

# AN HISTORICAL ANALYSIS OF FOOD MANUFACTURING IN MONTANA

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# THE MONTANA FOOD MANUFACTURING SECTOR

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Over the last few months, I have researched the food manufacturing industry in Montana as part of a project for the Montana Department of Agriculture. The purpose of the project is to understand historical trends in the industry and compare local activity to national trends. The ultimate goal is to pinpoint key factors that influenced a decline in food manufacturing in Montana during the later twentieth century, and discover what factors are currently affecting the industry's resurgence.

A common underlying assumption is that Montana's economy suffers due to a lack of food manufacturing options. As a link between raw goods producers, such as farms and ranches, and retail outlets, food processing and manufacturing plays a key part in the local food supply chain. Without a robust local food manufacturing sector, Montana's many agricultural products must be shipped out of state for processing either to be sold elsewhere or shipped back for sale to the local market. The effects of such a system on the local food market are many but include the obvious problem of increasing product cost due to transportation and fuel expenses. In addition, when raw goods are sold to out-of-state processors, Montana producers miss out on potential increased earnings that accompany value-added food products.

This report provides a preliminary look into the food manufacturing sector. In the sections below, I explain the strengths and weaknesses of the data and describe some of the major findings from the research and their implications for Montana.

## Introduction to Manufacturing

Before diving into the research and data, I want to provide a background of the sector for any readers who are unfamiliar with food manufacturing. To begin, food manufacturing is just one of many industries for which employment data is collected on national and local levels. Food manufacturing falls within the general category of manufacturing, specifically nondurable goods manufacturing. The North American Industry Classification System (NAICS) describes the Manufacturing sector as follows:

The Manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. The assembling of component parts of manufactured products is considered manufacturing, except in cases where the activity is appropriately classified in Sector 23, Construction.

Establishments in the Manufacturing sector are often described as plants, factories, or mills and characteristically use power-driven machines and materials-handling equipment. However, establishments that transform materials or substances into new products by hand or in the worker's home and those engaged in selling to the general public products made on the same premises from which they are sold, such as bakeries, candy stores, and custom tailors, may also be included in this sector. Manufacturing



establishments may process materials or may contract with other establishments to process their materials for them. Both types of establishments are included in manufacturing.<sup>1</sup>

The NAICS structures industries in sectors, subsectors, and industry groups. For example, the Manufacturing sector is comprised of a list of subsectors including Food Manufacturing, which is the topic of this report. The NAICS definition of the Food Manufacturing Subsector is:

Industries in the Food Manufacturing subsector transform livestock and agricultural products into products for intermediate or final consumption. The industry groups are distinguished by the raw materials (generally of animal or vegetable origin) processed into food products.

The food products manufactured in these establishments are typically sold to wholesalers or retailers for distribution to consumers, but establishments primarily engaged in retailing bakery and candy products made on the premises not for immediate consumption are included.<sup>2</sup>

The Food Manufacturing subsector includes nine industry groups, as described above. These are:

- Animal Food Manufacturing,
- Grain and Oilseed Milling,
- Sugar and Confectionery Product Manufacturing,
- Fruit and Vegetable Preserving and Specialty Food Manufacturing,
- Dairy Product Manufacturing,
- Animal Slaughtering and Processing,
- Seafood Product Preparation and Packaging,
- Bakeries and Tortilla Manufacturing, and
- Other Food Manufacturing.

Employment and business establishments are classified based on the industry groups listed above. These industry classifications have changed slightly throughout the years for which employment data has been collected in the United States. The changes caused similar businesses to be counted differently depending on the classification system used. This is one major difficulty when dealing with historical employment data, as is further explained in the next section.

## Data Sources & Methodology

This report drew information from a handful of data sources. One of the biggest challenges associated with historical data is actually locating accurate figures that can be used for comparison and analysis. Locating historical data for food manufacturing in Montana proved a challenge, as different sources often provided partial or incomplete data that could only be completed by drawing on another source.

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<sup>1</sup> North American Industry Classification System, cited by U.S. Census Bureau, [www.census.gov](http://www.census.gov).

<sup>2</sup> Ibid.



The data used in this report came from the following sources, all of which are cited as necessary throughout the report:

- Montana Department of Commerce, Census and Economic Information Center (CEIC)
- United States Department of Commerce, Bureau of Economic Analysis
  - Industry Economic Accounts
- United States Department of Commerce, Census Bureau
  - Census of Manufactures: 1927-1992
  - County Business Patterns: 1986-2010
  - Economic Census: 1997-2007
- United States Department of Labor, Bureau of Labor Statistics
  - Current Employment Statistics (CES): 1939-2011
- University of Montana, Bureau of Business and Economic Research

Several specific data-related challenges presented themselves throughout my research. First, finding complete, reliable employment data seems to become more difficult the more focused the search. I found that data for specific industry groups within the food manufacturing subsector is often concealed due to privacy concerns. This made it difficult to determine which industries account for changes in the subsector.

Another challenge arose when dealing with the different classification systems that have been used to define industries throughout history. The Standard Industrial Classification (SIC) system was implemented in 1937 and used a four-digit code to classify industries. In 1997, the SIC system was replaced with the six-digit North American Industry Classification System (NAICS). Some agencies have converted industry data from SIC to NAICS as far back as 1947 while others are still using the SIC system. Within NAICS, revisions to the classification system, such as in 2002, make it difficult to compare data across a broad period. Data prior to 1937 was not classified by any numerical system and was instead recorded based on manufactured product.

Further, the data sources listed above provide different data as well as some overlapping data. For example, one source may have data for the years 1939-2010 whereas another source has data for the same category for only 1990-2010. This proved to be an issue when attempting to compare and contrast a long history of data. In terms of the specific values, not all datasets had identical data, even for the overlapping years. On the other hand, I found that the general patterns were relatively more alike and so relied on analysis of trends instead of actual values in situations where multiple sources of data were used. In situations where different data sources had to be used, I first compared available overlapping data to confirm that the sources were comparable. This is discussed in more detail at various points throughout the report.

## **National Employment & Manufacturing Trends**

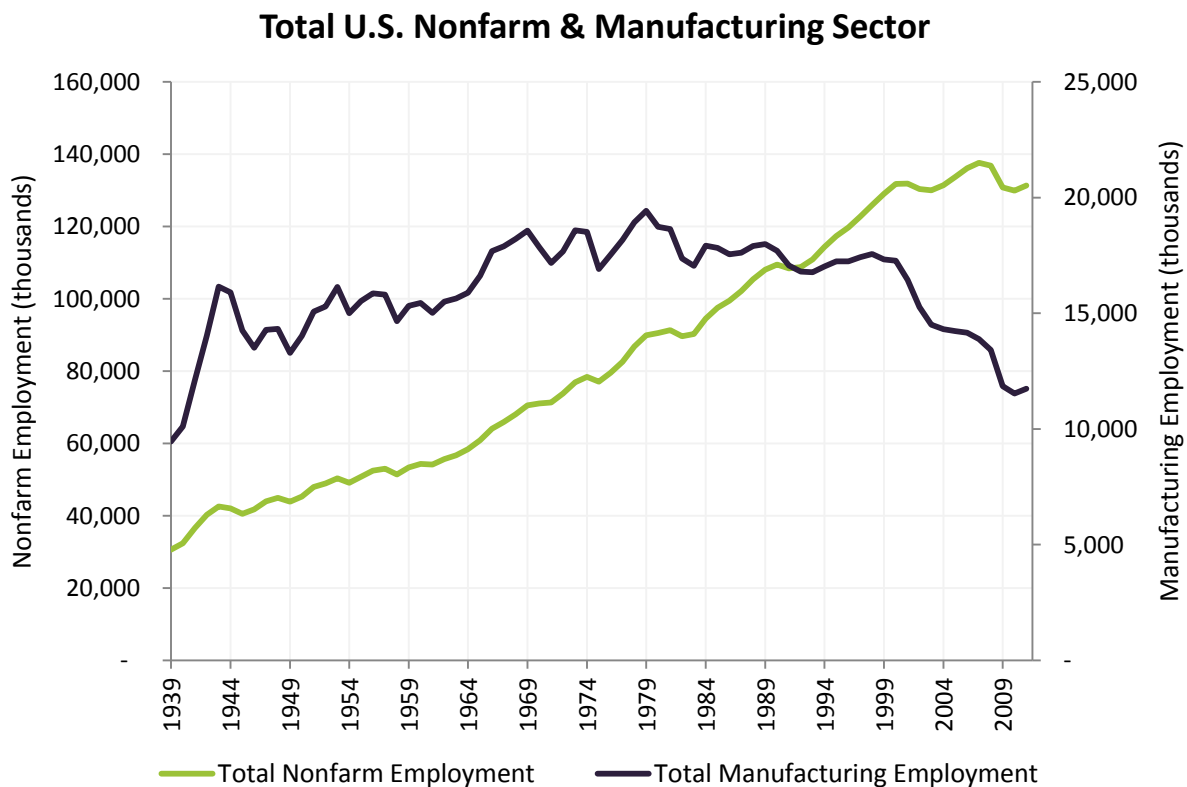
Americans have been bombarded with employment statistics since the economic recession of 2008, which brought with it some of the highest unemployment figures the country has seen in decades. The



fact is that employment in the United States has been on a fairly steady incline for at least the last seventy years. Data from the U.S. Bureau of Labor Statistics shows that employment has increased at an average annual rate of 2% per year since 1939.<sup>3</sup> Of course, there have been a handful of short periods during which employment growth has stalled or even declined, however the general trend has been positive as is displayed in Figure 1 on the following page.

Figure 1 also displays employment in the manufacturing sector for the same 72-year period. The two datasets are graphed using separate axes to provide a better visualization so the location of the lines relative to one another should not be analyzed. Rather, the graph clearly shows that employment trends in the manufacturing sector differ greatly from general nonfarm employment. As is shown in the graph, the manufacturing sector has had many more ups and downs throughout the years and has been declining since 1979. The decline of employment in the sector picked up speed after the year 2000.

**Figure 1: U.S. Employment Trends**



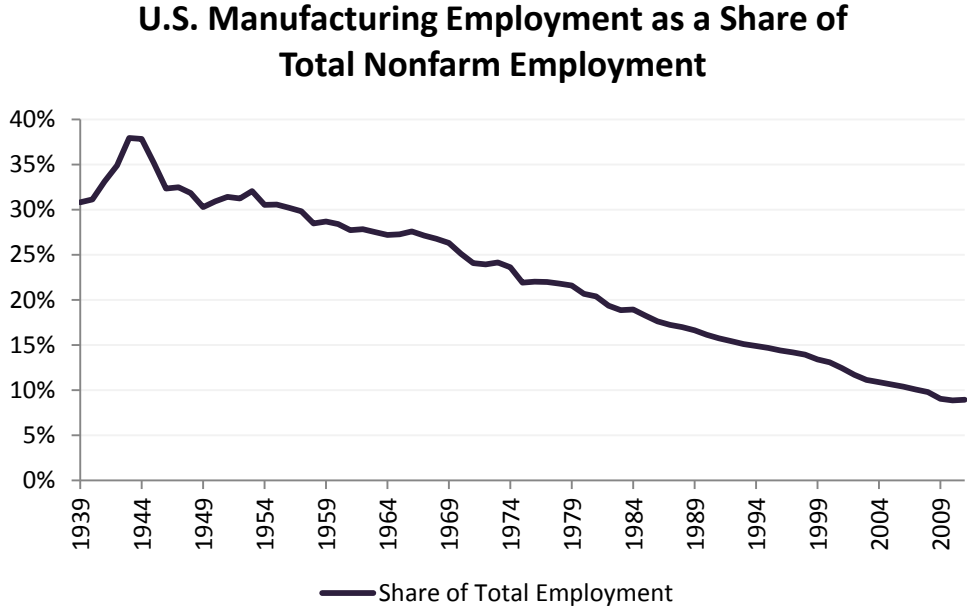
Data Source: U.S. Bureau of Labor Statistics, Employment, Hours, and Earnings from the Current Employment Statistics Survey (National)

<sup>3</sup> United States Department of Labor, Bureau of Labor Statistics, Current Employment Statistics (CES) Survey: *Employment, Hours, and Earnings*, [www.bls.gov](http://www.bls.gov) (accessed 8/6/12).



Further analysis of the information above shows that as a share of total nonfarm employment, the manufacturing sector has decreased from a high of nearly 40% in 1944 to just under 10% in 2011.<sup>4</sup> Figure 2, below, shows this major decline in concentration of employment within the sector.

**Figure 2: Concentration of Employment in U.S. Manufacturing Sector**



Data Source: U.S. Bureau of Labor Statistics, Employment, Hours, and Earnings from the Current Employment Statistics Survey (National)

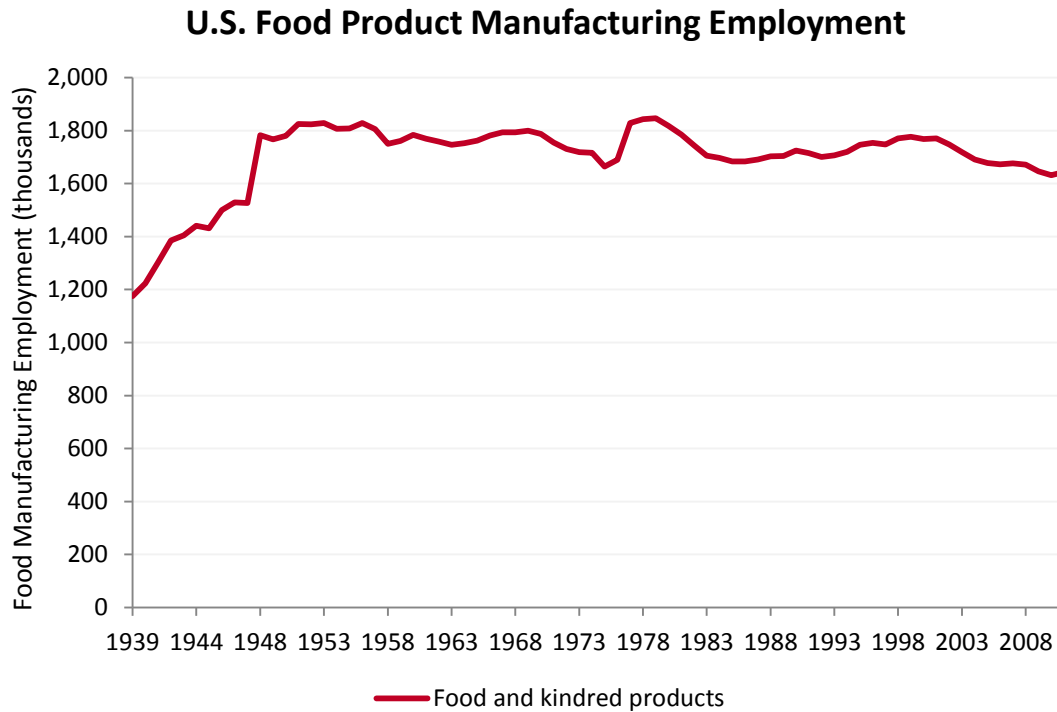
Although the purpose of this report is to study the recent and historical trends in food manufacturing in Montana, it is important to get a clear understanding of the context. In this case, the context includes both national data and data on broader employment sectors. Now that we have a clear picture of the overall national employment trends and have seen how the manufacturing sector has struggled in comparison, we can dive deeper into the sector to analyze the national food manufacturing subsector.

Again, one of the main challenges of historical data analysis is finding data from sources that can be compared. The difficulty of comparing data from different sources is due to differences in surveying and reporting techniques. To locate food manufacturing data back to 1939, I had to use the U.S. Bureau of Economic Analysis instead of the U.S. BLS, used in the analysis above. Although it is not good practice to directly compare the hard data, we can still use the BEA data to view trends. Figure 3 on the following page shows the national employment trends in food manufacturing for the same period as the broader analysis above.

<sup>4</sup> U.S. Department of Labor, Bureau of Labor Statistics.



Figure 3: U.S. Food Product Manufacturing Employment Trends



Data Source: U.S. Bureau of Economic Analysis, Table 6.4(A-D). Full-Time and Part-Time Employees by Industry, [www.bea.gov](http://www.bea.gov)

The first thing that jumps out from the chart above is the steep increase in national food manufacturing employment from 1939 to 1948. A change in classification system between 1947 and 1948, from the 1942 to the 1972 SIC, accounts for some of this change. Another key aspect of the chart above is the relatively flat line that extends from 1948 through to 2011. This is especially surprising when compared to the national trends in both total nonfarm employment (steady increase) and employment within the general manufacturing sector (declining since 1979).

The two figures on the following page provide a closer look at changes in national employment over the last two decades. Figure 4, top, compares trends in manufacturing employment to total nonfarm employment. Figure 5 shows the same manufacturing employment data alongside employment in food manufacturing. The two graphs are just another way of showing how employment trends in the different categories have differed over the past twenty years. We can see a general decline in overall manufacturing sector employment, an incline in total nonfarm employment, and a relatively stable line in food manufacturing.





Figure 4: Manufacturing versus Nonfarm Employment

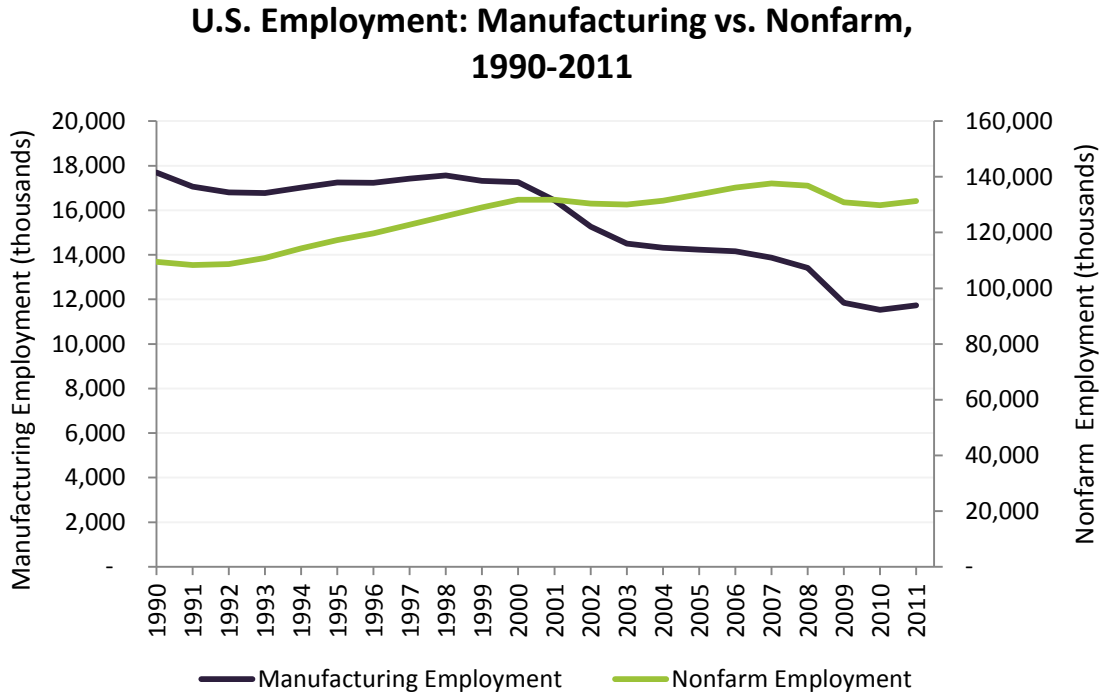
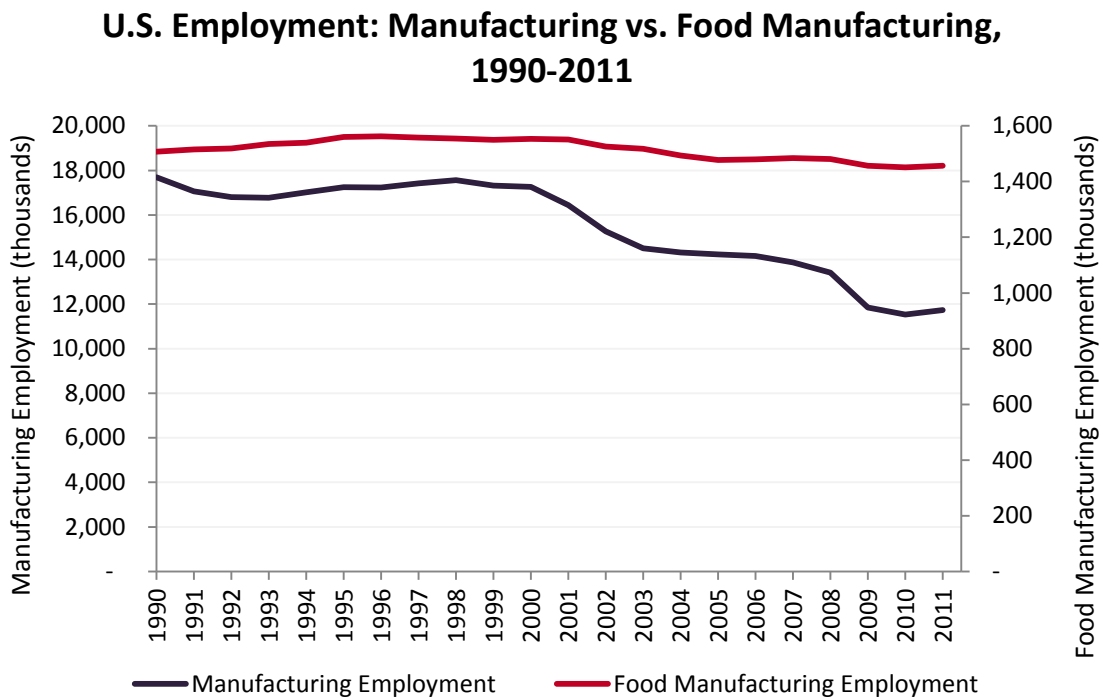


Figure 5: Manufacturing versus Food Manufacturing Employment (U.S.)



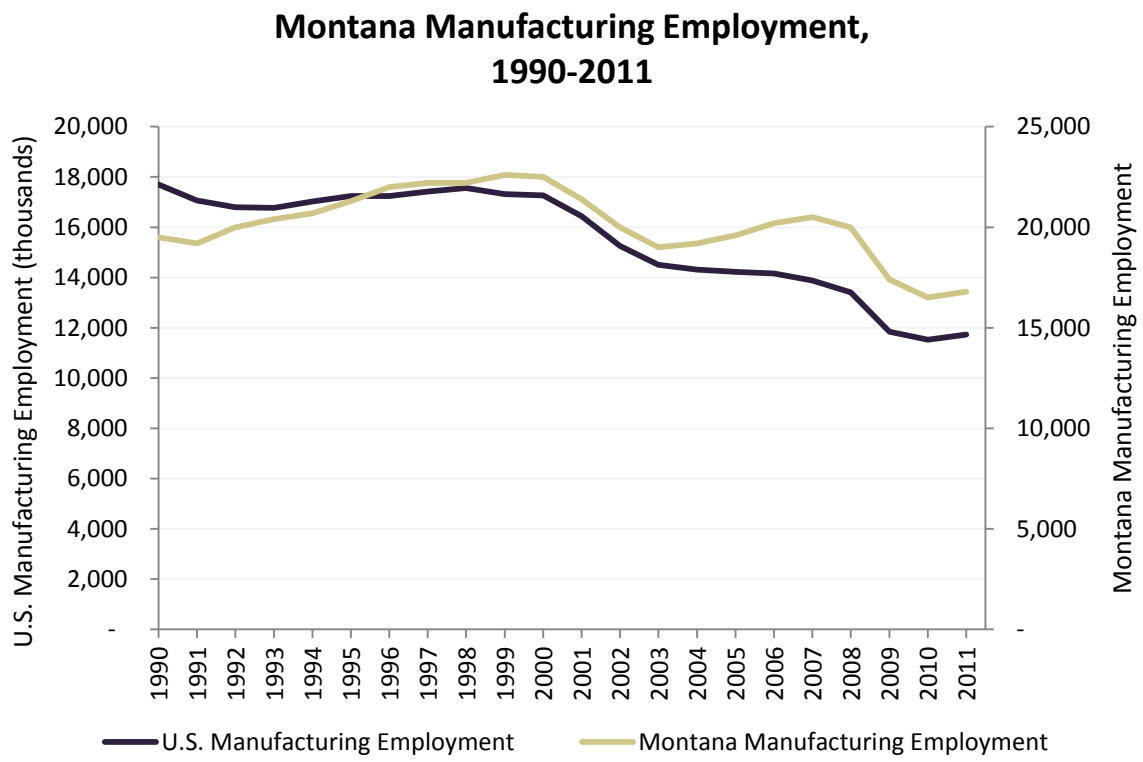
Data Source: U.S. Bureau of Labor Statistics, Employment, Hours, and Earnings from the Current Employment Statistics Survey (National)



## Montana Employment & Manufacturing Trends

In the state of Montana, recent trends in general manufacturing have mostly mimicked the national trends discussed in the previous section. In Figure 6, below, we see the same national manufacturing data as in the graphs on the previous page compared to Montana manufacturing data. We see that although the trends over the last twenty years look quite similar, employment in the manufacturing sector in Montana did not decrease as fast as it did across the nation. In fact, overall manufacturing employment in Montana only lost about 13% (2,500 jobs) over the entire 1990-2011 period compared to nearly 34% (5.9 million jobs) nationally.<sup>5</sup>

Figure 6: Manufacturing Employment - Montana versus National



Data Source: U.S. Bureau of Labor Statistics, Employment, Hours, and Earnings from the Current Employment Statistics Survey (State)

We now know that over the last two decades, employment in the manufacturing sector declined both nationally and within Montana. In the previous section, we saw that despite a precipitous decline in overall manufacturing jobs nationally (34%), employment in food manufacturing remained fairly steady, only decreasing by a total of 3.4% during the 1990-2011 period.<sup>6</sup> The next step is to look at how food manufacturing employment in Montana behaved relative to manufacturing in general. Unfortunately, the Bureau of Labor Statistics (BLS) does not provide employment data for the food manufacturing

<sup>5</sup> U.S. Department of Labor, Bureau of Labor Statistics.

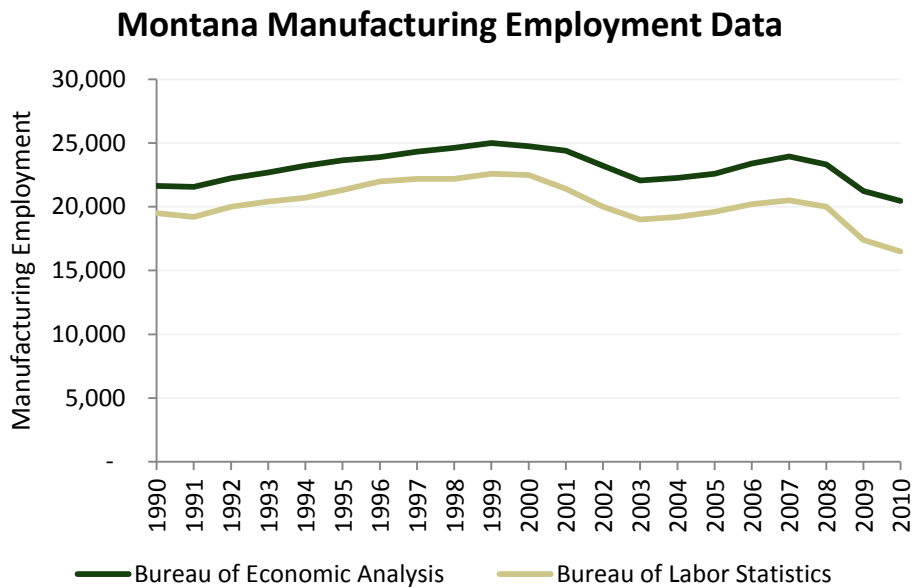
<sup>6</sup> Ibid.



subsector in Montana. Instead, I found the data through the Bureau of Economic Analysis (BEA) at the U.S. Department of Commerce.

Before switching data sources, I wanted to make sure the numbers from each source were comparable, especially in terms of trends over time. To do so I graphed employment data for the manufacturing sector, which is readily available for overlapping years from both sources, in hopes that the general trend would be similar. The graph below displays BLS data and BEA data for employment within the Montana manufacturing sector together.

**Figure 7: Comparison of Data Sources**

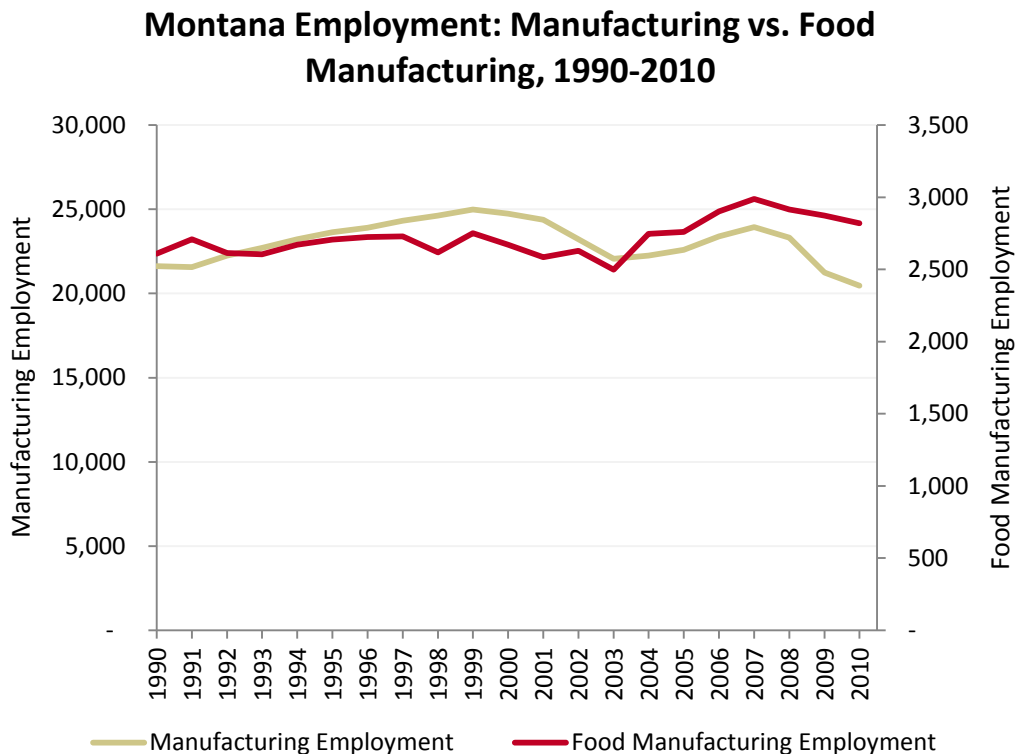


Data Source: U.S. Bureau of Labor Statistics and U.S. Bureau of Economic Analysis

The tan line representing Montana manufacturing employment data from the BLS is the same as was compared to national manufacturing employment in Figure 6. It's apparent that the trend is generally similar but the BEA data is consistently higher by a margin of about 2,000-3,000 jobs. This could be due to a number of reasons, such as different methods of collecting data, but it is the parallel between the trend lines of the two different sources over time that is important in this case. Using the more recent data from the BEA, we can now compare the recent employment trends in Montana's manufacturing sector to food manufacturing specifically, as we did for the nation in the previous section. This comparison is displayed in Figure 8 on the following page.



Figure 8: Manufacturing versus Food Manufacturing Employment (Montana)



Data Source: U.S. Bureau of Labor Statistics and U.S. Bureau of Economic Analysis

Interestingly, employment in the food manufacturing subsector looks quite different within Montana than it does nationally. If you turn back a few pages to Figure 5, which compared national employment in manufacturing to employment in food manufacturing, you will remember that employment in food manufacturing across the country held fairly steady through the 1990-2011 period. Not so in Montana. Although trends in manufacturing employment in Montana mimic national trends (Figure 6), food manufacturing has been slightly more volatile in Montana than in the nation as a whole. Additionally, employment in food manufacturing in Montana ended in 2010 at a higher level than in 1990. In other words, the Montana food manufacturing subsector grew during the last two decades despite state and national declines in overall manufacturing employment.

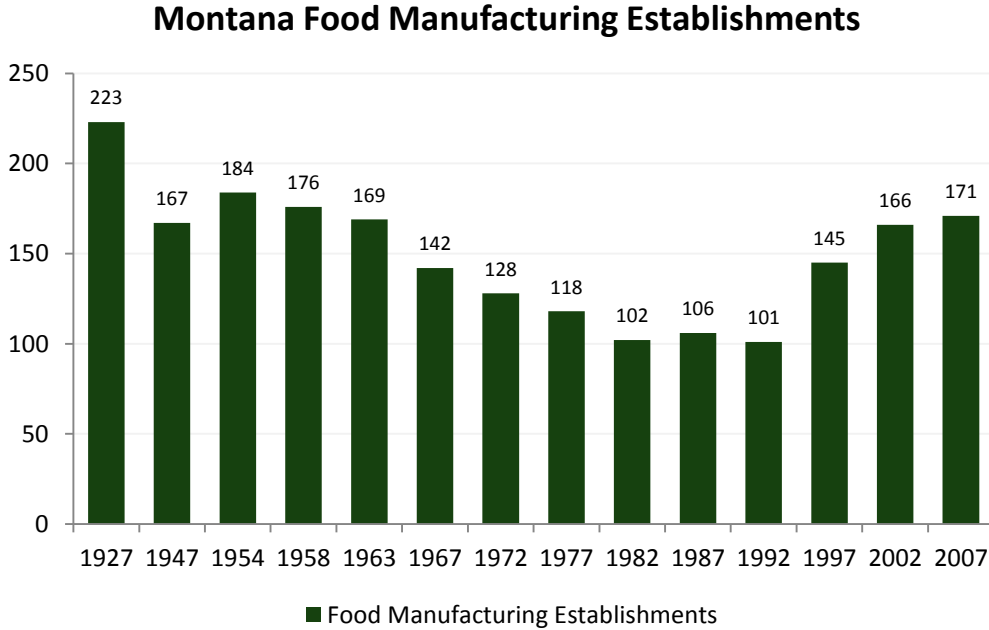
### Food Manufacturing Establishments

The question now becomes: what caused an increase in employment within the Montana food manufacturing subsector in the mid-2000s? This question may be answered in part through analysis of food manufacturing establishments. The data sources already used, as well as the U.S. Census Bureau, provide information not just about employment but also about the number of employment establishments for a job sector in a given year. Using historical data gathered through the former Census of Manufactures, as well as the modern Economic Census, we can begin to piece together a profile of what the food manufacturing subsector looked like in Montana over most of the last century.



The first piece of information we can gather is simply the number of establishments involved in the Montana food manufacturing subsector. It is important to note here that prior to the 2007 Economic Census, the U.S. Census Bureau only reported the number of *employer establishments*, or those with employees. *Nonemployer establishments* were reported for the first time in 2007 but for purposes of comparison are not included in the following analysis. The chart below displays the historical number of food manufacturing establishments in a way that helps visualize a general trend of decline and then resurgence in the Montana food manufacturing subsector.

**Figure 9: Montana Food Manufacturing Employment Establishments, 1927-2007**



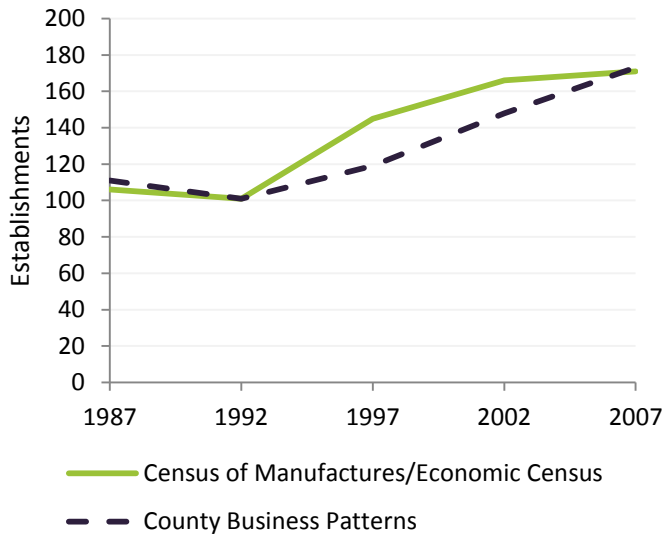
Data Source: U.S. Census Bureau, Census of Manufactures (1927-1992) and Economic Census (1997-2007)

According to the data presented above, the number of food manufacturing establishments in Montana hit its lowest point in the decade between 1982 and 1992. In 1997, the subsector saw a significant jump in the number of establishments. The number continued to gradually increase through 2007, at which point establishments were about as numerous as they were in 1963. From the chart above, one might assume that the recent upward swing will continue over the next few years.

The next Economic Census will be completed in 2012 and results will not be available until much later. This data will eventually tell us how the food manufacturing subsector has behaved in recent years. However, it may be possible get a preliminary picture of these trends by substituting survey data, or estimates, for the years following 2007. The County Business Patterns (CBP) survey, produced by the U.S. Census Bureau, is an annual series dating back to 1964. The series provides economic data such as number of establishments, employment, and payroll. Data is available online for all years from 1986 to present.



### 20-Year Comparison of Data Sources



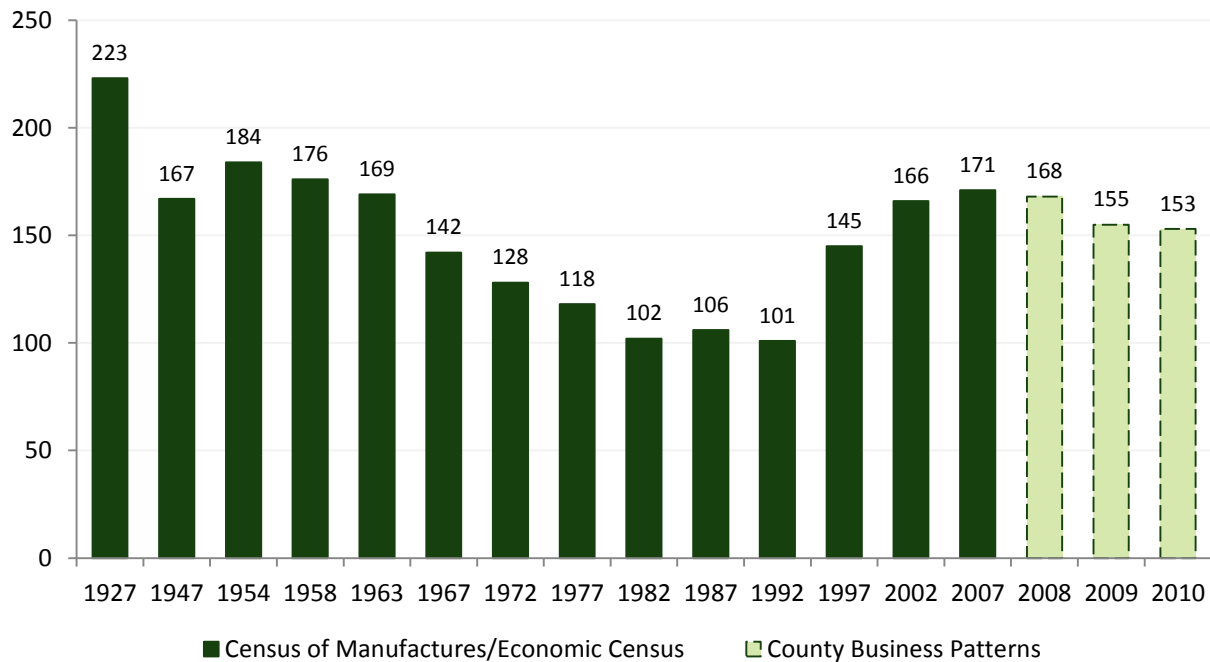
**Figure 10: County Business Patterns vs. Census of Manufactures & Economic Census Data**

Before using the CBP data to project the number of food manufacturing establishments in Montana between 2007 and present, it is once again important to make sure the data is comparable. To do so, I graphed CBP data with the data used above for the years 1987, 1992, 1997, 2002, and 2007. Based on the comparison of the two data sources in the chart to the left, we can see that the two sources were quite similar during most of the period for which there is overlapping data.

Based on the comparison of data in the chart above, it seems possible to use recent CBP data to continue the projection of food manufacturing establishments until the 2012 Economic Census becomes available. This combined dataset is displayed in the chart below.

**Figure 11: Projection of Montana Food Manufacturing Establishments using Survey Data**

### Montana Food Manufacturing Establishments 1927-2010



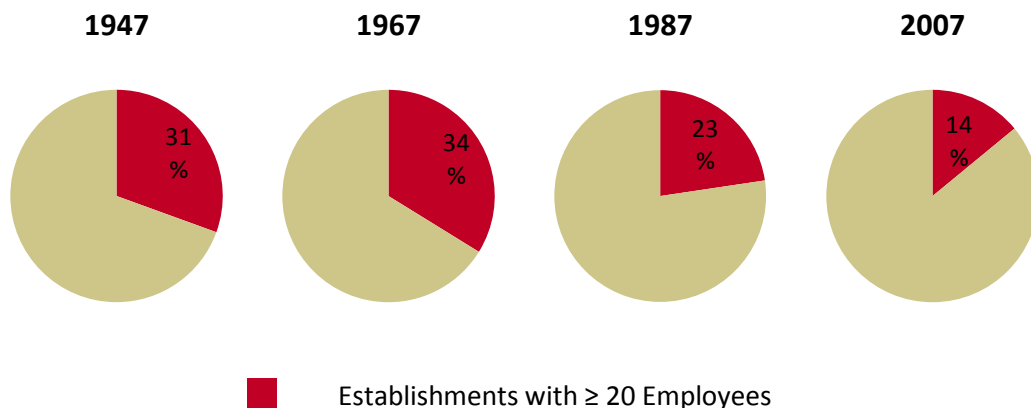
In the chart on the previous page, we can see that the number of food manufacturing establishments in Montana declined after hitting a high point in 2007. Part of this decline can likely be attributed to the recession that hit the country in 2008. If everything returns to normal as the local economy recovers from the recession, it seems possible that food manufacturing will continue its upward trend. However, it is also possible that the effects of the recession changed the business climate in ways that cannot yet be quantified.

### Changes in Size of Establishment

After a decades-long decline, Montana’s food manufacturing subsector has reached a point at which employment establishments are about as numerous as they were in the early 1960s. Does this mean that the subsector is the same today as it was fifty years ago, or did it change in character over the years? In this section, I want to compare Montana’s food manufacturing subsector today to the subsector of the past. In doing so, I specifically want to find out whether establishment size – meaning the number of employees at an establishment – has changed over the years. I also want to discover if the distribution of establishments in the various industry groups within the subsector has changed. For the purposes of this analysis, I used data from four years: 1947, 1967, 1987, and 2007. I chose these years because they are evenly distributed across the 60-year period.

Data on establishment size can be found through the U.S. Census Bureau using the historical Census of Manufactures and the more recent Economic Census, the same sources used to analyze the number of establishments in the previous section. The data provides the total number of establishments within the food manufacturing subsector and the number of those with twenty or more employees, which I refer to as ‘large’ establishments. I used this data to determine the percentage of all food manufacturing establishments that fell into the category of large establishments. The results are displayed in the following pie charts and accompanying table.

**Figure 12: Establishment Size for the Montana Food Manufacturing Subsector**



<b>Montana Food Manufacturing</b>	<b>1947</b>	<b>1967</b>	<b>1987</b>	<b>2007</b>
Total Establishments	167	142	106	171
Establishments with $\geq 20$ Employees	51	48	24	24
<i>% Large Establishments</i>	<i>31%</i>	<i>34%</i>	<i>23%</i>	<i>14%</i>

Data Source: U.S. Census Bureau, Census of Manufactures & Economic Census, [www.census.gov](http://www.census.gov).

The data tells us that since 1947, Montana's food manufacturing sector has shifted away from large establishments toward those employing fewer than twenty people. By analyzing the table above, we can see that this trend did not begin until after 1967. In the twenty years between 1947 and 1967 the total number of food manufacturing establishments declined, as did the number of large establishments, albeit at a slower pace. We therefore see that in 1967, a higher percentage of food manufacturing establishments were what we would call large establishments. However, during the next twenty years, we again see declines in both the total number and the number of large establishments. This time, the number of large establishments declined by half, whereas the total number only decreased by about 25%. This rapid decline of large establishments contributed to their making up a significantly smaller percentage of total establishments in 1987 than in years prior. Interestingly, the number of large establishments remained steady over the next two decades while the total number of establishments increased more than 60%. The result is that in 2007 Montana had a much lower concentration of large food manufacturing establishments than in 1947. Of all food manufacturing establishments in Montana, the percentage considered to be large decreased by more than 50% over the entire sixty year period.

### Changes in Industry Distribution

Now that we have determined that today's food manufacturing subsector in Montana is made up of a larger share of small establishments than in 1947, we can move on to the next area of analysis. I want to get a picture of the distribution of the subsector's establishments among industry groups to see if there have been any major changes over the last sixty years.

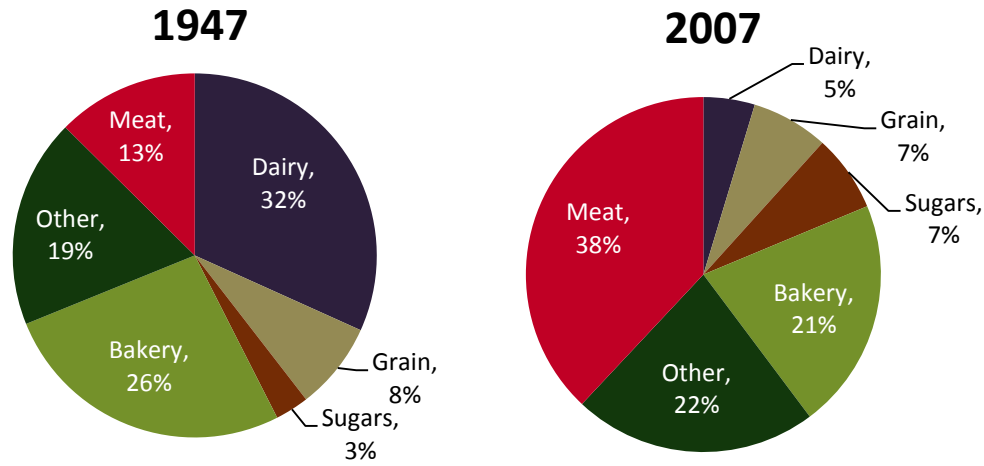
There are two ways to look at this question. The first is to simply calculate the percentage of all food manufacturing employment establishments that fall into each industry group. The results of this sort of analysis are displayed on the following page in Figure 13. There have indeed been major changes between 1947 and 2007. For example, dairy product manufacturers made up nearly a third of the food manufacturing subsector in 1947. Today dairy establishments represent only 5% of the subsector. Dairy has been replaced by meat processors and manufacturers, it seems. That industry group made up only 13% of establishments in 1947 but grew to nearly 40% by 2007.

A second way to view the food manufacturing industries is to look at distribution of employment. As was discussed above, establishments vary greatly in number of employees. Therefore, looking at share of establishments may not give us a complete picture of the industry groups over time in terms of their employment. Figure 14 on the following page displays the percentage of total food manufacturing employment that falls into each industry group. Comparing Figures 13 and 14, we can see that the largest industries in terms of number of establishments differ from the largest industries measured by number of employees. Most notable are the meat, dairy, bakery, and sugar industries.



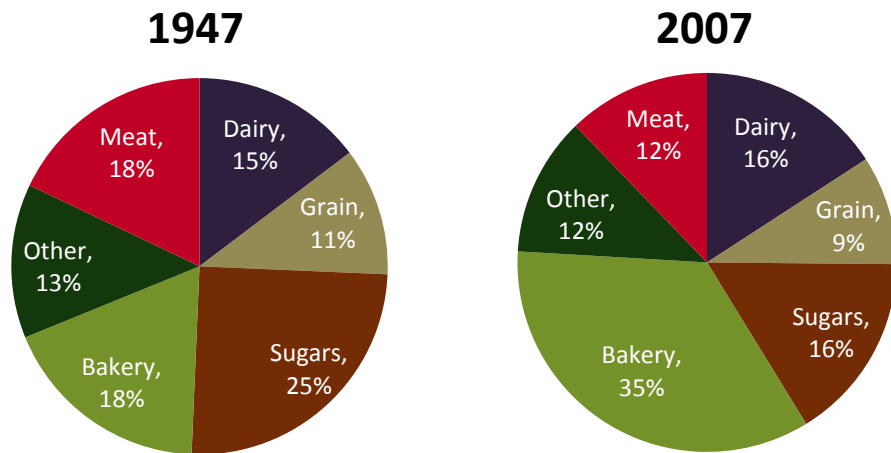


**Figure 13: Montana Food Manufacturing Establishments by Industry**



In both Figure 13 and Figure 14, the category of “other” includes products such as specialty processed or canned goods and animal feeds. I did not include beverage products, although they were classified in the Food & Kindred Products Manufacturing subsector in 1947.

**Figure 14: Montana Food Manufacturing Employment by Industry**



Data Source: U.S. Census Bureau, Census of Manufactures (1947) and Economic Census (2007), www.census.gov.

First, by comparing Figures 13 and 14, we can see that although the meat products industry more than tripled its share of total food manufacturing establishments from 1947 to 2007, its share of total employees actually decreased. This suggests that there was a large increase in small meat products establishments during the sixty year period.

On the other hand, although a much smaller share of establishments was classified as dairy product manufacturers in 2007 compared to 1947, the share of employment was relatively steady. In other words, the dairy industry seems to have consolidated into a handful of larger establishments.



The bakery product manufacturing group decreased its share of establishments only slightly, but nearly doubled its share of employment within the food manufacturing subsector. By analyzing the data, we can conclude that the reason for this change was that the industry was one of the few that gained employees during the 1947 to 2007 period, thereby representing a larger part of the food manufacturing subsector in 2007.

Finally, the sugar and confectionery products group went through a major employment change from 1947 to 2007, although its share of total establishments changed very little. The data shows that Montana used to have a handful of very large beet sugar manufacturers that employed more people than any other food manufacturing industry group. By 2007, this group had shifted away from these large establishments toward smaller confectionery manufacturers with less than half as many employees.

## Key Findings

*Finding #1.* Across the United States, general nonfarm employment has followed an upward trend over the last seventy years. The manufacturing sector, on the other hand, has seen more ups and downs and has been on the decline since about 1980. Despite the decline of manufacturing overall, the food manufacturing subsector has been relatively steady since around 1950.

*Finding #2.* In the United States, manufacturing represented nearly 40% of all nonfarm employment in 1944. In 2011, it had decreased to just less than 10% of nonfarm employment.

*Finding #3.* In recent years, manufacturing has experienced large employment losses nationally, and within Montana to a lesser extent. Between 1990 and 2011, manufacturing lost nearly 34% of jobs nationally, whereas it only lost about 13% in Montana.

*Finding #4.* The food manufacturing subsector has been relatively more stable during the 1990-2011 period, both nationally and in Montana. On a national level, employment in food manufacturing shrank just over 3% during the 21-year period. By comparison, Montana employment in food manufacturing grew by 8%.

*Finding #5.* Not including beverages or animal feed, Census data shows that the number of food manufacturing establishments in Montana has been growing since the 1980s and early 1990s. The addition of survey data shows that the subsector experienced a slight dip in the number of establishments after 2007, possibly due to the economic recession.

*Finding #6.* Montana's food manufacturing subsector has shifted away from large employment establishments over the last sixty years. In 1947, nearly one-third of all food manufacturing establishments employed twenty or more people. By 2007, that number had decreased by more than half to less than one-sixth of establishments.



*Finding #7.* Of food manufacturing establishments in Montana, dairy product manufacturers make up a smaller share than they did in 1947. However, the share of employment remains about the same, suggesting fewer dairy product establishments employing more people each.

*Finding #8.* The opposite is true of the state's meat products industry. Meat products establishments make up a much larger share of food manufacturing establishments than in 1947, but the industry's share of food manufacturing employment shrank. This suggests more establishments employing fewer people.

*Finding #9.* During the 1947-2007 period, Montana lost its large sugar manufacturers. They were replaced by smaller confectionery product manufacturers.

## Conclusion

Much has changed in the Montana food manufacturing sector over the course of the last sixty years. Some of the trends can be attributed to the general state of manufacturing nationally. As was discussed at length earlier in this report, the national manufacturing sector has been declining since around 1980. In the twenty-one years from 1990 to 2011, the U.S. Bureau of Labor Statistics reports that manufacturing lost more than one-third (34%) of its employees nationally. The loss of employment in what was historically a major job sector for this nation has affected millions of people across the country. In Montana, manufacturing has also seen losses in employment over the last twenty years. The state, however, has not experienced employment loss at the same rate as the nation. In fact, the state lost only about one-eighth of its manufacturing employment during the same period. In other words, Montana's manufacturing sector has been more resilient than the sector has been in other parts of the country.

The same can be said for Montana's food manufacturing subsector. During the period discussed above, food manufacturing in Montana bucked the trends of the overall manufacturing sector, slightly expanding in employment between the late 1980s and today. Montana saw an increase of nearly 10% in food manufacturing employment between 1990 and 2010. This is partially reflective of national trends. Across the United States, food manufacturing proved to be a more stable job sector than manufacturing in general. Unlike in Montana, however, food manufacturing jobs nationally did decline slightly, between 3-5%. Despite the huge losses in national manufacturing employment, the national food manufacturing subsector experienced only a minor decrease.

This divergence between Montana and the nation in terms of growth in food manufacturing begs the question: What influenced employment in the subsector within the state to cause job growth despite national trends of decline? This study of food manufacturing establishments in Montana reveals that there was a significant decrease in the number of businesses operating in the state between the mid-1950s and the late-1980s to early-1990s. It could be that the data for the two decades following that decline shows job growth simply because the subsector had already hit its low point within the state and begun a rebound that had not yet happened nationally.



There are a number of possible explanations for why this study shows that Montana's manufacturing sector has long been more stable than in other parts of the country, however, none was the subject of this report. The relative strength of manufacturing as a whole within the state could help explain why food manufacturing also performed better in Montana than it did on a national level. This and other possible theories are subjects for future study, and were not answered through this research.

Whatever the reason has been for growth in the Montana food manufacturing subsector, it can certainly be said that today's food manufacturing is of a different character than it historically was in Montana. In other words, when food manufacturing began to rebound in Montana, it did not grow back with the same identity that it had prior to its decline. As was discussed toward the end of this report, Montana's food manufacturing establishments are significantly smaller today in terms of employment than they were in the late 1940s. Additionally, the distribution of establishments and employment among industry groups is quite different today. The research in this report revealed that many changes have occurred in Montana's most significant food industries. Meat and bakery products have long been the heavy-hitters in the Montana food system but they have at times been joined by dairy and sugar product manufacturing. Surprisingly, although grains are one of the state's largest crops, grain product manufacturing (such as flour milling) has never been one of the largest industries in terms of employment or number of establishments. Perhaps not as surprising is the fact that grain products have been a relatively stable part of the food manufacturing subsector throughout the years.

Further analysis can certainly be done using the data collected over the course of this research project. Each industry group can be split out from the food manufacturing subsector and analyzed on its own. This sort of analysis could help to shed light on the underlying reasons for job growth or loss in each industry. The next step for this research should be to investigate policies, regulations, and market trends that were enacted, strengthened, weakened or expanded that may have caused the major shifts in the number of establishments in specific years. In conclusion, this research is far from complete. However, the data and analysis done as part of this report can serve as a foundation on which future research should build. Montana's food manufacturing subsector is in a much better place than it was just twenty years ago. Researching the makeup of the subsector is essential in order to encourage future growth that positively impacts the state's local food system.



## Appendix

### National Job Sector Employment (in thousands)

	Year										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total Nonfarm	109,487	108,374	108,726	110,844	114,291	117,298	119,708	122,776	125,930	128,993	131,785
Manufacturing Sector	17,695	17,068	16,799	16,774	17,020	17,241	17,237	17,419	17,560	17,322	17,263
Food Manufacturing Subsector	1,507	1,515	1,518	1,535	1,539	1,560	1,562	1,558	1,555	1,550	1,553

	Year										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total Nonfarm	131,826	130,341	129,999	131,435	133,703	136,086	137,598	136,790	130,807	129,874	131,359
Manufacturing Sector	16,441	15,259	14,509	14,315	14,227	14,155	13,879	13,406	11,847	11,528	11,733
Food Manufacturing Subsector	1,551	1,526	1,518	1,494	1,478	1,479	1,484	1,481	1,456	1,451	1,456

Source: United States Department of Labor, Bureau of Labor Statistics, Current Employment Statistics (CES) Survey, Employment, Hours, and Earnings (National)

	Change 1990-2011		Avg Annual Growth Rate
	#	%	
Total Nonfarm	21,872	20%	0.9%
Manufacturing Sector	(5,962)	-34%	-1.9%
Food Manufacturing Subsector	(51)	-3%	-0.2%

Note: Average Annual Growth Rate (AAGR) was calculated using the RATE function in MS Excel