Contribution of Agriculture to Wisconsin

Food Processing and the Wisconsin Economy

The recent update of the contribution of agriculture to the Wisconsin economy using 2017 data found that "all agriculture", combined on-farm and food processing, contributes $104.8 billion to industrial revenues (16.4% of the state total), 435,700 jobs (11.8%), $22.5 billion to labor income (11.3%), and $37.6 billion to total income (11.6%). Decomposing "all agriculture" into on-farm and food processing activity suggests that the latter, food processing, accounts for much of the economic impacts. Specifically, food processing activity contributes $82.7 billion to industrial sales (13.0% of the state total), 282,000 jobs (7.6%), $22.5 billion to labor income (8.4%), and $37.6 billion to total income (8.6%). Perhaps more important, much of the increase in the contribution of agriculture to the Wisconsin economy between 2012 and 2017 can be traced to growth in the food processing sector.

Consider the long-term (1969-2016) trends in the size of the food processing industry as measured by gross state product (adjusted to 2016 dollars) and employment (Figure 1). Of particular interest is the growth between 2012 and 2016 (the most current year for the gross state product data) with employment growing by 10.7% and gross state product from food processing growing by 23.1%. This growth, coupled with the financial difficulties currently being experience by Wisconsin farmers, helps understand the increase in the importance of agriculture to Wisconsin between 2012 and 2017.

In 2016 there were 944 food processing firms in Wisconsin, with nearly one in four (24.2%) in dairy processing and one in five (21.8%) classified as bakeries (Figure 2). Perhaps more enlightening is the concentration of food processing firms within Wisconsin as compared to the rest of the U.S. (Map 1). First, it becomes evident that the location of food processing firms tends to correspond to population density with some of the major metropolitan areas, such as Chicago, Houston, San Francisco, Miami and other clearly identified. This makes intuitive as firms have access to labor as well as transportation hubs and potential customers.

Notice that the region from northern Indiana through Chicago and up into the heart of Wisconsin has a higher concentration of food processing plants than many of our neighboring states. This speaks to the relative importance of food processing firms to Wisconsin. Now focus on the two types of food processors that account for almost half of the businesses in Wisconsin: dairy and bakeries. A simple mapping of the location of bakeries reveals that they are widely scattered across the U.S. and largely follows population density patterns. This makes sense as the baking process is what might be

Figure 1: Wisconsin Food Processing Growth Indices
(GSP in Real 2016 Dollars)

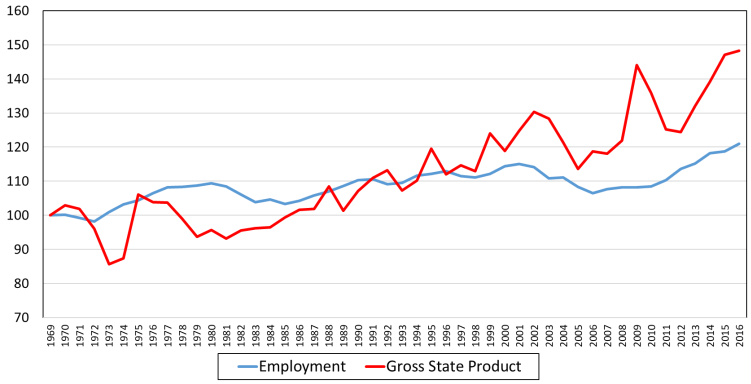
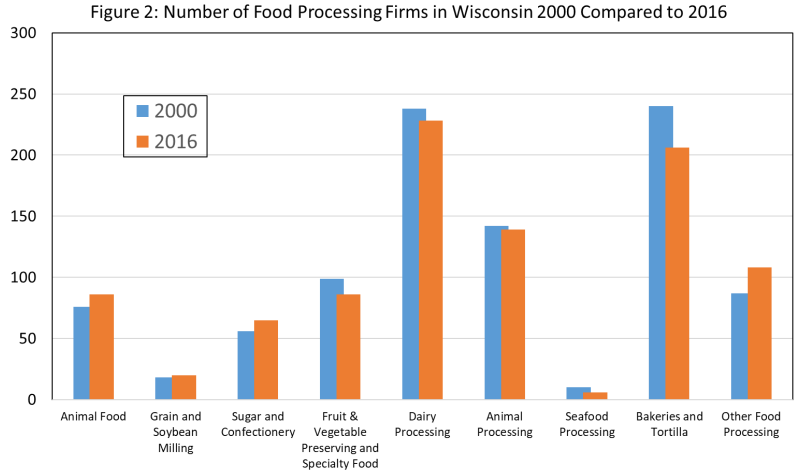
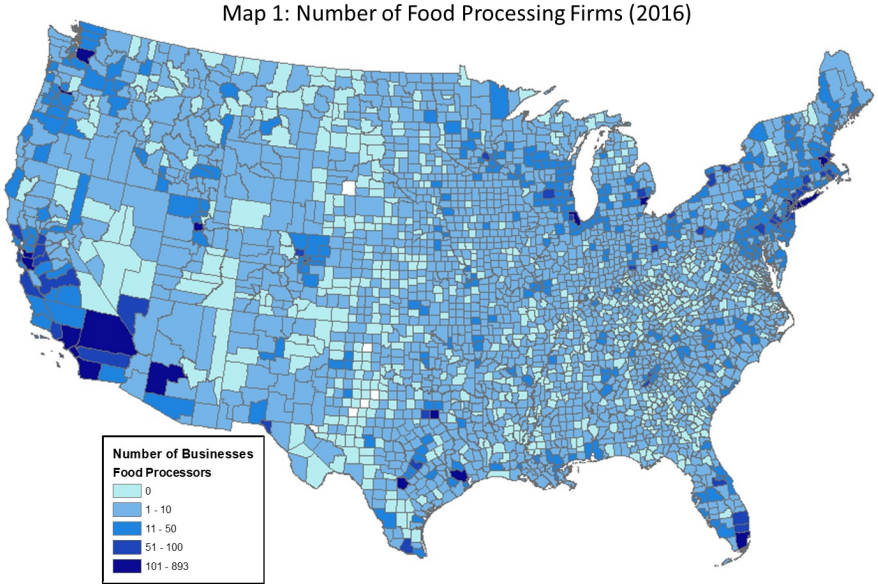


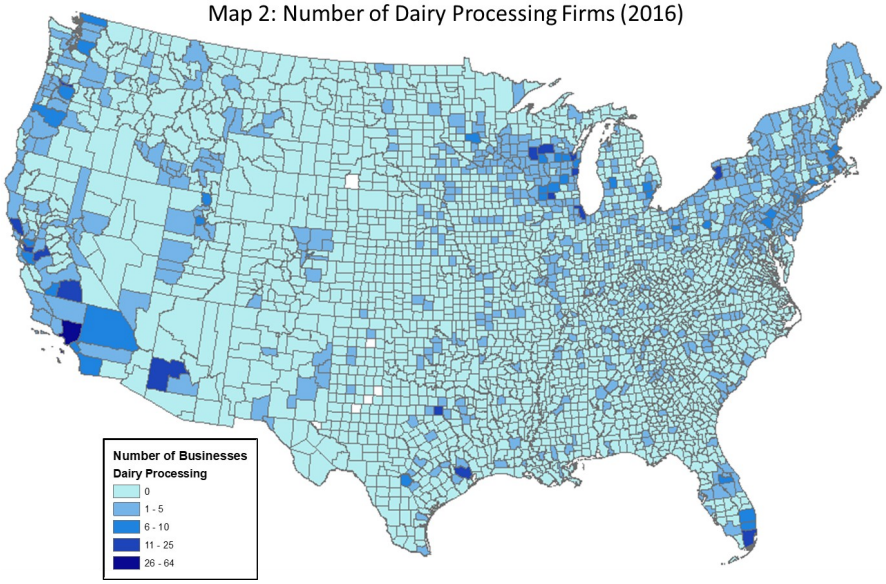
Figure 2: Number of Food Processing Firms in Wisconsin 2000 Compared to 2016



Map 1: Number of Food Processing Firms (2016)



Map 2: Number of Dairy Processing Firms (2016)



thought of as a "weight gaining" process where spatial proximity to consumers is important. But with baking its not so much gaining weight but gaining volume. As such shipping the final products to consumers becomes much more expensive than shipping the input materials. Hence, bakeries tend to locate in more highly populated areas with smaller bakeries scattered across less populated areas.

Dairy processing plants, however, a much different pattern immerges (Map 2). Here the final product of the dairy processing firm comes into play trying to understand firm location patterns. Fluid milk is a fairly expensive product to ship because of its weight, thus these firms must be strategically located between the dairy farmer and the consumer. This is why we see both dairy farmers and fluid milk processors scattered across the U.S. Other dairy products, for example cheese, is a weight loosing process thus it makes sense for cheese plants to locate closer to dairy farmers. In addition, non-fluid milk has a longer shelf live thus can be shipped greater distances. Wisconsin clearly stands out with a high concentration of dairy processing plants.

From the perspective of economic clusters, on-farm production and food processing are two sides to the same coin: policies focusing on one side of the coin and ignore the other side are likely to fall short. Rather, processors and farmers must work together to improve the profitability of agriculture and foster continued growth.

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