The Economic Impact of the Dairy Industry

Some regions of the country today are actively pursuing the growth of their dairy industry. In other areas, dairy is declining without its neighbors appreciating what is being lost. How can the dairy industry’s advocates demonstrate the value of the dairy industry to the state or nation?

There are many things that dairy farming brings to a community, but the most measurable is its impact on the economy. It is a common thing for advocates for industrial projects, stadiums, or mega-malls to cite the “multiplier effect” that such a project will have on the regional economy. The same can be done for the dairy industry, and using multipliers from the U.S. Bureau of Economic Analysis, this paper will outline the industry’s impacts on the national and state economies.

What is a Multiplier?

As it is usually used, an economic multiplier is a measure of the larger effect that a change in economic activity (like a factory closing or a new farm) has on the regional economy. This effect is generally more than just the direct income or employment of the factory or farm, because one business creates demand for other businesses, and the money people earn from those businesses also drives more demand. This paper discusses multipliers that show the impact that an industry’s additional sales to final users have on a region’s economic activity, including 1) total economic output, 2) household earnings, and 3) employment.

The following tables contain “final demand multipliers” estimated by the Commerce Department’s Bureau of Economic Analysis (BEA), as part of their regional “input-output” model of the U.S. economy. This model builds and uses estimates of the inputs each industry needs from each other industry to produce a million dollars of output, and estimates impacts on household earnings, as well.

BEA’s model uses detailed economic data to do regional impact analysis for the nation, the states, and even the individual counties. They can also generate multipliers for metropolitan areas or any other multi-county region, even across state lines. The model also generates detail on the effect that each industry has on other industry, but here we will present only dairy’s total effects on all industries.

Output Multipliers

Output multipliers show how much the economy’s output is increased by an additional dollar of sales from an industry. For example, if dairy farms in Missouri sold an additional million dollars of milk, it would boost the state’s economy by $3,109,300, based on BEA’s output multiplier of 0.6186.

Earnings Multipliers

Impacts on household income are included in the output multiplier, but they are also accounted for separately through an earnings multiplier. This shows how much household earnings are increased by an additional dollar of sales from an industry. Our million dollars in new Missouri dairy farm sales would generate $618,600 in additional household earnings in state, using the earnings multiplier of 0.6186.

Employment Multipliers

Another number of clear interest is the employment impact of the industry. The employment multipliers are the number of jobs created by increasing annual industry sales by one million dollars. Our million-dollar dairy farm sales increase in Missouri would create 28 new jobs in state, based on an employment multiplier of 27.7751. (See Table 1.)

Why Are the U.S. Multipliers Bigger?

A look at the U.S. multipliers shows that they are larger than the same numbers for the individual states. This is because a state won’t capture all the benefits of a new activity in the state; there are interregional spill-over effects. For example, a Florida dairyman may buy more feed from Georgia when he increases production, or a Georgia dairy farmer may buy a tractor assembled in Georgia from parts made in Indiana. As a result, there is a bigger boost to the nation’s economy, including the home state, than to the home state alone. That also means that the impact, for example, of Florida dairy farms on Georgia’s economy is not captured in either the Georgia numbers or the Florida numbers, although it is included in the U.S. totals. These interregional effects also explain why the states have differing multipliers: each is more or less able to supply an industry’s inputs from in state.

Impact of Dairy Farming

Table 1 shows the economic impact of dairy farming on all 50 states, individually and collectively. Farm receipts for milk and cream are used as a measure of final output. These are averaged over 5 years ending with 2002 to minimize distortions from year-to-year price fluctuations.
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Sources: USDA/NASS; Bureau of Economic Analysis; National Milk Producers Federation
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<td>US</td>
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<td>0.7871</td>
<td>4.1256</td>
<td>3.4595</td>
<td>4.2729</td>
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</table>

Source: Bureau of Economic Analysis  
Note: States with 1.000 and 0.000 impacts do not have the industry in question.
BEA’s multipliers were applied to these numbers to estimate the economic output, household earnings, and employment generated by dairy farming in the state. The state totals sum to less than the U.S. totals, because of the interregional spillovers discussed above. For the U.S., average dairy farming receipts of $22.6 billion were responsible for overall economic output of $90.4 billion, household earnings of $20.6 billion, and 773,319 jobs.

**Impact of Dairy Processing**

Table 2 contains economic multipliers of several dairy processing industries. These individual processing industries can be added to present an aggregate impact with limited double-counting (mostly the use of milk powders in processing other dairy products), although the direct use of about 5% of milk in other food processing is missed. An estimate of these dairy processing impacts for 2002 is presented in Table 3, based on production and estimated processor prices. Similar calculations can be made for the impact of each dairy processing industry on your state’s economy with the state multipliers in Table 2.

**Final Remarks**

The economic impacts of dairy processing include the dairy farm impacts for the milk they buy, because the farm and the processor are two stops in the same supply chain. The 5% of milk used directly by food processors is probably greater than the milk use that is double-counted when adding the five dairy processing industries together; so we can reasonably estimate the overall economic impact of the U.S. dairy industry – farming through processing – to be $140 billion in economic output, $29 billion in household earnings, and well over 900,000 jobs. The impacts of dairy farming account for about two-thirds of dairy’s overall output effect and over four-fifths of the employment impact.

These numbers don’t count additional food processing, food service, wholesale, or retail value-added. Increased consumer demand for milk and its products boosts all these sectors as well, so that its multiplied impact can be even greater. Dairy farming and processing clearly have great impact beyond the farm and plant gates. Their contribution, especially in rural communities, can be essential to a healthy local economy. BEA’s multipliers are the best available. We hope by making them more readily accessible, that we can help the dairy industry better demonstrate its greater economic value to the public, the business community, and their representatives.

*Thanks to Zöe Ambargis and Bruce Matson for their help.*

### Table 3. Economic Impacts of Dairy Processing, 2002

<table>
<thead>
<tr>
<th>State</th>
<th>Production (mil. lbs.)</th>
<th>Wholesale Price (per lb.)</th>
<th>Value of Production (millions)</th>
<th>Multipliers</th>
<th>Output Earn'gs</th>
<th>Jobs</th>
<th>Impacts</th>
<th>Output</th>
<th>Earnings</th>
<th>Jobs</th>
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<tbody>
<tr>
<td>Butter</td>
<td>1,355.1</td>
<td>$1.0931</td>
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<td>$6,101.5</td>
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<td>Dry, Condensed, &amp; Evap.*</td>
<td>1,512.2</td>
<td>$0.9043</td>
<td>$1,367.5</td>
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<td>0.5921</td>
<td>18.86</td>
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<td>$809.7</td>
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<td>Fluid Milk</td>
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<td>$0.2461</td>
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<td>$55,035.1</td>
<td>$11,460.3</td>
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<tr>
<td>Ice Cream/Frozen Desserts</td>
<td>7,689.7</td>
<td>$1.0980</td>
<td>$8,443.6</td>
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<td>0.7332</td>
<td>22.48</td>
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<td>Cheese</td>
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<td>$43,558.4</td>
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<td><strong>TOTAL</strong></td>
<td><strong>34,826.4</strong></td>
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<td><strong>$138,266.6</strong></td>
<td><strong>$28,220.4</strong></td>
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</tbody>
</table>

**Sources:** Bureau of Economic Analysis; USDA/NASS; USDA/AMS, National Milk Producers Federation

*Includes the value of some dry milk products used in other dairy industries; excludes bulk condensed and evaporated milk.*