

Economic Impacts of Tourism

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Businesses and public organizations are increasingly interested in the economic impacts of tourism at national, state, and local levels. One regularly hears claims that tourism supports X jobs in an area or that a festival or special event generated Y million dollars in sales or income in a community. “Multiplier effects” are often cited to capture secondary effects of tourism spending and show the wide range of sectors in a community that may benefit from tourism.

Tourism’s economic benefits are touted by the industry for a variety of reasons. Claims of tourism’s economic significance give the industry greater respect among the business community, public officials, and the public in general. This often translates into decisions or public policies that are favorable to tourism. Community support is important for tourism, as it is an activity that affects the entire community. Tourism businesses depend extensively on each other as well as on other businesses, government and residents of the local community. Economic benefits and costs of tourism reach virtually everyone in the region in one way or another. Economic impact analyses provide tangible estimates of these economic interdependencies and a better understanding of the role and importance of tourism in a region’s economy.

Tourism activity also involves economic costs, including the direct costs incurred by tourism businesses, government costs for infrastructure to better serve tourists, as well as congestion and related costs borne by individuals in the community. Community decisions over tourism often involve debates between industry proponents touting tourism’s economic impacts (benefits) and detractors emphasizing tourism’s costs. Sound decisions rest on a balanced and objective assessment of both benefits and costs and an understanding of who benefits from tourism and who pays for it.

Tourism’s economic impacts are therefore an important consideration in state, regional and community planning and economic development. Economic impacts are also important factors in marketing and management decisions. Communities therefore need to understand the relative importance of tourism to their region, including tourism’s contribution to economic activity in the area.

A variety of methods, ranging from pure guesswork to complex mathematical models, are used to estimate tourism’s economic impacts. Studies vary extensively in quality and accuracy, as well as which aspects of tourism are included. Technical reports often are filled with economic terms and methods that non-economists do not understand. On the other hand, media coverage of these studies tend to oversimplify and frequently misinterpret the results, leaving decision makers and the general public with a sometimes distorted and incomplete understanding of tourism’s economic effects.

How can the average person understand these studies sufficiently to separate good studies from bad ones and make informed choices? The purpose of this bulletin is to present a systematic introduction to economic impact concepts and methods. The presentation is written for tourism industry analysts and public officials, who would like to better understand, evaluate, or possibly conduct an economic impact assessment. The bulletin is organized around ten basic questions that either are asked or should be asked about the economic impacts of tourism.

Ten Questions About the Economic Impacts of Tourism

1. What is an economic impact analysis?
2. What questions does an economic impact assessment answer?
3. What economic impacts does tourism have?
4. What are multiplier effects?
5. How are tourism’s economic impacts measured?
6. What are the typical approaches for an economic impact assessment?
7. What are some examples of economic impact assessment approaches in tourism?
8. What are the steps for conducting a tourism economic impact study?
9. What are some questions to ask when evaluating or interpreting a tourism economic impact study?
10. What will an economic impact study cost?

1. What is an economic impact analysis?

A variety of economic analyses are carried out to support tourism decisions. As these different kinds of economic analysis are frequently confused, let's begin by positioning economic impact studies within the broader set of economic problems and techniques relevant to tourism. These same techniques may be applied to any policy or action, but we will define them here in the context of tourism. Each type of analysis is identified by the basic question(s) it answers and the types of methods and models that are appropriate.

TYPES OF ECONOMIC ANALYSIS

Economic impact analysis -- What is the contribution of tourism activity to the economy of the region? An economic impact analysis traces the flows of spending associated with tourism activity in a region to identify changes in sales, tax revenues, income, and jobs due to tourism activity. The principal methods here are visitor spending surveys, analysis of secondary data from government economic statistics, economic base models, input-output models and multipliers. (Frechtling 1994a)

Fiscal impact analysis – Will government revenues from tourism activity from taxes, direct fees, and other sources cover the added costs for infrastructure and government services? Fiscal impact analysis identifies changes in demands for government utilities and services resulting from some action and estimates the revenues and costs to local government to provide these services (Burchell and Listokin 1978).

Financial analysis – Can we make a profit from this activity? A financial analysis determines whether a business will generate sufficient revenues to cover its costs and make a reasonable profit. It generally includes a short-term analysis of the availability and costs of start-up capital as well as a longer-range analysis of debt service, operating costs and revenues. A financial analysis for a private business is analogous to a fiscal impact analysis for a local government unit.

Demand analysis – How will the number or types of tourists to the area change due to changes in prices, promotion, competition, quality and quantity of facilities, or other demand shifters? A demand analysis estimates or predicts the number and/or types of visitors to an area via a use estimation, forecasting or demand model. The number of visitors or sales is generally predicted based on judgement (Delphi method), historic trends (time series methods), or using a model that captures how visits or spending varies with key demand determinants (structural models) such as population size, distance to markets, income levels, and measures of quality & competition (Walsh 1986, Johnson and Thomas 1992).

Benefit Cost analysis (B/C) – Which alternative policy will generate the highest net benefit to society over time? A B/C analysis estimates the relative economic efficiency of alternative policies by comparing benefits and costs over time. B/C analysis identifies the most efficient policies from the perspective of societal welfare, generally including both monetary and non-monetary values. B/C analysis makes use of a wide range of methods for estimating values of non-market goods and services, such as the travel cost method and contingent valuation method (Stokey and Zeckhauser 1978; Sudgen and Williams 1978).

Feasibility study – Can/should this project or policy be undertaken? A feasibility study determines the feasibility of undertaking a given action to include political, physical, social, and economic feasibility. The economic aspects of a feasibility study typically involve a financial analysis to determine financial feasibility and a market demand analysis to determine market feasibility. A feasibility study is the private sector analogue of benefit cost analysis. The feasibility study focuses largely on the benefits and costs to the individual business or organization, while B/C analysis looks at benefits and costs to society more generally (Warnell 1986).

Environmental Impact assessment – What are the impacts of an action on the surrounding environment? An environmental assessment determines the impacts of a proposed action on the environment, generally including changes in social, cultural, economic, biological, physical, and ecological systems. Economic impact assessment methods are often used along with corresponding measures and models for assessing social, cultural and environmental impacts. Methods range from simple checklists to elaborate simulation models (Williams, 1994).

Benefit cost analysis and economic impact analysis are frequently confused as both discuss economic "benefits". There are two clear distinctions between the two techniques. B/C analysis addresses the benefits from economic efficiency while economic impact analysis focuses on the regional distribution of economic activity. The income received from tourism by a destination region is largely off-set by corresponding losses in the origin regions, yielding only modest contributions to net social welfare and efficiency. B/C analysis includes both market and non-market values (consumer surplus), while economic impact analysis is restricted to actual flows of money from market transactions.

While each type of economic analysis is somewhat distinct, a given problem often calls for several different kinds of economic analysis. An economic impact study will frequently involve a demand analysis to project levels of tourism activity. In other cases demand is treated as exogenous and the analysis simply estimates impacts if a given number of visitors are attracted to the area. A comprehensive impact assessment will also examine fiscal impacts, as well as social and environmental impacts.

Be aware that an economic impact analysis, by itself, provides a rather narrow and often one-sided perspective on the impacts of tourism. Studies of the economic impacts of tourism tend to emphasize the positive benefits of tourism. On the other hand environmental, social, cultural and fiscal impact studies tend to focus more on negative impacts of tourism. This is in spite of the fact that there are negative economic impacts of tourism (e.g., seasonality and lower wage jobs) and in many cases positive environmental and social impacts (e.g., protection of natural & cultural resources in the area and education of both tourists and local residents).

An economic impact assessment (EIA) traces changes in economic activity resulting from some action. An EIA will identify which economic sectors benefit from tourism and estimate resulting changes in income and employment in the region. Economic impact assessment procedures do not assess economic efficiency and also do not generally produce estimates of the fiscal costs of an action. For many problems economic impact analysis will be part of a broader analysis. Environmental, social, and fiscal impacts are often equally important concerns in a balanced assessment of impacts.

2. What questions does a tourism economic impact study answer?

An economic impact analysis will assess the contribution of tourism activity to a region's economy. The basic questions an economic impact study usually addresses are:

- How much do tourists spend in the area?
- What portion of sales by local businesses is due to tourism?
- How much income does tourism generate for households and businesses in the area?
- How many jobs in the area does tourism support?
- How much tax revenue is generated from tourism?

An economic impact analysis also reveals the interrelationships among economic sectors and provides estimates of the changes that take place in an economy due to some existing or proposed action. The most common applications of economic impact analysis to tourism are:

- To evaluate the economic impacts of changes in the supply of recreation and tourism opportunities. Supply changes may involve a change in quantity, such as the opening of new facilities, closing of existing ones, or expansions and contraction in capacity. Supply changes may also involve changes in quality, including changes in (a) the quality of the environment, (b) the local infrastructure and public services to support tourism, or (c) the nature of the tourism products and services that are provided in an area.
- To evaluate the economic impacts of changes in tourism demand. Population changes, changes in the competitive position of the region, marketing activity or changing consumer tastes and preferences

can alter levels of tourism activity, spending, and associated economic activity. An economic impact study can estimate the magnitude and nature of these impacts.

- To evaluate the effects of policies and actions which affect tourism activity either directly or indirectly. Tourism depends on many factors at both origins and destinations that are frequently outside the direct control of the tourism industry itself. Economic impact studies provide information to help decision makers better understand the consequences of various actions on the tourism industry as well as on other sectors of the economy. For example, increased air pollution standards have been opposed in some regions due to the predicted economic consequences of the closing of plants that cannot meet the new standards. Tourism interests counter these arguments with estimates of the potential gains in income and jobs in tourism industries that depend on good air quality and visibility.
- To understand the economic structure and interdependencies of different sectors of the economy. Economic studies help us better understand the size and structure of the tourism industry in a given region and its linkages to other sectors of the economy. Such understandings are helpful in identifying potential partners for the tourism industry as well as in targeting industries as part of regional economic development strategies. Issues such as economic growth, stability, and seasonality may be addressed as part of these studies.
- To argue for favorable treatment in allocation of resources or local tax, zoning or other policy decisions. By showing that tourism has significant economic impacts, tourism interests can often convince decision-makers to allocate more resources for tourism or to establish policies that encourage tourism. Tax abatements and other incentives frequently given to manufacturing firms have also been granted to hotels, marinas and other tourism businesses based on demonstrated economic impacts in the local area.
- To compare the economic impacts of alternative resource allocation, policy, management or development proposals. Economic impact analyses are commonly used to assess the relative merits of distinct alternatives. The economic contribution of expanded tourism offerings may be compared for example with alternatives such as resource extraction activities (mining, timber harvesting) or manufacturing. Impacts of alternative tourism development proposals may also be evaluated, e.g., tourism strategies that emphasize outdoor recreation, camping development, a convention facility, or a factory outlet mall.

3. What economic impacts does tourism have?

Tourism has a variety of economic impacts. Tourists contribute to sales, profits, jobs, tax revenues, and income in an area. The most direct effects occur within the primary tourism sectors --lodging, restaurants, transportation, amusements, and retail trade . Through secondary effects, tourism affects most sectors of the economy. An economic impact analysis of tourism activity normally focuses on changes in sales, income, and employment in a region resulting from tourism activity.

A simple tourism impact scenario illustrates. Let's say a region attracts an additional 100 tourists, each spending \$100 per day. That's \$10,000 in new spending per day in the area. If sustained over a 100 day season, the region would accumulate a million dollars in new sales. The million dollars in spending would be distributed to lodging, restaurant, amusement and retail trade sectors in proportion to how the visitor spends the \$100. Perhaps 30% of the million dollars would leak out of the region immediately to cover the costs of goods purchased by tourists that are not made in the local area (only the retail margins for such items should normally be included as direct sales effects). The remaining \$700,000 in direct sales might yield \$350,000 in income within tourism industries and support 20 direct tourism jobs. Tourism industries are labor and income intensive, translating a high proportion of sales into income and corresponding jobs.

The tourism industry, in turn, buys goods and services from other businesses in the area, and pays out most of the \$350,000 in income as wages and salaries to its employees. This creates secondary economic effects in the region. The study might use a sales multiplier of 2.0 to indicate that each dollar of direct sales generates another dollar in secondary sales in this region. Through multiplier effects, the \$700,000 in direct sales produces \$1.4 million in total sales. These secondary sales create additional income and employment, resulting in a total impact on the region of \$1.4 million in sales, \$650,000 in income and 35 jobs. While hypothetical, the numbers used here are fairly typical of what one might find in a tourism economic impact study. A more complete study might identify which sectors receive the direct and secondary effects and possibly identify differences in spending and impacts of distinct subgroups of tourists (market segments). One can also estimate the tax effects of this spending by applying local tax rates to the appropriate changes in sales or income. Instead of focusing on visitor spending, one could also estimate impacts of construction or government activity associated with tourism.

There are several other categories of economic impacts that are not typically covered in economic impact assessments, at least not directly. For example:

- Changes in prices -- tourism can sometimes inflate the cost of housing and retail prices in the area, frequently on a seasonal basis.
- Changes in the quality and quantity of goods and services – tourism may lead to a wider array of goods and services available in an area (of either higher or lower quality than without tourism).
- Changes in property and other taxes – taxes to cover the cost of local services may be higher or lower in the presence of tourism activity. In some cases, taxes collected directly or indirectly from tourists may yield reduced local taxes for schools, roads, etc. In other cases, locals may be taxed more heavily to cover the added infrastructure and service costs. The impacts of tourism on local government costs and revenues are addressed more fully in a fiscal impact analysis.
- Economic dimensions of “social” and “environmental” impacts - There are also economic consequences of most social and environmental impacts that are not usually addressed in an economic impact analysis. These can be positive or negative. For example, traffic congestion will increase costs of moving around for both households and businesses. Improved amenities that attract tourists may also encourage retirees or other kinds of businesses to locate in the area.

Direct, Indirect and Induced Effects

A standard economic impact analysis traces flows of money from tourism spending, first to businesses and government agencies where tourists spend their money and then to :

- other businesses -- supplying goods and services to tourist businesses,
- households – earning income by working in tourism or supporting industries, and
- government -- through various taxes and charges on tourists, businesses and households

Formally, regional economists distinguish **direct**, **indirect**, and **induced** economic effects. Indirect and induced effects are sometimes collectively called **secondary effects**. The **total economic impact** of tourism is the sum of direct, indirect, and induced effects within a region. Any of these impacts may be measured as gross output or sales, income, employment, or value added. See the glossary for definitions of these terms.

Direct effects are production changes associated with the immediate effects of changes in tourism expenditures. For example, an increase in the number of tourists staying overnight in hotels would directly yield increased sales in the hotel sector. The additional hotel sales and associated changes in hotel payments for wages and salaries, taxes, and supplies and services are direct effects of the tourist spending.

Indirect effects are the production changes resulting from various rounds of re-spending of the hotel industry's receipts in other backward-linked industries (i.e., industries supplying products and services to hotels). Changes in sales, jobs, and income in the linen supply industry, for example, represent indirect effects of changes in hotel sales. Businesses supplying products and services to the linen supply industry represent another round of indirect effects, eventually linking hotels to varying degrees to many other economic sectors in the region.

Induced effects are the changes in economic activity resulting from household spending of income earned directly or indirectly as a result of tourism spending. For example, hotel and linen supply employees, supported directly or indirectly by tourism, spend their income in the local region for housing, food, transportation, and the usual array of household product and service needs. The sales, income, and jobs that result from household spending of added wage, salary, or proprietor's income are induced effects.

By means of indirect and induced effects, changes in tourist spending can impact virtually every sector of the economy in one way or another. The magnitude of secondary effects depends on the propensity of businesses and households in the region to purchase goods and services from local suppliers. Induced effects are particularly noticed when a large employer in a region closes a plant. Not only are supporting industries (indirect effects) hurt, but the entire local economy suffers due to the reduction in household income within the region. Retail stores close and leakages of money from the region increase as consumers go outside the region for more and more goods and services. Similar effects in the opposite direction are observed when there is a significant increase in jobs and household income.

Final demand is the term used by economists for sales to the final consumers of goods and services. In almost all cases, the final consumers of tourism goods and services are households. Government spending is also considered as final demand. The same methods for estimating impacts of visitor spending can be applied to estimate the economic impacts of government spending, for example, to operate and maintain a park or visitor center.

Regional economic models

An **input-output model (I-O model)** is a mathematical model that describes the flows of money between sectors within a region's economy. Flows are predicted by knowing what each industry must buy from every other industry to produce a dollar's worth of output. Using each industry's production function, I-O models also determine the proportions of sales that go to wage and salary income, proprietor's income, and taxes. Multipliers can be estimated from input-output models based on the estimated re-circulation of spending within the region. Exports and imports are determined based upon estimates of the propensity of households and firms within the region to purchase goods and services from local sources (often called RPC's or regional purchase coefficients). The more a region is self-sufficient and purchases goods and services from within the region, the higher the multipliers for the region.

Input-output models make a number of assumptions. The basic ones are that:

- All firms in a given industry employ the same production technology (usually assumed to be the national average for that industry), and produce identical products.
- There are no economies or diseconomies of scale in production or factor substitution. I-O models are essentially linear — double the level of tourism activity/production and you double all of the inputs, the number of jobs, etc.
- The model doesn't explicitly keep track of time, but analysts generally report the impact estimates as if they represent activity within a single year.
- One must assume that the various model parameters are accurate and represent the current year. I-O models are firmly grounded in the national system of accounts, which relies on a standard industrial classification system (SIC codes) and various federal government economic censuses, in which individual firms report sales, wage and salary payments and employment. I-O models will generally be at least a few years out-of-date, although this isn't usually a major problem unless the region's economy has changed significantly. An I-O model represents the region's economy at a particular point in time. Tourist spending estimates are generally price adjusted to the year of the model.
- Multiplier computations for induced effects generally assume that jobs created by additional spending are new jobs, involving new households in the area. Induced effects are computed assuming linear changes in household spending with changes in income. Estimates of induced effects may be inflated due to the violation of these assumptions. Induced effects tend to account for the vast majority of the secondary effects of tourism, and therefore should be used with caution.

4. What are multipliers and multiplier effects of tourism?

Multipliers capture the secondary economic effects (indirect and induced) of tourism activity. Multipliers have been frequently misused and misinterpreted in tourism studies (Archer 1984) and are a considerable source of confusion among non-economists. Multipliers represent the economic interdependencies between sectors within a particular region's economy. They vary considerably from region to region and sector to sector. There are many different kinds of multipliers reflecting which secondary effects are included and which measure of economic activity is used (sales, income, or employment).

For example,

The Type I sales multiplier = $\frac{\text{direct sales} + \text{indirect sales}}{\text{direct sales}}$.

The Type II or III sales multiplier¹ = $\frac{\text{direct sales} + \text{indirect sales} + \text{induced sales}}{\text{direct sales}}$.

Multiplying a Type I sales multiplier times the direct sales gives direct plus indirect sales. Multiplying a Type II or III sales multiplier times the direct sales gives total sales impacts including direct, indirect and induced effects. The multipliers defined above are called ratio type multipliers as they measure the ratio of a total impact measure to the corresponding direct impact. Comparable income and employment ratio type multipliers may be defined by replacing sales with measures of income or employment in the above equations. Ratio multipliers should be used with caution.

A common error is to multiply a sales multiplier times tourist spending to get total sales effects. This will generate an inflated estimate of tourism impacts. The problem is that tourism spending or sales is not exactly the same as the "direct effects", appearing in the multiplier formula. Tourist purchases of goods (vs. services) are the primary source of the problem.

To properly apply tourist purchases of goods to an input-output model (or corresponding multipliers), various margins (retail, wholesale and transportation) must be deducted from the "purchaser price" of the good to separate out the "producer price". In an I-O model, retail margins accrue to the retail trade sector, wholesale margins to wholesale trade, transportation margins to transportation sectors (trucking, rail, air etc.) and the producer prices of goods are assigned to the sector that produces the good.

In most cases the factory that produces the good bought by a tourist lies outside of the local region, creating an immediate "leakage" in the first round of spending and therefore no local impact from production of the good. Before applying a multiplier to tourist spending, one must first deduct the producer prices of all imported goods that tourists buy (i.e. only include the local retail margins and possibly wholesale and transportation margins if these firms lie within the region). Generally, only 60 to 70% of tourist spending appears as final demand in a local region. While all tourist purchases of services will accrue to the local region as final demand, only the margins on goods purchased at retail stores should be counted as local final demand. The ratio of local final demand to tourist spending is called the **capture rate**.

Capture rate = local final demand / tourism spending in local area

¹ . The distinction between Type II and Type III multipliers involves a technical difference in how the induced effects are computed. Type II approaches include households as a sector of the economy and invert the technical coefficient matrix including the household sector, while Type III approaches treat households as exogenous.

Capture rates, like multipliers, will vary with the size and nature of the region as well as the kind of tourist spending included. One must therefore be cautious in taking a multiplier or capture rate cited in one study and using it in another.

Another way of calculating a multiplier (generally the preferred approach among economists) is as a ratio of income or employment to sales. This kind of multiplier is sometimes called a Keynesian multiplier or response coefficient.

$$\text{Type III Income multiplier} = \frac{\text{Total direct, indirect, and induced income}}{\text{direct sales}}$$

$$\text{Type III Employment multiplier} = \frac{\text{Total direct, indirect, and induced employment}}{\text{direct sales}}$$

This income (employment) multiplier produces total income (employment) impacts when multiplied by the direct sales. One must still be careful in distinguishing between tourism spending/sales and direct sales effects. Some studies may embed the capture rate in the multiplier, expressing the ratio in terms of tourism spending rather than direct sales.

5. How are tourism's economic impacts measured?

The economic impacts of tourism are typically estimated by some variation of the following simple formula:

$$\text{Economic Impact of Tourism} = \text{Number of Tourists} * \text{Average Spending per Visitor} * \text{Multiplier}$$

The formula suggests three distinct steps and corresponding measurements or models:

(1) Estimate the change in the number and types of tourists to the region due to the proposed policy or action.

Estimates or projections of tourist activity generally come from a demand model or some system for measuring levels of tourism activity in an area. Economic impact estimates will rest heavily on good estimates of the numbers and types of visitors. These must come from carefully designed measurements of tourist activity, a good demand model, or good judgement. This step is usually the weakest link in most tourism impact studies, as few regions have accurate counts of tourists, let alone good models for predicting changes in tourism activity or separating local visitors from visitors from outside the region.

(2) Estimate average levels of spending (often within specific market segments) of tourists in the local area.

Spending averages come from sample surveys or are sometimes borrowed or adapted from other studies. Spending estimates must be based on a representative sample of the population of tourists taking into account variations across seasons, types of tourists, and locations within the study area. As spending can vary widely across different kinds of tourists, we recommend estimating average spending for a set of key tourist segments based on samples of at least 50-100 visitors within each tourism segment. Segments should be defined to capture differences in spending between local residents vs. tourists, day users vs. overnight visitors, type of accommodation (motel,

campground, seasonal home, with friends and relatives), and type of transportation (car, RV, air, rail, etc.). In broadly based tourism impact studies, it is useful to identify unique spending patterns of important activity segments such as downhill skiers, boaters, convention & business travelers.

Multiplying the number of tourists by the average spending per visitor (be careful the units are consistent) gives an estimate of total tourist spending in the area. Estimates of tourist spending will generally be more accurate if distinct spending profiles and use estimates are made for key tourism segments. The use and spending estimates are the two most important parts of an economic impact assessment. When combined, they capture the amount of money brought into the region by tourists. Multipliers are needed only if one is interested in the secondary effects of tourism spending.

(3) Apply the change in spending to a regional economic model or set of multipliers to determine secondary effects.

Secondary effects of tourism are estimated using multipliers or a model of the region's economy. Multipliers generally come from an economic base or input-output model of the region's economy. In many cases multipliers are borrowed (often improperly) or adjusted from published multipliers or other studies. One should not take a multiplier estimated for one region and apply it in a region with a quite different economic structure. Generally, multipliers are higher for larger regions with more diversified economies and lower for smaller regions with more limited economic development. A common error is to apply a statewide multiplier (since these are more widely published) to a local region. This will yield inflated estimates of local multiplier effects.

Multipliers can also be used to convert estimates of spending or sales to income and employment. Simple ratios can be used to capture how much income or jobs are generated per dollar of sales. These ratios will vary from region to region and across individual economic sectors due to the relative importance of labor inputs in each industry and different wage and salary rates in different regions of the country. Be aware that job estimates are generally not full time equivalents, making them difficult to compare across industries with different proportions of seasonal and part time jobs. Income or value added² are generally the preferred measures of the contribution of tourism to a region's economy.

6. What are the typical approaches for an economic impact assessment?

At the simple, "quick and dirty" end of the spectrum are highly aggregate approaches that rely mostly on judgement to determine tourism activity, spending and multipliers. Such estimates can be completed in a couple hours at little cost and rest largely on the expertise and judgement of the analyst. At the other extreme are studies that gather primary data from visitor spending studies and apply the spending estimates to formal regional economic models for the area in question. In between are a wide range of options that employ varying degrees of judgement, secondary data, primary data, and formal models.

Different levels of detail and corresponding expense (time and money) and accuracy are possible for each of the three steps -- estimating tourist volume, spending, and multiplier effects. Four typical approaches illustrate the levels of detail that are possible and the associated methods (see Table 1).

1. Subjective estimates that rely mostly on expert opinion
2. Secondary data in aggregate form, adapting existing estimates to suit the problem
3. Secondary data in disaggregate form, permitting finer adjustment of data to fit the situation
4. Primary data and/or formal models, usually involving visitor surveys and regional economic models.

² Value added includes wage and salary income, proprietor's income, rents, profits, and indirect business taxes. It is a common measure of the net contribution of the industry or region to production (net of costs of the non-labor inputs).

Table 1. Approaches to Tourism Economic Impact Assessment

Level	Tourism Activity	Spending	Multipliers
1- Judgement	Expert judgement to estimate tourism activity	Expert judgement or an “engineering approach” ³	Expert judgement to estimate multipliers
2	Existing tourism counts for the area or total estimates from a similar area or facility	Use or adjust spending averages from studies of a similar area/market	Use or adjust aggregate tourism spending multipliers from a similar region/study
3	Estimate tourism activity by segment or revise estimates by segment from another area	Adjust spending that is disaggregated within particular spending categories & segments	Use sector-specific multipliers from published sources
4- Primary data	Visitor survey to estimate number of tourists by segment or a demand model	Survey random sample of visitors to estimate average spending by segment & spending category	Use an input-output model of the region’s economy

One can employ different levels of aggregation in visitor segments, spending categories, multipliers, and economic sectors to finely tune the data and models to a particular application and also yield more detailed information about the economic impacts. For example, spending data from previous surveys may be adjusted over time using consumer price indices (CPI). If spending is itemized in several categories, distinct CPI’s may be used for food away from home, lodging, or gasoline. If not, an aggregate CPI, which may not reflect the mix of goods that tourists purchase, must be used. Data for distinct tourism market segments is also valuable in tailoring secondary data to a particular application. For example, separate estimates of the average spending for day users and overnight visitors allows one to adjust the spending estimate to reflect a given mix of day users and overnight visitors.

7. What are some examples of economic impact studies in tourism?

Some examples serve to illustrate the range of possibilities for estimating the economic impacts of tourism. The following three examples are presented in greater detail in a companion bulletin.

- **The National Park Service’s “Money Generation Model”** is a simple fill-in-form for generating economic impacts. While an extremely simple approach, it captures the essential elements, of an economic impact analysis. The number of visits, average spending per visitor and an aggregate sales multiplier are entered on a simple worksheet to generate estimates of the direct and total sales effects of visitor spending. Sales effects are converted to income and jobs using simple ratios of income to sales and jobs to sales. Tax effects of visitor spending can also be estimated by applying local tax rates

³ In an engineering approach, one estimates the costs of producing a “trip” by itemizing typical costs for each input - e.g., a typical overnight visitor party of 4 staying two nights will incur \$50 per night for motel room, \$20 per person per day for meals, \$10 for half tank of gas, and \$50 for souvenirs = total of \$320 per party per trip.

to sales estimates. With sound judgement in choosing the parameters, the MGM model can yield reasonable ballpark estimates of economic impacts at minimal cost. This approach, however, provides little detail on spending categories or which sectors of the economy benefit from either direct or secondary effects. The aggregate nature of the approach also makes it difficult to adjust recommended spending rates or multipliers to different applications (USDI, National Park Service 1990.).

- **The Bureau of Economic Analysis's (BEA) RIMS II user handbook** illustrates how to apply published multipliers to estimate economic impacts. This approach starts with visitor spending (from survey or secondary sources) divided into a number of spending categories and makes use of sector-specific multipliers to estimate the direct and total sales, income and employment effects. Multipliers from the BEA's RIMS II models are used to estimate secondary effects. Multipliers are reported for 39 sectors for each state in the second edition of their report (USDC 1992). This method uses margins to properly account for retail purchases of goods and makes use of disaggregate sector-specific multipliers for each state. Multipliers for sub-state regions are not as readily available, but can be acquired from BEA or other sources. Secondary effects cannot be disaggregated to individual sectors using the BEA approach. (USDC, BEA 1992).
- **The MI-REC/IMPLAN System.** Stynes and Propst have developed a fairly complete micro-computer-based system for estimating economic impacts of recreation and tourism. The system combines spreadsheets for estimating spending with the IMPLAN input-output modeling system. IMPLAN uses county level data to estimate 528 sector input-output models for regions down to a county level. IMPLAN generates a complete set of economic accounts for the region including multipliers and trade flows. MI-REC spreadsheets estimate visitor spending within up to 33 categories based on the number and types of visitors attracted to an area. Spending is then bridged to the IMPLAN model sectors to estimate direct, indirect and induced effects in terms of sales, income and employment. Users may estimate spending via visitor surveys or use the MI-REC database of spending profiles, compiled from previous studies. The system also includes price indices to easily update spending data to a current year (Stynes and Propst 1992, 1996).

Two other systems for estimating economic impacts of tourism should be noted. The TEIM or Travel Economic Impact Model developed by the U.S. Travel Data Center (USTDC, 1997) has been widely used to estimate tourism and travel impacts at state and national levels. A more recent development is the satellite accounting approach developed by the World Travel and Tourism Council (WTTC 1996). Both of these systems are primarily designed for estimating the overall economic significance of tourism at national or state levels. They are not readily applied to estimate the impacts of particular policies and actions at the local level.

The TEIM relies on national travel surveys to estimate trip volume and spending on a state-by-state basis. Local estimates of impacts are obtained using simple allocation formulas to distribute statewide impacts to counties and cities within the state. These local estimates do not account very well for the distinct types of tourism activity or spending patterns in different sub-regions of a state. See Frechtling (1994b) for a summary of the TEIM model.

The WTTC effort also focuses on national and statewide accounting of tourism's economic significance. Their satellite tourism account identifies the contribution of travel and tourism to gross national product (GNP) or gross state product (GSP). Using the standard national system of accounts, they identify the portion of sales, taxes and investment attributable directly to travel and tourism. The WTTC system does not use multipliers or attempt to estimate secondary effects. It does, however, capture a great deal of travel-related economic activity, not covered by visitor trip spending, such as durable goods purchases (boats and RV's), construction and investment in tourism, and government expenditures.

8. What are the steps for conducting a tourism economic impact study?

An economic impact study involves four basic steps:

- Step 1: Define the problem
- Step 2: Estimate the change in final demand (tourism spending).
- Step 3: Estimate the regional economic effects of this change
- Step 4: Interpret, apply, and communicate the results

Procedures for carrying out steps 2 and 3 are outlined under question 6 (above) and illustrated in more detail in the companion report. This bulletin provides background on economic impact concepts and methods to help users of such studies in interpreting and applying the results. We therefore focus on the key elements to consider in defining problems for an economic impact analysis.

The most important part of any study is the first step -- clarifying the nature of the problem being addressed and intended uses of the results. Before launching an economic impact study, be sure this is the kind of study that is needed rather than one or more of the other kinds of economic analyses summarized in question 1. Stynes and Propst (1996) identify seven factors that should be specified as part of defining a problem for an economic impact assessment:

1. **Define the action** to be evaluated. Begin by clarifying the action or actions involved in the problem. Actions may include construction, government investment, changes in marketing, management, or policies, or changes in the quality or quantity of tourist facilities. If evaluating impacts of existing tourism activity, be sure to define what is to be included as "tourism".
2. **Identify the change in the amount and kinds of recreation/tourism activity resulting from the action.** The action must be defined precisely enough in step one to be able to estimate the changes in the number and types of visitors to the area and/or their spending patterns. As a general rule, the analysis should be **with vs. without** the action rather than simply **before vs. after**. Thus, if tourism has been growing by 5% per year and a new promotional program increases this to 10% this year, only half of the 10% growth can likely be attributed to the promotional program. Identifying the net changes in activity that are attributable to an action can be a complex and difficult task. Assessments of economic impact, however, rest firmly on such estimates, so attention to these details is very important. In situations of some uncertainty, we recommend evaluating impacts using a range of estimates in order to establish rough confidence intervals around your estimates. Evaluating a range of alternatives also helps to evaluate the sensitivity of the results to your initial estimates of changes in activity levels.
3. **Identify the kinds of spending to be included.** Tourism may impact the local economy through visitor trip spending, durable goods purchases, government spending, or investment and construction. Which to include in a given analysis depends on how the problem is defined, and again, on attributing given spending changes to the proposed action.
4. **Identify the study region.** Perhaps the most important, yet often neglected part of a recreation and tourism impact assessment is the definition of a study region. The region defines the area for which impacts are desired, as well as the portions of visitor spending that are relevant. An impact assessment evaluates the impacts on households, businesses, and organizations within the given region. Spending that visitors make outside of a study region either at home or enroute are not included in assessing impacts of spending on the designated region. For an economic impact analysis, the study region should be large enough to constitute a viable economic region. Since little economic data exists below the county level, the county is generally the smallest region one should consider for a tourism impact assessment.

5. **Identify key economic sectors and desired sectoral detail.** The proposed action and anticipated uses/users of the results should suggest the key sectors that will be impacted. Recreation and tourism activity typically impact the lodging, restaurant, amusements, retail, transportation and government sectors most directly. In the problem definition stage consideration of impacted sectors helps to identify relevant categories of spending. The desired sectoral detail plays an important role in structuring the presentation of results. In some cases only an aggregate measure of impacts may be desired. In other cases, clients may be interested in which particular sectors are most heavily affected and will want estimates of sales and jobs broken down by sector. If formal input-output models are used, impacts may be estimated in considerable sectoral detail. This is not possible if an aggregate spending estimate or multiplier is used.
6. **Identify the most important measures of economic activity.** Tourism impacts may be reported in terms of visitor spending, business receipts/sales/production, wage and salary income, proprietors income and profits, value added, and employment. The direct effects are the most important and are captured well by estimates of visitor spending. Simple ratios can be used to convert direct spending or sales to the associated income and jobs. Input-output models and multipliers are needed only if one is interested in secondary effects.
7. **Identify the tolerable levels of error in the results.** Although confidence intervals and estimates of error are rare in economic impact studies, this doesn't mean they are not important. You should have at least a ballpark idea of how much error you can tolerate in the analysis, as this will dictate how much effort and expense you must put into it. The more accuracy you demand, the greater the requirements to gather up-to-date local data on visitation, spending and economic activity. These data allow you to fine tune the spending estimates and input-output models or multipliers. Such fine tuning will require time, knowledge, and money that must be weighed against the benefits of the improved estimates. Estimates of impacts are based on three components: visits, spending, and multipliers. You should try to balance the errors across these components.

9. What are some questions to ask when evaluating or interpreting a tourism economic impact study?

Evaluating, interpreting and applying an economic impact study requires a clear understanding of the findings and at least some knowledge of the underlying concepts and methods. Judging the accuracy or quality of a study can be based on the reputation of the author or the quality of presentation, although a careful evaluation of the methods that were used is the best approach. Here's some questions to ask when reading or evaluating a tourism economic impact study.

- **Impact of what?** The report should identify the action being evaluated. An economic impact assessment is most useful when evaluating the effects of a particular action or policy. If so, the action and assumptions about alternatives should be spelled out in presenting a with vs. without scenario. If the study reports impacts of existing tourism activity, identify how tourism is defined (if at all). What kinds of tourism activity and spending are included? Which trip expenses are included? Does the study include all visitor spending or only spending of tourists who live outside the local region? Does the study address impacts of visitor trip spending, durable goods purchases, operational expenses of a program, or construction and investment?
- **On what region?** The study region should be defined (preferably with a map). It should be viable both economically and as a distinct tourism destination area. Spending that is included should be restricted to spending in this region and multipliers should represent the given region of interest. A short profile of tourism & economic activity in the region provides useful background for an economic impact study.
- **Sources and quality of the data.** The report should identify the sources of the data for estimating visits, spending, and regional economic multipliers/models. The methods that were used to estimate impacts should be clear. Judgements of the quality of the estimates must be based largely on an understanding of the data and

methods that were used. A more disaggregate analysis reporting spending within at least six categories, visitors for two or more distinct segments, and multipliers and results broken down by sector will generally be more accurate and meaningful than a study that only uses aggregate data. Disaggregation is particularly helpful when adjusting secondary data taken from government reports or other studies to a new situation. The fundamental question is whether the visit estimates, spending profiles and multipliers adequately represent the intended population and study area.

- **Quality of methods.** There are a number of issues to watch for in evaluating methods.
 - **Visits.** Has the study clearly defined which visits/visitors will be affected by the proposed action, separated local visitors from tourists, and identified which visitors would be lost or gained due to the action (with vs. without the action)? Are secondary sources of visitation reliable? If models are used, how good are they and do the assumptions hold for the intended application? Has the study handled potential double counting problems in estimating visits?
 - **Spending.** How accurate are the spending estimates? Do the spending averages or totals seem reasonable? If spending averages are taken from a secondary source, evaluate the source, as well as how well these averages may apply to the intended application. What year does the spending represent? Has the data been price adjusted to the current (or model) year? If spending data come from a visitor survey, evaluate the survey methods – how was spending measured, what was the sample size, the response rate, soundness of the analysis? Are variances and confidence intervals reported for the spending estimates? Are visitors divided into distinct segments to reduce variances? Also make sure the units for which spending is reported match the units for visits, i.e., the study doesn't multiply a per party spending average times the number of person visits. If adjustments are made in units of analysis, evaluate the assumed or estimated average length of stay or party size assumptions.
 - **Multipliers.** If “off-the-shelf” or borrowed multipliers are used, investigate the source. Does the study clearly define what type of multiplier is being used (Type I, Type III, income, sales or employment, ratio or Keynesian) and use the multiplier appropriately? In particular, watch for studies that multiply tourism spending by a multiplier taken from an input-output model. They should adjust for the capture rate either by reducing spending, only using retail margins on goods purchased by tourists, or using a “tourist spending” multiplier that takes the capture rate into account. If an input-output model is used, the report should summarize where it came from, what year it represents, the levels of sectoral aggregation, and the basic assumptions of the model.
- **Communication and reporting of results.** The study should communicate the study results in terms that are understandable to the intended audience. For most audiences, a summary and glossary of economic terms is helpful. Most readers will not fully understand terms like indirect and induced effects, Type I and Type III multipliers, and input-output models. Formal definitions of the measures of sales, income, and jobs that are reported are also needed to clarify what each of these terms include and the measurement units. For example, is income only wage and salary income or does it also include proprietors income, rents and profits? Study limitations and errors should be indicated.

10. What does an economic impact study cost?

The costs of a tourism economic impact study can range from \$500 to \$50,000 and more. Costs will depend largely on the size and scope of tourism activity to be covered, the size and complexity of the study region, how much primary data are to be gathered and the level of accuracy and detail desired. The greatest and perhaps most significant cost will be the technical expertise of the analysts involved. Tourism economic impact studies require considerable technical judgement of specialists and a mix of corresponding skills:

- Knowledge of tourism
- Expertise in conducting tourism surveys, particularly spending studies
- Regional economic modeling skills, including knowledge and access to economic data bases, multipliers and input-output modeling systems
- Communication skills

The cost of conducting economic impact studies has dropped substantially in the past ten years due to improvements in microcomputer programs for estimating spending and regional economic models. The three principal components of an economic impact estimate (visits, spending, and multipliers) each involve different costs and somewhat different skills. The costs and needed skills will vary considerably depending on whether primary or existing data are to be used.

If levels and types of tourism activity are known and spending averages and multipliers may be taken from secondary sources, a complete economic impact assessment can be conducted in less than a month and in many cases for under \$5,000. You are paying primarily for the time, judgement and skills of the analyst. A small visitor spending survey may add another \$5,000. For a more complete analysis of secondary effects using a formal input-output model, figure another \$2,000- \$5,000. Increase the cost estimate if several distinct alternatives are to be evaluated or multiple regions are involved. There will generally be scale economies in these situations with additional impact analyses costing less than half of the initial one. Costs will increase significantly if the number and types of visitors must be estimated using a general visitor survey or a demand model. Large scale spending surveys and custom input-output models based on primary data will also increase costs considerably.

In many cases, the tourism activity and visitor spending data needed for an economic impact analysis can be gathered in a general visitor survey or market study. Spending averages for particular tourist segments can be estimated by having a portion of the general survey respondents complete an extra page of spending questions. Armed with good estimates of the number and types of visitors and their spending patterns, one can complete an economic impact study at little additional cost.

Summary and Conclusion

The principal motivation for a business or region to serve tourists are generally economic. An individual business is interested primarily in its own revenues and costs, while a community or region is concerned with tourism's overall contribution to the economy, as well as its social, fiscal and environmental impacts. A good understanding of tourism's economic impacts is therefore important for the tourism industry, government officials, and the community as a whole.

Tourism economics is unfortunately a technical area, involving concepts, methods, and models that are unfamiliar to most non-economists. In this bulletin I've attempted to define the key concepts and explain the basic methods for estimating the economic impacts of tourism, hopefully in as "non-technical" a way as the subject allows. Understanding the concepts and methods is critical to interpreting, evaluating, and applying economic impact results. This bulletin should be read along with one or more economic impact reports that can be used as examples and opportunities to test your grasp of the issues. For those who do not have a particular tourism

economic impact report in mind, I've assembled three illustrative examples (those summarized in question 7) in a companion bulletin.

At the risk of oversimplifying a complex topic, let me conclude with the five pieces of advice I most frequently give to people who ask about tourism economic impacts. First, I tell them that the most important information for estimating tourism impacts is a good estimate of the number of tourists. This requires clearly defining what one wishes to include as "tourism" and the region of interest. Secondly, I recommend that tourists be divided into distinct subgroups (segments) with distinct spending patterns and likely reacting differently to various policy and marketing actions. In particular, local customers should be distinguished from visitors from outside the region and day users from overnight visitors. Thirdly, focus most of your effort on estimating the direct effects of tourism, usually as tourist spending in the area. Multiplier effects are not nearly as important in most cases, as their use in tourism would suggest and multipliers tend to introduce complexities that most users of the results do not fully understand. Even if multiplier effects are important to the study purpose, remember that any errors in estimates of the direct effects will also be multiplied by any multiplier. Fourth, if you must use multipliers be sure you understand them. For local impacts, I usually recommend tourism spending multipliers between 1.0 and 1.5. If one has no idea of the size of the multiplier, I recommend using 1.0. This is easy to multiply by and refocuses us on the direct effects. Tourism sales multipliers are often close to one because the secondary effects of tourist spending (mostly induced) are generally just large enough to offset the spending that is not captured by the local economy. If you must include multiplier effects, be sure to report the direct effects separately, so readers can decide whether and when to include the secondary effects. Finally, I recommend income or value added as the best measures of economic impacts to report. Sales and job impacts can be quite misleading, as sales may go largely to buy parts from outside the region and job estimates are distorted by part time and seasonal positions, not to mention quite different wage rates across industries. Income or value added are the best measures of the economic gain to the region from tourism. It follows that income multipliers (of the Keynesian type) should be used instead of sales multipliers.

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Glossary of Economic Impact Terms

Terms are presented in groups within a logical rather than alphabetical order

Region – defines the geographic area for which impacts are estimated. The region is generally an aggregation of one or more counties.

Sector is a grouping of industries that produce similar products or services. Most economic reporting and models in the U.S. are based on the Standard Industrial Classification system (SIC code). Tourism is more an activity or type of customer than an industrial sector. While hotels (SIC 70) are a relatively pure tourism sector, restaurants, retail establishments and amusements sell to both tourists and local customers. There is therefore no simple way to identify tourism sales in the existing economic reporting systems, which is why visitor surveys are required to estimate tourist spending.

Impact analysis estimates the impact of dollars from outside the region (“new dollars”) on the region’s economy.

Significance analysis estimates the importance or significance of an industry or activity to a region usually including spending by both local residents and visitors from outside the region.

Input-output model. An input-output model is a representation of the flows of economic activity between sectors within a region. The model captures what each business or sector must purchase from every other sector in order to produce a dollar’s worth of goods or services. Using such a model, flows of economic activity associated with any change in spending may be traced either forwards (spending generating income which induces further spending) or backwards (visitor purchases of meals leads restaurants to purchase additional inputs -- groceries, utilities, etc.). Multipliers may be derived from an input-output models.

IMPLAN is a micro-computer-based input output modeling system. With IMPLAN, one can estimate 528 sector I-O models for any region consisting of one or more counties. IMPLAN includes procedures for generating multipliers and estimating impacts by applying final demand changes to the model.

Final Demand is the term for sales to final consumers (households or government). Sales between industries are termed **intermediate sales**. Economic impact analysis generally estimates the regional economic impacts of final demand changes. Tourist spending is one type of final demand.

Direct effects are the changes in economic activity during the first round of spending. For tourism this involves the impacts on the tourism industries (businesses selling directly to tourists) themselves.

Secondary effects are the changes in economic activity from subsequent rounds of re-spending of tourism dollars. There are two types of secondary effects:

Indirect effects are the changes in sales, income or employment within the region in backward-linked industries supplying goods and services to tourism businesses. The increased sales in linen supply firms resulting from more motel sales is an indirect effect of visitor spending. \

Induced effects are the increased sales within the region from household spending of the income earned in tourism and supporting industries. Employees in tourism and supporting industries spend the income they earn from tourism on housing, utilities, groceries, and other consumer goods and services. This generates sales, income and employment throughout the region’s economy.

Total effects are the sum of direct, indirect and induced effects.

Multipliers capture the size of the secondary effects in a given region, generally as a ratio of the total change in economic activity in the region relative to the direct change. Multipliers may be expressed as ratios of sales, income or employment, or as ratios of total income or employment changes relative to direct sales. Multipliers express the degree of interdependency between sectors in a region's economy and therefore vary considerably across regions and sectors.

Type I multipliers do not include induced effects while **Type II or Type III** multipliers do.

A **sector-specific multiplier** gives total changes throughout the economy associated with a unit change in sales in a given sector.

Aggregate multipliers are based on some assumed initial changes in final demand. An aggregate tourism spending multiplier is based on an assumed distribution of tourist spending across economic sectors.

Capture rate is the percentage of spending that accrues to the region's economy as direct sales or final demand. All tourist spending on services within the region is captured, however, tourist purchases of goods is generally not all treated as final demand to the region.

Purchaser prices are the prices paid by the final consumer of a good or service. **Producer prices** are the prices of goods at the factory or production point. For manufactured goods the purchaser price = producer price + retail margin + wholesale margin + transportation margin. For services, the producer and purchaser prices are equivalent. The **retail, wholesale and transportation margins** are the portions of the purchaser price accruing to the retailer, wholesaler, and shipper, respectively. Only the retail margins of many goods purchased by tourists accrue to the local region, as the wholesaler, shipper, and manufacturer often lie outside the local area.

Measures of economic activity:

Sales or output is the dollar volume of a good or service produced or sold

Final Demand = sales to final consumers

Intermediate sales = sales to other industrial sectors

Income is the money earned within the region from production and sales. Total income includes

Wage and salary income, and

Proprietor's income, rents and profits

Jobs or employment is a measure of the number of jobs required to produce a given volume of sales/production. Jobs are usually not expressed as full time equivalents, but include part time and seasonal positions.

Value Added is the sum of total income and indirect business taxes. Value added is the most commonly used measure of the contribution of a region to the national economy, as it avoids double counting of intermediate sales and captures only the "value added" by the region to final products.