Agricultural Processing in Wisconsin

Agricultural Processing: Changes in Strength over Time

A widely held perception across Wisconsin is that food processing, such as vegetable canning and freezing, is an important part of the state's economy. In 2011 food processing as an industry directly accounted for 2.9 percent of Wisconsin's Gross State Product and 1.9 percent of employment. But without comparisons to other states or the nation, it is difficult to say if those shares reflect a strong, average or weak industry.

One common method economists use to make such comparisons in the Location Quotient. Here the Location Quotient (LQ) is a simple metric of relative strength that is centered on one. If the state is "performing on average" when compared to either the nation or some other benchmark economy such as the Great Lakes region, we would expect the LQ to be equal to one. Here the industry, or in our case food processing, is performing as we would expect or "on average".

If the LQ is greater than one, then the state is performing "above average" in that particular industry. Industries that have a "large" LQ is said to be a strength of the economy. For example, the LQ for hotels, motels and restaurants tends to be very high for the Wisconsin Dells as well as Door County. This suggests that tourism is important to these two parts of Wisconsin. The question is what is it about these areas that make tourism so strong? Or as economists might phrase it, what is the "comparative advantage" of these areas that allows tourism to be so strong?

In a 2009 study of the Wisconsin agricultural economy Deller and Williams documented that the food processing industry generates about 252,000 jobs and $15.5 billion in income. This represents just over seven percent of all employment and just less than seven percent of all income in Wisconsin. In addition, the economic activity associated with food processing generated just over $1 billion in state and local government revenues. This series of factsheets is aimed at helping better understand the food processing industry in Wisconsin and identify policies that may enhance the competitiveness of the industry.

Agricultural process manufacturing, such as cheese making, vegetable canning and freezing and breweries as well as wineries, remains an important part of the Wisconsin economy. Equally important, the products that are associated with food processing, in particular cheese and beer, are an integral part of the Wisconsinites self-identity. Curly Lambeau, one of the founders of the Green Bay Packers, used funding from his employer, the Indian Packing Company, a meat canning processor, to fund the early operations of the team. The Milwaukee Brewers are named in recognition of the city and state's long tradition in making beer.

Alternatively, a Location Quotient that is less than one suggests that the particular industry is not a strength. For example, 20 years ago auto manufacturing was a strength for the Wisconsin economy, but over time the LQ went from above one to below one. This trend in the LQ points to fundamental changes in the auto industry in Wisconsin. This is not to say it is a weakness, but rather it is not a strength.

When calculating LQ there are two decisions to be made: (1) what metric or measure of the industry to use and (2) what is a fair or reasonable reference or benchmark economy to compare the industry? For our analysis here we use Gross State Product and employment and we compare to the overall U.S. and the states that comprise the Great Lakes region. Thus we have four different LQ to examine. In addition, to look for trends we track each of these LQ from 1969 to 2011.

Let us first consider the LQ based on Gross State Product (Figure 1) and then the LQ based on employment (Figure 2). For the whole of the 40 plus years examined, the LQ for Wisconsin food processing based on Gross State Product is above one and for much of the time period above 1.5. This confirms the widely held belief that food processing is a "strength" for the Wisconsin economy. Notice that the LQ trended up from 1969 to the early 1980s suggesting a strengthening of the industry, then trended downward till 2003. This latter downward trend suggested that the industry was still a strength (i.e., LQ>1) but it was weakening. From 2003, however, the upward or strengthening trend returned. A natural question is what happened within the industry to help us better understand these trends.

Using employment (Figure 2) we again see food processing is a strength and appears to be slowly gaining strength over the study period. Unlike the downturn in the 1990s that is most evident with Gross Domestic Product compared to the U.S., using employment the downturn is more modest and short-term. We also see a slight weakening from 1999 to 2008 when compared to the Great Lake States. The trend, however, is that food processing is a strength and appears to be strengthening when compared to the U.S. and Great Lake States.

One could also note that the LQ using Gross State Product is consistently below the LQ using employment. This suggests that food processing in Wisconsin is more labor intensive, particularly compared to the U.S. This could be due either to the slower rates of mechanization in Wisconsin food processing and/or the labor intensive nature of the types of food processing in Wisconsin. It could also reflect the more labor intensive nature of smaller scale food processors that are common throughout Wisconsin. Unfortunately, the LQ analysis at this aggregate level cannot allow us to shed more light on this latter question.

Figure 1: Food Processing Location Quotient using Gross State Product (GSP) Trends

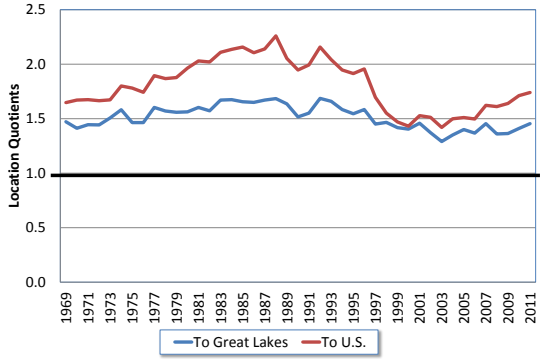
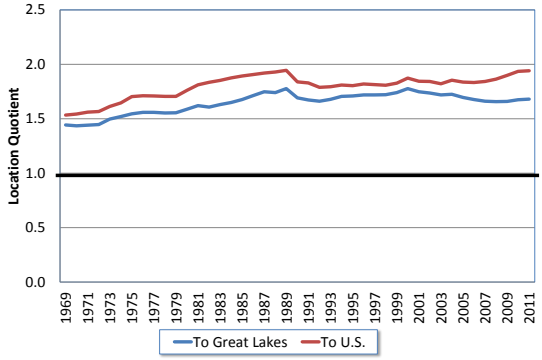


Figure 2: Food Processing Location Quotient using Employment Trends



References: Deller, Steven C. and Williams, David. 2009. "The Contribution of Agriculture to the Wisconsin Economy." Department of Agricultural and Applied Economics Staff Paper No. 541. University of Wisconsin-Madison/Extension. (August). www.aae.wisc.edu/pubs/sps/pdf/

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