

Tourism Satellite Account Methodology

Economic impact (EI) and tourism satellite accounting (TSA) are the two primary methodologies for measuring the impact of tourism on an economy. A separate methodology for measuring tourism is necessary because tourism is not an industry, but rather is made up of many industries including lodging, retail, and many others. There are several differences between the two methodologies. The TSA is a more comprehensive measure of tourism and includes not only visitor spending but also investment (construction) and government spending in support of tourism. Economic impact captures only visitor spending. The following methodology outlines the data inputs and methodology for the generation of a TSA.

Data Inputs

Data collection begins with *DK Shifflet & Associates* (DKS&A) state-level spending by category which includes: transportation, food, accommodation, shopping, entertainment and other. DKS&A's visitor volume and spending is derived from a continuing travel panel of over 500,000 respondents. The size of their sample and consistency of methodology provide Global Insight with high quality visitor metrics. This data is segmented for both business and leisure travel as well as resident and non-resident travel. It's important to point out that DKS&A only surveys US visitors to the State. DKS&A is also our source for person-stays, which is also segmented by business and leisure travel.

Global Insight's Business Demographics Database contains county-level sales, employment, and establishment counts by industry that is sourced primarily from County Business Patterns, a database compiled by the *US Census Bureau*. The TSA accesses data at the 4-digit NAICS level of sector detail from this source. The industry codes and their descriptions are listed below.

NAICS Industries	
4451 Retail - Grocery Stores	4871 Scenic & Sightseeing Transp., Land
4453 Retail - Beer, Wine & Liquor Stores	4872 Scenic & Sightseeing Transp., Water
4471 Retail - Gasoline Stations	4879 Scenic & Sightseeing Transp., Other
4481 Retail - Clothing Stores	5121 Motion Picture & Video Industries
4482 Retail - Shoe Stores	5321 Automotive Equipment Rental and Leasing
4483 Retail - Jewelry, Luggage & Leather Goods	5615 Travel Arrangement & Reservation Ser.
4511 Retail - Sporting & Hobby Goods	7111 Performing Arts Companies
4512 Retail - Book, Periodical, & Music Stores	7112 Spectator Sports
4521 Retail - Department Stores	7115 Independent Artists, Writers, & Perfor.
4529 Retail - Other General Merchandise	7121 Museums & Historical Sites
4811 Scheduled Air Transportation	7131 Amusement Parks & Arcades
4812 Nonscheduled Air Transportation	7132 Gambling Industries
4821 Rail Transportation	7139 Oth. Amusement & Rec. Ind.
4831 Deep Sea, Coastal, & Lake Transportation	7211 Traveler Accommodation
4832 Inland Water Transportation	7212 RV Parks & Recreational Camps
4851 Urban Transit Systems	7213 Rooming & Boarding Houses
4852 Interurban & Rural Bus Transportation	7221 Full-Services Restaurants
4853 Taxi & limousine Service	7222 Limited-Service Eating Places
4855 Charter Bus Industry	7223 Special Food Services
4859 Other Transit Passenger Transportation	7224 Drinking Places

International spending for the State and, wherever possible, major metropolitan areas is collected from the *Office of Travel and Tourism Industries*, part of the US Department of Commerce.

Construction data by type of structure from *F.W. Dodge* helps to measure the contribution of business fixed investment.

Smith Travel Research (STR) hotel revenue data is sometimes used as a cross-check for accommodations spending at the county level. While we recognize that STR data is not 100% comprehensive, it can provide a good benchmark for our county-level estimates.

Seasonal second home counts are collected from the *US Census Bureau*. This data is combined with weekly rental rates and average length of peak season collected from *local real-estate agents* to generate rental income from the presence of seasonal second homes in each county.

Information is also collected from *local sources*. State spending on tourism promotion and other tourism-related assets such as State Parks are used as an input to measure the government sector's impact. Local tax collections, in particular room tax collections, are also used as an input to the TSA as a cross-check for accommodations spending. Local real-estate agents, as mentioned above, are surveyed to establish reasonable weekly rental rates for each county. We also conduct an attractions inventory wherever possible to take into account special events that might not be reflected elsewhere, i.e. NASCAR racing, Big 10 NCAA sporting events, etc.

Calculation of Domestic Visitor Spending

Our approach assumes that each of these industries listed above has a 'tourism intensity' that becomes an adjustment factor to the sales data. The adjustment factor varies and can be as large as 1 and as small as 0.02. The intensity factors have been determined through an analysis of input-output relationships and are comparable to the factors developed by the US Department of Commerce. For example, the traveler accommodation industry (NAICS 7211) has a tourism intensity of 1 – all of the sales in this industry are associated with the tourism sector. This is also the case for the travel arrangement and reservation service (NAICS 5615). Amusement parks (NAICS 7131) are also assigned a high tourism intensity factor – 0.95. The charter bus industry (NAICS 4855) has an industry factor of 0.8. We assume that this tourism intensity factor is the same across all counties for a given industry.

Retail industries generally have the lowest tourism intensity. For example, grocery stores, gas stations, clothing stores, shoe stores, sporting and hobby goods, department stores and others have a tourism intensity factor of 0.05 or lower. We find that the DKS&A retail data is more indicative of spending in this category by tourists. The same holds true for the food category.

We compare the Global Insight-adjusted entertainment and accommodation spending to the aggregated spending numbers from the DKS&A survey. The comparison/reconciliation process results in the best possible estimate of true visitor spending by category at the State level. State total spending for each category is then apportioned to the counties based on a weighting for each county that reflects its importance in the Business Demographics data for the groupings of industries in the same spending categories.

The accommodation industry is supplemented with data on seasonal second homes. In particular our estimate of rental income from second homes is added to spending in the accommodation industry. County-level Smith Travel reports are also reviewed as a cross-check

The county-level industry sales data is also adjusted based on a county factor that reflects the importance of tourism in the particular county. These county factors are derived from the statistical properties of employment in the leisure and hospitality industry for each county. In particular we look at the seasonality of quarterly employment in this broad industry and compare / rank the counties based on this seasonality. If a particular county has very seasonal employment in leisure and hospitality then it receives a county factor above one. If the county has low seasonality in this industry, it receives a county factor below one. We assign all counties to one of five categories and the middle category gets no adjustment (its factor is set to unity).

Calculating International, Government and Business Fixed Investment Spending

The methodology to this point is focused on spending by domestic visitors. However, the TSA approach also attempts to incorporate the spending of the government sector, business fixed investment and spending by international visitors.

To incorporate the government sector's impact on the tourism industry we take expenditure details from the state's annual budget as it pertains to the promotion of the tourism sector as well as the budget of welcome centers, arts councils, cultural resources, state parks and other publicly-owned tourism assets.

The contribution of business fixed investment to the TSA comes mainly from the value of construction of structures that will become infrastructure to the tourism sector. For example: theatres, exhibition halls, airline terminals, hotels, docks/piers, runways, shopping centers and stadiums. Our approach is to apply a tourism intensity factor to the value of construction put in place that is unique for each structure type. Private sector construction is separated from state and local government construction efforts.

An international visitor component is added to each of the visitor spending categories that are discussed above based on the state's share of overseas visitations and US travel receipts and more specific international visitor spending data.

Calculating Tourism Impact

The steps outlined above create a set of spending inputs that we use to generate the impact of tourism for the state. We employ software developed by Minnesota IMPLAN Group, Inc. to build a model that helps us to understand the structure of every state economy. In particular, we are concerned with businesses' purchases of intermediate goods or the input-output structure of the state economy. This model takes spending in a range of tourism sub-industries and calculates value added, output, employment, labor income and state and local taxes for a specified year. The results represent the full impacts (direct, indirect and induced) that the tourism sector has in the state.