

Agricultural Processing: Potential Clusters

The Wisconsin food processing industry is composed of several different components each producing a different type of food product ranging from cheese to beer and wine to beef products and poultry. The question is which components or specific sectors within the broader food processing industry are the “drivers” of the larger industry? One way to gain insights into this fundamental question is to explore patterns in what economists refer to as Location Quotients. A Location Quotient (LQ) is a simple metric that compares the relative size of an industry to a national average. If the industry is of the same relative size as the national average the LQ is equal to one, which is what we would expect. If the LQ is greater than one then the industry is said to be a strength for the region of interest.

By looking at the current value of the LQ, how the value of the LQ has changed over time, and the absolute size of the industry, or in our case different food processing sectors, we can gain those required insights. As outlined in Figure 1 there are four possible that are the interaction of a LQ greater or less than one and the LQ growing or declining over time. Consider each in turn. For industries with a LQ greater than one and growing these industries are considered a “strength and growing” and what Harvard business economist Michael Porter suggests may be a potential cluster industry. For an industry with a LQ greater than one but declining over time is a “strength but declining” and may represent a threat to the state’s economy. The third are industries where the LQ is less than one, but is growing over time. These would be considered a “weakness but growing” and may be an industry of potential. Industries with LQ less than one and declining over time could be labeled “weakness and declining” and have the least potential.

There is a third element, however, that must be considered: the absolute size of the industry. In their analysis of the Wisconsin farm economy Deller and Williams (2009) found that animal fur bearing and

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.

Figure 1: Potential Clusters

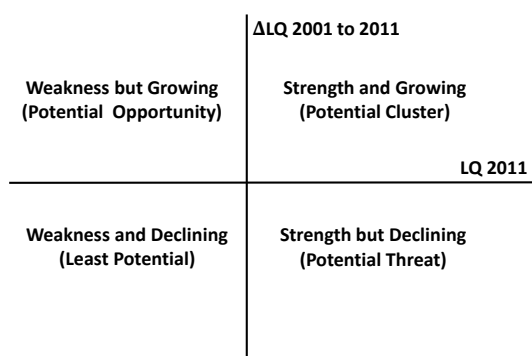


Figure 2: Wisconsin Food Processing Clusters

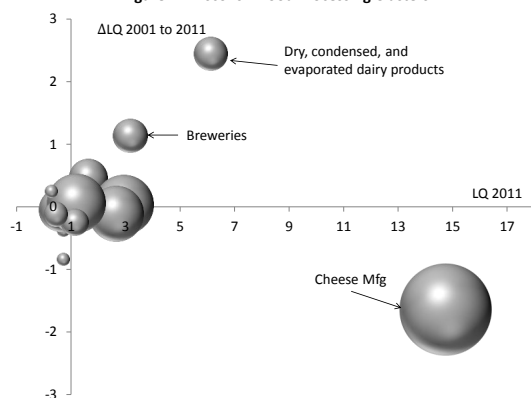
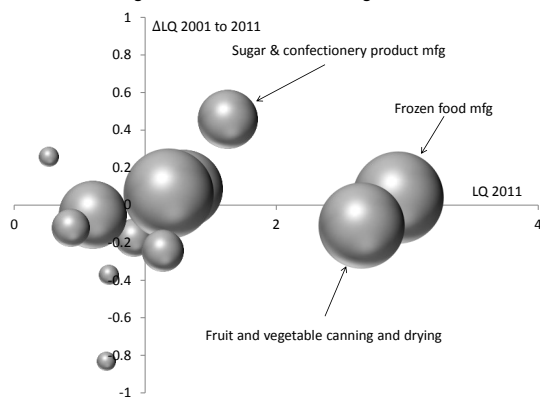


Figure 3: Wisconsin Food Processing Clusters



rabbit production had a LQ of 13.53 in 2007 which increased from 11.53 in 2001. By the logic outlined in Figure 1 this industry should be a cluster for Wisconsin agriculture. But the industry accounts for less than 0.01 percent of Wisconsin's employment. In essence, this particular industry was and remains too small to have a significant impact on the overall economy.

For the analysis here we use data for 2011 and 2001 and compare Wisconsin food processing employment to the U.S. The results of this analysis are provided in Figures 2 and 3. All 18 food processing sectors are presented in Figure 2 and the "outliners" removed in Figure 3 to allow for a closer examination of those that are grouped in the center of the figure. In Figure 2 three industry "jump out": dry, condensed, and evaporated dairy products; breweries; and cheese processing. Here the first two, dry, condensed, and evaporated dairy products and breweries, are identified as "strength and growing" which Porter might identify as potential clusters upon which to focus attention.

Cheese processing, however, is identified as a "strength but declining" and is one of the largest food processing sectors in Wisconsin. Is this finding a cause for concern? The decline in the LQ could come from two sources: (a) the size of the industry in Wisconsin is declining, or (b) the size of the industry is growing faster in the U.S. than Wisconsin. A third potential reason could be investments in labor saving technologies.

Other industries that appear to be "strengths and growing" are frozen food, sugar and confectionery products, animal slaughter (except poultry) and bread and bakery manufacturing. Of these four sugar and confectionery manufacturing showed the strongest increase.

Those that appear to be weakening include creamery butter as well as fluid milk manufacturing, but the level of employment is modest in both industries. There is also a decline in fruit and

vegetable canning and drying manufacturing. Ice cream and frozen dessert along with flour milling and malt manufacturing went from a strength (i.e., $LQ > 1$) to a weakness (i.e., $LQ < 1$), but both of these industries have very modest levels of employment. When all the dairy processing sectors are considered together they appear to be weakening over the 2001 to 2011 timeframe. Again, this could be due to actual declines, growth that is not keeping pace with the U.S. or adoption of labor saving technologies.

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/