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MANUFACTURING JOB LOSS

Trade, Not Productivity, Is the Culprit

BY **ROBERT E. SCOTT**

The United States lost 5 million manufacturing jobs between January 2000 and December 2014. There is a widespread misperception that rapid productivity growth is the primary cause of continuing manufacturing job losses over the past 15 years. Instead, as this report shows, job losses can be traced to growing trade deficits in manufacturing products prior to the Great Recession and then the massive output collapse during the Great Recession.

Specifically, between 2000 and 2007, growing trade deficits in manufactured goods led to the loss of 3.6 million manufacturing jobs in that period. Between 2007 and 2009, the massive collapse in overall U.S. output hit manufacturing particularly hard (real manufacturing output fell 10.3 percent between 2007 and 2009). This collapse was followed by the slowest recovery in domestic manufacturing output in more than 60 years. Reasonably strong GDP growth over the past five years has not been sufficient to counter these trends; only about 900,000 of the 2.3 million manufacturing jobs lost during the Great Recession have been recovered. In addition, resurgence of the U.S. trade deficit in manufactured goods since 2009 has hurt the recovery of manufacturing output and employment.

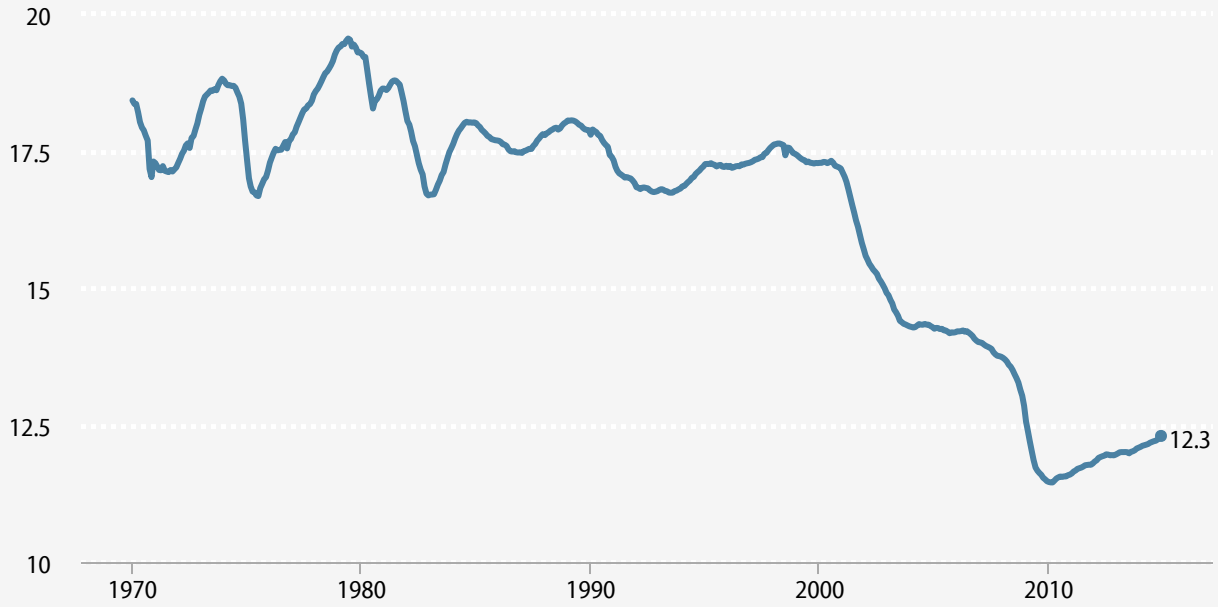
In short, the collapse in demand during the Great Recession and ensuing glacial recovery was responsible for most or all of the 1.4 million net manufacturing jobs lost between 2007 and 2014. Between 2007 and 2014, productivity growth slowed noticeably, and manufacturing output experienced no net, real growth.

Manufacturing employment: From stability to decline

Between 1970 and 2000, manufacturing employment was relatively stable, ranging from 16.8 to 19.6 million, and generally remaining between 17 and 18 million, as shown in **Figure A**. However, this relationship broke down in the early 2000s, a period of rapidly growing trade deficits. At that time, manufacturing employment began a prolonged collapse, falling to a low of 11.5 million in February 2010, and recovering by December 2014 to 12.3 million, where it has remained. Overall, manufacturing lost 5 million jobs between January 2000 and December 2014.

FIGURE A

U.S. manufacturing employment, January 1970–December 2014 (millions of jobs)



Source: EPI analysis of Bureau of Labor Statistics (2015a)

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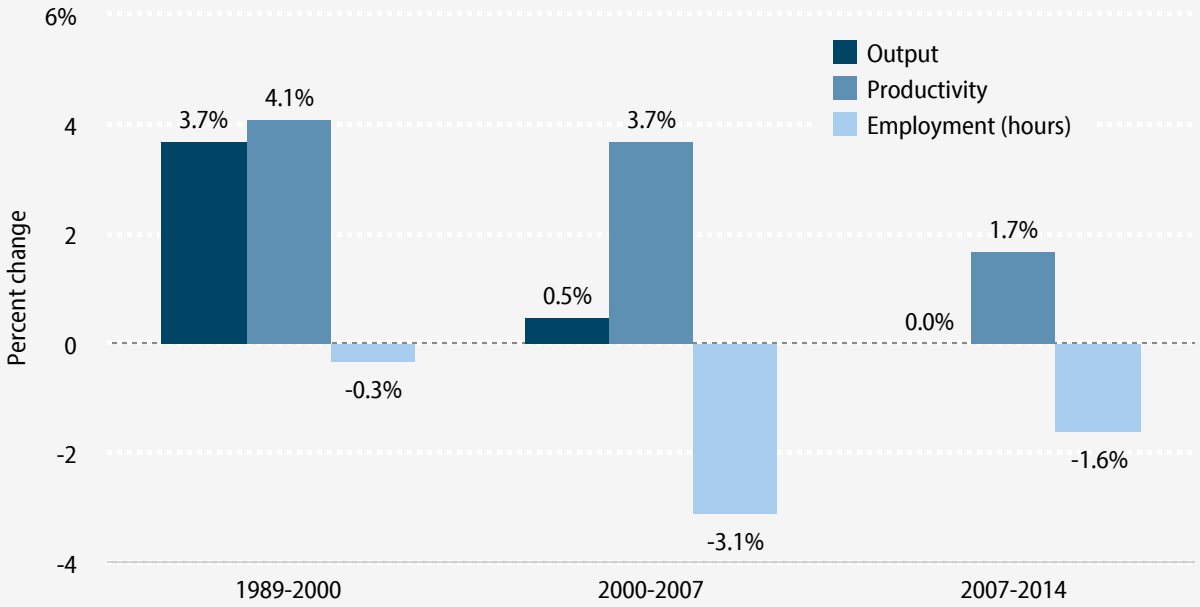
Employment growth in any sector is equal to the difference between growth in output and productivity (output per hour of work).[1] Over the long run, output growth spurs employment while productivity growth dampens it. Between 1989 and 2000, manufacturing output and productivity growth averaged, respectively, 3.7 percent and 4.1 percent per year. As a result, the two largely offset one another and manufacturing employment was relatively stable, declining 0.3 percent per year, as shown in **Figure B**. In these figures output refers to the rate of growth of real gross domestic product in manufacturing (BLS 2015b), productivity growth is the average change in output per worker hour in the given period, and employment is a measure of total hours worked in manufacturing (BLS 2008).

Between 2000 and 2007, productivity growth declined slightly, relative to the previous decade, falling from 4.1 percent per year in the 1990s to 3.7 percent per year.[2] Domestic output growth dropped to only 0.5 percent per year. As a result, employment fell 3.1 percent per year between 2000 and 2007. Although not shown in the graph, overall, total hours declined 19.3 percent between 2000 and 2007, and 3.6 million manufacturing jobs were lost in this period.

Clearly, the sharp drop in the rate of growth of manufacturing output between 2000 and 2007 was responsible for the huge decline in manufacturing employment. Had output grown at the same rate of 3.7 percent per year that it did in the 1990s, employment would have been stable in this period. As discussed in the next section, rapid growth of the manufacturing trade deficit was the most important cause of the slow rate of annual growth in manufacturing output between 2000 and 2007.

FIGURE B

Average annual change in output, productivity, and employment growth in U.S. manufacturing, 1989–2014



Source: EPI analysis of Bureau of Labor Statistics (2015b)

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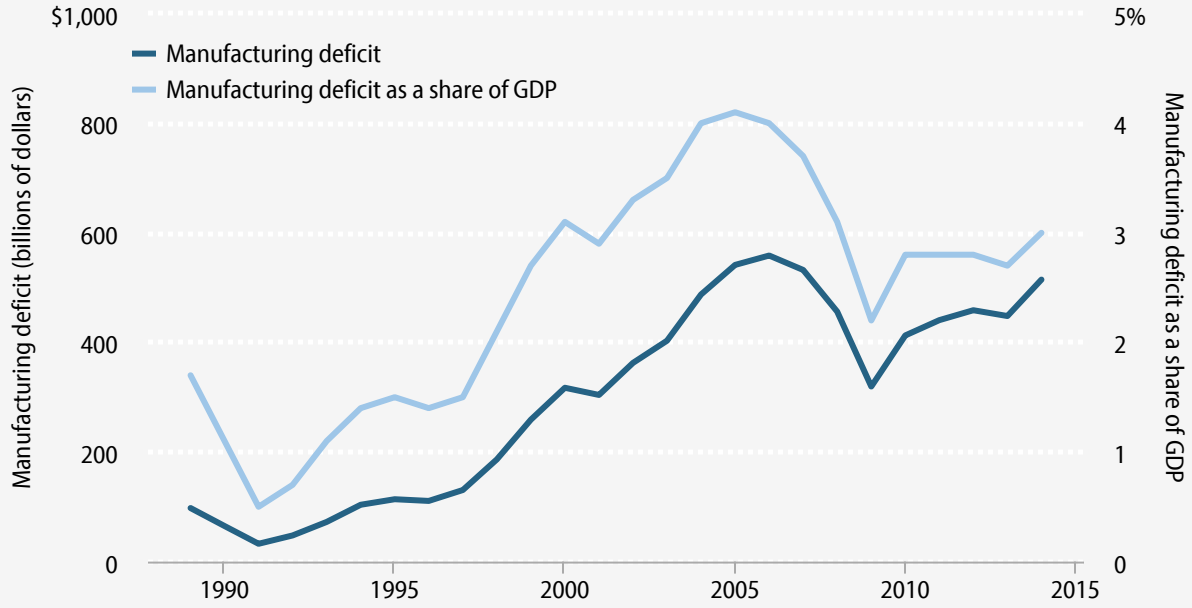
Manufacturing productivity growth slowed noticeably between 2007 and 2014, falling to 1.7 percent per year, as shown in Figure B. This is explained, in part, by stagnation in manufacturing output, which did not change at all over this period. The stagnation of manufacturing output over this seven-year period reflects the massive collapse of output during the Great Recession, which hit manufacturing particularly hard (real manufacturing output fell 10.3 percent between 2007 and 2009), followed by the slowest recovery in total domestic output (GDP) in more than 60 years. The Great Recession and weak domestic recovery are the primary causes of the 1.4 million manufacturing jobs lost between 2007 and 2014. Overall the 1.7 percent average annual growth in productivity and the 0.0 percent rise in annual output explain the 1.6 percent annual rate of decline in manufacturing employment (hours) in the 2007–2014 period shown in Figure B.

The effects of growing trade deficits on manufacturing employment

Exports boost the demand for U.S. output while imports reduce demand for U.S. output. More than three-fourths of all U.S. traded goods are manufactured products, so goods trade most directly affects manufacturing output.[3] Thus, increases in net exports (the trade balance) increase the demand for manufactured products, and increases in net imports (the trade deficit) reduce the demand for manufactured goods. The U.S. has run a goods trade deficit in every year since 1974 (U.S. Census Bureau 2015a).

FIGURE C

U.S. manufacturing goods trade deficit, 1989–2014



Source: EPI analysis of U.S. International Trade Commission (2015) and Bureau of Economic Analysis (2015a)

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The U.S. had a relatively small and stable manufacturing trade deficit between 1989 and 1997; it never exceeded $131 billion annually, and it never exceeded 1.7 percent of GDP (as shown in **Figure C**; dollars and share of GDP are shown on the left and right axes, respectively) in the wake of the dollar crisis in the mid-1980s (Scott 2009, Figure A). The U.S. manufacturing trade deficit began to rise sharply after the Asian financial crisis of 1997–1998 (Nanto 1998). The manufacturing trade deficit peaked at $558.5 billion in 2006 (and crested at 4.1 percent of GDP in 2005), as shown in Figure C.

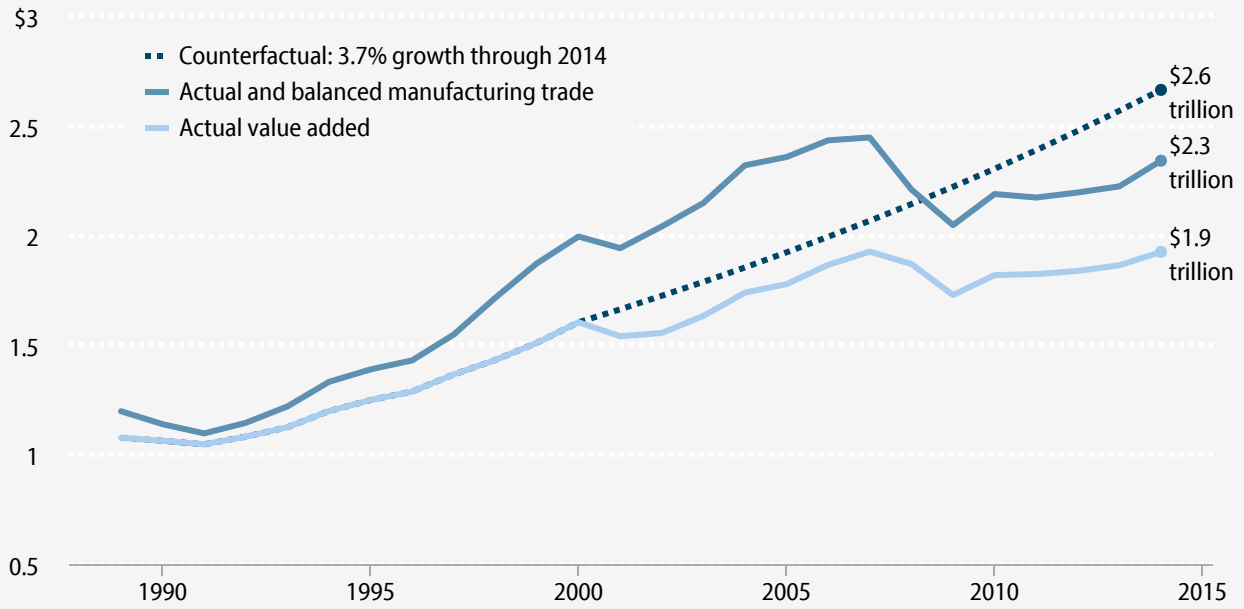
The trade deficit in manufactured goods fell sharply in the wake of the Great Recession to $319.5 billion (2.2 percent of GDP) in 2009, a nominal decline of 40 percent between 2007 and 2009. This sharp decline was due, in part, to the financial crisis, which greatly restricted the availability of short-term trade finance (Wynn 2009). Trade flows recovered as the economy began to recover in 2010, and the manufacturing trade deficit reached $514.6 billion in 2014 (3.0 percent of GDP). The resurgence of the U.S. trade deficit in manufactured goods since 2009 has hurt the recovery of manufacturing output and employment.

The manufacturing trade deficit increased sharply in 2014 (up 14.8 percent from 2013), threatening the manufacturing recovery. Recent increases in the real value of the dollar, which rose 19.7 percent against a basket of major currencies between December 2013 and March 2015, threaten to depress U.S. exports and increase imports, leading to future growth in U.S. trade deficits in manufactured goods and other products (Board of Governors of the Federal Reserve System 2015).

The U.S. trade deficit in manufactured products increased 15.7 percent ($25.7 billion) in the first quarter of 2015 (U.S. Census Bureau 2015b). Continued growth

FIGURE D

Real value added of U.S. manufacturing, 1989–2014 (trillions of dollars)



Source: EPI analysis of Bureau of Economic Analysis (2015a) and U.S. International Trade Commission (2015)

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in the manufactured goods trade deficit would put downward pressure on manufacturing output and employment going forward.

The relationship between manufacturing output and trade in manufactured goods

Figure D examines the relationship between real (price adjusted) output and the trade deficit in manufactured products. Output in this figure represents real value added in manufacturing. Value added is the sum of direct contributions to the value of manufactured products, including compensation of employees (labor), gross operating surplus (capital), and taxes on production and imports, minus subsidies. The sum of value added over all sectors of the economy is equal to total gross domestic product.

Value added differs significantly from output as measured in Figure B, earlier. Output as reported in Figure B is from the Bureau of Labor Statistics, and is based on a national accounting formula that is derived from the Bureau of Economic Analysis's National Income and Product Accounts. According to the BLS (2008, 1-2), "the output measures represent deliveries of final goods and services by the sector to domestic households, investment, government and nonprofit institutions, and net exports to other countries." Essentially, this measure includes value added and intermediate goods and services (domestic and imported) used to produce goods for final demand, but excludes value added produced for use as intermediate inputs in other sectors. Since sales of inter-

mediates to other sectors are excluded from the BLS output series, the BLS output index grew much more slowly than value added between 2000 and 2007. Output increased 0.5 percent per year in the BLS productivity series in this period (Figure B, above). Real value added in manufacturing increased 2.6 percent per year, as shown by the underlying data for Figure D.

Figure D includes several measures of real manufacturing value added (output) and trade. The solid bottom line reports real U.S. manufacturing value added. The growth of manufacturing output slowed dramatically after 2000, which sharply reduced manufacturing employment, as shown above. This confirms the slowdown in manufacturing output growth shown in Figure B, above.

The dotted line is a counterfactual forecast that shows what manufacturing value added would have been had manufacturing output continued to grow at the same rate that it did between 1989 and 2000 (3.7 percent per year, as shown in Figure B). Recall from Figure B that productivity grew 3.7 percent per year between 2000 and 2007, so if output had also grown at that 3.7 percent rate, or faster, manufacturing employment would have remained roughly stable in that period, as it was in the 1990s.

The counterfactual provides a baseline for evaluating the effects of changes in trade on the net demand for manufactured products in the United States. The top solid line in Figure D is the sum of domestic manufacturing output plus net manufactured imports into the United States (i.e., imports minus exports).[4] It is a measure of both domestic demand for domestic manufactured products and net imports of manufactured products.

Between 2000 and 2008, the top line lies above the counterfactual, indicating that had manufacturing trade been balanced, growth would have been sufficient to ensure stable or growing manufacturing employment in the 2000–2007 period. In fact, had the manufacturing trade balance simply remained constant between 2000 and 2007, the manufacturing value added would have increased 3.6 percent per year, roughly in line with the growth of productivity (3.7 percent, as shown in Figure B). The real value of the trade deficit in manufactured goods increased from $391 billion in 2000 to a peak of $568 billion in 2006 before receding to $521 billion in 2007, as shown by the underlying data in Figure D.[5] Thus, the growth in the manufacturing trade deficit was responsible for all, or virtually all, of the 3.6 million manufacturing jobs lost between 2000 and 2007. Manufacturing job loss in this period accounts for 72 percent, or nearly three-fourths, of all manufacturing jobs lost between 2000 and 2014.

There was no growth in real manufacturing output between 2007 and 2014. This was shown in Figure B (using BLS output data) and in Figure D (real manufacturing value added was essentially unchanged over this seven-year period). Real manufacturing value added declined sharply between 2007 and 2009 (down 10.3 percent), and then recovered only slowly. However, growth of the manufacturing trade deficit after 2009 (as shown in Figure C) also contributed to the slow growth of manufacturing output.

The longest postwar manufacturing recession prior to 2007 occurred in the 1979–1983 period (Bureau of Economic Analysis 2015b). By 1984 (five years after the start of this recession), manufacturing output had exceeded its previous peak. Thus, the net loss of manufacturing employment between 2007 and 2014 shown above is largely explained by the collapse in manufacturing output during the Great Recession and the subsequent weak recovery in domestic demand for manufactured products. Therefore, slow growth in the wake of the Great Recession is responsible for most or all of the 1.4 million net manufacturing jobs lost between 2007 and 2014, 28 percent of total manufacturing jobs lost between 2000 and 2014.

Conclusion: Ending the Great Recession in manufacturing

The leading cause of growing U.S. trade deficits is currency manipulation, which distorts trade flows by artificially lowering the cost of U.S. imports and raising the cost of U.S. exports. More than 20 countries, led by China, have been spending about $1 trillion per year buying foreign assets to artificially suppress the value of their currencies (Bergsten and Gagnon 2012). Ending currency manipulation can create between 2.3 million and 5.8 million jobs for working Americans, and about 40 percent of those jobs (between 891,500 and 2.3 million) would be in manufacturing (Scott 2014).

We also need to reform and aggressively enforce U.S. fair trade laws in order to reduce or eliminate the flood of illegally dumped and subsidized imports of steel and many other manufactured products (Stewart et al. 2014).

The United States also has a major infrastructure shortfall. The American Society of Civil Engineers (2014) has estimated that the United States needs to invest $3.6 trillion in rebuilding U.S. infrastructure by 2020. Bivens (2014) has estimated that a debt-financed investment of $250 billion per year could create up to 3 million new jobs, and that these jobs could be sustained for over seven years. Construction and manufacturing are two of the most prominent input supplier sectors in infrastructure investment packages. As a first step, Congress needs to approve a multi-year extension of federal transportation funding, which is currently being held up in the House of Representatives (Laing 2015).

Infrastructure investment could also reduce the demand shortfall that has impeded recovery from the Great Recession. As of July 2015, 2.9 million jobs are still needed to create enough payroll employment to absorb the excess unemployment and labor-force growth that has occurred since the previous business cycle peak in December 2007 (EPI 2015).

Taken together, steps to eliminate trade deficits (by ending currency manipulation and unfair trade) and rebuild U.S. infrastructure could easily generate sufficient demand for manufactured products to return most or all of the 5 million manufacturing jobs lost between 2000 and 2014. Growing trade deficits and the shortfall in demand caused by the Great Recession, and not productivity growth, are the major causes of manufacturing job loss in this period.

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About the author

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Endnotes

1. Productivity equals output or labor input, or l = Y/L, where l = labor productivity, Y equals total output, and L equals the total labor input (in hours). In terms of rates of change, dl = dY – dL, where d stands for the derivative (or the annual rate of growth) of each of the terms in the previous equation. Rearranging terms yields dL = dY – dl.

2. Total hours worked and total employment follows a similar trend. Between the fourth quarter of 2000 and the fourth quarter of 2007, total hours fell 19.3 percent; between December 2000 and December 2007, total employment declined 20.0 percent (BLS 2015b).

3. Manufactured goods made up 87.7 percent of U.S. goods exports and 77.8 percent of U.S. goods imports in 2014 (USITC 2015). Crude oil imports made up an additional 14.1 percent of U.S. goods imports in 2014.

4. Net manufactured imports equal -1 times the manufacturing trade deficit. It is a measure of the leakage of demand to foreign producers of manufactured products. Nominal manufacturing trade data have been converted to real dollars in Figure D using GDP price deflators for goods imports and exports (Bureau of Economic Analysis 2015c).

5. The real manufacturing trade balance is equal to the difference between "actual and balanced manufacturing trade" and "actual" in Figure D.

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