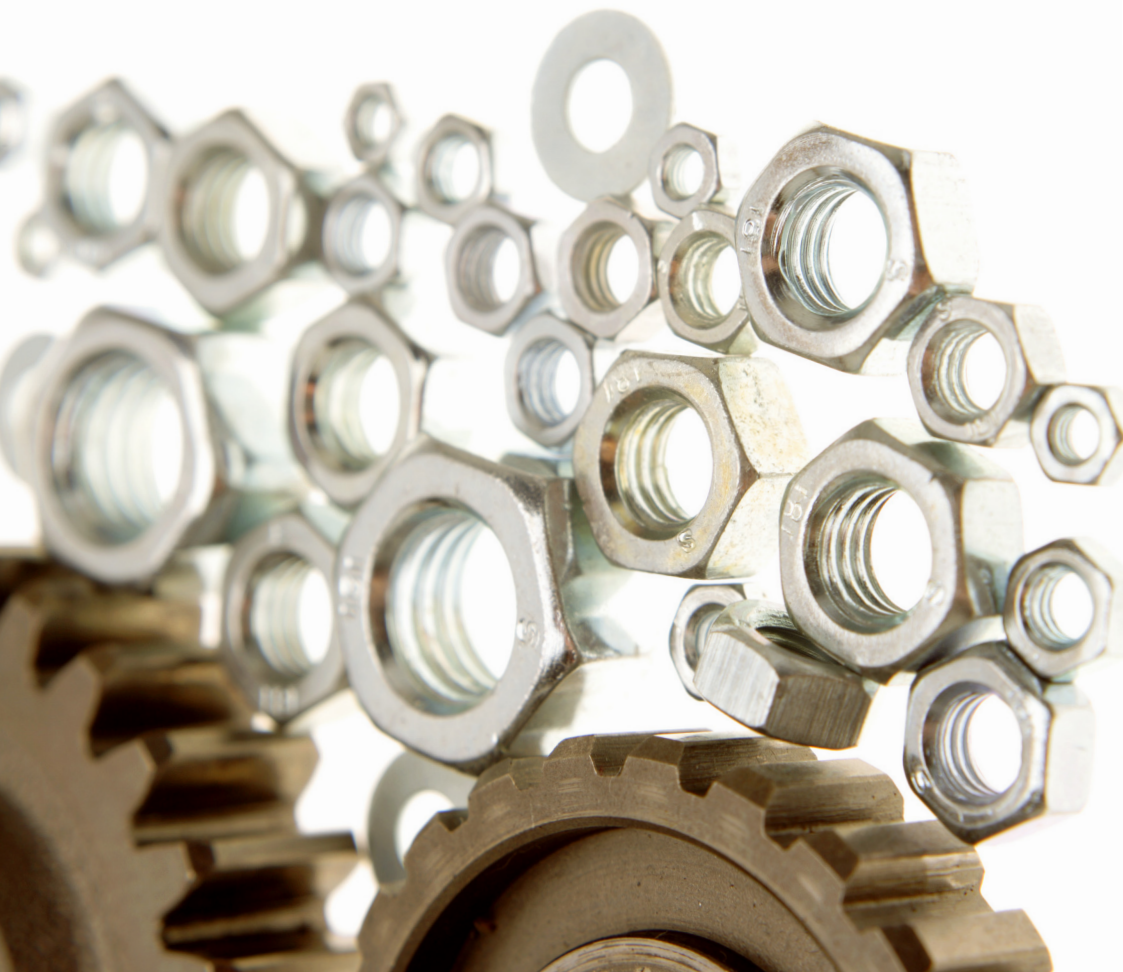


2009

The State of Montana Manufacturing Trends and Analysis

Prepared For
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Manufacturing and the 2007-2009 Recession

The primary purpose of this report is to present a long-run picture of Montana manufacturing by comparing it to its U.S. counterpart and describing its role in the state's economy. But conditions in the short-run are receiving attention because the U.S. economy is now (June 2009) mired in the worst recession since the 1930s. This section presents the latest data concerning the impact of the recession on manufacturing.

Table 1 presents manufacturing employment for the United States and Montana during the fourth quarter of 2007 (the cycle peak) and the first quarter of 2009. These figures (especially the most recent) should be interpreted cautiously because they may be revised and are not available for detailed categories. But, they do portray overall trends.

U.S. manufacturing employment declined from 13.8 million in 2007Q4 to 12.4 million in 2009Q1, a decrease of 10.5 percent. The information that is available suggests that there were declines in most categories, with the largest in transportation equipment (autos), machinery, and fabricated metal products.

Montana manufacturing employment decreased from 20,600 in 2007Q4 to 19,000 in 2009Q1, a decline of 8.0 percent. Almost all of the manufacturing jobs lost were in wood products. The 1,200 worker decrease in wood products employment represents about 75% of the 1,600 worker decline in all of manufacturing. There were a number of permanent closures of sawmills and other wood processing

plants, implying that some of these jobs will not return even after the economy recovers.

In summary, the preliminary aggregate data suggest that Montana manufacturing has been impacted less than its national counterpart by the current recession. Had it not been for wood products, Montana manufacturing employment would have declined by only 2.5 percent during the last year and a half. On the other hand, many of the wood products jobs may be lost permanently because the facilities have been closed and the equipment sold.

Manufacturing and the U.S. Economy

Manufacturing continues to play a major role in the U.S. economy, despite the stories about downsizing and exporting jobs to low-wage areas of the world. As shown in Table 2, the real output (value added) of U.S. manufacturing rose from \$1.29 trillion (2000 \$) in 1998 to \$1.57 trillion (2000 \$) in 2008, an average annual growth rate of approximately 2 percent per year.

Between 1998 and 2008, manufacturing increased at a slightly slower rate than the overall U.S. economy. Value added in manufacturing accounted for about 14.3 percent of the U.S. total in 1998 and about 3.6 percent in 2008.

The current recession is impacting manufacturing. As shown in Table 2, manufacturing GDP declined from \$1.62 trillion (2000 \$) in 2007 to \$1.57 trillion (2000\$) in 2008. There are likely to be further decreases in 2009. During the 2001 recession, the pre-recession peak was regained in slightly more than two years in mid-2003.

Table 1
Manufacturing Employment, U.S. and Montana,
2007Q4 and 2009Q1 (Thousands of Workers)

	2007Q4	2009Q1	Percent Change
U.S. Manufacturing	13,794.30	12,352.70	-10.5
Montana Manufacturing	20.6	19.0	-8.0
Wood products	4.4	3.2	-27.2

Table 2
Gross Domestic Product, United States
(Trillions of Dollars)

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008*
Gross Domestic Product	9.00	\$9.40	\$9.75	\$9.84	\$9.98	\$10.23	\$10.58	\$10.91	\$11.22	11.22	\$11.52
Manufacturing	1.29	1.34	1.42	1.35	1.35	1.40	1.48	1.49	1.57	1.62	1.57
Percent of Total	14.33	14.26	14.56	13.72	13.65	13.69	13.99	13.66	13.99	14.17	13.63

Source: U.S. Bureau of Economic Analysis.

* = Preliminary

Manufacturing and the Montana Economy

Manufacturing is one of Montana's most important basic industries. Basic (or export) industries, rather than productivity, exchange rates, and monetary/fiscal policies, are the cause of most growth and change in states' economies. Basic industries are those located in a state but sell most of their products elsewhere, or are otherwise influenced by outside factors. Industries such as manufacturing, mining, and agriculture are almost always basic industries for a state. Federal government and rail/truck transportation are industries that do not export products, but are dependent on factors external to a single state and are also 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 relative importance of manufacturing to the economies of the 50 states plus the District of Columbia is shown in Table 3. These data show manufacturing's share of

each state's economic base as measured by Gross Domestic Product. These percentages were derived using an empirical method developed by the U.S. Bureau of Economic Analysis to identify the basic industries in each state. A more detailed study may yield slightly different results in certain states.

The top states in terms of the importance of manufacturing include Indiana, Oregon, South Carolina, and Wisconsin. The major changes between 1997 and 2007 were the rise of Oregon, which went from eighth to second, and the decline of North Carolina, which dropped from third to sixth. Montana has consistently been in the lower tier of states in terms of the relative importance of manufacturing. Montana ranked 45th in 1997 when manufacturing represented about 20.7 percent of the economic base. Ten years later in 2007 Montana dropped one place to 46th, with 14.7 percent of the economic base in manufacturing.

Trends in Montana manufacturing are best analyzed using labor income data rather than Gross Domestic Product.

Table 3
Manufacturing as Percent of Economic Base,
Gross Domestic Product for State, 1997 and 2007

1997			2007			1997, cont.			2007, cont.		
Rank	State	Percent	Rank	State	Percent	Rank	State	Percent	Rank	State	Percent
1	Indiana	74.8	1	Indiana	70.5	27	Oklahoma	42.6	27	Utah	36.1
2	South Carolina	69.8	2	Oregon	67.8	28	Rhode Island	40.4	28	Idaho	33.4
3	North Carolina	69.1	3	South Carolina	62.0	29	Washington	40.2	29	Illinois	32.8
4	Wisconsin	67.2	4	Wisconsin	61.7	30	Louisiana	40.2	30	Nebraska	32.8
5	Michigan	65.9	5	Michigan	57.8	31	Illinois	39.8	31	Rhode Island	32.5
6	Ohio	65.2	6	North Carolina	56.7	32	Idaho	39.3	32	Connecticut	31.5
7	Kentucky	64.9	7	Ohio	55.0	33	West Virginia	39.1	33	West Virginia	30.9
8	Oregon	64.6	8	Arkansas	54.4	34	Nebraska	36.5	34	New Jersey	28.6
9	New Hampshire	63.1	9	Iowa	52.6	35	New Jersey	35.4	35	Oklahoma	28.3
10	Arkansas	59.5	10	Kentucky	52.2	36	Connecticut	35.0	36	Virginia	23.4
11	Pennsylvania	58.9	11	Alabama	49.8	37	Virginia	32.8	37	North Dakota	23.4
12	Iowa	58.7	12	Pennsylvania	49.4	38	Massachusetts	30.0	38	Massachusetts	22.1
13	Maine	58.3	13	Maine	47.3	39	South Dakota	29.3	39	South Dakota	21.3
14	Vermont	56.2	14	Kansas	47.0	40	North Dakota	27.3	40	Florida	18.3
15	Arizona	55.3	15	Vermont	44.4	41	Colorado	27.0	41	New Mexico	18.3
16	Missouri	53.0	16	New Hampshire	43.5	42	Florida	23.3	42	Colorado	17.0
17	Alabama	52.2	17	Tennessee	42.9	43	Maryland	22.8	43	Delaware	16.1
18	Kansas	51.5	18	Missouri	42.3	44	Delaware	21.0	44	Nevada	15.9
19	Georgia	51.0	19	Louisiana	41.5	45	Montana	20.7	45	Maryland	15.7
20	Tennessee	49.9	20	Georgia	41.2	46	New York	17.8	46	Montana	14.7
21	New Mexico	48.3	21	Minnesota	40.2	47	Nevada	12.9	47	New York	12.9
22	Texas	47.9	22	Texas	39.6	48	Wyoming	9.0	48	Wyoming	7.9
23	Minnesota	47.5	23	Mississippi	39.6	49	Hawaii	6.7	49	Hawaii	5.2
24	Mississippi	47.0	24	Arizona	39.0	50	Alaska	5.8	50	District of Columbia	0.3
25	California	44.2	25	Washington	38.5	51	District of Columbia	0.7	51	Alaska	0.0
26	Utah	43.0	26	California	37.4						

Source: U.S. Bureau of Economic Analysis.

GDP for states is a slightly more comprehensive measure of the economy than labor income, but GDP is not available prior to 1997, and the 2008 industry details have not yet been released. For the most part, GDP data should be used when Montana is compared to the United States for a single year while labor income figures should be used to examine trends over time. There are, however, disadvantages to using labor income data. For example, the net farm income of family-owned farms (a major component of farm labor income) is very volatile and not a good measure of economic conditions on farms and ranches. Consequently, nonfarm labor income will be analyzed here. It does not mean that agriculture is ignored (in fact, agricultural services are included). Rather, this eliminates the extreme volatility of farm labor income which could mask important trends elsewhere in the economy.

Revisions as well as structural change in the overall economy also impact accurate interpretation of manufacturing's contribution. The U.S. government significantly revised the way it publishes its economic data and federal agencies implemented these revisions around the year 2000. The goal of the new data revisions was to better describe an economy more dependent on services. But one consequence of these changes was that earlier statistics may not be strictly comparable to more current data.

Evolving and improving practices within industries mean that detailed categories may themselves be changing. For example, the recent trend toward greater supply-chain management means that today's manufacturing processes may be quite different from those of just a few years ago.

There is no question about what causes the overall trends in the Montana economy. It is the basic industries. Figure 1 pictures the high correlation between overall changes in the economy and changes in the basic industries. Every up or down in nonfarm labor income was accompanied or preceded by a corresponding change in nonfarm basic labor income. Manufacturing belongs in Montana basic industries because most of its output is shipped out of the state. For

example, almost 45 percent of the state's manufacturing GDP is in industries such as wood and paper products, petroleum refining, and machinery where almost all of the output immediately leaves the state. Even small Montana manufacturing firms often sell nationwide or even worldwide. Therefore, almost all of manufacturing belongs in Montana's basic sector.

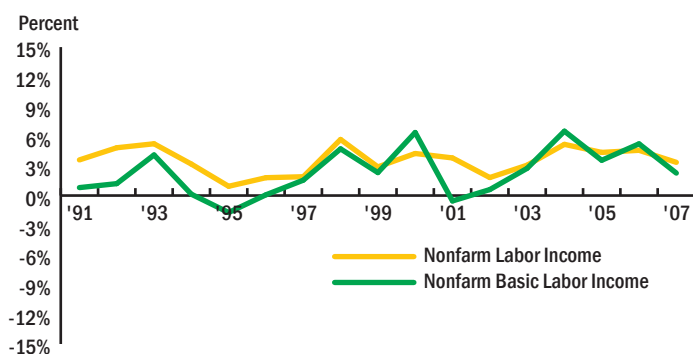
The Montana Department of Labor and Industry estimates the employment multiplier for manufacturing is 3.58. This means that about 2.58 new jobs are created in other sectors as a result of one new manufacturing job. Similarly, the compensation multiplier is 2.72, meaning that \$1.72 in wages is created elsewhere in Montana for each \$1.00 of new manufacturing wages.

Manufacturing is a major contributor to Montana's economic trends, despite being a relatively small component of the economic base. Montana's basic industries are shown in Figure 2. Manufacturing is divided into two components, wood and paper products and other manufacturing. Taken together, manufacturing accounted for about 24 percent of the states' economic base during the 2005-2008 period. This figure is slightly different from that reported in Table 2 because GDP measures the value of output while Figure 2 reports income to persons.

Overall economic trends in Montana's economy from 1991 to 2007 are portrayed by the nonfarm labor income data shown in Figure 1. It takes only a quick glance to see that the basic industries provide a very good explanation for the trends in the state's economy. For example, the decelerations associated with the 2001 recession and the Sept. 11 aftermath are clearly seen in the basic industries. A year later the impacts were felt in the rest of the economy. Similarly, there were rapid accelerations in the basic industries during 2004, 2005, and 2006 caused by the energy/commodity boom. They were quickly followed by faster growth in the other sectors of the state's economy.

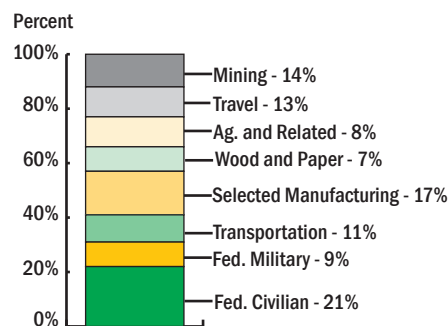
Figure 3 provides a closer look at the role of manufacturing in recent economic trends. The year-to-year

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



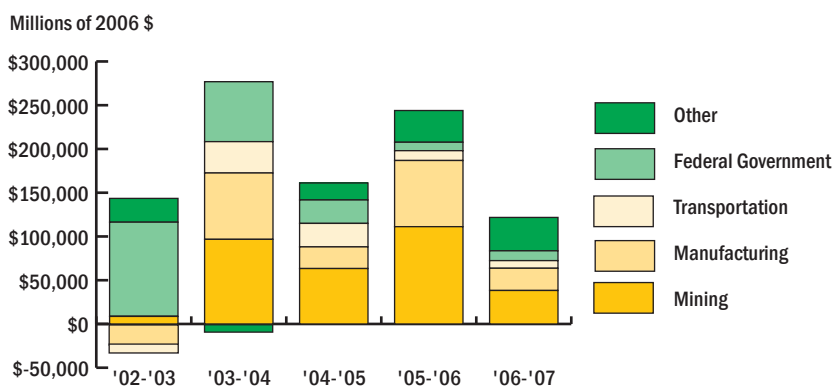
Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Figure 2
Labor Income in Basic Industries, Montana, 2005-2008



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

Figure 3
Change in Nonfarm Basic Labor Income, Montana



Source: U.S. Bureau of Economic Analysis.

change in nonfarm labor income between 2002 and 2007 is decomposed by major sector. Between 2002 and 2003 statewide nonfarm basic labor income increased about \$111 million (2006 \$). Manufacturing labor income declines about \$24 million (2006 \$), while the largest increases were \$108 million (2006 \$) in the federal government (mostly border patrol and other national security items) and \$27 million in the other industries category (which includes nonresident travel). During 2004, nonfarm basic labor income rose \$265 million (2006 \$), with manufacturing increasing \$76 million (2006\$), mining growing by \$97 million (2006\$), and the federal government expanding by \$68 million (2006\$). Jumping ahead to 2007, total nonfarm basic labor income rose \$122 million, with manufacturing increasing \$25 million (2006 \$) and both mining and other industries growing by about \$38 million (2006\$).

These five years of data provide several conclusions:

- Economic growth is the net result of differing conditions in individual basic industries. There are always some industries growing (or declining) faster or slower than others.
- There is usually no one single cause of growth. No basic industry was the fastest growing during all five years.
- Most importantly, industries that are a relatively small component of the economic base—like manufacturing—can be major contributors to overall economic growth during specific periods.

A Closer Look at Montana Manufacturing

Manufacturing establishments. There were 3,141 manufacturing establishments in Montana during 2006, as shown in Table 4. The largest category was miscellaneous manufacturer (NAICS 339) with 614 establishments. The next largest categories were wood products (NAICS 321) with 401 establishments and fabricated metal manufacturers (NAICS

Table 4
Manufacturing Establishments, Montana, 2006

NAICS Code	Industry	Number of Establishments
Manufacturing		3,141
311	Food Products	312
312	Beverages & Tobacco	38
313	Textile Mills	16
314	Textile Product Mills	38
315	Apparel	163
316	Leather & Allied Products	123
321	Wood Products	401
322	Paper Manufacturing	6
323	Printing & Related	165
324	Petroleum & Coal Products	20
325	Chemicals	74
326	Rubber & Rubber Products	44
327	Nonmetallic Mineral Products	150
331	Primary Metals	39
332	Fabricated Metal Products	387
333	Machinery	102
334	Computer & Elec. Products	56
335	Electrical Equipment & Appliances	21
336	Transportation Equipment	60
337	Furniture & Related	312
339	Miscellaneous	614

Source: U.S. Bureau of the Census.

Note: Includes establishments with no employees.

332) with 387 establishments.

Employment Size. Montana manufacturers are mostly small businesses. As shown in Table 5, about 653 of the 1,274 establishments with employees (or 51.3 percent) had one to four workers. There were 902 establishments with less than ten workers, or approximately 70.8 percent. There were no Montana manufacturers with more than 1,000 employees.

Composition of manufacturing. Generalizations about Montana manufacturing based on U.S. manufacturing may not be appropriate because the state's industry composition is not identical to that of the nation. Specifically, as shown in Figures 4 and 5, food products is the only one of the five largest components of U.S. manufacturing that is also among the major sectors in Montana.

The largest component of U.S. manufacturing as measured by GDP was computers and other electronic products, accounting for about 16.8 percent to the total in 2007. The next four largest industries were chemicals (15.4 percent), food products (10.8 percent), machinery (7.8 percent) and motor vehicles (6.1 percent).

The largest Montana manufacturing sector was associated with the processing of timber and wood resources. Wood and paper products and furniture manufacturers accounted for 26.8 percent of all manufacturing GDP in 2007. Petroleum refining (primarily reflecting the large facilities in the Billings area) was the second largest manufacturing component at 12.6 percent. Food processing represented 11.0 percent. Machinery manufacturing (which includes Semitool in Kalispell and Jore Manufacturing in Lake County) accounted for 7.6 percent. Finally, nonmetallic industries (which include ready mix concrete plants) accounted for 6.7 percent.

Manufacturing employment. U.S. manufacturing employment declined steadily between 1997 and 2007, as shown in Table 6. Montana manufacturing employment also decreased, but the decline was not as large as for the nation. U.S. employment in manufacturing decreased from 18.0 million workers in 1997 to 14.5 million in 2007, a decrease of 19.4 percent. Manufacturing's share of total U.S. employment dropped from 11.6 percent to 8.0 percent during the same period.

Montana manufacturing employment decreased from

Table 5
Manufacturing Establishments by
Employment Size, Montana, 2006

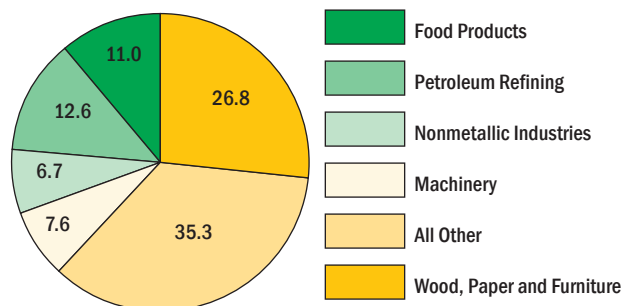
Establishments	
Total	1,274
1 to 4	653
4 to 9	249
10 to 19	168
20 to 49	113
50 to 99	56
100 to 249	24
250 to 499	9
500 to 999	2
1,000 or more	0

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

about 24,600 workers in 1997 to approximately 24,000 in 2007, a decline of only 2.5 percent. Unlike the nation, Montana's manufacturing trend was not uniformly downward: there were upticks in 1998 and 1999 and again between 2004 and 2007. Manufacturing's share of statewide employment decreased from 4.7 percent in 1997 to 3.7 percent in 2007. The relative importance of Montana's manufacturing employment declined by only one percentage point, while the corresponding nationwide decline was 3.6 percent.

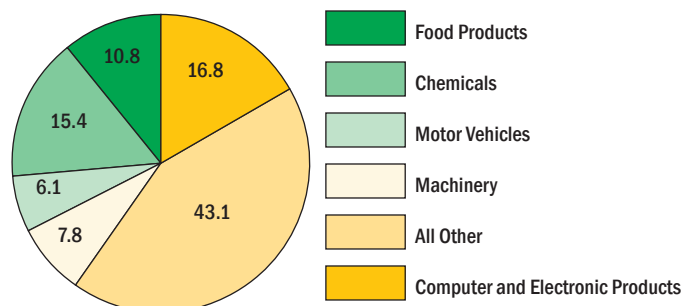
Employment by industry. Montana manufacturers produce a variety of different products for diverse markets and the trend in total employment may not accurately reflect conditions in each sector. As shown in Table 7, there were significant declines in several industries while other industries were stable and a few experienced increases. The largest declines were in wood products and primary metals.

Figure 4
Composition of Manufacturing, Montana,
2007 (Percent of Manufacturing GDP)



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

Figure 5
Composition of Manufacturing, United States,
2007 (Percent of Manufacturing GDP)



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

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

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total, United States (Millions of Workers)	155.6	159.6	163.0	166.8	167.0	166.6	167.6	170.5	174.2	177.8	180.9
Manufacturing (Millions of Workers)	18.0	18.2	17.9	17.8	17.0	15.8	15.1	14.9	14.8	14.8	14.5
Percent of Total	11.6	11.4	11.0	10.7	10.2	9.5	9.0	8.7	8.5	8.3	8.0
Total, Montana (Thousands of Workers)	528.9	540.3	548.3	559.1	566	572.3	579.1	598	615.7	630.8	647.4
Manufacturing (Thousands of Workers)	24.6	25.0	25.3	25.0	24.6	23.4	22.2	22.5	23.0	23.7	24.0
Percent of Total	4.7	4.6	4.6	4.5	4.3	4.1	3.8	3.8	3.7	3.8	3.7

Note: Includes the self-employed.

Source: U.S. Bureau of Economic Analysis.

Table 7
Full and Part-Time Manufacturing Employment, by Industry,
Montana

Industry	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Manufacturing	24,587	24,991	25,337	25,021	24,601	23,376	22,208	22,539	23,005	23,707	23,978
Durable goods	16,041	16,481	16,789	16,582	16,553	15,348	14,342	14,277	14,697	15,144	15,393
Wood products	6,496	6,427	6,434	6,272	6,085	5,958	5,474	5,440	5,463	5,369	5,069
Nonmetallic minerals	1,252	1,271	1,320	1,251	1,094	1,007	1,140	1,116	1,136	1,109	1,184
Primary metals	1,045	1,046	1,041	1,057	924	565	446	333	339	353	500
Fabricated metals	1,470	1,513	1,514	1,505	1,622	1,517	1,515	1,546	1,599	1,775	2,086
Machinery manufacturing	961	1,143	1,338	1,323	1,912	1,493	1,316	1,299	1,448	1,600	1,576
Computer and electronics	483	600	660	682	698	603	481	476	504	583	587
Electrical equipment and appliances	(T)	(T)	(T)	(T)	141	135	127	187	195	206	224
Motor vehicles and parts	337	328	358	393	365	(D)	(D)	(D)	345	406	410
Other transportation equipment	(T)	255	(T)	(T)	204	(D)	(D)	(D)	225	211	196
Furniture and related	1,258	1,417	1,568	1,531	1,376	1,298	1,306	1,358	1,346	1,332	1,247
Miscellaneous	2,390	2,371	2,313	2,302	2,132	2,239	2,027	1,990	2,097	2,200	2,314
Nondurable goods	8,546	8,510	8,548	8,439	8,048	8,028	7,866	8,262	8,308	8,563	8,585
Food	2,746	2,639	2,772	2,693	2,615	2,634	2,517	2,784	2,807	2,943	2,894
Beverage and tobacco	821	841	823	788	785	811	827	832	787	850	764
Textile mills	(T)	(T)	(T)	(T)	(D)	(D)	(D)	(D)	(D)	(D)	56
Textile product mills	(T)	(T)	(T)	(T)	237	236	242	224	206	211	230
Apparel manufacturing	(T)	(T)	(T)	(T)	315	288	269	306	321	337	(D)
Leather and allied products	(T)	(T)	(T)	(T)	177	218	204	209	226	223	232
Paper manufacturing	668	727	767	791	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Printing and related	1,405	1,366	1,340	1,304	1,229	1,193	1,193	1,232	1,248	1,310	1,355
Petroleum and coal products	930	914	917	925	917	933	914	887	938	961	984
Chemical manufacturing	804	899	900	817	681	705	737	783	782	755	880
Plastics and rubber	(T)	(T)	(T)	(T)	403	364	333	374	390	382	368

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

Source: U.S. Bureau of Economic Analysis.

Computer and electronic products and machinery recorded the largest employment increases. The underlying factors influencing these employment trends will be discussed next in the labor income section.

Labor income by industry. Labor income provides a reliable measure of both long-term trends and short-run cyclic developments in manufacturing and its components. Year to year changes in labor income accurately mirror the corresponded trends in output and production. Labor income correct for inflation is presented in Table 8.

It takes only a quick comparison of Tables 7 and 8 to determine that the trends in labor income are quite different than those in employment. The overall trend in labor income between 1997 and 2007 is upward, rather than the stability or slight declines pictured in the employment data. Similarly,

the significant employment decreases in wood products and primary metals are replaced by more modest declines. In labor income, structural changes and labor productivity change impact labor income less than employment and labor income is a more reliable indicator of the trends in output and production.

Montana's wood using and processing industries, the largest component of manufacturing, experienced stable or slightly declining labor income from 1997 to 2005. Beginning in 2006, wood products' labor income began a steeper decline resulting in the events of 2008 and 2009 mentioned earlier. The fastest growth during the 1997 to 2007 period was the doubling of machinery (Semitool and Jore) and petroleum and coal (expansion and upgrades at the refineries near Billings). The long-term downward trend in primary

Table 8
Manufacturing Labor Income, Montana
(Thousands of 2006 \$)

Industry	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Manufacturing	978,513	1,056,012	1,083,788	1,095,212	1,117,251	1,077,164	1,053,542	1,129,355	1,154,083	1,229,701	1,255,086
Durable goods	607,558	656,820	677,664	705,917	689,701	653,114	626,239	642,848	668,309	685,799	711,371
Wood products	264,679	267,121	276,392	276,716	262,753	260,116	242,903	246,617	246,785	238,704	231,333
Nonmetallic minerals	46,837	50,469	53,473	51,564	46,799	42,848	50,367	50,186	50,449	46,261	51,351
Primary metals	73,642	73,176	76,321	94,989	69,113	53,950	47,945	58,673	62,503	65,968	75,360
Fabricated metals	47,691	50,134	50,059	49,442	55,100	55,518	54,966	55,737	59,572	68,352	78,427
Machinery manufacturing	36,141	44,129	54,818	57,889	86,901	73,478	63,468	65,103	71,441	82,602	77,105
Computer and electronics	19,738	30,679	30,528	32,430	29,538	25,810	22,233	20,715	27,451	25,717	27,399
Electrical equipment and appliances	(T)	(T)	(T)	(T)	6,994	7,218	7,754	9,049	9,759	10,512	11,407
Motor vehicles and parts	12,987	15,240	15,616	17,665	16,998	(D)	(D)	(D)	16,651	20,263	21,643
Other transportation equipment	(T)	(T)	(T)	(T)	10,677	(D)	(D)	(D)	10,143	9,927	9,363
Furniture and related	28,171	38,086	38,517	39,195	36,181	35,493	39,199	34,921	35,422	36,549	35,039
Miscellaneous	66,585	70,934	71,236	75,624	68,646	71,761	68,792	73,739	78,133	80,944	92,943
Nondurable goods	370,956	399,192	406,124	389,295	427,549	424,050	427,302	486,507	485,774	543,902	543,716
Food	85,462	87,338	90,818	87,154	91,704	93,932	89,268	99,335	97,494	104,656	103,049
Beverage and tobacco	29,998	31,370	28,345	27,603	30,539	32,365	29,955	36,333	31,534	34,529	27,972
Textile mills	(T)	(T)	(T)	(T)	(D)	(D)	(D)	(D)	(D)	(D)	7,954
Textile product mills	(T)	(T)	(T)	(T)	8,282	8,270	6,988	9,062	9,601	9,182	10,471
Apparel manufacturing	(T)	(T)	(T)	(T)	4,107	5,263	7,432	8,978	8,411	9,294	(D)
Leather and allied products	(T)	(T)	(T)	(T)	2,929	2,471	4,152	2,449	2,565	2,996	2,965
Paper manufacturing	42,996	46,313	53,416	52,283	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Printing and related	34,910	36,605	38,159	38,871	39,369	38,475	39,852	40,136	41,023	44,105	47,606
Petroleum and coal products	108,555	118,810	125,616	111,219	146,747	137,056	133,221	168,882	173,634	218,859	212,866
Chemical manufacturing	42,073	50,693	46,500	45,952	45,472	43,885	49,661	55,621	56,082	52,608	63,638
Plastics and rubber	(T)	(T)	(T)	(T)	9,534	9,252	8,662	9,877	10,319	11,481	12,961

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

Source: U.S. Bureau of Economic Analysis.

metals reflects the closing of the East Helena smelter and the continued downsizing of the Columbia Falls Aluminum Company.

The 2001 recession and the economic aftermath of Sept. 11 hit U.S. manufacturing particularly hard. Even by 2007, U.S. manufacturing labor income had not yet regained its 2000 pre-recession peak. Particularly large reductions were felt in computer manufacturing, one of the largest sectors within manufacturing.

Montana manufacturing was not impacted to the same degree by the 2001 recession and the Sept. 11 aftermath. Manufacturing labor income peaked in 2001 and then

declined for two years, reaching a trough in 2003 about 5.7 percent below the 2001 peak. Manufacturing labor income then turned upward and by 2007 was 12.3 percent above the previous peak in 2001.

The impacts of the current recession and the 2008-09 preliminary trends in Montana manufacturing were discussed earlier in this report.

Employment and per worker wages and salaries.

This section examines employment and per worker wages and salaries in manufacturing and compares them to corresponding figures in other industries and for the United States. Wage and salary employment reported in Table 9 does

Table 9
Employment and Wages and Salaries per Worker, by Industry, Montana, 2007

Industry	Wage and Salary Employment	Wages and Salaries per Worker (Current Dollars)	Wages and Salaries per Worker (Percent of U.S.)
Wage and salary disbursements by place of work	473,271	32,123	73.2
Farm wage and salary disbursements	5,382	32,656	121.7
Nonfarm wage and salary disbursements	467,889	32,117	73.0
Private wage and salary disbursements	374,782	31,172	70.8
Forestry, fishing and other	3,955	26,964	99.9
Mining	7,510	67,750	83.2
Utilities	3,058	66,441	80.8
Construction	33,446	38,110	81.4
Manufacturing	20,688	39,758	74.4
Durable goods	13,138	38,093	67.9
Wood products	4,604	38,777	109.4
Nonmetallic minerals	1,065	37,796	81.0
Primary metals	464	46,996	83.4
Fabricated metals	1,658	35,956	78.2
Machinery manufacturing	1,428	42,209	75.0
Computer and electronics	538	40,257	47.0
Electrical equipment and appliances	194	42,644	82.4
Motor vehicles and parts	404	36,178	63.0
Other transportation equipment	168	35,631	51.4
Furniture and related	941	28,269	79.2
Miscellaneous	1,674	37,548	75.9
Nondurable goods	7,550	42,656	87.5
Food	2,632	30,052	79.4
Beverage and tobacco	717	27,219	51.1
Textile mills	42	18,524	50.8
Textile product mills	210	21,205	65.1
Apparel manufacturing	(D)	(D)	(D)
Leather and allied products	68	16,529	44.7
Paper manufacturing	(D)	(D)	(D)
Printing and related	1,180	30,400	70.4
Petroleum and coal products	976	90,231	97.8
Chemical manufacturing	808	54,986	71.0
Plastics and rubber	315	31,911	75.2

Note: (D) is not disclosed.

Continued on next page

Table 9**Employment and Wages and Salaries per Worker, by Industry, Montana, 2007**

Industry	Wage and Salary Employment	Wages and Salaries per Worker (Current Dollars)	Wages and Salaries per Worker (Percent of U.S.)
Wholesale trade	17,188	43,244	71.3
Retail trade	60,227	23,124	88.3
Transportation and warehousing	14,061	40,653	92.7
Information	7,647	38,455	55.3
Finance and insurance	16,145	46,964	55.4
Real estate and rental and leasing	6,218	27,909	64.2
Professional and technical services	20,101	45,352	63.1
Management of companies	1,438	53,186	55.6
Administrative and waste services	20,348	23,595	76.3
Educational services	5,227	19,456	59.0
Health care and social assistance	57,070	33,749	84.1
Arts, entertainment, and recreation	12,194	17,830	55.6
Accommodation and food services	47,292	13,796	77.5
Other services	20,969	22,300	81.5
Government and government enterprises	93,107	35,921	82.1
Federal, civilian	13,419	57,496	88.0
Military	8,177	33,687	79.7
State and local	71,511	32,128	78.8
State government	25,952	34,077	81.5
Local government	45,559	31,018	76.7

Note: (D) is not disclosed.

Source: U.S. Bureau of Economic Analysis.

not include the self-employed. Wages and salaries directly measure payments to workers and the amount available to them for current spending. Other income measures (such as labor income) may include estimates of collective bargaining provisions and certain employer-paid benefits that may not be closely tied to current spending by workers.

The typical Montana manufacturing wage and salary worker earned about \$39,800 in 2007, about 24 percent higher than the average of \$32,100 for all workers. The highest wages within manufacturing (and indeed among all industries shown in Table 8) were the \$90,200 received in petroleum refining industry. The next highest were the \$55,000 earned in chemical manufacturing and \$47,000 in machinery manufacturing. The lowest paying manufacturing industries were leather and allied products (\$16,500) and textile mills (\$18,500), both very small industries in Montana.

Wages and salaries per worker in Montana are less than their respective U.S. averages, reflecting the general trend of lower incomes in the state. Montana wages and salaries for all industries were about \$32,100 in 2007, roughly 73.2 percent of the corresponding U.S. figure. In manufacturing, wages and salaries per worker averaged about 74.4 percent of the corresponding national figure, slightly higher than the figure for all industries. Within manufacturing, all industries except

wood products had average wages less than their respective national average.

Manufacturing exports. Montana manufacturing firms exported approximately \$880 million in 2007, up 14.3 percent from 2006 and almost a threefold increase (in terms of current dollars) from 2002. Value of shipments data is not yet available for 2007, but the 2006 figures show that exports accounted for about 7.4 of the total value of manufacturing shipments. In 2002, exports accounted for only 5.8 percent of the value of manufacturing shipments.

Even though exports are a relatively small share of total manufacturing, they are a very important (and growing) in certain sectors. The two largest industries in 2007 were chemicals, (which include ASiMI, the polysilicon manufacturer in Butte) with \$261 million in exports and machinery (which includes Semitool and Jore Manufacturing) with about \$173 million. The machinery industry exported about 63.7 percent of its shipments in 2002. Corresponding data for the chemical industry is not available, but exports were about 33 percent of shipments in 2002. Chemical industry exports have increased more than four-fold between 2002 and 2007, and the percentage probably increased significantly.

Table 10
Exports and Value of Shipments, Montana 2002 to 2005 (Thousands of Current Dollars)

		- 2002 -			- 2003 -		
NAICS Code	Industry	Exports	Shipments	Exports as Percent of Shipments	Exports	Shipments	Exports as Percent of Shipments
n/a	Manufacturing	289,886	4,987,577	5.8	272,722	5,334,052	5.0
311	Food Products	13,212	482,611	2.7	13,517	529,657	2.6
312	Beverages and Tobacco	5	(D)		19	(D)	
313	Textile Mills	219	(D)		290	(D)	
314	Textile and Fabrics	150	(D)		150	(D)	
315	Apparel	624	15,409	4.1	1,399	(D)	
316	Leather & Allied Products	416	(D)		629		
321	Wood Products	20,345	854,352	2.4	21,650	757,899	2.9
322	Paper Manufacturing	29,997	(D)		28,292	(D)	
323	Printing & Related	150	(D)		148	(D)	
324	Petroleum & Coal Products	1,230	1,807,038	0.1	1,330	(D)	
325	Chemicals	59,506	178,695	33.3	64,788	(D)	
326	Plastic & Rubber Products	1,716	56,039	3.1	2,201	(D)	
327	Nometalic Mineral Products	27,793	167,927	16.6	29,559	224,982	13.1
331	Primary Metals	7,295	(D)		6,992	(D)	
332	Fabricated Metal Products	3,021	198,579	1.5	2,974	156,298	1.9
333	Machinery	71,782	197,393	36.4	58,795	243,619	24.1
334	Computer & Elec. Products	17,031	(D)		13,281	(D)	
335	Electrical Equipment & Appliances	9,424	15,547	60.6	7,077	(D)	
336	Transportation Equipment	8,533	70,968	12	11,424	(D)	
337	Furniture & Related	345	75,067	0.5	142	(D)	
339	Miscellaneous	17,092	186,048	9.2	8,064	185,163	4.4
		- 2004 -			- 2005 -		
NAICS Code	Industry	Exports	Shipments	Exports as Percent of Shipments	Exports	Shipments	Exports as Percent of Shipments
n/a	Manufacturing	431,824	6,487,284	6.7	510,154	8,129,513	6.4
311	Food Products	19,574	670,372	2.9	18,620	700,495	2.6
312	Beverages and Tobacco	24	(D)		115	(D)	
313	Textile Mills	165	(D)		332	(D)	
314	Textile and Fabrics	250	(D)		533	(D)	
315	Apparel	1,035	(D)		1,577	(D)	
316	Leather & Allied Products	798	(D)		1,062	(D)	
321	Wood Products	33,628	970,445	3.5	33,418	1,039,850	3.2
322	Paper Manufacturing	39,633	(D)		35,854	(D)	
323	Printing & Related	217	(D)		508	(D)	
324	Petroleum & Coal Products	2,683	(D)		3,115	(D)	
325	Chemicals	120,616	(D)		128,632	(D)	
326	Plastic & Rubber Products	2,877	(D)		4,015	(D)	
327	Nometalic Mineral Products	28,925	(D)		31,163	(D)	
331	Primary Metals	24,683	(D)		25,451	(D)	
332	Fabricated Metal Products	4,512	195,911	2.3	4,192	207,407	2.0
333	Machinery	113,849	183,426	62.1	158,773	242,030	65.6
334	Computer & Elec. Products	12,558	(D)		22,620	(D)	
335	Electrical Equipment & Appliances	5,353	(D)		7,266	(D)	
336	Transportation Equipment	10,401	(D)		23,419	(D)	
337	Furniture & Related	237	(D)		246	(D)	
339	Miscellaneous	9,808	183,426	5.0	9,242	189,422	4.8

Note: (D) not shown to avoid disclosure of confidential information.

Sources: www.wisertrade.org (accessed June 20, 2009). U.S. Census Bureau, Census of Manufacturers. U.S. Census Bureau, Annual Survey of Manufacturers.

Table 11
Exports and Value of Shipments, Montana, 2006 AND 2007 (Thousands of Current Dollars)

NAICS Code	Industry	- 2006 -			- 2007 -	
		Exports	Shipments	Exports as Percent of Shipments	Exports	Shipments
n/a	Manufacturing	711,237	9,555,352	7.4	880,648	n/a
311	Food Products	16,520	724,621	2.3	28,651	n/a
312	Beverages and Tobacco	52	(D)		42	n/a
313	Textile Mills	303	(D)		438	n/a
314	Textile and Fabrics	756	(D)		114	n/a
315	Apparel	1,926	(D)		2,174	n/a
316	Leather & Allied Products	764	(D)		1,320	n/a
321	Wood Products	33,246	956,022	3.5	36,559	n/a
322	Paper Manufacturing	40,728	(D)		42,085	n/a
323	Printing & Related	1,280	(D)		949	n/a
324	Petroleum & Coal Products	4,375	(D)		9,219	n/a
325	Chemicals	210,485	(D)		261,133	n/a
326	Plastic & Rubber Products	3,879	(D)		7,435	n/a
327	Nonmetallic Mineral Products	33,304	(D)		43,417	n/a
331	Primary Metals	65,228	(D)		96,664	n/a
332	Fabricated Metal Products	5,181	212,731	2.4	7,274	n/a
333	Machinery	190,664	299,171	63.7	172,506	n/a
334	Computer & Elec. Products	17,471	(D)		24,300	n/a
335	Electrical Equipment & Appliances	10,028	(D)		12,008	n/a
336	Transportation Equipment	63,569	(D)		122,580	n/a
337	Furniture & Related	362	(D)		408	n/a
339	Miscellaneous	11,116	(D)	5.3	11,331	n/a

Note: (D) not shown to avoid disclosure of confidential information. N/A denotes "not available."

Sources: www.wisertrade.org (accessed June 16, 2009). U.S. Census Bureau, Census of Manufacturers. U.S. Census Bureau, Annual Survey of Manufacturers.

Table 12
Montana Manufacturing Exports, by Country, 2003 to 2007
(Thousands of Current Dollars)

Country	- 2003 -	- 2004 -	- 2005 -	- 2006 -	- 2007 -	Rank
	Exports	Exports	Exports	Exports	Exports	
Total All Countries	272,722	431,824.0	510,154	711,237	880,648	n/a
Canada	150,759	199,136	217,688	301,164	360,402	1
Japan	22,187	50,349	53,169	81,793	101,723	2
Germany	7,087	11,767	48,970	54,556	58,396	3
China (Taiwan)	8,985	27,016	32,432	36,659	52,358	4
China (Mainland)	10,035	15,124	25,378	30,466	41,962	5
Korea	7,418	17,355	24,296	31,795	38,989	6
United Kingdom	9,032	14,601	22,551	24,394	30,014	7
Singapore	6,455	8,062	7,575	34,954	21,055	8
Mexico	4,054	12,000	7,461	10,958	16,785	9
Netherlands	11,736	6,790	15,775	20,420	13,884	10

Source: www.wisertrade.org (accessed June 16, 2009).