This report discusses the basic methodology behind economic impact analyses, detailing their strengths, weaknesses, and abuses. It also discusses the key elements of an economic impact analysis, and examples of other states’ efforts to assist governments in evaluating economic impact models. Future TACIR reports will further explore topics related to economic impacts.

ECONOMIC AND FISCAL IMPACT ANALYSES
A PRIMER FOR LOCAL GOVERNMENTS IN TENNESSEE
by Stan Chervin, Ph.D. and Reuben Kyle, Ph.D.

EXECUTIVE SUMMARY

In local government, it is not uncommon to find an impact analysis used to pursue or promote a project, development, or a new location for a company that is being recruited. Figures of newly created jobs, new businesses, and tax payments are frequently cited in council and commission meetings to support or oppose these projects. What exactly is an impact analysis? Where do the numbers come from? This report discusses

- the basic methodology behind economic impact analyses, detailing their strengths, weaknesses, and abuses,
- the key elements of an economic impact analysis, and
- examples of other states’ efforts to assist governments in evaluating economic impact models.

There are typically two types of impact studies used when considering a project or development. The most common type of impact study evaluates the economic or fiscal impact of existing institutions or businesses on a given local, regional, or national area. The second type of impact analysis focuses on estimating the economic impact of a proposed new investment, facility, or even a policy or tax change in a given area.
Most economic impact models use some form of an input-output analysis: for every new investment or spending possibility, there are predictable economic and fiscal impacts. The key elements of input-output models include: a project description; a thorough review of estimates and details; economic impacts (employment, income, business and household spending); fiscal impacts (new government revenues and new expenditures); and project impacts (direct, indirect and induced). This report provides an in-depth look at these key elements and a discussion of the multiplier effect—the relationship between initial new economic activity and the final full economic impact.

It is critically important to fully evaluate all economic and financial impact reports in the beginning to ensure that the numbers used are based on reasonable assumptions and are clearly identified and reported. Local government officials must be proactive in dealing with projects that require local tax incentives or similar benefits to attract economic development and business investment. Local officials have a fiduciary duty to be on the offensive when asked to donate land, buildings, free training, or tax subsidies to pave the way for any private investment. Their best strategy is to analyze the impact of any proposed project themselves, using either their own locally-developed impact model (an easily managed exercise for moderately large cities or counties), or to ask for state or other agency assistance evaluating the project.

The State of Tennessee should provide local governments with access to impartial economic impact analyses. This service could be provided by an existing state agency, by contract, or by the creation of a new organization. Regardless, the analyses should be thorough and rigorous, and should be conducted by a neutral third-party.
INTRODUCTION

The purpose of this report is to explain the basic methodology behind economic impact analysis, detailing its strengths, weaknesses, and abuses, and identifying options available to local government officials in interpreting and utilizing such information. These studies are generally used to estimate the economic and fiscal (tax and spending) impact of (1) existing activities and businesses in a given geographic area, or (2) the impact of proposed new projects or businesses on the local economy. The subject matter of such studies runs the gamut from “A to Z.” An Internet search of “economic impact” resulted in over 33.5 million hits; of “economic impact studies,” 17.3 million hits; of “economic impact analysis,” 13.9 million hits. \(^1\) They are ubiquitous. There are always a number of analyses of economic impact studies in academic and professional journals.

The most common type of impact study evaluates the economic or fiscal impact of existing institutions or businesses on a given local, regional, or national area. Examples of such studies in middle Tennessee include economic impact reports on various local colleges and universities, the music industry, the health care industry, the Nashville airport, the Nashville Predators, the Bonnaroo Music Festival, and of course, tourism in general. \(^2\) Many of these studies are self-financed for public relations purposes, and often dismissed by purists as “puff pieces.” \(^3\)

The second type of impact analysis focuses on estimating the economic impact of a proposed new investment, facility, or even a policy or tax change on a given area—local, regional, and national areas. When conducted properly, economic impact analyses provide a valuable tool to help analyze the feasibility or desirability of a proposed public project.

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1 Google search on September 2, 2008.
3 The Nashville Sports Authority website (http://www.nashville.gov/sports_authority/committee_assignments.htm) notes under its Public Relations Liaison section that “the economic impact of the events held at the facilities (Sommet Center and LP Field) should be consistently emphasized on all strategic communications.” (accessed October 7, 2008).
It is critically important to fully evaluate all economic and financial impact reports in the beginning to ensure that the numbers used—all economic impact reports are dependent on estimates of one type or another—are based on reasonable assumptions, are clearly identified and reported, and most importantly, pass a final “smell” test.

state, or national. Such studies are less numerous nationally but still number in the thousands each year. When conducted properly, these analyses provide a valuable tool to help analyze the feasibility or desirability of a proposed public project.

Recent Middle Tennessee examples of analyses of proposed projects include impact reports in support of the National Football League Titan’s stadium, a new downtown baseball stadium in Nashville, a new convention center in Nashville, and a Bible-themed amusement park in Rutherford County. Most are commissioned by businesses or organizations, including Chambers of Commerce, seeking support for some project that requires or seeks government financial assistance of one type of another—property tax relief or abatements, sales tax exemptions, tax-increment financing (TIF) arrangements, state and/or local bond finance assistance, new employee training, new roads, and often combinations of all such subsidies.

The public and their elected officials need to be more educated, alert, and skeptical of the second type of impact study than the first. This follows from the fact that type (1) studies investigate and analyze already-existing facilities, institutions, businesses, and policy and tax changes. The old expression “water over the dam” is apropos. The basic issue in an impact study of an existing entity is what would be the effect on the defined economic area if this entity were to disappear. In other words, if the existing entity disappeared, would income, employment, or total economic activity decline or would the resources and expenditures simply be shifted to other activities within that region? While it is certainly legitimate to evaluate and reevaluate existing enterprises and activities, it is unlikely that studies that are generally self-funded and publicity-motivated will produce negative results and end any existing public subsidies that may still be flowing to such businesses and activities. It is also unlikely than any research organization or business that concludes that the economic impact of an existing organization or institution

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4 Logically, the impact of the loss of an existing business or activity on a community would also fall into this category.
5 Based on an analysis of a small sample of “hits” from a Google search on the exact phrase “economic impact studies” on September 3, 2008; total number of “hits” was 142,000.
on the local area is negative or marginal will “live long and prosper.”

The greater danger lies in initially funding or investing public monies in ventures that should not be undertaken in the first place. Once an investment in a new facility is undertaken, such as in building a dam, the cost of the initial construction ceases to play any valid economic role in evaluating future funding of the project (maintenance, operations, etc). The construction is a sunk cost that perhaps should not have been built to begin with, but once built, no longer has a legitimate place in evaluating its continued use. Sunk costs are those once expended can never be recovered. A dam cannot be put to another use but a truck purchased for use in one place for one particular purpose can be used somewhere else for another job. So, the expenditure on the dam is a sunk cost while the expenditure on the truck is not. It is critically important to fully evaluate all economic and financial impact reports in the beginning to ensure that the numbers used—all economic impact reports are dependent on estimates of one type or another—are based on reasonable assumptions, are clearly identified and reported, and most importantly, pass a final “smell” test.

Since most robust economic impact studies use sophisticated methodologies, assumptions, and data, it is important that users and readers understand some of the key ingredients that enter into the “black box” number crunching that ultimately produces the “winning numbers.” It is a fact of life that such studies are susceptible to bias and/or manipulation, especially when produced for clients who expect a positive result.6

**ECONOMIC IMPACT MODELS: INPUT-OUTPUT ANALYSIS AND MULTIPLIERS**

A majority of economic impact reports and studies use some variant of input-output analysis to generate the many estimates that are generally produced in such studies. Three widely-
used models are RIMS II, IMPLAN, and REMI’s Policy Insight model. Users generally fine-tune these models to better reflect the specific situation being analyzed, but the underlying methodology remains: for every new investment or spending possibility there are predictable economic and fiscal impacts on the economy. While it is not the intent of this short report to delve into the intricacies of input-output models, and the differences among them, it is important that government officials understand the underlying logic and methods that drive these models and the types of data on which these models feed and depend.

**KEY ELEMENTS OF INPUT-OUTPUT MODELS**

Most impact studies provide a full description of the proposed project, including reasonable specifics of the cost of land acquisition, construction, and needed equipment and machinery. The description also must include estimates of the expected number of full and part-time employees that will be employed over the life of the project, including the construction phase, and annual wage and salary estimates. The initial description should also detail the expected contribution(s) and incentives that local and state governments are asked to provide.

Additional estimates vary depending on the nature of the project. Projects involving convention activities, recreation businesses, and sports venues require estimates of attendance and likely amounts that would be spent by those attending. If the project included hotels, the analysis would require occupancy estimates. Such estimates may be provided by the project managers themselves or by the impact analysis research organization performing the analysis. All assumptions and figures used in the input-output analysis at this early stage are subject to reasonability tests to ensure that bias is not introduced into the analysis at this most basic level.

Input-output models then estimate as many economic (employment, income, business and household spending) and

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7 U. S. Bureau of Economic Analysis (BEA) multipliers.
8 Minnesota IMPLAN Group.
9 Regional Economic Models, Inc.
fiscal (new revenues and new expenditures) impacts as possible for any applicable construction phase of a project as well as its long run life. Project impacts include direct, indirect, and induced impacts.

The direct effects of a new business or activity include the new initial employment by the business, the new wages paid to these employees, and expenditures on all other inputs used by the business. Some of the expenditures and new employment will impact the specific geographic area of interest in the study; some will represent impacts outside this area and will provide little or no local benefits.

The indirect effects (or spin-off effects) result from the expenditures by the new business on other businesses who sell goods and/or services to the new business or activity. Such businesses increase the number of their own employees, wages, and purchases of goods and services from businesses who supply them. This process continues to ripple outward as more and more businesses are impacted through additional production and sales, additional employment, and additional incomes within the defined geographic impact region resulting from the initial new activity.

The induced effect (often also included in spin-off effects) refers to the separate and additional impact of increases in household spending on goods and services that result in still further increases in employment and income that ripple through the defined region’s economy. The relationship between the initial new economic activity (the direct effect or impact) and the final full economic impact (of the direct, indirect, and induced impacts) caused is referred to as the multiplier effect. Multipliers can be estimated for the ultimate total employment impact, income impact, and output impact, of any given project, depending upon the focus or objectives of an analysis.

**MULTIPLIERS**

So, where do these multipliers come from? From observing and dissecting the production process of thousands of businesses engaged in the production of hundreds of different products, we...
can observe and map the relationships among these businesses. A simple and only partial example helps visualize the types of relationships and linkages that input-output models attempt to simulate, and to what multipliers refer.

A new automobile plant constructed to produce 25,000 cars a year requires not only a known number of employees (data on the number, type, and salaries of required employees would be available from other automobile plants) but also a predictable number of tires (5 per vehicle or up to 125,000 per year), 25,000 engines, 25,000 front seats, 25,000 windshields, etc.). The list of parts needed to produce 25,000 cars goes on and on.

These new orders will have a predictable impact (input-output) on each industry that supplies these parts. Tire manufacturers will have to increase output by 125,000 tires, requiring additional employees and payroll, additional supplies of rubber, carbon black, chemicals, rayon, nylon, etc. The suppliers of these products will in turn increase orders from their suppliers, increase their own payroll, and so on.

Data on thousands of different production processes has been accumulated over time and introduced into input-output models that allow such models to estimate the impact of a given project on thousands of businesses that ultimately will be impacted. The impacts include the increased sales and employment in all indirectly impacted businesses and estimates of the increase in household income from increased employment generated at all the different stages in the process as it ripples out through the economy. If the employment multiplier estimated for 100 new automobile manufacturing jobs is 1.8, then the implication is that the ultimate impact of 100 new jobs at a new automobile manufacturing plant is 180 jobs, 100 in the plant itself, and an additional 80 that represent the ultimate indirect and induced impact as auto employees spend their paychecks on goods and services that require more employees in other local businesses. Clearly the larger the value of multipliers used in any analysis, the larger the estimated impact of a new project.
In addition to the detailed data on linkages that exist among the thousands of businesses in our economy, data is also available that allows economists, and the models they create, to estimate the increased spending and type of spending that will occur as a result of the increased household income from both the direct and indirect employment increases. This, in turn, requires businesses that sell to the household sector to increase both employment and wages. These businesses also increase purchases from their suppliers, creating another level of rippling (multiplier) effects. It is essential to keep in mind that the relevant multiplier for any given project only includes the linkages just described of producers located within the defined economic region. So, for example, if the new automobile plant buys its tires from a producer that is located in another state the linkage has been broken. Simply because the plant utilizes tires, engines, and other components does not mean that the dollars spent on them impact the local region.

The types of estimates included in most project impact studies include economic and fiscal impacts.

**Economic Impacts**

1. Direct, indirect, and induced employment impacts by industry (by type of business) and locality
2. Direct, indirect, and induced impacts on number of households, by locality
3. Direct, indirect, and induced impacts on income by locality
4. Direct, indirect, and induced output impact by industry

**Fiscal Impacts**

1. Fiscal impacts include state and or local government tax impacts experienced during both the construction phase and post-construction life of project. Often estimates of future revenue and economic impacts will be discounted

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10 For some projects, such as a one-time special event, only the initial costs and revenues are important.
to the beginning of the project in order to obtain the present value of all such revenues to compare them to the present value of all estimated government costs associated with the project. Revenue impacts would include increases or decreases in sales taxes, property taxes, business taxes, as well as other taxes for which reasonable estimates are possible. These impacts would include the fiscal impacts of both the direct and induced economic changes spelled out above. Payments in lieu of taxes would also be included if such payments are part of the agreement between the new business and local governments. Again, all such estimates must be identified by locality.

2. Fiscal impacts also include state and local government outlays associated with the project during both the construction phase and the life of the project. These would include all initial giveaways (market value of land and or buildings provided free to project), construction, buildings, and machinery purchased by a government entity for use by another party (economic development bond financed projects), road and utility improvements paid for by government. Also included would be the estimated increase in local government expenditures that are directly and indirectly related to the project including increases in K-12 education expenditures (the single largest local government expenditure item), increases in police and fire, recreation, utility, roads and streets, library and other public service expenditures.

Other impacts such as environmental, social, demographic, congestion, etc. may also be included in impact studies.

**LOCAL GOVERNMENT OPTIONS TO PROPOSED ECONOMIC PROJECTS**

Local government officials must be proactive in dealing with projects that require local tax or other incentives to attract business investment. Sometimes the correct response is, “Thanks, but no thanks.” While that is not the response that
endears one to local Chambers of Commerce or state economic development officials, it is sometimes the right thing to do. All projects are not wise investments.

Many of the greatest dangers in dealing with booster-financed impact reports will fall in the category of distortions, exaggerations, faulty or wishful thinking, or simply human error in the analysis:

1. Assumption that land or property provided by a local government (generally as part of an incentive package) has no value. While many distressed areas of a city or county may contain properties that have low current market values, it is unlikely that the value is zero.

2. Assumption that nothing else will ever occur in the absence of the new investment or project; there are always alternative uses of real and fiscal resources.

3. Estimates supplied by promoters, such as estimated expenditures per visitor per day, that are unsubstantiated (voodoo numbers or rabbit-out-of–a-hat numbers) or exaggerated in favor of the event or project. Such numbers often drive the balance of the analysis. They must be substantiated by legitimate surveys or comparable data that supports the estimates of spending for the likely demographic that will be attracted to the venue.

4. An absence of a discussion of the methodology used to distinguish between the total impact of a project—on the total region or state or even several states—versus the local impact of a project; the total impact will always be greater than the impact on a single limited local area.

5. An absence of a clear distinction between the initial construction phase of a project and the later operational years of the project. Impacts (income, taxes, sales) in the future must be discounted to the present to ensure legitimate evaluations. Remember that a dollar received next year is not worth the same as a dollar received or spent today.

Sometimes the correct response is, “Thanks, but no thanks.”
6. Assumptions that new employees will all locate in the area being analyzed, and therefore spend their income in the same area and pay taxes in the target area.

7. Assumptions that all or most visitors to a proposed sports or recreation venue will come from outside the local area and therefore their spending will not be offset by reductions elsewhere in the local area.

8. Any analysis that neglects, deliberately or not, to estimate the additional local government expenditures resulting from the new project—such as additional expenditures for education (new pupils in new households created by new employees), safety (police and fire), roads, library, recreation, etc. —is suspect.

9. The use of suspect multipliers. Any multiplier in excess of $2^{11}$ should be initially suspect.$^{12}$ In fact, in the absence of supporting evidence to the contrary the conservative assumption would be a multiplier of one. A range of values for multipliers is more reasonable with a resulting range for the economic impacts. Unfortunately, exaggerated multipliers are common in many impact studies.

10. An absence of detail on the model used to produce the economic and fiscal impacts or the data used in the model.

So, what is a local government to do to ensure that an impact study is credible and reasonable? The answer, while obvious, has clearly eluded most local government officials. It may sound unsophisticated, but the old adage “a best defense is a strong offense” applies.

Local officials have a fiduciary duty to be on the offensive when asked to donate land, buildings, free training, or tax subsidies to pave the way for any private investment.

$^{11}$ Implies that spending by a new business or activity will result in an economic impact of twice that amount (or more) on the area being studied.

the impact of any proposed project themselves, using either their own locally-developed impact model (an easily managed exercise for moderately large cities or counties), or to ask for an alternative analysis developed and maintained by a state agency or state-wide local government agency, such as the University of Tennessee’s County Technical Assistance Service (CTAS) or Municipal Technical Advisory Service (MTAS). Given the predictable and usually overly optimistic impacts found in booster-funded economic impact reports, an alternative evaluation will provide the “second opinion” that local officials need prior to signing off on projects that may ultimately prove to be a poor use of local resources.

Where to turn? Neither the State of Tennessee nor any Tennessee state-wide local government organization (MTAS or CTAS) currently offers such a service to local governments. In Tennessee, this type of analysis is done by for-profit businesses and state-funded university research centers to clients willing to pay for the work. None of these entities would likely survive in the for-profit “impact analysis” business for long if they frequently or occasionally released negative impact reports.

The absence of a resource to provide alternative and impartial impact analyses is a choice made by the State of Tennessee as well as by local government officials and local government organizations. Given the millions of dollars in combined state and local tax incentives provided each year in Tennessee to attract various types of business activity, a small budget devoted to an impartial and alternative economic and fiscal impact analysis service would be well spent. The type of support described above is already available in several states\textsuperscript{13} and is described in the section that follows.

**EXISTING IMPACT ANALYSIS RESOURCES**

**GEORGIA**

WEBLOCI is the name of a web-based fiscal impact tool available from Georgia Tech’s Enterprise Innovation Institute.

\textsuperscript{13} The following information is not meant to be exhaustive. The information excludes states and resources that focus only on the impact of new housing, and states that were contacted but did not respond.
It provides a method for local governments to evaluate the impact of proposed projects that involve requests for tax and other incentives. It helps local officials in negotiating with private developers by providing them with alternative estimates of the impacts of proposed private projects, and with helping local officials better understand the linkages that exist between their local economy and proposed projects.\(^{14}\) The model requires the input of local data to better reflect local costs, local taxes, and other local information to enable the model to better reflect local conditions and relationships rather than national data and relationships that form the basis for other models. The web-based model is available for a one-time software license fee of $450, and an annual user fee of $200.

**KANSAS**

The Kansas Office of Local Government\(^{15}\) offers both fiscal and development impact analysis assistance to local governments. The analysis is done using the Kansas Integrated Impact Model. The extent of the assistance could not be determined.

**NORTH CAROLINA**

While there is no formal resource in North Carolina to provide on demand assistance with impact studies, help is provided in some circumstances. The North Carolina Department of Commerce assists on selected economic projects; the Chamber of Commerce in Wake County (Raleigh) provides IMPLAN model estimates for municipalities located in the county; on some large projects, the universities sometimes provide impact analysis.\(^{16}\)

**PENNSYLVANIA**

The Center for Economic & Community Development at Pennsylvania State University provides a community impact model tool for use by local officials (county-level analysis) to

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\(^{15}\) At Kansas State University; see http://www.oznet.ksu.edu/olg/programs/govt_pgms/index.html (available on 9/24/2008). (accessed October 7, 2008).

\(^{16}\) Information provided by Dr. Jonathan Morgan of the University of North Carolina at Chapel Hill.
estimate the fiscal impact of projects on Pennsylvania counties. It provides estimates of the impact of a new project on employment, income, population, and government expenditures and revenues.\textsuperscript{17} Local facilitators assist local officials in using the model. The service is available on a cost recovery basis.

**TEXAS**

Texas EDGE (Economic Data for Growth and Expansion) online research service is offered by the Office of the Texas Comptroller.\textsuperscript{18} The new service (August 2007) is “designed to help local governments and economic development organizations analyze facts and figures.” The service (no charge), although available on a request basis, is a double-edged sword. It can provide local officials with information that ensures they are not being taken to the cleaners by a slick and overly optimistic impact analysis, but it also can kill a project that has a strong local political backing. Communications with the Texas Comptroller’s Office suggest that their service is used infrequently, and when used, is not released for public consumption.

**VERMONT**

The state of Vermont offers a Vermont Employment Growth Incentive (VEGI) Program. Cash payments are provided to qualifying businesses. As part of the qualification process, the fiscal impact of the new business is evaluated using a cost-benefit model. The model evaluates (1) the initial investment and employment data for the project, (2) a full input-output analysis of the impact of the project, and (3) the fiscal impact of the overall project on total state costs and revenues.\textsuperscript{19} This process is required by state law for any business seeking certain tax incentives.

\textsuperscript{17} See information at http://cimpsu.aers.psu.edu/. (accessed October 7, 2008).
FEDERAL RESERVE BOARD-FIT

The Federal Reserve Board makes available a general fiscal impact tool (FIT) at no cost. It is an Excel based tool that requires users to input specific information on a proposed project and then estimates the fiscal impact (only) of a proposed project on a local area. It is tailored by region of the county (11 regions). It is intended as a tool for small to medium-sized communities to “learn about the general costs and benefits of proposed projects” and “as an aid in decision making.” The more detailed the data entered by users, the better the precision of the tool.

RECOMMENDATION

The State of Tennessee should provide local governments with access to impartial economic impact analyses. This service could be provided by an existing state agency, by contract, or by the creation of a new organization. Regardless, the analyses should be thorough and rigorous, and should be conducted by a neutral third-party.

20 See information at http://www.federalreserve.gov/forms/fiscalimpactrequest.cfm. The 11 regions are similar to but slightly different than the geographic areas included in each of the 12 Federal Reserve Districts. (accessed October 13, 2008).