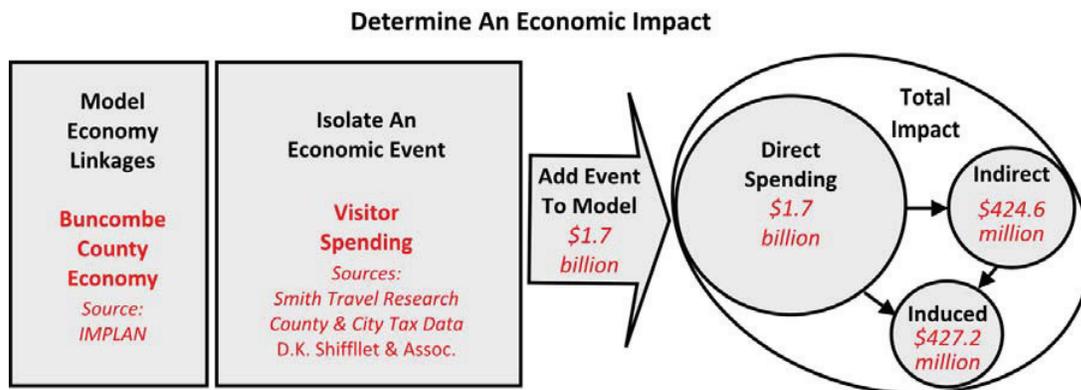


Methodology & Limitations of an Economic Impact Analysis

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What is an economic impact analysis?

An economic impact analysis is an estimation of changes to local economic activity as the result of a specific economic event. Events can be many different things; a new industry, the loss of an existing industry, changes to policy or consumer behavior. In the case of the 2014 “*Economic Impact of Tourism in Buncombe County, North Carolina*” the event is annual spending by non-resident visitors in Buncombe County. The analysis traces the event (visitor spending) through the local economy and measures its cumulative net effects.



The Economic Impact of Tourism in Buncombe County

How are the impacts determined?

The analysis begins with a model of the national economy. The model is based initially on the national input-output table developed and updated by the U.S. Bureau of Economic Analysis. The national input-output table tracks the interdependences among

producing and consuming sectors of an economy. The table is a comprehensive accounting of what each industry uses in order to make its product or service and how that output links to other industries that use the output as an input to their own production process. In addition to the industry-to-industry accounting, non-industry linkages are added to include transactions made between households and governments. The final national model accounts for all transactions between industries, households and governments.

Using the national model, you could for example follow the production of an apple farm, measure the inputs (its supply chain) used to produce the apples (fertilizer, labor, equipment, tax payments, etc.) and link the farm's output to other industries that use the apples as inputs—such as a bakery or grocery store. In the economic model the apple farm is part of an intricate matrix of buying and selling across multiple industries and households. For each step the national input-output table provides a measure detailing the proportional input and output relationships between industries, consumers and governments (how much labor goes into production of a certain amount of apples, how many apples does a bakery use for a certain amount of sales, etc.).

The national input-output model is then adjusted to match a specific local economy. Using data from Federal statistical agencies (U.S. Census Bureau, U.S. Bureau of Labor Statistics, etc.) a local input-output model is developed which accounts for the unique mix of industries, households and governments that comprise the local economy. The model only captures those linkages that would occur in the current local economy. In the apple farm example the purchase of fertilizer would typically be measured as a retail purchase from a local agricultural supplier and the economic activity would likely end there, unless the local economy also contained the fertilizer manufacturer, which would then extend the economic linkages further. The localized model limits the impacts to the transactions of the existing industries and households present in the local economy.

In the *“Economic Impact of Tourism in Buncombe County”* study, the performing firm, TOURISM ECONOMICS of Wayne, PA, used software and data developed by IMPLAN Group LLC to construct a local input-output model of the Buncombe County economy.¹

¹ The IMPLAN System (data and software) is widely used to measure local-level economic impacts and is presently considered the industry-standard. The firm, established in the early 1970's, developed a software-based platform for impact analyses. Users purchase data for a specific local economy (usually county-level) which is then incorporated into IMPLAN's broader framework containing the national input-output linkages.

Adding an event & measuring the impact

Once the local model is constructed an economic event can be introduced to measure its likely impacts. The event is tracked as it flows through the linkages among industries, households and governments.

An event is a change in local spending. For example measuring the impact of a new industry entails estimating the new local spending that will occur when that industry is operational.

In the “*Economic Impact of Tourism in Buncombe County*” study the event is the total annual spending of non-resident visitors in Buncombe County. TOURISM ECONOMICS used several sources to estimate the number of visitors, their total spending and the composition of their spending (food, retail, accommodations, etc.).²

The event is then added into the model of the local economy as new spending. Each component of the new spending is added to its respective category. For example in the “*Economic Impact of Tourism in Buncombe County*” study, TOURISM ECONOMICS estimated visitors spent \$136.5 million at Buncombe County gasoline stations, so this was introduced as new spending to that local industry.

The added new spending flows through the model of the local economy, which is tracked through the already-established input-output linkages between industries, consumers and governments. The model then totals the final net effects of the spending flows. The final net effects have three major pathways; direct, indirect and induced. Each pathway represents the flow of new local spending.³

The **Direct effect** is simply the initial spending (for example the \$136.5 million spent at Buncombe County gasoline stations). The “*Economic Impact of Tourism in Buncombe County*” study attributes a total of \$1.7 billion to annual visitor spending in Buncombe County (about 67 percent of the total impact).

The **Indirect effect** is the additional spending from local industries buying goods or services from other local industries-in order to support the initial direct spending. This effect is a measure of the local supply chain; it’s the backward linkages to local

² Four sources are referenced in the study; 1.) Smith Travel Research data on hotel room demand, supply and revenues, 2.) County and City level tax data on sales and hotel occupancy receipts available from the North Carolina Department of Revenue and the State Treasurer’s Office, 3.) Visitor profile and volume and spending estimates from D.K. Shifflet & Associates, and 4.) Industry data on employment, wages and sales from the U.S. Census, the Bureau of Economic Analysis and the Bureau of Labor Statistics. .

³ The results of an economic impact analysis can be expressed as sales, jobs, output, taxes or income. The model calculates the values internally and the analyst selects which summation to use. The “*Economic Impact of Tourism in Buncombe County*” study uses sales, taxes and jobs to express the results.

suppliers. Some industries have relatively short or limited local supply chains (for example the major input to a gasoline station is from a petroleum refinery, which is most likely outside the local economy and not counted in the analysis) while other industries have extensive local supply chains (many manufacturers are major consumers of various local business services and parts suppliers). The *“Economic Impact of Tourism in Buncombe County”* study attributes \$424.6 million of indirect spending caused by the initial direct visitor spending in Buncombe County (about 16 percent of the total impact).

Finally, the ***Induced effect*** is the new household spending due to the additional employment generated by the direct and indirect effects. Unlike the backward linkage focus of the indirect effect, the induced effect looks forward at the local spending from workers, whose jobs are supported by the first two effects. The *“Economic Impact of Tourism in Buncombe County”* study attributes \$427.2 million due to induced spending; caused by direct visitor spending and its indirect effect (about 17 percent of the total impact).

In summary, an economic impact analysis overlays the nation-wide behaviour of industries onto a local economy, isolates a change in spending, then measures the likely net effects of that spending. In the *“Economic Impact of Tourism in Buncombe County”* study, TOURISM ECONOMICS used IMPLAN software to construct a model of the Buncombe County economy, then added estimated annual visitor spending to calculate the net effects.

What are limitations of the analysis?

As noted above, the model of the local economy is based on the linkages from the national model. Although the IMPLAN model contains 536 unique industry sectors, their input-output linkages are fixed and assumed to be the same as the national averages.⁴ Localizing an impact accounts for the mix of suppliers and consumers in the local economy, but it **does not account for differences within the same industry**. The model does not address variations in methods of production or sales within industries sharing the same classifications. For example, all apple farms in North Carolina are assumed to have the same input-output relationships, as are all apple farms in the nation. The analysis does not account for any differences in the unique application of technology, management, marketing, strategy, etc. among firms in the same industry; although it is understood that not only do wide variations exist, but they are typically

⁴ Technically the IMPLAN model does allow for customizing the industry input-output linkages. This is usually done when analyzing the impact of a single firm, where the unique linkages are known by the analyst. However in a broad analysis, where dozens if not hundreds of firms are being analyzed, it is nearly impossible to have the precise knowledge of how each individual firm conducts its own production and sales.

the central reasons behind differences in profitability and competitiveness of individual firms.

What the economic analysis can't tell us-

Although complex, an economic impact analysis provides a somewhat one-dimensional view of the economy. The analysis basically measures the effects of adding (or subtracting) spending. And although it likely provides the best current way to objectively estimate the beneficial effects of new spending to a local economy, **it offers no help in addressing the governmental costs associated with those economic events**. Unfortunately, unlike spending, there isn't a national model of government costs linked to particular economic events; which could then be used to localize expected government outlays. An economic impact analysis and the model supporting it contain no information on the government's costs to support economic activities.

Analysts can conduct *fiscal impact analyses* to estimate governmental costs. A fiscal impact analysis is an estimate of the direct, current public costs and revenues to governmental units as the result of an economic event. Fiscal impact analyses are independent of economic impact analyses; with minimal methodological overlap. Fiscal impact analyses typically require in-depth knowledge of local government expenses such as schools, infrastructure, policing, sanitation, debt service, etc., plus governmental revenues; that can all be disaggregated and then proportionally reallocated to specific economic events.

Author

Tom Tveidt is the president of SYNEVA Economics. Founded in 2003, the firm specializes in assisting public and private decision makers with objective, unbiased local and regional economic analysis. SYNEVA Economics has provided dozens of community-level economic assessments and workforce evaluations across the southeast. The firm has conducted numerous economic impact analyses, including the permanent National Scouting Center for the Boys Scouts of America, the University of North Carolina at Asheville, the Greenville-Spartanburg International Airport, and the widening the Houma Navigational Canal in Louisiana.

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