Assessing the Economic Impact of Sport/Recreation/Cultural Events/Facilities:

A Guide

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INTRODUCTION

The aim of this document is to provide information that will increase the understanding of recreation practitioners as it relates to the economic impacts of recreation events. The document reviews the fundamental concepts associated with economic impact analysis and provides a step by step process that will allow recreation practitioners to conduct economic impact assessments of events held in their community.

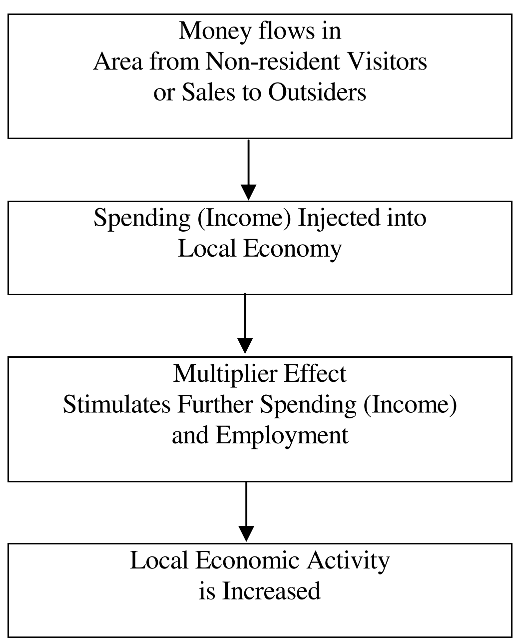
This *Guide* is divided into nine sections. Section one provides an over view of the economic impact process. Section two relates economic impact analysis to recreation and tourism. The third section deals with determining the scope of an economic impact assessment in terms of identifying the region of study and event visitors. Section four outlines a data collection framework. Section five reviews the elements in estimating total direct expenditures from visitors to an event. Section six looks at methods of capturing the multiplied effects of visitor expenditures on the local economy. The seventh section relates to conclusions and study limitations. Section eight outlines economic/social benefits benefits/costs that can result from events. Section nine examines common sources of error in economic impact analysis.

SECTION 1: WHAT IS ECONOMIC IMPACT ANALYSIS?

Economic impact analysis involves estimation of economic activity that results from a specific event, facility, government policy, etc (economic stimulus). The basic premise underlying such analysis involves identifying economic activity in a given area (community/county/province) that can be attributed to a particular economic stimulus, activity that would not take place in absence of this stimulus. In other words, economic impact analysis involves the measurement of incremental economic activity. Such incremental economic activity is most often measured in terms of changes in expenditures (sales), income, employment and tax revenues. Other variables that have been used include population growth, tax rates and property values.

Recreation events held at local facilities attract visitors from outside the area who spend money in the local economy (on food, lodging, souvenirs, etc.) thereby generating (via direct, indirect and induced effects) increased local incomes. Local economic impacts result directly when visitor expenditures are received by local businesses. Indirect impacts occur as business recipients of visitor expenditures spend a portion of these receipts on local goods and services. The induced impacts are produced when employer and employee incomes (profits, wages and salaries)

Figure 1.1 The Impact of Visitors on Regional Economic Activity



generated directly and indirectly from visitor expenditures, are respent in the local economy. The increased income respent in the local area generates greater revenues for local businesses, which in turn generates additional employer and employee incomes and more respending. Indirect and induced impacts are often lumped together and simply referred to as indirect effects. The basic sequence of events relating an injection of funds into a local economy and the resulting impacts is shown in Figure 1.1.

A key concept in economic impact analysis relates to the establishment of the geographical/political/economic boundaries used to delineate the area (region) that will be studied. Impact study areas can range from individual (or groups of) communities, counties, provinces or countries. Impact regions are most often defined by geopolitical boundaries because that is how governments collect and organize relevant (socio-economic, demographic and political) data. Definitions of the impact area may be influenced by economic criteria in terms of identifying businesses/industries and households that will be impacted, or aggregating communities or counties that together represent a distinct economic region (often referred to as "functional economic unit"). However defined, the study region will most likely be transformed into one of political delineation (based on community/county, etc. boundaries) for the purposes of data collection and identification in the minds of consumers, businesses and governments.

From the broadest of perspectives, net economic benefits occur only through improvements in economic efficiency (more effective use of the resources available to society at a given point in time). Conceptually, increased expenditures by visitors to one region must be offset by reductions in spending in the region(s) where these visitors previously spent this money. For example, suppose by hosting some event, Community A captures an additional $1 million in expenditures from visitors who previously spent their money in Community B. Community A is impacted positively by capturing additional expenditures, while Community B is impacted negatively by losing the same volume of spending. If we define Community A as the study region (and ignore any impacts occurring beyond the region of study), the impact on expenditures is plus $1 million. If we define Community B as the study area, (and similarly ignore impacts outside of Area B) then the impact is negative $1 million. However, if we define the impact area as Community A and B taken together, then there is no economic impact because there has been no change in total spending in the study area. Incremental expenditures in the study area are zero, there has simply been a transfer of spending from Community B to Community A and the total level of spending in Area A and B combined is unchanged. Money originating outside the study area (for example visitor expenditures) is new money in a local economy and has the ability to increase area sales, income and employment. Money originating from within the local economy (for example resident expenditures at a local event) does not represent an impact because it is simply a reallocation of spending that would have occurred in the local economy even in absence of the event.

Impacts versus transfers are therefore dependent on the definition of the study area as it relates to economic activity originating from within this region versus that originating from outside of this region. The reality of course, is that every province/county/community is most concerned with increasing economic prosperity in their particular jurisdiction. Indeed each of these levels of government compete with corresponding levels of government from other locations in term of attracting new industries, tourists or government spending. This is their mandate and they are responsible to the taxpayers of their constituency. There is often little concern for those in other competing jurisdictions when it relates to attracting industries, visitors or government spending. It is therefore a perfectly legitimate exercise to analyse the economic impacts on area of any size, just as long as that area is clearly defined. For most economic impact studies, calculating the economic impact on the local economy (however defined) is the only concern. The geographical distribution of visitors and the economic impact on the region(s) of origin of these visitors is of little concern.

SECTION 2: ECONOMIC IMPACT ANALYSIS: HOW DOES IT RELATE TO RECREATION/TOURISM?

There exists a multitude of reasons for, and uses of, economic impact studies. Such analysis has been applied to sports franchises and facilities, tax policies, industrial subsidies, recreational and cultural events and festivals, fishing and hunting activities, and state parks, to mention a few. In general, economic impact analysis represents a method to assess the effects of and a specific economic stimulus on a given area, in the form of incremental expenditures (sales), income, employment or taxes.

Special events held at local facilities attract visitors from outside the area who spend money in the local economy (on food, lodging, souvenirs, etc.) thereby generating (directly and indirectly) increased local incomes. The increased income respent in the local area generates greater revenues for local businesses, which in turn generates additional employer and employee incomes and more respending. This process continues with ever decreasing amounts being respent in the local economy as a portion of spending "leaks out" (is respent outside the local area) in each successive round of transactions.

Summing all the spending (direct, indirect and induced) generated by visitors captures the total local economic impact. Since the succession of respending cannot be directly observed, and is therefore not known, it must be estimated using the multiplier concept. Multipliers relate changes in visitor spending in the local economy to changes in local area expenditures, incomes, employment, etc. The size of the multiplier is specific to the region under study, as it depends upon the area's size, internal economic structure and industrial and commercial linkages to the surrounding localities.

With the ability to capture the effects of a change in the demand for goods and services in a region, economic impact analysis can provide critical information on the efficacy of economic development policies. Such analysis therefore represents an important policy tool which can be used to assess the effectiveness of recreational facilities and events in increasing local economic activity.

Many community special events and facilities are subsidized in some form by the public sector. One of the rationales provided for such funding is the economic benefits such events can provide in terms of capturing visitor expenditures and increasing local incomes. Such a rationale is vogue in today's economic climate, given the desire of many communities to diversify their economic base via increasing tourist visitations and related expenditures.

Fiscal restraint, at all levels of government, and the consequent scarcity of tax dollars for economic development, have meant increased scrutiny of public funding for special events and facilities. Such scrutinization has proliferated the use of economic impact analysis to justify public money for these activities and venues. If economic impact analysis is to play a role in guiding public policy as it relates to recreation, it is paramount that the procedures and underlying assumptions of such analysis be understood by recreation practitioners.

In a world of scarce and often diminishing fiscal resources, there is a need for recreation practitioners to be able to successfully compete for funds at all levels of government. Most individuals involved in providing recreation feel the constant pressure to justify the impact and value of recreation services relative to other segments of the town/municipal/provincial budget. One of the criteria used to evaluate the use of public funds is their "economic impact." Consequently, there is a need for those involved in recreation to know the significance of their services in terms of these economic impacts on their community. With such information, practitioners can illustrate that recreation services have the ability to make significant economic contributions to the local economy. Knowledge of the economic impact process and the ability to conduct credible analysis, can increase the ability of recreation practitioners to successfully secure funds to meet their service demands. Use of such knowledge to demonstrate the economic benefits generated by recreation events gives practitioners another tool to educate government officials and the public at large, so that budgets more accurately reflect the importance of recreation to local communities.

SECTION 3: TASK ONE - DETERMINING THE SCOPE OF THE STUDY

Economic impact studies have been conducted on a wide variety of events and have employed various methods of analysis. These studies do, however, share in common, the goal of isolating the economic impact of these events on the chosen area (community, county, etc.).

Events that attract visitors affect the economic vitality of a region. Spectators and participants spend money on food, lodging, souvenirs, transportation, etc. In some cases the event itself makes purchases such as rent, payroll, utilities, police protection and garbage pick-ups, etc.

While the purpose of an economic impact analysis may be clear, the most appropriate method for conducting it, often is not. Different methods of analysis occur for a wide variety of reasons. Two prominent reasons are: 1) cost considerations, and 2) the differences in the types of events being studied.

Every attempt to increase the comprehensiveness and accuracy of the study will increase the costs (expressed in time or money). A balance must be struck between the resources that can be assigned to a study and the desired (or necessary) degree of accuracy. Also, variety in the nature of the events studied necessitates employing different approaches in determining the economic impact. Consider some of the differences. Many events occur in a single day and in one place where attendance is easily estimated. Other events are a kaleidoscope of activities spread out over a wide geographical area and which span a week or even a month.

While no single method of analysis is applicable to measuring the economic impact of events, the following describes some of the key issues that are relevant for most methodologies.

What is the Appropriate Region for the Analysis?

The appropriate region could be the city, county, or even the province where the festival is held. The appropriate region often depends on the size of the event. It also may depend upon data availability. A multiplier which is available for the province or the county may not be suitable for the city or some area of the community/city where the event is actually located. Researchers armed only with the multiplier for the province may assume the province was the appropriate region and investigate the effects of that festival on the entire province.

In other cases, researchers estimate multipliers for the region of interest. To do this requires certain data on sales/employment/consumer spending, etc., be available. In these cases, the region for which these data may be available (or most easily collected) helps to define the region.

In defining the study region, the researcher must use other criteria beyond data availability or data collection considerations. First, how far does the impact of the festival really reach? Second who are the interested parties, or who is paying for the study? While the effects of the festival may spread some distance, the local supporters of a festival may want only to show the effects of this event on the local community or even on a narrow segment of the community. In other cases, they may want to emphasize the spillover of benefits into other communities in an attempt to gain broader support.

In summary, the availability of critical data, the extent of the impact of the festival, and the tastes and preferences of the sponsors of the research are all important determinants of how one defines the appropriate region of study.

Who Are the Visitors?

Once the region is defined, it is usually an easy matter to decide who the visitors are. Firstly, people are defined as visitors not only because they reside outside the region, but more basically, because they are bringing in dollars that are usually spent elsewhere. Therefore, a resident of the neighboring community who usually spends his money in the event community, may not be identified as a visitor for purposes of the study. Secondly, the visitor trips to the area must be related to the event being studied. People traveling through the area that just happen to attend the event, can be classified as visitors only if their stop and related expenditures are due to the event. Care must be taken to ensure that impacts are not inflated by improperly classified visitors.

Isolating Event Visitors Expenditures

The question of isolating visitor versus resident expenditures arises because local spending by residents would have occurred in absence of the event. Counting all their expenditures leads to an overestimate of the impact of the festival. Most people have budgets, and if they spend a little more today on, for example, dining out before or after an event, then they are apt to spend a little less tomorrow, or next weekend, or next month. In that sense these locals are probably altering their timing of expenditures as a result of the festival and are not adding to the net spending of the community. One may argue, however, that to the extent that people permanently draw down savings to finance these event expenditures there may be some permanent effect as they shift dollars in their entertainment budget to the local area rather than to more distant recreation spots.

SECTION 4: TASK 2 – DATA COLLECTION

2.1 Data Collection Strategy

The objective is to measure how much local economic activity has been increased by the event. That is, compare the value of sales (or income) during the period of the event to the value of sales (or income) which would have occurred without the event. Since the latter magnitude is not observable this usually leads to the use of surveys.

Two basic types of surveys have been employed. Most widely used is the consumer, (event visitor) survey. Here, questionnaires are used to discover incremental spending in the region directly connected to the event. This spending comes from visitors to the region whose appearance has been motivated by the event. By asking this group directly how much they have spent, we can obtain an estimate of the direct economic impact of the event.

The second basic type of survey is the business sector survey. Here the focus is on area firms and by how much sales changed owing to the event. For example, sales revenues during the event are compared to revenues for a period preceding or following the event. Comparing sales for years prior to a event to same period sales for years when the event was in existence, is another way to estimate sales resulting from the event.

While surveys of visitors and local firms have been employed in impact analysis, they both have deficiencies. Firstly, not all people attending events are always willing or able to provide accurate spending estimates. Careful attention to survey design and sampling techniques can reduce this problem. Secondly, most merchants are simply not willing to provide sales data. Furthermore, how comparable are sales data prior to/after the event? Are there seasonal variation in sales or other events/attractions in the community, or in surrounding communities that could influence sales during these periods? These are just a few of the questions that arise in a “what would have happened” scenario. Previous efforts have shown the desirability of obtaining spending data via a survey of consumers (visitors) as opposed to sellers (firms). If data collection costs are not an issue, surveying both visitors and local firms is desirable since each serves as a cross-check of the accuracy of the other (expenditures by visitors should equal incremental local business receipts).

2.2 Data Collection Instrument(s)

Survey Tools

Diaries

There are a number of survey tools that can be used to gather data from visitors. Some of these tools are discussed briefly in what follows.

A diary format for continual recording of spending is the most accurate method of obtaining expenditures. Diaries require minimum recall on the part of respondents since a running record is kept of spending, which is advantageous if highly detailed information is sought. However, there are two major shortcomings:

- Having to record expenses may change the tourist’s spending habits, which biases total tourist spending estimates;
- The response rate (getting people to participate) tends to be low since few vacationers would welcome an additional chore (innovative incentives might offset this problem).

It is reasonable to suspect however that certain personality types are more likely to keep diaries. Others are more likely to refuse. Their personality differences might also be reflected in spending behaviour.

Exit Interviews

A second method of gathering expenditure information is to interview people as they leave the area. In an “exit interview” people are asked to estimate either their total expenditures for the entire period spent in an area or for their last day. Since fewer people will refuse to complete an exit interview, you can expect to find a more representative group of respondents for this type of interview than for diaries.

However, people will tend to forget the details of their expenditures. Even when you ask them to consider the entire time period spent in your area, they will remember better the expenses from the last day than from earlier days.

If persons are interviewed at the end of their trips, accuracy can be reduced as people are forced to remember what they had spent on previous days (recall error). If persons are interviewed prior to the end of their visit, they are forced to project expenditures they will make during the rest of their visit.

Mail Surveys Completed at Home

A third alternative is to send questionnaires to the visitor at their home. Mailing addresses can be obtained via to a random sample of registration data, or from random intercepts of visitors (where the interviewer obtains the respondent's permission to send them a survey and their mailing address).

This type of questionnaire typically gets a higher response rate than the diary, but a lower response than exit interviews. Also, the time lapse increases the tendency to underestimate actual expenses.

This approach can be used in conjunction with the personal interview approach, but where the interview includes only basic information and the distribution of surveys to be completed at home and returned by mail.

Telephone Surveys

A fourth alternative is to obtain telephone numbers (along with permission to call respondents upon completion of their trip) and complete telephone interviews soon after their visit. This type can show improved response rates over mail surveys but can be expensive. Recall error is a problem with this technique.

Important Note

Listed below are a few critical elements that should be contained in the data collection instrument. The details and rationale for this information is contained in the next section on data collection. The data collection instrument should:

- Identify purpose of trip. Breakdown expenditure by type: accommodation/restaurant meals and beverages, etc.

- Geographical location of expenditures (inside/outside study area).
- Breakdown visitors by type: participant/accompanying participant/spectator, use/not use accommodations, type of accommodations, length of stay, etc.
- Identify the party for whom the expenditures refer (single person respondent/those traveling/staying together, etc.

2.3 Data Collection Strategy

The Necessity of Surveys

Spending figures for event visitors are not known and therefore require estimation. As mentioned previously (under Data Collected Strategy) this requires a survey of visitors. For events that have a small number of participants and that are held in a concentrated geographical area, surveying all event related visitors may be feasible. If this is the case, summarizing visitor expenditures across all the surveys provides an estimate of direct spending by visitors.

In most cases a survey of all visitors is not feasible, cost effective or necessary. This is because obtaining expenditure for a sample of event visitors (carefully chosen and of sufficient size) can allow accurate estimation of spending by all visitors.

Sampling Theory

The process of using the characteristics of a sample to estimate the characteristics of the group as a whole (population) is known as statistical inference. The validity of such inference is based on a critical assumption. That assumption is that the characteristics (spending behaviour, in economic impact analysis) of the sample of visitors, is representative of the spending behaviour of the population of visitors (including those who were not surveyed). If this assumption is not valid, a source of error has been introduced into estimating total spending by this group of visitors based on the spending patterns of the sample. For instance, if the sample produces an average expenditure figure that is significantly greater than the actual (unknown) average for the entire group, then inferring the sample mean onto the population will significantly over estimate total spending.

It is important to keep in mind that a sample is not likely to produce an estimate of average expenditure that is exactly equal to the average expenditure of the entire group. Even if the sample closely reflects the population, some difference (known as sampling error) would be expected to exist. Given this, the goal is to produce an estimate of average expenditures from the sample that is within an acceptable range (known as the confidence interval) of the population expenditure mean. The confidence interval is usually expressed as plus or minus so many dollars around the average expenditure estimate. For example, average expenditure is estimated to be $100, plus or minus $10.

Appropriate sampling techniques are designed to increase the probability that a sample is an accurate reflection of the population (group as a whole) as well as produce statistics (mean expenditure for example) that is within an acceptable range of the true (unknown) mean. It is important to note however, that there is always a chance that the sample selected will not accurately reflect the characteristics of the entire group from which it was selected. In other words, despite satisfying all underlying assumptions and employing proper sampling techniques, the sample of people selected turned out to be significantly different than the population (i.e. you just happened to be unlucky and get a bad sample). The degree of confidence that the sample does accurately reflect of the population is known as the confidence level.

When inferring the characteristics of a sample onto the entire population from which the sample was selected, there are two key issues, namely:

1. Sample size.
2. Obtaining a representative sample.

These issues will be discussed in what follows.

Sample Size

Collecting valid information through sampling requires careful planning, including determination of appropriate sample size. Suppose a recreation practitioner desires an interval estimate of average daily expenditures for visitors to a slow-pitch tournament. An investigator reports that average daily expenditures are between $20 and $100 with 90 percent confidence (confidence levels will be discussed later). The recreation practitioner replies "twenty to one hundred dollars - I could have guessed that!" The point being that the interval (range) must be small enough to be useful. In taking a sample, the sample size must incorporate the informational needs in terms of the maximum (acceptable) error in estimation and the confidence level.

Confidence levels are expressed in percentage terms, the most common being 90%; 95% and 99%. The confidence level simply reflects the proportion of sample means that are included within Z standard deviations of the mean in a sampling distribution.

In other words, a 90% confidence level says that an interval of ± 1.64 standard deviations around the mean will contain the actual (but unknown) mean 18 times out of 20 (90%). Similarly, a 95% confidence level says that a confidence interval of ± 1.96 standard deviation around the sample mean will contain the actual mean 19 out of 20 (95%).

The key point here is that the wider the confidence interval, the greater the confidence level that the actual falls within this interval. However, the wider the confidence interval, the less precision associated with our sample mean (the larger the maximum acceptable error in estimation).

A formula for calculating the sample size (η) required to estimate μ, the sample mean (average) with a maximum error in estimation (acceptable range) and confidence level (proportion of sample means that are included within a given range) in a population with a given standard deviation σ is shown below:

$$\eta = \frac{Z^2\sigma^2}{\left(\bar{X} - \mu\right)^2}$$

where

Z = represents standard deviations from the mean associated various confidence levels.

99% confidence level $Z = 2.58$
95% confidence level $Z = 1.96$
90% confidence level $Z = 1.64$

σ = population standard deviation.
This figure will not be known so estimate it by using one of the following:

1) Make use of previous, completed comparable study data that calculated the standard deviation.

2) Do a pilot (10 - 20) sample and use the resulting standard deviation.

3) Make use of previously completed comparable study data by taking the range of values (difference between highest and lowest) and divide by four.

4) Estimate the expected range of values and divide by four.

$\bar{X} - \mu$ = maximum error in estimation.

This is the acceptable margin of error associated with the mean. ($\bar{X}$ is the population mean which is unknown until the sample is taken, μ is the unknown population mean, that is the actual mean including all those who were not sampled).

The maximum error in estimation is chosen by the researcher, for example, if I estimate that average daily expenditures are $75 per day, I may be willing to accept an error of ± 7.50 (between $67.50 and $82.50) which says the acceptable error is plus or minus 10% of the mean value.

Example

You want to calculate the required sample size associated with daily visitor expenditures to an adult hockey tournament. You select a 95% confidence level. Previous studies indicated an average daily expenditure of $50 with a standard deviation of $75. You are willing to accept a maximum error in estimation of ± $10 (± 20% of the mean).

$$\eta = \frac{(1.96)^2 \ (75)^2}{(10)^2}$$

$$\eta = 216$$

You would need a sample size of 216 responses. Note that if you decided that the maximum acceptable error in estimation was $5, you would need a sample size of over 800.

The investigator has control over two of three quantities that influence sample size. The variability of items in a population is inherent; therefore, the investigator cannot exercise control over the value of σ. But the maximum error in estimation and the confidence level can to some degree be controlled by the researcher. Reducing the maximum error in estimation, while holding the confidence level constant requires increasing sample size. Also, increasing the confidence level, while holding the maximum error in estimation constant requires increasing sample size.

A serious statistical error is underestimating the sample size necessary to provide reliable estimates. Conversely, overestimation of a sample size is a problem (not in terms of the reliability of the estimate) but that it brings extra costs of producing, administering and analyzing questionnaires without increasing the reliability of the estimates by a significant degree. Sometimes the only resort is to obtain as many responses as possible within a reasonable budget and report the reliability of the estimate. The reliability is expressed in terms of the standard error of the estimate, i. e. ± so many dollars. This amounts to solving for maximum error in estimation from the given formula since η is fixed by the number of surveys actually collected.

A Representative Sample

As mentioned previously, statistical inference requires that the characteristics of the sample are representative of the population from which that sample was taken. For example, suppose we want to identify average expenditures by non-Wolfville residents at Acadia home football games. Since we don't need to sample all home games, the question arises as to which are representative. Perhaps big spenders only come to watch the intense rivalries, or only when its sunny and warm, or only to watch wining teams.

To get a sample that is representative of the population of all non-Wolfville residents attending the games (unbiased), one must take samples at games where there are teams of various quality in good weather and bad. Care must also be taken in assigning survey personnel to different areas of the stadium. If all the surveys were taken from people sitting in the most expensive seats, then certainly the results would be biased.

A representative sample takes careful consideration. It is inadvisable to have a sample which is too small but wasteful to have one that is too large. Just as important as the number of surveys completed, are efforts aimed at ensuring that the information given in the sample is representative of the group as a whole. In surveying event visitors, relavant variables to consider in insuring a representative sample include; weekday versus weekend; distance travelled; use of overnight accommodation; type of accommodation; weather; age; gender; with/without family, etc.

If the sample chosen is truly random, (every respondent has an equal probability selected) and of sufficient size, then the proportion of visitors of different types (and related differences in expenditures) identified in the sample can be inferred onto the group of visitors as a whole. In other words, if our sample indicated that 20% of repondents require overnight accommodation,we can infer (with a certain degree of confidence) that 20% (plus/minus the confidence interval expressed in percent i.e. $\pm$ 2%) of the population of visitors require accommodation.

In surveying event visitors, it can often be useful to use past experience or registration data to identify visitor types prior to conducting the survey and then to adjust our survey efforts to ensure that a sufficient number of each type is sampled. This is known as stratified quota sampling or segmented analysis.

For a segmented analysis, visitor surveys are stratified by segment (type). The most efficient sampling design for estimating spending will apportion sample sizes across segments according to the size of the segment and the expected variation in spending within each segment. Those segments showing larger variation in expenditures will require larger sample sizes to ensure reliable estimates. There is, however, a tradeoff here if same survey is used to estimate the proportion of visitors falling within each segment. Simple random samples are often needed to estimate segment shares, while disproportionate sampling across segments is often called for to efficiently estimate spending. A common situation is large numbers of visitors with low spending (day visitors) and small numbers of visitors (staying over night) with relatively large spending. A simple random sample yields good estimates of day users, but doesn't contain enough overnight visitors to adequately estimate their spending. If one targets overnight visitors for example, by sampling in motels and campgrounds, there may be no way to estimate the proportion of visitors who stay overnight.

The solution is usually to employ distinct sampling designs to estimate average spending vs. segment shares. If segment shares can be estimated from secondary sources, then the spending survey can be designed just to estimate segment spending profiles. If not, one can use a simple random sample to estimate segment shares and after screening for segment, gather spending information only from a sub-sample of each segment according to a quota system.

It can be problematic to obtain adequate sample sizes for each segment to provide reliable spending estimates across all segments. This problem depends upon the degree of segmentation (number of visitor types) and the total number of surveys completed. Reducing the number of segments (visitor types) can effectively increase the number of survey responses for each segment and increase the reliability of estimates for each segment.

SECTION 5: TASK 3 - ESTIMATING TOTAL DIRECT VISITOR SPENDING (DIRECT ECONOMIC IMPACTS)

Analysis of an event's economic impact requires identification of visitor's (non-local participants/spectators, etc), direct expenditures. This usually involves identifying the number of persons who come from outside the study area (visitors) to attend the event and estimating the associated expenditures.

The basic methodology for measuring visitor expenditures involves the following:
- Identifying the number of visitor to the area because of the event.
- Separating the Visitors by Type.
- Choosing a Unit of Analysis.
- Identifying Spending Categories.
- Surveying Visitors.
- Calculating Total Visitor Spending.

3.1 Identifying the Number of Visitor

Accurate estimation of total visitors spending cannot be achieved without reliable figures on the number of event visitors (non-local participants, spectators, etc.). Estimating the number of visitors to an event most often involves calculating total attendance and estimating (via survey data) the percent of the total comprised by visitors.

The difficulty associated with estimating the number of persons attending an even depends upon the nature of the event and associated venue(s). Deriving attendance at events held at enclosed facilities such as arenas, theatres, stadiums, etc. can be achieved via ticket sales, turnstile counts or head counts upon entry. Events held at enclosed arenas but consisting of a number of consecutive games/performances with no admission charge and where people come and go is clearly more difficult. However, attendance counts are still attainable by monitoring crowd size, the number of people who come and go, and asking entrants if this is the first time they have entered the facility that day/weekend, etc. Estimating attendance can be quite difficult for open-access events, especially for ones spread out over several venues.

The number of visitor participants at an event can usually be attained through registration information, a count of participants per team for a sample of teams, extrapolated over the total number of visitor teams, or a count of all visitor participants if feasible. Estimating the number of visitor spectators is more problematic. For a number of recreation events, the majority spectators would be closely associated with participants. Therefore, the number of visitor spectators can be estimated from a survey of participants. Obviously this strategy may not be applicable for all events. A survey of spectators can identify the proportions that are local versus visitors and those associated with visiting participants. Survey data can provide information on spending by both types of visitors.

3.2 Separating the Visitors by Type

Since spending can vary significantly across different types of visitors, it is preferable to estimate spending within defined visitor types or segments. Segments can be defined in several distinct ways, keeping in mind that the purpose of the segmentation is to differentiate spending profiles for the visitor types. Commonly used segments include:

a) Participant vs. spectator
b) Distance traveled
c) Length of stay (overnight visitors vs. day trips)
d) Accommodation type

Visitors should also be segmented by type of transportation if significant numbers use other than private automobiles and recreation vehicles. For example, visitors arriving by air will have spending patterns quite different from auto travelers. After accounting for these segmentation variables, further segmentation by demographic or socioeconomic groups may be useful.

3.3 Unit of Analysis

The units of analysis in recreation and tourism studies vary in terms of:
a) The number of individuals in the group or party
b) The time period covered.

Since recreation events usually encompass a short period of time (day/weekend) it is recommended that party trip be used as the basic unit of analysis for spending. Per day estimates can be derived from party trip estimates by dividing by the length of stay in the area. Direct question regarding average daily expenditures (which would be combined with average length of stay, in days) are complicated by the fact that visitors may be present for fractions of given days (arrival and departure days) and may/may not include these fractional days (or include them in different ways) in their spending estimate.

Operationally, the "party" is generally defined as all persons arriving in the same vehicle or staying in the same room or campsite. A "trip" encompasses the time from when the party leaves their permanent home until the time they return or otherwise terminate the given trip. In estimating impacts on a particular region, spending may be measured from when the visitor enters the region to when they leave.

3.4 Spending Categories

There are two reasons to measure spending within a set of spending categories. First, subjects provide more accurate and complete estimates of spending if spending is itemized within major categories. The categories also serve to identify the kinds of spending that are relevant and should be reported. The measurement of spending within well defined categories will identify the kinds of products and services being purchased, and in turn the types of businesses directly receiving these funds. Identifying the sectors receiving the spending is critical to tying spending changes to a regional economic model.

The type and number of spending categories will vary with the study purposes. For trip spending, the following minimum level of details is recommended:

- Lodging - divided between campgrounds and motel/hotel
- Food - divided between restaurant meals and groceries
- Transportation - divided between auto/RV gas and oil, other auto-related expenses (repairs, parts, etc), and public transportation where appropriate (air, rail, taxi, etc.)
- Recreation and entertainment fees and admissions,
- Souvenirs and other retail purchases.

Note that many recreation events require individual or team registration fees. This is usually measured directly from event registration data.

3.5 Estimating Total Direct Expenditures

It is now time to make use of the data collected (estimated) in terms of: the number of visitors (and visitor types) and the average expenditure in the specified spending categories (segmented by visitor types).

Combining this data allows calculation of visitor expenditure by visitor type and total visitor expenditure by all visitors.

Mathematically we can estimate total visitor spending using the following basic formula, which is a summation of the average spending for each segment times the number of persons in that segment.

$$S_j = N \times \sum_{i=1}^{m} M_j \times B_{ij} \qquad (1)$$

where

$S_j =$ total spending within the designated region in category j, $j = 1,...J$
$N =$ total number of visitors
$m =$ number of segments
$M_j =$ segment i's share of total visits, $i = l,...m$
and $B_{ij} =$ average spending of a member of segment i on category j (the s_{ij} vector is known as a "spending profile").

This approach requires three pieces of information:

1. Total visitors (N) - the information must come from visitation records/estimates.

2. Segment shares (M_j) - the proportion of visitors comprised by each of the different subgroups or segments based on visitor types.

3. Spending profiles by segment (B_{ij}). Spending profiles must generally be estimated in surveys of your visitors. By including the variables that define key segments in the survey, you can generate individual spending profiles for each segment.

As an example, consider the following data from a study on the economic impact of The 1998 Junior National Basketball Championships in Halifax. Table 4.1 below shows the average expenditures (by spending category) for two visitor types (competitors and coaches/managers) obtained via a survey. Note that accommodations are not an expenditure category because players and coaches/managers were housed at Saint Mary's University and the costs borne by the tournament organizers.

Table 4.1

Average Expenditures for Participant Visitors

Expenditure Category	Competitor	Coach/Manager
Restaurant meals/beverages	$6.36	$60.00
Grocery/convenience stores	12.50	20.00
Other retail	17.36	20.00
Gas/auto repairs	3.57	0.00
Tax/car rentals	0.54	80.00
Recreation/entertainment	7.32	0.00
Other	3.57	0.00
Total	**$91.21**	**$180.00**

All ten of 10 Canada's provinces were represented in both the Women's and Men division. This translates into a total of 180 visitor participants and 36 visitor coaches/managers (10 players and 2 coaches /managers per team). Combining the average expenditure figures from Table 4.1 with the total number of non–resident visitor competitors and coaches/managers gives the total expenditures in Table 4.2. Visiting competitors spent a total of $16,420 with spending being concentrated in the Restaurant Meals/Beverages (51%) and Retail Sectors (19%). Visiting coaches/managers spent a total of $6,480 mostly for Taxi/Car Rentals (44%) and Restaurant Meals/Beverages (33%). Total spending for visiting competitors and coaches/managers was $22,900.

Table 4.2

Total Expenditures by Visitor
Competitors and Coaches/Managers

	Competitor	Coach/Manager
Number	180	36
Expenditure		
Restaurant meals/beverages	$8,345	$2,160
Grocery/convenience stores	2,250	720
Other retail	3,125	720
Gas/auto repairs	643	0
Tax/car rentals	97	2,880
Recreation/entertainment	1,317	0
Other	643	0
Total	**$16,420**	**$6,480**

SECTION 6: TASK 4 - MEASURING TOTAL ECONOMIC IMPACTS: (ASSESSING INDIRECT IMPACTS VIA THE MULTIPLIER EFFECT)

The Multiplier Concept

Visitor spending in a community can have a multiplied effect beyond the impacts of the original spending. Multiplied impacts arise from the fact that local businesses, households and government agencies purchase goods and services from one another. Such interaction within the local community resulting from the stimulus of event visitor spending creates indirect or multiplier effects. The multiplier is a number that summarizes total direct and indirect spending effects given a change in the local economy.

Recreation event visitors make expenditures at local establishments, for example on accommodation at a local motel. These visitors therefore generate increased income for the motel. This is, however, not the end of the matter - the recipient of this income will spend a portion for goods and services, some produced locally and some imported. The motel proprietor hires staff buys groceries at the local market and gasoline at the filling station, generating additional local income. These second round recipients will have less of the total to spend than the first round recipients - those who received income from the initial tourist purchase - and third round recipients will have less again because only a portion of respending in each round takes place within the local area.

The result of this "chain of spending" is a multiplier process whereby the local income added directly is multiplied to give the total income created in the community. The difference between the total added income and the income created in the first round and subsequent is known as the indirect impact.

The amount of income generated locally in the second, third and subsequent round of spending is determined by the same considerations as determined the direct impact - the pattern of spending, in this case by local residents, the proportion of income spent on local goods and services and the percentage of these goods and services produced locally. Figure 6.1 takes $200 tourist expenditure into the second round of spending. Taxes are treated as a payment for services performed by outsiders. The $200 in purchases created $100 income for local residents in the first round. They in turn, spend 55% of this, $55 at local shops and businesses. The other $45 goes into savings, taxes or into other communities as a portion of their incomes is spent outside their community. The additional $55 in local sales adds more to local income. Again, however, the addition to local incomes will be less than the amount of the sales. If 40% of the goods and services sold are produced locally, there will be another $22 added to local incomes which will lead to still further increases in local sales and incomes. This process continues with ever decreasing amounts of income being created in subsequent rounds of respending. The process stops when all $200 of the original visitor expenditure has flowed out of the local region. The multiplier is a mathematical way of expressing the relationship between the original visitor spending change and the total of all related respending and income creation

Figure 6.1 An Example of the Impact of a $200 Tourist Expenditure of Local Incomes

First Round-Direct Impact	Second and Subsequent rounds-Indirect Impact
$100 Increase in Local Incomes	$22.00 Increase in Local Incomes Second Round

Tourist Expenditure equals Local Sales $200 ....

$100
50% for purchase of goods and services produced outside the community; taxes

$100 .... equals 50% for local goods → **$100 .... Increase in local income, 1st round**

$45
45% of income: savings; taxes; purchase made outside the community

$55 .... 55% of income spent locally. Local expenditures equals local sales

$33
60% for purchase of goods and services produced outside the community; taxes

$22.....equals 40% for local goods → **$22.......... Increase in local income, 2nd round** → **3rd and subsequent rounds**

Through the use of multipliers, it is therefore possible to estimate the magnitude of the total economic impact resulting from an initial given change in economic activity.

Use of Published Multipliers

Proper use of multipliers is critical for credible economic impact studies. It is suggested that parties looking to complete economic impact studies follow the format laid out in the AVESTA website and obtain assistance in planning and calculating direct and multiplied effects.

Highly aggregated multipliers are available at the provincial level through Statistics Canada. Dr. Brian VanBlarcom of Acadia University has developed a 16 sector input-output model for Kings County, Nova Scotia. This models contains Kings County expenditure and income multipliers for each of 16 industries industries. This model has been usesd for a number of economic impact studies, many are available on the AVESTA website. This model is avaiable for use in conjunction with studies being completed via the AVESTA website. The Canadian Sports Tourism Alliance (CSTA) has conducted a number of economic impact studies related to sports events across Canada using their STEAM (Sports Tourism Economic Assessment Model). Details of the STEAM model and a number of completed studies are available on the CSTA website: http://www.canadiansporttourism.com/eng_home.cfm.
Some other studies examining economic impacts for region of Nova Scotia have made estimates of local multipliers but such studies are few.

Construction of Your Own (Keynesian Type) Multipliers

There are significant data requirements for constructing your own multiplier. Such data include:

- The pattern and volume of visitor expenditure in the region;
- The percentage of goods and services produced locally;
- The percentage of local income that is spent locally.

These data requirement are discussed below. Some of the data requirements may be available through Statistics Canada or Provincial/Municipal Governments or other published sources. Some data requirements may necessitate a survey of households and businesses. Data availability will vary by study region.

Determine Pattern and Volume of Tourist Expenditures

The pattern and volume of tourist expenditures will in most instances be the first type of data collected in evaluating visitor impact. The income that accrues to local residents will depend first on the size of tourist expenditure. Second, the amount of local income created will depend on the level of spending and the pattern of expenditure by the tourist.

Percentage of Goods and Services Produced Locally

Also important is the extent to which different sectors within the local area purchase goods and services from each other. If the local restaurant is able to purchase food from farmers in the region, more of the visitor expenditure will accrue as local income. It is useful to estimate, for sectors important in serving visitors, the percent of each purchase that is produced locally. Survey/interviews of business persons in each sector can provide you with this information.

Your local economic development agency may be able to provide you with an estimate of the percentage of local income spent locally and the percentage of local goods and services produced locally. With these estimates, it is not necessary to trace out each round of spending to approximate the total local income created. Creating the multiplier will allow easy calculation of the total for all rounds.

Calculate Percentage of Local Incomes Spent Locally

Once the percentage of goods and services produced locally has been estimated, the amount of direct income coming into the local area can be calculated. If $100 is spent for lodging, and if 40% of this sum must go to buy goods and services outside the area, only 60% of the $100 or $60 is received as local income. The role of taxes that can partially flow out of the community has been neglected for simplicity. This however, is not the end of the story as a portion of this $60 will be respent in the local area, creating additional local income, which will then be respent thereby creating further rounds of respending.

Multiplier Calculation

Summarized below in a step-by-step fashion is this method of estimating the impact of tourist expenditures on local income using constructed multipliers. A numerical example is included in Table 6.1.

Step 1 Collect data on the volume and pattern of visitor spending. This information will come from your visitor survey.

Step 2 For each sector receiving visitor expenditure, estimate the percentage of sales which remain in the area. Survey/interviews with business persons in each sector can provide this estimate.

Step 3 Determine the percentage of tourist expenditure that directly increases local incomes (A in the multiplier formula). This is a "weighted" average of all sectors where the weights are the percent of the tourist expenditure in each sector.

Step 4 Estimate the percentage of income that local people spend in your community (B in the multiplier formula). Such information may be available through local economic development agencies or it may require a survey of local households.

Step 5 Estimate the percentage of goods and services sold localy that are produced locally (C in the multiplier formula).. Such information may be available through local economic development agencies or it may require a survey of local businesses.

Step 6 Calculate your expenditure multiplier M_E from the following formula:

$$M_E = \frac{1}{1-(B \times C)}$$

Step 7 Calculate your income multiplier MI from the following formula:

$$M_I = \frac{A}{1-(B \times C)}$$

Step 8 Determine the total increase in local expenditure and income by multiplying total visitor spending by the expenditure and income multipliers respectively.

Table 6.1 shows an example of these calculations. For the expenditure multiplier of 1.28, total (direct, indirect and induced) expenditures in the local area rise $128 for every $100 of visitor expenditures. For the income multiplier of 0.64, total local incomes (direct, indirect and induced) increase $64 for every $100 of visitor expenditure.

Please note that while calculating the total increase in local expenditures (sales) is useful, it should not be the variable of focus in terms of the impact of visitor expenditures on the local economy. Where we may be interested in the volume of sales attributable to the tourist expenditure, of more critical concern is the portion of that expenditure which ends up as local income.

Table 6.1 An Example of Calculating the Expenditure and Income Impacts of Visitor Spending

Step	Procedure and Calculation	Source of Information
1	Volume and Pattern of Tourist Spending Total Expenditure — $200 — % of Total Food — 40 — 20% Lodging — 40 — 20% Transportation — 46 — 23% Other — 74 — 37% $200 — 100%	Visitor Survey
2	% of Tourist Expenditure by sector which remains in area as income Food 40% Lodging 60% Transportation 40% Other 57%	Survey/interviews with knowledgeable business persons
3	% of total expenditure that directly increases local incomes. A weighted average of all sectors with the % of tourist expenditure in each sector as weights Food 20% X 40% = 8% Lodging 20% X 60% = 12% Transportation 23% X 40% = 9% Other 37% X 57% = 21% 50% (A in multiplier formula)	From calculations performed in Steps 1 and 2
4	% of local income spent in local community = 55% (B in multiplier formula)	From local economic development agency or a survey of local residents
5	% of local goods and services produced locally = 40% (C in multiplier formula)	From local economic development agency or a survey of local residents
6	Calculate Expenditure Multiplier $M_E = \frac{1}{1-(B \times C)} = \frac{1}{1-(.40 \times .55)} = 1.28$	From estimates made in Steps 4 and 5
7	Calculate Income Multiplier $M_I = \frac{A}{1-(B \times C)} = \frac{.50}{1-(.40 \times .55)} = .64$	From estimate in Step 4 and 5
8	Determine the total increase in local expenditures/income. Multiply total tourist expenditures by the expenditure/income multiplier $200 X 1.28 = $256 $200 X 0.64 = $128	From Steps 1, 6 and 7

SECTION 7: TASK 5 – STATE CONCLUSIONS, ACKNOWLEDGE STUDY LIMITATIONS

This section should provide a summary of the analysis. Clearly state the conclusions of the study and identify the implications/ramification the results may have. Acknowledge the weaknesses of the study and how future research can be improved.

SECTION 8: ECONOMIC AND SOCIAL BENEFITS AND COSTS OF RECREATION - BASED TOURISM EVENTS

This section provides a brief discussion of the economic costs and social benefits and costs to hosting recreation based tourism events. Persons completing economic impact assessments may want to identify/discuss/quantify (if possible) these benefits and costs and include them in the study.

Spectators and participants at sporting and recreation events spend significant quantities of money in a variety of ways. Such events held at local facilities attract visitors (from outside the area) who make expenditures in the local economy (on food, lodging, gas, souvenirs, etc.) thereby generating (directly and indirectly) increased local business sales and incomes. The economic impact of sporting/recreation events on the host community should not, however, imply that such leisure pursuits are valued for their economic worth alone. It is generally recognized that such activities contribute to the advancement of social interaction and quality of life for fans and participants and, generate for the host community, satisfaction and pride resulting from increased community exposure, co-operation and sense of accomplishment. Indeed recreation events in a community not only attract visitors, but can positively influence the quality of life of residents and play a role in attracting individuals and businesses to the area. Proximity to recreation facilities can also have a positive impact on land and property values.

On the other side of the coin, recreation events can generate costs that are sometimes overlooked when assessing economic and social impacts. If visitors are attracted to a community, they will create additional demands on local services. Such cost impacts relate to such things as increased: traffic congestion, traffic accidents, vandalism, need for additional police and security personnel, environmental degradation and refuse collection costs, increased waiting times and higher prices in restaurants and retail establishments, loss of access to recreational facilities and disruption of resident's lifestyles. The degree to which the economic and social costs will result depend upon the area's ability to accommodate additional visitors without over – taxing the local infrastructure.

Incorporating costs into a study changes the economic impact analysis to a benefit – cost analysis. Translating these cost impacts into economic values can be difficult and such translation is often ignored. An economic impact analysis is designed to study the economic effects of additional spending attributable to a recreation event and should be compared with equivalent investments designed to create economic stimulus in other sectors of the economy. Comprehensive analysis of costs may be beyond the scope and/or resources of a given economic impact study. Regardless of this, the economic and social costs of hosting recreational events should be acknowledged.

SECTION 9: COMMON ERRORS IN ECONOMIC IMPACT STUDIES

This section identifies and discusses some of the common errors and omissions committed in economic impact assessment. Some of the errors are quantified using a case study of recreation-based tourism events held in Kentville, Nova Scotia.

There exists a variety of methodological approaches and levels of detail applicable in studying economic impacts. As a result of this variability, suspicion and scepticism of the accuracy in assessing economic impacts has become prevalent. Such scepticism is understandable given that two groups studying the same or similar impact scenario can come up with significantly different results. For example, the economic impact of professional football was estimated to be approximately $13 million in Atlanta in 1972 (Shaeffer and Davidson, 1972) and $200,000 in Baltimore in 1983 (Baade and Dye, 1990).

Errors in conducting impact analysis can occur in a wide variety of ways and at various stages of the assessment process. In what follows four common errors that reduce the efficacy of economic impact analysis will be discussed in turn. The errors to be discussed relate to definition of study area, inclusion of local resident expenditures, focusing on expenditure impacts instead of income impacts, and data collection.

<u>Error 1</u>

Inadequate Definition of the Study Area

The appropriate region for an impact analysis is dependent upon the size of the event. Event size represents a critical element in identifying the area that will likely be impacted. Choosing the appropriate area for the impact analysis necessitates equating the demand for goods and services related to the event, to the supply of these goods and services available at given levels of political aggregation (town(s), county(s), provinces(s) etc.). Often, however, the designation of the impact region is dependent upon the party commissioning the study.

> While the effects of the festival (event) may be spread over some distance, local supporters may want only to show the effects of this event on the local community or even on a narrow segment of the community. In other cases, they may want to emphasize the spillover of benefits into other communities in an attempt to gain broader support (Davidson & Shaffer, 1980, p.14).

The availability of data is also a consideration. Published multipliers are likely available at the provincial level (state or county level in the USA) but not for sub-county regions or for single cities or communities. However, an available multiplier for a province (or even a county) may simply not be suitable for a city or town where the event actually takes place. The applicability depends upon the size of the event and the spatial distribution of the impacts.

The definition of the impact area can have a significant effect on the analysis by having an effect on the following:

1. The level of non-local spending.
    - As the impact area is reduced, non-local spending increases as participants formerly designated as locals, become visitors.

2. Direct spending accruing to impact area.
    - When the impact area is reduced, the direct expenditures captured by local firms are reduced as more sales fall outside the local region.

3. The multiplier.

- If the impact area is reduced, the multiplier is reduced as the economic linkages within the designated area are diminished so secondary spending within the study region declines and secondary spending outside the region rises.

The magnitude of error associated with including local expenditures in the impact analysis was calculated for a 100 team slow pitch event held in Kentville in 1986 (VanBlarcom, 1996). A reduction of the impact area, for this study to include only the town of Kentville (eliminating the surrounding communities) would have the following effects:

1. Number of non-local teams increases from 83 to 92. Non-local visitor expenditure would rise by $5225, an increase of 3.8 percent of the total direct expenditure.

2. All accommodation expenditures would fall outside the impact area, as would an estimated 50 percent of all other expenditures with the exception of registration fees. Total (impact area) direct expenditure would fall to $65,433 from 128,944. A reduction of 51 percent.

3. Reducing the impact area leads to reductions in the size of the multiplier. This occurs because local firms, who sell directly to visitors, will now purchase fewer goods and services (inputs) within the condensed local area. Further, the number of local employers and employees deriving income from visitor expenditures (directly and indirectly) as well as respending their income in the local area will be reduced. As a result, the level of economic activity within the specified local area shrinks. Quantifying the reduction in the multiplier for the reduced local area is beyond the scope of this study, as it would require re-surveying businesses and residents and delineating revenue and expenditure flows among these communities. The income multiplier for the original study area should not be used to calculate the total income effect for the condensed study area. This is because the former reflects the economic structure unique to the original study area.

Error 2

Inclusion of Local Resident Expenditures

Event-related expenditures made by local residents do not represent an injection of new money into the local economy and therefore should not be included in the impact assessment. For this group of participants/spectators, event related expenditures represent a re-circulation of money that would have been spent locally in absence of the event. To the extent that local participants/spectators may increase their weekend expenditures given the presence of the event, they are likely to simply reduce their expenditures in the future; thereby eliminating any net increase in local spending by this group. As Crompton (1995) noted, the economic impacts attributable to special events relate only to new money injected into the economy by visitors from outside the community. Inclusion of local participant/spectator expenditures exaggerates the impact of the event.

One exception to the rule of excluding local resident expenditures in the impact analysis should be noted. If the event keeps residents at home that would have otherwise left the area (perhaps to attend a similar event held elsewhere) then their expenditures should be included in the impact analysis. Such expenditures are considered to be incremental (represent new money) in the sense that it is money retained in the host community that otherwise would have been lost. Identification of such expenditures requires specific survey questions related to this issue to be completed by local residents. Such questions are complicated by the fact that the impact on the local economy relates not to what these locals spent at home during the event but to what they would have spent in going elsewhere. These questions are hypothetical in nature and require projections on behalf of the respondents as to what would have been spent in going to an outside event. Using residents' expenditures related to the event held at home as a substitute for spending at an event outside the community is inappropriate in that they may or may not be equivalent. Differences in spending could result from a number of factors including the nature of the events, the need for transportation and accommodation, etc. The reliability of projected spending at outside events is contentious and many economists recommend that all expenditures by local residents be ignored (Baade and Dye, 1990; Smith, 1989).

The error associated with the inclusion of local participant expenditures for the previously mentioned 100 team slow pitch tournament in Kentville is calculated below. Table E2.1shows local participant direct expenditures were $7,319. Total expenditures with the inclusion of local participants were $136,263 compared to $128,944 without this group. Inclusion of local participant expenditures inflates the impact by approximately six percent. Although locals made up 17% of total participants for this event, they had significantly lower weekend expenditures relative to the other visitor types. Events with a larger percentage of local participants would see an increase in the relative magnitude of such an error.

Table E2.1 Expenditure by Visitor Type

	Visitor Type	Number of Participants	Expenditures	
			Average Weekend	Total Weekend
1.	Using hotel/motel	570	$144.37	$82,290
2.	Using campgrounds	180	123.72	22,270
3.	Not requiring lodging	495	49.21	24,384
4.	Local participants	255	28.70	7,319
	TOTAL			$136,263

Error 3

Concentrating on the Expenditure Multiplier Instead of Income Multiplier

There exists a great deal of confusion over the use of expenditure (sales) multipliers versus income multipliers in economic impact analysis. An expenditure multiplier relates the direct, indirect and induced effects of visitor spending to the total volume of expenditures (sales transactions) generated in the impact area. An income multiplier relates the direct, indirect and induced effects of visitor spending to income generation in the local area. Fridgin (1991) clearly related that it is misleading to multiply visitor expenditures by an expenditure multiplier and call the resulting figure the economic impact of that injected money on residents of the host community.

In economic impact analysis, sales multipliers are often not of primary concern. The variable of interest is the impact of those sales on local household incomes. The key element is how much extra income the local area receives from visitor expenditures. However, since sales multipliers are significantly greater than income multipliers, there is a tendency for those looking to maximize the impacts, to use the former. The implication of using an expenditure multiplier versus an income multiplier for the slow pitch tournament in Kentville is calculated below. It must be noted that no input-output model and associated multipliers are available for the study area

(Kentville and surrounding area). The impact analysis was conducted using the basic multiplier format put forth by Archer and Owen (1972).

Use of an Expenditure Multiplier Gives a Total Impact of:

$$S = \frac{1}{1 - B \times C} = \frac{\$128{,}944}{1 - .91 \times .24} = \$164{,}974$$

where:

S = Expenditure Multiplier
B = that proportion of income earned by local area residents re-spent on local goods and services.
C = proportion of local business sales paid out to local employers and employees.
$128,944 = direct visitor expenditures
$164,974 = total (direct, indirect and induced) expenditures

Use of an Income Multiplier Gives a Total Impact of:

$$I = \frac{A}{1 - B \times C} = \frac{\$128{,}944 \times .31}{1 - .91 \times .24} = \$51{,}142$$

Where:

I = income multiplier.
A = the proportion of original visitor expenditures remaining in the impact area.
B and C as shown above.
\$128 944 = direct visitor expenditures
\$51 142 = total (direct, indirect and induced) income

Note: A, B and C were calculated using information from a survey of local businesses, residents and published data.

The total expenditure impact of \$164,974 is over three times the total income impact of \$51,142. These figures clearly illustrate the danger of using expenditure multipliers when the variable of interest is the impact of visitor expenditures on local incomes.

The large difference in the impacts occurs because the expenditure multiplier incorporates total visitor expenditures in the calculation, whereas the income multiplier includes only the fraction of total visitor expenditure remaining in the local area. The income multiplier allows for the percentage of visitor receipts that flow to firms outside the region in the form of payments for material inputs, as well as payments to persons outside the region in the form of wages and profits. This money is not re-circulated (multiplied) because it does not remain in the local economy.

> "Residents are interested in knowing how much extra income the host community will receive from the injection of funds from visitors. They are not interested in the value of sales per se because it has no impact on their standard of living". (Crompton, 1995, p.21).

Sales figures are not truly indicative of the economic benefits accruing to a community to the extent that receipts from visitor expenditures flow immediately to businesses and individuals outside the local economy.

<u>Error 4</u>

Data Collection

There are numerous pitfalls in data collection efforts that can significantly reduce or destroy an economic impact study's ability to produce credible results. Below are some of the issues related to data collection that frequently create problems in economic impact studies.

Sample Size

The sample must be of sufficient size to generate reliable estimates of visitor spending. Choose what you consider to be an acceptable confidence level and error in estimation and an accepted formula to calculate required sample size. Note that segmenting the visitors by type (for example those requiring accommodation versus those who do not) can effectively reduce variation in responses within visitor type and reduce the total required sample size by reducing the sample size necessary to get reliable estimates for each of the visitor types. If visitor types are not identified until after the surveying has taken place, extreme caution must be used in estimating average expenditure for visitor types that have a limited number of observations.

Representative Sample

The premise which underlies being able to use a sample to estimate the characteristics of a larger group (population from which the sample was taken) is that the sample is reflective of the population. There is a variety of sampling strategies aimed at achieving this goal, for example random versus stratified quota (segmented) approaches. Every effort must be made selecting a sample (i. e. who, where, when) that will accurately portray the survey population.

Purpose of Visit

When assessing the economic impact of an event, only expenditures by visitors who are in the local area because of the event are relevant. A question that identifies whether or not the specified event is the reason for the respondents visit must be included.

Definition of Party Making Expenditures

A “party” is usually defined as a group of persons who travel in the same vehicle or stay in the same room when requiring accommodation. It is critical when recording party expenditure figures on the surveys that the respondent and the researcher are in agreement as to exactly whom the expenditure totals include. The “party” concept is most applicable for families where one parent (or both together) is responsible for expenditures and therefore can provide accurate estimates of spending for the group as a whole. Adults, while travelling and staying together may be responsible solely for their own expenditures (including a share of gas/accommodation spending) and are less likely to be able to provide accurate measures of spending for their party. It is generally recommended that adults, without any accompanying family, provide spending estimates for only themselves. Accuracy in identifying exactly for whom the expenditure are applicable, is critical.

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