

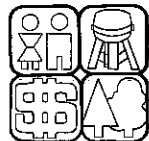
EVALUATING FISCAL IMPACT STUDIES

COMMUNITY GUIDELINES

Fiscal impact analysis is the study of the effect that economic development or public policy has on government finances. There are a number of possible reasons for fiscal impact studies including land use planning, subdivision development, and state and federal policy analysis.

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Coping With Growth

This publication was part of the Coping with Growth series produced by the Western Rural Development Center in 1979-80. The publications in that series have been reviewed, the information brought up to date, and the series name changed to indicate the relevance of these materials to circumstances other than growth. Other titles from the original series that have been revised include:

- WREP 16 *Evaluating Fiscal Impact Studies*
- WREP 23 *The Public Policy Process*
- WREP 30 *Programming Capital Improvements*
- WREP 31 *What does the Impact Statement Say about Economic Impacts?*
- WREP 44 *Community Needs Assessment Techniques*
- WREP 45 *Population Change: Know the Trends in Your Community*

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There is no one method of fiscal impact analysis that is appropriate for all development and policy issues, but most studies typically include comparison of a current baseline to future scenarios. Sensitivity analysis helps non-experts to understand the effect that different assumptions have on estimates of fiscal impacts.

Estimating expenditures and revenues of local governments under growth conditions is difficult. Reliance on "current per capita operating expenditures" to measure the impact of growth on local government costs may well underestimate the spending associated with growth, given that a study by Helen Ladd has shown that per capita costs increase with population growth. Capital construction cost may increase expenditures per capita, while non-local aid may increase per capita revenues.

In evaluating fiscal impact studies, the acronym OMA may help. Does the study clearly specify its Objectives, Methods, and Assumptions?

Community leaders can critically evaluate the information contained in fiscal impact studies by asking:

- Are the alternate scenarios clearly identified, and do they include sensitivity analyses on the values that are assumed for critical variables?
- Is an analysis of potential cash flow problems included in the fiscal impact study?
- Does the fiscal impact analysis show how the costs and benefits of development will be distributed among population groups?

Community leaders can use these questions to evaluate the design and results of fiscal impact studies to insure that the analysis they receive is useful to them.

Fiscal impact analysis can be guided by different objectives. Local officials may desire an estimate of the possible effects of economic development activities on expenditures and revenues. These activities could include a new housing subdivision, a manufacturing plant expansion or closing, or the introduction of a new shopping center.

A local fiscal impact study may also be used to estimate the effect on local government of a change in local, state, or federal public policy. Policies that might effect local revenues or expenditures include changes in local planning and zoning regulations; a change in the quantity or quality of services provided; federal or state tax policy; funding formulas for local services; environmental regulations; public lands management policy; or non-locally legislated mandates.

There is no one method of fiscal impact analysis appropriate for all situations. A study to estimate the tax rate in a community would not necessarily use the same method as a study to determine the effect of a change in state tax policy. The method of a community fiscal impact analysis will depend on the objectives of the analysis, the local situation, and the quality of the information available.

OBJECTIVES AND USES

AN EXAMPLE OF FISCAL IMPACT ANALYSIS

As a means of discussing guidelines for evaluating fiscal impact models, we begin with an analysis in which a community's fiscal information has been provided for its current situation. From this information, we will predict two outcomes. The current fiscal situation is referred to as "the current situation," and the possible outcomes are referred to as "alternative scenarios." The differences between revenues, expenditures, and the tax bases for two scenarios is the fiscal impact of growth. In the example that follows, we assume two alternatives for population growth: slow (Scenario 1) and fast (Scenario 2). These scenarios are used to describe future development prospects.

Assume that in 1995 officials in a town of 3,600 population have commissioned a fiscal impact study to estimate the effect of population change on city government's expenditures, revenues, and tax base. On the revenue side, officials would like to know the amount of local revenues collected, including user fees, as well as the amount of non-local aid. (Non-local aid is the amount of federal and state revenues given to local governments to fund local services.) Of particular interest is whether the growth in total expenditures will be equal to the total revenues without higher tax rates or increased fees. If expected expenditures exceed revenues because of the change, city officials will need to find new revenue or cut expenditures.

Assume that this town has current revenues and expenditures of \$3.6 million and a tax base of \$288 million (see the current situation 1995 column in Table 1). Then assume an annual growth in population of about two percent per year for the past five years that is ex-

Table 1. City Fiscal Impact (Dollars: 1995=100)

Item	Current Situation 1995 (\$)	Scenario 1 Baseline 2000 (2.1%/yr) (\$)	Scenario 2 Growth 2000 (6.8%/yr) (\$)	Fiscal Impacts (S.2-S.1) (\$)
Tax base	288,000,000	320,000,000	400,000,000	80,000,000
Tax rate	.5%	.5%	.5%	.0%
Local taxes	1,440,000	1,600,000	2,000,000	400,000
Non-local aid	1,800,000	2,000,000	2,500,000	500,000
Revenues	3,600,000	4,000,000	5,000,000	1,000,000
Expenditures	3,600,000	4,000,000	4,000,000	1,000,000
Rev.-Exp.	0	0	0	0
Population (#)	3,600	4,000	5,000	1,000

pected to continue into the future (the baseline scenario). Therefore, in 2000, without any new development, the town could expect revenues and expenditures of \$4 million and a tax base of \$320 million (see Scenario 1 in Table 1).

In Scenario 2, officials have reason to anticipate an increase in economic activity in the community that would result in an increase in population growth to 6.8 percent per year, the growth scenario (see Scenario 2 in Table 1). By 2000 population is expected to increase by 1,000 people and assessed property value of the tax base by \$80 million above the levels that would otherwise occur. Scenario 2 is estimated to increase city expenditures by an additional \$1,000,000 and local taxes and fees by \$500,000 beyond the historical pattern of population growth, Scenario 1 (see "fiscal impact" column in Table 1).

In this exercise, a number of assumptions were made so that expected increases in expenditures are just offset by expected increases in revenues, i.e., no fiscal surplus or deficit (see the "fiscal impact" row in Table 1). By using other assumptions, it is possible to forecast a surplus that could be used to improve or increase services or to cut local taxes and fees. A different set of assumptions could be used to predict a deficit.

A number of critical assumptions underlie the analysis in Table 1. One assumption is that per capita expenditures remain constant in the course of growth. The analyst divided 1995 city expenditures (\$3,600,000) by current population (3,600) and found that current city expenditures were \$1000 per capita. This figure was multiplied by the estimated population increases (400 in Scenario 1 and 1,400 in Scenario 2) to obtain the difference in impacts of local government spending.

Different assumptions are possible, however. For instance, to estimate per capita expenditures the relationship between costs of providing services and population number at some future date must be predicted. In a study of 248 large U.S. counties, Ladd has found that in rapidly growing areas population growth increases per capita spending levels of local governments. "...the results are clear; rapid population growth is associated with large increases in per capita public spending, especially in the areas of transportation and interest on general debt..." (Ladd, 1993) Figure 1 shows the relationship estimated by Ladd between population growth rate and growth in per capita local government current spending. Per capita spending growth is lowest in counties that grow about one percent per year and increases sharply as population growth increases above one percent.¹

¹The estimate reported here does not hold constant other factors that affect per capita spending (like growth in personal income, changes in the age distribution, changes in the division of responsibilities between state and local governments). These things change with population growth.

"...rapid population growth is associated with large increases in per capita public spending."

SENSITIVITY ANALYSIS

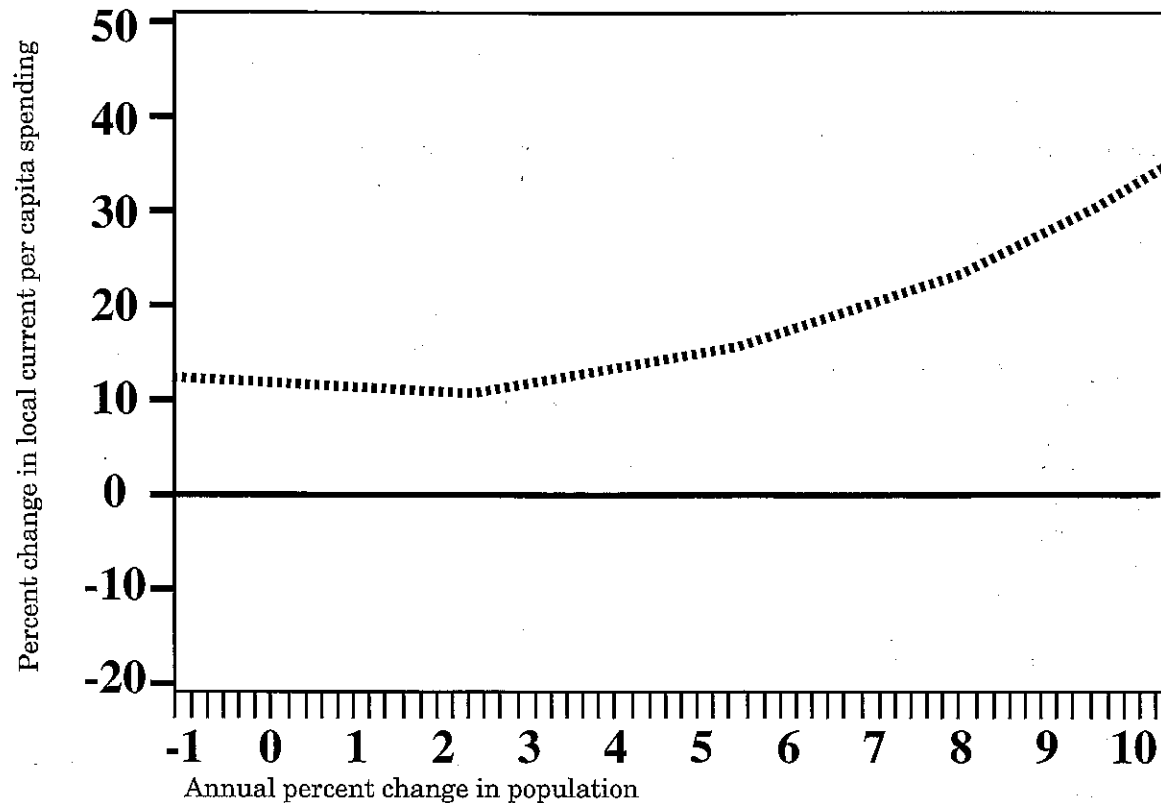


Figure 1. Impact of population growth on per capita local government current expenditures.

Ladd suggests that rapid growth may cause increases in per capita spending because of changes in the density of development, changes in levels of service provided, or higher per unit costs caused by the "surge" of new residents. She cautions that:

"The additional per capita spending associated with population growth should not be interpreted as higher quality services for county residents. Although higher spending may well be used to provide more direct outputs, such as road lanes, police patrols, and fire stations, these additional direct outputs may be needed simply to offset the adverse effects of population growth on the local environment for producing local public services. How much of the increased spending represents higher quality of services remains an open question." (Ladd, 1993)

No one knows precisely what the expenditures per capita for a given level of population will be, or even the best way to estimate this. The projected expenditures, however, depend upon this number. When the value of a critical number cannot be closely estimated, it is often useful to take different values within a reasonable range and see how estimated expenditures and revenues are affected.

If the analyst had assumed increasing per capita expenditures as population increased, what difference would it have made in the example? Table 2 shows the effect on the estimated fiscal impact of assuming that per capita expenditures increase with growth. This is

Fiscal impact analysis can be, and often is, part of an advocacy process.

Table 2. A sensitivity analysis of per capita expenditure assumptions

Item	Scenario 1 "Baseline" 2000 (2.1%/yr) (\$)	Scenario 2 "Growth" 2000 (6.8%/yr) (\$)	Fiscal Impacts (S.2-S.1) (\$)
Tax base	320,000,000	400,000,000	80,000,000
Tax rate	.5%	.5%	.0%
Local taxes	1,600,000	2,000,000	400,000
Local fees	400,000	500,000	100,000
Non-local aid	2,000,000	2,500,000	500,000
Revenues	4,000,000	5,000,000	1,000,000
Expenditures	4,000,000	5,500,000	1,500,000
Rev.-Exp.	0	-500,000	-500,000
Population (#)	1,000	1,100	100

called sensitivity analysis. The baseline and growth scenarios in Table 1 assume constant per capita expenditure estimates and result in an estimated \$0 revenue surplus. The baseline and growth scenarios in Table 2 show the effect of increasing per capita expenditures by ten percent with the addition of 1,000 people. This sensitivity analysis reveals an estimated revenue shortfall of \$500,000. The expected revenue assumptions are the same as those in Table 1. Table 2 illustrates clearly that the assumptions used to estimate expenditures make a difference.

Fiscal impact analysis can be, and often is, part of an advocacy process. As the above example illustrates, an analyst may choose the level of expenditure per capita that most strongly supports a particular position, e.g., no fiscal impact from development. However, with a range of results provided by a sensitivity analysis, the non-specialist can choose the estimate that seems most reasonable, and draw appropriate conclusions about the likely impacts on expenditures, revenues, and taxes. Sensitivity analysis can also highlight the variables that are most critical and important to the study's conclusions.

We might expect both per capita expenditures and revenues to change as population increases due to the effects of capital construction costs on total expenditures and of non-local aid on total revenues.

Capital investments

In a rapidly growing community, it is often necessary for local governments to invest in additional capital facilities, such as expanded

These capital expenditures are ignored when the analyst uses per capita expenditures to estimate spending.

OTHER ASSUMPTIONS

Table 3. A sensitivity analysis of non-local aid per capita assumption

Item	Scenario 1 "Baseline" 2000 (2.1%/yr) (\$)	Scenario 2 "Growth" 2000 (6.8%/yr) (\$)	Fiscal Impacts (S.2-S.1) (\$)
Tax base	320,000,000	400,000,000	80,000,000
Tax rate	.5%	.5%	.0%
Local taxes	1,600,000	2,000,000	400,000
Local fees	400,000	500,000	100,000
Non-local aid	2,000,000	2,750,000	750,000
Revenues	4,000,000	5,250,000	1,250,000
Expenditures	4,000,000	5,500,000	1,500,000
Rev.-Exp.	0	-250,000	-250,000
Population (#)	4,000	5,000	1,000
Exp./capita	1,000	1,100	100
N-I aid/capita	500	550	50

streets, water and sewer systems, or new schools. These capital expenditures are ignored when the analyst uses per capita expenditures to estimate spending. Implicit assumptions are that either major capital expansions are not necessary with the development or that, if made, they will be financed in a way that does not cost current residents.

Because large capital projects such as sewage treatment plants are often financed partly by one-time charges to new residents and by debt paid through monthly fees, such expenditures are often not explicitly estimated in fiscal impact studies. If they are estimated, they are assumed not to affect the property taxes of current residents. Increases in monthly water and sewer fees, however, do affect existing residents and long-term debt is often partially tax-supported as well. For example, Ladd has found that "...in rapidly growing areas, development does not pay its way." (Ladd, 1993)

Therefore, fiscal impact studies should clearly identify whether a development is expected to generate a need for additional capital investment and, if so, what impact existing residents can expect to finance expenditures. The impact on spending borne by existing residents is determined by whether the expenditures are financed by tax-supported bonds, increases in monthly utility fees, or by one-time charges to new industries and residents. In cases where development requires new capital investments, exclusive reliance on current per capita expenditures to measure the impact of growth on local government spending is not satisfactory: a separate analysis is needed to capture this impact.

As suggested by the Ladd study cited above, the assumption that

per capita expenditures remain constant for large increases in population is often unfounded. Therefore, studies based on this assumption are probably underestimating the expenditures associated with growth.

Non-local aid

It is often assumed that non-local aid (federal and state tax revenues transferred to local governments) remains constant on a per capita basis with growth. This assumption might be expected to be more valid than in the case of capital construction, because many state revenues are distributed on a per capita or per pupil basis.

However, there is considerable variation within each size group and across states. Change in non-local aid under growth conditions depends on many things but on the average, non-local aid increases as city size increases. An assumption that they are constant on a per capita basis may tend to understate the non-local aid increases that occur with population growth. Building on the previous example, assume that the non-local aid per capita increases by ten percent when the population increases from 4,000 to 5,000. By including this new assumption, in addition to the increase in per capita expenditure, we see that the predicted deficit has decreased from \$500,000 to \$250,000 (see Table 3). Assumptions about changes in per capita non-local aid also make a difference.

Finally, the level of service fees and tax rates are, of course, variables under the control of the local government. The way local policymakers change these rates determines the share of the burden borne by property taxes and user fees for new development. These local revenue decisions have the effect of determining the relative share of development costs paid by existing and new residents.

In sum, the assumptions that per capita expenditures and revenues remain constant in the course of growth may tend to underestimate both expenditures and revenues. These assumptions really do make a difference.

Have the alternative scenarios been clearly identified and do they include sensitivity analyses of assumed values?

Typically, fiscal impact analysis compares revenues and expenditures predicted for alternative scenarios. Have the assumptions for the alternative scenarios been clearly defined? For example, in our exercise, the baseline scenario assumes a 2.1 percent increase in population from the current situation for five years and the growth scenario assumes a 6.8 percent increase for the same period.

Have the assumptions about the critical variables been tested over a range of possible values? For example, Tables 2 and 3 illustrate the importance of sensitivity analysis of per capita expenditures and non-local revenues in fiscal impact analysis. Sensitivity

THREE QUESTIONS FOR EVALUATING FISCAL IMPACT ANALYSIS

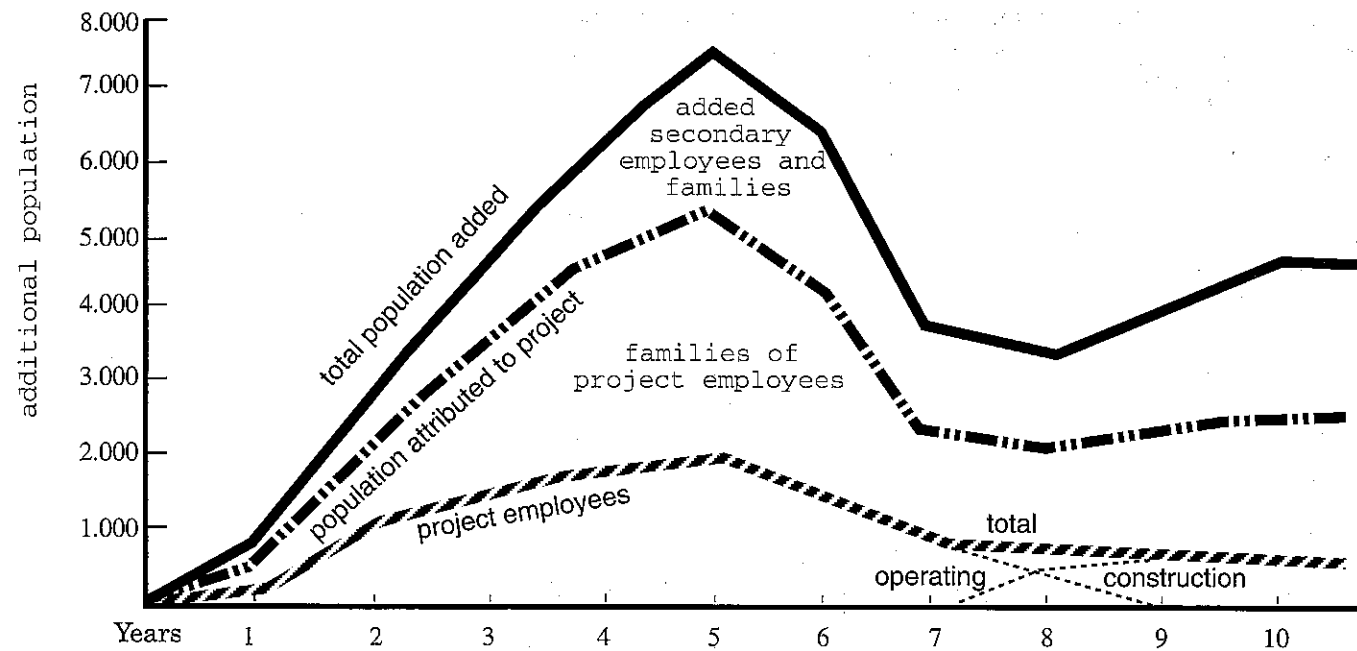


Figure 2. Added population from major development, (Source: Adapted from *Rapid Growth from Energy Projects: Ideas for State and Local Action*, Washington D.C.: U.S. Dept of Housing and Urban Development, 1976.)

analysis provides non-experts with a way of making an informed yet independent judgment about likely fiscal impacts. Therefore, it is important that fiscal impact analysis include a range of assumptions and that they be clearly stated.

Is an analysis of potential cash flow problems included in the fiscal impact study?

Unless other arrangements have been made, economic development activities typically require significant additional public expenditures well in advance of additional local government revenues. The time elapsed between expenditures and revenues can create a serious cash flow problem. For example, some state and federal aid to local governments is distributed on a per capita basis using the latest U.S. Census of Population count. However, there may be a considerable lag between the arrival of new population and the time this change in population becomes officially recognized by the Bureau of the Census and is reflected in the aid formula.

Furthermore, the population impact may be sudden and of short duration (see Figure 2). For example, additional school children come during the construction phase, yet the new development often does not pay the property taxes necessary for their education until the construction is over. Examination of post-construction-impacts does not provide adequate information to cope with short-run cash flow problems.

Table 4. Current property tax burden by taxpayer and service jurisdiction

Property Classification	County (%)	City (%)	School (%)	Roads (%)	Total (%)
Residential	11	11	20	6	48
Agricultural	3	na	6	2	11
Commercial	9	9	18	5	41
Total	23	20	44	13	100

Does the fiscal impact analysis show how the costs and benefits of development are distributed among population groups?

A fiscal impact analysis can identify groups that are important to the policy process and can estimate the effect of development on them. Some classifications used in fiscal impact analyses are: existing residents and newcomers; residents and commuters; businesses and households; city residents and residents of unincorporated areas. The selection of appropriate groups depends on the objectives of the analysis. An example of a distribution analysis of current tax revenue by type of property owner by type of service jurisdiction is presented in Table 4.

Helen Ladd, "Effects of Population Growth on Local Spending and Taxes," in *Structuring Direct Aid: People versus Places*, Volume 9 of Research in Urban Economics, ed. R. D. Norton, pp. 181-223, Greenwich CT: JAI Press, 1993.

REFERENCE

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COPING WITH CHANGE

This paper discusses:

- Some possible objectives and uses of fiscal impact analysis.
- An example of how the baseline and scenario information is used to develop fiscal impacts.
- The importance of a sensitivity analysis of the key assumptions used in an estimate.
- Assumptions about capital construction costs and non-local aid and their effects on a fiscal impact analysis.
- Three questions to ask when evaluating the design of a fiscal impact study.