The Renaissance in Manufacturing - Job Savior?

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The Setup
Manufacturing output peaked in December 2007 and fell 20.4% over the following 18 months.
Manufacturing capacity utilization collapsed to the lowest rate in 70 years
Job declines in the manufacturing sector were significant, with over 2.0 million jobs lost over that same period.
Is the U.S. Losing Its Manufacturing Base?
Manufacturing employment as a share of national employment has been declining for over 50 years.

Manufacturing employment as a share of total nonfarm employment

percent

Manufacturing employment as a share of total nonfarm employment

1940  '50  '60  '70  '80  '90  '00  '10

percent

0  5  10  15  20  25  30  35  40

1940  '50  '60  '70  '80  '90  '00  '10
The number of jobs in manufacturing has been relatively stable over this period, edging lower on average by -0.3% per year since 1947.
Not to make a mountain out of a molehill, but manufacturing employment was increasing up until 1979 and has been moving lower over the past 30 years.
However, service sector employment has grown more than fourfold over this period, averaging growth of 2.3% per year since 1947.
While manufacturing employment growth has been edging lower over the past 63 years, manufacturing output increased by 3.1% per year.
This translated into an almost 600 percent increase in manufacturing output over this time period.
The increase in output can be attributed to strong productivity growth experienced by the manufacturing sector.
What took 1,000 workers to produce in 1950 takes 170 workers today.

Manufacturing sector:
Number of workers needed to do the work of 1,000 workers in 1950.

<table>
<thead>
<tr>
<th>Year</th>
<th>Workers</th>
</tr>
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<tbody>
<tr>
<td>1950</td>
<td>1,000</td>
</tr>
<tr>
<td>1960</td>
<td>813</td>
</tr>
<tr>
<td>1970</td>
<td>627</td>
</tr>
<tr>
<td>1980</td>
<td>485</td>
</tr>
<tr>
<td>1990</td>
<td>362</td>
</tr>
<tr>
<td>2000</td>
<td>243</td>
</tr>
<tr>
<td>2010</td>
<td>175</td>
</tr>
<tr>
<td>2011</td>
<td>170</td>
</tr>
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</table>
Manufacturing productivity growing faster over the past 40 years

<table>
<thead>
<tr>
<th>Period</th>
<th>Nonfarm Business</th>
<th>Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950s</td>
<td>2.2</td>
<td>2.1</td>
</tr>
<tr>
<td>1960s</td>
<td>2.7</td>
<td>2.6</td>
</tr>
<tr>
<td>1970s</td>
<td>2.6</td>
<td>1.7</td>
</tr>
<tr>
<td>1980s</td>
<td>3.0</td>
<td>1.6</td>
</tr>
<tr>
<td>1990s</td>
<td>2.1</td>
<td>4.1</td>
</tr>
<tr>
<td>2000s</td>
<td>2.5</td>
<td>3.4</td>
</tr>
<tr>
<td>2010-2011</td>
<td>0.4</td>
<td>2.5</td>
</tr>
</tbody>
</table>
The divergence in productivity appears to have occurred around the mid-1970s.
This divergence is especially apparent in durable manufacturing.
Strong productivity growth had allowed the manufacturing sector to grow faster than the overall economy.
However, lower relative prices in the manufacturing sector has lead to manufacturing comprising a smaller share of GDP over time.
The Manufacturing Sector Continues to Re-invent Itself
Over the last twenty years the fastest growing sector, not surprisingly, has been computer and electronic components.
There has been a large number of industrial sectors that have risen and fallen over the past twenty years.
The collapse in manufacturing experienced in 2008-2009 is closely linked with the economic recession.
Declines in manufacturing output were broad-based during the Great Recession – especially in vehicle and primary metals manufacturing.
The recovery has also been broad-based with motor vehicles and primary metals manufacturing leading the way.
Manufacturing workers have suffered steep employment declines over the current cycle.
But the overall economy’s employment growth also struggled.
When changes in nonfarm employment are considered, the most recent manufacturing employment downturn is not unprecedented.
The financial crisis and its aftermath has hampered the current economic expansion.
The recovery in manufacturing output is in-line with past industrial recoveries.

**Diagram:**
- **Industrial production - manufacturing**
- Trough = 100
- Upper and lower bounds around GDP troughs
- Current cycle

**Axes:**
- X-axis: Quarters away from trough of real GDP
- Y-axis: Industrial production - manufacturing
Productivity in the overall economy has grown at a rate near the low-end of previous expansions.
However, productivity within the manufacturing sector has grown at a much faster pace
Manufacturing employment losses have occurred across numerous countries – among 20 big economies, 22 million jobs were lost.
Is the U.S. positioned to continue its strong productivity gains?
U.S. maintaining its commitment to research and development
The vast majority of U.S. research and development is being privately funded

![Graph showing the share of research and development that is privately funded over time. The graph indicates a trend of increasing privately funded share from the early 1950s to the early 2000s, with a peak around the late 1990s.](image-url)
Lessons from the farm sector
We are producing more in our farm sector than at any time in our history
And we are accomplished this remarkable feat with less than 2.0% of our employment devoted to farming.
The Current Expansion
Beginning in July 2009, manufacturing output in the United States has been increasing at a 6.5% annualized rate and has recovered 74.8% of its drop in output.
Manufacturing capacity utilization has been rising since June 2009
And while manufacturing jobs have been rising, they have only recovered 21.1% of the jobs lost during the downturn.
Summary

Manufacturing output is in the process of recovering its losses. The success of manufacturing has been driven by productivity. Manufacturing employment has shown little change over the past 70 years – with a steady decline over the past 30 years. The most recent decline in manufacturing was cyclical, not structural. Profits in manufacturing have outperformed profits for the rest of the nation.

The trends that have dominated manufacturing for the past 70 years are suggestive of the future for U.S. manufacturing: ever increasing output with employment representing a smaller share of total employment.