

WORKING PAPER 1.

A Short Primer on Socioeconomic Analysis

This working paper offers a brief introduction to socioeconomic analysis and describes some of the economic concepts underlying the specific analysis proposed for this study. The purpose of this paper is to concisely describe the approach, anticipated outcomes and analytical issues associated with this type of analysis. We hope this paper may assist members of the Task Force in describing the scope of this study to interested parties and the public.

Overview

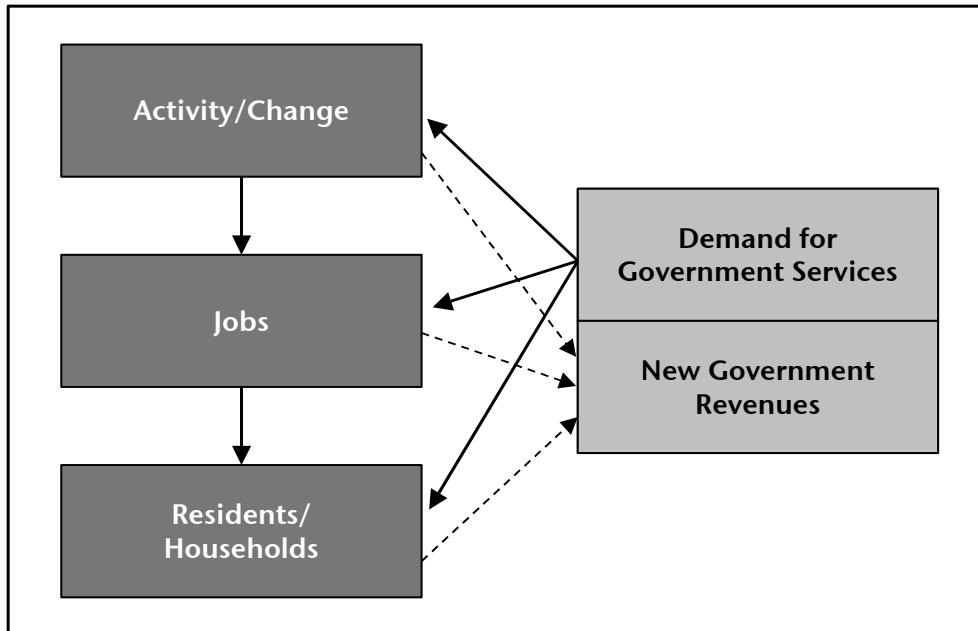
Socioeconomic analysis is a tool to examine how one or more activities or changes in conditions affect the human (social and economic) environment. Depending on the context and purpose of the analysis, the subject activity could be the development of a new project or industry, a change in laws or regulations, a one-time event such as hosting a Superbowl, or just the activities of an existing industry or corporation. In order to describe or quantify socioeconomic impacts, these analyses generally focus on quantifying economic effects (employment, earnings, output, etc.), demographic effects (changes in population, number of households, composition of the resident population, etc.) and fiscal effects (the costs of providing public services to residents and businesses).

Basic Approach

The basic approach to a socioeconomic analysis is quite simple. New activities or changes in existing conditions are defined by a selected economic measure, often local employment and income. Growth or decline in these core positions (basic employment) leads to changes in local service jobs and thus changes in total regional employment. Change in overall employment leads to in-migration or out-migration of workers and their families, and thus changes the size, location and character of the local population. New activities, businesses and residents require additional government services, but also produce additional revenue for local, state and federal governments (as well as other public service providers).

These simple concepts are illustrated on the following page.

Exhibit 1.
Basic Components of a Socioeconomic Analysis



The Details

Like most endeavors, with socioeconomic analysis the “devil is in the details.” Most of the effort for the Northwest Cumulative Socioeconomic Study will involve developing and refining these details. The basic structure just described provides a useful outline for considering important details.

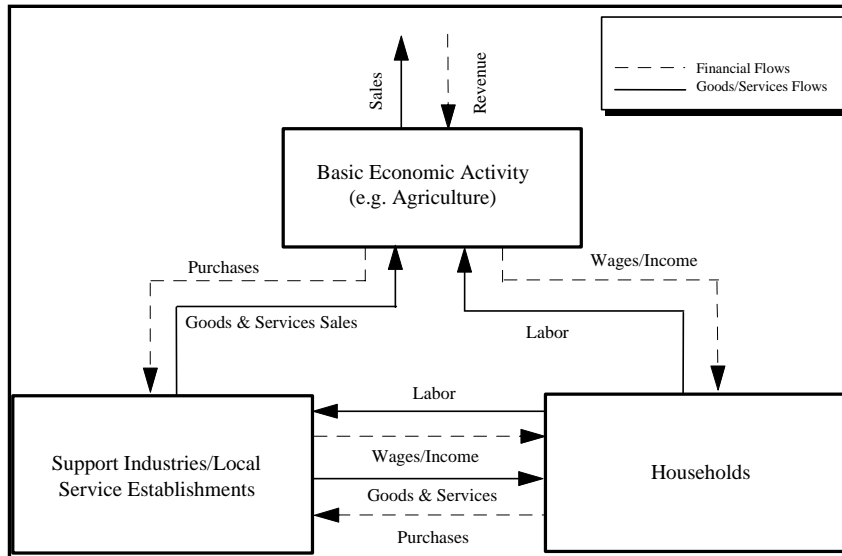
Activity/change. Some of the key questions/issues in this area will include:

- Defining what we mean by natural resources.
- Developing baseline and alternative scenario projections for each resource.
- Anticipating at least general locations for new resource development.

Jobs. We will need to estimate the number of direct (or “basic”) jobs associated with each activity/change. This will entail understanding current relationships (such as number of jobs per gas well during the drilling and subsequent production phases) and considering how technology changes and efficiency, gains may affect direct employment over the 30-year study horizon.

In addition to direct jobs, new activities/changes also produce secondary jobs in the local region. Often referred to as “multiplier” effects, these jobs arise both from direct spending by the companies engaged in the new activity for goods and services and from the expenditures of employees and their families for household goods and services (such as groceries, housing, utilities and other household needs). The exhibit on the following page provides a simplified view of a local economy and the relationship between direct (or “basic”) jobs and secondary jobs.

Exhibit 2.
Direct and Secondary Job Creation



Competition among different economic sectors is a more complicated question. However, as part of this study we will be examining how growth in natural resource industries may affect other industries in ways beyond the secondary impacts of new job creation. For example, conversion of agricultural lands for new home development and possible “crowding out” of other industries due to scarcity of labor or higher wages and housing prices will be considered.

Residents/households. The number of new residents and households that will be created as a result of increases in local employment depends on several factors, including:

- labor force participation rates
- the rate of multiple job holding
- household size, and
- other demographic factors such as fertility rates and mortality rates.

The Colorado State Demography Office has developed sophisticated demographic models for each of the counties in the state. We will work closely with the Demography Office to examine the effects of job creation on regional population and households.

Another key issue in this study is where new residents and households will be located. We anticipate developing “gravity” models to project the locations of future growth within the study area. These models will take into account factors such as the location of new resource developments and jobs, the capacity of local communities to absorb future growth, transportation systems and the expansion prospects for necessary infrastructure.

Demand for government services. New populations will require governmental services, including added operational support and capital expenditures for new infrastructure and facilities. BBC anticipates estimating regional service demand utilizing four sources of data:

- The Colorado Department of Local Affairs maintains a digital data base of all municipal and county budget allowing operating ratios to be developed that quantify household cost and revenues for Northwest Colorado communities.
- BBC has access to national reference guides for estimating facility costs and needs including land requirements standards for various land uses and both private and public facilities.
- The project team will conduct interviews with the each county and municipality focusing on the physical or infrastructure constraints facing these jurisdictions, their respective abilities to accommodate growth and the challenges and costs of adding the next increment of capital needs.
- There have other recent studies that have examine some aspects of these same issues that will be helpful in this effort. Most notable are studies for the Colorado Department of Transportation on roadway capacity and expansion costs and analyses done in conjunction with Colorado River Basin for water needs analysis.

By this process, BBC will translate growth factors (employment and households) into location, land requirements and service/capital costs.

New government revenues. Generally, growth will offset a share of its associated service and capital costs with new revenues. Using the same process defined above, BBC will forecasts key government revenues, sales, property and severance tax, to document the balance between service requirements and potential revenues.

This initial working paper was intended to familiarize study participants and other interested parties with the basics of socioeconomic analysis and identify some of the key issues particular to this study. Subsequent working papers will examine these key issues in greater detail and describe research, analysis, proposed methods and assumptions necessary to project the cumulative socioeconomic effects of natural resource development in Northwest Colorado.