,448	3,247	2,201
Spectator sports	23,274	7,524	15,749	0.28	6,434	2,080	4,354
Participant sports	31,329	14,855	16,474	0.29	9,141	4,334	4,807
Gambling	24,987	9,604	15,383	0.40	10,068	3,870	6,199
All other recreation and entertainment	37,217	15,893	21,323	0.31	11,502	4,912	6,590
Petroleum refineries	114,986	91,207	23,779	0.10	12,019	9,533	2,486
Industries producing nondurable PCE commodities, excluding petroleum refineries	1,802,587	1,150,789	651,799	0.03	45,795	29,236	16,559
Wholesale trade and transportation services	997,561	364,371	633,190	0.02	23,745	8,673	15,072
Gasoline service stations	50,291	11,997	38,294	0.13	6,404	1,528	4,876
Retail trade services, excluding gasoline service stations	824,082	267,092	556,991	0.03	24,018	7,784	16,234
All other industries	10,934,779	4,788,100	6,146,679	0.00	9,588	4,198	5,390
Total	**16,318,590**	**7,275,906**	**9,042,684**	....	**527,619**	**228,993**	**298,627**

PCE Personal consumption expenditures
1. The 1998 capital-services-flow measure, which includes leased, purchased, and post-lease services of cars and trucks.
NOTE. The shaded areas reflect the use of expanded TTSA data.

Table 5. Output by Commodity, 1998

[Millions of dollars]

Commodity	Domestic production at purchasers' prices	Tourism commodity ratio	Direct tourism output	Total commodity output multiplier	Total tourism-related output
Traveler accommodations	83,640	1.00	83,640	1.54	128,867
Food services and drinking places	376,313	0.21	78,928	1.88	148,378
Domestic passenger air transportation services	60,349	1.00	60,349	1.70	102,367
International passenger air transportation services	23,466	1.00	23,466	1.70	39,805
Passenger rail transportation services	929	1.00	929	1.62	1,508
Passenger water transportation services	4,577	0.94	4,288	1.98	8,480
Interurban bus transportation	1,140	1.00	1,140	1.71	1,952
Interurban charter bus transportation	1,559	1.00	1,559	1.71	2,668
Urban transit systems and other transportation services	15,719	0.19	3,062	1.71	5,242
Taxi service	10,343	0.42	4,381	1.71	7,500
Scenic and sightseeing transportation services	2,158	1.00	2,158	1.46	3,156
Services of purchased and leased motor vehicles [1]	**431,013**	**0.12**	**52,929**	**1.79**	**94,952**
Automotive rental and leasing	19,271	0.91	17,584	1.64	28,851
Other vehicle rental and leasing	468	0.97	452	1.64	742
Automotive repair services	147,138	0.09	13,628	1.71	23,300
Parking lots and garages	8,398	0.14	1,183	1.71	2,023
Highway tolls	5,810	0.11	617	1.94	1,197
Travel arrangement and reservation services	27,376	0.97	26,525	1.62	42,966
Motion pictures and performing arts	23,016	0.35	8,096	1.77	14,319
Spectator sports	8,500	0.39	3,304	1.64	5,406
Participant sports	27,633	0.31	8,526	1.62	13,793
Gambling	33,970	0.50	17,134	1.62	27,721
All other recreation and entertainment	38,243	0.35	13,412	1.64	22,061
Gasoline	151,202	0.18	27,169	1.84	49,899
Nondurable PCE commodities other than gasoline	1,980,086	0.04	78,437	2.08	162,793
Total	**3,482,316**	....	**532,897**	....	**939,944**

PCE Personal consumption expenditures
1. The 1998 capital-services-flow measure, which includes leased, purchased, and post-lease services of cars and trucks.
NOTE. The shaded areas reflect the use of expanded TTSA data.