

Manufacturing employment hard hit during the 2007–09 recession

During the 2007–09 recession, employment in manufacturing declined sharply. When combined with other manufacturing indicators, the job loss shows that manufacturing was particularly hard-hit during the downturn

Megan M. Barker

Manufacturing employment has been on a downward trend since its all-time peak in 1979¹ with job losses accelerating during economic recessions.² (See chart 1.) In the years following the 2001 recession, employment fell at a faster pace than during other post-recession periods with both durable and nondurable goods experiencing widespread job losses. Manufacturing job losses then accelerated during the December 2007–June 2009 recession and totaled more than 2 million employees, or 15 percent of its workforce, during the 18-month period.

The manufacturing workweek typically serves as a leading indicator for identifying changes in business cycles.³ Employers often adjust hours before adjusting their workforce to meet changes in demand. Average weekly hours of production employees in manufacturing reached a high in March 2008, 3 months after the start of the recession; the manufacturing workweek had been about unchanged for nearly a year leading up to its peak. (See chart 2.) The workweek then decreased until March 2009, 3 months before the recession's conclusion. During this time, the factory workweek became 2 hours shorter. Contributing to this trend, overtime hours of production and nonsupervisory employees had begun to fall in February 2006, well before the recession began, and continued to decline until March 2009. Weekly manufacturing overtime fell by

2 hours during that period.

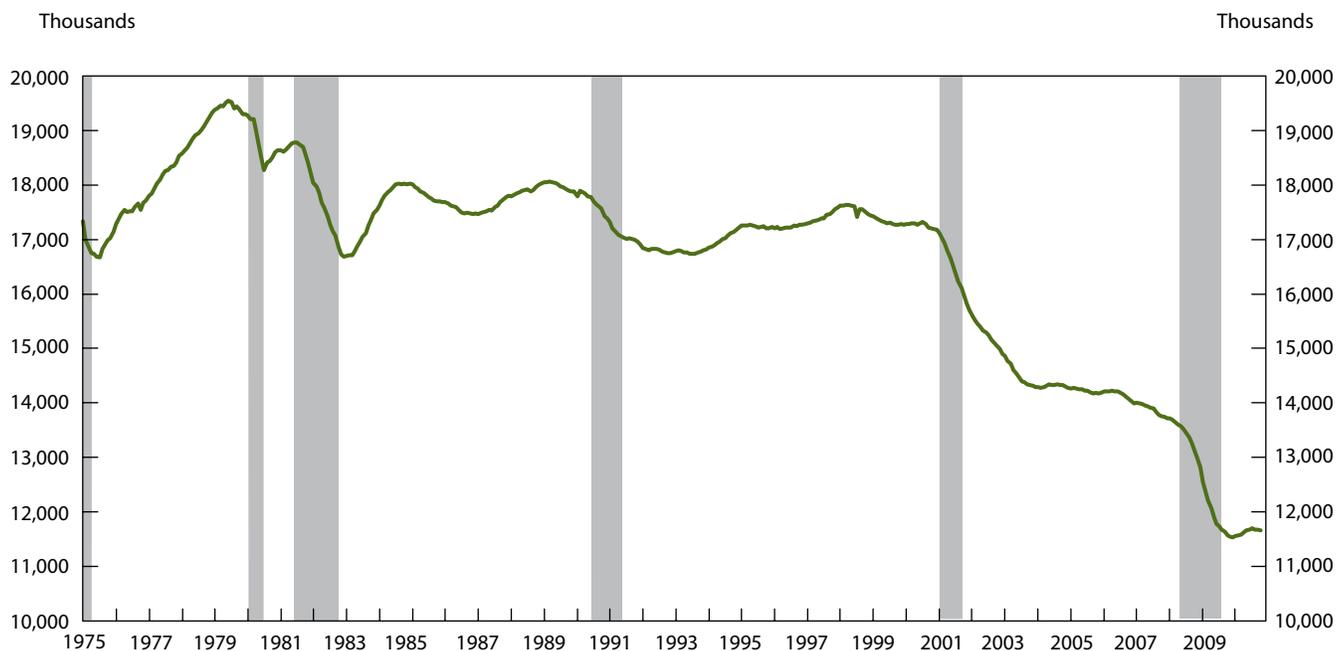
Manufacturing employment changes: the bigger picture

As might be expected, the 2007–09 recession had a negative impact on both manufacturing employment and total nonfarm employment. (See chart 3.) In the year leading up to the recession, however, manufacturers had experienced moderate job losses, while total nonfarm employment grew slowly. A month after the start of the recession, total employment began to fall and the rate of manufacturing job losses began to accelerate. In the latter half of 2008 and into early 2009, manufacturing saw historically large monthly job losses. Even after the 18-month-long recession ended, manufacturing continued to lose jobs, although at a slower rate.

Manufacturing job losses were widespread throughout the component industries during the 2007–09 recession. (See table 1.) The 1-month diffusion index for manufacturing employment remained well below 50 for nearly the duration of the recession. This index measures the dispersion of employment change; a value below 50 indicates that more manufacturing industries are reducing jobs than adding them over the month. The index measured just 6.8 in January 2009, the month with the largest manufacturing job loss in more than 30 years.

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Chart 1. Manufacturing employment, monthly data, seasonally adjusted, January 1975–December 2010



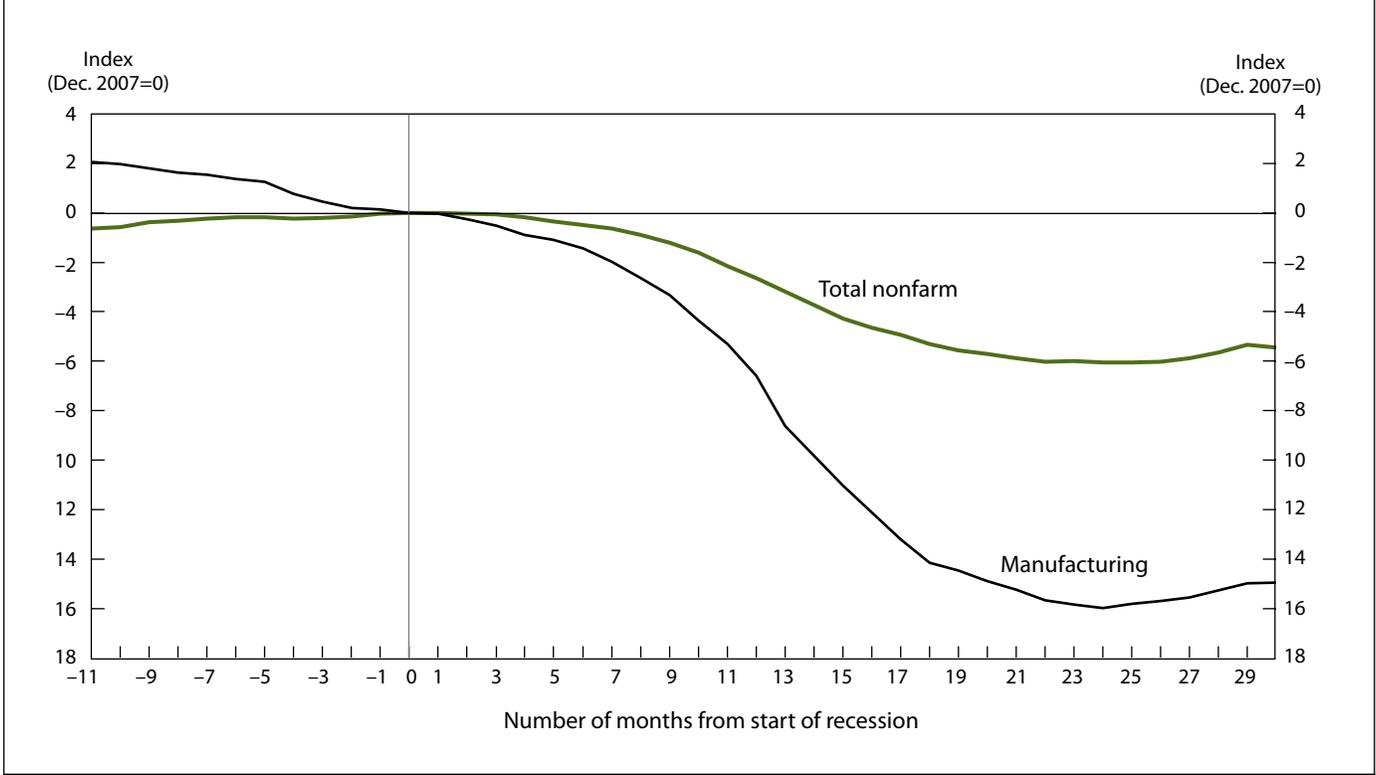
NOTE: Shaded areas denote recessions as determined by the National Bureau of Economic Research (NBER).

Chart 2. Average weekly hours of manufacturing production and nonsupervisory employees, monthly data, seasonally adjusted, January 1990–December 2010



NOTE: Shaded areas represent recessions as determined by the National Bureau of Economic Research (NBER).

Chart 3. Total nonfarm and manufacturing indexes of employment, seasonally adjusted, January 2007–June 2010



Durable goods manufacturing. During the recession, the bulk of manufacturing employment declines occurred in durable goods industries, accounting for 75 percent of factory job losses; by contrast, durable goods jobs accounted for 63 percent of total manufacturing employment at the start of the recession. The average durable goods industry lost 11 percent of its workforce between December 2007 and June 2009. Job losses were concentrated in five main industries: transportation equipment, fabricated metal products, machinery, wood products, and furniture and related products.

The transportation equipment industry lost the greatest number of jobs in manufacturing and accounted for a disproportionate share of the jobs lost in durable goods. Transportation equipment accounted for 12 percent of total durable goods employment but 23 percent of the decline in durable goods employment. Job losses in the transportation equipment industry resulted primarily from a 35 percent decline in motor vehicles and parts manufacturing employment during the 2007–09 recession. Employment losses in the industry were reflective of the reduced demand for motor vehicles. During the

months of the recession, total vehicle sales fell 38 percent.⁴ Sluggish sales negatively impacted the jobs of both motor vehicle and parts dealers and motor vehicle and parts manufacturers.

Fabricated metal products was the second largest contributor to job loss in manufacturing. Over the course of the recession, 13 percent of manufacturing jobs lost were in fabricated metal products.

Wood products and furniture and related products together accounted for 14 percent of the total job losses in manufacturing. These industries provide inputs used in construction, an industry that experienced similarly sharp declines in employment. The job losses in construction were related to the collapse of the housing market. The collapse affected not only construction employment, but also jobs in related manufacturing component industries.

Machinery manufacturing supports the efforts of other industries—including construction and mining—and was affected by their recession-related declines. The machinery industry accounted for more than 8 percent of manufacturing job losses during the recession. Trends in machinery manufacturing employment were like those in construc-

Table 1. Employment change in manufacturing, by industry, seasonally adjusted, December 2007 to June 2009

Industry	Number (in thousands)	Percent change	Distribution of decline in manufacturing (percent)
Manufacturing.....	-2,026	-15	100
Durable goods.....	-1,538	-18	76
Wood products.....	-146	-29	7
Nonmetallic mineral products.....	-102	-21	5
Primary metals	-99	-22	5
Fabricated metal products.....	-259	-17	13
Machinery	-168	-14	8
Computer and electronic products	-128	-10	6
Electrical equipment and appliances.....	-58	-14	3
Transportation equipment	-387	-23	19
Motor vehicle and parts.....	-340	-35	17
Furniture and related products.....	-139	-27	7
Miscellaneous manufacturing.....	-52	-8	3
Nondurable goods.....	-488	-10	24
Food manufacturing	-28	-2	1
Beverages and tobacco products.....	-12	-6	1
Textile mills	-41	-25	2
Textile product mills.....	-31	-20	2
Apparel.....	-46	-22	2
Leather and allied products	-5	-14	0
Paper and paper products	-47	-10	2
Printing and related support activities.....	-96	-16	5
Petroleum and coal products	1	1	0
Chemicals.....	-53	-6	3
Plastics and rubber products.....	-131	-18	6

Manufacturing indicators reflect industry weakness

Weakness in the manufacturing labor market also was reflected in other manufacturing indicators. (See table 2.) Declines in durable goods new orders, unfilled orders, motor vehicle production, and motor vehicle sales suggested the same weakness depicted by the employment numbers.

When the recession began, the manufacturing inventories-to-shipments ratio began to increase sharply as manufacturers experienced a noticeable slowdown in new orders and shipments.⁵ This resulted in a buildup in inventories, which continued throughout the first 9 months of the recession. The sharp declines in shipments reduced the need for labor to produce manufactured goods. The manufacturing inventory-to-shipments ratio began to decline 4 months before the recession ended. The decline in the ratio was due to a pickup in shipments while inventories were shrinking. During these 4 months, manufacturing employment continued to decline as manufacturers adapted to greater demand by increasing hours before hiring.

tion, where the collapse of the housing market led to a loss of 20 percent of construction jobs during the recession. Construction machinery manufacturing lost 18 percent of its workforce during the same period.

Nondurable goods manufacturing. Nondurable goods lost nearly half a million jobs during the 2007–09 recession, accounting for about a quarter of the total decline in manufacturing employment. Job losses occurred throughout nearly all of the component industries. A substantial proportion of manufacturing job losses—6 percent—were in plastics and rubber products.

During the recession, petroleum and coal products was the only industry that did not show a decline in employment. Instead, employment remained little changed at the end of the recession.

Employment decline reminiscent of previous recession

While manufacturing employment has been trending down since 1979, job losses accelerated during recession years. The most recent recession started in December 2007 and lasted for 18 months. By contrast, the previous 2 recessions each lasted 8 months.

During the 1990–91 recession, manufacturing jobs were lost more rapidly than in pre-recession years. Once the recession ended in March 1991, manufacturers continued to reduce employment, but at a slower rate. (See chart 4.) About 2 years later, manufacturers began to hire; however, the industry never recovered all the jobs it had lost in the early 1990s. After adding nearly 900,000 jobs between July 1993 and March 1998, manufacturers began to slowly

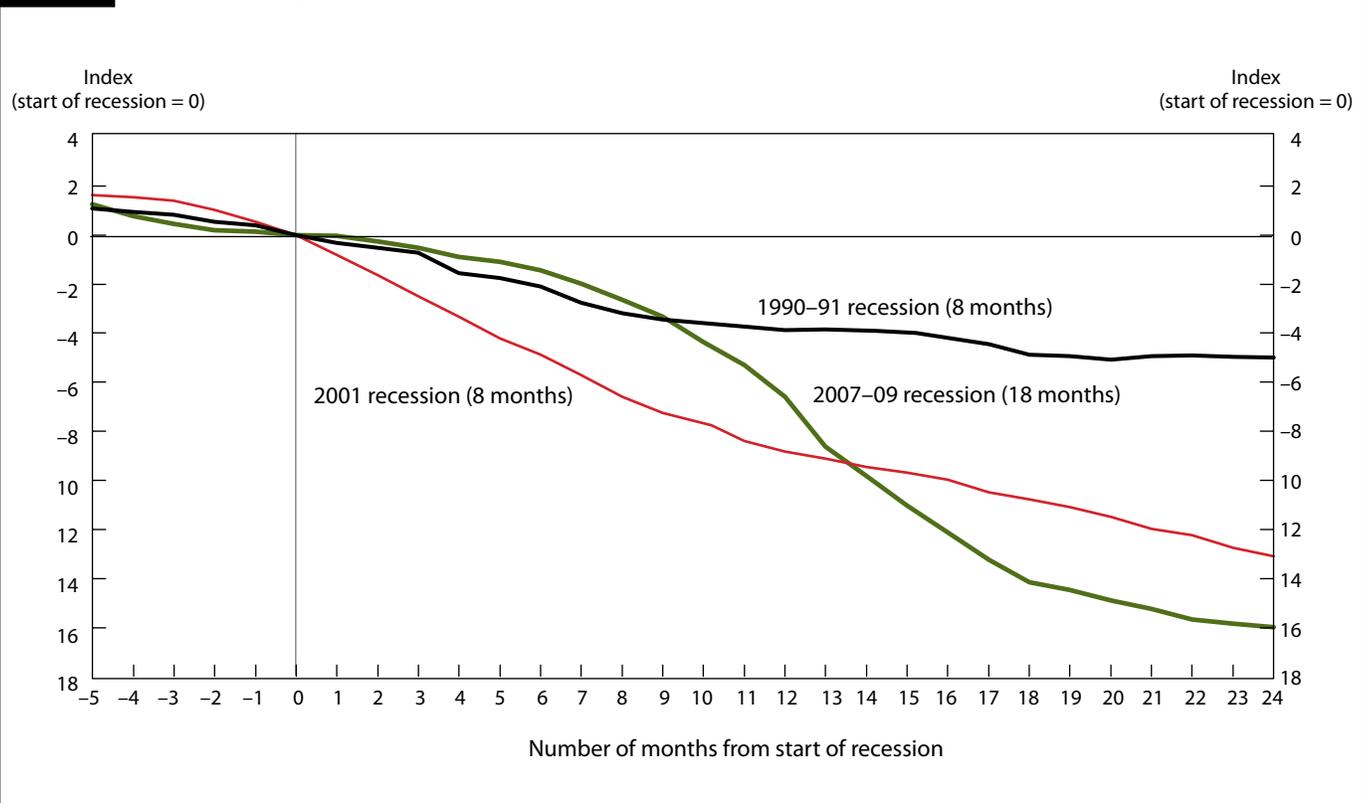
Table 2. Quarterly change in manufacturing indicators, seasonally adjusted, first quarter 2007–second quarter 2009

Indicator	2007		2008				2009	
	Quarter IV	Quarter I	Quarter II	Quarter III	Quarter IV	Quarter I	Quarter II	
Manufacturing employment								
Total manufacturing, in thousands.....	-49	-84	-145	-241	-427	-630	-485	
Durable goods.....	-50	-58	-97	-179	-310	-477	-398	
Motor vehicle and parts.....	-31	-34	-21	-63	-56	-78	-80	
Motor vehicle production and sales								
Motor vehicle production, in thousands.....	25	-40	15	-35	-13	-55	-17	
Motor vehicle sales, in millions.....	-5	-8	-1.1	-1.2	-2.5	-.4	.1	
Durable goods orders, inventories and shipments								
New orders, durable goods, in millions of dollars .	14,592	-18,483	-2,174	-15,041	-35,130	-16,428	3,843	
Unfilled orders, durable goods, in millions of dollars	64,199	31,292	19,618	3,350	-29,677	-47,637	-24,372	
Inventory-to-shipments ratio, durable goods.....	.02	.03	.00	.06	.14	.06	-.03	

SOURCE: Manufacturing employment data are from the Current Employment Statistics (CES) program of the Bureau of Labor Statistics. Motor vehicle production and sales data are from the Bureau of Transportation Statistics, U.S. Department of Transportation, and are

seasonally adjusted by the Bureau of Economic Analysis. Durable goods orders, unfilled orders, and inventory-to-shipment ratio are from the Manufacturers' Shipments, Inventories, and Orders Survey of the U.S. Census Bureau.

Chart 4. Manufacturing index of employment for three most recent recessions, seasonally adjusted



cut jobs again as an economic crisis in Asia started to impact U.S. exports.⁶ By the start of the 2001 recession 3 years later, manufacturing employment already had fallen by 700,000. (See chart 1.)

Manufacturing employment leveled off in early 2000 and started to decline leading up to the 2001 recession. Job losses were larger and more rapid than those of the 1990–91 recession. Manufacturing continued to lose jobs at a relatively high rate for nearly 2 years after the recession ended in November 2001. During those 3 years, manufacturing cut 3 million jobs, accounting for 16 per-

cent of its workforce. In the years from 2005 until the 2007–09 recession, the industry cut payrolls at a slower rate and never recovered the lost jobs.

Manufacturing employment trends of the 2007–09 recession were similar to the 2001 recession. During both recessions, a large decline in industry employment occurred. From December 2007 until December 2009—when manufacturing employment reached a new low—the manufacturing industry lost 2 million jobs, or 17 percent of its workforce, and industry employment fell to its lowest level since March 1941. □

Notes

¹ The data on employment used in this article are from the Current Employment Statistics (CES) program, which is a monthly survey of approximately 140,000 nonfarm businesses and government agencies representing approximately 440,000 individual worksites. For more information on the program's concepts and methodology, see "Technical Notes to Establishment Survey Data" at www.bls.gov/web/cestn2.htm. CES data are available at www.bls.gov/ces. The CES data used in this article are seasonally adjusted.

² Recessions are identified by the National Bureau of Economic Research (NBER). According to the NBER, the most recent recession began December 2007 and ended June 2009. The previous two recessions were from March 2001 to November 2001 and from July 1990 to March 1991. For a complete list of business cycle dates, please consult

the NBER webpage at www.nber.org/cycles/cyclesmain.html (visited Nov. 2, 2010).

³ The Conference Board, "Global Business Cycle Indicators," www.conference-board.org/data/bcicountry.cfm?cid=1 (visited Apr. 6, 2011).

⁴ Bureau of Economic Analysis, National Economic Accounts, Supplemental Estimates: Motor Vehicles, www.bea.gov/national/xls/gap_hist.xls (visited Feb. 7, 2011).

⁵ U.S. Census Bureau, www.census.gov (visited Apr. 4, 2011).

⁶ Julie Hatch and Angela Clinton, "Job growth in the 1990s: a retrospect," *Monthly Labor Review*, December 2000, pp. 3–18, www.bls.gov/opus/mlr/2000/12/art1full.pdf (visited Apr. 6, 2011).