Overseas Manufacturing and the Smiley-Faced Curve[1]

According to the inscription on its underside, every iPod is "Designed by Apple in California; Assembled in China." A 2007 study published by the University of California-Irvine sought to determine "who captures value in a global innovation system" by disaggregating the components contained in an Apple iPod and determining the companies and countries involved in manufacturing a unit in China. The total cost of producing the iPod (components plus labor) was estimated to be about $144.

Now about half of the list price of the iPod was simply the cost of the components, the hardware. This was some $144, most of which went to Japanese companies, with lesser parts going to American and other companies. This would be the case, regardless of whether the iPod was made in China or in America.

But the interesting question is: how much of the list price of the “made in China” iPod do American companies enjoy? And this UC Irvine study has documented that the answer to that question is, quite a lot. After the hardware is paid for, there is still $155 to be accounted for. And the fact of the matter is that the vast majority of this remaining $155 accrues to American companies, with only a small amount going to China—even though the iPod was made in China!

The capture of value in the iPod production chain is fairly typical for Western brands. James Fallows characterizes this process of outsourcing as following the shape of a "Smiley Curve" that is plotted on a chart where the production process from start to finish is measured along the horizontal axis and the value of each stage of production is measured on the vertical axis. About this production process, Fallows concludes:

> The significance is that China's activity is in the middle stages--manufacturing, plus some component supply and engineering design--but America's is at the two ends, and those are where the money is. The smiley curve, which shows the profitability or value added at each stage, starts high for branding and product concept, swoops down for manufacturing, and rises again in the retail and servicing stages.

Other examples: A carrying case for an audio device from a big-name Western company retails for just under $30. That company pays the Chinese supplier $6 per case, of which about half goes for materials. The other $24 stays with the big-name company. An earphone-like accessory for another U. S.-brand audio device also retails for about $30. Of this, $3 stays in China. One study published by the Federal Reserve Bank of San Francisco in 2011 said that the average US content of products made in China is about 55%--but as with the Smiley Curve, keep in mind that this includes not just parts, but transportation and retail (and the average US content for imports as a whole was 36%.

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[1] This first page is excerpted and summarized from *No Longer Us versus Them: Trade Policy for the 21st Century*, by Daniel Ikenson.

American Companies Investing Abroad

Many on TV will charge US multinational corporations with opening up sweatshop factories overseas, in order to export back to the US, putting Americans out of work. However, the data do not support this claim. According to a report entitled "How U.S. Multinational Companies Strengthen the U.S. Economy," by Matthew J. Slaughter, sales by US owned affiliates in 2006 were over $4.1 trillion, of which just $280.3 billion was imported back into the United States. This means that 93% of affiliate sales overseas, are into the host-country market or other foreign markets, and only 7% of affiliate sales are imported back into the United States. The overwhelming majority of what American affiliates sell abroad stays abroad, rather than being imported back to the United States in a way that might somehow put US manufacturers out of business.

When US multinational corporations invest abroad, what do they do at home?

Studies show that when US multinationals invest abroad, they also invest at home as well. Why would this be the case? Firms combine home and foreign production to generate final output at a lower cost than would be possible in just one country, resulting in increased output and profits. Capital spending is investment in hard goods such as land, factories, and equipment.

A US Department of Commerce (Bureau of Economic Analysis) report entitled "U.S. Multinational Companies Operations in the United States and Abroad in 2008" showed that from 1983 to 2007, US multinational corporations increased their capital expenditures in foreign affiliates where they had a majority ownership, from $36 billion to $170 billion. That was a massive increase in investment overseas, but look at what these same companies did back home in America: their capital expenditures grew from $160 billion to $495 billion in this time frame. Their overseas capital expenditures increased by $144 billion; their expenditures back home increased by $335 billion. For every dollar US multinationals were investing overseas, they were still investing almost three dollars in America. The takeaway is that both domestic and foreign investment rose together.

US multinational capital investments	1983	2007	Increase
Foreign	$36 billion	$170 billion	$134 billion
Domestic (US)	$160 billion	$495 billion	$335 billion

For every single dollar that US multinationals were investing overseas,

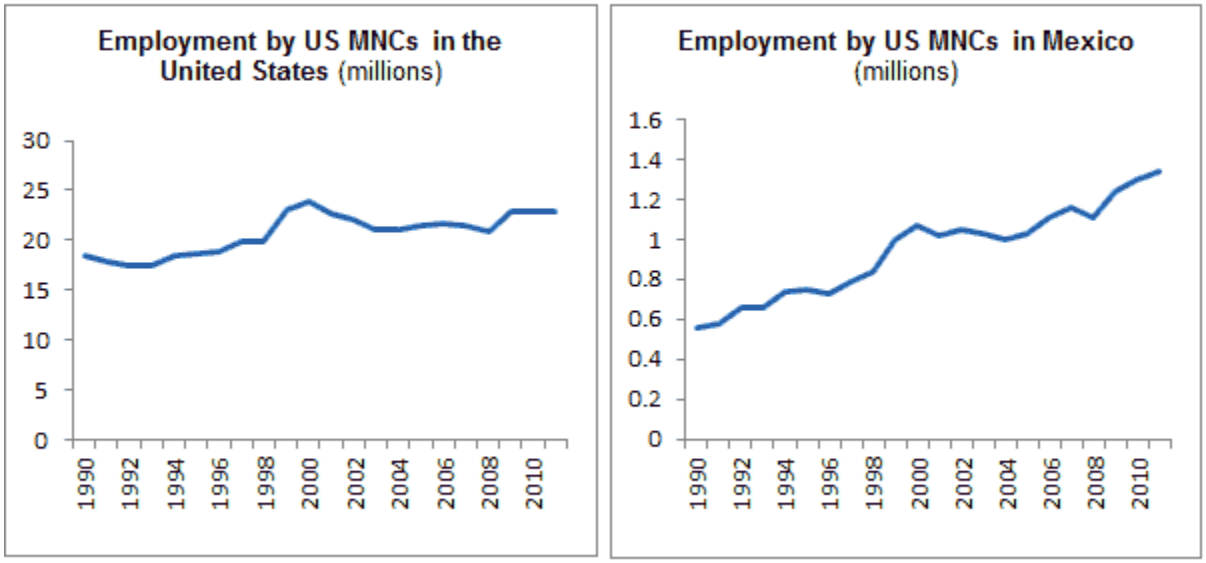
they were investing almost three dollars in America.

When US companies hire abroad, how does that impact US jobs in those same companies?

Further, when multinationals hire abroad, they also expand employment here at home. In recent years, many observers have expressed dismay that U. S. companies have expanded their operations overseas, claiming that when U. S. firms hire workers in foreign countries, they reduce the number of jobs available to U. S. workers. However, the general trend among US based multinationals, has been that when they expand their employment abroad, they also tend to expand domestically.

The graphic below displays employment by US based multinational corporations, both here and in Mexico. You can see that as these corporations invested in Mexico and created jobs there (see the graph on the right), they were also doing the same thing in the US—investing and creating jobs (the graph on the left).

Figure 2 Employment by US multinational corporations (MNCs) in the United States and at affiliates in Mexico



Source: US Bureau of Economic Analysis.

Please note that two downward blips in the left hand graph coincide with recessions, one from 2000 onward, the other from 2008-2009. Those downward swings were not caused at all by hiring abroad, but by decreasing demand inside the US, for their US-produced goods.

Decline in American Manufacturing?

There are many voices in the media lamenting a so called "decline in US manufacturing," but the numbers simply don't bear this out. US manufacturers have ridden a secular wave higher and higher, and have shown no sign of stopping yet. In fact, at $6 trillion, if US manufacturing was its own country, it would have the third largest economy (GDP) in the world, behind only the rest of the US, and China. To show how the US manufacturing base has grown steadily in recent years, let's start with the early 1990s, when NAFTA went into effect. When NAFTA was passed (which saw both the US and Mexico lower their tariffs against each others goods), many predicted the demise of American manufacturing, because of competition from Mexico. But the exact opposite has taken place. US Manufacturing topped $3 trillion in 1993 for the first time ever—an all time high. And in 1994, NAFTA was implemented. But instead of declining, that $3 trillion figure steadily rose, until 2008, when it hit $5.5 trillion. There was a slight drop because the Great Recession, but the recent years 2012, 2013, 2014, and 2015 **were all higher** than that 2008 peak. So clearly, US manufacturing output has not declined, in any way, shape, or form—and certainly not because of NAFTA.

Nor has this increase in manufacturing only been a recent occurrence. The US Economic Report of the President in 2002 found that in constant dollars (that is, taking inflation into account), US manufacturing sales almost tripled from 1977 to 1999. So clearly US manufacturing has been increasing dramatically during the last 40 years. There is no decline in American manufacturing. Now some factories might have gone out of business---but there obviously have been plenty of others that have risen up to take their place.

The US automotive industry is a classic example of the strength of American manufacturing. Although some American consumers decry the presence of "Japanese cars" on our roads and freeways, the fact of the matter is that in 2015, the top 10 selling cars and pickups, and 18 of the top 20, were made in the US. The other two (the Ford Fusion and Nissan Sentra) were made in Mexico, which buys 15% of our exports, and as such, is the second largest customer of US exports, behind Canada. Apart from the Sentra, all these so called "Japanese cars" that are on that Top 20 list, are made in America: the Toyota Camry, Corolla, Tundra, and Tacoma; the Honda Civic and Accord; the Nissan Altima; the Hyundai Elantra and Sonata; and the Kia Optima.

Do keep in mind that there isn't a single car that is 100% made in America. There are different ways to calculate (where the product was assembled, the percentage of parts that were also made/assembled in the US, as well as where the R&D took place), but the highest statistics generally go up to 90% made in America, and that is only one model, the Chevrolet Traverse (and its sister models in other GM companies). All the major car companies are truly global, and make certain engine parts all over the world. But these 18 cars were all assembled in America, with the lion's share of the parts being made in America as well.

How about jobs in manufacturing?

Now what has not increased along with US manufacturing sales and production, has been employment. In 1965, there were 16.5 million Americans employed in manufacturing. That number peaked in 1979 at 19.4 million, dropping to 11.5 million in 2010 during the Great Recession. But from that point, it has started rising again, to 12.3 million in 2015.

It is common for people to blame imports for this loss in jobs. In reality, as production has steadily risen, it is much more accurate to blame rises in productivity per worker, which is really brought about by increased automation. We simply don't need as many workers in manufacturing as we did before.

Let's take another look at the US automotive industry, as a primary example of how we need fewer workers to make the same amount of goods. 2015 was one of the best years ever, for vehicle production in the US. In 2015, according to the International Organization of Motor Vehicle Manufacturers, 12,100,000 personal and commercial vehicles were made in the US. US auto makers produced this with 900,000 workers. Now US auto industry employment peaked in 2003 with 1.3 million workers. What is interesting, is that in that peak year for employment, US manufacturers made 12,115,000 cars and trucks. And so we have an automobile industry that has kept production stable, while shedding 30 percent of the jobs (400,000 jobs) that were around in 2003. So the decline in jobs in the automotive industry cannot be blamed on customers buying imported cars. Nor can the decline in jobs be blamed on a lack of money among US-based manufacturers. General Motors and Ford made record profits in 2015; I have not been able to get profits for Chrysler (it is owned by Fiat, an Italian car company), but sales for Chrysler group vehicles have been rising for the last six years, through 2015. Americans are buying just as many American made cars now than they ever have before. It is simply that automation (or worker productivity, if you will) has increased so much.

This connection between a decline in the number of workers needed in a sector of the American economy, and increasing productivity is not just part of manufacturing. It is also part of the story of American agriculture. In 1910, the US produced 685 million bushels of wheat, on 45 million acres planted (total US agricultural labor force was 11.5 million). In 2002, the US, still with 45 million acres of wheat fields, produced 1.95 *billion* bushels of wheat—and the total US agricultural work force was only 716 thousand. And so not only in manufacturing, but in agriculture as well, we see a pattern—increased automation, increased production, and a decrease in the number of workers required for these jobs. Its not as if our agricultural work force declined because of food imports from Japan, Mexico, or China!