APPENDIX E

Sales and Local Income Multipliers

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An economic multiplier is an approximate gauge of the effect that sales of final goods and purchases of intermediate factors used in the production of the final goods have on the local economy--the total change in personal income. How is the effect of a dollar of sales multiplied in a local economy? Suppose the local fishing industry increased sales by one dollar. If the economy has an output multiplier of 2.49 (for example), total business sales throughout the local area are expected to increase by a total of $2.49 as a result of the one dollar increase in sales. Figure 6a demonstrates how local respending of the payment by businesses and households creates this multiplier effect.

The process begins when a dollar enters the local economy, in this case as the result of an increased sale (column a). The dollar will be respent by the firm in order to purchase inputs to meet the increased demand (column b).

Sixty cents of the dollar will be received by local businesses and households, but $.40 will leak out in the form of non-local purchases, savings, and taxes. Thus, in addition to the additional dollar, business respending has generated an additional 60 cents of business activity within the economy.

Of the $.60 that is locally received, 38 cents will be respent within the area, and the rest will leak out (column c).

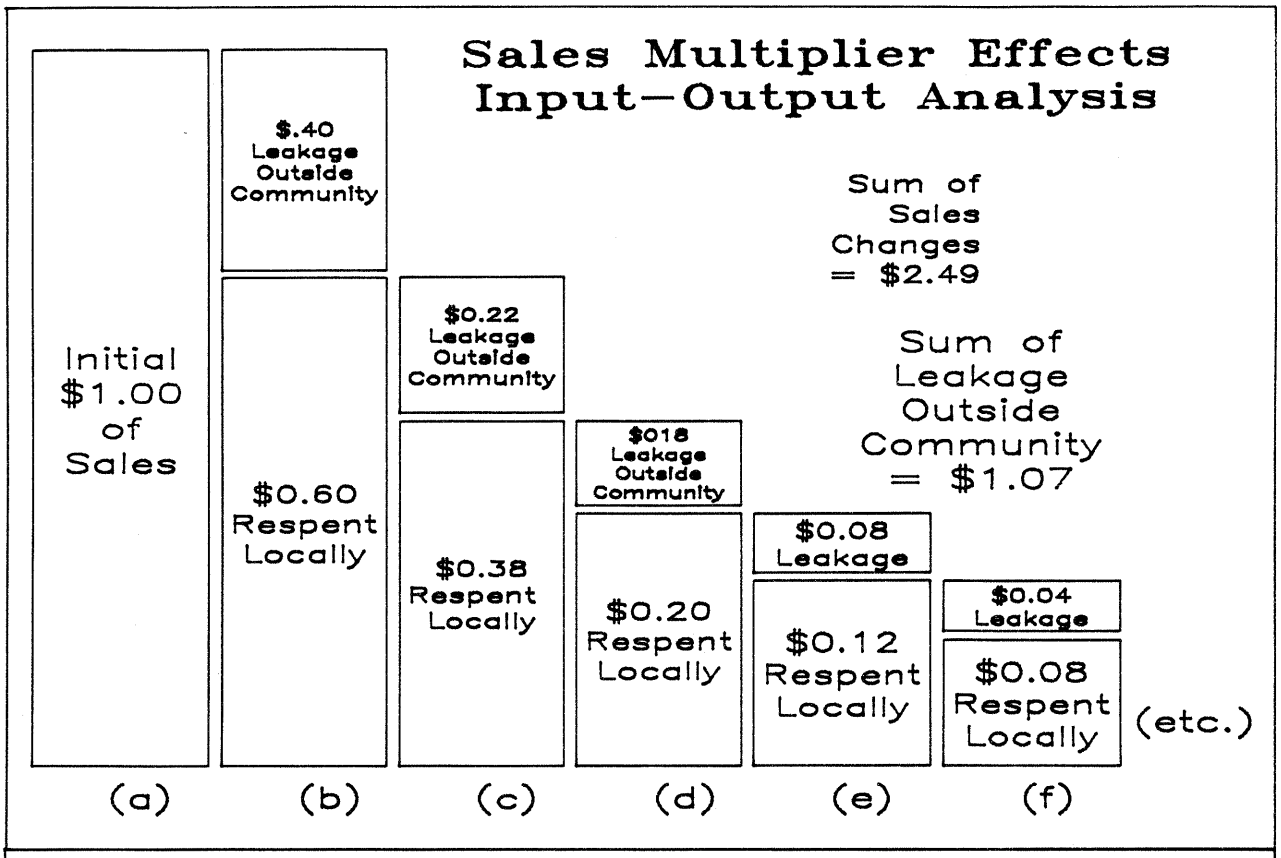
This process continues until the amount remaining in the local economy is negligible (columns d, e, and f). Thus, greater leakage at any round of respending leads to a smaller multiplier. In order to determine the local output or sales multiplier values, the initial dollar is added to the sum of local respending. In this example, the output multiplier equals $2.49. Thus, $2.49 of local business activity will be generated for each new dollar that enters the local economy.

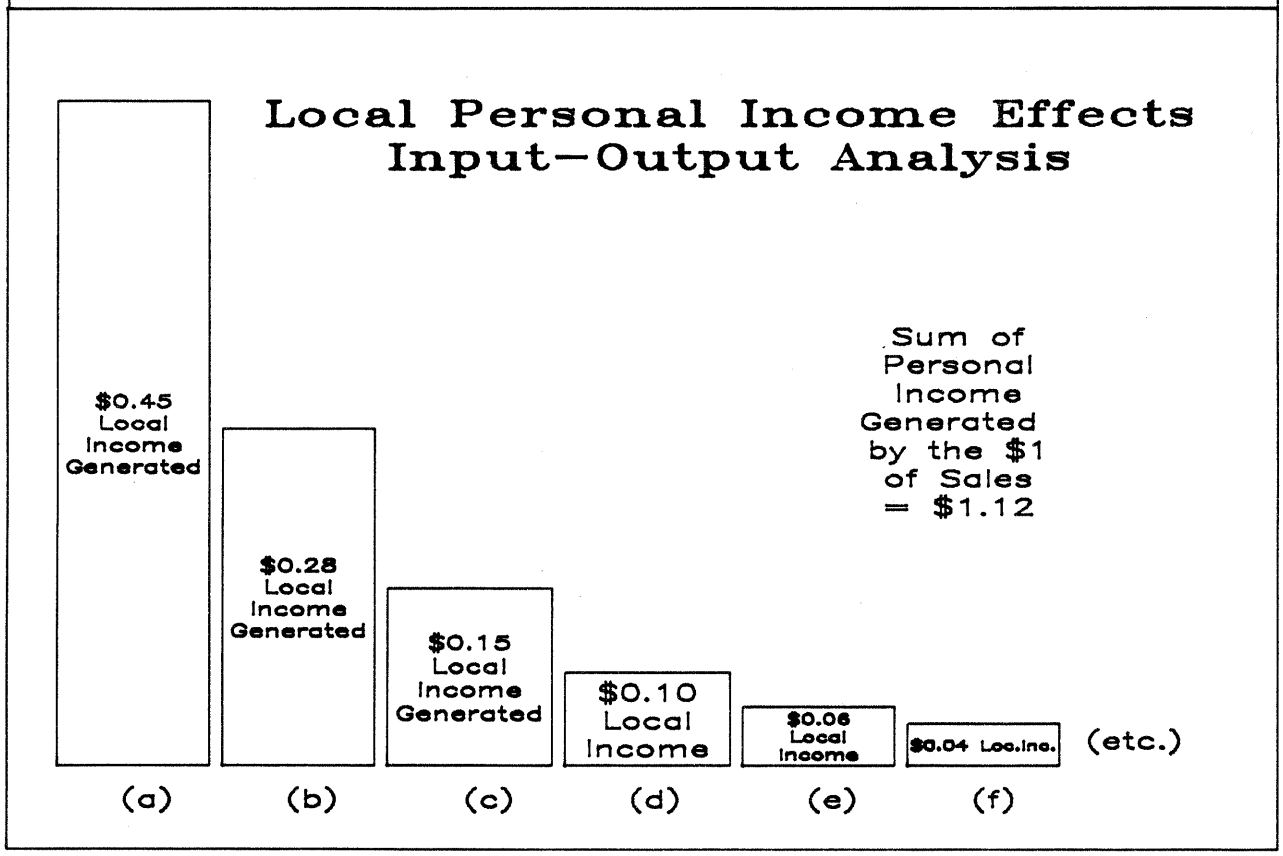
The amount that is retained in the local community in terms of local income is calculated in similar fashion (see Figure 6b). The initial one dollar increase in sales generated $.45 in local income (wages, salaries, and proprietary income); each subsequent round of spending also generates local income.

The total local personal income generated in this example by the initial $1.00 of increased sales is $1.12. This is called the local personal income coefficient. To utilize the local personal income coefficient to estimate changes in local personal income that result from changes in sales or output, the sector's gross output change is multiplied by the total personal income coefficient.

The output (sales) multiplier measures the total change in local sales or economic activities generated by a one-dollar increase in sales. While output multipliers are useful in describing the interrelationships between business sectors, they do not adequately describe the amount of income of employment generated locally by specific business activities.

The income coefficient is different from output multipliers which are higher. The income coefficient is straightforward: for every dollar of new sales (i.e., fish harvested and processed) a certain amount ($1.12 for


Sales Multiplier Effects
Input–Output Analysis
Initial $1.00 of Sales
$.40 Leakage Outside Community
$0.60 Respent Locally
$0.22 Leakage Outside Community
$0.38 Respent Locally
$018 Leakage Outside Community
$0.20 Respent Locally
$0.08 Leakage
$0.12 Respent Locally
$0.04 Leakage
$0.08 Respent Locally
(etc.)
Sum of Sales Changes = $2.49
Sum of Leakage Outside Community = $1.07
(a)
(b)
(c)
(d)
(e)
(f)


Local Personal Income Effects
Input–Output Analysis
$0.45 Local Income Generated
$0.28 Local Income Generated
$0.15 Local Income Generated
$0.10 Local Income
$0.06 Local Income
$0.04 Loc.Inc.
(etc.)
Sum of Personal Income Generated by the $1 of Sales = $1.12
(a)
(b)
(c)
(d)
(e)
(f)

example) in personal income is generated through harvesting, processing, and the general economy. An output multiplier of $2.49 means that for every dollar of fish landed there are $2.49 of total sales as that fish (and related expenditures) passes through various sectors of the economy. It does not mean, however, that $2.49 of new money is produced and that it ends up in anyone's pocket. The output multiplier calculates how much money is "stirred up" in the economy, but it does not mean that someone in the local area is making a wage or profit from this money.

In order to make the analysis meaningful, the effects estimated in this report are effects on total personal income--the amount that is retained as household income (salaries, wages, and proprietary income). Because many jobs in the fishing industry are not full time, most employment figures can be misleading. A full-time equivalent employment figure can be calculated by dividing the total personal income figure by a representative annual full-time equivalent personal income average.