

# U.S. Travel Association's Travel Economic Impact Model (TEIM)

## Introduction

The Travel Economic Impact Model (TEIM) was developed by the research department at the U.S. Travel Association (formerly known as the Travel Industry Association) to provide annual estimates of the impact of the travel activity of U.S. residents on national, state and county economies in this country. It is a disaggregated model comprised of 18 travel categories. The TEIM estimates travel expenditures and the resulting business receipts, employment, personal income, and tax receipts generated by these expenditures.

The TEIM has the capability of estimating the economic impact of various types of travel, such as business and vacation, by transport mode and type of accommodations used, and other trip and traveler characteristics. The County Impact Component of the TEIM allows estimates of the economic impact of travel at the county and city level.

## Definition of Terms

There is no commonly accepted definition of travel in use at this time. For the purposes of the estimates herein, *travel* is defined as activities associated with all overnight trips away from home in paid accommodations and day or overnight trips to places 50 miles or more, one way, from the traveler's origin.

The word *tourism* is avoided in this report because of its vague meaning. Some define tourism as all travel away from home while others use the dictionary definition that limits tourism to personal or pleasure travel.

The *travel industry*, as used herein, refers to the collection of 18 types of businesses that provide goods and services to the traveler or potential traveler at the retail level. With the exception of Amtrak and second home ownership and rental, these business types are defined by the Office of Management and Budget in the 1997 North American Industry Classification System (NAICS) and well as in its predecessor, the 1987 Standard Industrial Classification System (SIC). In each case, the relevant NAICS and SIC codes are included.

Travel *expenditure* is assumed to take place whenever one traveler exchanges money for an activity considered part of his/her trip. Total travel expenditures are separated into 18 categories representing traveler purchases of goods and services at the retail level. One category, travel agents, receives no travel expenditures as these purchases are allocated to the category (i.e. air transportation) actually providing the final good or service to the traveler. Travel expenditures are

allocated among states by simulating where the exchange of money for goods or service actually took place. By their nature, some travel expenditures are assumed to occur at the traveler's origin, some at his/her destination and some en route.

*Economic impact* is represented by measures of spending, employment, payroll, business receipts and tax revenues generated by traveler spending. *Payroll* includes all forms of compensation, such as salaries, wages, commissions, bonuses, vacation allowances, sick leave pay and the value of payments in kind paid during the year to all employees. Payroll is reported before deductions for social security, income tax insurance, union dues, etc. This definition follows that used by the U.S. Census Bureau in the quinquennial Census of Service Industries.

*Employment* represents the number of jobs generated by traveler spending, both full and part-time. As such, it is consistent with the U.S. Department of Labor series on nonagricultural payroll employment. *Tax revenues* include corporate income, individual income, sales and gross receipts, and excise taxes by level of government. *Business receipts* reflect travel expenditures less the sales and excise taxes imposed on those expenditures.

## **Description of the Model**

### *Estimates of Travel Expenditures*

Total travel expenditures includes spending by travelers on goods and services during their trips, such as lodging, transportation, meals, entertainment, retail shopping. Eighteen (18) categories of activities are covered in the TEIM. Generally, the TEIM combines the activity levels for trips to places within the United States with the appropriate average costs of each unit of travel activity, (e.g., cost per mile by mode of transport, cost per night by type of accommodation), to produce estimates of the total amount spent on each of 18 categories of travel-related goods and services by state. For example, the number of nights spent by travel parties in hotels in North Carolina is multiplied by the average cost per night per travel party of staying in a hotel in the state to obtain the estimate of traveler expenditures for hotel accommodations.

The data on domestic travel activity levels (e.g., number of miles traveled by mode of transportation, the number of nights spent away from home by type of accommodation) are based on national travel surveys conducted by the U.S. Travel Association, the Bureau of Labor Statistics' Survey of Consumer Expenditures, Smith Travel Research's Hotel and Motel Survey, etc. Average cost data are purchased and collected from different organizations and government agencies. Total sales and revenue and other data collected from state, local and federal government and other organizations are employed to compare, adjust and update the spending database of TEIM, as well as linking spending to other impact components.

The international travel expenditure estimates are based on Tourism Industries' (OTTI) In-Flight Survey and data provided to OTTI from Canada and Mexico. Other estimates of the economic impact of international visitors to the U.S. are generated by TEIM by incorporating the estimated international traveler expenditures with the data series utilized to produce the domestic estimates.

### Estimates of Business Receipts, Payroll and Employment

The Economic Impact Component of the TEIM estimates travel generated business receipts, employment, and payroll. Basically, the 18 travel categories are associated with a type of travel-related business. For example, traveler spending on commercial lodging in a state is related to the business receipts, employment and payroll of hotels, motels and motor hotels (SIC 701; NAICS 7211) in the state. It is assumed that travel spending in each category, less sales and excise taxes, equals business receipts for the related business type as defined by the U.S. Census Bureau.

It is assumed that each job in a specific type of business in a state is supported by some amount of business receipts and that each dollar of wages and salaries is similarly supported by some dollar volume of business receipts. The ratios of employment to business receipts are computed for each industry in each state. These ratios are then multiplied by the total amount of business receipts generated by traveler spending in a particular type of business to obtain the measures of travel generated employment and payroll of each type of business in each state. For example, the ratio of employees to business receipts in the state commercial lodging establishments is multiplied by travel generated business receipts of these establishments to obtain traveler generated employment in commercial lodging. A similar process is used for the payroll estimates.

The total sales, payroll and employment data of each travel related industry (by SIC and NAICS) are provided by and collected from state, local and federal government, such as the Bureau of Labor Statistics, the Bureau of Economic Analysis, Census Bureau and The Bureau of Transportation Statistics.

### Estimates of Tax Revenues

The Fiscal Impact Component of the TEIM is used to estimate traveler generated tax revenues of federal, state and local governments. The yield of each type of tax is related to the best measure of the relevant tax base available for each state consistent with the output of the Economic Impact Component. The ratios of yield to base for each type of tax in each state are then applied to the appropriate primary level output to obtain estimates of tax receipts generated by travel. For example, the ratio of North Carolina State personal income tax collections to payroll in the state is applied to total travel generated payroll to obtain the estimate of state personal income tax receipts attributable to traveler spending in Massachusetts.

### Estimates for Counties and Local Areas

Local area travel impact estimates is derived by distributing the state estimates to the area using proper proportions of each related category in the area. The proportions of a local area are calculated based on a set of data collected from federal, state and local governments and private organizations. The data can be gathered at the zip code level.

Data from the U.S. Bureau of the Census, Smith Travel Research, Enos Foundation, Runzheimer International, Cruise Lines International Association, Prentice-Hall, U.S. Department of Labor's Consumer Expenditure Survey and ES-202, American Society of Travel Agents, the Federal Aviation Administration, the Department of Transportation, Amtrak, the Federal Highway Administration, state revenue departments, U.S. Travel Association's travel surveys and other

sources are used in building and updating the model. These data indicate the change in travel spending for each of the expenditure categories for each state over the previous year, as well as changes in the relationship of travel spending to employment, payroll and tax revenue.

### **Limitations of the Study**

This study is designed to indicate the impact of U.S. traveler expenditures on employment, payroll, business receipts and tax revenue in each of the states. These impact estimates reflect the limitations inherent in the definition of travel expenditures. Two important classes of travel-related expenses have not been estimated due to various reasons. Consumers purchase certain goods and services in anticipation of a trip away from home. These include sports equipment (tennis racquet, skis, scuba gear, etc.), travel books and guides, and services such as language lessons and lessons for participatory sports (tennis, skiing, underwater diving, etc.). The magnitude of these purchases in preparation for a trip cannot be quantified due to lack of sound, relevant data.

The second type of spending not covered due to lack of sufficient data is the purchase of major consumer durables generally related to outdoor recreation on trips. Further research is required in this area to determine to what extent pre-trip spending on consumer durable products can justifiably be included within a travel economic impact study.

## **Travel-Related Industry Measurement (NAICS Codes)**

**Travel industry categories:** With the transition to NAICS, the U.S. Travel Association has adjusted its selection of the travel-related business types using the new NAICS codes and brought its travel economic research into conformity with NAICS. For measurement purposes, U.S. Travel Association's Travel Economic Impact Model tracks business activity in seven (7) major travel-related industry groups. The industry groups and subcategories used in the model are outlined below, followed by a detailed table of NAICS Codes. The share of travel in each of listed industries will depend on travel spending estimates for the related categories and are different from industries and areas.

**Automobile Transportation:** Gasoline service stations, passenger car rental, motor vehicle/parts dealers, automotive repairs and maintenance.

**Entertainment/Recreation industry:** Entertainment, art and recreation industry.

**Foodservice industry:** Eating & drinking places, and grocery stores.

**Retail Trade industry:** General merchandise group stores and miscellaneous retail stores, including gift and souvenir shops, and other retail stores.

**Lodging industry:** This industry includes hotels, motels, and motor hotels, camps and trailer parks.

**Public Transportation industry:** Air transportation, taxicab companies, interurban & rural bus transportation, railroad passenger transportation (Amtrak) and water passenger transportation. Also is the "dummy" industry of "other transportation."

**Travel Arrangement industry:** This includes travel agencies, tour operators, and other travel arrangement & reservation services.

### **NAICS Codes**

#### **Accommodations**

7211 Traveler Accommodations

7212 Recreational Vehicle Parks & Campgrounds

#### **Auto Transportation**

532111 Passenger Car Rental

447 Gasoline Stations

4411 Automobile Dealers

4412 Other Motor Vehicle Dealers

4413 Automotive Parts, Accessories and Tire Stores

8111 Automotive Repair and Maintenance

**Entertainment and Recreation**

- 711 Performing Arts, Spectator Sports & Related Industries
- 712 Museums, Historical Sites & Similar Institutions
- 713 Amusement, Gambling & Recreation

**Food**

- 7221 Full service Restaurants
- 7222 Limited Service Eating Places
- 7224 Drinking Places
- 445 Food and Beverage stores

**Public Transportation**

- 481 Passenger Air Transportation
- 4881 Airport Support Activities
- 4821 Rail Transportation
- 4852 Interurban and Rural Bus Transportation
- 4853 Taxi & Limousine Services
- 485510 Charter Bus
- 483112 Deep Sea Passenger Transportation
- 483114 Coastal and Great Lakes Passenger Transportation
- 483212 Inland Water Passenger Transportation
- 487 Scenic & Sightseeing Transportation

**Retail**

- 451 Sporting Goods, Hobby, Book, and Music Stores
- 452 General Merchandise Stores
- 453 Miscellaneous Store Retailers
- 443 Electronics and Appliance Stores
- 444 Building Material and Garden Equipment and Supplies Dealers
- 446 Health and Personal Care Stores
- 448 Clothing and Clothing Accessories Stores

**Travel Arrangement**

- 5615 Travel Arrangement & Reservation Services (includes travel agencies and tour operators)