

Summary of *Quantifying the Economic Impacts of Scenic Byway Designation*¹

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Introduction

America's Byways Resource Center sponsored a study to review how researchers have attempted to measure the economic impact of scenic byway designation. Although many studies exist, they use different methods, variables, and audiences. What do their results mean? Can other byways apply the same studies to their regions? What makes the quantitative data so elusive? Is there a best practice or a standard model for future studies?

The original document entitled, "Quantifying the Economic Impacts of Scenic Byways," dated August 2001, revealed in great detail the formats that have been used to quantify economic impact. America's Byways Resource Center requested the UMD School of Business and Economics Bureau of Business and Economic Research (BBER) to prepare an executive summary of the document. The task included defining terms, identifying findings, and distilling material into a reader-friendly version for non-economists in the byway community.

The resulting executive summary offers individual byway leaders, state coordinators, and other byway partners the tools and information they need to draw conclusions from previous economic-impact research.

Significantly, the BBER executive summary version does not verify any findings of the specific studies reviewed. This document simply evaluates how those studies were constructed and why they may or may not help in the in design, implementation, and analysis of future research.

¹ *Quantifying the Economic Impacts of Scenic Byway Designation* by Lisa Petraglia and Glen Weisbrod, with Barbara Koth, Consultant: Economic Development Research Group, Boston, Massachusetts. Draft date: August 2001

Overview

What Was Studied?

Quantifying the Economic Impacts of Scenic Byway Designation analyzed 21 byway impact studies. In addition, the analysis included several studies relating to national parks and non-scenic byway highways. The non-scenic highways and national park studies were not reviewed in the *Quantifying* document.

Half of the 21 studies utilized surveys. Over 70 percent of the studies were conducted for existing byways as opposed to proposed byway designations.

How Do Dollars Flow?

Terms To Know

Economic impact looks at incremental changes due to a byway's existence.

Economic significance looks at the portion of total economic activity in a region that is due to the byway designation.

Economic activity refers to imports brought in from outside the region used or re-sold in the local market.

A well-constructed impact analysis of tourism looks at the dollars that flow into a region from other regions as the base raw data. Further, the analysis considers only impacts on the local region, which means deducting imports. Few of the studies reviewed incorporated these critical elements. The findings of the analysis are summarized in this report under the titles:

- *Increase in Annual Traffic; one study for three byways; Range of Results = 3.4% to 20% increase due to byway designation.*
- *Visitor Group Spending Per Trip; one study; Value = \$104 per trip.*
- *Visitor Group Spending per Day; three studies for five byways; average value = \$32,500.*
- *Extra Visitor Spending with a 1% Increase in Vehicle Miles Traveled; one study; value = \$65,000.*
- *Jobs per \$1 million in Visitor Spending; six studies; Range = 19 to 33 jobs.*
- *Total (New) Business Sales; five studies; Range = \$.074 million to \$1,450 million.*
- *Tax Receipts per \$1 Visitor Spending; five studies; Range = \$.045 to \$.08.*
- *Willingness to Pay; two studies; Values = \$.076 per car in one study and \$1.06 in annual sales tax in the other study.*

General Recommendations

A Dollar's Ripple Effect

Term To Know

A multiplier traces the rounds of spending that occur when a new dollar enters the region.

A total multiplier can be broken into three effects:

- (1) Direct effect
- (2) Indirect effect
- (3) Induced effect

Whether or not a multiplier should be reported depends upon the purpose of the study. Social, environmental and related impacts should be included in any economic impact analysis. Resource allocation decisions should not be based on economic impact alone. The reviewers offered several recommendations based on their analysis of the existing studies:

- Identify the mix of trip purposes
- Determine the incremental effect of scenic byway “designation” on traveler spending
- Determine the average travel group spending per trip
- Determine the allocation of trip spending (by commodity and place)
- Determine the portion of the incremental increase in non-resident byway visitors
- Determine how many new trips linked to designation occur annually
- Decide if a multiplier analysis would be useful to the effort (note: not from original review analysis)

A Closer Look

More Details

The review looked at 21 economic impact studies related to the designation, improvement, or existence of scenic byway highways. In addition, the review looked at similar studies conducted for national parks and non-scenic byway highways. The primary goals of these reviews were to look at study outcomes and suggest a “best practice” approach to future impact assessments of scenic byways.

About half of the 21 studies used surveys. Many of those employing surveys also used data from government and private sources. The other studies depended entirely on already available published data.

The surveys were conducted, in most cases, for portions of a year and not for each season. Further, surveys were often administered at a limited number of possible sites. These approaches may pose statistical problems. Because the various reports failed to detail their survey methods, the reviewers could not assess potential statistical weaknesses. Seasonality and sufficient sample sizes are important issues in statistical analysis. However, partial-year surveys and limited sampling were often employed due to budget and/or timeframe limitations. Over 70 percent of the studies were conducted for existing byways. The remaining 30 percent were oriented toward proposed byway designations.

Economic Significance

Many of the studies analyzed the estimated *portion of total economic activity* in the region that resulted from byway designations. This approach measures the *economic significance* of the byway. A major problem with emphasizing economic significance is that this approach fails to measure the additions to economic activity resulting from designation, promotion, and management.

Economic Impact

Another approach is to estimate the *addition to economic activity* resulting from the designation. This approach measures the *economic impact* from highway designation. More specifically, an economic impact value estimates the addition to regional output, value added, employment, or some other similar economic measure that is attributed to such factors as byway designation, a promotion campaign, or effective resource management to maximize the region's economic impact.

A well-constructed economic impact assessment requires several considerations. Economic impact studies look for increases (or decreases) in economic activity resulting from changes in "final demand." With tourism, the most important component of final demand is exports. Exports are measured by money coming into the reference region from other localities outside the region's boundaries. It is measured by money flows, not by where the activity takes place.

Tourists bring outside money into a region. Thus, spending by outsiders is of primary importance. A research effort must first clarify whether the measure is of tourists, recreational visitors, or visitors in general. A visitor analysis would include business travelers, commuters, or other travelers not engaged in recreation. If the question is one of tourism, these other travelers should be ignored.

A well-constructed economic impact assessment also looks only at dollar or employment impacts *on the region being studied*. Take a restaurant for example. Generally, the region didn't produce the crops or livestock, agriculture processing, dishes, silver, or many other components of the served meal. All of these need to be imported to the region. Imports should be deducted before measuring impacts on a particular region. Looking at the impact of total sales often results in misleading and exaggerated interpretations of the results.

The reviewers found that only five of the 21 impact studies attempted to differentiate between categories of spending, such as local traffic versus out-of-region traffic. Even when the visitor's point of origin was obtained in a survey, it was rarely used in the analysis.

Traffic Considerations

Some studies used traffic growth as a measurement. Traffic growth occurs for reasons other than the scenic byway. Increased population levels, gasoline prices, increases in economic activity due to the location of new production facilities, and other factors are also important. To adequately measure tourism, the visitor must have the highway

designation as his/her primary reason for coming to the region. For example, if a visitor goes to a city with professional sports, and the visitor opts to see the game instead of eating out, it is incorrect to list the visit as being the result of the professional sport. It is just a choice - a transfer - as far as impact analysis is concerned.

Study Findings

The impact studies were quite diverse in their approaches to estimating trips, new trips, and per-trip spending. The review authors did not verify the results, but instead discussed the diverse approaches and described their key findings:

Increase in Annual Traffic; one study for three byways; Range of Results = 3.4% to 20% increase due to byway designation.

- The one study asked byway travelers if the designation influenced the decision to enter the region. It would be very difficult to compare different byway results from this approach.

Visitor Group Spending Per Trip; one study; Value = \$104 per trip.

- The one study asked, through survey, the number of people in the travel party, the length of stay, and spending by category (accommodations, food service, retail trade, etc.).
- Studies of this type should be sure to report the length of stay and the spending patterns occurred in the region being analyzed, in case a trip has multiple destinations, some of which are not in the study region.

Visitor Group Spending per Day; three studies for five byways; average value = \$32,500.

- These studies utilized national estimates using 12-year-old data from the U.S. Travel Data Center.
- This approach presents many problems. The age of the data, the use of one national estimate for all designated highways, regional definition problems (the data looked only at the corridor and not at a broader market region), and the data do not make clear whether or not a multiplier was applied to direct visitor spending.

Extra Visitor Spending with a 1% Increase in Vehicle Miles Traveled; one study; value = \$65,000.

- Such an analysis hopes that each incremental (1%) increase in miles traveled can be used to estimate increases in visitor spending.
- This approach would not allow comparisons between different localities and would be more useful if local data and parameters could be used. Accumulating local data and parameters tends to be both difficult and expensive.

Jobs per \$1 million in Visitor Spending; six studies; Range = 19 to 33 jobs.

- This approach generally divides total jobs attributable by byway-generated spending. It usually involves a time interval, such as a year. Another possibility involves using an employment multiplier as opposed to other

possible multipliers. An employment multiplier estimates the number of jobs created as a result of one additional job in visitor-related industries.

- The review contends that these studies used a single, regional multiplier that was not related to specific industries. The use of such a multiplier implies that the economy's structure of industries and economic interactions (purchasing and selling) does not change during the pre- and post-designation time interval.

Total (New) Business Sales; five studies; Range = \$.074 million to \$1,450 million.

- The keys are to estimate "new" sales correctly and to have comparability between the before and after time periods for the study.
- Looking at sales overestimates the true impact on the region because imported commodities are included in any total sales estimation (Note: not from the review study.)

Tax Receipts per \$1 Visitor Spending; five studies; Range = \$.045 to \$.08.

- As the title implies, this method looks at tax receipts from various regional sectors (accommodations, retail sales, etc.) as a proxy measure for sales.
- A possible problem is that tax jurisdictions are often different from the boundaries of a study area. Such a condition could make estimates unreliable.

Willingness to Pay; two studies; Values = \$.076 per car in one study and \$1.06 in annual sales tax in the other study.

- The first study used a survey to estimate what people would be willing and able to pay for scenic improvements or highway designation. This approach is termed "contingent valuation" and is often used in cost/benefit analysis. This approach is significantly different from impact analysis. A rather abstract concept, it tries to estimate how people value a particular change in resource allocation. An impact, on the other hand, is the result from any change in resource allocation. Resources include land, labor, physical capital, and enterprise. (Note: Not from the review study.)
- The second study used sales tax receipts in a similar manner to the approach discussed immediately above. The key to this approach is to attribute the tax changes to a change in the number of visitors or to visitor spending levels.

Issues To Consider

The studies reviewed demonstrated three general problems:

- (1) The reviewers had difficulty noting which impact measures should be used and what range of results is most appropriate.
- (2) There is a high possibility of misuse of the studies since the various studies used different measurements and often did not disclose statistical tests for potential data problems.
- (3) If the studies do not take both traffic volumes and visitor frequency into account, the results cannot be used for prediction.

More On Multipliers

Impact studies often use multipliers to estimate the total impact from an initial change in spending. One might ask, “What is a multiplier?”

There are many types of multipliers. The most detailed of studies would report multipliers for industry designations (sectors) within a study region.

Term To Know

Intermediate sales and purchases refers to industries buying from and selling to each other within a region.

In any region, industries generally buy from and sell to one another. For example, an attorney may sell his/her services to a local bank. The bank may provide services for a retail store. And so it goes. These local industry interactions are called intermediate sales and purchases.

The assumption is that when one local industry finds its sales expanding, it will need additional intermediate products and services from other local industries. In this way, attorneys and banks may find expansions in their sales levels when local hotels and motels find their sales increasing as a result of increased visitor traffic. These secondary sales lead to third level sales as well, since an increase in banking service levels lead to the banks dealing, perhaps, with local attorneys. If the attorneys buy from a local office supply firm, another impact is generated.

This approach usually divides economic impacts into three categories:

- (1) Direct effects, which measure the first round of impact on, say, hotels and motels, as a result of an increase in sales to visitors after byway designation. It is the initial change in spending with no multipliers applied.
- (2) Indirect effects, which include the suppliers to the initial industry.
- (3) Induced effects, which represent the extra local consumption spending by households because of new income generated by increased tourist traffic.

Several software packages are available for constructing industry-specific multipliers. Researchers should use these packages carefully, since the programs will give results even if the inputs are incorrect. One example of incorrect inputs has already been mentioned, that being the sales vs. strictly local nature (retail margin) of the region’s output.

The impact researcher also needs to be very careful in making estimates for the reference region’s industrial capacity. If the local hotels, motels, restaurants, etc., have significant excess capacity before the highway is designated or an infrastructure change is made, they may accommodate capacity increases without new employees or new construction.

The usual assumption is that all local industries are at capacity so that any change in economic activity will require changes in employment and capacity. This assumption leads to overstating the true impact.

Eight of the 21 studies referenced multipliers in one way or another. The remainder looked only at the direct effects from the existence or change in byway designation. Whether or not multipliers should be used depends on the purpose of the impact assessment. For example, multipliers can be useful in a tourist impact study where the model applies sector-specific multipliers to individual spending categories.

Non-Economic Impacts

Economic impact should never be the sole determinant of a byway's success. Designation produces many social and environmental effects, and the authors of the review argue that these non-economic factors should be identified as a part of the impact analysis and not as an afterthought.

Building Upon the Earlier Byway Economic Impact Study Efforts

The review authors recommend six methodology elements needed for an accurate impact assessment:

- *Identify the mix of trip purposes.* This helps the researcher determine how many trips were actually generated by increased tourist traffic and how many were commuting, drive-through trips, or some other factor not related to the byway.
- *Determine the incremental effect of scenic byway "designation" on traveler spending.* The key here is to determine the extent of new tourism to the region, in effect, shifting dollars away from other locations.
- *Determine the average travel group spending per trip.* This actually represents the direct effect described above. Looking at groups as opposed to individuals brings a more accurate estimate of the generated impacts.
- *Determine the allocation of trip spending (by commodity and place).* This allows the researcher to determine the local impact due to the byway designation when the byway is not the primary purpose of the trip.
- *Determine the portion of the incremental increase in non-resident byway visitors.* Local spending, unless it is generated by new tourist spending, is not included in an impact analysis unless the spending now stays home rather than occurring in other regions. Such a procedure allows the researcher to estimate the new trips due to the byway's existence.
- *Determine how many new trips linked to designation occur annually.* Most of the software and related data are presented on a yearly basis. Therefore, year-by-year impacts are required to adequately utilize the software/data.

Also, decide whether or not a multiplier analysis would be useful to the effort. This implies a thorough consideration of the purpose of the analysis. (Note: Not from original review analysis.)

Can A Standard Impact Study Be Developed?

The “best practice” impact study involves two important considerations. The first is budget. Surveys are generally preferred over strictly secondary data analyses. However, surveys tend to be costly. The estimated cost of a well-constructed survey approach varies between \$25,000 and \$100,000, depending on the sample size, survey detail, and use of professional surveyor services. Professional surveyors are preferred to amateurs, even when amateurs complete training sessions. However, using professionals is usually costly. This represents a three-way trade-off between accuracy, level of response, and budget.

The second consideration is purpose. If there is reason to compare results between different regions, and if multipliers are involved, common software input-output systems would be preferred over each region working independently. Of course, the survey instruments would need common questions for comparisons. If the purpose of the impact study is public relations, legitimate methods exist for reporting results on the high side of possibilities. The most honest approach, however, is a credible analysis that produces results above criticism.

Regarding variables to study, only impacts on the region should be counted. This means that imports into the region should be deducted from total sales. A sales impact is quite misleading.

Ideally, the analysis should include all seasons. Implement a random sample of survey locations and dates for the survey, within each season.

Secondary data analyses pose additional issues. Different states provide different data for such analyses. Carefully examine what data are available prior to designing the impact estimation procedure.

Pay close attention to input-output procedures if the study requires multipliers. The authors of the report designed a questionnaire and made suggestions based in IMPLAN, an input-output software system for estimating impacts. This is certainly a valid approach, although other software applications are available should IMPLAN not be satisfactory for some reason. Notably, IMPLAN provides results even when bad data are used or data are used incorrectly. If the researchers are not familiar with input-output analysis, they should employ someone knowledgeable about the model and the software used to estimate impacts. Avoid the GIGO possibility (garbage in - garbage out)! This report suggests several reasonable procedures for an impact analysis that byway organizations will find useful for producing more credible, accurate assessments.