

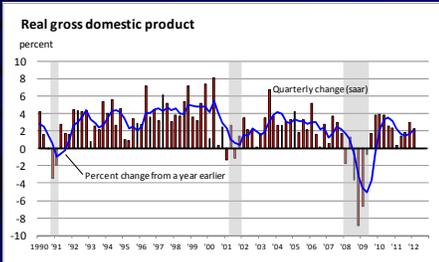
## Economic and Manufacturing Outlook

**Automation Conference**  
 Rosemont, IL  
 May 21, 2012

**William Strauss**  
 Senior Economist  
 and Economic Advisor  
 Federal Reserve Bank of Chicago

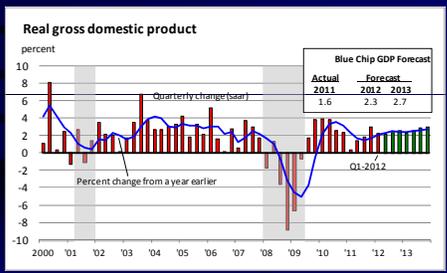


**The "Great Recession" ended in June 2009,  
 but the economy expanded by just 2.1% over the past year**



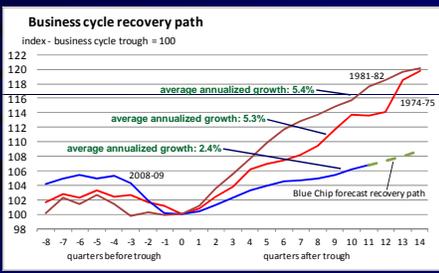
**Real gross domestic product**

**GDP is forecast to grow near trend in 2012  
 and slightly above trend in 2013**



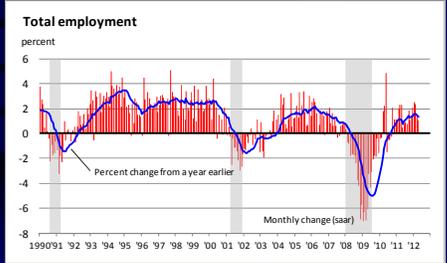
Blue Chip GDP Forecast			
Actual	Forecast		
2011	2012	2013	
1.6	2.3	2.7	

**The forecast path of the current recovery is relatively muted  
 compared with past deep recession recovery cycles**



**Business cycle recovery path**  
 Index - business cycle trough = 100

**Employment fell by over 8.7 million jobs  
 between December 2007 and February 2010,  
 but began to rise and has added  
 1.8 million jobs over the past 12 months**

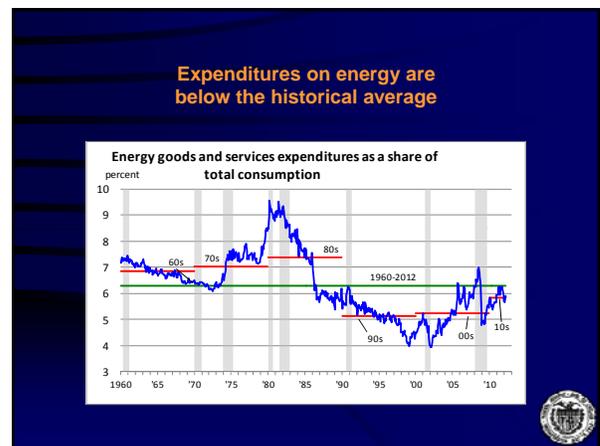
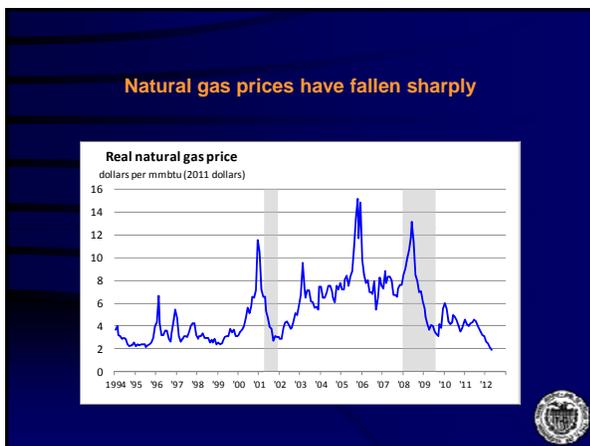
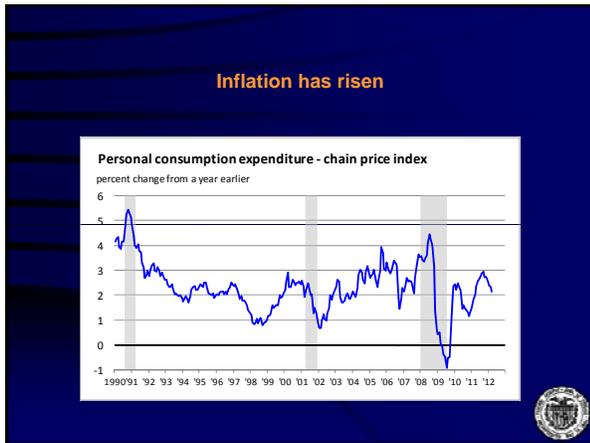
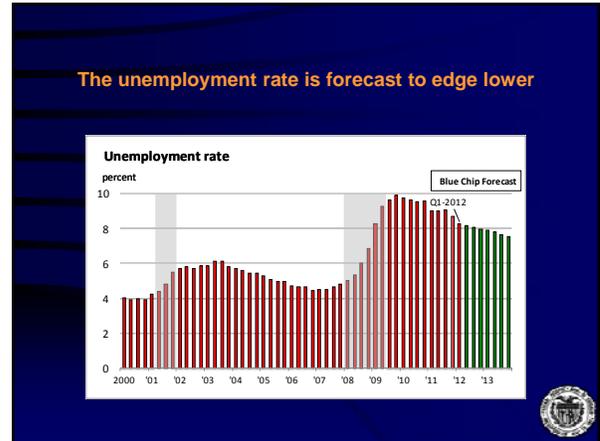
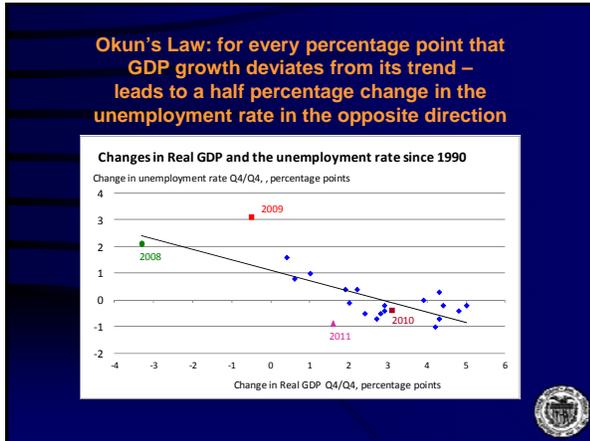


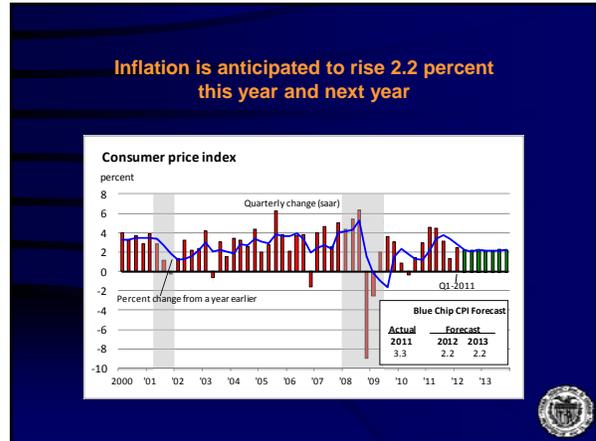
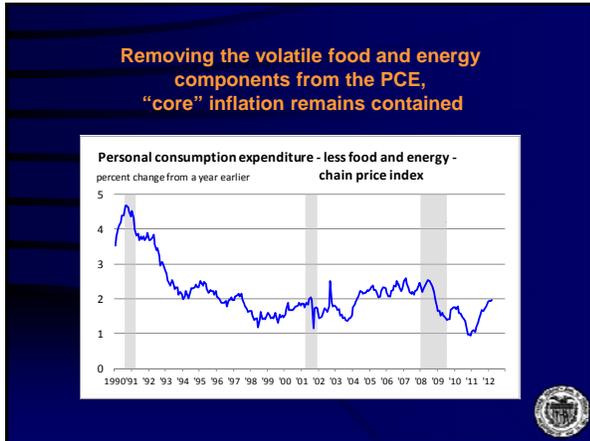
**Total employment**

**After peaking in October 2009,  
 the unemployment rate has fallen by  
 1.9 percentage points**

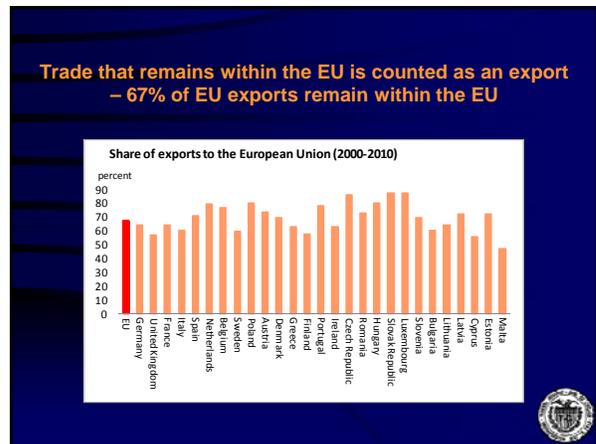
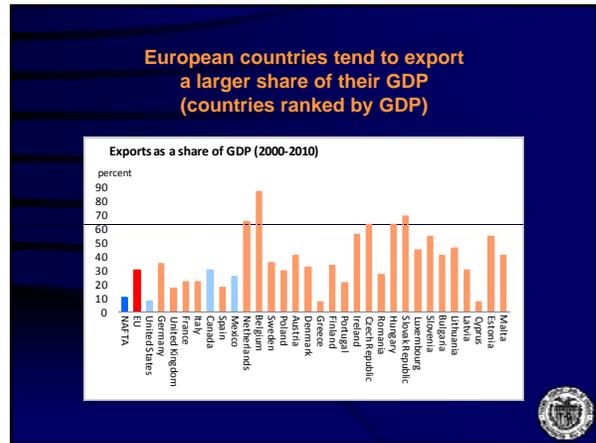


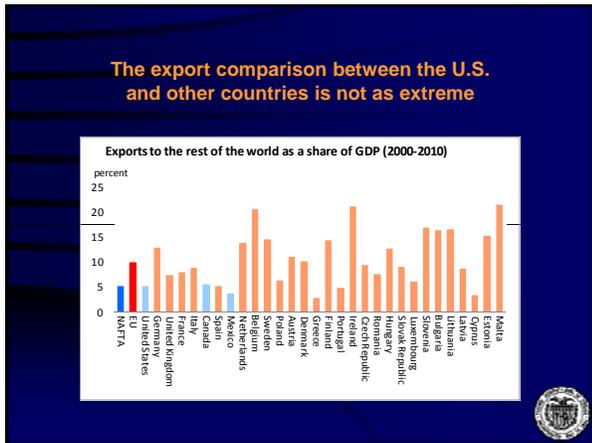
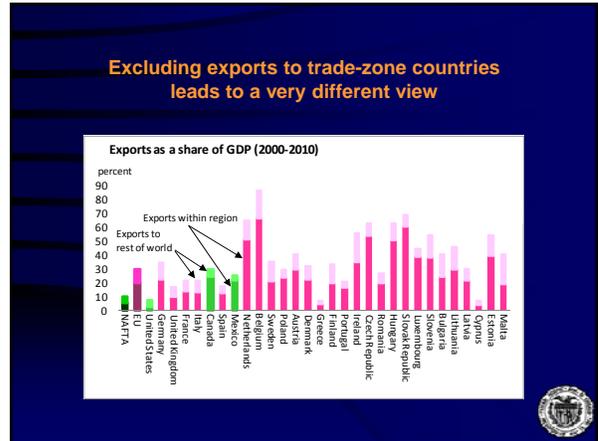
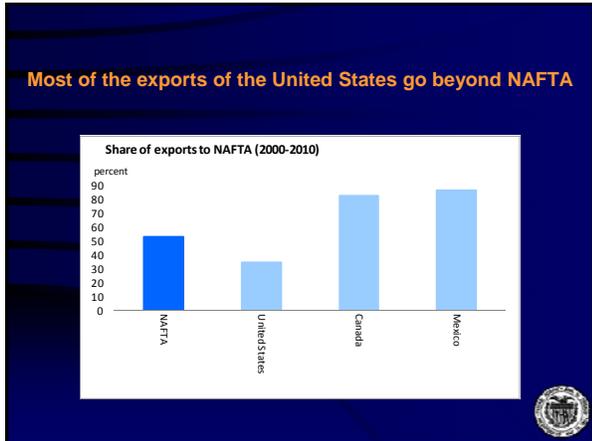
**Unemployment rate**





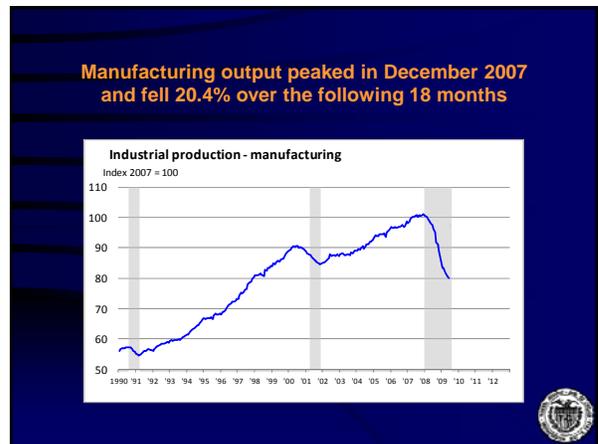
**European vs. U.S. Exports (What Happens in Europe Stays in Europe)**





## Is the U.S. Losing Its Manufacturing Base?

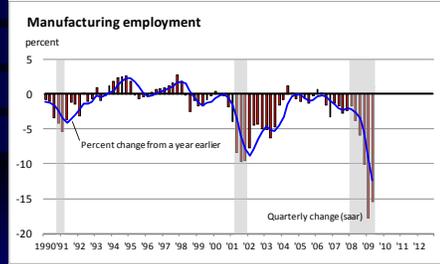
## The Setup



**Manufacturing capacity utilization collapsed to the lowest rate in 70 years**

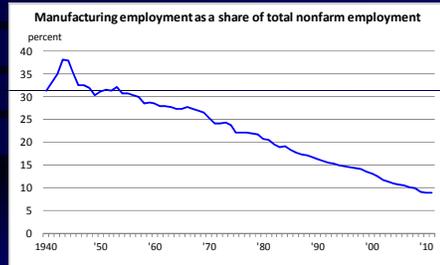


**Job declines in the manufacturing sector were significant, with over 2.0 million jobs lost over that same period**



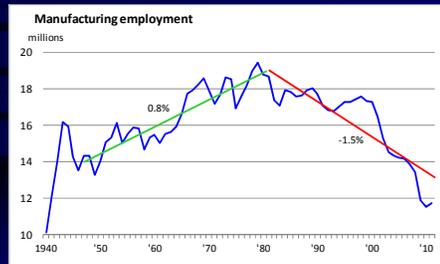
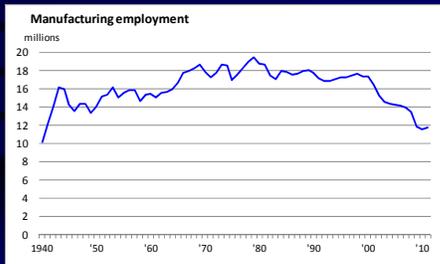
**How has Manufacturing Performed Over the Past Sixty Years?**

**Manufacturing employment as a share of national employment has been declining for over 60 years**

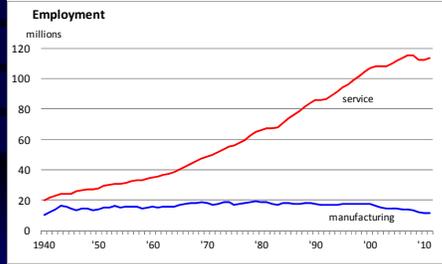


**The number of jobs in manufacturing has been relatively stable over this period, edging lower on average by -0.3% per year since 1947**

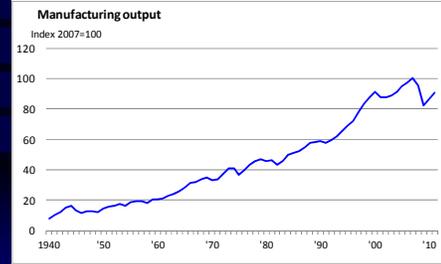
**Not to make a mountain out of a molehill, but manufacturing employment was increasing up until 1979 and has been moving lower over the past 30 years**



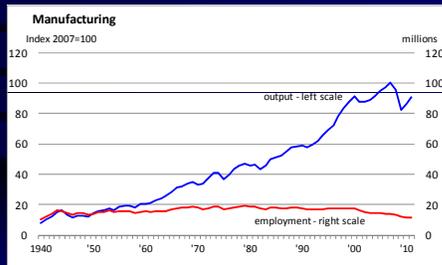
However, service sector employment has grown more than fourfold over this period, averaging growth of 2.3% per year since 1947



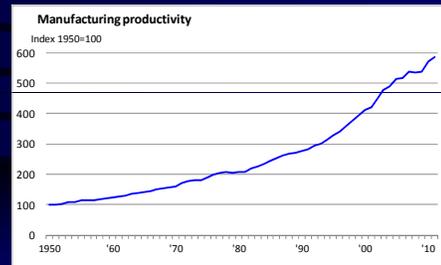
While manufacturing employment growth has been edging lower over the past 63 years, manufacturing output increased by 3.1% per year



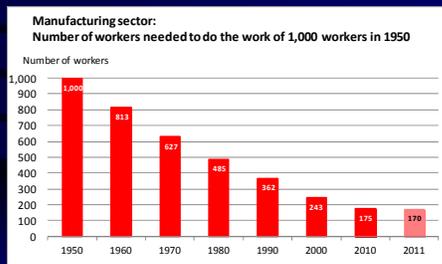
This translated into an almost 600 percent increase in manufacturing output over this time period



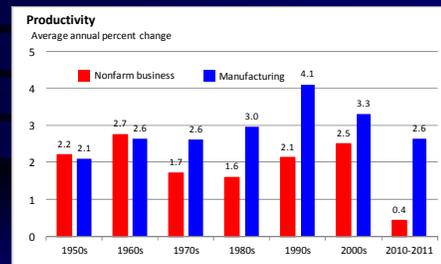
The increase in output can be attributed to strong productivity growth experienced by the manufacturing sector

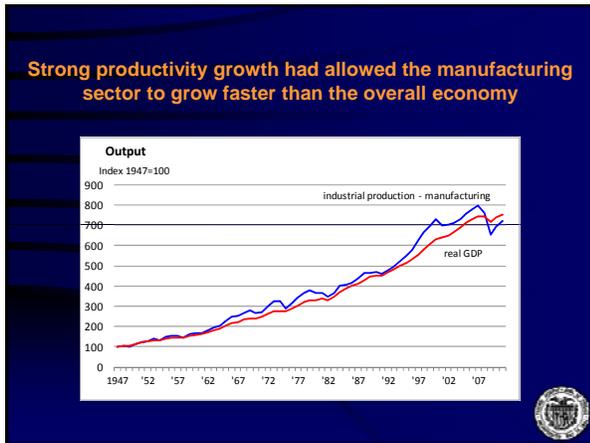
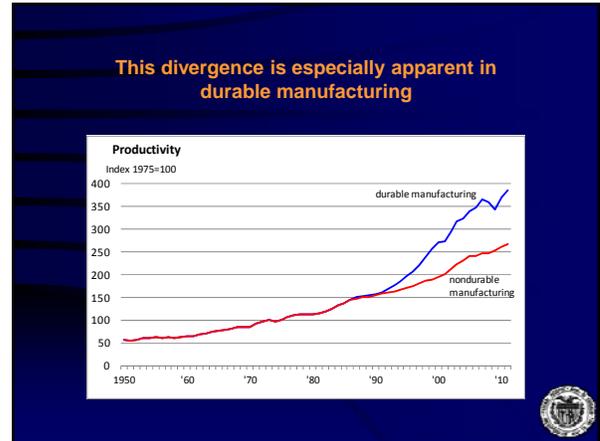
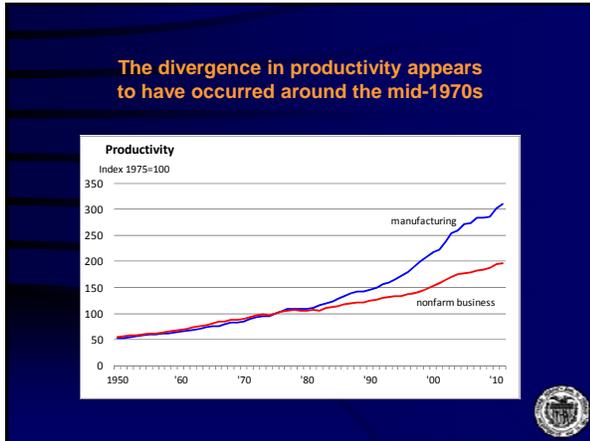


What took 1,000 workers to produce in 1950 takes 170 workers today

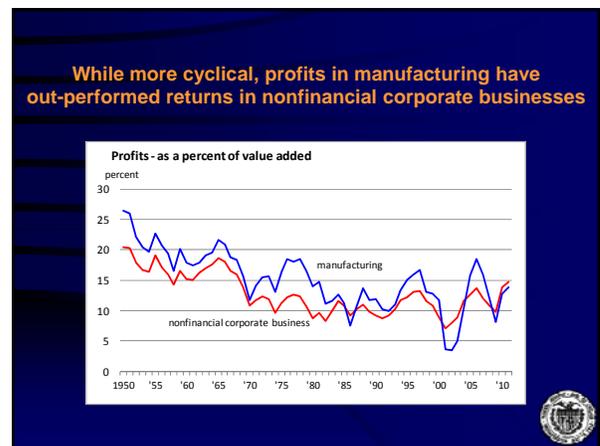


Manufacturing productivity growing faster over the past 40 years

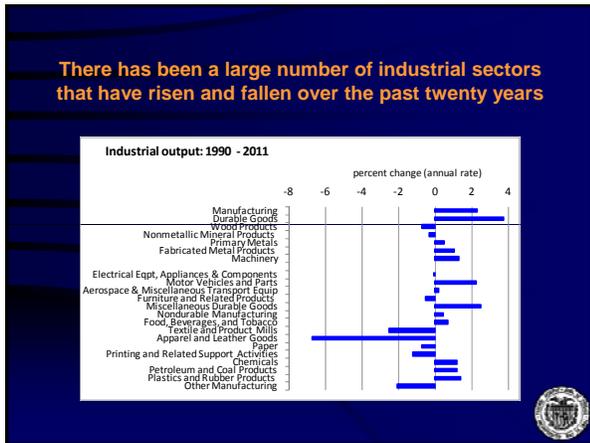
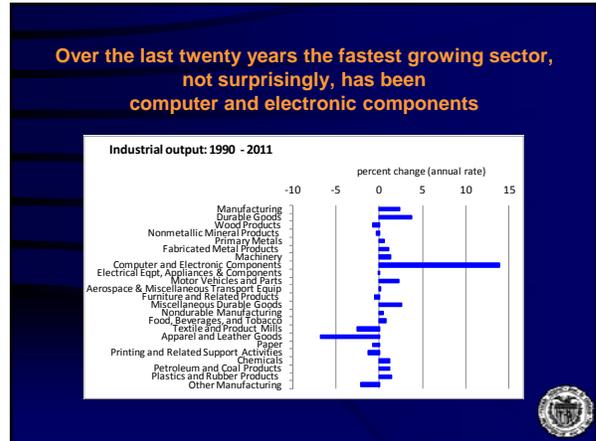




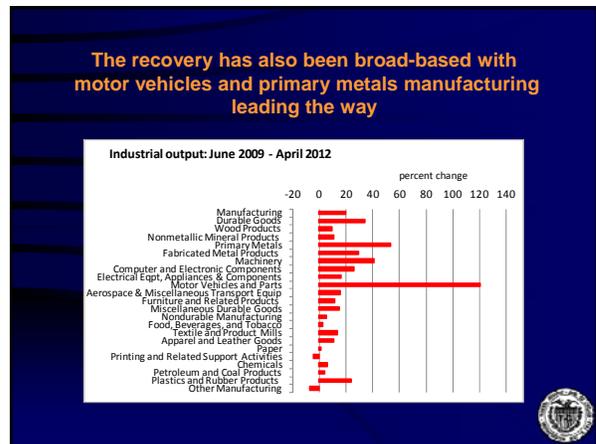
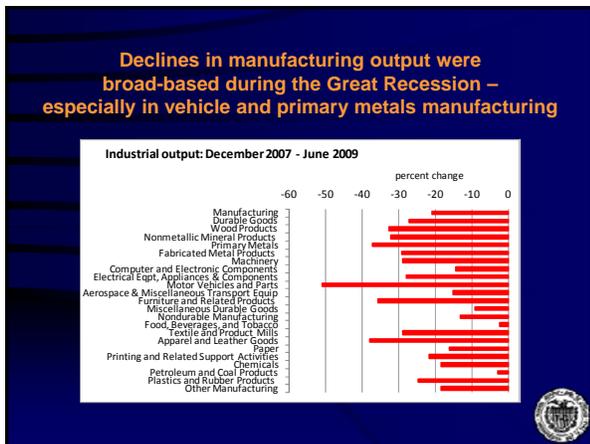
**How profitable is manufacturing?**



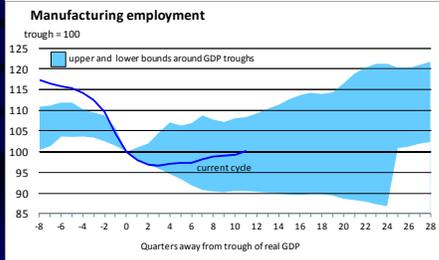
## The Manufacturing Sector Continues to Re-invent Itself



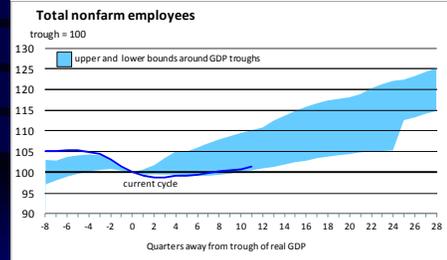
## The collapse in manufacturing experienced in 2008-2009 is closely linked with the economic recession



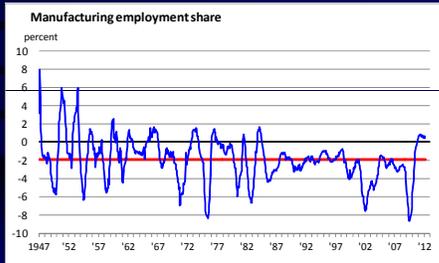
**Manufacturing workers have suffered steep employment declines over the current cycle**



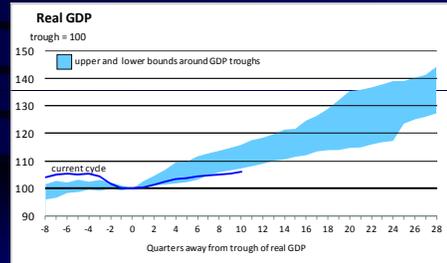
**But the overall economy's employment growth also struggled**



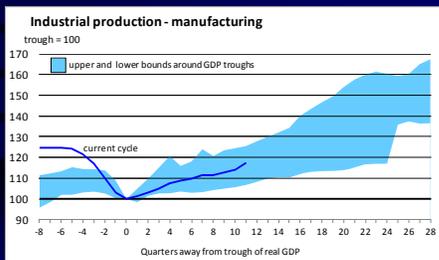
**When changes in nonfarm employment are considered, the most recent manufacturing employment downturn is not unprecedented**



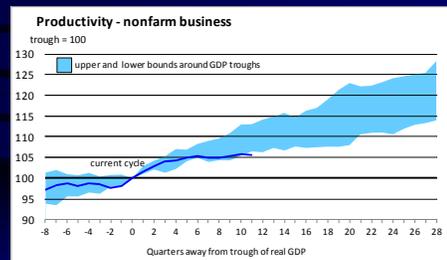
**The financial crisis and its aftermath has hampered the current economic expansion**



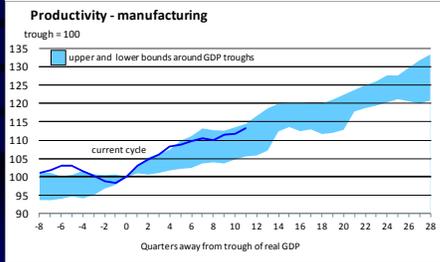
**The recovery in manufacturing output is in-line with past industrial recoveries**



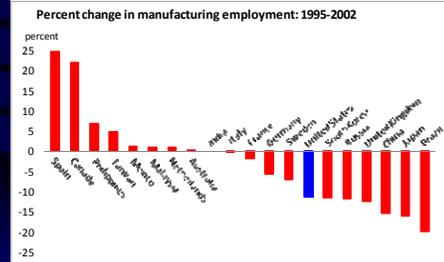
**Productivity in the overall economy has grown at a rate near the low-end of previous expansions**



However, productivity within the manufacturing sector has grown at a much faster pace

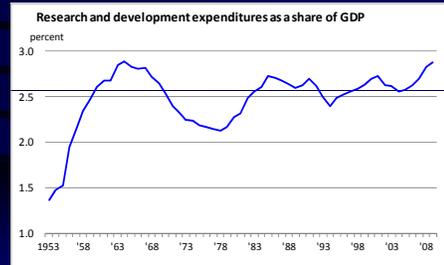


Manufacturing employment losses have occurred across numerous countries – among 20 big economies, 22 million jobs were lost



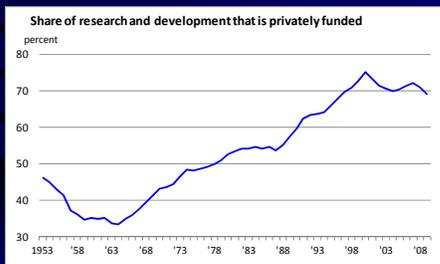
Is the U.S. positioned to continue its strong productivity gains?

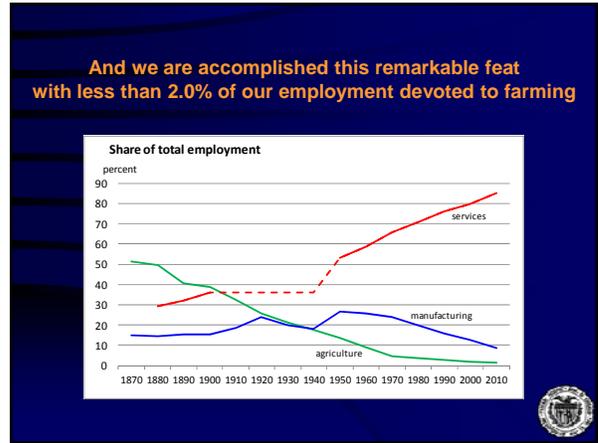
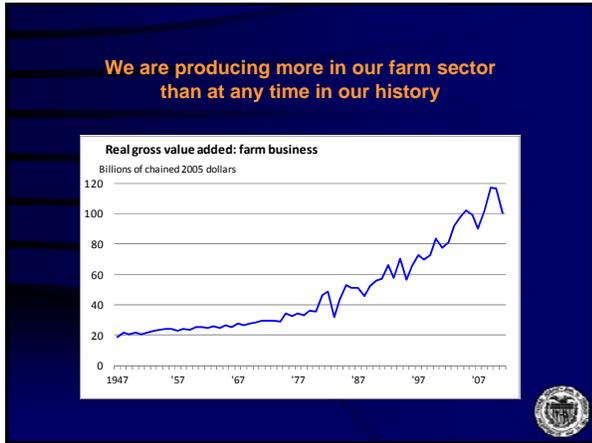
U.S. maintaining its commitment to research and development



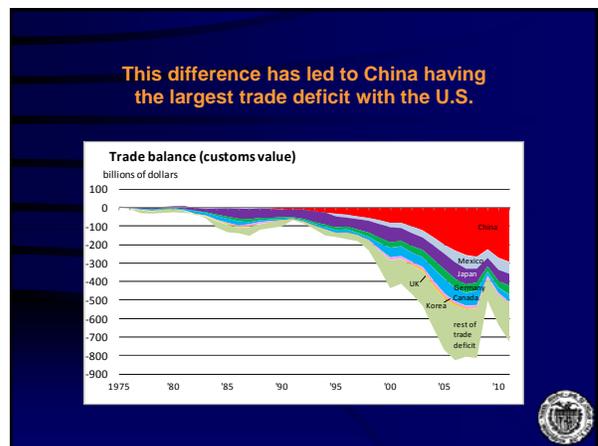
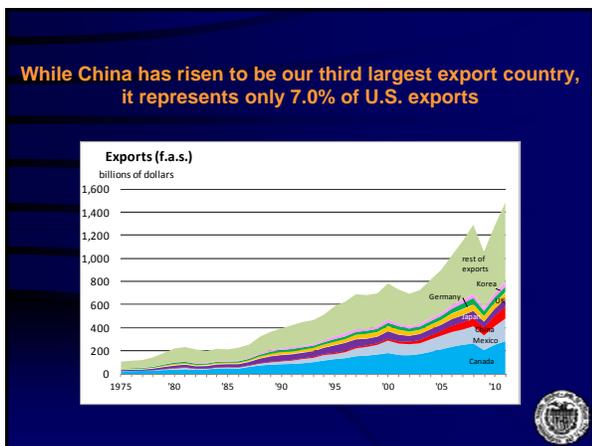
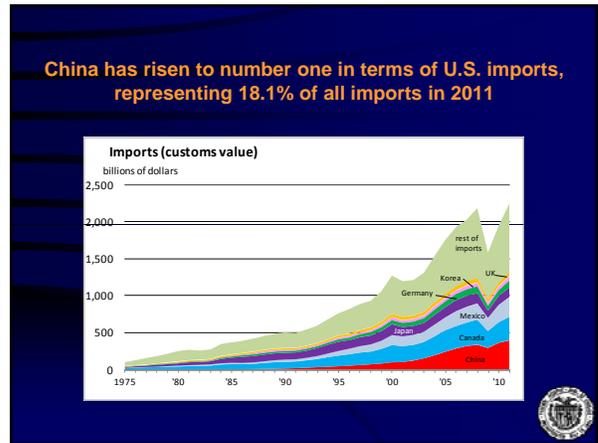
The vast majority of U.S. research and development is being privately funded

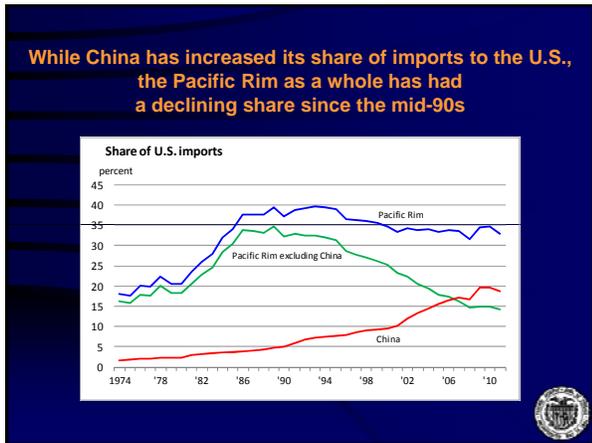
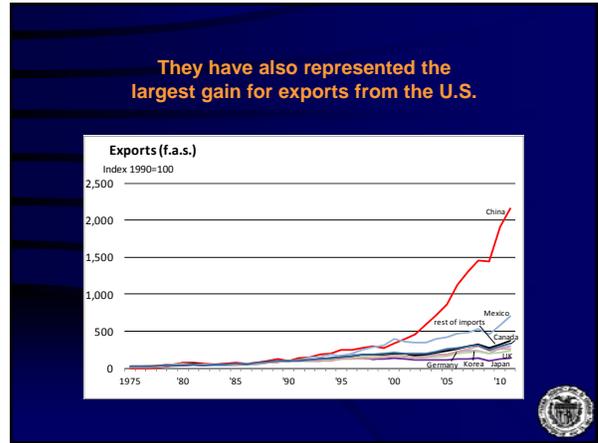
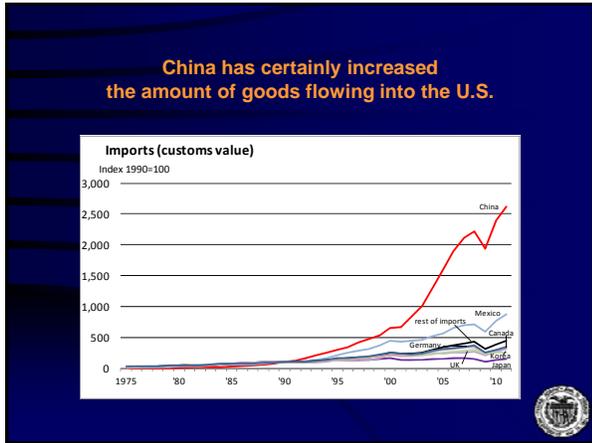
Lessons from the farm sector



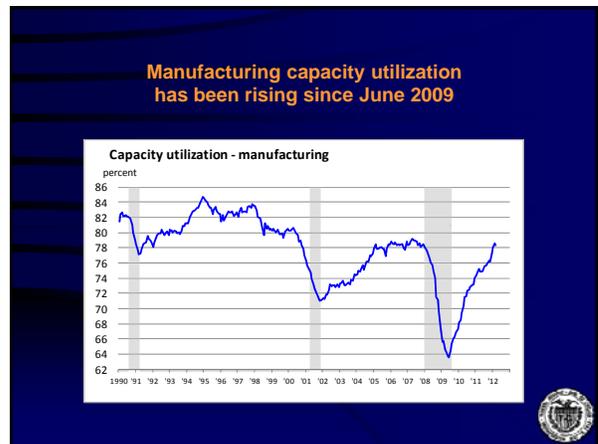
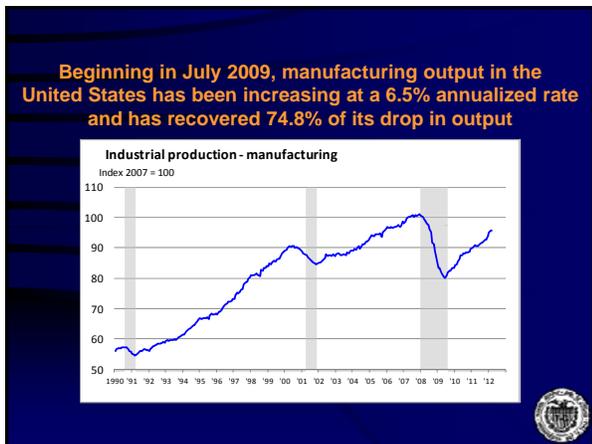


**Trade with China**

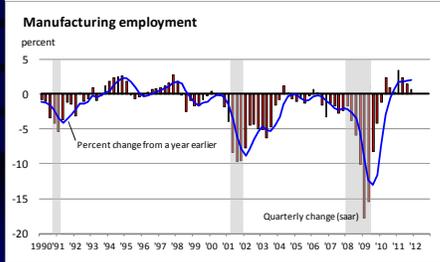




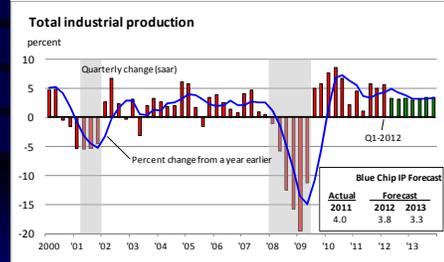
**The Current Expansion**



And while manufacturing jobs have been rising, they have only recovered 21.1% of the jobs lost during the downturn



Industrial production is forecast to rise at a solid pace



### 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

Chicago Fed Letter - June 2003  
[www.chicagofed.org](http://www.chicagofed.org)

