



# Is Foreign Trade the Cause of Manufacturing Job Losses?

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**Many politicians and pundits blame foreign trade for the substantial declines in US manufacturing employment. In 1992, presidential candidate Ross Perot vividly described the upcoming “giant sucking sound of jobs leaving the country,” if the North American Free Trade Agreement passed. More recently, President Donald Trump and Senator Bernie Sanders agreed that trade deficits were devastating our economy.**

In this brief, the second in a series on manufacturing’s role in the US economy, I show the difference between the gross and net effects of trade on employment: the gross effect is the displacement caused by imports; the net effect is trade’s impact on total employment. The first section addresses the economics of trade and how it affects domestic employment. Although some think that trade deficits are bad for the economy, the US has had many periods of simultaneously high trade deficits and low unemployment. The second section traces trade and employment in specific manufacturing industries in three periods: 1960–80, 1980–2000, and 2000–2015. Finally, the third section presents estimates of how many manufacturing jobs the US would have if we had no trade deficit (i.e., if the value of total imports equaled the value of total exports). For this analysis, I use data from the long-form censuses of 1960, 1980, and 2000 and the 2015 American Community Survey.<sup>1</sup>

## The Economics of Trade

In Rose (2010), I started my discussion of trade with:

On its surface, trade seems to be a rather benign exchange of things of equal value that expands the division of labor and increases overall output. What is the alternative to trade—self-sufficiency? We don’t think twice about trade between different states. Indeed, federal law

prohibits anything that creates barriers to interstate trade. Should we think twice about trade between countries?

The answer to the question is yes; many people think that trade between countries is different. The notion that imports hurt American workers is easy to believe because people can see shuttered factories and workers losing their jobs, while imported goods line store shelves and sales lots. Although specific workers are hurt by foreign trade (the gross effect of trade), people make two basic mistakes about trade that lead them to think trade has more negative effects than it really does.

First, the effect of rising imports on total employment is offset by rising export employment and the reallocation of workers to other industries. In many trade disputes, our threats to put tariffs on specific imports are met with counterthreats to put high tariffs on our exports. When the US raised tariffs on Chinese solar panels in 2013, the Chinese increased tariffs on American polysilicon, leading the Michigan-based Hemlock Semiconductor to lay off hundreds of workers.<sup>2</sup> More recently, *Investor's Business Daily* reported that Boeing, General Motors, and Apple would likely face retaliation for any tariff increases that President Trump might put on Chinese imports.<sup>3</sup> Finally, American agricultural companies are nervous that a withdrawal from the North American Free Trade Agreement would hurt their sales to Mexico.

These examples show trade disruptions with foreign firms have serious consequences. Nowhere is this more evident than in the integrated automobile production across Canada, the US, and Mexico. Although it seems that jobs can be gained by unravelling this production chain, the loss of efficiencies would lead to higher costs and lower sales.

So, our trade problem is not the amount of imports but rather the imbalance of having more imports than exports. The US ran a trade surplus in virtually all years before 1976 and has run a trade deficit in every year since (figure 1).<sup>4</sup> But these deficits have not led to lower employment. Consider the 1990s: instead of the North American Free Trade Agreement leading to the great “sucking sound of jobs leaving the US,” total employment grew by 22 million in the seven years after the agreement went into effect. And this occurred with trade deficits averaging 1.8 percent of gross domestic product (GDP) per year.

Although total employment was rising, many workers during these years lost well-paying jobs because of rising imports (the gross effect of trade). The North American Free Trade Agreement Implementation Act of 1993 provided workers with certificates that entitled them to various benefits if they lost their jobs because of production shifts to Mexico or Canada. Consequently, imports created disruptions that led to many job losses. And even in the years when unemployment was low and the employment-to-population ratio among adults was high, many of these laid-off workers did not make a smooth transition to employment with comparable compensation, leaving 832,499 workers eligible for these benefits during the last half of the 1990s (Yager 2001).

Second, many people think that foreign trade leads to the loss of American jobs because they misunderstand the amount of foreign content in “foreign-made” products. Many media outlets, particularly around the holiday season, run stories about the difficulty of buying American-made goods.

The Alliance for American Manufacturing has responded to this by releasing a yearly *Made in America Holiday Gift Guide*.<sup>5</sup> In reality, however, “foreign-made” goods contain a lot of American content.

For example, the label “made in China” was exposed in a careful study of the full costs of all the components of the 2006 iPod (Dedrick, Kraemer, and Linden 2010). It turns out that Chinese companies contributed little to the final retail value of the device (less than 5 percent) while American firms captured over half of the retail price (\$163): \$75 went to Apple for intellectual property, \$80 went to retail and distribution (sometimes in an Apple store), and \$8 went to various domestic companies that make the iPod parts. This example highlights the importance of the complete supply chain in understanding the content of the final sale.

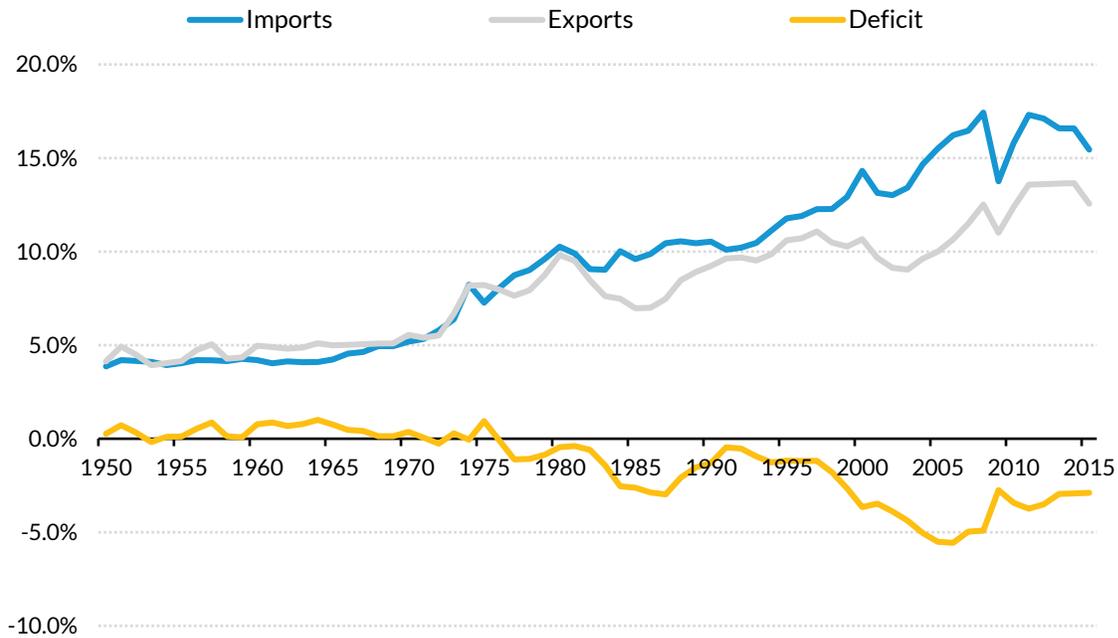
What most people don’t realize is that actual product assembly is a small proportion of the final price. The American portion of final sales includes the value added by retailers, advertisers, insurance, space rental, and finance. Although retail jobs are often low paying, the workers in business services and research and development are often highly paid. Carnevale and Rose (2014) use input-output tables from the Bureau of Economic Analysis to deconstruct the entire value chain behind each consumer product. The areas in which imports play the biggest role are clothing (43 percent) and motor vehicles and parts (42 percent). By contrast, imports consist of less than 10 percent of output prices in housing, education, government, health care, food, and utilities. In the middle range, the import share of recreation (which includes foreign travel) and small goods is 17 percent and 14 percent, respectively. Finally, approximately 25 percent of the value of furniture, toys, and appliances comes from imports.

Advances in transportation and communication have made the world a smaller place. Because two-thirds of our imports and exports are physical goods, and because manufacturing as a share of total US employment declined while trade was expanding, it appears that trade is the cause of manufacturing employment losses. But US manufacturing real output increased nearly fivefold from 1960 to 2015, even though the number of manufacturing workers in 2015 was nearly 3 million fewer than in 1960 (Rose 2018a). This increase in productivity is the main reason for the declining share of manufacturing employment.

## Recent History of Trade and Employment

From 1950 through 1976, imports and exports were stable at about 5 percent of GDP, and we ran small surpluses in almost every year.<sup>6</sup> From 1976 to 2015, both imports and exports grew, but imports grew faster, and we ran deficits in every year. Deficits were large from 1984 through 1988, when the dollar was strong because of high interest rates that successfully defused late-1970s inflation. Similarly, our deficits were very high from 2002 to 2008, when the dollar was strong and our economy was performing better than those in most other industrialized countries.

**FIGURE 1**  
**Imports, Exports, and Trade Deficit, 1950–2015**

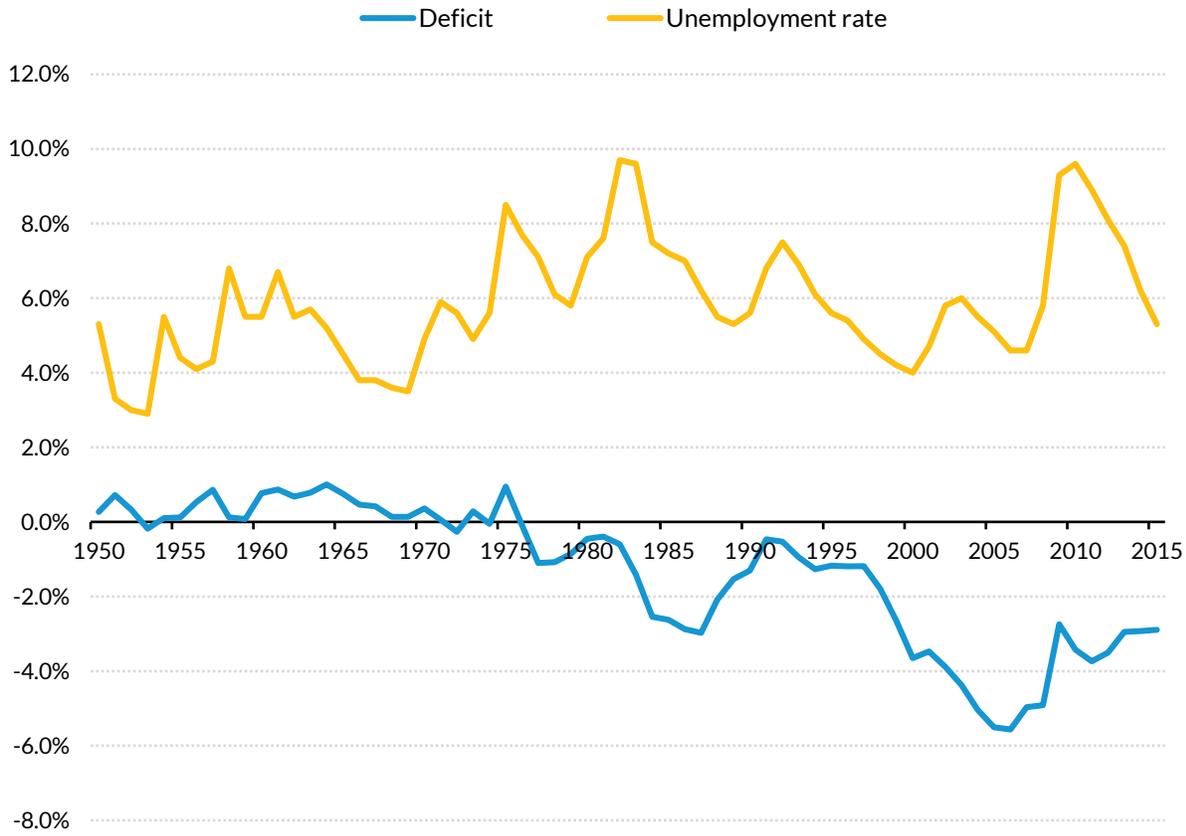


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Source: Bureau of Economic Analysis.

If trade deficits hurt American workers, a rising trade deficit should lead to increasing unemployment, while a falling trade deficit should be associated with declining unemployment. However, there is not much of a relationship between unemployment and trade deficits (figure 2). In fact, when trade deficits are higher, unemployment tends to be lower. In the 1960s, our trade surplus was declining, and instead of rising, our unemployment rate was falling. In the mid-1980s, the trade deficit grew while unemployment was high. But from 1987 to 2002, our trade deficit grew while our unemployment rate fell. From 2006 to 2009, the trade deficit fell, and our unemployment rate rose. So only one of these periods supports the trade critics' position that rising deficits lead to rising unemployment and that falling deficits lead to falling unemployment.

**FIGURE 2**  
**Trade Deficit and Unemployment, 1950–2015**



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Sources: Bureau of Economic Analysis and Bureau of Labor Statistics.

## 1960–80

During most of these 20 years, imports and exports balanced almost exactly. It wasn't until the late 1970s that we ran steady trade deficits. Nonetheless, the idea that imports lead to manufacturing job losses became a growing issue. There were cries to “buy American,” especially when it came to automobiles. In a few situations, people burned and smashed foreign cars to show their discontent.<sup>7</sup> Before that, people saw textile and apparel plants leave the Northeast and Mid-Atlantic to relocate in various southern states or in northern Mexico.

But total employment grew dramatically from 1960 to 1980 as baby boomers, women, and immigrants found jobs, mostly outside of manufacturing: of the 35 million net new jobs added during these years, only 3.5 million were in manufacturing industries. Because manufacturing's share of all jobs was 32 percent in 1960 but only 10 percent of net new jobs since then, the total share of manufacturing

jobs decreased from 32 to 23 percent. Most of the employment gains were in the high-end service industries of government, health care, finance, business services, and education (Rose 2018a).

Because imports and exports were of equal value over these years, trade could not have played much of a role in the 9 percentage-point loss in manufacturing's share of total employment. If oil imports are excluded, the value of exports was significantly greater than the value of goods imported during every year in this period. Factory closures, worker displacement, and the decline in communities that relied heavily on manufacturing industries were offset by employment growth in export industries, showing the difference between the gross and net effects of trade.

Joseph Schumpeter, an Austrian economist who came to Harvard University in 1932, argues in his 1942 book *Capitalism, Socialism, and Democracy* that creative destruction “incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one” (Schumpeter 1942, 83). Improved output productivity and distribution drives this process. Because producing certain commodities requires fewer economic resources, new commodities and services arise and old commodities' amenities expand (e.g., houses become larger, cars become more efficient and safer, and air conditioning becomes standard in homes and automobiles). As automation increased, the productivity gains between 1960 and 1980 were greater in manufacturing than in service industries, meaning our needs for physical goods could be met by a declining share of manufacturing employment.

Another way to evaluate trade's role in the decline of manufacturing employment is to focus on the many industries that are broadly classified as manufacturing and to examine how employment in specific industries varies with the trade balance in the goods produced by each of those industries. To measure industry-specific trade balances, I compute the amount of output available for local consumption; this is equal to American firms' output (including exports) plus imports. All industry clusters have imports and exports. The trade balance is defined as exports minus imports divided into the total available output: a negative number means that imports are greater than exports, while a positive number shows more exports than imports.

Although the trade balance (exports minus imports divided by total output)<sup>8</sup> of all manufacturing industries was only 1 percent of GDP in 1980, employment shares and trade balances varied greatly across specific manufacturing industries (table 1). For example, the 1980 share of food production employment was one-half as much as its 1960 employment share despite that industry having a negligible trade deficit. Other (nonautomobile) transportation industries (mainly airplanes) had a strong trade surplus, but its employment share declined by nearly a third. On the other hand, leather and apparel had the highest level of imports but still had its employment share rise. Finally, other industries had large declines in employment and little or no trade deficit. The very weak relationship between an industry's trade balance and its declining employment share is another indicator of the small effect trade had on manufacturing employment during these years.

TABLE 1

## Changing Manufacturing Employment Shares, 1960–80 (%)

	1960	1980	Change	1980 trade balance
Food	3.5	1.7	-1.8	-0.1
Textiles	3.7	1.1	-2.6	1.5
Leather and apparel	0.7	1.4	0.8	-19.3
Chemicals	2.3	2.1	-0.3	6.1
Fabricated metals	2.4	1.5	-0.9	1.1
Wood products/furniture	1.6	1.1	-0.5	-5.3
Primary metals	2.4	1.4	-1.0	-8.3
Print and paper products	3.1	2.3	-0.8	-1.4
Machinery	3.0	2.9	-0.1	7.0
Auto and auto parts	1.6	1.3	-0.3	-7.9
Other transportation	1.9	1.4	-0.5	15.3
Appliance/electrical equipment	2.8	1.7	-1.1	1.6
Total manufacturing	32.0	23.0	-9.0	-1.0

Sources: 1960 and 1980 censuses and Bureau of Economic Analysis input-output tables.

Note: Industries are ordered according to Bureau of Economic Analysis industry codes.

## 1980–2015

By the beginning of the 1980s, offshoring grew dramatically as Korea, Taiwan, Singapore, and Hong Kong employed low-wage workers to spur export growth. In addition, American firms began outsourcing manufacturing to *maquiladores* (factories just across the border into Mexico).

From 1981 to 2000, imports outpaced exports in every year, with the trade deficit averaging 1.8 percent of GDP for the entire period. At the beginning of this period, unemployment was high, in part because Federal Reserve Board Chairman Paul Volcker set the federal funds rate at a record 20 percent to combat the high inflation rates of the late 1970s. After unemployment peaked over 10 percent, inflation rates declined, and employment grew from 1983 to 1989. After two shallow recessions in 1989 and 1991, the economy rebounded from 1993 to 2000 by adding 22 million jobs. By 2000, we had a low unemployment rate, the highest employment-to-population ratio ever, and rising wages across the entire labor force.<sup>9</sup>

Finally, between 2000 and 2015, imports grew to 14 percent of GDP and exports to 11 percent, and China emerged as a dominant exporter. And this growth in the trade deficit coincided with a steep decline in manufacturing employment. The absolute number of manufacturing workers hovered between 17 and 19 million from 1966 to the beginning of 2001 but fell below 12 million by 2009.

Baker (2016) and Scott (2017), among others, blame this dramatic absolute job loss on our huge trade deficit with China. A careful analysis by Acemoglu and colleagues (2016) finds that the surge of Chinese imports from 1991 to 2011 led to 2.6 million job losses in the US. But these numbers represent the negative gross effect of Chinese imports without accounting for countervailing factors. Robert

Feenstra, a trade economist at the University of California, Davis, wrote two papers with different colleagues showing that the net effect of trade with China was close to zero because the employment gain from higher exports offset the effect found in Acemoglu and colleague’s (2016) group study.<sup>10</sup> As shown, there were many periods in which trade deficits and total employment rose at the same time. Using an industry-by-industry approach, Hicks and Devaraj (2015) find that 87 percent of declining manufacturing employment between 1998 and 2012 was caused by technological improvements, meaning that only 13 percent of the decline could be because of trade.

Specific manufacturing industries’ changes in employment shares related to their import penetration show declining employment independent of high imports. Between 1980 and 2015, overall manufacturing employment shares declined by nearly 14 percentage points (table 2). However, there is little relationship between the trade imbalance and changes in employment shares by industry. For example, the print and paper industry had a very small negative trade balance but a large decline in its employment share. The same relationship is true for the industries of chemicals, fabricated metals, and machinery.

The only industry with a trade surplus in 2015 was what the Bureau of Economic Analysis calls “other transportation” (mainly airplane manufacturing but also railroad and boat building), which also had large declines in employment. The largest trade deficits were in the leather and apparel industry, and its employment sank to very low levels. The automobile and automobile parts industry had very high trade deficits but retained a significant number of workers, driven by the large market for cars and car parts. The automobile industry also benefitted from 220,000 workers who were employed by foreign “transplants.”<sup>11</sup>

**TABLE 2**  
**Changing Manufacturing Employment Shares, 1980–2015 (%)**

	1980	2015	Change	2015 trade balance
Food	1.7	1.2	-0.5	-4.4
Textiles	1.1	0.2	-0.9	-26.3
Leather and apparel	1.4	0.2	-1.3	-80.6
Chemicals	2.1	1.3	-0.8	-7.6
Fabricated metals	1.5	0.6	-0.9	-6.0
Wood products/furniture	1.1	0.6	-0.6	-10.0
Primary metals	1.4	0.4	-1.1	-11.6
Print and paper products	2.3	1.0	-1.3	-0.3
Machinery	2.9	1.4	-1.5	-9.3
Auto and auto parts	1.3	0.9	-0.4	-35.1
Other transportation	1.4	0.6	-0.7	26.9
Appliance/electrical equipment	1.7	0.7	-1.0	-24.9
Total manufacturing	23.0	11.0	-12.0	-13.7

**Sources:** Censuses from 1980 and 2015, 2015 American Community Survey, and Bureau of Economic Analysis input-output tables.

**Note:** Industries are ordered according to Bureau of Economic Analysis industry codes.

# What Would Happen If We Eliminated the Trade Deficit?

A thought experiment in which we eliminate the trade deficit provides an upper limit effect on manufacturing employment by assuming that only goods production is affected (more output or fewer imports). Theoretically, eliminating our trade deficit could be accomplished solely by changing our goods balance, either by increasing exports or reducing imports, through “reshoring” (i.e., producing at home what we’ve been importing from abroad).

In 2015, the total net output of all domestic manufactured goods in the US was \$2.1 trillion, and our trade deficit was \$500 billion. Thus, bringing that manufacturing activity back to the US would increase manufacturing’s value 23 percent. If domestic manufacturing employment rises proportionately (i.e., 23 percent), 3 million manufacturing jobs could be created. But this may be an overestimate because there are many intermediary inputs in producing goods (energy, rents, raw materials for production, etc.). Thus, to produce an extra \$500 billion of final manufacturing output may only require \$300 billion of manufacturing output and \$200 billion of transportation, utilities, rent, professional services, and the like. On the other hand, the \$300 billion might have a multiplier effect on the economy (depending on the level of employment at the time), generating even more production and jobs. For this exercise and to reasonably maximize the potential effects on employment, I use the full \$500 billion as the added manufacturing production that would ensue if the trade deficit were to disappear.

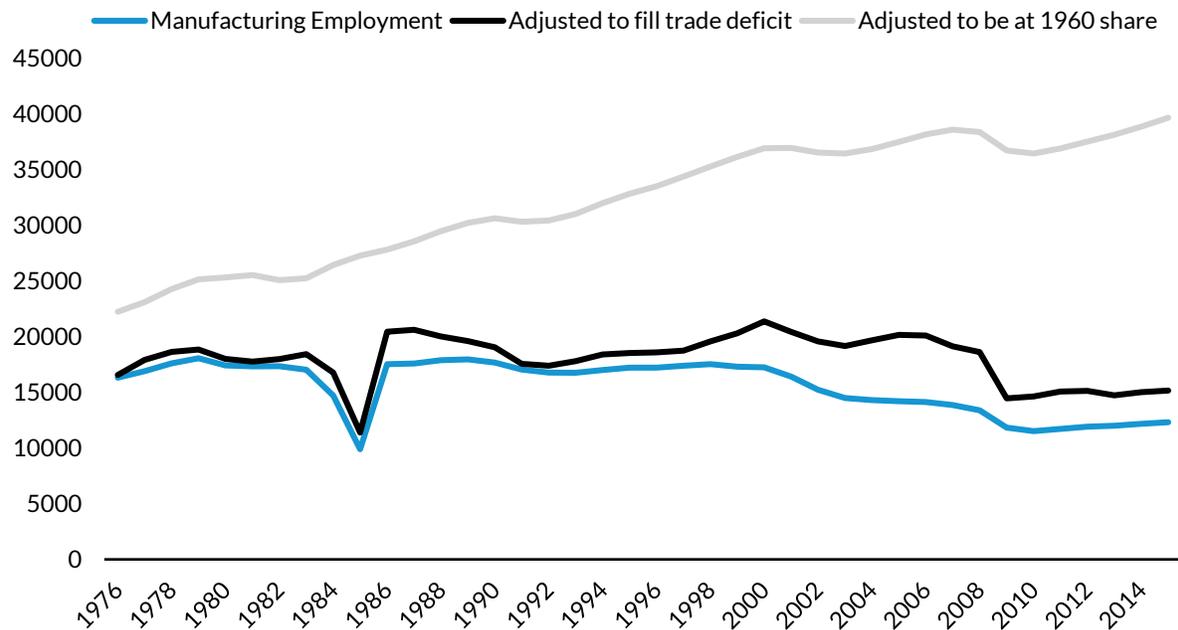
Below, I compare actual employment, an employment estimate if there were no trade deficit, and an employment estimate based on maintaining the 1960 manufacturing share of employment. This comparison shows how eliminating trade deficits could increase manufacturing employment and places those effects in context (figure 3). The total manufacturing employment estimate is based on changing manufacturing output to eliminate the deficit in that year. Actual manufacturing employment varies narrowly from 1976 to 2001, with a notable dip during the recession and recovery from 1983 to 1985. After 2001, manufacturing employment declined through 2010 before stabilizing between 12 and 13 million through 2015—a level not seen since the end of 1946, when the labor force was 28 percent of its size in 2015.

Next, I compare actual manufacturing employment to its potential level if the US had closed its trade deficit in manufactured goods. When the deficit is small, actual and potential employment do not differ much. In 1980, the trade deficit represented 3 percent of net manufacturing output: manufacturing employment with no trade deficit would have been an estimated 18.0 million while actual manufacturing employment was 17.4 million. In 2005 and 2006, the deficit was so large that manufacturing employment would have increased just over 40 percent (nearly 6 million workers) if there had been no trade deficit.

Finally, for context, I compare actual and zero-trade-deficit employment to what manufacturing employment would have been if the 1960 manufacturing employment share had been maintained. By 2015, there would have been more than 27 million additional manufacturing workers if the 1960 manufacturing share had been sustained. In contrast, if the trade deficit were wiped out in 2015 because of more domestic production, an additional 2.8 million workers would have been employed in

manufacturing. Thus, the manufacturing jobs lost because of our 2015 trade deficit represent only 10 percent of the job losses that occurred because of productivity gains, which led to higher production to meet the demand for physical goods, investments, and exports.

**FIGURE 3**  
**Manufacturing Employment, 1976–2015**  
*Actual and two simulations*



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Source: Computations by author from Bureau of Economic Analysis GDP import and export numbers.

But these calculations are based on trade’s net effects on total employment. This hides the “gross effects” of many individual workers who lost jobs and never fully recovered.<sup>12</sup> The Trade Adjustment Assistance program is meant to help workers who lose their jobs because of imports or firms relocating outside of America. Cash stipends, retraining, and assistance with job placements are provided to reemploy workers at comparable wages as quickly as possible.

The Department of Labor now runs the Trade Adjustment Assistance program and has certified that about 135,000 workers a year qualified for assistance from 2003 to 2015.<sup>13</sup> These workers’ industries are not reported, but manufacturing workers almost certainly represent the majority. Hufbauer and Lu (2017) estimate that only one-third of displaced manufacturing workers returned at their prior wage level. With so many workers reemployed with lower earnings, the gross private costs of displaced manufacturing workers are estimated to be \$28 billion a year, based on years of nonemployment and lower earnings. Hufbauer and Lu recognize that not all Trade Adjustment

Assistance-qualified workers may take up services, and they raise their estimate of the private cost of manufacturing jobs displacement to \$40 billion a year.

## Conclusion

For those that think changing our trade agreements will lead to a manufacturing renaissance, trade economists Paul Krugman and Robert Lawrence say, “it is important to get these things right. Improving American economic performance is an arduous task. It will be an impossible one if we start from the misconceived notion that our problem is essentially one of international competitiveness. The evidence that international trade has had little net impact on the size of the manufacturing sector, in particular, is blatant.”<sup>14</sup>

The net effect of the US trade deficit accounts for only a small portion the decline in US manufacturing employment. Manufacturing industries played the dominant role in our economy between 1920 and 1960. Since then, manufacturing employment has not grown in absolute numbers and has declined from 32 to 11 percent of all employment. From 1976 to 2015, the US ran trade deficits in every year, with the deficit reaching 5.5 percent of GDP in 2005 and 2006. However, the trend in manufacturing employment on an industry-by-industry basis is only weakly related to the trend in industry-specific trade deficits. Rather than being a victim of foreign trade, manufacturing employment has been a victim of its own success: increased productivity has meant that fewer workers are required to produce more output.

The nonpartisan Congressional Budget Office (2016, 1) believes greater trade is good for our economy:

Trade encourages a more efficient allocation of resources in the economy and raises the average productivity of businesses and industries in the United States. Through that increase in productivity, trade can boost economic output and workers’ average real (inflation adjusted) wage. In addition, U.S. consumers and businesses benefit because trade lowers prices for some goods and services and increases the variety of products available for purchase.<sup>15</sup>

The argument that trade did not cause manufacturing employment’s decline has little meaning to the many millions of workers who lost their manufacturing jobs. Indeed, even if trade did not cause the decline of manufacturing employment, many people would support increasing our manufacturing employment because they argue those jobs are particularly important for workers without a college degree, especially men. That belief leads many to support activities like the \$3 billion state subsidy to Foxconn to build a new facility in Wisconsin, even though some estimate that the cost per job runs between \$15,000 and \$19,000 a year.<sup>16</sup>

But this might not be the best use of public money, especially because the normal cost of state assistance for new plants is usually only \$2,500 per job. If the main goal is to create good jobs for workers without a bachelor’s degree, Rose (2018b) shows that there are almost twice as many male blue-collar workers in the nonmanufacturing production industries of construction, utilities, transportation, warehousing, wholesaling, and mining. Rose (2018b) also shows that almost one-half of

manufacturing jobs are white-collar managerial, sales, and research positions, and the number of relatively high-paying blue-collar manufacturing jobs has been declining since 1960.

There are no simple answers to manufacturing job loss, and people who think that changing trade deals is the way forward are pursuing a path with few returns. The use of large public subsidies for new manufacturing facilities must be weighed against other, more effective alternatives. Many European countries spend a much higher share of GDP on “active labor market” policies, which include much higher living allowances than our unemployment insurance or Trade Adjustment Assistance programs.<sup>17</sup> In particular, community colleges and other institutions can work with local employers to provide more targeted apprenticeships and vocational and technical training programs for workers who are unlikely to earn a four-year degree.

## Notes

<sup>1</sup> These datasets are available in a harmonized form (similar coding of each variable) from the Minnesota Population Center of the University of Minnesota. I divided manufacturing into the 12 industries; the coding used to create those 12 clusters is available from me upon request.

<sup>2</sup> Editorial Board, “U.S. Tariffs on Chinese Solar Panels Boomerang,” *Washington Post*, August 12, 2013. Another example of unintended consequences involves the secondary effects of the proposed tariffs on low-cost steel and aluminum. Although China is the target, Canada may be the country that is most directly impacted. In this odd situation, the justification for the tariffs is for maintaining supplies for national security, though Canadian imports are formally part of the US defense industrial base. Further, many companies, especially automobile companies, use foreign-made steel and aluminum in their products, and they worry that tariffs will increase their costs and make them less competitive in the US and abroad. See Ana Swanson, “Trump Trade Sanctions Aimed at China Could Ensnare Canada,” *New York Times*, February 25, 2018.

<sup>3</sup> Jed Graham, “Apple, GM, Boeing Are China’s Top Hostages In A Trump Trade War,” *Investor’s Business Daily*, January 23, 2017.

<sup>4</sup> After decades of positive trade balances, the value of imports exceeded that of exports in every year after 1975; the deficit first passed 1 percent of GDP in 1978. From 1976 to 1982, the deficit averaged just under 1 percent of GDP; for the rest of the 1980s, the deficit averaged 2 percent per year. Through 1997, the deficit was just over 1 percent before rising spectacularly to 5.5 percent in 2005–06. Since 2013, it has leveled off at 2.8 percent.

<sup>5</sup> “The 2017 Made in America Holiday Gift Guide,” *Manufacture This* (blog), Alliance for American Manufacturing, November 27, 2017.

<sup>6</sup> The data on trade go back to 1929. Before World War II, trade deficits were only slightly less than in the 1950s and 1960s, when the deficits were small positives. After World War II, during the Marshall Plan years, our exports were high, and we ran large trade surpluses.

<sup>7</sup> See chapter seven of Frank (2000).

<sup>8</sup> As was discussed in the first brief of this series, “Manufacturing Jobs: Fact and Fiction” (Rose 2018a), the economic impact of an industry is much better measured by value added (the unique contribution of an industry without the value of its inputs from other countries).

<sup>9</sup> Two papers show that added exports offset much of these China-effect losses: Feenstra, Ma, and Xu (2017) and Feenstra and Sasahara (2017).

<sup>10</sup> The history of the federal funds rate is from FRED Economic Data for the Federal Reserve Bank of St. Louis and can be accessed at “Effective Federal Funds Rate,” Federal Reserve Bank of St. Louis, last updated April 2, 2018, <https://fred.stlouisfed.org/series/FEDFUNDS>. The unemployment rate is available from “Labor Force Statistics from the Current Population Survey: Series ID LNS14000000,” Bureau of Labor Statistics, accessed April 11,

2018. <https://data.bls.gov/timeseries/LNS14000000>. The total unemployment rate is available from “Employment, Hours, and Earnings from the Current Employment Statistics Survey (National): Series ID CES0000000001,” Bureau of Labor Statistics, accessed April 11, 2018, <https://data.bls.gov/timeseries/CES0000000001>.

- <sup>11</sup> Foreign producers locate facilities in other countries because doing so renders them close to their markets and able to respond quickly to changes in demand. On the other hand, moving production facilities to America avoids the threat of tariffs on a producer’s imports. A 2013 article discusses the various reasons for locating manufacturing facilities in the US; see Paul Davidson, “[Foreign Manufacturers Bringing Jobs to US](#),” *USA Today*, May 15, 2013.
- <sup>12</sup> Farber (2017) has updated his analyses of the Current Population Survey’s triannual displacement survey. See also Yagan (2017).
- <sup>13</sup> Mathematica Policy Research formally evaluated the Trade Adjustment Assistance program. See “Trade Act Program – Overview of the Data,” US Department of Labor, last updated April 25, 2011, <https://www.doleta.gov/tradeact/dataoverview.cfm>.
- <sup>14</sup> Paul R. Krugman and Robert Z. Lawrence, “[Trade, Jobs, and Wages](#),” *Scientific American*, October 13, 2008.
- <sup>15</sup> N. Gregory Mankiw, former chairman of the Council of Economic Advisers, made a similar argument: N. Gregory Mankiw, “[Why Economists Are Worried about International Trade](#),” *New York Times*, February 16, 2018.
- <sup>16</sup> Nelson D. Schwartz, Patricia Cohen, and Julie Hirschfeld Davis, “[Wisconsin’s Lavish Lure for Foxconn: \\$3 Billion in Tax Subsidies](#),” *New York Times*, July 27, 2017.
- <sup>17</sup> For data and analyses of active labor market policies around the world, see “Active Labour Market Policies: Connecting People with Jobs,” Organisation for Economic Co-operation and Development, accessed April 11, 2018, <http://www.oecd.org/employment/activation.htm>.

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## About the Author



**Stephen Rose** is a nonresident fellow in the Income and Benefits Policy Center at the Urban Institute. He is a nationally recognized labor economist and has spent the past 35 years researching and writing about the interactions between formal education, training, career movements, incomes, and earnings. His book *Social Stratification in the United States* was originally published in 1978, and the seventh edition was released in 2014. His book *Rebound: Why America Will Emerge Stronger from the Financial Crisis* addresses the causes of the financial crisis and the evolving structure of the US economy over the past three decades. Rose has worked with large longitudinal and cross-sectional datasets to develop unique approaches to understanding long-term income and earnings movements. He recently coauthored the report *The Economy Goes to College* showing that the high-end service economy of work in offices, health care, and education was the main driver of the US postindustrial economy, responsible for 64 percent of employment, 74 percent of earnings, and over 80 percent of workers with a bachelor's or advanced degree. Before coming to Urban, Rose held senior positions at the Georgetown University Center on Education and the Workforce, Educational Testing Service, the US Department of Labor, Joint Economic Committee of Congress, the National Commission for Employment Policy, and the Washington State Senate. His commentaries have appeared in the *New York Times*, *Washington Post*, *Wall Street Journal*, and other print and broadcast media. He has a BA from Princeton University and an MA and PhD in economics from the City University of New York.

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