12-1-2009

Understanding Economic Multipliers

Martin Beutler
South Dakota State University

Gary Taylor
South Dakota State University

Follow this and additional works at: http://openprairie.sdstate.edu/extension_extra

Recommended Citation
http://openprairie.sdstate.edu/extension_extra/200

This Other is brought to you for free and open access by the SDSU Extension at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Extension Extra by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.
Determining the impact of community development or business development projects, in both monetary and employment terms, is one of the greatest desires of those involved in or directly affected by the projects. It is often said that a single new dollar spent in the community has an impact of seven, or that a new dollar is worth $7 to the community. Others believe that the impact is much less.

This Extension Extra is written to define multipliers in simple terms and show how multipliers may be used to determine economic and employment impacts on a community. A discussion of the term turnover will also be included, as the terms multiplier and turnover are often confused.

To begin this discussion of multipliers, a distinction between two terms—multiplier and multiplier effect—needs to be made. A multiplier is simply a numeric ratio (total change ÷ initial change), while the term multiplier effect is used to estimate the change of the total value as the result of an initial change (multiplier · initial change).

Multipliers and multiplier effects are commonly used to show how important a business or industry is to a given community. In addition, the terms refer to the following: 1) how sales to an entity (e.g., businesses, tourists, etc.) outside the local community or region affect the community, 2) the “value added” of additional product produced as a result of the sales, 3) the value of changes in expenditures of employees resulting from the changing sales, and 4) the effects on employment given the change.

Multiplier effect

The multiplier effect is made up of three parts: direct effects, indirect effects, and induced effects (fig. 1):

• A direct effect measures the initial sales of the original production or expenditure of a good or service sold.

• Indirect effects measure the additional purchases from suppliers used to produce the products the additional sales required.

• Induced effects measure the purchases made as a result of households spending part of their additional income on goods and services in the local area.

When added together, the three effects measure the increased economic activity in the community.

The direct effect is always equal to the initial value of the activity. Indirect and induced effects can be less than, equal to, or greater than the direct effect.

Let us assume that we want to know the total impact on a community of the money received from the sale of feeder steers purchased by someone outside the community. The direct effect represents the money received from the sale of the steers. Indirect effects would equal the additional feed, veterinary supplies, labor, and so on required to produce the steers. The induced effect represents what happens to the income received from the sale of the steers as that income is spent by the rancher who sold the steers.

Many of the inputs used in the production of the steers were purchased from various agricultural businesses within the region. Money spent on these inputs is considered gross receipts to those agricultural businesses that supplied them. These businesses, in turn, use the money they receive to pay other businesses for the inputs purchased from them. Thus, a portion of the money spent in the production of the steer can cycle over and over in the local community as these agricultural businesses purchase and sell items.

In addition to the additional expenditures the rancher makes for supplies used to grow the steers, he also uses part of the income from the sale price of the steers to purchase goods and services for family living and recreation—such as going to a movie or buying a pair of boots. The businesses that produce these family living and recreation goods and services need to pay for the inputs required to produce those goods, which then generates income for their owners and employees. Thus, the income portion of the money received from the sale of the steers can also cycle over and over within the community.

**Turnover vs. multiplier**

The term used to describe how many times money from direct effects “cycle” through a community is called turnover. In the above discussion, money spent or income received has an effect greater than the original transactions as it passes from one person or business to another. Each time money passes to another, it creates another turnover. People often confuse turnover with the numeric multiplier. The number of times an initial impact turns over in a community is not equivalent to the size of the final impact as represented by the value of the multiplier, since only a portion of the original dollar turns over each time. When one hears that a dollar spent in any given industry in a community turns over 7 times does not imply that the multiplier is 7. Some of the money may turn over 7 times, but 7 is not the multiplier.

Many of the purchases for input supplies and resulting goods and services are made from businesses within the local community, though some are not. The magnitude of the indirect and induced effects depends upon how many of the supplies and goods and services were purchased within the local community and how many were produced outside. The multiplier effect of money spent on goods and services produced outside the local area is lost to that external economy and no longer contributes to the final size of the local multiplier. This is called leakage (see fig. 1).

The example in figure 1 assumes that 40% of the value of purchases within a community remains in that region. Thus, 40 cents of the original or direct effect remains in the community after the first turnover, and 60 cents would “leak out.” On the second turnover, 16 cents remains in the community, while 24 cents leaks out. This pattern continues until the amount of money remaining in the community after the next turnover approaches $0.00. In this example, a portion of the money turns over locally 6 times. However,
when the indirect and induced effects are added to the direct effect and then divided by the direct effect, the actual multiplier equals 1.66. Past studies estimating multipliers have indicated that, especially for smaller communities, multipliers are typically less than 3.

**Types of multipliers**

There are many different kinds of multipliers. The most commonly used are for output, value added, income, and employment:

- **Output multipliers** measure the value of an additional dollar of local sales derived from the sale of a dollar’s worth of product to a region outside of the study area. This includes the value of the sale plus the increase in local sales resulting from the original purchase.

  For example, an order buyer from Colorado purchases 100 feeder steers from a rancher in South Dakota. Assume that the market price paid by the order buyer was $600 and the output multiplier for South Dakota was 1.8. The total impacts resulting from that sale would be $108,000, including the $60,000 paid by the buyer (direct effect) plus an additional $48,000 ($60,000 x .8) of local production in South Dakota from business activity of the rancher, other businesses, and consumers resulting from the sale (indirect and induced effects).

- **Value-added multipliers** provide estimates of value added to products resulting from the sale of a good or service to another region. This added value includes the costs of employee compensation, indirect business taxes, and proprietary and other property income.

  In our example, if $50,000 of value added (direct effect) is produced from the 100 steers, and the value-added multiplier is 2.1, then $55,000 ($50,000 x 1.1) of value (indirect and induced effects) would be added to the local community from businesses supplying inputs to produce 100 additional South Dakota steers sold to the Colorado buyer.

- **Income multipliers** measure the economic impact of expenditures by employees of a given business or trade within the community or region.

  In our example, if the rancher made $10,000 of income on the sale and the income multiplier was 2.2, there would be a total increase in income to the community of $22,000 ($10,000 x 2.2)—$10,000 for the rancher and $12,000 for owners and employees of other businesses in the local community.

- **Employment multipliers** measure how employment in the community changes given the additional production in the local community.

  Total employment in our example would rise by 1.9 jobs in the local community if the employment multiplier was 1.9 and the rancher hired one additional hand (1 by the rancher and 0.9 by other businesses in the local community).

**Comparing multipliers**

There often is a tendency to directly compare the magnitude of multipliers that were computed from different studies. When comparing two economic studies that employ multiplier analysis, one should not be overly concerned with the exact size of the multipliers presented. What is more important is to determine if the multiplier from one study is comparable to the multiplier of another study. To answer this, the assumptions of each study, their model designs, and other considerations must be taken into account:

Example:

A **Type I multiplier** is computed as follows:

\[
\text{Type I Multiplier} = \frac{\text{direct + indirect effects}}{\text{direct effects}}
\]

Whereas, **Type III multipliers** are computed as follows:

\[
\text{Type III Multiplier} = \frac{\text{direct + indirect + induced effects}}{\text{direct effects}}
\]

Equally important is the size of the economy under analysis. The smaller the area of study, the more leakage will occur as more goods and ser-
vices are purchased from outside the community. This leads to smaller and smaller indirect and induced effects each time the money turns over in the community, resulting in a smaller multiplier. As a general rule, multipliers for small communities are typically small.

Multipliers are also site-specific and depend upon the local customs and business practices of the area. The same direct effect occurring in two separate communities can (and most likely will) have different indirect and induced effects, leading to different multipliers between the two communities.

Thus, the size of the communities affected and their customs and business practices must be compared before emphasis is placed on the differences of their multipliers.