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SQUANDERING THE BLUE-COLLAR ADVANTAGE

Why Almost Everything Except Unions and the Blue-Collar Workforce Are Hurting U.S. Manufacturing

BY JOSH BIVENS

It has become convenient in some circles to blame unions for the hemorrhaging of jobs in the manufacturing sector. The facts, however, simply do not support that argument.

Instead, the main culprit for manufacturing's troubles over the past decade is an overvalued U.S. dollar. Smaller contributors to manufacturing's decline include a dysfunctional health care system and the high labor costs of managers and executives.

What is equally clear is that the pay and productivity of blue-collar workers in manufacturing are clearly *not* a competitive drag. In fact, these workers actually earn *lower* wages than many of the most important U.S. trading partners while simultaneously posting *higher* productivity levels. In short, the relatively low pay and high productivity of the blue-collar workforce in the U.S. manufacturing sector provides an important competitive *edge* over its trading partners. This report documents that competitive edge and how it has been squandered.

- **U.S. manufacturing workers are not overpaid.** Of the 20 richest countries tracked by the U.S. Bureau of Labor Statistics, the United States ranks *17th* in hourly pay for production workers in manufacturing. This group of trading partners accounts for almost half of total U.S. trade flows.
- **U.S. manufacturing workers are highly productive.** Of the 16 nations with *higher* compensation for production workers in manufacturing, the United States ranks behind only Ireland (a nation with a manufacturing workforce less than 2% as large as that of the United States) in terms of “value-added per employee” (a rough measure of productivity).
- **Pay and productivity levels should translate into a competitive edge.** The combination of relatively low compensation and high productivity means that U.S. manufacturing leads the world in terms of competitiveness of per unit costs of manufacturing output.

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- **The overvalued U.S. dollar hurts U.S. competitiveness.** This competitive advantage has, however, largely been offset in the past decade by the overvalued dollar. Exchange rates in the last 10 years have essentially given U.S. trading partners a 10-16% cost advantage compared to the previous decade.
 - **Health care costs hurt U.S. manufacturers.** If average health care costs in the United States were the same as those of its comparable trading partner, U.S. manufacturing workers could earn what they do today and still reap a 4.6% cost advantage relative to our major trading partners.
 - **U.S. managers are overpaid.** If the wages claimed by managerial and supervisory labor in the United States were the same as the median of comparable countries, U.S. manufacturing would have a 6.4% cost advantage over major trading partners.

This briefing paper shows that the dollar's value relative to other currencies is the single most important reason for manufacturing's problems over the past decade. It also identifies other likely factors undermining U.S. manufacturing competitiveness. High wages for blue-collar workers in manufacturing is not among them.

Background

U.S. manufacturing has been in worrisome decline for a decade. For a time it was fashionable to cite the trend as an inevitable consequence of economic development, similar to the declining labor force needed in U.S. agriculture through the 20th century.

This view is wrong. While manufacturing has been shrinking as a *share* of total U.S. employment for decades, the *number* of manufacturing workers held relatively steady between 1967 and 1997, cycling between a low of 16.5 million and a high of just over 19 million. After 1997, the number began a precipitous drop, reaching 13.9 million in 2007—its lowest point since 1949.

These employment trends point to the problem with another theory on manufacturing's decline: that *unions* are somehow a source of competitive *disadvantage* for the United States. Since unions did not spring into U.S. manufacturing in 1997 it seems odd to identify them as a source of comparatively recent problems in this sector. Indeed, between 1987 and 1997, the unionization rate within manufacturing actually *fell* by 7%. Thus, the steep decline in manufacturing employment began well *after* the sector had been quickly shedding union jobs. The unionization rate has fallen a further 5% since 1997.

This begs the larger question: what between 1997 and 2007 is a more likely suspect for the hemorrhaging of jobs in the U.S. manufacturing sector?

The answer to this question is easy: the overvalued U.S. dollar. **Figure A** shows the relationship between manufacturing employment, the trade deficit in manufactured goods, and an index of the inflation-adjusted value of the U.S. dollar.¹ Big spikes in the value of the dollar that began in the early 1980s and late 1990s are clearly associated with larger trade deficits and with declines in manufacturing employment. While the dollar has lost some strength since 2003, it remains overvalued. The recent global financial crisis has caused its value to rise again in recent months as investors (both private and foreign central banks) poured money into dollar-denominated assets in a flight to safety. Between this uptick in the dollar's value and the sharp pullback in consumer spending, it will surely be another very rough year for U.S. manufacturing, even with a notably lower value of the dollar than in previous years.

Unions do not make manufacturing too expensive or unproductive

The argument that unions have hurt U.S. competitiveness is rarely made with much care, but the gist seems to be the claim that unions make production in the United States too expensive or too unproductive to compete effectively in the global marketplace. A review of the evidence—both broad and specific—shows such claims to be unpersuasive.

THE MYTH OF THE \$73-PER-HOUR AUTOWORKER

Recent debates about a rescue package for the Big Three automakers were plagued by the claim that unionized U.S. autoworkers earn \$70 or more per hour, while their non-unionized competitors make closer to \$50 per hour. Several other writers have capably debunked this claim already, but given that the facts have yet to win the day, another debunking seems in order. While the official government statistics that underlie the rest of this briefing paper shed less light on the difference between unionized and non-unionized autoworker compensation in the United States, other sources (Leonhardt 2008) can help answer these questions.

What these other sources tell us is that the vast bulk of the difference between the \$73 figure quoted for the cost of unionized U.S. autoworkers and the compensation of their non-unionized rivals is simply the costs of providing pension and health care benefits to union *retirees*.

However, lumping together hourly payments to current workers and the fixed costs of providing benefits to retirees is a simple category error. These pension and health “legacy costs” have nothing to do with the cost of current workers. Incumbent workers will not see a dime of these benefits, so expressing them as a function of the hours worked by current employees makes no sense.

Some seem to think that compensation for current workers and payments to retirees are comparable “cost streams” just because the word “union” is attached to both. There is no economic basis for this conflation. In fact, legacy costs are much closer in economic terms to the interest payments that the auto companies pay to their bondholders than to current labor costs. Past workers essentially gave the company a loan by deferring a portion of their compensation into the future. The legacy costs are simply this loan coming due, and these benefits have, in fact, been fully paid for *by past workers* in the form of this deferred compensation.

This loan—just like those made through the corporate bond markets—is a *fixed* obligation of the firm that bears no relationship to the hours worked by current employees. Nobody so far in the debate over the auto companies and their unions have argued that it is fair or relevant to add up the full value of debt service GM pays bondholders and divide this amount by the total hours of current workers. So why would retiree legacy costs compete with current labor costs any more than do these payments to bondholders? It seems that in the minds of union critics that the path to competitiveness always begins by lowering payments to past and present workers, but never by lowering payments to (generally more-affluent) holders of corporate debt.

Perhaps the easiest way to see why it is bad accounting to include legacy costs with current labor compensation is to realize that per-hour legacy costs actually *rise* as companies lay off workers or cut hours. In the case of layoffs, a naïve observer might actually think that autoworkers were making *greater* demands (and companies acceding to them) at the same time as jobs hemorrhaged. Conversely, legacy costs per hour would also rise if autoworker *productivity* increased (i.e., fewer hours are needed for a given output of cars). In this case *rising* productivity would be translating into *higher* costs, an obviously perverse result that demonstrates just how inappropriate a measure of cost competitiveness these legacy costs are.

Despite its bogus foundations, there is no real puzzle as to why this inflated figure on autoworker pay has survived—it is useful for those who want to claim that *unions* are primarily responsible for troubles in the auto sector. The tactic has admittedly served this cause well; many otherwise informed readers of economic news genuinely believe that union autoworkers make \$70 or more per hour. This number needs to be retired before any honest public debate on this issue can continue.

The actual hourly cost of union U.S. autoworkers—including *all* non-wage benefits—was roughly \$55 *per hour worked* in 2006. It is worth noting that this is not the take-home wages of these workers, as this includes both >>

the value of their pension and health benefits (roughly \$12) as well as the implied monetary value of their vacation, sick leave, and holidays. In short, it is not how most people generally characterize their own pay (i.e., take-home wages or salary divided by annual hours worked).

If, for example, these workers received five weeks of vacation, holiday, and sick leave combined, this would make their take-home *wages* roughly \$35-40 an hour (sans pension and health care). It should also be noted that this \$35-40 figure also averages in the fact that autoworkers generally work substantial amounts of overtime and are paid a higher rate for these hours. The base (non-overtime) hourly wage for unionized autoworkers is roughly \$30. To be clear, these are well-paying jobs with very good benefits. Yet somehow critics of the auto unions still feel the need to inflate these actual figures by 50-100% in making the case against them.

The remaining gap in pay (correctly measured) between unionized autoworkers and workers in non-unionized U.S. plants is well less than half what is commonly advertised, and much of this remaining difference just covers regional cost-of-living differences. The cost of housing, for example, is more than 20% higher in Michigan than in Alabama; and non-unionized plants are predominantly located in the poorer South, whereas unionized plants cluster in the Midwest where the cost of living is higher. In short, the case for out-of-line union wages and benefits leading to the ruination of the U.S. auto sector is wildly overstated.

Lastly, it is worth noting that hourly compensation of U.S. autoworkers as a group as measured by the U.S. Bureau of Labor Statistics (BLS) is in line with those of our most prominent international competitors. For example, over two-thirds of automobile and automobile parts imports into the United States come from three countries: Japan, Germany, and Canada. Average hourly compensation in the auto sector in these three countries, weighted by their share of U.S. imports, is \$34.57, less than 2% lower than the average in the United States. Furthermore, average productivity in autos in these countries is 9% *lower* than in the United States, leaving the U.S. auto sector more cost-competitive per unit produced than our main trading partners. It is also worth noting that the unionization rate of the auto sector in all three countries is higher than in the United States.

Evidence from macroeconomics

On the broadest level, we can track trends in unionization rates, employment, and output growth in both the manufacturing and non-manufacturing sectors in the United States and its trading partners over the past few decades. If unions are a source of competitive disadvantage and inefficiency, it would make sense that removing them would lead to large gains.

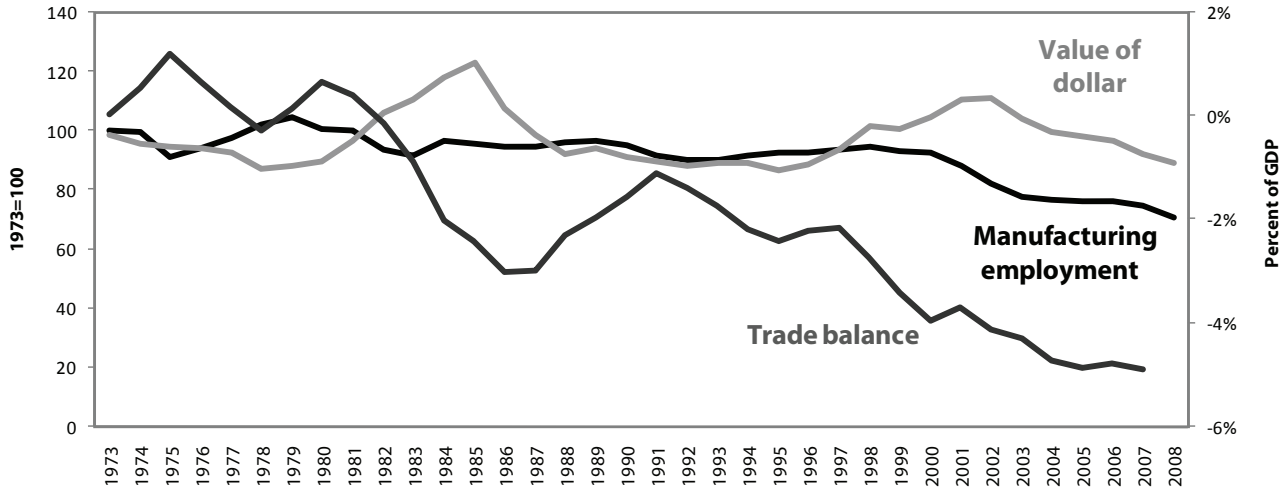
Since 1983, the United States has seen large declines in unionization, with the overall rate of union coverage falling from 23% to 13%. Manufacturing unionization rates fell by 18% while rates in all other private sectors fell by less than 8%. Given this pattern, any competitive-enhancing effect of declining unionization rates should have shown up most clearly in the manufacturing sector over this time.

Data from the United Nations on the global market share of the United States in both manufacturing and non-manufacturing can shed some light on this. Since 1983 U.S. market share in global manufacturing actually *fell* 4 percentage points while it remained essentially flat (actually ticked up slightly) in non-manufacturing sectors. The benefits of de-unionization in manufacturing are hard to see in this broad indicator.

It is worth noting here that economic theory predicts efficiency gains from de-unionization *only* if employment expands in those sectors shedding union workers. This clearly has not happened in U.S. manufacturing, making it hard to believe that unions were a source of inefficiency in the first place.

FIGURE A

Indices of manufacturing employment, dollar value, and manufacturing trade balance as a percent of gross domestic product



SOURCE: Bureau of Economic Analysis (BEA), Bureau of Labor Statistics (BLS), and Federal Reserve.

Evidence from production worker wages and manufacturing productivity

Those that argue that unions are at the root of the problems facing U.S. manufacturing often make two other claims: that blue-collar workers’ wages are too high, and that unions create “inefficiencies” that stunt productivity growth.

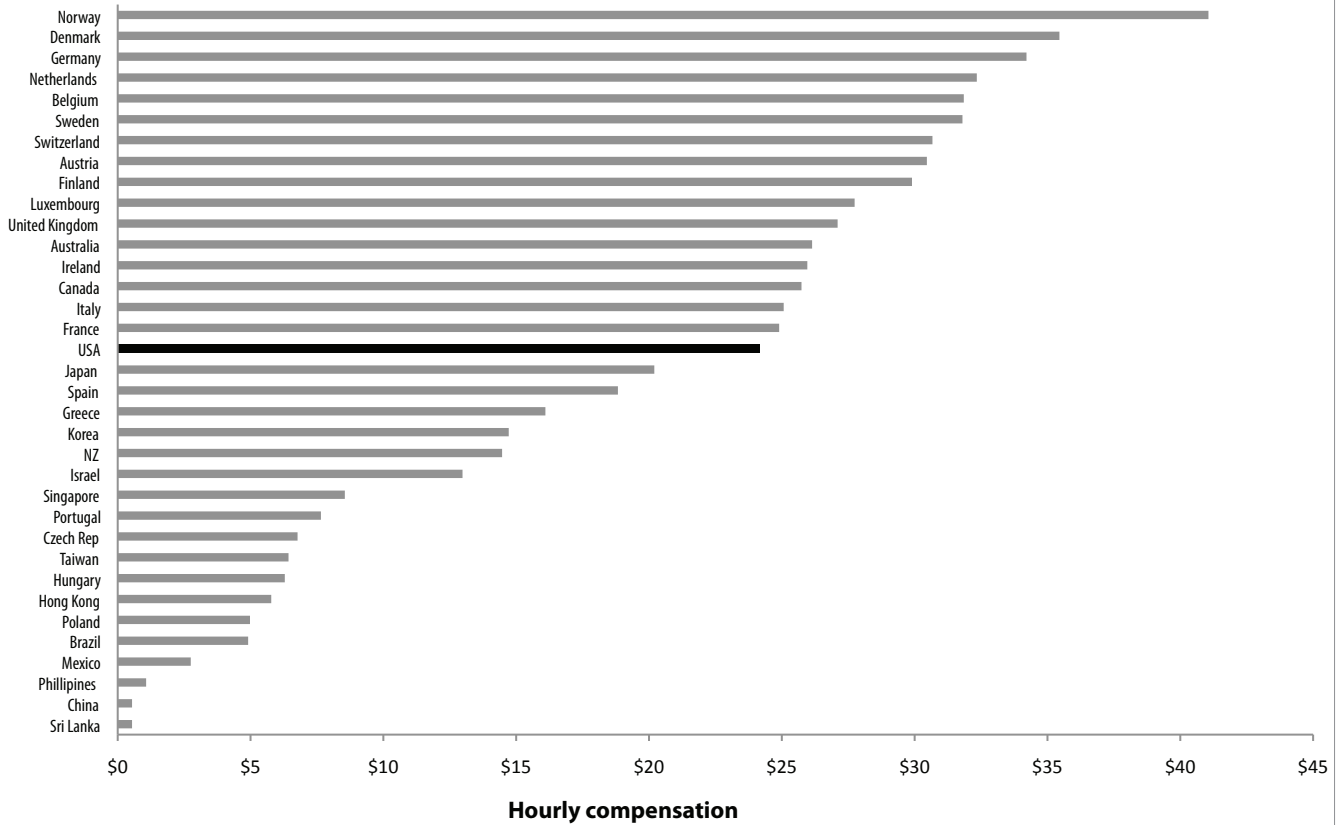
The first claim—that blue-collar wages are too high—is easy enough to resolve. The Bureau of Labor Statistics (BLS) tracks the hourly compensation of manufacturing-sector production workers in 34 of the United States’ trading partners. Production workers are defined as non-supervisory and non-managerial employees in manufacturing. They represent about 80% of the private-sector workforce in the United States and roughly the same amount in the manufacturing sector. The 34 countries tracked by the BLS account for roughly 70% of total U.S. manufacturing trade flows.

Figure B is a simple look at hourly compensation costs for production workers (generally blue-collar, non-supervisory workers) in manufacturing for 2006. Of our rich industrial peers in this group (the 20 richest countries in this list as ranked by per capita gross domestic product), the United States has the second-highest overall income per capita (trailing only Luxembourg), but is only ranked 17th in the hourly compensation of manufacturing production workers.² In short, while the United States is clearly one of the richest countries in the world, it does not have the world’s richest blue-collar workforce by a long-shot.³ It is useful to note that the 20 rich nations in this sample account for a significant share (just under half) of total U.S. trade flows.

The second claim—that unions introduce inefficiencies that hurt productivity—is equally easy to counter. The United States has a higher level of value-added per employee (a rough measure of productivity) than any country in the above group besides Ireland, a nation whose manufacturing workforce is less than 2% that of the United States.⁴ Figure C displays value-added per employee for each country in this group for which we have data.⁵ It includes the raw average for each country’s manufacturing sector as well as an average that is calculated to correct for the differing industrial mix in each country. In terms of raw average, the United States trails only Ireland and (barely) Japan. When the productivity measure is corrected for each nation’s industrial mix, only Ireland outpaces the United States.

FIGURE B

Hourly compensation of production workers in manufacturing



SOURCE: Author's analysis of Bureau of Labor Statistics (BLS) data.

In short, the United States is the second most productive manufacturing nation but has production worker wages that are *lower* than 16 of its trading partners. Given these rankings, it is hard to see any productivity-killing or wage-inflating effects of unions in manufacturing.

The crucial role of exchange rates

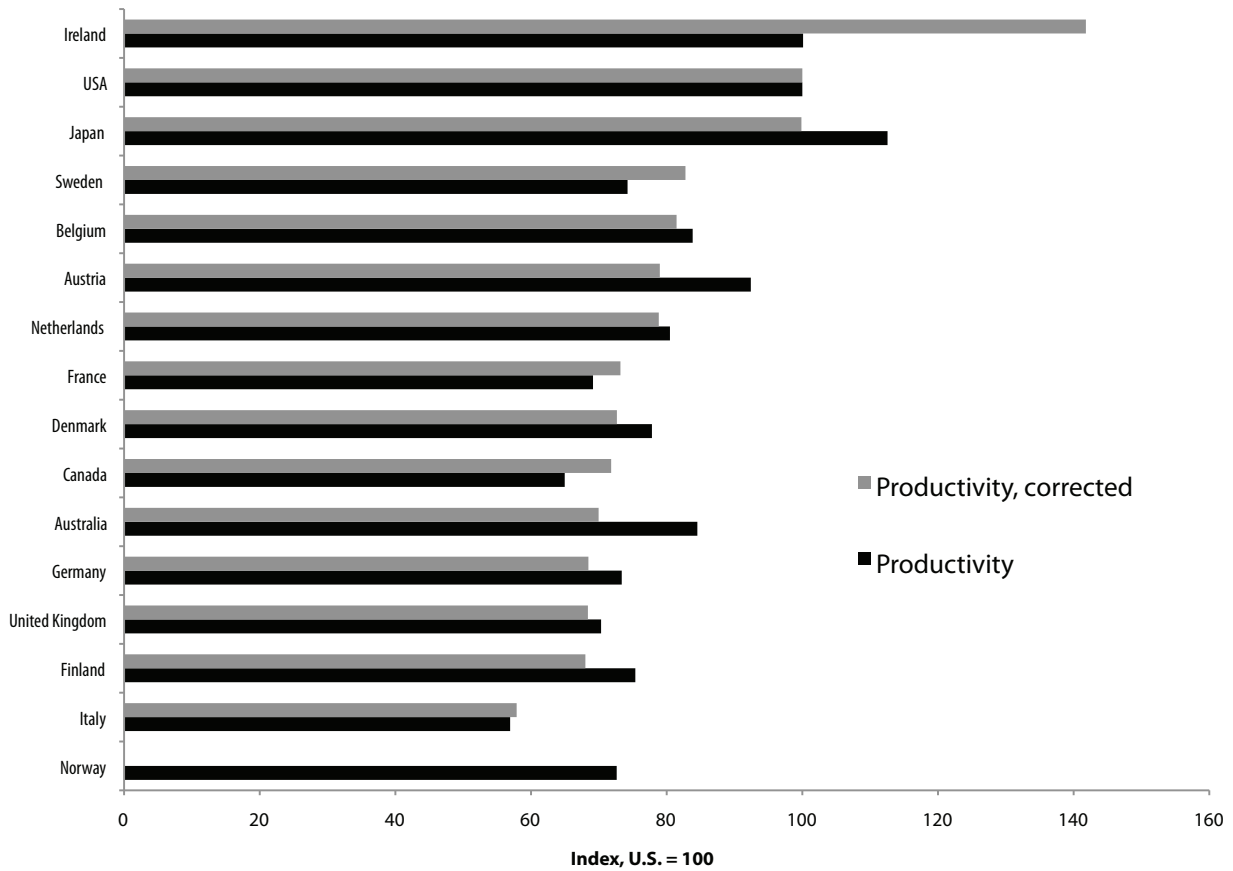
On the measures described above, the U.S. manufacturing sector would seem to be well-placed in the global marketplace. Unfortunately, exchange rate movements over the previous decade have hamstrung the competitiveness of U.S. manufacturing.

Figure A showed that for much of the past decade the value of the dollar has been far above the level that prevailed in the mid-1990s when U.S. trade deficits were generally small and stable. While recent years have seen significant declines in the dollar's value, it is generally known by economists that the benefits of this decline should only be expected to come with a long lag, even in a healthy economy, let alone during a full-blown recession.

As a result, the salutary effects that relatively low compensation and high productivity *should* have had on the competitive position of manufacturing were eroded by the high value of the dollar over the past decade. Essentially, across the group of our 20 richest trading partners tracked by the BLS, the United States lost between 10-16% in labor cost competitiveness due to movements in the dollar over this time.⁶

FIGURE C

Value-added per employee in manufacturing, 2003



SOURCE: Author's analysis of data from the Groningen Center on Growth and Development Productivity Database.

Even worse, the extended period of dollar over-valuation has convinced *investors* around the world to stay away from U.S. manufacturing, leading to atrophy in this sector's capital stock. Blecker (2007) has shown that the overvalued dollar reduced investment in the manufacturing sector by 61% between 1995 and 2004, leading to a much lower capital stock and stunting possible productivity growth.

In short, the overvalued dollar hurt *short-run* competitiveness by making U.S.-based production too expensive for many global markets while also hurting *long-run* competitiveness by luring potential investors away from expanding productive capacity in manufacturing.

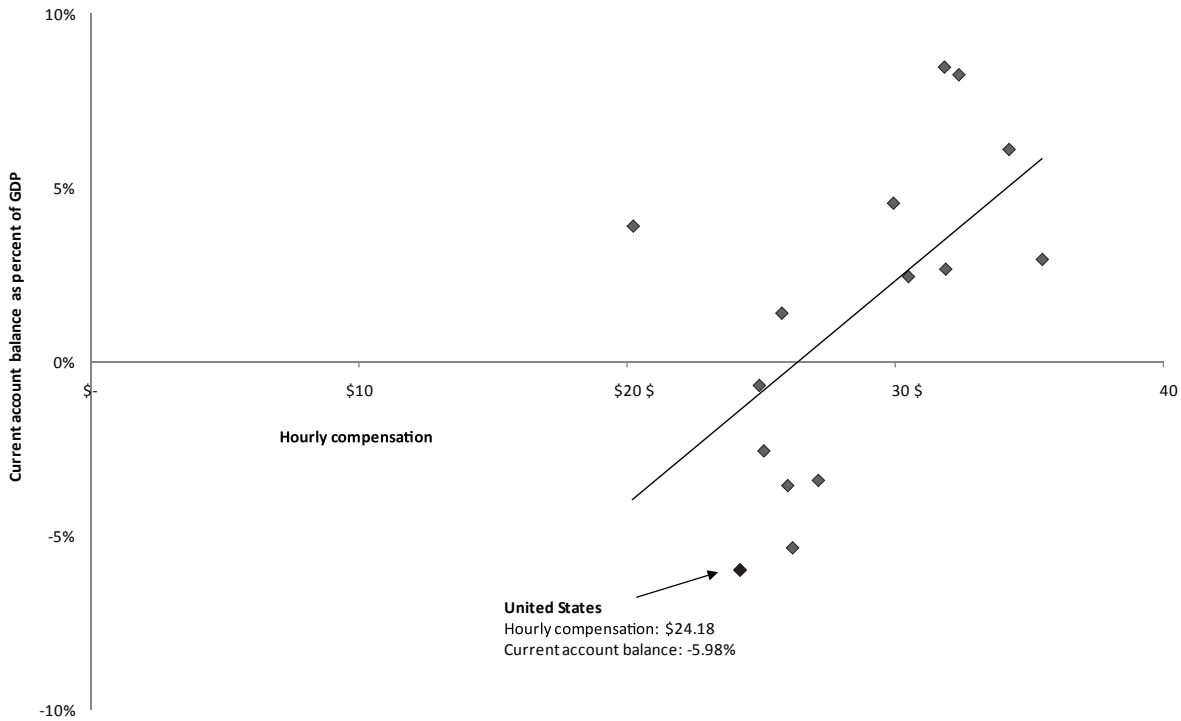
Other high-wage and high-union countries compete just fine

Figures D and E round out the evidence that high wages and/or high rates of unionization do not, in and of themselves, destroy a nation's global competitiveness.

Figure D is a scatter plot showing the relationship between average hourly compensation in manufacturing and the current account deficits. The overall relationship is clearly positive: higher wages among our trading partners actually accompany *surpluses*, not deficits. This evidence argues that there is nothing about high wages that necessitates a loss of manufacturing competitiveness, so long as a nation pursues sensible *macroeconomic* (including exchange rate) policies.

FIGURE D

Hourly compensation and current account balance



SOURCE: Author's analysis of International Monetary Fund (IMF) and Bureau of Labor Statistics (BLS) data.

Figure E shows the relationship between current account deficits and unionization rates across a sub-sample of competitors (those countries that have national unionization rates available). While the relationship is less strong here, it is surely not negative, and it is quite clear that nothing in this graph argues that high-union countries (Germany and Japan, most obviously) cannot compete effectively in global markets.

In short, the entire premise of the argument that high wages (whether driven by unionization or anything else) are incompatible with international competitiveness is spurious. There is nothing about being a high-wage, high-union country that keeps it from balancing its international accounts. Rather, it is primarily the glaring policy failure of the United States in not reining in the value of its dollar over the past decade that has led to the decimation of manufacturing.

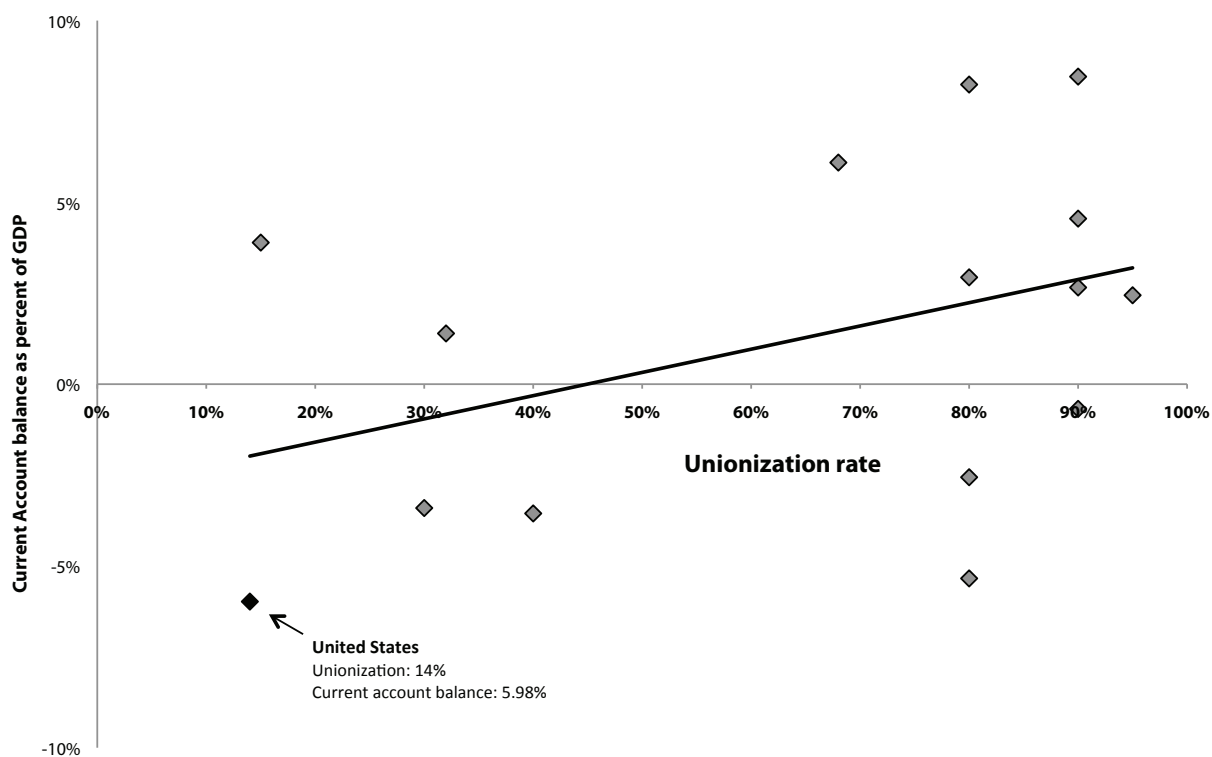
Other potential influences on competitiveness

We have established that high wages for production workers in manufacturing are not a problem for the United States, while the overvalued dollar is the largest reason for American manufacturing's decline over the past decade.

There are two other costs that are a competitive drag on U.S. manufacturing: health care and the wages of managers and supervisory workers. Neither is as important as exchange rates, but each undermines the competitive edge the United States would have if *only* the pay and productivity of its blue-collar workforce determined its competitive standing.

FIGURE E

Unionization rate and current account balance



SOURCE: International Monetary Fund (IMF) and Organization for Economic Cooperation and Development (OECD).

Health care costs

It is well known that the United States has significantly higher health care costs than its rich industrial trading partners. If we managed our health care costs as efficiently as these peers, then there would be considerable space to improve production worker wages, boost corporate profits, and/or gain competitive advantage in global markets.

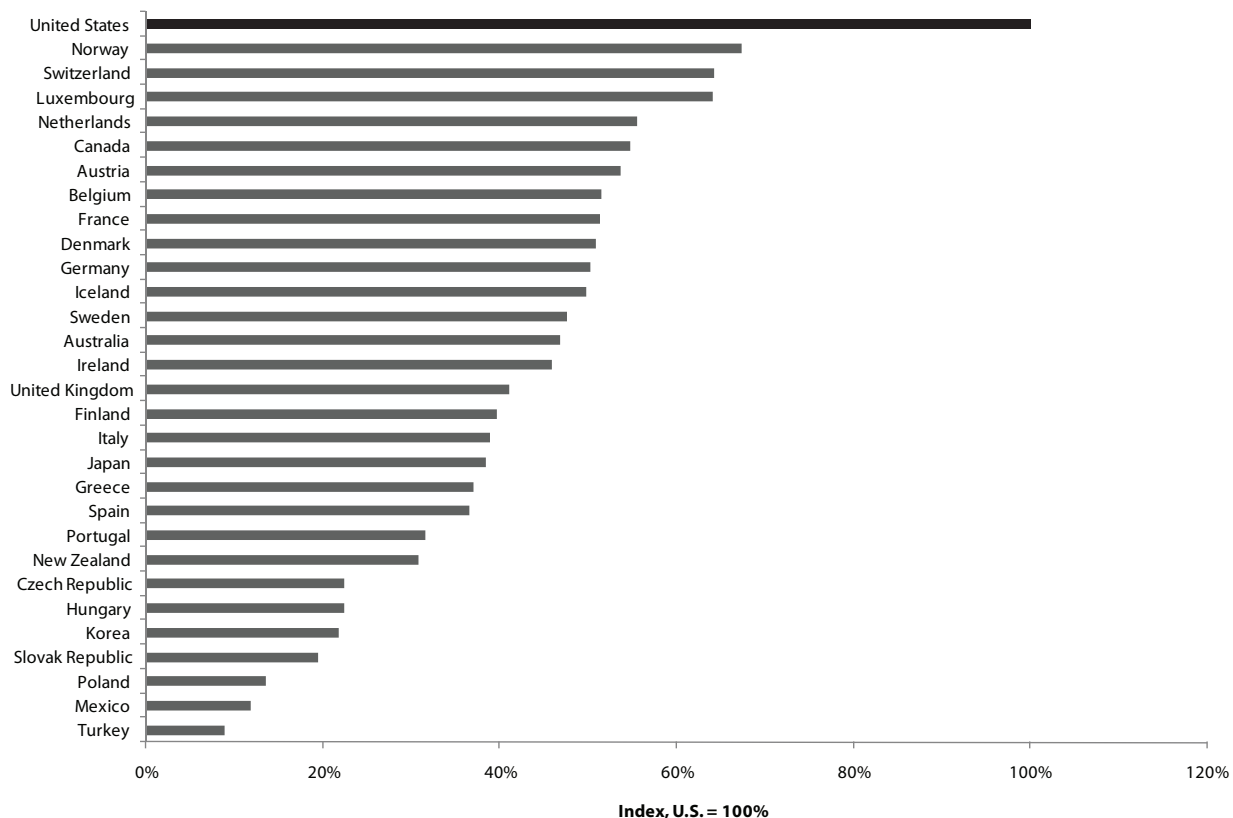
As an illustration, **Figure F** shows per capita health spending for the countries in the Organization of Economic Cooperation and Development (OECD), a group of the world’s richest countries. The median per capita health spending of the 16 countries with higher hourly production worker wages than the United States is only about half what the United States spends

In 2007, employer-paid health insurance benefits accounted for 9.2% of total compensation in U.S. manufacturing. If we had managed our health care spending as efficiently as our rich peers, we could: (a) keep wages the same as today and reap a 4.6% cost advantage relative to our competitors; or, (b) keep our competitive position unchanged while still giving production worker wages a 6.7% boost.⁷

This comparison almost surely *understates* the drag of the U.S. health system on manufacturing’s wage and competitiveness problems. The data in Figure F are for the overall economy. In the U.S. system of employment-based health insurance, costs are actually quite “lumpy” across sectors, and U.S. manufacturing sees higher costs than other sectors in the economy. For example, only 51% of workers in the wholesale and retail sectors receive employer-sponsored insurance, while 71% of workers receive it in the manufacturing sector. In our rich trading partners, conversely, coverage

FIGURE F

Per capita health care costs, 2006



SOURCE: Author's analysis of Organization for Economic Cooperation and Development (OECD) data.

is effectively universal and funded much more equitably, generally through mandates on *all* employers (or employees) or a broad-based tax.

Any intelligent health reform within the United States would surely smooth out the burden of financing health care across industries. This means that the burden imposed by the American health care system on U.S. manufacturing is surely even larger than what the aggregate statistics indicate.

America's actual wage and competitiveness problem: Managerial pay

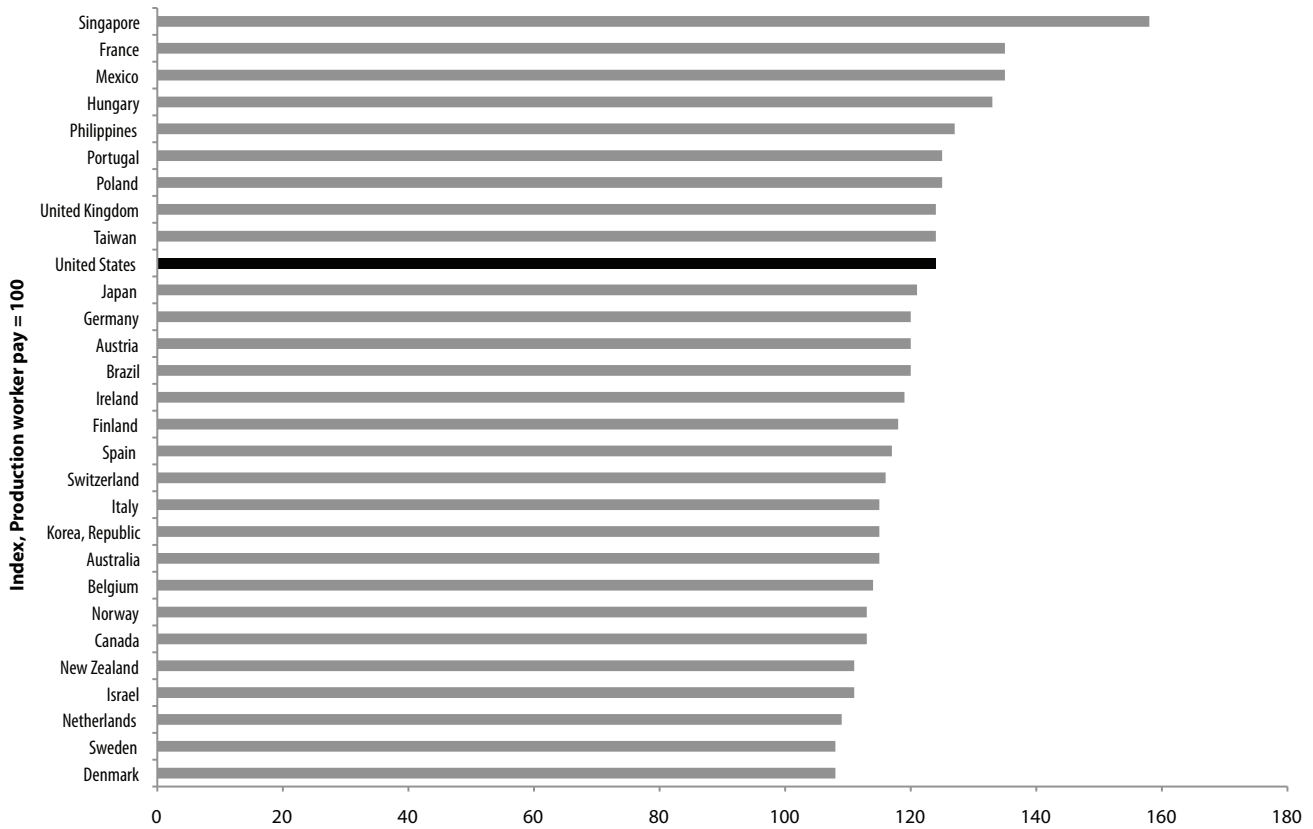
The BLS data on hourly pay in manufacturing sectors across the world point to one area where high wages may cause a competitiveness problem in U.S. manufacturing: the labor costs of the managerial and supervisory workforce.

Figure G shows the ratio of hourly compensation of *all* manufacturing employees to hourly compensation of just the production workers across the BLS sample. The U.S. ratio is higher than any other country whose production worker wages surpass ours, except for France and the United Kingdom (France is higher and the U.K. is tied with the United States). What this means is that the wage bill for management in the United States constitutes a large burden on manufacturing competitiveness relative to our rich-country peer group.

Given what is known about the ratio of non-production to production worker *employment* in the United States (roughly 82% of workers in U.S. manufacturing are production workers), the numbers in this figure imply that managers in U.S. manufacturing earn hourly wages 134% higher than the production workers they supervise.⁸ These are indeed high wages and result in managerial costs that look out of line with most of our most important trade competitors.

FIGURE G

Ratio of average pay in manufacturing to production worker pay



SOURCE: Author's analysis of Bureau of Labor Statistics (BLS) data.

If managers in the United States only took an amount of the overall manufacturing wage bill equal to the *median* of these other nations, overall labor costs in U.S. manufacturing could be over 6% lower. Anybody truly concerned about high wages choking off international competitiveness in the U.S. manufacturing sector ought to focus less on blue-collar production workers and more on their managers.

What about low-wage competition?

Most of the above has focused on America's place in the constellation of the world's richest nations. There are two reasons for this. First, while low-wage trade is gaining in importance over time, the bulk of U.S. trade flows still occur between the United States and its rich-nation competitors. Second, the argument frequently made about the negative impact of unionization on American manufacturing is that high wages are a primary reason why the United States has lost ground in global markets. Many other nations with higher unionization rates and higher wages have displayed no such trouble.

Furthermore, the problem of the overvalued dollar is just as burdensome with regards to trade with low-wage nations. The Federal Reserve compiles an index that tracks exchange rate movements of many of the most important poorer trading partners of the United States, including China and Mexico. Between 1997 and 2004, the dollar rose by 24% against this index. In that time, our manufacturing trade deficit with low-wage countries rose by a full 1.5% of total GDP. Since 2004 the dollar has retreated a bit against these countries' currencies, and the trade deficit against this group

has almost stabilized, rising only 0.3% in that time between 2004 and 2007. In short, exchange rates matter greatly for all U.S. trading relationships, not just those with our rich trading partners.

It is true that even if the U.S. dollar fell against our low-wage trading partners and trade flows roughly balanced against this group, many problems for U.S. workers (both union and non-union and in manufacturing and other sectors) would remain. Specifically, even balanced trade between the United States and its low-wage trading partners would lead to a pattern of specialization wherein the United States imported more labor-intensive goods and exported capital, skill, and credential-intensive goods. This pattern of production would lead to a reduced demand for labor and increased demand for capital, skills, and credentials, thus reducing wages and bidding up inequality.⁹

Note, however, that in this scenario low wages are the problematic *outcome*, not the *cause*, of these kinds of trade flows, and the impact on employment levels in manufacturing (the larger question at hand) would be much more muted relative to our experience over the past decade with an overvalued dollar.

Conclusion

In the last decade, the competitive deck has indeed been stacked against U.S. manufacturing, and the predictable result has been growing trade deficits and enormous employment loss in this sector.

However, no serious diagnosis of what ails U.S. manufacturing would implicate high wages paid to its blue-collar production workforce, unionized or not. Instead, the competitive decline and job loss has been caused overwhelmingly by the overvalued U.S. dollar, with a mismanaged health care sector and the high labor costs of its supervisory and managerial workforce exacerbating matters. Anybody truly concerned about the future of U.S. manufacturing should address these influences.

References

- Bivens, Josh. 2005. *Trade Deficits and Manufacturing Job-Loss: Correlation and Causality*. Economic Policy Institute Briefing Paper. Washington, D.C.: EPI.
- Bivens, Josh. 2008. *Everybody Wins Except for Most of Us: What Economics Teaches About Globalization*. Washington, D.C.: Economic Policy Institute.
- Blecker, Robert. 2007. The economic consequences of dollar appreciation for U.S. manufacturing investment: A time-series analysis. *International Review of Applied Economics*. Vol. 21, No. 4, pp. 491-517.
- Bureau of Labor Statistics, Foreign Labor Statistics Program.
- Inklaar, Robert, and Marcel P. Timmer. 2008. *GGDC Productivity Level Database: International Comparisons of Output, Inputs and Productivity at the Industry Level*. Working Paper, Groningen Center on Growth and Development. The Netherlands: University of Groningen.
- Leonhardt, David. 2008. Economic scene: Adding it up. *New York Times*, December 9. <http://www.nytimes.com/2008/12/10/business/economy/10leonhardt.html>

Endnotes

- 1 Bivens (2005) provides some more evidence on this relationship.
- 2 These countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland, the United Kingdom, and the United States.
- 3 Data on GDP per capita are from the Penn World Tables and are available upon request.
- 4 Productivity comparisons are from the Groningen Center on Growth and Development 60-industry dataset for the year 2003. These data are available from the author upon request. While this measure of productivity (value-added per employee) is not perfect, it was the best indicator that could be obtained for each country in this sample. The high ranking of the United States in this measure, however, is in line with other measures of productivity, such as that of Inklaar and Timmer (2008).
- 5 This correction is needed to account for the fact that some nations may have lower productivity in many industrial sectors but have higher rates of manufacturing-wide productivity solely because they specialize in those sectors with higher-than-average productivity. This corrected version of productivity is the better measure for the issue at hand: few people are arguing that unionization forces the United States to specialize more in labor-intensive (low-productivity) industries.
- 6 This figure compares the average value of the dollar between 1987 and 1997 (a time of relatively stable exchange rates and trade deficits) with the average value of the dollar between 1997 and 2007 (a time of large exchange rate swings and rapidly rising trade deficits). The difference in these simple averages is 16%. When this average change is weighted by each country's share in total trade with the United States, the cost advantage shrinks to 10%.
- 7 This calculation is just the share of total compensation in U.S. manufacturing accounted for by health costs (9.2%) multiplied by the difference between the United States and our median-rich trading partner in per capita health care costs (1-0.5).
- 8 This is calculated as $(124-82)/(1-0.82)$. Essentially, the 18% of workers who are managers are responsible for driving the overall wage bill in U.S. manufacturing 24% higher than it would be if only production worker wages were calculated.
- 9 For more on this aspect of trade with low-wage countries, see Bivens (2008).