The State of
Montana Manufacturing

2013 Edition

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Introduction

The U.S. economy is now in the fourth year of an exceedingly slow recovery that began from a cyclic trough in the second quarter of 2009. The national economy appeared to be poised for a takeoff into sustained growth several times during the recovery, but reoccurring slowdowns have kept the overall increase to a very modest level. Currently, the delayed impacts of the federal government sequestration which began early in 2013 are beginning to be felt, and slower growth is anticipated for the rest of the year. In addition, the prolonged recession in Europe and slower growth in China and other developing countries are expected to put a damper on U.S. and world economic growth. A return to 3.0 percent annual real growth, once considered the norm for the U.S. economy, is not anticipated before 2015.

The recovery is under way in manufacturing. The comeback of durable goods production accounted for most of the growth. People now have the income and confidence needed to make the car purchase that they had been holding off on during the recession. Similarly, household formation fueled the housing recovery and with it demand for furniture and appliances. Increased business and construction activity have also boosted demand for metals, machinery, and other equipment. To some extent, these recovering industries were those serving long dormant markets or with significant exports to developing countries less impacted by the Great Recession. There will be more about manufacturing exports later in this report, but

Table 1
Manufacturing Wage & Salary Employment, U.S. and Montana, 2009Q2 and 2012Q3 (Thousands of Workers)

	2009Q2	2012Q3	Percent Change
U.S. Manufacturing	11,812,000	12,009,000	1.7
Montana Manufacturing	17,500	17,800	1.7
Wood and Paper Products	3,450	2,750	-20.3
All Other Manufacturing	14,100	15,100	7.1

Sources: U.S. Bureau of Labor Statistics. Bureau of Business and Economic Research, The University of Montana.

dependence on developing economies could be a two-edged sword if their growth falters.

The Montana economic recovery has also been slow and halting and with a pronounced regional dimension. Between 2009 and 2012, Montana's inflation adjusted nonfarm earnings increased at an average annual rate about 1.5 percent per year, below the long-run average of more than 2 percent per year. But this statewide average hides very different conditions. The Bakken oil boom has led to double-digit growth rates in eastern Montana and has boosted the economies of nearby towns such as Glendive, Miles City, and even Billings. In contrast, areas in western Montana, such as Missoula and Ravalli counties, have barely budged from their recession lows. In between are Gallatin, Flathead, Lewis and Clark, and Cascade counties which have posted modest growth.

Table 1 presents manufacturing wage and salary employment for the U.S. and Montana during the second quarter of 2009 (the cycle trough) and the third quarter of 2012 (the latest data available). Comparing the trends in employment reveals how manufacturing has fared in the U.S. and Montana during the recovery phase of this business cycle.

U.S. manufacturing wage and salary employment rose slightly from 11.8 million workers in 2009Q2 to 12.0 million in 2012Q3, an increase of 1.7 percent. Montana manufacturing employment increased from 17,500 in 2009Q2 to 17,800 in 2012Q3, also an increase of 1.7 percent.

The overall trend in Montana manufacturing employment was the net result of two different causes. The first was permanent closures in several manufacturing industries. The Smurfit-Stone paper mill near Missoula permanently closed in early 2010. This facility was the largest manufacturing plant in the state. In addition, there were shutdowns and closures in the wood products industry. Even though the closures in both industries occurred during a period of poor markets, the long-term cause was a significant decrease in the supply of raw material due to the diminished harvests on federal and some industrial land. The paper mill and some sawmills have been dismantled, and these jobs will not return even when the economy fully recovers.

The Columbia Falls Aluminum Company also closed during this period. Employment at this facility has been gradually declining for years as the supply of appropriately priced electricity has become scarcer. The plant could reopen. but it is unlikely given the overall market for electricity in the Pacific Northwest.

As shown in Table 1, employment in the wood and paper products industry decreased by 700 workers between 2009Q2 and 2012Q3. Employment in all the other components of Montana manufacturing increased by about 1,000 workers, or 7.1 percent.

In summary, since the start of the recovery Montana manufacturing employment has increased at about the national rate. But a closer look reveals a different story. There were significant declines in few industries experiencing structural change and/or supply-side issues. Montana manufacturing employment actually grew faster than the national average if these industries are excluded.

Analyzing Manufacturing

Manufacturing is one of the few industries for which reliable data are available for both the nation and states. There is information for output (value of shipments), costs, investments, exports, employment, and workers earnings. This wealth of information allows detailed analysis of trends within manufacturing but sometimes leads to confusion when manufacturing is compared to other industries.

Manufacturers are constantly trying to improve their competitive position by controlling costs and increasing productivity. But these actions may lead to differing trends in variables used to measure manufacturing. For example, increased labor productivity is often reflected in rising output per worker. This, in turn, implies that the numerator (output) increases more than the denominator (workers).

Non-manufacturing firms also attempt to control costs and increase productivity. But their ability to achieve productivity increases may be less (or greater) than manufacturing firms. In addition, data for non-manufacturing industries may be less complete than for manufacturing, making it more difficult to identify and measure productivity changes.

The following sections use a variety of data to analyze manufacturing as well as to compare manufacturing to other industries. Sometimes employment statistics will be analyzed, sometimes worker earnings, and sometimes output and production. Which data is chosen will depend on the purpose of the analysis. For example, comparing manufacturing with other industries requires that similar data be available for both. On the other hand, analysis of the latest trends for manufacturing requires figures with the most recent release date. In each case, the characteristics of the data will be discussed so that they may be interpreted correctly.

Manufacturing and the U.S. Economy

Table 2
Gross Domestic Product (GDP), United States
(Billions of Chained 2005 Dollars)

Year	Gross Domestic Product	Manufacturing	Percent of Total
2001	11,365,110	1,326,063	11.7
2002	11,559,801	1,359,128	11.8
2003	11,809,034	1,402,144	11.9
2004	12,199,532	1,516,877	12.4
2005	12,539,116	1,569,324	12.5
2006	12,875,816	1,634,592	12.7
2007	13,103,341	1,692,468	12.9
2008	13,016,791	1,593,570	12.2
2009	12,527,057	1,443,778	11.5
2010	12,918,931	1,605,857	12.4
2011	13,108,674	1,674,500	12.8

Sources: U.S. Bureau of Economic Analysis

Manufacturing continues as a major sector in the U.S. economy. Whether manufacturing outperforms or underperforms the rest of the economy depends on the data and the period analyzed. This section looks at the latest data for inflation-adjusted Gross Domestic Product (GDP) in manufacturing (which measures real output and production) and concludes that over the past decade it has grown at about the same rate as the other sectors of the economy. Manufacturing employment and earnings will be examined and different trends will be found.

Inflation-adjusted GDP for the U.S. manufacturing is presented in Table 2. Manufacturing GDP rose from $1.3 trillion (2005$) in 2001 to about $1.7 trillion (2005$) in 2011, an average annual growth rate of about 2.4 percent per year. This overall increase in manufacturing output occurred despite two recessions: the 2001 recession and the most recent "Great Recession" from 2007 to 2009.

Manufacturing's share of total real GDP remained relatively constant at between 12 and 13 percent over the entire decade, but there is a cyclic pattern. This figure declined slightly during both the recession years of 2001 and 2002 and then again in 2008 and 2009. This reflects the greater cyclic sensitivity of manufacturing. The percentage rose during the recovery period beginning in 2003 and again in 2010 and 2011.

Over the long-run, prices for manufactured goods have risen much slower than non-manufacturing goods and services. This may reflect the greater than average increases in manufacturing productivity. Analysis of nominal (non-deflated) GDP data reveals a continuous downward trend in manufacturing's share of the nationwide total.

The Great Recession significantly impacted U.S. manufacturing. As shown in Table 2, real GDP in manufacturing declined for two straight years in 2008 and 2009. The overall peak-to-trough decrease was about 13.1 percent. By 2011 real GDP in manufacturing had almost regained its prerecession peak, three years after the Great Recession began. In comparison, real GDP in manufacturing during the 2001 recession dropped 4.7 percent during only one year and regained its prerecession level in slightly more than two years.

Manufacturing and the Montana Economy

The trends in the Montana economy are primarily determined by the basic (or export) industries. Basic industries are those that are located in a state but sell most of their products elsewhere, or are otherwise influenced by factors beyond that state's borders. Basic industries inject new funds into a state economy and are responsible for creating further income and jobs and these dollars are spent and re-spent. Manufacturing, mining, and agriculture are basic industries in every state. The federal government and rail/truck transportation industries do not export products, but are dependent on factors external to a single state and are usually classified as basic. Service industries may also be basic. For example, financial services in New York, insurance in Connecticut and Indiana, and amusement places (casinos) in Nevada all serve non-local markets and are part of their state's economic base.

The role of manufacturing in every state (plus the District of Columbia) is shown in Table 3. Manufacturing's share of each state's economic base as measured by GDP was calculated for 1997 and 2010. The economic base of each state was estimated using a method developed by the U.S. Bureau of Economic Analysis. There are other methods of identifying the basic industries and they may yield slightly different findings.

During 1997 the top five states in terms of manufacturing's share of the economic base were Indiana, North Carolina, Wisconsin, South Carolina, and Michigan. The major difference in the top-tier states between 1997 and 2010 was that Oregon vaulted to the top spot and North Carolina dropped to seventh. The reason for Oregon's rise is the rapid growth of computer and electronics manufacturing in that state.

Montana has traditionally ranked relatively low in terms of its contribution to the economic base. Montana was 42nd in 1997 when manufacturing accounted for 24.4 percent of the economic base. Twelve years later in 2009, Montana had risen to 38th with about 21.5 percent of the economic base in manufacturing. Almost all states (with Oregon being the major exception) experienced declines in manufacturing's share of the economic base. This is a result of using nominal GDP data and the overall decline in manufacturing's share of the U.S. economy as measured by these data mentioned earlier. Real GDP data may not show the same overall declines, but real GDP is estimated using industry level price indices and this may introduce other biases.

GDP data is not well-suited to analyzing trends in manufacturing from one year to the next. The disadvantages of GDP data is that it is not available prior to 1997, and the most current figures are usually several years old and do not provide detail for specific components of manufacturing.

Earnings data are more appropriate for examining trends from one year to the next and for periods of a decade or more. But, earnings data also has its own characteristics. For example, net farm income of family-owned farms and ranches (a major component of farm earnings) is extremely volatile and not a reliable measure of output, revenues, and overall economic conditions in the agricultural sector. Consequently, the following sections will report nonfarm earnings to identify overall economic trends. Using nonfarm earnings does not imply that agriculture is ignored – in fact, earnings in

Table 3
Manufacturing as Percent of Economic Base, Gross Domestic Product for States, 1997 and 2010

1997			2010		
Rank	State	Percent	Rank	State	Percent
1	Indiana	74.6	1	Oregon	78.8
2	North Carolina	70.4	2	Indiana	70.7
3	Wisconsin	70.3	3	Wisconsin	59.3
4	South Carolina	68.8	4	South Carolina	58.9
5	Michigan	66.7	5	Michigan	55.3
6	Oregon	66.0	6	Louisiana	55.3
7	Ohio	65.4	7	North Carolina	52.5
8	New Hampshire	65.1	8	New Hampshire	50.1
9	Kentucky	63.1	9	Iowa	49.8
10	Arkansas	61.9	10	Arkansas	49.3
11	Pennsylvania	59.3	11	Ohio	49.0
12	Iowa	58.6	12	Maine	47.0
13	Maine	56.2	13	Kentucky	46.7
14	Vermont	56.2	14	Kansas	46.3
15	Arizona	56.2	15	Alabama	45.2
16	Alabama	51.4	16	Texas	45.1
17	Kansas	50.7	17	Pennsylvania	44.4
18	Missouri	50.1	18	Vermont	42.3
19	Tennessee	50.1	19	Tennessee	41.5
20	Georgia	50.0	20	Mississippi	41.4
21	New Mexico	49.1	21	Minnesota	41.2
22	Minnesota	48.9	22	Idaho	41.2
23	Mississippi	48.6	23	Washington	41.2
24	Texas	48.4	24	Georgia	40.2
25	Washington	46.4	25	Missouri	40.0
26	California	45.2	26	Arizona	39.9

1997, cont.			2010, cont.		
Rank	State	Percent	Rank	State	Percent
27	Louisiana	43.2	27	California	39.2
28	Utah	42.3	28	Utah	35.4
29	Illinois	41.0	29	Nebraska	33.4
30	West Virginia	40.2	30	Illinois	32.3
31	Idaho	40.2	31	Oklahoma	32.0
32	Oklahoma	40.2	32	West Virginia	26.1
33	Nebraska	38.1	33	New Jersey	24.8
34	Rhode Island	38.0	34	Connecticut	24.5
35	New Jersey	36.4	35	Rhode Island	24.4
36	Connecticut	35.1	36	Virginia	22.8
37	Virginia	33.6	37	Massachusetts	22.5
38	Massachusetts	30.2	38	Montana	21.5
39	South Dakota	29.5	39	New Mexico	21.0
40	Colorado	26.9	40	South Dakota	20.3
41	Delaware	25.6	41	North Dakota	19.6
42	Montana	24.4	42	Colorado	19.1
43	Maryland	23.6	43	Florida	18.1
44	Florida	23.6	44	Maryland	17.1
45	North Dakota	22.9	45	Delaware	15.0
46	New York	17.4	46	Nevada	13.8
47	Wyoming	13.4	47	Wyoming	12.7
48	Nevada	12.9	48	New York	11.7
49	Alaska	7.2	49	Alaska	8.5
50	Hawaii	6.2	50	Hawaii	6.1
51	District of Columbia	0.6	51	District of Columbia	0.3

Source: U.S. Bureau of Economic Analysis.

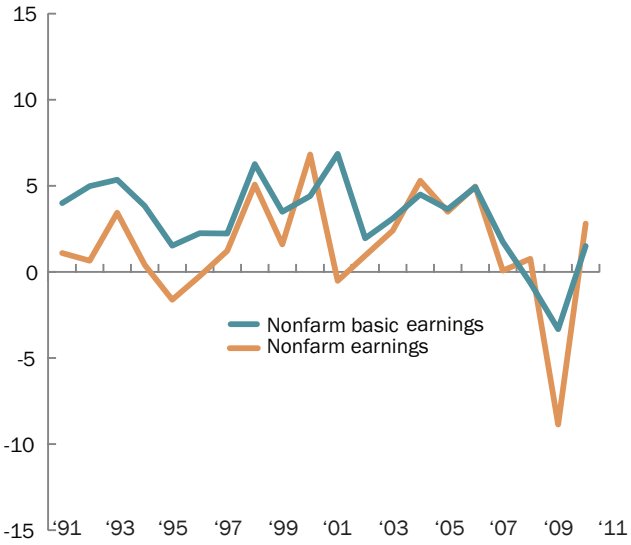
agricultural services are explicitly included. Rather, excluding farm earnings eliminates an extremely volatile component that could mask important trends elsewhere in the economy.

An accurate description of manufacturing's contribution to the Montana economy must take into account the economic data characteristics mentioned earlier. In addition, there have been revisions to all economic data and also structural changes within manufacturing. The U.S. government in 2000 significantly revised the definitions and reporting formats for economic data. These modifications were intended to better measure an economy becoming more and more dependent on services. One of the other consequences of these changes was that statistics referring to years before 2000 may not be exactly comparable to those for years after that date.

Specific industries within manufacturing may themselves be changing due to evolving and improving practices. One example is the greater emphasis on supply chain management. Increased use of supply chain methods suggests that today's production processes may be very different from those of only a few years ago.

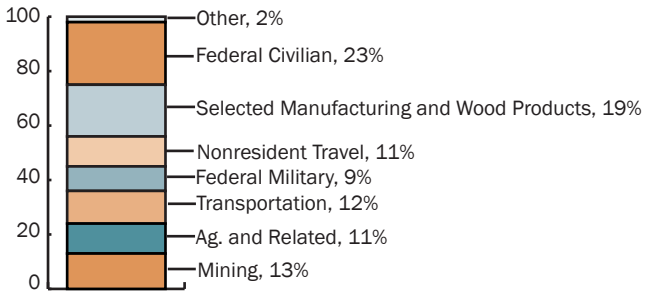
Montana's basic industries are the major determinant of the overall trends in the state's economy. Figure 1 depicts the high correlation between changes in the basic industries and the overall trends in the economy. Every up and down in nonfarm earnings (which measures the overall economy) were accompanied or preceded by a similar change in basic earnings. Looking

Figure 1
Nonfarm Labor Income and Nonfarm Basic Labor Income, Montana



Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Figure 2
Labor Income in Basic Industries, Montana, 2010-2012



Source: Bureau of Business and Economic Research, The University of Montana-Missoula; Bureau of Economic Analysis, U.S. Department of Commerce.

at the most recent decade, there were decelerations in basic earnings associated with the 2001 recession and the September 11 aftermaths. A year later, nonfarm earnings also decelerated, signaling that the impacts were felt in the rest of the economy. There were significant accelerations in the basic industries in 2004, 2005, and 2006 caused by the energy/ commodity boom. These were quickly followed by faster growth in the other sectors of the economy. The layoffs and closures in the wood products industry plus the onset of the Great Recession in 2007 led to economy wide declines in 2008 and 2009. Finally, the upturns in 2010 signal the beginning of the recovery.

Manufacturing is definitely a basic industry because most its output and production is shipped out of Montana. As shown later in Figure 4, about 50 percent of the state's manufacturing earnings is produced in industries such as wood products, petroleum refining, and machinery where almost all of the products immediately leave the state. Even the smaller industries within manufacturing, such as fabricated metal products and chemicals, include many firms that sell nationwide or even worldwide.

The Montana Department of Labor and Industry reported that the employment multiplier for manufacturing is 3.58. This means that there will be 2.58 new jobs created elsewhere in the economy as a result of one new manufacturing job. The earnings multiplier is 2.72, suggesting that an additional $1.72 will be created in other Montana industries for each $1.00 in new manufacturing earnings.

Earnings in each of Montana's basic industries are shown in Figure 2. Manufacturing accounts for about 19 percent of total earnings in basic industries. This percentage differs from that reported in Table 2 because GDP is a measure of the value of production or output while the data in Figure2 refers to the earnings of workers. Manufacturing is the second largest basic industry as measured by earnings, ranking behind the federal civilian and military government at 32 percent. Nonresident travel accounts for about 11 percent of Montana's economic base.

Manufacturing is a major contributor to recent economic trends in Montana despite accounting for only 19 percent of the economic base. This importance is illustrated by the data in Figure 3 which presents the year-to-year changes in basic earnings by industry from 2002 to 2010. The changes in basic earnings may be decomposed by major sector. Starting in mid-decade:

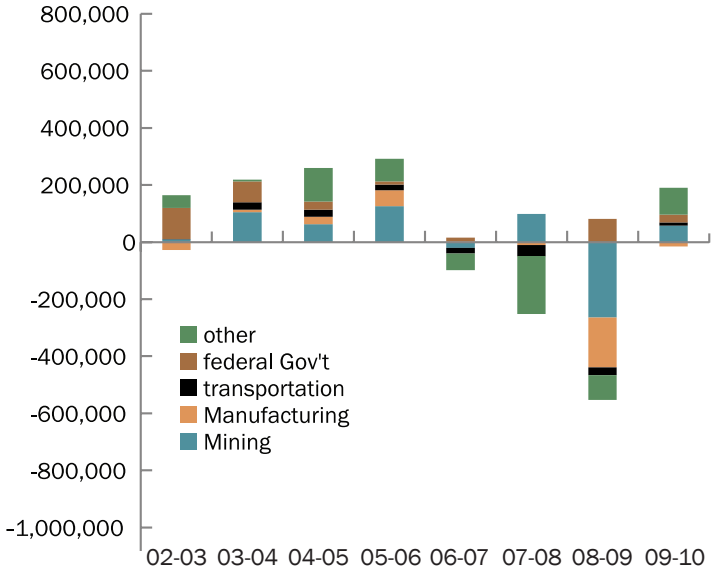
- 2005-06. Nonfarm basic earnings increased about $291 million, and all of the basic industries grew. The greatest increases were in mining ($126 million), other ($79 million), and manufacturing ($56 million).
- 2006-07. The Great Recession was just beginning. Nonfarm basic earnings declined about $83 million, with some industries increasing and some decreasing. Small increases in manufacturing ($3 million), transportation ($19 million), and the federal government ($12 million) were more than counter-balanced by declines in mining ($21 million) and other ($59 million).
- 2007-08. The full impact of the Great Recession was felt as four of the five major nonfarm basic industries declined. The largest decline was in in the other category ($202 million), followed by transportation ($38 million), manufacturing ($11 million). These declines were somewhat offset by growth in mining ($99 million).
- 2008-09. The second year of the recession again saw decreases in four of the five components of nonfarm basic earnings. Total nonfarm basic earnings decreased about $472 million. The largest decrease was in mining ($265 million) followed by manufacturing ($174 million), other ($86 million), and transportation ($28 million). The federal government was the only industry to post an increase ($81 million).
- 2009-10. The economic recovery begins. Total basic earnings grew $175 million. The largest increases were in the other category ($93 million), mining ($59 million) and the federal government ($28 million). Manufacturing continued to post a small decline ($15 million).

This analysis illustrates a number of important points about the causes of economic growth in Montana. First, overall growth or decline in the basic industries is the net result of events in each of the basic industries. There are always some industries that are growing (or declining) faster or slower than others.

Secondly, there is usually no single cause of growth. None of the nonfarm basic industries was consistently the fastest (or slowest) growing during this eight year period.

Finally, and perhaps most important, industries that represent a relatively small share of the economic base –such as manufacturing—can be major contributors to overall economic growth or decline during specific periods. For example, during 2005-06, manufacturing ranked right behind mining and other in terms of its contribution to the total increase in basic earnings. On the minus side, manufacturing was the second largest contributor to the decline in 2008-09.

Figure 3
Change in Nonfarm Basic Labor Income, Montana



Source: U.S. Bureau of Economic Analysis.

A Closer Look at Montana Manufacturing

MANUFACTURING ESTABLISHMENTS

There were 3,191 manufacturing establishments in Montana during 2011, as shown in Table 4. The largest category is miscellaneous manufacturing (NAICS 339) with 658 establishments. The next largest categories were fabricated metal manufacturing (NAICS 332) with 423 establishments and wood products (NAICS 321) with 369 establishments.

EMPLOYMENT SIZE

Montana manufacturers are mostly small businesses. As shown in Table 5, there were 664 establishments with one to four workers; they represented 54.9 percent of the 1,210 establishments with employees. There were 881 establishments with less than 10 workers, or 72.8 percent of the total. There were no Montana manufacturers with 1,000 employees or more.

Table 4
Manufacturing Establishments, Montana, 2011

NAICS Code	Industry	Number of Establishments
	Manufacturing	3,191
311	Food Products	349
312	Beverages & Tobacco	64
313	Textile Mills	19
314	Textile Product Mills	61
315	Apparel	132
316	Leather & Allied Products	127
321	Wood Products	369
322	Paper Manufacturing	6
323	Printing & Related	175
324	Petroleum & Coal Products	25
325	Chemicals	68
326	Rubber & Rubber Products	31
327	Nonmetalic Mineral Products	132
331	Primary Metals	35
332	Fabricated Metal Products	423
333	Machinery	108
334	Computer and Elec. Products	50
335	Elec. Equipment and Appliances	25
336	Transportation Equipment	63
337	Furniture and Related	271
339	Miscellaneous	658

Source: U.S.Bureau of the Census.
Note: Includes establishments with no employees.

Table 5
Manufacturing Establishments by Employment Size, Montana, 2011

Employment	Number of Establishments
Total	1,210
1 to 4	664
5 to 9	217
10 to 19	167
20 to 49	93
50 to 99	33
100 to 249	30
250 to 499	5
500 to 999	1
1,000 or more	0

Note: Includes only establishments with employees.
Source: U.S. Bureau of the Census.

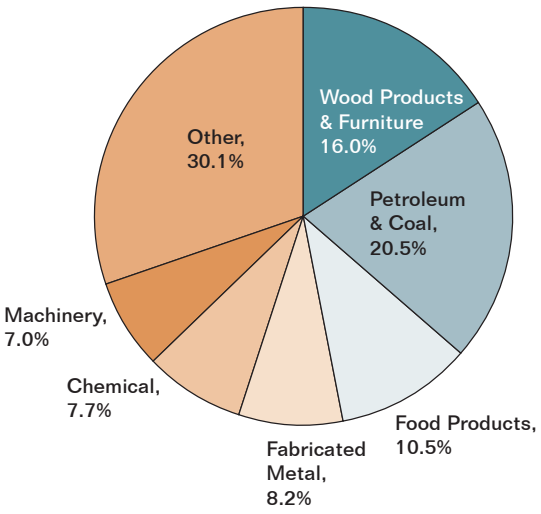
COMPOSITION OF MANUFACTURING

The Montana manufacturing industry is not the same as its national counterpart. Industries that are important in Montana are not necessarily the same as those that are important nationwide. Figures 4 and 5 present the composition of manufacturing earnings in Montana and the United States during 2011. The recent increases in world energy prices have distorted value of output measures for certain industries (such as petroleum refining), consequently earnings becomes a better measure of the composition of manufacturing because it is the amount earned by manufacturing workers in the state.

The largest component of U.S. manufacturing during 2011 was computers and electronics, which accounted for 13.8 percent of total manufacturing earnings. The next four industries were chemical products (10.8 percent), fabricated metals (9.3 percent), machinery (9.2 percent), and food products (8.3 percent),

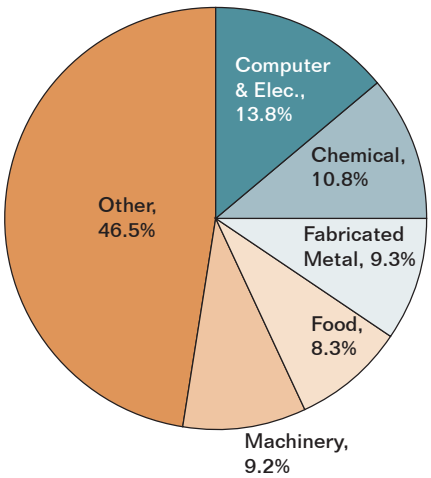
The two largest Montana manufacturing industries in 2011 were associated with the processing of crude oil and forest resources. Petroleum and coal products (primarily oil refining) was the largest manufacturing industry; it accounted for 20.5 percent of total manufacturing earnings in 2011. The next largest industry was wood products and furniture (the paper products industry no longer exists since the 2010 shutdown of Smurfit-Stone), representing 16.0 percent of earnings. The wood products and furniture industry is still in first place when measured by employment (see Table 7). Food products and fabricated metals are the third and fourth largest sectors, account for 10.5 percent and 8.2 percent, respectively. Earnings in chemical products (which includes REC Silicon, formerly AsiMi) represented 7.7 percent of the total and machinery (which includes Applied Materials, formerly Semitool) accounted for 7.0 percent.

Figure 4
Composition of Manufacturing, Montana, 2011
(Percent of Manufacturing Labor Income)



Source: Bureau of Economic Analysis

Figure 5
Composition of Manufacturing, United States, 2011
(Percent of Manufacturing Labor Income)



Source: Bureau of Economic Analysis

MANUFACTURING EMPLOYMENT

The number of manufacturing workers in the U.S. has declined steadily from 2001 to 2011, as shown in Table 6. In Montana, manufacturing employment also declined during this period, but the rate of decrease was much less than the U.S. figure and there were even short periods of modest growth.

U.S. manufacturing employment decreased from 16.9 million workers in 2001 to 12.3 million in 2011, a drop of 27.2 percent. Manufacturing's share of total employment declined from 10.2 percent to 7.0 percent during this period.

Montana manufacturing employment declined from about 24,400 workers in 2001 to approximately 20,400 workers in 2011, a decrease of roughly 16.4 percent. Most of this decrease was concentrated in a few industries; wood products, paper products, and primary metals refining. Despite this overall decrease from 2001 to 2011, Montana manufacturing employment did experience a few small increases between 2002 and the onset of the Great Recession in 2008. Manufacturing's share of total statewide employment decreased from 4.4 percent in 2001 to 3.2 percent in 2011. Montana's decrease in relative importance was 1.2 percentage points as compared to 3.2 percentage points nationwide.

Table 6
Full and Part-Time Employment, Total and Manufacturing, Montana and United States

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total, United States (Millions of Workers)	165.5	165.1	166.0	169.0	172.6	176.1	179.9	179.6	174.2	173.6	175.8
Manufacturing (Millions of Workers)	16.9	15.7	15.0	14.8	14.7	14.7	14.5	14.0	12.5	12.1	12.3
Percent of Total	10.2	9.5	9.0	8.8	8.5	8.3	8.1	7.8	7.2	7.0	7.0
Total, Montana (Thousands of workers)	560.4	568.1	575.3	589	603.4	622.5	640.6	641.9	625.7	622.7	629.2
Manufacturing (Thousands of workers)	24.4	23.2	22.1	22.3	22.6	23.4	23.9	23.3	21.1	19.8	20.4
Percent of Total	4.4	4.1	3.8	3.8	3.7	3.8	3.7	3.6	3.4	3.2	3.2

Note: Includes the self-employed.
Source: U.S. Bureau of Economic Analysis.

MONTANA MANUFACTURING EMPLOYMENT BY INDUSTRY

As shown in Table 7, total manufacturing employment decreased by 3,979 workers from 2001 to 2011. The overall decline in Montana manufacturing employment hides very different conditions in specific sectors. The largest declines were in wood products (2,811), primary metal refining (710), paper (616), furniture and related (446), and machinery manufacturing (710). In each case, the decrease can be attributed to long-term structural change within the industry and/or impacts of the Great Recession. If these five industries are excluded, the remainder of manufacturing actually remained stable during this decade.

The 2,811 decrease in wood products employment can be attributed to both cyclic and long-run influences. The impacts of the Great Recession were disproportionately concentrated in housing and construction, leading to significant decreases in the demand for wood products. The long-term decrease in the supply of timber from federal lands and some industrial lands in Montana implies that inputs will not be available once U.S. demand bounces back. Therefore, many of the mill closures in 2008 and 2009 are permanent shutdowns.

The Smurfit-Stone paper mill near Missoula, the largest manufacturing facility in the state, shut down in early 2010 due to a combination of market and structural factors. This accounted for almost all of the 616 worker decrease in the paper industry from 2001 to 2011. This plant is currently being scrapped and will not reopen.

The 710 decrease in primary metals refining employment reflects the shutdown of the refinery in East Helena and the winding down of the Columbia Falls Aluminum Company in Columbia Falls. The East Helena facility was a lead-zinc refinery that closed in 2002. The aluminum refinery has been gradually reducing production as the supply of available electricity has decreased. This facility is currently dormant with no employment or production, but could reopen if electricity supplies improved.

Furniture and related employment decreased by 446 workers between 2001 and 2011. The trends in this industry appear correlated with the business cycle. There were sizable declines during the recession years of 2001 and 2002 and again from 2007 to 2010. Employment was relatively stable from 2003 to 2006.

Machinery manufacturing employment decreased 710 workers between 2001 and 2011. Much of this decline can be attributed to the volatility and pro-cyclic employment trends at a high-tech firm in Kalispell. In addition, an electric tool manufacturer restructured and dramatically reduced employment.

The largest increase in employment between 2001 and 2011 was the 462 worker growth in fabricated metal products. This industry consists of about 200 small- and medium-sized firms producing a variety of products from metal barns and other buildings to machine shops making screw products.

The 186 worker increase in petroleum and coal products represents expansions and upgrades at the oil refineries near Billings and Great Falls. There was at one time concern about these refineries and their ability to process changing sources of crude oil with different supply and chemical characteristics. There have been significant capital investments in the refineries and their future appears much more secure.

The Montana manufacturing industry contains notable high-tech firms. The first is the Applied Materials plant in Kalispell, which is classified in machinery manufacturing. The expansion of this firm led to sizable industry growth in 2005, 2006, and 2007. But, as mentioned earlier, this company has been notoriously pro-cyclic, and there were layoffs during the Great Recession. This firm was formerly known as Semitool. The transition to the new owner appears to have been successful.

REC Silicon located near Butte is another Montana high-tech manufacturing firm. It has been reclassified from the chemicals industry and beginning in 2012 will be reported in the nonmetallic mineral products industry. REC Sillicon produces raw materials for the international solar and electronic industries. It was formerly called ASiMi and had a recent ownership change. This plant now appears to have a more secure future.

Detailed data for 2012 full and part-time manufacturing employment is not yet available. Preliminary and partial figures suggest that the 1,000 worker increase in "all other manufacturing" wage and salary employment identified in Table 1 is concentrated in fabricated metal products and the cyclic machinery manufacturing.

Table 7
Full and Part-Time Manfucturing Employment, by Industry, Montana, 2000-2011

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Change 2001-2011
Manufacturing	**24,390**	**23,229**	**22,054**	**22,255**	**22,596**	**23,390**	**23,949**	**23,319**	**21,131**	**19,803**	**20,411**	**-3,979**
Durable goods	16,330	15,209	14,183	14,068	14,395	14,898	15,270	14,593	12,638	11,797	12,190	-4,140
Wood product	5,911	5,802	5,324	5,296	5,290	5,214	4,957	4,391	3,354	3,074	3,100	-2,811
Nonmetallic minerals	1,090	1,015	1,138	1,109	1,112	1,106	1,169	1,088	996	938	948	-142
Primary metals	925	562	445	330	342	340	487	439	269	170	215	-710
Fabricated metals	1,601	1,497	1,512	1,541	1,583	1,783	1,985	2,049	1,987	1,889	2,063	462
Machinery manufacturing	1,904	1,493	1,310	1,285	1,427	1,572	1,566	1,547	1,205	1,167	1,194	-710
Computer and electronics	708	614	483	477	502	582	587	594	453	434	557	-151
Electrical equipment and appliances	143	137	134	197	201	217	232	259	235	206	199	56
Motor vehicles and parts	359	(D)	(D)	(D)	341	402	408	(D)	(D)	283	294	-65
Other transportation equipment	229	(D)	(D)	(D)	238	220	222	(D)	(D)	283	305	76
Furniture and related	1,383	1,297	1,308	1,344	1,329	1,307	1,240	1,216	1,087	972	937	-446
Miscellaneous	2,077	2,228	2,010	1,948	2,030	2,155	2,417	2,372	2,481	2,381	2,378	301
Nondurable goods	8,060	8,020	7,871	8,187	8,201	8,492	8,679	8,726	8,493	8,006	8,221	161
Food	2,585	2,629	2,499	2,746	2,760	2,903	2,988	2,916	2,873	2,780	2,759	174
Beverages and tobacco	780	816	824	826	800	854	773	761	754	766	831	51
Textile mills	(D)	(D)	(D)	(D)	(D)	(D)	55	36	44	(D)	(D)	(D)
Textile product mills	239	252	248	239	215	221	255	250	233	225	233	-6
Apparel	308	286	266	292	309	333	(D)	(D)	(D)	(D)	(D)	(D)
Leather and allied products	171	212	196	202	214	221	176	200	206	198	209	38
Paper manufacturing	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	177	(D)	(D)
Printing and related	1,188	1,171	1,171	1,204	1,217	1,296	1,337	1,340	1,176	1,107	1,160	-28
Petroleum and coal	924	940	924	887	938	961	984	1,077	1,113	1,088	1,110	186
Chemical manufacturing	683	710	777	798	772	752	874	955	968	997	1,096	413
Plastics and rubber products	488	357	335	364	374	364	367	395	336	317	368	-120

Note: Includes the self-employed. (T) and (D) denote not shown to avoid disclosure of confidential information.
Source: U.S. Burea of Economic Analysis.

MANUFACTURING EARNINGS

Montana manufacturing earnings from 2001 to 2011 are presented in Table 8. The earnings figures have been corrected for inflation by converting them to constant 2011 dollars. Earnings are the wages and salaries plus certain employer-paid fringe benefits (such as retirement and health insurance) paid to full- and part-time manufacturing workers.

It takes only a quick comparison of the data in Tables 7 and 8 to determine that the earnings figures paint a very different picture of manufacturing trends than employment. Instead of the sizable decrease in

Table 8
Manufacturing Labor Income, Montana (Thousands of 2011 dollars)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Percent Change 2001-11
Manufacturing	**1,168,985**	**1,140,603**	**1,120,566**	**1,123,906**	**1,161,589**	**1,220,817**	**1,229,512**	**1,231,261**	**1,046,226**	**1,027,484**	**1,040,812**	**-11.0**
Durable goods	721,379	685,682	650,176	652,381	678,789	696,545	715,322	655,768	532,497	509,549	526,086	-27.1
Wood product	286,122	281,541	263,600	266,487	265,403	254,535	243,663	208,095	146,894	134,869	136,371	-52.3
Nonmetallic minerals	52,340	47,450	56,726	53,893	54,723	50,971	55,923	52,464	44,456	41,234	42,481	-18.8
Primary metals	46,980	37,137	26,516	30,226	32,027	37,793	44,897	27,820	13,841	4,833	6,423	-86.3
Fabricated metals	60,196	60,261	60,680	60,945	64,688	74,178	84,175	86,335	77,806	78,069	85,140	41.4
Machinery manufacturing	95,984	80,825	69,553	70,169	78,282	89,649	83,689	82,496	68,673	73,753	72,921	-24.0
Computer and electronics	31,998	28,060	23,432	22,602	29,427	26,868	29,065	27,741	20,830	20,250	27,676	-13.5
Electrical equipment and appliances	7,412	7,574	8,097	9,804	10,516	11,083	11,610	14,750	12,792	12,339	11,366	53.4
Motor vehicles and parts	17,589	(D)	(D)	(D)	17,396	20,097	20,830	(D)	(D)	16,036	16,251	-7.6
Other transportation equipment	9,801	(D)	(D)	(D)	10,070	9,677	8,913	(D)	(D)	9,705	12,626	28.8
Furniture and related	40,799	40,142	39,476	39,691	39,793	40,382	38,627	40,136	30,363	26,979	27,021	-33.8
Miscellaneous	72,158	77,062	72,960	70,932	76,462	81,312	93,930	91,271	96,461	91,482	87,810	21.7
Nondurable goods	447,606	454,921	470,390	471,524	482,800	524,272	514,190	575,494	513,729	517,935	514,726	15.0
Food	101,961	102,774	100,998	110,014	108,578	113,288	112,784	114,013	113,300	111,828	109,496	7.4
Beverages and tobacco	37,525	34,567	37,029	37,160	34,746	35,008	30,260	32,474	33,251	35,177	37,783	0.7
Textile mills	(T)	(T)	(T)	(T)	(T)	(T)	763	566	660	(T)	(T)	(T)
Textile product mills	7,534	6,913	5,667	6,691	6,664	5,834	6,227	6,325	6,132	6,184	6,034	-19.9
Apparel	4,188	5,085	7,226	8,738	7,884	8,583	(D)	(D)	(D)	(D)	(D)	(D)
Leather and allied products	3,416	2,741	4,109	2,773	2,844	3,313	2,603	3,116	3,476	2,720	2,913	-14.7
Paper manufacturing	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	24,458	(D)	(D)
Printing and related	39,336	39,306	40,036	40,723	41,307	44,427	48,267	48,812	41,115	38,315	39,673	0.9
Petroleum and coal	143,307	153,188	159,193	143,087	156,937	194,734	177,726	235,922	185,746	205,746	213,254	48.8
Chemical manufacturing	47,928	46,311	52,915	57,178	59,412	53,929	65,473	68,500	69,719	72,468	80,001	66.9
Plastics and rubber products	10,501	10,169	9,517	10,726	11,355	12,554	14,044	13,810	13,272	14,300	15,163	44.4

Note: Includes the income of the self-employed. (T) and (D) denote not shown to avoid disclosure of confidential information.
Source: U.S. Burea of Economic Analysis.

manufacturing employment between 2001 and 2011, earnings decreased 11.0 percent during the same period. Furthermore, earnings in 2008 (the cyclic peak) were 5.4 percent higher than the 2001 figure.

Earnings provide solid evidence that the much discussed decline in manufacturing in Montana (and the United States) is only reflected in certain data. The divergent trends between manufacturing earnings and employment are mostly due to the fact that the former incorporate improvements in labor productivity and the effects of structural change. Trends in earnings more closely mirror those of production and value of output rather than just labor input.

To illustrate the difference that earnings data make, the printing and plastics industries are examined in detail. The employment data in Table 7 report a 120 worker decline in plastics and rubber products employment between 2001 and 2011. In contrast, earnings reported in Table 8 rose 44.4 percent. Similarly, printing employment decreased by 28 workers while earnings rose 1.0 percent between 2001 and 2011.

Table 9
Employment and Wages and Salaries per Worker, By Industry, Montana, 2011

	Wage and Salary Employment	Wages and Salaries Per Worker (Current Dollars)	Wages and Salaries Per Worker (Percent of U.S.)
Total, All Industries	454,484	35,814	74.1
Farm	5,402	33,217	117.3
Nonfarm	449,082	35,846	74.0
Forestry, Fishing, and Other	2,742	28,833	107.7
Mining	7,561	80,502	84.3
Utilities	3,117	78,167	84.5
Construction	23,960	42,713	83.3
Manufacturing	16,864	42,588	70.8
Durable goods	9,758	39,934	62.3
Wood products	2,644	38,908	102.6
Nonmetallic minerals	806	39,906	79.4
Primary metals	149	32,087	52.2
Fabricated metal products	1,735	37,572	73.3
Machinery	1,031	54,003	83.9
Computer and electronics	508	45,480	46.3
Electrical equipment and appliances	167	47,910	78.5
Motor vehicles and parts	292	43,192	71.9
Other transportation equipment	207	46,531	57.1
Furniture and related	610	31,413	79.8
Miscellaneous	1,609	35,106	62.8
Nondurable goods	7,106	46,232	85.9
Food	2,507	32,602	78.3
Beverage and tobacco	778	30,477	55.6
Textile mills	(D)	(D)	(D)
Textile product mills	192	24,063	67.4
Apparel	(D)	(D)	(D)
Leather and allied products	64	20,313	53.3
Paper	(D)	(D)	(D)
Printing and related	907	34,001	75.1
Petroleum and coal	1,096	100,212	98.8
Chemical	1,031	55,441	65.4
Plastics and rubber products	346	33,711	70.4
Wholesale trade	15,770	47,891	71.4
Retail trade	55,609	24,685	88.8
Transportation and warehousing	13,848	47,294	98.1
Information	7,214	41,931	52.8
Finance and insurance	16,257	49,884	56.2
Real estate and rental and leasing	5,301	28,413	60.9
Professional and technical services	19,341	51,672	64.1
Management of companies	2,006	59,589	56.8
Administrative and waste services	19,283	27,858	80.2
Educational services	5,732	21,467	57.0
Health care and social assistance	60,186	39,103	86.8
Arts, entertainment, and recreation	10,965	20,341	56.4
Accommodation and food services	46,157	16,149	81.2
Other services	20,930	25,008	81.3
Government	**96,239**	**38,999**	**80.5**
Federal, civilian	13,878	61,462	83.7
Military	8,224	35,357	73.9
State and local	74,137	35,198	78.6

Note: (T) and (D) denote not shown to avoid disclosure of confidential information.
Source: U.S. Burea of Economic Analysis.

In both cases, decreased employment does not indicate reduced production. Instead, improved productivity or structural change was probably the cause of the divergence in trends.

Within Montana manufacturing, earnings tell about the same story as employment. Wood products, paper, primary metals, and nonmetallic minerals experienced the greatest declines. The scale of the upgrades at the petroleum refineries are better pictured using earnings. Inflation-adjusted earnings in petroleum and coal rose almost 50 percent between 2001 and 2011 while the number of employees increased only 20 percent.

WAGE AND SALARY EMPLOYMENT AND PER WORKER WAGES

This section examines Montana employment and per worker wages and salaries in manufacturing and compares them to other industries in the state and to corresponding nationwide data. Montana 2011 employment and per worker wages and salaries are presented in Table 9. These employment figures differ from those reported in Tables 6 and 7 because they do not include the self-employed.

Wages and salaries directly measure the payments to workers and that represents the amount they have available for current spending. Other compensation measures (such as earnings) include estimates of employer-paid benefits that may not lead to local spending by workers.

The average Montana manufacturing worker earned $42,588 in 2011, about 18.9 percent higher than the average of $35,814 for all workers. The highest wages within manufacturing reported in Table 9 were the $100,212 in petroleum and coal products. This industry is dominated by highly skilled workers at the oil refineries near Billings and Great Falls.

After petroleum and coal products, the highest per worker wages and salaries were the $55,441 earned in chemical manufacturing. Next was the $54,003 earned in machinery manufacturing. The lowest paying manufacturing jobs were in leather and allied products ($20,313) and textile product mills ($24,063), both very small sectors employing less than 200 Montanans.

Montana incomes are generally less than their corresponding U.S. averages. This is also true for wages and salaries per worker. Average wages and salaries for all Montana workers were $38,814 in 2011, about 74.1 percent of the national average. Montana manufacturing wages per worker were about 70.8 percent of the U.S. figure. Within manufacturing, only wood products and petroleum and coal workers had average wages at or near their respective national average. The lowest was for computer and electronics workers, who earned only 46.3 percent of their national counterparts.

MONTANA'S MANUFACTURING EXPORTS

Montana's manufacturers have been expanding internationally to broaden their markets and enhance their sales. Table 10 presents manufacturing exports by industry for 2002 and 2007 along with the value of shipments for many of the same industries. The shipment data are reported in the Census of Manufacturers and are the most complete data available. Table 11 presents more current export data for 2009 to 2012, but the value of shipments data are either not available or are the far more limited figures published in the Survey of Manufacturers.

As shown in Table 10, Montana manufacturing exports rose from $290,417,000 in 2002 to $880,704,000 in 2007, about tripling in nominal dollars. Overall, exports rose from 5.8 percent of shipments in 2002 to 8.3 percent of shipments in 2007.

The chemical industry exported 33.3 percent of it shipments in 2002 and 66.7 percent in 2007. There are no data for individual firms, but REC Silicon is classified in chemicals and exports much of its production of polysilicon. Fertilizer manufacturers are also classified in chemicals, and they have traditionally served certain Canadian markets. Machinery exported about 36.5 percent of it shipments in 2002 and 58.0 percent in 2007. Applied Materials (formerly Semitool) is classified in machinery and sells its high-tech products to customers worldwide. Electrical equipment exported 60.6 percent of its shipments in 2002, but the value of shipments is not disclosed in 2007. This category includes an electrical power tool maker (Jore Corp), which underwent financial reorganization.

Table 10
Exports and Value of Shipments, 2002 and 2007 (Thousands of Current Dollars)

		- 2002 -			- 2007 -		
NAICS Code	Industry	Exports	Shipments	Exports as Percent of Shipments	Exports	Shipments	Exports as Percent of Shipments
n/a	Manufacturing	290,417	4,987,577	5.8	880,704	10,638,145	8.3
311	Food Products	13,218	482,611	2.7	28,651	741,151	3.9
312	Beverages and Tobacco	5	(D)		42	164560	0.0
313	Textile Mills	235	(D)		114	(D)	
314	Textile and Fabrics	145	(D)		438	(D)	
315	Apparel	628	15,409	4.1	2,174	(D)	
316	Leather & Allied Products	416	(D)		1,320	(D)	
321	Wood Products	20,363	854,352	2.4	36,599	935,340	3.9
322	Paper Manufacturing	29,989	(D)		42,085	(D)	
323	Printing & Related	153	(D)		949	106,695	0.9
324	Petroleum & Coal Products	1,259	1,807,038	0.1	9,219	5,450,695	0.2
325	Chemicals	59,462	178,695	33.3	261,133	391,280	66.7
326	Plastic & Rubber Products	2,021	56,039	3.6	7,435	(D)	
327	Nometalic Mineral Products	27,794	167,927	16.6	43,400	291,377	14.9
331	Primary Metals	7,295	(D)		96,663	1,045,308	9.2
332	Fabricated Metal Products	3,027	198,579	1.5	7,274	278,351	2.6
333	Machinery	71,989	197,393	36.5	172,506	297,310	58.0
334	Computer & Elec. Products	17,042	(D)		24,287	(D)	
335	Electrical Equipment & Appliances	9,424	15,547	60.6	12,004	(D)	
336	Transportation Equipment	8,541	70,968	12.0	122,671	113,325	108.2
337	Furniture & Related	341	75,067	0.5	408	85,738	0.5
339	Miscellaneous	17,069	186,048	9.2	11,331	186,703	6.1

Note: (D) not shown to avoid disclosure of confidential information. N/A denotes "not available."
Sources: www.wisertrade.org (accessed April 4, 2011). U.S. Bureau of the Census, Census of Manufacturers 2002 and 2007.

There may be a data error for the transportation equipment industry (NAICS 337). Reported exports exceed the value of shipments ($122,671,000 vs. $113,325,000). Since the value of exports is derived from a sample while the value of shipments is based on a census, the error is more likely in the former than the latter.

With only a few exceptions, all Montana manufacturing industries increased exports between 2002 and 2007, both in nominal dollars and as a share of shipments. Chemical industry exports (which include REC Silicon) grew more than four-fold in nominal value, and their share of shipments doubled from 33.3 percent to 66.7 percent. Machinery industry exports (which include Applied Materials) more than doubled, and their share of shipments rose from 36.5 percent in 2002 to 58.0 percent in 2007.

More recent data for Montana manufacturing exports from 2009 to 2012 are presented in Table 11. Total manufacturing exports were at their recession low in 2009 and then increased 27.2 percent in 2010. Exports maintained their levels in 2011 and 2012. Exports increased from 10.6 percent of shipments in 2009 to 11.6 percent in 2010 and then declined slightly to 9.9 percent in 2011. There are no values of shipments data for 2012. The lack of overall growth of manufacturing exports from 2010 to 2012 may be a reflection of the economic turmoil in Europe and deceleration of growth in Asia and other developing countries.

A closer look at the exports for individual manufacturing industries reveals a mixture of trends between 2009 and 2012. The largest increases were in petroleum and coal products and machinery manufacturing. Paper products and primary metals

Table 11
Exports and Value of Shipments, 2009 to 2012 (Thousands of Current Dollars)

		- 2009 -			-2010-			-2011-			-2012*-
NAICS Code	Industry	Exports	Shipments	Exports as Percent of Shipments	Exports	Shipments	Exports as Percent of Shipments	Exports	Shipments	Exports as Percent of Shipments	Exports
n/a	Manufacturing	876,500	8,293,186	10.6	1,115,672	9,586,897	11.6	1,162,912	11,705,624	9.9	1,132,600
311	Food Products	32,135	772,217	4.2	32,647	787,051	4.1	41,759	872,879	4.8	65,396
312	Beverages and Tobacco	28	(D)		7,765	(D)		8,798	NA	NA	10,876
313	Textile Mills	401	(D)		619	(D)		334	NA	NA	497
314	Textile and Fabrics	391	(D)		530	(D)		533	NA	NA	500
315	Apparel	1,793	(D)		1,952	(D)		2,923	NA	NA	2,887
316	Leather & Allied Products	2,855	(D)		2,027	(D)		2,807	NA	NA	2,713
321	Wood Products	19,751	580,252	3.4	25,720	591,703	4.3	26,457	614,337	4.3	36,105
322	Paper Manufacturing	32,805	(D)		1,419	(D)		550	NA	NA	455
323	Printing & Related	959	(D)		1,040	(D)		1,148	NA	NA	1,591
324	Petroleum & Coal Products	22,800	4,117,780	0.6	54,404	5,325,367	1.0	160,221	6,567,756	2.4	148,973
325	Chemicals	302,928	(D)		369,301	(D)		349,595	NA	NA	326,674
326	Plastic & Rubber Products	3,716	(D)		3,011	(D)		6,443	NA	NA	11,620
327	Nometalic Mineral Products	39,500	244,985	16.1	59,437	(D)		58,307	NA	NA	72,715
331	Primary Metals	121,453	(D)		124,071	(D)		64,211	NA	NA	28,371
332	Fabricated Metal Products	7,311	277,670	2.6	11,319	258,933	4.4	14,281	316,775	4.5	18,765
333	Machinery	156,425	195,022	80.2	220,649	(D)		204,992	395,876	51.8	219,288
334	Computer & Elec. Products	22,293	(D)		22,904	(D)		29,556	NA	NA	37,826
335	Electrical Equipment & Appliances	16,305	(D)		17,705	(D)		17,009	NA	NA	14,702
336	Transportation Equipment	76,731	(D)		137,889	(D)		149,480	NA	NA	104,663
337	Furniture & Related	680	(D)		1,152	(D)		1,051	NA	NA	1,426
339	Miscellaneous	15,239	205,714	7.4	20,108	199,870	10.1	22,454	NA	NA	26,557

* 2012 shipments and exports as percent of shipments data not available.
Note: (D) not shown to avoid disclosure of confidential information. NA denotes not available.
Sources: www.wisertrade.org. U.S. Bureau of the Census, Annual Survey of Manufactures 2009 and 2010.

experienced the greatest decrease. Both of these industries experienced plant closures during this period. The historically export oriented chemical industry posted moderate overall increases between 2009 and 2012.

The trends in Montana exports are confirmed by other statistics prepared by the U.S. Census Bureau. Table 12 provides a somewhat broader picture of manufacturing exports. These figures include not only the value of export shipments themselves but also the value of supporting activities. The employment associated with these exports and supporting services are also presented. The value of manufacturing exports (plus supporting activities) rose from 8.2 percent of total shipments in 2006 to 16.0 in 2009. Similarly, the employment associated with these exports and supporting activities increased from 10.6 percent of total manufacturing employment in 2006 to 15.6 percent in 2009. These data remain the most current available

Table 12
Export-Related Shipments and Employment, Montana, 2006 and 2009

	2006	2009
Shipments (Millions)	$787.60	$1,326.30
Percent of Manufacturing Shipments	8.2	16.0
Employment	1,800	2,200
Percent of Manufacturing Employment	10.6	15.6

Note: Export estimates include both "direct" exports (exports manufactured in the U.S. and consumed in foreign markets) and supporting shipments (intermediate goods and services required to manufacture export goods). These figures also include estimates of employment associated with transporting manufactured goods for export from the plant of manufacture to the port of export.
Source: U.S. Bureau of the Census. "Exports from Manufacturing Establishments," (Accessed June 4, 2012).

from the U.S. Department of Commerce.

Table 13 identifies the destination of Montana manufacturing exports. Canada consistently ranks number 1 as the major destination. The big surprise is that China has jumped into second place as the destination of exports with an almost 21-fold increase in value of exports between 2002 and 2011. In addition, Korea is right behind in third place with a 14-fold increase during the same period. Japan and Taiwan are also among the top export destinations. Four of the top five export destinations for Montana manufacturing are Asian countries. The largest non-Asian destinations are Germany and the United Kingdom, which rank 6th and 7th. Data for manufacturing exports to specific countries are not available for 2012.

The changing orientation of Montana manufacturing exports from Europe to Asia has both pluses and minuses. On the plus side, the current European economic malaise may be having less of an impact on Montana. On the other hand, Montana manufacturers will certainly feel the effects of moderating economic growth in Asia.

Table 13
Montana Manufacturing Exports, by Country, Selected Years
(Thousands of Current Dollars)

	-2002-		-2005-		-2011-		Percent Change
Country	Exports	Rank	Exports	Rank	Exports	Rank	2002-2011
Total, All Countries	290,417	–	512,327	–	1,162,911	–	300.4
Canada	155,787	1	219,182	1	500,362	1	221.2
Japan	26,459	2	53,169	2	61,993	5	134.3
Taiwan	13,949	4	32,432	4	65,752	4	371.4
China	5,064	8	25,378	6	110,654	2	2,085.1
Korea	6,343	7	24,296	5	90,205	3	1,322.1
Belgium	3,370	24	1,877	25	30,681	8	810.4
Germany	22,784	3	48,957	3	42,587	6	86.9
United Kingdom	6,692	6	22,551	7	33,547	7	401.3
Mexico	4,232	18	7,461	9	20,048	9	373.7
Netherlands	10,911	5	17,775	8	18,248	10	67.2

Sources: www.wisertrade.org (accessed June 4, 2012).