

U.S. Construction Equipment: Powering Jobs and Dollars

September 2009

Produced by



For

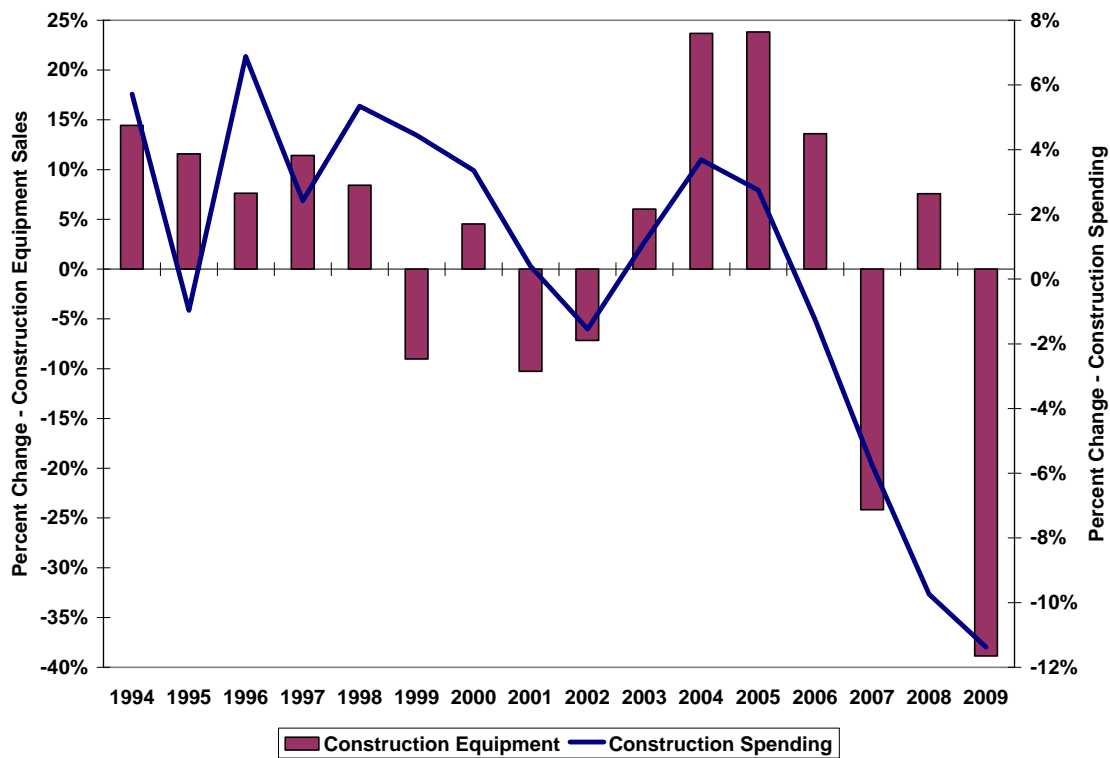
**Association of Equipment Manufactures
Associated Equipment Distributors**



Summary

Construction spending and U.S. construction equipment sales are closely related. Generally, when investment in structures and infrastructure has been strong, so have the sales of construction equipment. During lean investment years, sales of construction equipment have plunged. A combination of sound monetary policy, prudent fiscal investments and strong business and consumer confidence is required to foster a strong construction environment. Doing this will also maintain a healthy construction equipment sector.

Figure 1.1
There is a strong relationship between construction investment and construction equipment sales



The U.S. construction equipment industry is a flagship sector of the U.S. economy, but its contribution to the economy is not well understood. The U.S. construction equipment industry is more important than just the manufacturing of the large machines seen on job sites across the nation.

In addition to construction equipment manufacturing, the industry has a broad and extensive dealer/wholesale merchandising system, and these machines require considerable maintenance and upkeep to remain productive in the field. Therefore, the total construction sector is actually comprised of three major industries: construction equipment manufacturing (NAICS Code 33312), construction machinery and equipment

merchant wholesalers (NAICS Code 42381) and construction machinery and equipment maintenance and repair (NAICS Code 81131).

By incorporating the manufacturing, dealer/wholesale distribution and maintenance/repair segments, the total construction equipment industry is directly responsible for over \$139.3 billion (\$31.0 billion from manufacturing, \$62.2 billion from dealer/wholesale merchandising, and 46.1 billion in maintenance and repair). However, the complete impact of the construction equipment industry must also take into account the materials, services, and supplies the sector purchases. These indirect effects are estimated to add another \$104.0 billion (\$38.6 billion from manufacturing, \$33.3 billion from dealer/wholesale merchandising and \$32.1 billion from maintenance and repair services), for a **total revenue stream that is \$243.3 billion**. This is approximately the entire gross state product (GSP) of the state of Connecticut.

Employment can also be greatly underestimated by just initially looking at only people directly employed in the manufacture of construction machinery. In 2008, over 40,800 people were employed in the U.S. manufacture of construction equipment. Including the dealer/wholesale distribution network adds another 326,400 jobs to the total, and incorporating maintenance and repair yields another 319,300 jobs. However, the 555,300 jobs (162,300 from manufacturing, 223,000 from dealer/wholesale merchandising, and 170,000 from maintenance/repair) indirectly related to construction equipment must also be considered to gain a total perspective. As such, it could be stated that **the construction equipment industry is responsible for nearly 1,250,000 jobs**. This is approximately equal to the nonfarm employment for the entire state of Nevada (1,266,400 employees in 2008). To put the impact in industry, rather than geographic terms, **those directly and indirectly employed by the construction equipment industry is equal to the number domestically employed in the manufacturing of computer and electronic equipment, including telecommunications equipment**.

Employees of the construction equipment industry are highly skilled, both from a manufacturing and a dealer/wholesale merchandising perspective. Employees in the manufacturing process are paid \$3.367 billion, or an average of \$82,500 per worker yearly. Employees of the dealer/wholesale merchandising network are paid \$22.055 billion, or an average of \$67,600 per worker yearly. Employees in the repair/maintenance industry account for 11.627 billion in compensation, or an average of \$36,400 annually. However, when indirect payroll is considered, **total compensation by the construction equipment industry is nearly \$65.0 billion**.

The discussion thus far has been on the economic importance of the construction equipment machinery industry to the United States. The benchmark for this data is 2008, the last complete year of historical data for the metrics commonly used in such analysis. However, the economic contribution of the industry is only part of the story. The construction equipment industry is in the midst of a contraction unprecedented in the post-war era. The industry has been hit with a rare downturn in all major components of the construction market: residential, nonresidential structures and infrastructure. The housing debacle has been well chronicled with housing starts declining from a peak of

over two million units in 2005 to what will likely be a trough of only 584,000 units this year. The recession caused by the collapse of the housing and financial sectors impacted the market for nonresidential structures in 2008 as unemployment grew, vacancy rates climbed and rents fell. While the decline began late in 2008, poor fundamentals are combining with tight commercial credit to constrict the broad commercial market by 25% to 30% in 2009. A slow recovery, limited funding and a still rising unemployment rate into early 2010 suggest that further declines on the order of 25% are on order for commercial structures in 2010 as well. The news is no better for industrial structures. While a few, large energy related projects are holding up the broad industrial category, construction in virtually every other industry is contracting at double digit rates. When the energy related prop falls from the market later this year, a contraction in excess of 40% is expected, lasting through 2010.

The recession has also had a profound impact on tax revenues, which fund the majority of institutional spending and virtually all infrastructure expenditures. Spending on educational and public recreation structures will see virtually no growth in 2010 and will likely contract next year as state and local budgets are tightened. Health care is the lone major structure category with growth in 2009, and that is expected to moderate to minimal growth in 2010.

On the infrastructure side, real spending on highways and streets began falling as early as 2007, and water and sewer construction began declining in 2008. Indeed, apart from 2006, this decade has been marked by falling infrastructure spending. The decline continues in 2009 and the bellwether road construction at least will likely continue to decline into 2010 as well, since federal stimulus spending is insufficient to offset state and local budget cuts. Indeed, it can be said that the U.S. has been underfunding its infrastructure for some time. For example, from the end of the last recession in 2002 through 2008, the U.S. economy, as measured by the real (inflation adjusted) Gross Domestic Product (GDP) has grown 15.2% or a compound average annual rate of 2.4%. Over that same interval, real investment in our transportation, water and sewer infrastructure has shrunk 9.5%, falling 1.6% on a compound annual basis. That is, even as we were using our infrastructure more and more, we were investing in it less and less.

The data available for 2009 thus far, and the outlook for the few remaining months indicate that this will be one of the most challenging years that the construction equipment industry has faced. Spending on construction equipment will fall 50.1% from its peak value in 2006.

The economic contributions outlined above are based on the 2008 construction equipment market size as it reflects the most current data. However, by this point, the industry was already under pressure and significantly down from its 2006 level.

To put the numbers in a peak to trough context, the output of construction equipment manufacturers will decline from \$35.1 billion in 2006 to \$17.5 billion in 2009. The employment impact will also be severe as jobs fall from 56,800 to 23,100, a loss of 33,700 jobs or 59% of the 2006 labor force.

The distribution channel reacts more slowly to a downturn than manufacturers as existing equipment must be sold, parts operations maintained and existing accounts serviced. As such, the employment and output losses are less pronounced than for manufacturing. Nevertheless, the distribution channel will lose over 40% of its output and roughly half of its employees, or 142,500 jobs, on a peak to trough basis. The construction equipment maintenance and repair industry is less affected still as machines on job sites still require upkeep. Nevertheless, the severity of this recession on the construction industry has dramatically reduced the incidence of even these machines. As such, output for the repair segment will fall in excess of 30% on a peak to trough basis with consequent employment losses of 81,500 jobs or about a quarter of the work force.

Taken together, **this unprecedented downturn in the construction industry will directly depress output in the broad construction equipment industry by nearly 40% with 257,700 jobs or 37% of its work force. Additionally, the indirect effects from this industry on the broader economy will cost an additional 274,700 jobs.** The dominant share of these indirect effects, or 134,000 of the lost jobs comes from the equipment manufacturing category with its strong demand for other manufactured components. Taken together, **the direct and indirect impacts of the recession on the construction industry will be approximately 550,000 jobs on a peak to trough basis, a number slightly larger than the employment of Rhode Island. Put another way, the U.S. has lost 6.9 million jobs in this recession. Of that total, 8%, or 2 out of every 25 jobs lost, can be linked to the downturn in construction equipment purchasing.**

To put these job losses in the context of other industries, while the transportation equipment sector has lost more jobs (342,000 in manufacturing and 239,000 in dealerships), this amounts to 16% of the combined workforces, far less than that experienced by construction equipment. Another sector regarded as being hard hit is the finance and insurance industry, which has lost 350,000 jobs. However, employment in this industry was in excess of six million in 2007, and the job losses amount to 5.8% of industry employment. Nevertheless, both of these industries have been determined to need government bailouts. A third industry that has been the focus of bailout discussions is the publishing industry, but even in this case, the 114,000 jobs lost amount to 12.7% of the 2007 workforce.

The U.S. construction equipment industry has one perspective on a national level, but another perspective on a state-by-state basis. In terms of employment and payroll, **the economic contribution is largest in Texas, California, Florida, Illinois, Pennsylvania, Ohio, North Carolina, and Georgia.** However, the economic influence of the construction equipment sector on state economies is also profound for other states, such as Iowa and Wisconsin. It is instructive to view the losses by state in both output and employment terms. It is also important to recognize not only the states with the largest absolute losses, but also those who have seen a disproportionate impact on their local economies. That is, the largest states tend to see the largest declines due to a recession. However, states that rely on the construction equipment industry more than others will experience a larger disruption to their stability. The tables below illustrate the top ten

states in terms of employment and output losses both in absolute terms and as shares of their economic base.

| Peak-to-Trough Employment Loss | | | |
|--|--------|--|-------|
| Top Ten States in terms of Total Employment Loss | | Top Ten States in terms of Employment Loss as a % of the State's 2006 Total Employment | |
| California | 53,368 | Wyoming | 1.17% |
| Texas | 53,020 | West Virginia | 1.01% |
| Florida | 33,063 | North Dakota | 0.86% |
| Illinois | 32,974 | Iowa | 0.69% |
| Pennsylvania | 25,816 | Kentucky | 0.64% |
| Ohio | 24,632 | Montana | 0.64% |
| New York | 23,783 | South Dakota | 0.60% |
| North Carolina | 19,804 | Louisiana | 0.59% |
| Georgia | 17,497 | Alabama | 0.57% |
| Virginia | 16,701 | Kansas | 0.56% |

In general, the larger states comprise the largest total losses. However, even here, relatively small states such as Iowa and Wisconsin appear. As one moves to the losses as a share of the economic base, we find more smaller states, typically those with facilities for the manufacture of construction equipment and/or its components.

| Peak-to-Trough Output Loss | | | |
|---|---------|---|-------|
| Top Ten States in terms of Total Output Loss (billions) | | Top Ten States in terms of Output Loss as a % of the State's 2006 GSP | |
| Texas | \$11.37 | North Dakota | 3.77% |
| California | \$9.23 | Iowa | 2.62% |
| Illinois | \$9.22 | West Virginia | 2.08% |
| Pennsylvania | \$5.16 | Wyoming | 1.80% |
| Florida | \$4.64 | South Dakota | 1.79% |
| Ohio | \$4.54 | Wisconsin | 1.63% |
| New York | \$4.49 | Illinois | 1.56% |
| North Carolina | \$3.84 | Oklahoma | 1.53% |
| Wisconsin | \$3.67 | Kentucky | 1.41% |
| Iowa | \$3.17 | Kansas | 1.40% |

Finally, the construction equipment industry is a major taxpayer. Taxes are paid on the incomes of the workers, the profits of the companies, the property that it uses and on the sale of its equipment, among others. At the peak of the market, the industry was directly responsible for \$1.2 billion in taxes from manufacturing operations, \$15.4 billion from distribution and \$4.4 billion from maintenance and repair for a total of \$21.0 billion. The distribution channel is the largest taxpayer since it is here that excise taxes are generally collected. The indirect taxes add an additional \$10.6 billion. Taken together, the industry was responsible for \$31.6 billion in taxation. Over the course of the recession, losses to industry sales and employment has decimated the taxes paid on employee income, corporate profits and sales of machinery. In fact, the magnitude of the decline indicates that taxes paid have fallen by \$12.8 billion; \$8.3 billion in direct effects and an additional \$4.5 billion in indirect effects.

In summary, the U.S. construction equipment industry plays a large role in supporting the U.S. economy and U.S. jobs. This recession has placed a severe drag on that industry, which is consequently holding back the broad economy. While signs of a nascent recovery are appearing in the housing market, the commercial market is declining rapidly and absent additional federal intervention, institutional and infrastructure spending will be held back by limited state and local tax receipts which are also needed to preserve the social safety net. However, if a strong recovery for the construction sector could be engineered, the job and output losses experienced over the past two years could become gains for the economy with powerful beneficial indirect effects