THE ECONTRARIAN

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Do You Want to Restore Manufacturing Employment? Smash the Robots!

There has been much public discussion about the demise of U.S. manufacturing jobs and policies to restore manufacturing employment. Indeed, as shown in Chart 1, in absolute as well as relative terms, U.S. manufacturing employment has declined in the post-WWII era. In absolute terms, U.S. manufacturing employment started falling precipitously in the 2000s and has been especially hard hit since the Great Recession. (Shaded areas in this and subsequent charts represent periods of economic recession.) U.S. manufacturing employment relative to total U.S. nonfarm employment has been trending lower throughout almost the entire post-WWII era. While relative manufacturing employment has been trending lower for almost 70 years, manufacturing's ***relative contribution*** to total real GDP (see Chart 2), after ebbing during the 1980s and early 1990s, staged a resurgence in late 1990s until the Great Recession. Although foreign trade is being advanced by some as the reason for the secular decline in U.S. manufacturing, I will argue that technology is the principal factor accounting for this phenomenon.

Let's examine the relationship between U.S. net exports of ***goods*** and manufacturing output relative to total output. Plotted in Chart 3 are annual averages of U.S. real ***net*** exports of durable goods (real exports of goods minus real imports of goods) as a percent of total real GDP and annual averages of real GDP value-added of manufacturing as a percent of total real GDP. U.S. manufacturing output relative to total real GDP reaches a post-WWII low in 1981 and climbs back to its highest level since 1972 in 2006. Notice that as U.S. manufacturing relative GDP was oscillating ***higher*** from the early 1980s through the mid 2000s, the U.S. real net exports in durable goods relative to real GDP was ***oscillating lower.*** For historical reference, NAFTA was signed in 1994, the U.S. joined the WTO in 1995 when it came into existence and Mainland China joined the WTO in December 2001. **So, U.S. manufacturing started making greater contributions to total GDP *after* NAFTA and *after* Mainland China joined the WTO. That is, U.S. manufacturing started making *greater* contributions to total GDP as the U.S. trade deficit in durable goods was *enlarging*** up until the Great Recession.

So if foreign trade deficits are not a satisfactory explanation of the secular decline in U.S. manufacturing employment, what is? A secular increase in manufacturing-worker productivity.

CHART 1

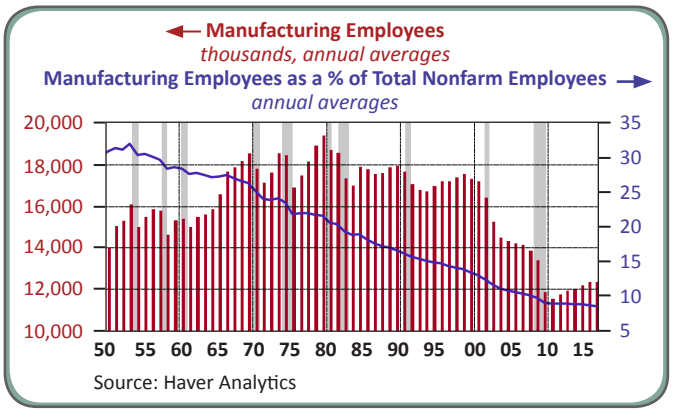


CHART 2

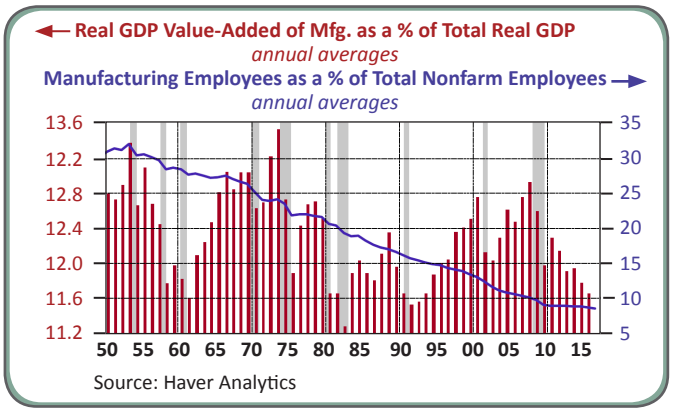
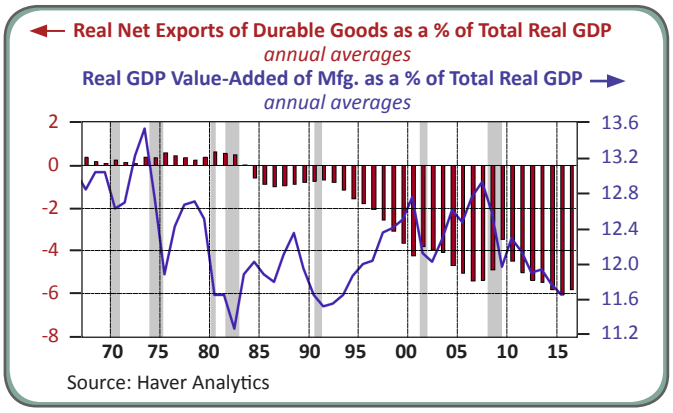


CHART 3



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The data in Chart 4 compare the real GDP value-added of manufacturing per manufacturing employee, a crude measure of manufacturing-worker productivity, with the total number of manufacturing employees. Both series are converted to index numbers with their respective 1950 values set equal 100. If manufacturing workers are becoming more productive over time, that is, as time progresses, one manufacturing employee is able to produce a greater real value of manufacturing output than in previous years, the index number of the real GDP value-added of manufacturing per manufacturing employee would be higher. In fact, in 2015, this index number stood at 776. This means that a manufacturing worker in 2015 could produce 676% more output than she could in 1950 (776 represents a 676% increase vs. 100). This translates into a compound annual rate of growth in this crude measure of manufacturing-worker productivity of 3.25% from 1950 through 2015. The index number of total manufacturing employment in 2015 stood at 88, meaning that there were 12% fewer manufacturing employees then compared to 1950 (88 represents a 12% decline vs. 100). Given the secular increase in manufacturing-worker productivity, it is not surprising that there has been a secular decline in the number of people employed in manufacturing.

The data in Chart 5 help explain the secular increase in manufacturing-worker productivity. Along with the index of real GDP value-added of manufacturing per manufacturing employee, again a crude measure of manufacturing-worker productivity, I have added the index of the real net stock of business equipment per manufacturing employee—a crude measure of the capital-to-labor ratio in manufacturing. Give a woman a brace-and-a bit set, and she can drill more holes in a given amount of time. Give a woman an electric drill and she can drill even more holes in the same amount of time. Give a woman a drilling robot to run, and she can drill yet even more holes in the same amount of time. In other words, the more equipment and more technologically-advanced equipment a manufacturing worker has to work with, the more output can be produced by that worker in a given amount of time. As the capital-to-labor ratio in manufacturing rises, so should worker productivity rise. And that is what the data plotted in Chart 5 indicate.

The moral of this story is that if America wants to restore manufacturing employment to its former glory, the federal government should form a search-and-destroy task force with the authority to enter manufacturing facilities in the U.S. to smash robots, computers and any other labor-saving equipment the deputized task force deems appropriate. Then there will be a tremendous increase in demand for U.S. manufacturing employees. **Of course, manufacturing output will grow more slowly and the prices of manufactured goods will skyrocket.** But, hey, the goal of increased manufacturing employment will have been achieved. ■

Paul L. Kasriel, THE ECONTRARIAN

Paul is Legacy's Senior Economic and Investment Advisor and former Senior Vice President and Chief Economist at The Northern Trust Company. Paul works across Legacy's wealth management initiatives, consulting on investment strategies with his innovative research.

Considered one of the best economic forecasters as measured by long term accuracy, Paul is a highly regarded, innovative economic researcher whose work has helped form economic policy at national and global levels.

CHART 4

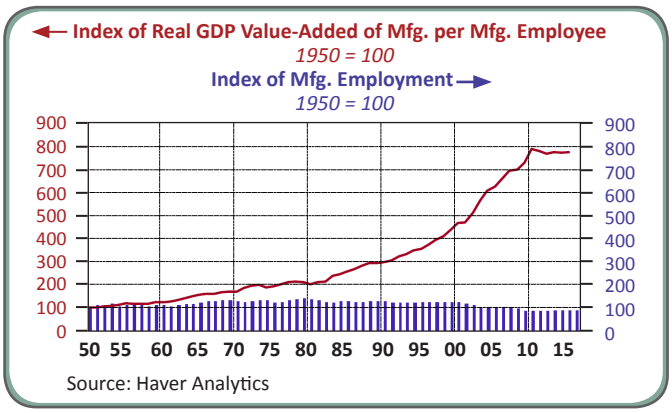

CHART 5