

**TRAVEL ECONOMIC IMPACT  
METHODOLOGY FOR NORTH  
CAROLINA**

**OCTOBER 2021**

# 1. METHODOLOGY

## 1.1 BACKGROUND

Visitor spending supports businesses across the economic spectrum, generates substantial tax receipts, and sustains diverse employment across the US. Economic impact analysis is invaluable to policy decisions because it measures the visitor economy in the categories that allow it to be compared to other sectors.

By monitoring the visitor economy, policymakers can inform decisions regarding the funding and prioritization of the sector's development. They can also carefully monitor its successes and future needs.

This document outlines the methodology for North Carolina's state and county tourism economic impact analysis conducted by Tourism Economics in collaboration with the U.S. Travel Association. The models build on the historic Travel Economic Impact Model (TEIM) developed by the U.S. Travel Association. The modeling produces the following output:

- State and county measures
- Visitor spending by category
- Total economic output
- Employment
- Household income
- Federal, state, and local taxes
- Direct, indirect, and induced impacts

## 1.2 DATA SOURCES

The analysis begins with a compilation of relevant data sets as inputs to the model. The visitor economy spans many different activities and sectors so several perspectives must be brought together to quantify each component.

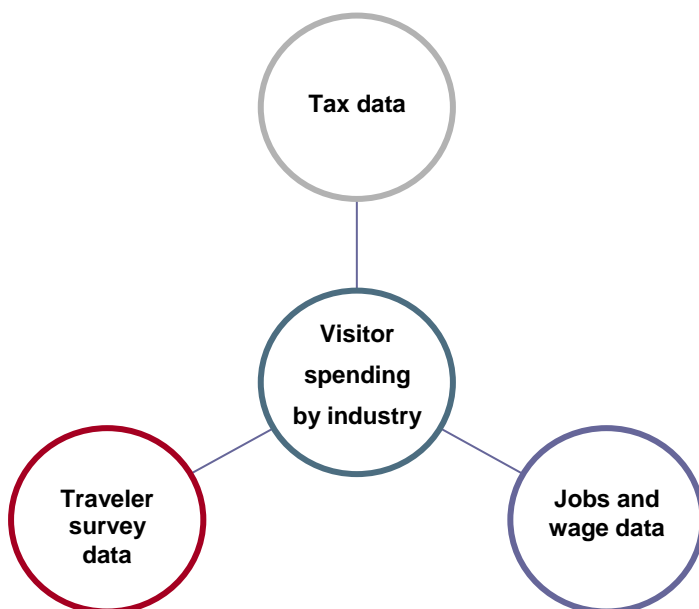
These different measurements complement and to cross-check one another to provide a comprehensive and validated analysis of travel activity in North Carolina. Data inputs include:

- Syndicated survey data from OmniTrak TravelTrakAmerica on the distribution of visitor spending by category (local transport, lodging, retail, recreation, food & beverage) and by type of visitor for visitors to North Carolina
- Tourism Economics prior economic impact work completed for both Buncombe and Wake Counties which leverages destination-level survey data and industry performance
- Employment by county (NAICS 700+ industries, source: BEA and BLS)
- Wages by county (NAICS 700+ industries, source: BEA and BLS)

- Lodging performance data on room demand and room revenue by county (STR)
- Hotel occupancy tax by county (Visit NC)
- Sales tax by industry for North Carolina (NC Department of Revenue)
- Seasonal second homes by county (US Census)
- Business sales by industry (US Census)
- Gasoline price data (U.S. Energy Information Administration)
- International inbound traveler visits and expenditures (Tourism Economics and National Travel & Tourism Organization)
- Aviation-related spending for visitors based on airport and passenger data (individual airports)

This comprehensive set of data provides a holistic view of visitor activity that is constrained by known measurements. For example:

**Example of data cross-check method**



- Tax receipts data by industry provide measurements of revenue for industries providing tourism goods and services.
- This is compared to spending estimates derived from syndicated visitor expenditure estimates.
- This is further be compared to employment and wage data by industry to cross-check the total size of each related industry and the implicit share of tourism for each industry.

This “triangulation” approach provides a set of anchors so that the end results are consistent and credible.

This approach also allows the analysis to clearly follow state and local boundaries.

Syndicated visitor spending breaks down visitor expenditures by type for determining the tourism share of sectors which are only partially tourism-related such as restaurants. BEA and BLS employment data provide an overarching perspective on the total jobs within each tourism-related sector. This is used as a reasonableness check of the economic model results.

Using these diverse and complementary datasets, the model quantifies total visitor expenditures by industry for the latest calendar year with trends over the past five years.

**1.3 IMPACT MODELLING**

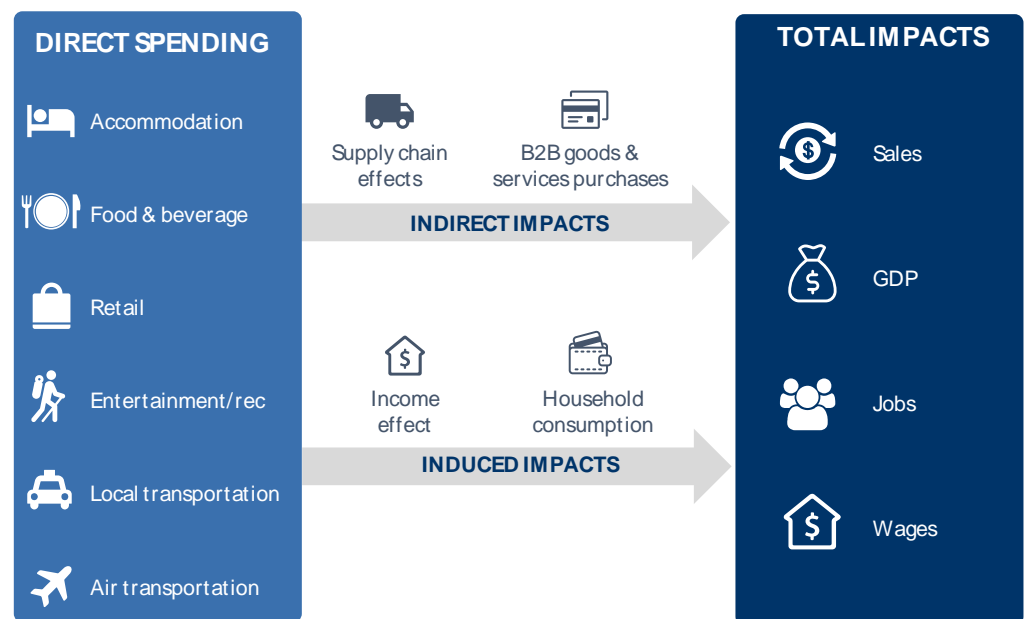
Economic impact analysis quantifies the effect of visitor expenditures as they flow to businesses, households, and government. The NC analysis is based on an Input-Output (I-O) model from IMPLAN ([www.implan.com](http://www.implan.com)) for the North Carolina economy. IMPLAN is recognized as an industry standard in local-level I-O models. An I-O model represents a profile of an economy by measuring the

relationships among industries and consumers and tracks the flow of revenue to wages, profits, capital, taxes, and suppliers.

The model calculates impacts for the following indicators:

- Business sales (also called gross output)
- Gross Domestic Product
- Household Income (including wages and benefits)
- Employment
- Federal Taxes
- State and Local Taxes by Type

The modeling process begins with aligning the tourism expenditure measurements with the related sectors in the model (e.g., restaurants, retail, and recreation). The model is then run to simulate the flow of these expenditures through the economy. In this process, the inter-relationships between consumers and industries generate each level of impact for each economic indicator (sales, wages, employment, and taxes).



Tourism Economics then iteratively adjusts the model to balance the results with known industry measurements. IMPLAN is flexible, allowing for adjustments in coefficients. This ensures that the results of the model are consistent and reasonable compared with other sources of specific tourism sector employment and taxes.

Figures are segmented by industry. This provides valuable insights into how various industries benefit from visitor activity.

A detailed tax analysis combines IMPLAN output with bottom-up calculations of sales taxes, bed taxes, and other tourism-specific taxes to complement the standard model results. Tax impacts incorporate the following detailed line items.

## Tax impact components

Federal taxes	State taxes	Local taxes
Corporate	Sales	Property
Sales tax	Corporate income	Bed tax
Personal income	Personal income	Sales
Social security	State Unemployment	Income
		Municipal taxes

Jobs, income, and total business sales figures are presented in terms of their share of the local economy and direct impacts are ranked against other industries.

### 1.4 COUNTY ANALYSIS

Visitor spending and economic impact measurements are quantified for each of North Carolina's 100 counties. Visitor spending is calculated by category, including lodging, food & beverage, recreation, shopping, and transportation.

All county-level analysis is constrained to state totals where the confidence interval is extremely high. The allocation of state impacts to counties begins with detailed BLS and BEA data on employment, establishments, and income data by industry at the county level. Seasonal second homes (from Census), lodging data (from STR, AirDNA where available, and available bed tax receipts), and consumer survey data for select counties provide additional detail on visitor activity by county. Sales tax data (as available) by industry and county is also used as a basis for distributing state results to individual counties.

Aviation data at the airport level informs local level estimates of air travel activity.

This combination of local data is more robust than traveler survey-based measurements alone where sample sizes often become too small to be relied upon at the county level. This approach is effective for two reasons:

- Results are driven by and constrained to the known value of visitor-related industries in each county (lodging, recreation, retail, transport, and restaurants)
- As a state-top-down / county-bottom-up approach, the sum of the parts equals the whole

This analysis produces figures on the economic impact of tourism for each county in terms of visitor spending (by sector), employment, personal income (including all forms of income), employment, and taxes.



# TOURISM ECONOMICS

AN OXFORD ECONOMICS COMPANY

## **Tourism Economics**

an Oxford Economics company  
303 W. Lancaster Ave. Suite 2E  
Wayne, PA 19087

**Tel:** +1 (610) 995 1600

## **Global headquarters**

Oxford Economics Ltd  
Abbey House  
121 St Aldates  
Oxford, OX1 1HB  
UK

**Tel:** +44 (0)1865 268900

## **London**

Broadwall House  
21 Broadwall  
London, SE1 9PL  
UK

**Tel:** +44 (0)203 910 8000

## **New York**

5 Hanover Square, 8th Floor  
New York, NY 10004  
USA

**Tel:** +1 (646) 786 1879

## **Singapore**

6 Battery Road  
#38-05  
Singapore 049909

**Tel:** +65 6850 0110

## **Europe, Middle East and Africa**

Oxford  
London  
Belfast  
Frankfurt  
Paris  
Milan  
Cape Town  
Dubai

## **Americas**

New York  
Philadelphia  
Mexico City  
Boston  
Chicago  
Los Angeles  
Toronto  
San Francisco  
Houston

## **Asia Pacific**

Singapore  
Sydney  
Hong Kong  
Tokyo

## **Email:**

[mailbox@oxfordeconomics.com](mailto:mailbox@oxfordeconomics.com)

## **Website:**

[www.oxfordeconomics.com](http://www.oxfordeconomics.com)