2016 STATE OF MONTANA MANUFACTURING

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INTRODUCTION

The U.S. economy has slowly been clawing itself out of a deep hole caused by the Great Recession. Even though GDP growth rates remain volatile and anemic, much to the consternation of the financial markets early in 2016, the U.S. economy has returned to full employment.

For a variety of reasons, employment rather than GDP has been a better reflection of the underlying strength of the U.S. economy. The U.S. Federal Reserve hinted that it will begin raising interest rates, a signal that they believe the economy is strong. But a major risk still exists with poor economic conditions in other parts of the world. These international conditions will be addressed in detail later.

U.S. manufacturing has been a bright spot. Growth in durable goods production accounted for most of the comeback. Lower oil prices with improved confidence are leading consumers to make automobile and other major purchases. Similarly, a recovering housing market is stimulating the demand for building materials, furniture and appliances. Increased business and construction activity has also boosted demand for metals, machinery and other equipment. Manufacturing exports will be discussed later in this report, but the rising value of the dollar and slow worldwide growth are dampening foreign markets.

The Montana economy posted a sub-par performance, but the major differences between the eastern and the western portions of the state are diminishing. The Bakken oil boom led to double-digit growth rates in eastern Montana and boosted the economies of nearby towns such as Glendive, Miles City and Billings. But recent lower oil prices are dampening the growth in the Bakken area.

Gallatin County stands out as the fastest growing community in the state, with Flathead County a bit behind. Lewis and Clark and Cascade counties have posted modest growth. Even Missoula and Ravalli counties in the western part of the state have started to turn upward. New and expanded manufacturing establishments are a major factor in the improved conditions in Cascade and Missoula counties.

Table 1 (page 5) presents the 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 2015 (the latest data available). Comparing trends in employment reveals how manufacturing has fared in the U.S. and Montana during the recovery phase of this business cycle.

Montana manufacturing employment has grown much faster than the rest of the nation. U.S. manufacturing wage and salary employment rose from 11.8 million workers in 2009Q2 to 12.4 million in 2015Q3, an increase of 4.7 percent. Montana manufacturing employment increased from 17,500 in 2009Q2 to 19,400 in 2015Q3, an increase of 10.9 percent.

The strong growth in Montana manufacturing employment occurred despite permanent closures in several manufacturing industries, such as the Smurfit-Stone paper mill near Missoula, which 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 materials due to diminished harvests on federal and some industrial lands. The paper mill and sawmills have since been dismantled and these jobs will not return.

The Columbia Falls Aluminum Company also closed during this period. Employment at this facility had been gradually declining for years, as the supply of appropriately priced electricity became scarcer. That plant is currently being dismantled.

As shown in Table 1 (page 5), employment in the wood and paper products industries decreased by 550 workers between 2009Q2 and 2015Q3. Employment in all the other components of Montana manufacturing increased by about 1,900 workers or 14.2 percent.

In summary, since the start of the recovery Montana manufacturing employment has increased faster than the national rate. This strong performance was in spite of permanent closures in the wood and paper products industries. New and expanded manufacturing establishments were a major contributor to improved growth in several Montana communities.

Table 1. Manufacturing employment, U.S. and Montana, 2009Q2 and 2015Q3.

	2009Q2	2015Q3	Percent Change
U.S. Manufacturing	11,812,000	12,368,900	4.7
Montana Manufacturing	17,500	19,400	10.9
Wood and Paper Products	3,450	2,800	-18.8
All Other Manufacturing	14,100	16,100	14.2

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

WHAT IN THE WORLD IS GOING ON?

Unlike the U.S., economic growth in the rest of the world is anemic, if it is occurring at all. Global economic conditions are important for Montana manufactures because some of the most prominent firms operate in the worldwide market and their exports had been growing. This section takes a whirlwind tour around the globe to summarize economic conditions in major economies.

Europe and the Eurozone – A Mixed Bag

The economic recovery remains lethargic. The overall eurozone economy in 2016 will probably expand at the same slow rate experienced in 2015. The main culprit is stagnant domestic demand combined with tight credit conditions imposed by the European Central Bank (ECB). This leaves the economy vulnerable to external shocks, such as the influx of migrants. The U.K.'s decision to leave the EU (Brexit) adds further uncertainty to the outlook.

The good news is in Germany and France, where Moody's Analytics project 2016 real GDP growth of 1.3 to 1.5 percent. An increase in inflation-adjusted wages will spur German demand for consumer items. France has been relatively stagnant, but future growth may be aided by economic reforms and a pro-growth government.

At the other end of the spectrum are Italy, Greece, Portugal and Spain. These countries have unemployment rates well into double digits, with Greece topping out at 24 percent, Spain at 20 percent and Portugal at 12 percent. Depressed wages may cause deflation and rising import prices due to a weak Euro will further exacerbate consumer demand.

Hanging over the entire region is the potential for an energy crises. The unresolved situation between Russia and Ukraine could result in a sharp drop in energy supplies to Western Europe and a corresponding rise in prices.

South America – Not a Lot of Good News

The South American economy continued to decelerate last year. This is the fifth year of slowing growth rates for the continent. The Brazil and Venezuela economies shrunk and sluggish global demand combined with falling commodity prices and political instability have been the major culprits.

Brazil is the largest economy in South America. It declined by nearly 4 percent in 2015 and Moody's Analytics projects a further decline of 3 percent this year. Brazil is implementing expansionary fiscal and monetary policies, but the effectiveness has been limited by high inflation and the lack of trust in the private sector. Venezuela continues to be plagued by low oil prices and rampant inflation.

Mexico – Almost a Bright Spot

The Mexican economy continues to expand and inflation remains moderate. Low oil prices remain a concern, but are probably the only major issue. Real GDP increased 2.5 percent in 2015 and Moody's Analytics projects a 2.2 percent rise in 2016. With predictable monetary and fiscal policies continuing to provide for a stable financial environment, growth may reach 3.0 percent in 2017.

India – Still Below Potential

Moody's Analytics projects India's growth in 2015-2016 to be 7.5 percent. This looks good, but it is still below its potential of 10 percent. Investment in infrastructure remains lethargic and low capacity utilization suggests that Indian factories could produce more.

China – Data Uncertainties

Reliable economic data for the Chinese economy remains problematic, but the news is not good. Official statistics show only a moderate deceleration to 7.0 to 8.0 percent annual growth rate. Private non-government sources paint a much darker picture, with these estimates showing annual increases in the 2.0 to 3.0 percent range. There is some evidence that housing construction is starting to rebound in the major cities, but this trend has not spread to the hinterland.

Japan – Heading into another Recession?

Interest Rates are currently negative, the Yen is rising with negative impacts on exports and there is no inflation. The Bank of Japan is attempting a counter-cyclic monetary policy, but does not have many viable options. Government forecasts are for 1.5 to 2.0 percent real growth in FY 2017, but many private projections are far less optimistic.

Canada – Life after Oil

Declining energy prices hit the economy hard and sent the Canadian dollar into a nosedive. Economic growth in 2015 was barely positive, but improved worldwide prospects associated with the Canadian currency devaluation will switch the stimulus from oil and gas to manufacturing and other export sectors. The Bank of Canada says it will not raise interest rates and the Royal Bank of Canada (RBC) forecasts GDP growth in 2016 and 2017 to be in the 1.7 to 2.0 percent range, slightly slower that in the U.S.

Summary – More Downside than Upside Risks

The major risks to the world economy are: Debt and refugee crises dominate the eurozone with the overhang of an energy crisis. The instability in the Middle East and North Africa could further exacerbate refugee issues. The slowdown in the Chinese economy could be much worse than expected by the government. Political instability and resource dependence in South America and Africa will hamper significant recoveries.

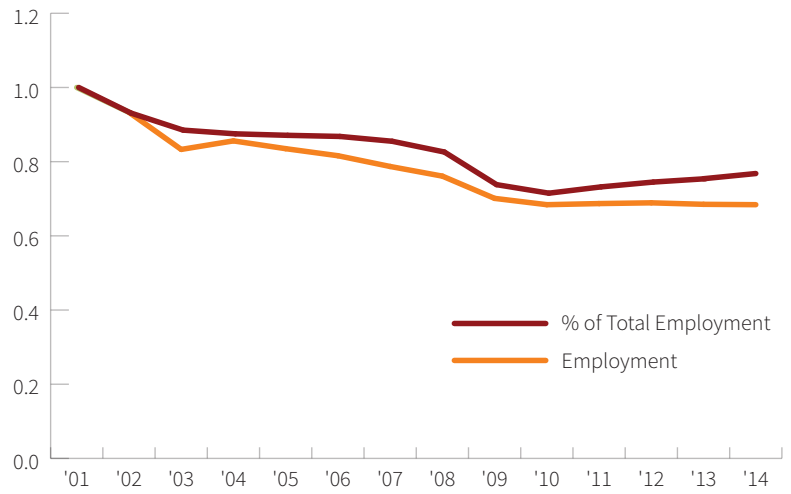
MEASURING AND ANALYZING MANUFACTURING

U.S. manufacturing is sometimes pictured as an archaic and increasingly irrelevant activity in a knowledge-based and technological economy. The true story is more subtle and complicated. New investments, often incorporating the latest technology, are particularly important for manufacturers as they constantly improve productivity and efficiency. In most cases, these new investments lead to more output being squeezed from a given amount of inputs or that fewer inputs are required to produce a certain output.

Improvements in productivity and efficiency change the relationships between inputs and outputs. Decreases in employment do not necessarily mean less output is produced or a 10 percent growth in output may not be associated with an equivalent change in some or all of the inputs. In other words, when analyzing manufacturing trends one must be very careful to note whether the indicator measures inputs or outputs.

The long-term decline in manufacturing employment is sometimes misinterpreted as an indicator of the poor overall health of the industry. Figure 1 (page 8) presents U.S manufacturing employment. The graph is expressed in relative terms so that both employment and manufacturing's share of total employment can be presented side by side. Both show a very definite downward trend from 2001 to 2014. In absolute terms, manufacturing employment decreased from 16.9 million workers in 2001

Figure 1. U.S. Manufacturing Employment (2001 = 1.00).



Source: U.S. Bureau of Economic Analysis.

to 13.0 million in 2014, while its share of total employment dropped from 10.2 percent to 7.0 percent during the same period.

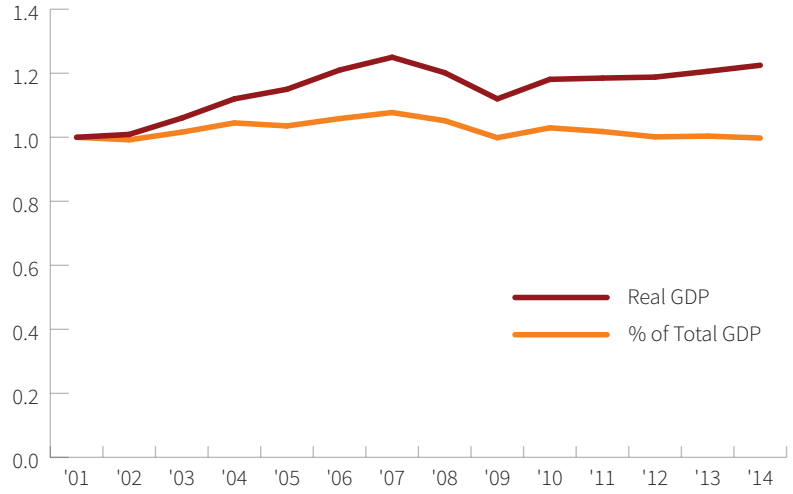
A decline in employment, which is the labor input, does not mean decreasing output or production of manufactured goods. Figure 2 (page 9) presents two measures of manufacturing real Gross Domestic Product (GDP), which represents the value of output or production in inflation-adjusted terms. The first is manufacturing GDP in billions of constant dollars and the second in manufacturing real GDP as a percent of total real GDP. They have been converted to relatives in order to easily present them side by side.

Both measures show general upward trends along with the obvious recession impacts in 2008 and 2009. Real manufacturing GDP rose from $1.5 trillion (2005$) in 2001 to $1.9 trillion (2005$) in 2014, a rise of 26.7 percent.

Manufacturing represented 12.1 percent of total U.S. GDP in 2001 and 12.0 percent in 2014. In other words, manufacturing output has been rising after adjusting for inflation and the growth in manufacturing has been equal to the economy-wide average, as indicated by its constant share of total real GDP.

The following sections use a variety of data to analyze manufacturing and 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

Figure 2. U.S. Manufacturing Real GDP (2001=1.00).



Source: U.S. Bureau of Economic Analysis.

available for both. On the other hand, analysis of the latest trends for manufacturing requires the most current figures. In each case, the characteristics of the data will be discussed so that they may be interpreted correctly.

MANUFACTURING AND THE MONTANA ECONOMY

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 the state's borders. Basic industries inject new funds into the state economy and are responsible for creating further income and jobs. 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 like 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 2 (page 11). Manufacturing's share of each state's economic base as measured by GDP was calculated for 1997 and 2012. 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, which may yield slightly different findings.

Table 2. Manufacturing as Percent of Economic Base Gross State Product for States, 1997 and 2012.

1997			2010			1997			2012	
Rank	State	Percent	Rank	State	Percent	Rank	State	Percent	Rank	State	Percent
1	Indiana	75.2	1	Oregon	79.6	27	Texas	44.6	27	Idaho	37.3
2	North Carolina	72.8	2	Indiana	74.7	28	Idaho	42.3	28	Illinois	34.6
3	Wisconsin	70.6	3	South Carolina	64.4	29	Oklahoma	42.1	29	Nebraska	34.5
4	South Carolina	69.7	4	North Carolina	62.4	30	West Virginia	41.4	30	California	29.6
5	Oregon	67.6	5	Wisconsin	60.4	31	Rhode Island	40.2	31	Connecticut	28.5
6	Kentucky	66.8	6	Michigan	57.0	32	Illinois	40.1	32	Oklahoma	28.1
7	Pennsylvania	65.8	7	Alabama	56.0	33	California	39.1	33	Rhode Island	27.0
8	Ohio	65.4	8	Kentucky	54.7	34	Connecticut	36.8	34	West Virginia	26.9
9	Michigan	64.8	9	Louisiana	52.6	35	Nebraska	36.6	35	New Hampshire	22.8
10	Arkansas	62.5	10	Ohio	52.3	36	New Hampshire	34.9	36	Montana	22.4
11	New Hampshire	61.6	11	Kansas	51.8	37	South Dakota	34.1	37	South Dakota	21.9
12	Iowa	59.0	12	Pennsylvania	50.1	38	Virginia	31.3	38	Massachusetts	21.4
13	Arizona	58.2	13	Arkansas	48.4	39	Massachusetts	31.1	39	Virginia	20.9
14	Alabama	57.0	14	Iowa	47.2	40	Delaware	28.7	40	Delaware	18.9
15	Vermont	56.6	15	Minnesota	44.2	41	Montana	25.6	41	Florida	17.8
16	Maine	54.3	16	Washington	44.0	42	Colorado	24.8	42	New Mexico	16.7
17	Minnesota	52.5	17	Tennessee	43.6	43	Florida	24.6	43	Colorado	16.5
18	Kansas	52.3	18	Maine	43.1	44	North Dakota	23.6	44	Nevada	14.4
19	Tennessee	51.7	19	Georgia	43.0	45	Maryland	21.1	45	North Dakota	14.2
20	Missouri	51.4	20	New Hampshire	43.0	46	New York	17.8	46	Maryland	14.2
21	Georgia	50.1	21	Vermont	42.5	47	Nevada	15.7	47	New York	11.1
22	Mississippi	49.2	22	Missouri	41.9	48	Wyoming	14.3	48	Wyoming	10.6
23	Washington	47.9	23	Mississippi	39.4	49	Alaska	7.6	49	Hawaii	6.1
24	Utah	46.6	24	Texas	39.4	50	Hawaii	6.5	50	Alaska	5.3
25	New Mexico	45.6	25	Arizona	39.1	51	District of Columbia	0.8	51	District of Columbia	0.3
26	Louisiana	44.7	26	Utah	38.5						

Source: U.S. Bureau of Economic Analysis.

During 1997, the top five states in terms of manufacturing's share of the economic base were Indiana, North Carolina, Wisconsin, South Carolina, and Oregon. The major difference in the top-tier states between 1997 and 2012 was that Oregon vaulted to the top spot and North Carolina dropped to fourth. The reason for Oregon's rise was the rapid growth of computer and electronics manufacturing in that state.

Montana manufacturing has traditionally ranked relatively low in terms of its contribution to the economic base. Montana was 41st in 1997 when manufacturing accounted for 25.6 percent of the economic base. Fifteen years later in 2012, Montana rose to 36th with about 22.4 percent of the economic base. Almost all states, with Oregon being the major exception, experienced declines in manufacturing's share of the economic base.

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

Earnings data is 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 or 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. Earnings in agricultural services are explicitly included. Excluding farm earnings eliminates a volatile component that could mask important trends elsewhere in the economy.

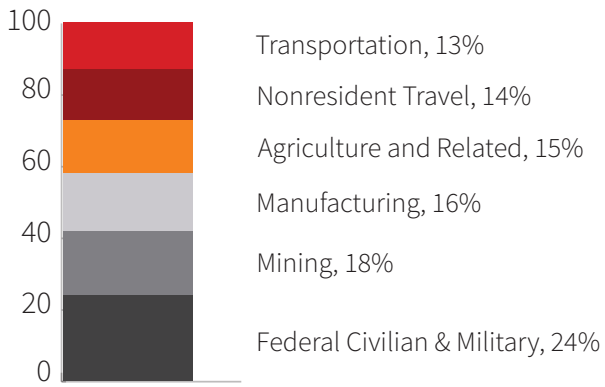
Specific industries within manufacturing might be changing due to evolving and improving practices. One example is a greater emphasis on supply chain management. Increased use of supply chain methods suggest that today's production processes may be very different from those used only a few years ago.

Manufacturing is a basic industry because most of its output and production is shipped out of Montana. As shown later in Table 7 (page 24), about 50 percent of the state's manufacturing earnings are in industries such as wood products, petroleum refining and machinery where almost all of the products immediately leave the state. Even the smaller manufacturing industries, such as transportation equipment, metal products and chemicals, include 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 3 (page 13).

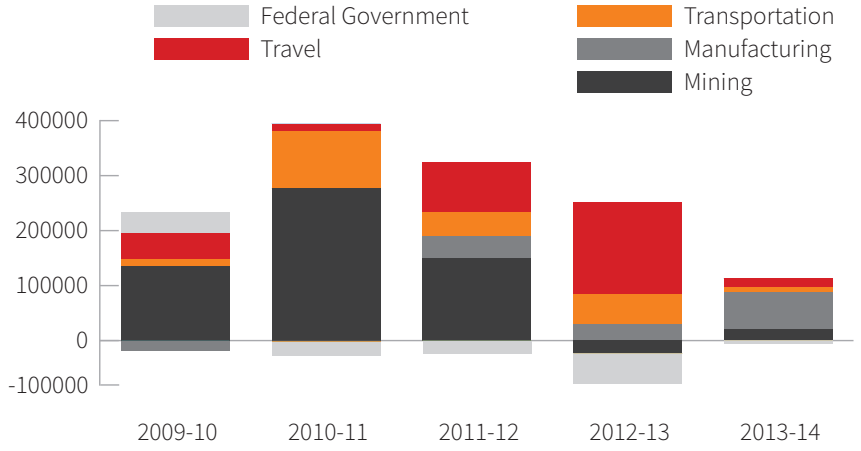
Manufacturing accounts for about 16 percent of total earnings in basic industries and is the third largest basic industry. This percentage differs from that reported in Table 2 (page 11) because GDP

Figure 3. Worker Earnings in Basic Industries, Montana 2013-2015.



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

Figure 4. Change in Nonfarm Basic Earnings, Montana.



Source: U.S. Bureau of Economic Analysis.

is a measure of the value of production or output while the data in Figure 3 (page 13) refers to the earnings of workers. Mining accounts for about 18 percent of basic earnings and ranks second. Mining includes the oil and gas industry. The recent dramatic decline in oil prices will probably lead to fewer workers and reduce the size of this industry.

Manufacturing is a significant contributor to recent economic trends in Montana despite accounting for only 16 percent of the economic base. This importance is illustrated by the data in Figure 4 (page 13), which presents the year-to-year changes in basic earnings by industry from 2009 to 2014. The changes in basic earnings may be decomposed by major sector, starting with the cycle trough in 2009, and each year is discussed below:

2009-2010: The economic recovery began. Total nonfarm basic earnings grew $214 million. The largest increases were in mining ($135 million) and nonresident travel ($49 million). Manufacturing declined about $21 million.

2010-2011: Total nonfarm basic earnings grew about $360 million. The largest increases were in mining ($277 million) and transportation ($104 million). Manufacturing was roughly stable (-$1 million) and federal government earnings declined (-$31 million).

2011-2012: Total nonfarm basic earnings increased about $296 million. The largest increases were in mining ($149 million) and nonresident travel ($91 million). Manufacturing grew roughly $41 million and the federal government continued to decrease (-$27 million).

2012-2013: Total nonfarm basic earnings rose about $152 million. The largest increases were in nonresident travel ($166 million) and transportation ($55 million). Manufacturing grew about $30 million, mining declined by $49 million and the federal government decreased $70 million.

2013-2014: Total nonfarm basic earnings increased $104 million. Manufacturing experienced the largest growth ($66 million). Next were mining ($21 million) and nonresident travel ($15 million). The declines in federal earnings continued (-$8 million).

This analysis illustrates a number of important points about the causes of economic growth in Montana. First, overall growth or decline in 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 were consistently the fastest or slowest growing during this period.

Finally, and perhaps most importantly, industries that account for a modest share of the economic base, such as manufacturing, can be major contributors to overall economic growth or decline during specific periods. For example, during 2013-14 the increase in manufacturing earnings was the largest of the state's basic industries. On the minus side, manufacturing was the only declining industry in 2009-10.

MANUFACTURING ESTABLISMENTS

There were 3,344 manufacturing establishments in Montana during 2014, as shown in Table 3 (page 15). The largest category was miscellaneous manufacturing (NAICS 339) with 688 establishments. The next largest categories were fabricated metal manufacturing (NAICS 332) with 502 establishments and food products (NAICS 312) with 377 establishments.

Table 3. Manufacturing Establishments, Montana, 2014.

NAICS Code	Industry	# of Establishments
	Manufacturing	3,344
311	Food Products	377
312	Beverages & Tobacco	84
313	Textile Mills	17
314	Textile Product Mills	61
315	Apparel	142
316	Leather & Allied Products	123
321	Wood Products	350
322	Paper Manufacturing	8
323	Printing & Related	153
324	Petroleum & Coal Products	24
325	Chemicals	75
326	Rubber & Rubber Products	31
327	Nonmetalic Mineral Products	146
331	Primary Metals	42
332	Fabricated Metal Products	502
333	Machinery	111
334	Computer and Elec. Products	61
335	Elec. Equipment and Appliances	16
336	Transportation Equipment	70
337	Furniture and Related	263
339	Miscellaneous	688

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

EMPLOYMENT SIZE

Montana manufacturers are mostly small businesses. As shown in Table 4 (page 15), there were 643 establishments with one to four workers. They represented 51.3 percent of the 1,251 establishments with employees. There were 880 establishments with less than 10 workers or 70.3 percent of the total. There were no Montana manufacturers with 500 employees or more.

Table 4. Manufacturing Establishments by Employment Size, Montana, 2014

Employment	# of Establishments
Total	1,251
1 to 4	643
5 to 9	237
10 to 19	181
20 to 49	111
50 to 99	41
100 to 249	32
250 to 499	6
500 to 999	0
1,000 or more	0

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

COMPOSITION OF MANUFACTURING

The composition of Montana manufacturing is not the same as its national counterpart. Industries that are important in Montana are not necessarily important nationwide.

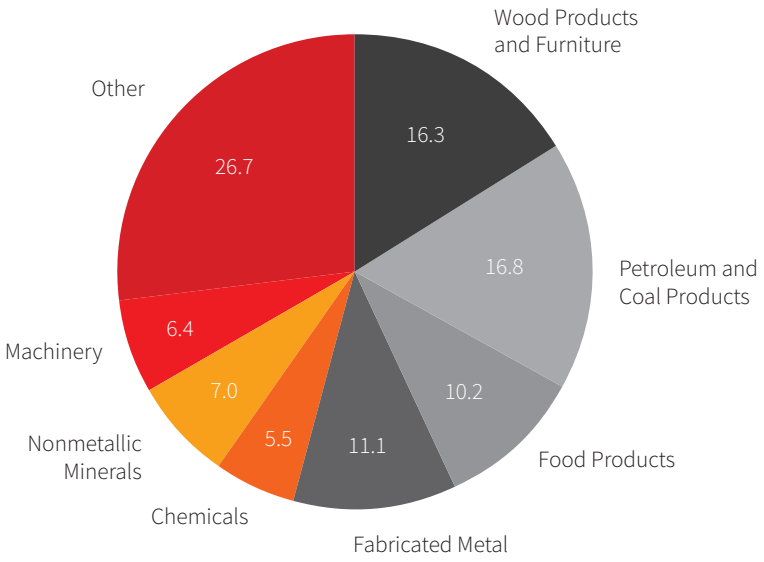
Figures 5 and 6 (page 17) present the composition of manufacturing earnings in Montana and the United States during 2014. The volatility of energy prices have distorted value of output measures for certain industries, such as petroleum refining. Consequently, earnings becomes the best measure of the composition of manufacturing because it is the amount earned by manufacturing workers in the state.

The largest component of U.S. manufacturing during 2014 was computers and electronics, which accounted for 12.9 percent of total manufacturing earnings. The next four industries were chemical products (10.4 percent), fabricated metals (9.7 percent), machinery (9.4 percent) and food products (8.5 percent).

The two largest Montana manufacturing industries in 2014 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 16.8 percent of total manufacturing earnings in 2014. The next largest industry was wood products and furniture (the paper products industry is now miniscule due to the 2010 shutdown of Smurfit-Stone) representing 16.3 percent of earnings.

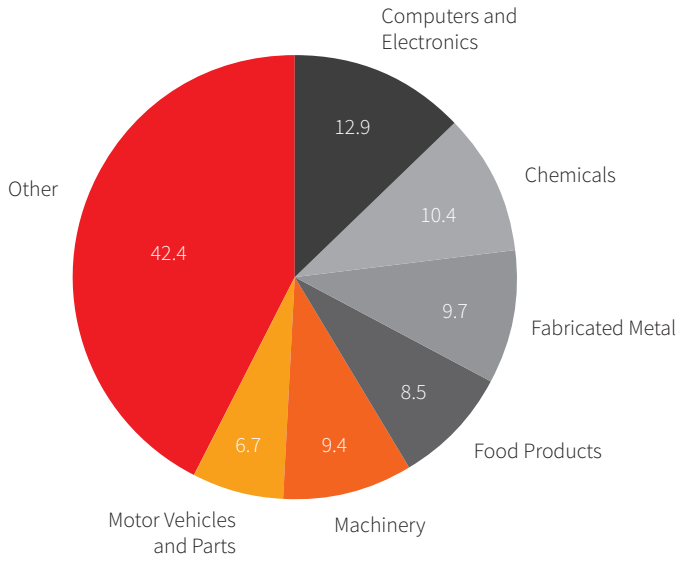
The wood products and furniture industry is still in first place when measured by employment (see Table 6, page 20). Fabricated metals and food products are the third and fourth largest sectors, account for 11.1 percent and 10.2 percent respectively. Earnings in nonmetallic minerals represented 7.0 percent of the total and machinery, which includes Applied Materials (formerly Semitool) accounted for 6.4 percent.

Figure 5. Composition of Manufacturing, Montana 2014 (Percent of Manufacturing Earnings).



Source: U.S. Bureau of Economic Analysis.

Figure 6. Composition of Manufacturing, United States 2014 (Percent of Manufacturing Earnings).



Source: U.S. Bureau of Economic Analysis.

MANUFACTURING EMPLOYMENT

The number of manufacturing workers in the U.S. has declined steadily from 2004 to 2014, as shown in Table 5 (page 19). In Montana, manufacturing employment increased between these two endpoints, but experienced a sharp drop at the onset of the Great Recession and then a healthy recovery beginning in 2010.

U.S. manufacturing employment decreased from 14.8 million workers in 2004 to 13.0 million in 2014, a drop of 12.8 percent. Manufacturing's share of total employment declined from 8.8 percent to 7.0 percent during this period.

Montana manufacturing employment increased slightly from about 22,300 workers in 2004 to approximately 23,400 workers in 2014, an increase of roughly 4.9 percent. This increase masks decreases concentrated in a several industries: wood products, paper products and primary metals refining. These declines occurred during the Great Recession beginning in 2008. As noted earlier, manufacturing employment has risen steadily since the recession. The sectors experiencing the greatest increases will be identified later.

Manufacturing's share of total Montana employment decreased from 3.8 percent in 2004 to 3.6 percent in 2014. Montana's decrease in relative importance was 0.2 percentage points as compared to 1.8 percentage points nationwide.

Table 5. Full and Part-time Employment, Total and Manufacturing, Montana and United States.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total, United States	169	172.6	176.1	179.9	179.7	174.2	173	176.3	179.1	182.4	185.8
(Millions of Workers)											
Manufactoring	14.8	14.7	14.7	14.5	14	12.5	12.1	12.4	12.6	12.8	13
(Millions of Workers)											
Percent of Total	8.8	8.5	8.3	8.1	7.8	7.2	7.0	7.0	7.0	7.0	7.0
Total, Montana	583.9	598	615.5	634.3	635	618.4	613.6	620.2	629.4	637.8	643.4
(Thousands of workers)											
Manufacturing	22.3	22.6	23.4	24	23.4	21.2	19.8	20.6	21.5	22.6	23.4
(Thousands of Workers)											
Percent of Total	3.8	3.8	3.8	3.8	3.7	3.4	3.2	3.3	3.4	3.5	3.6

Source: U.S. Bureau of Economic Analysis.

Note: Includes the self-employed.

Table 6. Full and Part-time Manufacturing Employment, Montana 2004-2014.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Change 2010-14
Manufacturing	22,273	22,596	23,372	23,962	23,360	21,157	19,802	20,622	21,512	22,588	23,429	3,627
Durable goods	14,084	14,413	14,901	15,311	14,638	12,648	11,792	12,317	13,224	13,975	14,583	2,791
Wood products	5,292	5,288	5,219	4,956	4,390	3,354	3,065	3,094	3,093	3,269	3,368	303
Nonmetallic mineral products	1,109	1,114	1,096	1,169	1,088	997	938	1,016	1,468	1,494	1,471	533
Primary metals	332	341	338	487	439	278	173	200	190	206	221	48
Fabricated metal products	1,549	1,595	1,784	1,986	2,051	1,988	1,890	2,152	2,565	2,722	2,938	1,048
Machinery manufacturing	1,288	1,432	1,580	1,608	1,548	1,206	1,168	1,231	1,310	1,237	1,232	64
Computer and electronic products	479	502	582	583	593	452	435	560	568	635	636	201
Electrical equipment and appliances	194	200	216	228	259	234	206	200	191	165	195	-11
Motor vehicles and parts	(D)	342	402	409	(D)	(D)	286	292	246	274	308	22
Other transportation equipment	(D)	237	222	208	(D)	(D)	281	253	279	305	306	25
Furniture and related	1,348	1,331	1,305	1,233	1,251	1,085	971	965	909	1,043	1,130	159
Miscellaneous	1,952	2,031	2,157	2,444	2,374	2,487	2,379	2,354	2,405	2,625	2,778	399
Nondurable goods	8,189	8,183	8,471	8,651	8,722	8,509	8,010	8,305	8,288	8,613	8,846	836
Food products	2,740	2,757	2,892	2,962	2,914	2,874	2,779	2,830	2,928	3,030	3,050	271
Beverage and tobacco	826	792	850	769	761	754	766	842	945	1,101	1,164	398
Textile mills	(D)	(D)	(D)	47	37	47	(D)	(D)	47	(D)	57	(D)
Textile product mills	223	201	209	238	238	238	226	219	211	234	218	-8
Apparel	298	314	338	(D)	(D)	(D)	(D)	(D)	(D)	259	(D)	(D)
Leather and allied products	201	213	220	176	209	210	203	283	296	228	202	-1
Paper	(D)	(D)	(D)	(D)	(D)	(D)	180	(D)	(D)	(D)	(D)	(D)
Printing and related	1,205	1,216	1,296	1,338	1,339	1,177	1,099	1,130	1,149	1,160	1,208	109
Petroleum and coal	903	939	962	988	1,076	1,113	1,088	1,140	1,098	1,105	1,178	90
Chemical	800	773	754	885	954	969	997	1,122	859	947	984	-13
Plastics and rubber products	365	376	365	374	395	336	317	364	378	446	445	128

Source: U.S. Bureau of Economic Analysis.

Note: Includes the self-employed. (T) and (D) denote not shown to avoid disclosure of confidential information.

MONTANA MANUFACTURING EMPLOYMENT BY INDUSTRY

Detailed manufacturing employment from 2004 to 2014 is presented in Table 6 (page 20). Total manufacturing employment increased almost by 1,200 workers over this 10-year period. The following paragraphs concentrate on trends from 2010 to 2014.

Although the national business cycle trough was in 2009, the data in Table 6 (page 20) show that the low point for Montana manufacturing was 2010. Since then, total manufacturing employment has increased by 3,627 workers or almost 18.3 percent. The largest growth in employment occurred in 2014 and reflects new and expanded plants in Great Falls and Missoula. The following paragraphs take a closer look at the 2010 to 2014 period. Detailed discussions of events prior to 2010 can be found in earlier editions of this publication.

Before looking at the individual sectors of Montana manufacturing, a major data reclassification needs to be explained because it impacts two large manufacturing industries. REC Silicon, located near Butte, is a Montana high-tech manufacturing firm. It has been reclassified from the chemicals industry to the nonmetallic mineral products industry. This reclassification accounts for most of the 533 workers increase in nonmetallic minerals and the modest decrease in chemicals between 2010 and 2014. REC Silicon produces raw materials for the international solar and electronic industries. It was formerly named ASiMi.

Fabricated metal products had the largest employment increase between 2010 and 2014. The number of workers grew from 1,890 in 2010 to 2,938 in 2014, a rise of 1,048 employees or roughly 55.5 percent. Fabricated metals include a variety of firms producing everything from structural metal buildings to spring and wire products. The opening and expansion of facilities in Missoula and Great Falls, as well as growth in small arms and ammunition manufacturing, accounted for most of the increase in fabricated metal products industry.

The beverage and tobacco industry, and miscellaneous manufacturing, was tied for second with employment increases between 2010 and 2014 of about 400 workers each. These represent a 51.8 percent increase in the former and 16.8 percent increase in the latter. Since tobacco manufacturing is almost nonexistent in Montana, most of the increase in the beverage industry can be attributed to brewing and distilling of beer and liquor. Craft breweries, distilleries and tasting rooms have opened in almost all major urban areas and many in smaller communities.

The wood products industry experienced modest growth from 2010 and 2014. This industry added about 303 workers, reflecting the beginning of the recovery in the national housing market. Even so, the Montana wood products industry is but a shell of what it was a decade ago. Employment in 2014 was down roughly 37 percent from the 2004 figure.

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. Although the exact number of jobs lost in the paper industry is not reported in the data, there were 500-600 jobs at this facility. This plant has been scrapped and will not reopen.

MANUFACTURING EARNINGS

Montana manufacturing earnings from 2004 to 2014 are presented in Table 7 (page 24). The earnings figures have been corrected for inflation by converting them to 2014 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.

A comparison of the data in Tables 6 (page 20) and 7 (page 24) reveals both similar and different trends in manufacturing earnings and employment. Trends in employment and earnings may diverge for a number of reasons. Employment trends reflect improvements in labor productivity and structural changes. On the other hand, earnings trends more closely mirror those of production and value of output rather than just the labor input.

Overall, manufacturing employment has been increasing at about the same rate as earnings. From 2010 to 2014 employment rose 18.3 percent while earnings grew 14.6 percent. This contrasts with the trends of the last decade where earnings consistently grew faster than employment. During 2014, when manufacturing expanded in Missoula and Great Falls, earnings increased 3.7 percent while employment rose 6.0 percent.

The reclassification of REC Silicon explains the 91.3 percent increase in nonmetallic mineral products and the 14.0 percent decrease in the chemical industry. The 87.0 percent growth in the relatively small other transportation equipment industry is mostly due to the purchase of a Helena firm by Boeing and its subsequent expansion and the opening of a trailer manufacturer in Missoula. .

The 60.8 percent increase in fabricated metal products earnings is slightly larger than the 55.4 percent growth in employment between 2010 and 2014 and is mostly due to the increases in Great Falls and Missoula. The 29.2 percent increase in beverages and tobacco can be attributed to the new craft breweries and distilleries appearing around the state.

The small 1.7 percent increase in food products earnings is surprising given the sizable growth in employment from 2010 to 2014. Detailed data is not yet available so there are no details concerning the 33.1 percent decline in electrical equipment or the 17.0 percent increase in plastics and rubber products.

Table 7. Manufacturing Earnings, Montana (Thousands of 2014 Dollars).

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	% Change 2010-14
Manufacturing	1,109,849	1,139,728	1,182,029	1,218,891	1,186,583	1,050,195	1,022,100	1,033,461	1,071,747	1,105,513	1,171,673	14.6
Durable goods	655,728	680,308	696,311	724,987	679,718	546,690	528,621	546,312	601,876	637,098	668,683	26.5
Wood products	270,895	269,315	258,823	246,384	213,166	148,797	137,572	140,305	140,488	154,462	160,044	16.3
Nonmetallic mineral products	55,062	56,377	52,374	58,307	54,943	45,771	42,600	43,938	77,910	81,444	81,481	91.3
Primary metals	18,153	18,002	18,673	31,087	28,498	14,137	4,980	7,007	6,443	7,571	8,508	70.8
Fabricated metal products	62,890	65,728	74,727	85,861	89,775	80,769	81,205	91,345	113,733	115,940	130,554	60.8
Machinery manufacturing	71,917	80,393	92,526	86,369	85,474	69,788	76,174	74,554	75,282	77,246	74,669	-2.0
Computer and electronic products	24,165	30,466	28,993	31,819	30,481	22,633	22,511	28,131	30,052	31,171	33,189	47.4
Electrical equipment and appliances	10,441	11,006	11,883	12,587	15,048	13,347	13,137	11,952	11,314	8,183	8,783	-33.1
Motor vehicles and parts	(D)	18,212	21,207	22,235	(D)	(D)	16,897	17,647	13,622	15,541	16,849	-0.3
Other transportation equipment	(D)	10,052	9,800	9,389	(D)	(D)	10,851	14,102	18,380	20,128	20,290	87.0
Furniture and related	41,168	41,306	41,568	40,593	40,719	31,243	27,934	27,664	26,768	29,353	31,206	11.7
Miscellaneous	73,240	79,453	85,737	100,355	94,551	96,737	94,760	89,668	87,885	96,059	103,110	8.8
Nondurable goods	454,121	459,420	485,717	493,903	506,865	503,504	493,479	487,149	469,871	468,416	502,990	1.9
Food Products	110,611	110,026	114,925	116,224	117,068	116,951	117,459	114,323	113,172	113,557	119,420	1.7
Beverages and tobacco	36,415	34,991	36,286	32,428	32,695	32,628	35,700	36,882	40,313	44,311	46,137	29.2
Textile mills	(D)	(D)	(D)	800	643	710	(D)	(D)	658	(D)	550	
Textile product mills	5,825	5,416	5,714	6,447	6,653	6,332	6,438	6,264	5,767	5,595	5,452	-15.3
Apparel	10,343	9,840	10,628	(D)	(D)	(D)	(D)	(D)	(D)	2,483	(D)	
Leather and allied products	5,825	3,241	3,625	2,762	2,742	2,897	2,942	2,822	2,978	3,659	3,648	24.0
Paper	(D)	(D)	(D)	(D)	(D)	(D)	24,085	(D)	(D)	(D)	(D)	
Printing and related	41,911	42,696	46,402	50,392	51,184	42,581	39,697	41,591	42,826	43,846	46,150	16.3
Petroleum and coal products	121,630	130,050	150,469	148,149	159,535	170,898	170,455	174,880	184,126	177,358	197,070	15.6
Chemicals	56,801	59,693	53,835	66,846	69,273	70,552	75,185	84,055	53,886	56,893	64,679	-14.0
Plastics and rubber products	10,995	11,748	12,857	14,490	14,443	13,604	14,727	15,990	16,656	17,993	17,231	17.0

Source: U.S. Bureau of Economic Analysis.

Note: Includes the Income of the self-employed. (T) and (D) denote not shown to avoid disclosure of confidential information.

WAGE AND SALARY EMPLOYMENT AND PER WORKER WAGES

This section presents Montana employment, per worker wages and salaries in manufacturing and compares them to other industries in the state and to corresponding nationwide data. Montana 2014 employment, per worker wages and salaries are presented in Table 8 (page 26). These employment figures differ from those reported in Tables 6 (page 20) and 7 (page 24) because they do not include the self-employed.

Wages and salaries directly measure the payments to workers and represent 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 $45,754 in 2014, about 17.2 percent higher than the average of $39,024 for all workers. The highest wages within manufacturing reported in Table 8 were the $115,460 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 $60,421 earned in other transportation equipment. Next was the $56,621 earned in machinery manufacturing. The lowest paying manufacturing jobs were in textile mills with an average of $16,826.

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 $39,024 in 2014, about 75.7 percent of the national average. Montana manufacturing wages per worker were about 71.5 percent of the U.S. figure. Within manufacturing, only the wood products industry had average wages above their respective national average.

Table 8. Employment and Wages and Salaries Per Worker by Industry, Montana 2014.

	Wage and Salary Employment	Wages and Salaries Per Worker (Current Dollars)	Wages and Salaries Per Worker (% of U.S.)
Total, All Industries	470,625	39,024	75.7
Farm	6,399	41,987	128.6
Nonfarm	464,226	38,983	75.5
Forestry, fishing, and Other	3,679	31,066	106.7
Mining	8,528	88,241	86.2
Utilities	3,158	81,097	81.0
Construction	25,753	46,116	83.0
Manufacturing	18,902	45,754	71.5
Durable goods	11,558	44,095	65.2
Wood products	2,837	43,491	103.6
Nonmetallic minerals	1,264	52,316	96.1
Primary metals	181	36,928	56.4
Fabricated metal products	2,441	42,121	77.3
Machinery	1,016	56,621	83.6
Computer and electronics	579	45,352	42.4
Electrical equipment and appliances	132	47,773	73.6
Motor vehicles and parts	305	43,141	70.5
Other transportation equipment	242	60,421	69.3
Furniture and related	680	33,678	79.9
Miscellaneous	1,881	37,142	61.4
Nondurable goods	7,344	48,364	83.5
Food	2,537	34,894	78.2
Beverage and tobacco	1,061	28,445	52.9
Textile mills	23	16,826	38.6
Textile product mills	171	23,643	60.4
Apparel	(D)	(D)	(D)
Leather and allied products	75	26,787	64.0
Paper	(D)	(D)	(D)
Printing and related	990	36,447	77.0
Petroleum and coal	1,142	115,460	104.8
Chemical	900	52,220	55.6
Plastics and rubber products	390	34,338	67.8
Wholesale trade	17,024	53,234	73.9
Retail trade	57,817	26,869	91.1
Transportation and warehousing	15,363	50,501	97.8
Information	6,417	45,665	49.6
Finance and insurance	16,072	57,551	58.9
Real estate and rental and leasing	5,424	32,245	61.3
Professional and technical services	20,308	57,884	66.4
Management of companies	1,962	71,930	62.6
Administrative and waste services	17,346	30,149	82.3
Educational services	6,014	22,371	56.4
Health care and social assistance	64,090	42,085	90.5
Arts, entertainment, and recreation	11,321	22,619	59.5
Accommodation and food services	49,377	18,027	85.0
Other services	20,508	27,747	83.3
Federal, civilian	12,998	63,401	83.2
Military	8,104	35,778	75.9
State and local	74,061	37,702	79.5

Source: U.S. Bureau of Economic Analysis.

MONTANA'S MANUFACTURING EXPORTS

Montana manufacturers are competitive in international markets. Over the long term, they have expanded internationally to broaden their markets and enhance their sales. But recently, lethargic worldwide economic conditions have stunted growth in Montana manufacturing exports.

Table 9 (page 30) presents data for manufacturing exports by industry during 2002 to 2007 along with value of shipments for many of the industries. These figures provide a historical perspective when world economic conditions were not as unsettled as currently. The shipments data was reported in the Census of Manufacturers for 2002 and 2007. Montana manufacturing exports rose from $290.4 million in 2002 to about $880.7 million in 2007. Overall, exports rose from 5.8 percent of shipments in 2002 to 8.3 percent of shipments in 2007.

There may be a data error for the transportation equipment industry (NAICS 337). Reported exports exceed the value of shipments. 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 few exceptions, Montana manufacturers increased their exports between 2002 and 2007, both in nominal dollars and as a share of shipments. Chemical industry exports grew more than four-fold

in nominal value and their share of shipments doubled from 33.3 percent to 66.7 percent. REC Silicon was then classified in the chemical industry and exports much of its production of polysilicon. Machinery industry exports more than doubled and their share of shipments from for 36.5 percent in 2002 to 58.0 percent in 2007. Applied Materials (formerly Semitool) is a major component of the machinery industry and sells high-tech products worldwide.

Export data for 2009 and 2012 to 2015 is presented in Table 10 (pages 31-32). The value of shipments for 2014 is reported in the 2014 Annual Survey of Manufacturers. The Annual Survey of Manufacturers is less complete that the Census of Manufacturers, which is only available every five years. The data for the intermediate years 2010 and 2011 is not presented in the interest of brevity, but is available in earlier editions of this report.

Total manufacturing exports were at their recession low of about $876.5 million in 2009 and then increased 25.2 percent to roughly $1.1 billion by 2012. Manufacturing exports then stabilized and remained at about $1.0 billion in 2013, 2014 and 2015. Measured against the value of shipments, Montana manufacturing exports peaked in 2009 at 10.6 percent of shipments. The corresponding figures for 2012 to 2014 were between 8.1 and 9.6 percent.

The disappointing trends in exports are widespread, reflecting the extent of the worldwide economic slowdown. The value of exports declined in 12 of the 21 manufacturing industries listed in Table 10 (pages 31-32) during 2015. The largest decline was in petroleum products, but this more likely reflects the decline in oil prices rather than reduced quantities.

There is some good news in the data. The two largest export industries are chemicals, which probably still includes REC Silicon, and machinery manufacturing, Applied Materials. Both increased during 2015, suggesting that these firms can still compete successfully in the world market. The rapid growth in beverages and tobacco exports should be interpreted with skepticism. A tobacco packaging/distribution center for cigarettes headed into Canada opened in Shelby, but this establishment should probably be classified in wholesale trade rather than manufacturing.

A somewhat different perspective of Montana manufacturing exports is presented in Table 11 (page 33), which reports data prepared by the U.S. Census Bureau. These figures provide a somewhat broader picture of manufacturing exports and include export shipments themselves, as well as the value of supporting activities. The employment associated with these exports and supporting services are also presented. The shipments and employment data presented in Table 13 are not comparable to the figures elsewhere in this report.

The value of manufacturing exports, plus supporting activities, rose from 8.2 percent of total shipments in 2006 to 21.0 percent in 2011. Similarly, the employment associated with these exports and supporting activities increased from 10.6 percent of total manufacturing employment in 2006 to 23.5

percent in 2011. The Census Bureau does not regularly update these estimates and the figures for 2011 are the latest available. The 2011 data predates the slowdown in Montana's export markets and the recent rise in the value of the U.S. dollar.

Table 12 (page 33) identifies the destination of Montana manufacturing exports. Canada consistently ranks number one as the major destination. China now ranks second after vaulting up from tenth in 2002. Korea ranks third and Japan fourth. After Canada, five of the remaining nine export destinations are in Asia. The largest non-Asian destinations are Belgium, Germany and the United Kingdom.

The extent of the worldwide slowdown is also shown in Table 12 (page 33). Five of Montana's top destinations had zero or negative growth in 2015. All but two of the top ten (Germany and Singapore) had slower growth in 2015 than their respective average of the last 14 years. Even though exports to China increased 35.8 percent in 2015, they were down significantly from the 153.9 average annual growth during the last decade and a half.

Table 9. Exports and Value of Shipments, 2002 and 2007 (Thousands of Current Dollars).

NAICS Code		2002 Exports	2002 Shipments	2002 Exports as Percent of Shipments	2007 Exports	2007 Shipments	2007 Exports as Percent of Shipments
	Manufacturing, Total	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 product mills	145	(D)		438	(D)	
315	Apparel	628	15,409	4.1	2,174	(D)	
316	Leather and allied products	416	(D)		1,320	(D)	
321	Wood products	20,363	854,352	2.4	36,599	935,340	3.9
322	Paper	29,989	(D)		42,085	(D)	
323	Printing and related	153	(D)		949	106,695	0.9
324	Petroleum and 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	Plastics and rubber products	2,021	56,039	3.6	7,435	(D)	
327	Nonmetallic 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 manufacturing	71,989	197,393	36.5	172,506	297,310	58.0
334	Computer and electronic products	17,042	(D)		24,287	(D)	
335	Electrical equipment and 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 and 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

Sources: www.wisertrade.org (accessed April 4, 2011). U.S. Bureau of the Census, Census of Manfactures 2002 and 2007.
Note: (D) denotes not shown to avoid disclosure of information.

Table 10. Exports and Value of Shipments, 2009 and 2012 (Thousands of Current Dollars).

NAICS Code		2009 Exports	2009 Shipments	2009 Exports as Percent of Shipments	2012 Exports	2012 Shipments	2012 Exports as Percent of Shipments
	Manufacturing, Total	876,500	8,293,186	10.6	1,096,743	11,535,236	9.5
311	Food Products	32,135	772,217	4.2	65,969	879,231	7.5
312	Beverages and tobacco	28	(D)		10,865	170,855	6.4
313	Textile mills	401	(D)		553	(D)	
314	Textile product mills	391	(D)		503	25,601	2.0
315	Apparel	1,793	(D)		2,820	577	
316	Leather and allied products	2,855	(D)		2,720	(D)	
321	Wood products	19,751	580,252	3.4	36,195	616,712	5.9
322	Paper	32,805	(D)		318	(D)	
323	Printing and related	959	(D)		1,591	(D)	
324	Petroleum and coal products	22,800	4,117,780	0.6	148,957	(D)	
325	Chemicals	302,928	(D)		326,452	(D)	
326	Plastics and rubber products	3,716	(D)		11,831	59,369	19.9
327	Nonmetallic mineral products	39,500	244,985	16.1	72,765	(D)	
331	Primary metals	121,453	(D)		28,533	(D)	
332	Fabricated metal products	7,311	277,670	2.6	19,160	331,262	5.8
333	Machinery manufacturing	156,425	195,022	80.2	218,229	326,465	66.8
334	Computer and electronic products	22,293	(D)		34,380	(D)	
335	Electrical equipment and appliances	16,305	(D)		20,386	(D)	
336	Transportation equipment	76,731	(D)		66,484	(D)	
337	Furniture and related	680	(D)		1,422	49,666	2.9
339	Miscellaneous	15,239	205,714	7.4	26,610	246,859	10.8

Sources: www.wisertrade.org (via Montana Department of Commerce). U.S. Bureau of the Census, Census of Manufacturers 2012 and Annual Surveys of Manfactures 2009, 2013 and 2014.
Note: (D) denotes not shown to avoid disclosure of information. NA denotes not available.

Table 10 (Continued). Exports and Value of Shipments, 2013 to 2015 (Thousands of Current Dollars).

		2013			2014			2015
NAICS Code		Exports	Shipments	Exports as Percent of Shipments	Exports	Shipments	Exports as Percent of Shipments	Exports
	Manufacturing, Total	1,010,254	12,443,029	8.1	1,028,370	11,281,878	9.1	1,046,582
311	Food Products	66,278	1,031,950	6.4	57,594	925,488	6.2	51,002
312	Beverages and tobacco	50,116	217,318	23.1	56,356	284,849	19.8	111,094
313	Textile mills	1,371	(D)		1,425	(D)	(D)	1,174
314	Textile product mills	716	(D)		640	(D)	(D)	711
315	Apparel	3,586	1,087		4,518	(D)	(D)	3,690
316	Leather and allied products	3,921	(D)		4,734	(D)	(D)	4,219
321	Wood products	33,275	917,912	3.6	35,190	892,088	3.9	36,218
322	Paper	365	(D)		253	(D)	(D)	478
323	Printing and related	1,117	102,860	1.0	3,241	115,352	2.8	1,854
324	Petroleum and coal products	91,634	6,804,582	1.3	69,558	(D)	(D)	40,553
325	Chemicals	278,545	554,892	50.2	312,385	(D)	(D)	325,669
326	Plastics and rubber products	21,470	(D)		30,738	(D)	(D)	5,017
327	Nonmetallic mineral products	70,600	(D)		84,983	(D)	(D)	85,315
331	Primary metals	43,040	(D)		50,196	(D)	(D)	45,490
332	Fabricated metal products	39,786	365,288	10.9	34,233	(D)	(D)	20,159
333	Machinery manufacturing	153,935	244,460	63.0	125,107	(D)	(D)	153,784
334	Computer and electronic products	34,957	45980	76.0	44,015	(D)	(D)	47,308
335	Electrical equipment and appliances	20,947	(D)		17,075	(D)	(D)	16,382
336	Transportation equipment	69,847	(D)		65,977	(D)	(D)	59,397
337	Furniture and related	1,481	(D)		2,206	(D)	(D)	1,784
339	Miscellaneous	23,267	(D)		27,946	(D)	(D)	35,284

Sources: www.wisertrade.org (via Montana Department of Commerce). U.S. Bureau of the Census, Census of Manufacturers 2012 and Annual Surveys of Manfactures 2009, 2013 and 2014.
Note: (D) denotes not shown to avoid disclosure of information. NA denotes not available.

Table 11. Export-Related Shipments and Employment, Montana, Selected Years.

	2006	2009	2010	2011
Export-Related Shipments (Millions)	$788.00	$1,326	$1,468	$2,457
Percent of Manufacturing Shipments	8.2	16.0	15.4	21.0
Export-Related Employment	1,800	2,200	2,400	3,100
Percent of Manufacturing Employment	10.6	15.6	18.6	23.5

Source: U.S. Bureau of the Census. "Exports from Manufacturing Establishments," (Accessed June 3, 2015).
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.

Table 12. Montana Manufacturing Exports, by Country, Selected Years (Thousands of Current Dollars).

	2002		2005		2013		2014		2015		Average Annual Percent Change	
Country	Exports	Rank	Exports	Rank	Exports	Rank	Exports	Rank	Exports	Rank	2002-2015	2014-2015
Total, All Countries	290,417		512,327		1,047,009		1,028,370		1,046,582		20.0	1.8
Canada	155,787	1	219,182	1	514,656	1	465,668	1	431,996	1	13.6	-7.2
China	5,064	10	25,378	5	80,866	2	78,383	3	106,408	2	153.9	35.8
Korea	6,343	8	24,296	6	52,381	5	92,289	2	70,665	3	78.0	-23.4
Japan	26,459	2	53,169	2	44,135	6	50,485	4	51,594	4	7.3	2.2
Belgium	3,370	12	1,877	9	68,227	3	26,161	7	36,471	5	75.6	39.4
Mexico	4,232	11	10,957	10	31,928	8	49,054	5	34,513	6	55.0	-29.6
Taiwan	13,949	4	32,432	4	63,935	4	40,207	6	34,342	7	11.2	-14.6
Germany	22,784	3	48,957	3	37,437	7	23,222	8	30,416	8	2.6	31.0
Singapore	5,095	9	7,576	9	18,786	15	14,234	9	25,513	9	30.8	79.2
United Kingdom	6,691	7	22,551	7	19,512	10	21,072	10	23,766	10	19.6	12.8

Source: www.wisertrade.org (via Montana Department of Commerce).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