11-1-1990

Using Multipliers in Economic Studies

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COOPERATIVE EXTENSION SERVICE

ExEx 5020
November 1990
F&F: 5.5

extension extra

South Dakota State University • U.S. Department of Agriculture

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The total impact of a dollar produced or spent in a community often is measured with a **multiplier**. Multipliers are numbers which measure the magnitude of the direct and indirect effects that a given amount of production or expenditure has on a region or community. Multipliers are used in economic studies to show how important one business or industry is to a given geographic region or community.

There are many different kinds of multipliers. The most commonly used are for total output, income, and employment. Confusion exists, however, over the proper way to use multipliers and how they fit into an economic analysis.

A **direct multiplier effect** is equivalent to the initial impact of the original production or expenditure. For example, the direct effect of $1.00 spent on some good or service in a community is 1.

Turnover is the number of times portions of the initial expenditure cycle in the economy.

Indirect multiplier effects are the impact the original purchase has as the dollars spent for it "turn over" within the region or community.

People often confuse turnover with multiplier. The number of times an initial dollar turns over in an economy is not equivalent to the size of the final dollar impact as represented by the value of the multiplier. That's because only a percent of the original dollar turns over each time. Thus, because a dollar spent in a given industry in a community turns over 6 times does not mean that the multiplier is 6.

Let's say we want to know the total impact on a community of the money received from the sale of a market steer. The direct effect is the money received from the sale of the steer. The indirect effect is what happens to the money received from the sale of the steer. Receipts from the sale of the steer go to: 1) pay for inputs used to produce the steer and 2) provide income to the rancher.

Many of the inputs used in the production of the steer were purchased from various agricultural businesses within the region. Money spent on these inputs is considered gross receipts to those agricultural business which supplied them. These businesses, in turn, use the money they receive to pay other businesses for the inputs purchased from them and to provide income to their owners. 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, one to another.

In addition to the expenditures for agricultural inputs, the rancher uses the income portion of the sale price of the steer to purchase goods and services for family living and recreation. Many of these expenditures are to non-ag businesses located in the community. And, as in the ag business example above, these non-ag businesses use the money they received from the

rancher to pay for the inputs required to operate their business and to provide income to their owners. Thus, the income portion of the money received from the sale of the steer can also cycle over and over within the community.

The magnitude of the indirect effect depends on how many of the goods and services purchased were produced within the local area and how many were produced outside the local area. The continuing or 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**.

The graph below assumes that 40 percent of the value of purchases within a community remain in that region, 60 percent is leakage. Thus, on the first turnover, 40 cents of an initial one dollar expenditure remains in the local economy, and each time the money turns over in the region, it's reduced by 60 percent. On the second turnover, the 40 cents is reduced to 16 cents, and so on.

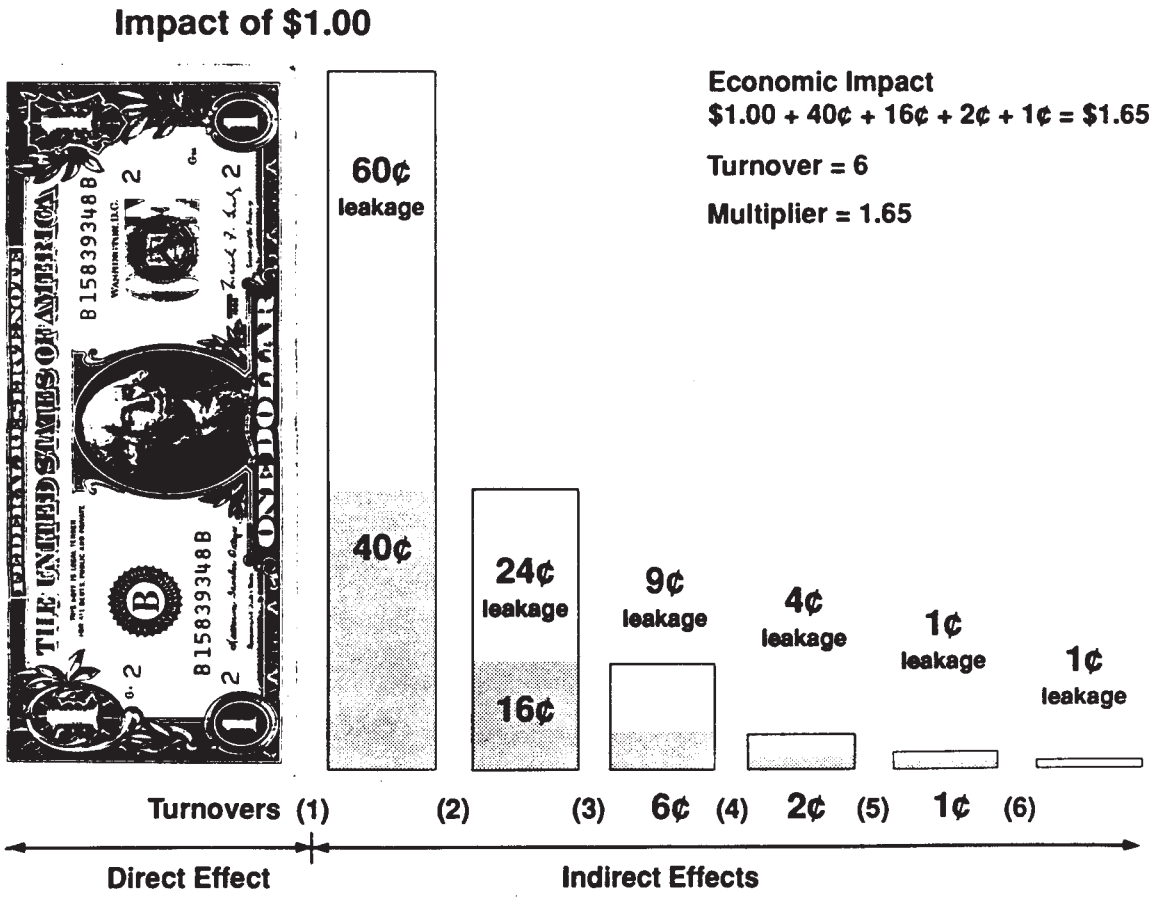
In the graph, the money turns over 6 times. When the indirect effects are added to the direct effect, the multiplier (or total) equals 1.65.

Recent studies estimating multipliers indicate that, especially for smaller communities, multipliers range between 1 and 3 and are more normally around 2.

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

Equally important is the size of the economy under analysis. The smaller the area of study, the more leakage will occur. Compare the origins of both multipliers before emphasizing their magnitudes.

As a general rule, view multipliers above 3 with some skepticism.



Assume 40% of the money spent in a community remains in the region to turnover, while 60% leaks out. That means one dollar spent in the community turns over 6 times. The multiplier is 1.65, the sum of the turnover.