

REMARKS BY GENE SPERLING BEFORE THE CONFERENCE ON THE RENAISSANCE OF AMERICAN MANUFACTURING

Remarks at the Conference on the Renaissance of American Manufacturing
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In the State of the Union, when the President outlined a blueprint for an economy built to last, he highlighted the importance of a competitive U.S. manufacturing sector to the vision of a U.S. economy that was innovative, competitive and the source of good jobs for American workers. Today, I want to lay out some of the economic underpinning that laid the foundation for the President and his economic team's focus on making manufacturing an economic priority.

Let me begin by acknowledging upfront that this is an area where otherwise like-minded economists often disagree. Many economists raise the concern that any focus on manufacturing is distortionary industrial policy or misguided because they believe that manufacturing is in an inevitable and irreversible decline due to decades-long productivity and technology gains that will mean a continual loss of jobs. I want to take on those arguments because we believe they miss important economic realities about the state of manufacturing in America and the very real benefits that manufacturing brings to our economy and that we ought to preserve.

Make no mistake about it: we understand that the goal of economic policy must be to lay the foundation for our private sector to create good jobs across-the-board, from professional service jobs to construction to manufacturing, from jobs in the tradable and non-tradable sectors.

Yet, we do believe that even if today only 12 percent of the U.S. private-sector workforce is employed in manufacturing, it is a sector that punches above its weight. When you take into account the outsized role that manufacturing plays in innovation – through R&D investment and patents; the tight linkage between innovation and manufacturing production; higher-wage jobs it produces; its importance for exports; the spillover benefits that manufacturing facilities have on firms and communities around them, and the deeper economic harm that comes from allowing our manufacturing production capacity to be hollowed out – it becomes clear that manufacturing is worthy of a special emphasis in the Obama economic strategy.

So let me now address some of the key points often under contention and express why we believe the Obama economic focus on manufacturing is economically justified.

Positive Spillovers: Location, Innovation, and National Competitiveness

The economic evidence is increasingly clear that a strong manufacturing sector creates spillover benefits to the broader economy, making manufacturing an essential component of a competitive and innovative economy.

While we know that economists often start from the premise that any type of preferential treatment of a single type of investment over another is viewed as distortionary, we also know

that when an economic activity has positive spillover effects that an individual firm cannot capture, there is a risk we as a nation under-invest in areas that can be beneficial to the economy at large.

There is, for example, a broad consensus that the benefits of R&D investment go beyond what can be captured by any individual firm and are worth government investment - in areas from basic research to the R&E tax credit for companies. Likewise, economic studies have shown that there are clear and measurable spillover benefits from manufacturing activity that benefit the locations and particularly nations that house such manufacturing activity.

For example, a 2010 study by economists Michael Greenstone, Rick Hornbeck and Enrico Moretti found that when a manufacturing plant chooses to invest in a county, the investment resulted not just in new production at the site of the plant, but actually increased productivity of other firms in the surrounding area – a concept that economists refer to as an “agglomeration spillover.” Other economic studies reinforce the insight that the location of manufacturing impacts who benefits from such “knowledge spillovers.”

A study published in the *American Economic Review* by economist Wolfgang Keller – examining manufacturing R&D in 14 countries over 25 years – found that such spillover benefits decline with distance, indeed by over half when they are more than 700 miles away.

Even more telling, as economist Lee Branstetter from Carnegie Mellon – currently on Alan Krueger’s team at the President’s Council of Economic Advisors – found when looking at industries in the U.S. and Japan, knowledge spillovers from industrial activity are primarily “intra-national” in scope. That is to say, the bulk of the benefits stayed within the country where the activity occurred.

A large number of studies confirm these results, and to the degree that such spillover benefits decline with distance and are most significant within national boundaries, it is certainly fair to think of the need to invest and preserve manufacturing activity as an issue of national competitiveness. This research is part of the reason there has been a growing focus on the importance of proximity between the activity of innovation and the activity of manufacturing. If we care about the location of the innovation, we should also care about the location of the manufacturing production.

More than any other industry, manufacturing firms account for a disproportionate share of innovative activity in the U.S. – 70 percent of private sector R&D and over 90 percent of patents issued. As a country, it matters where these benefits occur.

Part of the reason for this is that the knowledge and capabilities gained by production – in making things – support the design and innovation of new products and new processes. MIT recently launched a research initiative called Production in the Innovation Economy – or PIE – to as they described it, “analyze production in the United States and to propose new routes from innovation through manufacturing to jobs and growth in the United States.” Indeed, many see MIT’s PIE project as premised on the belief that the separation of design and innovation from

manufacturing that we have seen in the production of many information technology (IT) products may be more the exception than the rule for emerging technologies.

In defense of this premise, Professor Suzanne Berger, co-chair of PIE, wrote that, “There is a close connection between R&D and manufacturing in many of the emerging sectors because modularization [separation of design and production] may just not work as well for these technologies as it has for IT. R&D engineers may have to stay close to manufacturing to develop new strategies for making processes more efficient. The tighter integration of innovation and production may also present opportunities to bring design closer to end users, as advanced manufacturing technologies make it possible to produce higher-value goods at lower volume.”

It is this very understanding that causes MIT’s President Susan Hockfield (and co-chair of the President’s Advanced Manufacturing Partnership) to write that the loss of manufacturing “not only destroys manufacturing jobs, but also saps our inventive advantage.” And it is this understanding of the importance of proximity between manufacturing and innovation that explains why Boeing moved their engineers out of their offices and into their assembly plants, why Intel manufactures its latest chips in the U.S., near where the design itself occurs, and why Bell Labs, the source of incredible innovation during the 20th century, “housed thinkers and doers under one roof,” because they knew that understanding how to make things helped them to innovate.

The ecosystems that grow up around these intersections of innovation and production tend to be complex. They are the result of evolutions that occur over periods of years and decades. Once the virtuous, reinforcing cycles are broken they are difficult to recreate, and they can turn to a vicious cycle. That’s why losing pieces of our manufacturing base should be such a serious concern.

In a 2009 article, Harvard Business School professors Gary Pisano and Willy Shih explain these dynamics. They refer to the virtuous cycle as the “industrial commons,” the secret sauce of innovative know-how, process engineering capabilities, and workforce skills required for innovation in many manufacturing industries. The virtuous cycle happens when firms move to a region to tap into the “commons,” further enhancing the learning and capabilities in the area, accelerating innovation, and bringing in even more investment.

But Pisano & Shih make this point to show that the reverse is also true. The virtuous cycle can become a vicious cycle, where following the loss of manufacturing capacity, the unique process engineering expertise cannot be maintained and our innovative capacity is drained. For any single firm, the decision to move production elsewhere may make economic sense. But that decision impacts suppliers and the local talent pool. This makes the decision even easier for the next firm to leave and even harder for the next firm considering coming there to say yes.

Without these capabilities, companies do not create the process technologies that allow firms to create and scale new products. So when we remain indifferent to the decision to compete for the manufacturing products of the present, we have to understand that if it leads to a more serious loss of our manufacturing capacity, it can trigger the loss by our nation of the ability to compete for and create the next generation of technologies.

It's a story we're already all too familiar with in the United States. In consumer electronics. In metal castings. In machine tools and others. In each industry, firms shifted production out of the U.S., sometimes as products became commoditized. The subsequent loss of manufacturing capabilities led to leadership in other industries being developed elsewhere.

For example, when we lost consumer electronics manufacturing, we gave up a claim on future innovation. We lost in follow-on products like advanced batteries, flat-panel display technology and LED lighting. When we lost consumer electronics manufacturing, we also lost the capability to make and design the batteries, including lithium-ion batteries, used in computers, cell phones, and other consumer devices. As demand for batteries began to grow in the auto industry for hybrids and in utilities for grid storage, the technological leadership to design these products had migrated along with consumer electronics manufacturing. We lost the ability to create these products at scale. Through the Recovery Act, the U.S. made major investments to re-start the advanced battery industry in the U.S. We are on track to go from 2 percent of global production in 2009 to 40 percent of global capacity by 2015. Without that type of effort, it is unclear if this important industry would have taken root in the U.S.

Of course, dynamism – the so-called “creative destruction” and fierce global competition – are facts of economic life. We can never pretend that we can or should drive them to a halt. What the facts mentioned above demonstrate, however, is that we have a national economic interest in ensuring that as dynamic competition proceeds, we as a country must understand the importance of ensuring an environment where our manufacturing sector will not lose the ability to compete for the next advance, the next big thing, the next opportunity to create value and jobs on our shore.

Not Steady, Inevitable Decline

Even for those that accept that manufacturing creates spillover benefits, some still claim that policy to support manufacturing is ill-advised because, as supposedly shown by the job loss over the last decade, the manufacturing sector is on a path of inevitable decline with productivity and technology leading to fewer and fewer jobs over time, just as took place last century with agriculture.

There is truth to the claim that productivity gains mean that we have been able to expand our manufacturing output without necessarily expanding manufacturing sector employment, and that we have certainly seen a decline in manufacturing's relative share of employment over the last four decades. But this recognition is a long way from claiming that manufacturing is on a path of inevitable decline, and that the dramatic declines in manufacturing employment since 2000 are simply a continuation of a long-term steady pattern of declining manufacturing jobs.

Let me make three points.

Productivity

First, the underlying argument that continued gains in productivity must lead to job losses in manufacturing is not supported by the economic data. If the conventional view were true, we should expect that the manufacturing industries with the largest gains in productivity would have the largest job losses.

A study by economist William Nordhaus in 2005 demonstrated that within each manufacturing industry, increases in the rate of productivity growth were associated with increases in the rate of job growth (or at least decreases in the rate of job loss) during the 1948-2003 time period. Nordhaus concluded that “productivity is not to be feared – at least not in manufacturing.” In some ways, Nordhaus’s findings should be self-evident. As he stated, “higher productivity has led to lower prices, expanding demand, and to higher employment,” all else equal.

Some might claim that the Nordhaus study failed to examine the last decade, and thus we should consider discarding it. But a recent Brookings Institution paper by Susan Helper, Howard Wial, and Timothy Krueger updated Nordhaus’ methodology with data from the Bureau of Labor Statistics through 2009, and still did not find a correlation between productivity gains and job losses.

The Story Over Past Decades

Second, the last forty years have not painted a clear picture of productivity driving a dramatic decline in the number of Americans working in manufacturing. From the mid-1960s to 1999, while the growth in manufacturing productivity certainly contributed to the decline in the percentage of the U.S. workforce engaged in manufacturing, it did not actually lead to fewer people with manufacturing jobs. Indeed, there were as many Americans working in manufacturing in 1999 as there were in 1965 – about 17.3 million. And remember, this was the period that included the challenges our manufacturing sector faced in the 1980s with the rise of Japan and it includes the changes in major industries like steel.

Further contradicting the often conventional view was the fact that it was exactly during the period where we saw a significant and long-awaited increase in productivity growth in the late 1990s that we saw manufacturing employment start to increase. Indeed, the manufacturing sector added almost 700,000 jobs from 1993 to 1999.

This all points to one clear fact: the dramatic loss of manufacturing employment in the past decade was a break from the past and cannot be explained by the conventional view of productivity and technology gains.

Since 2000, the manufacturing sector lost nearly one-third of its workforce, a total of nearly 6 million jobs. Unlike the preceding decades, according to the Federal Reserve, manufacturing production, the measure of the physical amount of goods that we make, actually *declined* from 2000 to 2010 by five percent. This drop was not just a result of the recession. From 2000 to 2007, manufacturing production grew at only 1.3 percent per year, the worst peak-to-peak performance since World War II.

As a comparison, during the 1990s, manufacturing production grew at a pace of nearly 5 percent. So while the dramatic loss of manufacturing jobs may raise issues about our competitiveness, or our commitment to policies that support manufacturing, or the strength of our trade enforcement, or the non-market based currency policies of competitors, it should not just be used to suggest that manufacturing employment is in an unstoppable decline and policy is not relevant. Indeed, one would hope that the creation of 425,000 manufacturing jobs over the last two years is seen as one point to the contrary.

Webs of Jobs Beyond the Factory

Third, while some seek to downplay the job potential of manufacturing by pointing to “silent factories,” our support for manufacturing recognizes the importance manufacturing has across the broader economy beyond just major production facilities. It extends from the web of suppliers that support manufacturers to the communities where manufacturing plants often serve as an anchor employer.

Manufacturing produces more ancillary activity than other sectors. Using data from the Bureau of Economic Analysis, we can estimate that the manufacturing sector creates approximately \$1.40 of overall output for every \$1 of manufacturing output.

For those of you here from towns across the U.S. that rely on a major manufacturer, or states like Michigan where I come from, you understand the impact of manufacturing. In addition to the web of suppliers, the expansion of an auto plant brings other types of businesses to town including new restaurants, retailers, and service providers feeding off of this economic activity. If an auto plant opens up, a Wal-Mart can be expected to follow. But the converse does not necessarily hold - that a Wal-Mart opening definitely does not bring an auto plant with it.

It's worth remembering that the domestic automotive industry could very well have gone the way of the examples cited by Pisano and Shih in their Harvard Business Review article – consumer electronics, flat-panel displays, and others. In the 12 months prior to the President taking office, the auto industry had lost 400,000 jobs. According to the estimates of President Bush's Council of Economic Advisers in December 2008, failing to intervene in the auto industry and the resulting liquidation of GM and Chrysler could have resulted in the loss of an additional 1.1 million jobs, or more.

GM and Chrysler were truly on the brink of failure, and they threatened to pull the network of auto suppliers and even Ford down with them – as Ford CEO Alan Mulally said at the time, “we believed...that if GM and Chrysler would have gone into free fall bankruptcy, they would have taken the supply base down and taken the industry down plus maybe turned the U.S. recession into a depression.”

Since GM and Chrysler emerged from bankruptcy, the auto industry has added more than 200,000 jobs, with roughly 60 percent of those jobs in automobile manufacturing. That impact has been felt throughout the manufacturing and services firms that support the automobile manufacturing. It has also been felt in states like Michigan, where unemployment rate has dropped from a high of 14.1 percent to 9.0 percent today.

Increased Competitiveness for Manufacturing Location

While manufacturing has faced challenges, the view that we are facing an unstoppable process of outsourcing manufacturing jobs and that we cannot compete location wise for production is simply not the case.

Earlier this year, when the President held a forum on insourcing, company after company – from Siemens to Master Lock and Ford - spoke about choosing to invest in the U.S. and bring jobs back. Union leaders like Bob King from the UAW and leading CEOs agreed that the U.S. has not been as competitive as a location for business investment in decades. What was most striking was the fact that top private sector consultants - as well as experts like Harry Moser - were basically saying to them you have to stop looking at your unit costs over the last ten years, and start looking at a ‘total cost of production’ approach over the next ten years. When you take this approach, investing in the U.S. starts to make sense.

A study by the Boston Consulting Group found that China’s production cost advantage declines to just 10% over the next several years as a result of rising wages in China and relative gains in US productivity, and that is before taking into account transportation and other costs. The *Economic Report of the President* analyzed this change in relative costs against other countries, as well. In looking at relative production costs, the U.S. has been able to reduce unit production costs by 11% between 2002 and 2010, driven by gains in productivity, while 17 of the 18 other countries tracked by BLS, primarily advanced economies like Germany and Canada, saw their costs rise. When you factor in these changes in relative costs with other risks associated with global supply chains, the U.S. is becoming increasingly more attractive.

Obama Manufacturing and Innovation Policies

Because of the spillover benefits of the manufacturing sector, because we cannot lose our ability to produce cutting-edge technologies, because declining employment is not inevitable, and because we must fight to compete for every good job, President Obama believes we need strong support and a focus on making our manufacturing sector more competitive and encouraging more investment here in the U.S.

That’s why the President’s plan for business tax reform is focused on eliminating loopholes and simplifying tax rates to make the U.S. a more attractive location for firms to invest to spur growth.

Recognizing the intense international competition for manufacturing and the benefits manufacturers provide to the rest of the economy, our plan would lower rates for manufacturers to 25% and even lower for advanced manufacturing, recognizing the importance of more carefully targeting those benefits to true manufacturing that produces the spillover benefits that justify such preferential treatment. Because the economics literature is clear that the R&E tax credit leverages private investment to drive research in the U.S., the President has repeatedly called for making the credit permanent, and simplifying its outdated and overly complex

formula. And to prevent a global race to the bottom in tax rates that would draw production to tax havens abroad, the President's plan introduces a minimum tax on foreign earnings.

That's why the President called for immediate infrastructure investments to make sure our goods can move to markets at home and abroad.

That's why the Administration's budget proposes \$8 billion for a Community College to Career Fund for community colleges to partner with businesses to train 2 million workers in a range of high-growth areas like advanced manufacturing, earning industry-recognized credentials.

That's why the Administration is investing in innovation to support manufacturing, increasing our support for advanced manufacturing technologies by 19% to \$2.2 billion in FY13. We recognize investing in basic research isn't enough to make sure that a new technology crosses the bridge from invention to product development to manufacturing at scale. The President proposed a National Network for Manufacturing Innovation, the creation of up to fifteen manufacturing institutes to fill this gap in our innovation infrastructure by letting companies collaborate and access the capabilities of our research universities to support scaling up manufacturing production.

That's why the President has been clear that we need to invest in emerging clean energy industries, like advanced vehicles and batteries and wind and solar.

That's why we need to safely and responsibly develop our domestic natural gas resources, an input that is so critical to many manufacturing industries for energy and as a feedstock for production.

And finally, that's why the President has built on a strong record of trade enforcement with new measures to enhance our ability to go after unfair trade practices, including those of China. In September 2009, President Obama ordered safeguards applied to tire imports from China, a move that addressed a surge of tires from China, adding over 1,000 workers in the process. In so doing, the President applied the "Section 421" safeguard law for the first time since China joined the WTO in 2001 – an action that President Bush never took. In fact, the President has nearly doubled the rate of WTO cases against China from the previous Administration.

Just two weeks ago, the Administration brought a new trade case against China on rare earth materials, which are key ingredients making many high-tech products like advanced batteries and high-tech magnets. And in February, the President launched an Interagency Trade Enforcement Center (ITEC) which will enhance our capacity even further, representing a 'whole-of-government' approach to addressing unfair trade practices. The President's fiscal year 2013 Budget includes \$26 million in funding and 50-60 dedicated staff.

We return where we started. Of course, most jobs will be in services. And of course, our policies for stronger, more accountable teaching and educational performance, a focus on STEM education, reforms to our training programs, dramatic expansion of higher education opportunity, middle class tax relief, investment in basic research, and the effort to bring down our deficit and debt as a percentage of our economy in a balanced way are all designed to create strong jobs

across all specters of the economy, and in the industries and jobs of the future we can yet imagine. But manufacturing matters; manufacturing promotes the innovation and productivity that will keep America on the cutting edge, and that is why it will remain a key plank of the President's agenda to grow our economy and the strength and inclusiveness of the great American middle class.

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