

Value-Added Manufacturing Has Strong Local Linkages

The local economic linkages of value-added manufacturing plants are relatively strong, due to their purchases of materials from local farms and businesses.

In planning a local value-added development strategy, one must understand the location decisions and purchasing patterns of various types of processors. Value-added industries tend to have strong backward linkages with local suppliers. This is a key component of the value-added development strategy. A manufacturing plant that buys its materials locally provides existing businesses and farms with a nearby customer and may attract new businesses to locate in the community. By adding value to locally produced commodities, plants that purchase locally become more closely integrated into the local economy and have a greater local impact than a plant that has materials shipped in from elsewhere.

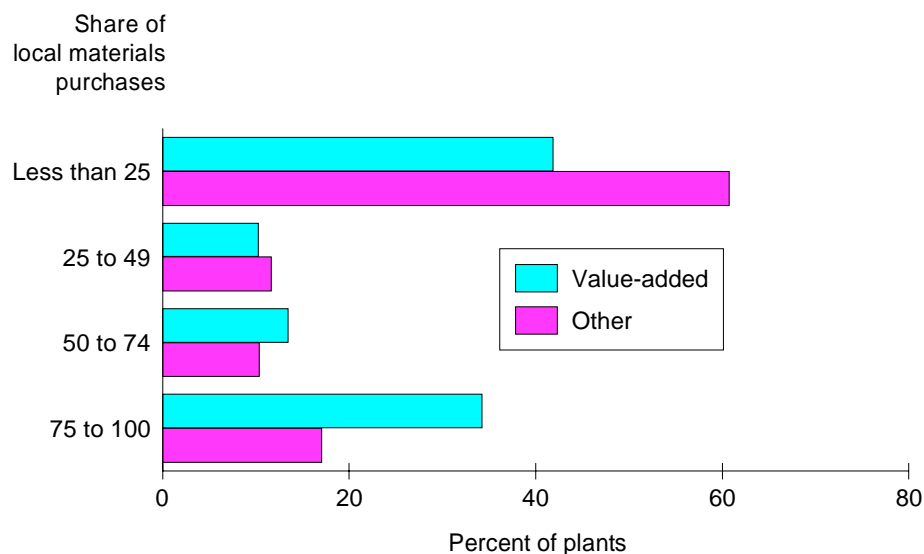
Analysis of the ERS Rural Manufacturing Survey (see “Data Sources” appendix) shows that, on average, nonmetro plants in value-added industries purchase 45 percent of their materials and inputs locally (within a 1-hour drive), while plants in other industries reported an average of 28 percent local purchases. About 48 percent of nonmetro value-added plants buy at least half of their materials locally, compared with only 28 percent of other plants. Local purchases are a key ingredient for a successful value-added rural development strategy.

Value-added plants vary considerably in their propensity to purchase inputs locally. Forty-two percent of nonmetro value-added plants purchase less than 25 percent of materials locally, while about 35 percent purchase 75 percent or more of materials locally (fig.1). Factors that affect local purchasing include the type of industry, size, and type of plant. Sawmill operations locally buy an average of 70 percent of their inputs. The average is 50 percent for plants that make wood containers, and about 30 percent for millwork-plywood and for wood buildings-mobile home manufacturers. Pulp and paper mills tend to do less local purchasing than other types of wood products industries, locally buying about 25 percent of materials. Food processors’ average local purchasing varies between 40 and 60 percent for most industries, but is as low as 8 percent for bakery products and

Figure 1

Local purchasing by nonmetro value-added and other manufacturing plants

Plants in value-added industries are more likely to purchase materials locally



Source: ERS analysis of 1996 Rural Manufacturing Survey.

as high as 64 percent for fats and oils. As might be expected, industries that process raw materials (logs or agricultural commodities) are the most likely to purchase local materials (fig.2).

Local Purchases Increase Local Impact

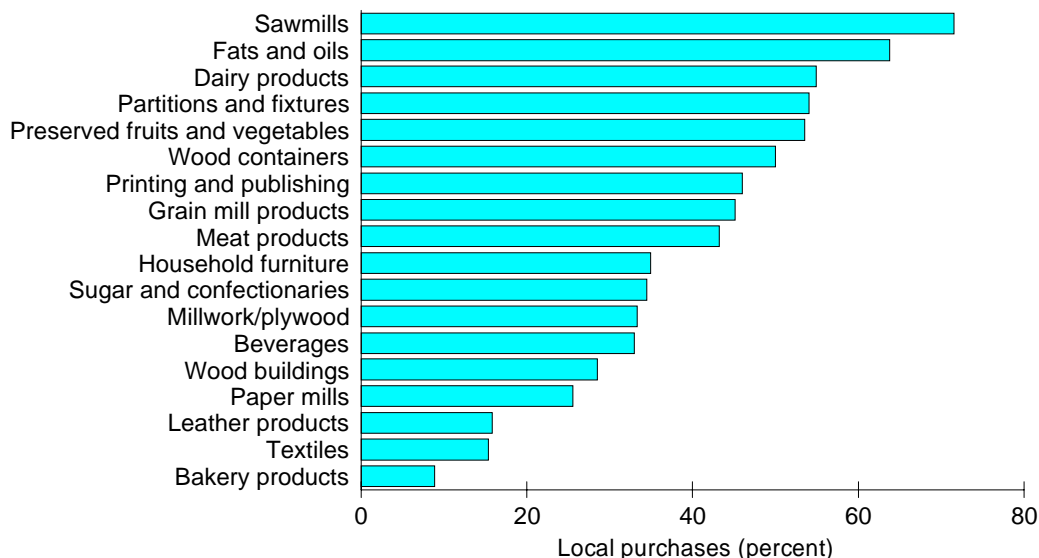
While the economic impact of a manufacturing plant is often measured by the number of jobs it provides, considering its local linkages can give a broader assessment of a plant's impact. Local purchases of materials are much larger than salaries and wages for many food processing, logging, and sawmill operations. For example, ERS estimates that an average meat-packing plant with 370 jobs spent \$7.6 million on salaries and wages and \$32.5 million on materials purchased locally in 1995 (table 1). In this case, the primary stimulus to the local economy provided by the plant may be its purchases of raw materials from local businesses and farms, rather than the jobs directly created by the plant. In contrast, an average cotton fabric mill with 221 jobs spent about \$4.3 million on salaries and wages, but only \$1.5 million on local materials purchases. Meat-packing plants appear to have a much more extensive impact on the local economy through the strength of their backward linkages than do cotton fabric mills. The average meat-packing plant spent \$108,500 per job on salaries, wages, and materials, compared with only \$26,000 per job spent by the average cotton fabric mill.

Comparison of value-added industries shows that food processing and primary wood products industries have the highest spending per job, because they are materials-intensive and locally purchase a large share of their materials. The highest spending per job is by fats and oils processors, manufacturers of dairy products, red-meat packers, grain mills, logging operations, and sawmills. Red-meat-packing plants spend twice as much as poultry-processing plants on a per job basis because of their higher wages and greater expenditures on materials. Labor-intensive industries, such as textiles and leather products, have the lowest spending per job. Spending per job in other value-added industries is comparable to levels in other manufacturing industries, where the average generally ranges between \$40,000 and \$60,000 per job. Note that this measure excludes some important spending that contributes to the local economy, such as tax payments, purchases of business services, and construction expenditures.

Figure 2

Average local purchases by nonmetro value-added industry

Industries that process raw agricultural materials and logs are most likely to purchase local materials



Source: ERS analysis of 1996 Rural Manufacturing Survey.

Plant Size and Local Ownership Can Affect Local Purchasing

Other factors can influence the propensity to purchase locally. Some economic development experts recommend a strategy based on smaller, locally owned plants because they are believed to have stronger local linkages. Larger plants tend to buy a smaller proportion of their materials locally because their large input requirements may not be met by local suppliers and larger plants may be more aware of nonlocal sources. This is the case for sawmills, where small operations (less than 100 employees) locally purchase an average of 74 percent of materials, and large operations (over 500 employees) locally purchase only 28 percent. Many value-added industries do not follow this pattern. For example, among grain mills, local purchasing averages between 50 and 60 percent for plants of all sizes. For millwork/plywood mills, the largest plants have higher average local purchasing propensity than plants of other sizes. Even in industries where larger

Table 1

Estimated local expenditures by nonmetro value-added manufacturing plants, 1995

Local purchasing increases the local impact by raising local spending per job

Industry	SIC ¹	Local purchases ²	Salaries and wages	Jobs	Local spending per job
		—Million dollars—		Number	Dollars
Meat packing	2011	32.5	7.6	370	108,500
Poultry processing	2015	15.4	7.0	467	48,100
Dairy products	202	12.7	1.9	91	160,600
Preserved fruits and vegetables	203	12.8	3.8	229	72,500
Grain mill products	204	4.4	1.2	53	105,200
Bakery products	205	.6	4.6	208	24,900
Sugar and confectionery	206	10.1	4.3	236	60,900
Fats and oils	207	25.7	2.1	86	323,600
Beverages	208	3.4	2.1	88	62,700
Broadwoven fabric, cotton	221	1.5	4.3	221	26,000
Yarn and thread mills	228	5.2	5.3	263	39,600
Logging	241	6.9	1.6	80	105,600
Sawmills and planing mills	242	4.7	1.2	63	94,100
Millwork, plywood, and structural members	243	2.1	1.5	78	46,400
Wood containers	244	.6	.6	46	27,500
Wood buildings and mobile homes	245	2.0	2.2	93	45,300
Wood household furniture	251	2.6	2.7	148	36,300
Other furniture	252-9	6.2	2.0	92	89,400
Pulp and paper mills	261-3	9.0	11.3	326	62,200
Paperboard containers and boxes	265	3.2	2.2	91	59,000
Miscellaneous converted paper products	267	1.4	2.8	122	34,200
Publishing/printing books, etc.	272-4	1.7	4.7	179	35,900
Commercial printing	275	.9	1.2	46	45,400
Other printing	276-9	2.6	7.1	294	33,100
Leather products	313-9	1.5	3.6	201	25,300

¹Standard Industrial Classification code. ²Average materials expenditures multiplied by average percent local purchases.

Source: Estimated by ERS. All data are for 1995, not adjusted for inflation. Local purchasing propensity, production worker wages, and average number of jobs are from 1996 Rural Manufacturing Survey. Materials expenditures and nonproduction worker salaries are from 1995 Annual Survey of Manufactures.

plants locally buy a smaller proportion of their inputs, the larger volume of purchases by large plants means that large plants still locally spend more dollars than smaller plants.

In wood products and furniture industries, branch plants of larger firms tend to purchase fewer local inputs than firms that have only one plant. Textile plants that use just-in-time manufacturing techniques tend to purchase a higher percentage of local materials. Plants also tend to buy more locally when a large number of related firms in the same industry are located nearby. These factors should also be considered when forming a value-added development strategy. [*Fred Gale, 202-694-5349, fgale@econ.ag.gov*]