

The Case for a Manufacturing Renaissance
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I. Introduction

There is little question that President Obama and his economic team have made the revival of manufacturing a key plank of our middle class jobs, innovation, and competitiveness agenda.

There is also little question that since the beginning of 2010, U.S. manufacturing has been one of the economy's bright spots, growing roughly twice as fast as the overall economy. America's manufacturers have begun to grow production and add jobs in a significant way for the first time in two decades, with over 500,000 jobs added since the beginning of 2010.

While no one disputes these basic facts, questions have been raised on three fronts:

- (i) Is a focus on manufacturing an appropriate public policy priority?
- (ii) Is manufacturing a promising arena to think about job creation in light of technology, globalization, and productivity trends?
- (iii) Are we really seeing the promise of a manufacturing renaissance in the United States or just a cyclical recovery?

In making the case for the Obama manufacturing strategy, I want to suggest three paradigm shifts that I believe provide a more insightful set of lenses through which to view the impact of manufacturing and the role of policy:

- (i) First, we need to shift from thinking about the promise of advanced manufacturing from an "industrial policy" model, which is generally framed as picking winners and losers, to an "innovation spillover" model, where we are focused on the degree to which manufacturing location in the United States leads to positive economic and innovation spill-over benefits both for the specific communities impacted as well as for the broader economy.
- (ii) Second, we need to shift from a "large factory" paradigm where continued gains in productivity lead some to perceive "silent factories" with few manufacturing jobs to a "supply-chain" paradigm which recognizes the manufacturing and services jobs across integrated supply chains.
- (iii) Third, we need to shift from a "static snap-shot" approach which uses current and historical data to assess manufacturing's longer-term potential and shift to a "dynamic analysis" approach that looks at economic trends and asks the most important question: If we deployed the right policies, is a durable manufacturing renaissance possible and beneficial for the United States? In other words, in answering the renaissance question, policy can be critical to the long-term answer.

II. The Case For Manufacturing Policy: From an Industrial Policy Model to an Innovation Spillover Model

The standard critique against policy supporting manufacturing is that such efforts are misguided industrial policy in which the government seeks to believe it has greater competence in picking industry winners than millions of private sector actors in competitive markets which thus distorts markets and leads to deadweight loss in the economy.

If this were, in fact, an accurate description for either the motivation or the policies behind our manufacturing strategy, I too would oppose them. As I have written before, those who believe they can out-think and out-predict the market, should remember that quite smart government economists predicted that travel agents would be one of the top growing professions in 1993 – a prediction that made sense at the time – but obviously missed the unpredictable entrance of the internet into our lives.

But that has never been the purpose or motivation of the President, his economic team, or the economists, CEOs, University Presidents, and outside experts (some of which were part of the President's Advanced Manufacturing Partnership) who support these policies.

The President's policies do not seek to pick out specific industries in manufacturing and favor them over others. The motivation for manufacturing policy is far more consistent with the rationale, widely accepted among economists, for supporting an activity like research and development, that has spillover benefits for innovation and productivity than cannot be captured by any single private actor – and that without policy support, could lead to under-investment in economic activity that makes us economically stronger as a country.

While I have previously discussed these innovation spill-over impacts in depth, I wanted to briefly summarize them in four categories.¹

1. Manufacturing Punches Above Its Weight

Manufacturing punches above its weight, playing an outsized role in our innovation economy. Despite representing 12 percent of U.S. GDP, manufacturing accounts for roughly 70 percent of private sector research and development, 60 percent of all US R&D employees, over 90 percent of patents issued, and the majority of all U.S. exports.

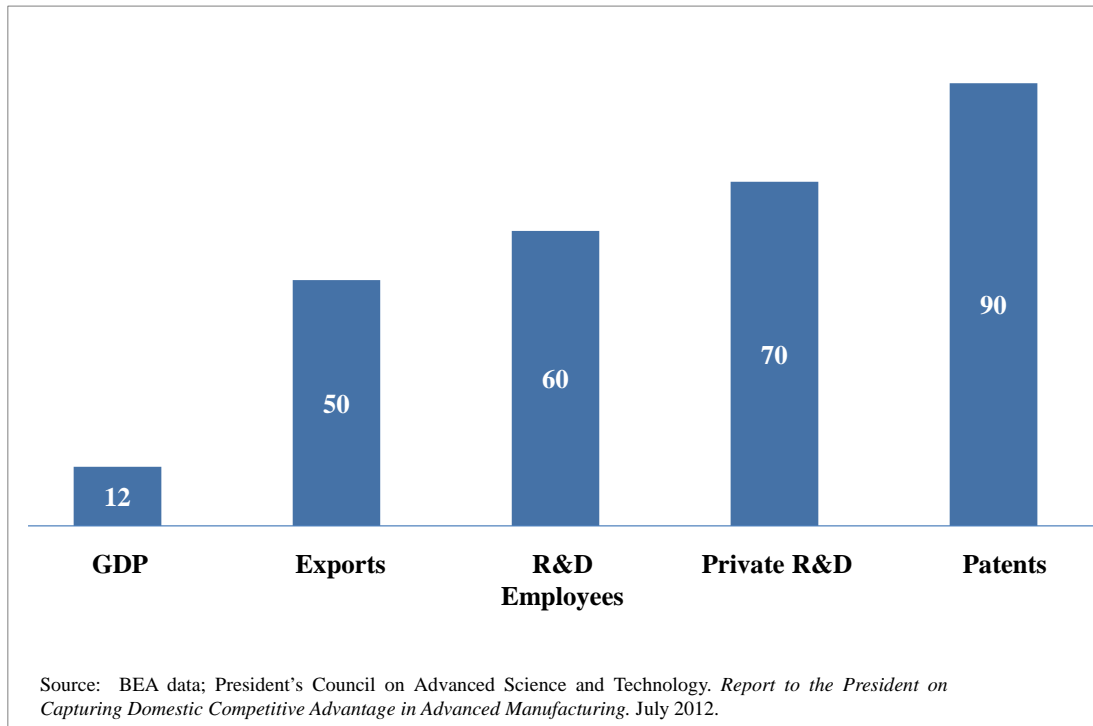
Manufacturing creates well-paying middle class jobs – education, experience, and all else being equal, manufacturing employees earn 14 percent higher total compensation, including benefits, than their non-manufacturing peers². And as firms are looking to hire new workers, new hires in manufacturing in 2011 made 38 percent more than in other industries.³

¹ Sperling, Gene. "Remarks at the Conference on the Renaissance of American Manufacturing." Conference on the Renaissance of American Manufacturing. Washington, DC. 27 Mar 2012. Speech

² Council of Economic Advisers. *2013 Economic Report of the President*. Chapter 7. March 2013.

³ Forthcoming analysis from the Bureau of Economic Analysis (BEA).

Figure 1: Manufacturing Share of U.S. Total (percent)



2. Location Spillovers

Even beyond manufacturing's direct contributions to the economy, economic studies show that manufacturing generates spillover benefits to the location and to the country in which the activity occurs.

For example, a 2010 study by Greenstone, Hornbeck and Moretti showed that as a result of a manufacturing plant moving into a community, the productivity of the surrounding firms improved 12 percent compared to a comparable community that did not receive new production, a concept referred to as 'agglomeration spillovers'.⁴

Other studies reinforce the importance of location for capturing knowledge spillovers. A study in the *American Economic Review* by Wolfgang Keller, examining manufacturing R&D in 14 countries over 25 years, found that the spillover benefits from that activity declined with distance, by more than 50 percent when they are more than 700 miles away.

Even more relevant for federal policy-makers, Lee Branstetter, an economist at Carnegie Mellon and formerly with the President's Council of Economic Advisers, investigated the benefits of manufacturing in the US and Japan, and found that the knowledge and productivity spillovers

⁴ Greenstone, Michael, Richard Hornbeck, and Enrico Moretti. "Identifying Agglomeration Spillovers: Evidence from Winners and Losers of Large Plant Openings." *Journal of Political Economy*. 118.3 (2010): 536-598.

tend to be “intra-national” or captured within the country where the activity occurs, making location critical to capturing these benefits.⁵

Given the economic evidence on the importance of location for capturing spillover benefits, encouraging manufacturing activity in the U.S. should be considered a worthwhile policy goal as an issue of national competitiveness. If we care about these innovation spillovers, we should care about the location of manufacturing production.

3. *Proximity of Production and Design*

Similarly, there is a growing body of literature examining the importance of proximity between the actual manufacturing activity and the design activity. That’s because for many technologies, the capabilities gained in production are intertwined with new learning and the knowledge activities of research, development and design. MIT launched a task force in 2011 called Production in the Innovation Economy (PIE) focused on the interdependence between production and innovation, and their initial task force paper released this spring states that “learning takes place as engineers and technicians on the factory floor come back with their problems to the design engineers and struggle with them to find better resolutions; learning takes place as users come back with problems.”⁶

This iterative innovation process, connecting manufacturing and design, is how a wide range of so-called breakthrough technologies actually came to pass. For example, in advanced materials, it took years of lab to shop iteration for DuPont to develop both the science and the incremental process improvements to produce a true breakthrough product like Kevlar.

And it is this understanding of proximity that has driven how many companies and organizations conduct their business. It is the reason why the famed Bell Labs, the source of epochal innovations from the 20th century, “housed thinkers and doers under one roof”. It is the reason why Boeing moved its engineers to the production floor. And capitalizing on the linkage between design and manufacturing is still a source of advantage today – many credit Intel’s decision to locate its chip manufacturing near its design facilities in the US with their four-to-five-year technology lead.⁷

It is also this understanding that underpins the President’s flagship initiative to create a national network of manufacturing innovation institutes, connecting businesses, universities, and federal agencies to co-invest in world-leading capabilities and technologies. These institutes rely on the complementary activities between production and design to encourage manufacturing location.

⁵ 3 Keller, Wolfgang. "Geographic Localization Of International Technology Diffusion," *American Economic Review*, 2002, v92(1,Mar), 120-142. ; Branstetter, Lee. “Are Knowledge Spillovers International or Intranational in Scope? Microeconomic Evidence from Japan and the United States,” *Journal of International Economics*, vol. 53, February 2001, pp. 53-79.

⁶ MIT Taskforce on Production in the Innovation Economy. *Preview of the MIT Production in the Innovation Economy Report*. February 2013.

⁷ Additional examples: In biotechnology, companies like Genentech keep production and R&D closely integrated because process innovation is critical to manufacturing specific molecules.

Observing this intimate link between innovation and manufacturing, former MIT President Susan Hockfield put her finger on the crux of the issue – that the loss of manufacturing “Not only destroys manufacturing jobs, but also saps our inventive advantage.”⁸

4. *The “Industrial Commons” and Competing for Future Economic Activity*

The ecosystems that develop around the intersection of innovation and production tend to be complex. Manufacturers, both established and emerging, depend on dense networks of suppliers, high-skill talent, capabilities, and know-how that develop around production activity. They often take years to develop, but they are critically important for the health of our manufacturing sector today and its growth tomorrow.

As Harvard professors Pisano and Shih have observed, existing manufacturing capabilities provide what they call the “industrial commons” or “the R&D and manufacturing infrastructure, know-how, process-development skills, and engineering capabilities in firms, universities, and other organizations that provide the foundation for growth and innovation in a wide range of industries”.⁹

When we allow our manufacturing base to erode and we lose these dense capabilities, we can create vicious cycles that risk the health of our manufacturing sector and the services that depend on it today. From the perspective of a single firm, the decision to move production elsewhere may make economic sense, but the result can have a cascading effect on customers and suppliers within the dense network within which manufacturers operate. For the next firm, the economics are a little more favorable to moving and a little less favorable to expanding. As a result of this dynamic, these cascading decisions can begin a vicious cycle, making the U.S. less attractive as a location for manufacturing, and we lose the capabilities needed to compete.

The case of consumer electronics, highlighted by Pisano and Shih in their 2012 book, *Producing Prosperity*, demonstrates the risk of these vicious cycles. When consumer electronics capacity relocated, largely to Asia, it was not obvious that it would have detrimental impacts to our future claims on manufacturing. However, the loss of production capabilities meant that we gave up a claim to the follow-on technologies like advanced batteries, LED lighting, fiber optics, and flat-panel displays. As the MIT Production in the Innovation Economy report notes, as a result of this lost production – and its impact on the industrial commons - “across the entire industrial landscape there are now gaping holes and missing pieces. It’s not just that factories stand empty and crumbling; it’s that critical strengths and capabilities have disappeared that once served to bring new enterprises to life.”¹⁰

Rebuilding and strengthening these ecosystems is critical for the strength of existing industries and the formation of new ones. A recent study by Delgado, Porter, and Stern found that locations

⁸ Hockfield, Susan. “Manufacturing a Recovery.” *The New York Times*. Op. ed., August 29th, 2011.

⁹ Pisano, Gary, and Willy Shih. “Restoring American Competitiveness.” *Harvard Business Review*. 87.7-8 (2009).
Pisano, Gary, and Willy Shih. *Producing Prosperity: Why America Needs a Manufacturing Renaissance*.
Cambridge: Harvard Business Review Press, 2012.

¹⁰ MIT Taskforce on Production in the Innovation Economy. *Preview of the MIT Production in the Innovation Economy Report*. February 2013.

with strong shared capabilities across industries – including networks of suppliers, industry institutions, and shared expertise – experienced not only faster employment growth in those industries, but also faster growth of new industries, 45 percent faster.¹¹ And these shared capabilities are not always obvious – Massachusetts’s infant semiconductor industry leveraged the pool of talented machinists who developed their skills working for the United Shoe Machine Company.

The U.S. automobile industry provides a more recent counter-example to the case of consumer electronics. At the time the President took office, GM and Chrysler were on the brink of failure. But the initial action of the Bush Administration and the subsequent decision by President Obama to support GM and Chrysler was about much more than those two companies. The failure of GM and Chrysler would have had a cascading effect across the industry and through the supply base, creating true erosion that we would have not been able to replace. Like many industries, automakers have shared supply chains, and these suppliers not only make up the majority of the value-added in a vehicle, but they are often critical to new innovation and competitiveness. The loss of the supply base triggered by the failure of GM and Chrysler could have ceded our claim to future economic activity and innovation.

There is, perhaps, no stronger validation for this view than the comments of Ford CEO Alan Mulally concerning the federal efforts to rescue his main competitors, GM and Chrysler. From a traditional business strategy perspective, Ford should have looked at their competitors’ potential demise as a chance to pick up market share. Yet, Mulally recognized the immediate and ongoing risk to Ford, stating at the time that “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.”

III. The Role of Manufacturing in Employment: From Jobs in the Factory to Jobs Across the Supply Chain

At a time when, despite the creation of 7.2 million new private sector jobs over the last 40 months, too many Americans that want a job cannot find one, some question if we should expend policy efforts to promote manufacturing, particularly when today’s factories can produce the same amount with half the people as they did in 1992. That question rests on two separate claims: first, that manufacturing jobs are in a state of inevitable decline due to productivity, technology, and globalization; and second, that promoting manufacturing is counterproductive because it results in job-less, “silent factories.”

Neither of these claims provides an accurate view of manufacturing’s impact on jobs.

1. The Myth of Inevitable Decline

Those who argue that manufacturing jobs have been in an inevitable state of decline, fail to look at the actual trends over the last several decades. It is indisputable, that in all advanced economies manufacturing production and jobs have declined as a percentage of GDP and

¹¹ Delgado, Mercedes, Michael Porter, and Scott Stern. “Clusters, convergence, and economic performance.” *NBER Working Papers Series*, No. 18250, July 2012.

employment. Yet, what is too often missed is that the absolute number of manufacturing jobs in the United States stayed relatively steady until 2001. In 1965, the manufacturing sector employed roughly 17.5 million Americans. While there were ebbs and flows, at the end of the Clinton Administration the manufacturing sector employed roughly 17.5 million Americans.

The actual loss in absolute manufacturing jobs over the past 50 years primarily took place last decade, where we lost over 5 million manufacturing jobs, roughly one-third of the manufacturing workforce. From 1965 until 2000, we steadily grew manufacturing production at roughly 4 percent per annum, in line with real GDP growth. From 2000 to 2010, our production stagnated and underperformed the economy by a consistent margin for the first time.

While I will leave for another day a discussion of how much a failure of trade enforcement or a lack of focus on policies related to manufacturing contributed to the sudden fall in absolute employment; suffice it to say that it is not the case that this decline reflected a 50 year trend.

And it's also not the case that other advanced economies suffered to the same degree - while Germany saw a decline in manufacturing as a percentage of employment, from 37 percent to 20 percent over the past 40 years, it was far less steep. If the U.S. rate of decline followed the rate of the German decline over this same time period, there would be 5 million more Americans employed in our manufacturing sector.¹²

The economic evidence suggests no inherent connection between productivity gains and manufacturing job loss, in fact the opposite – historically, as documented by economist William Nordhaus 2005 study. His research showed that when you look at each manufacturing industry independently, those with higher rates of productivity growth were actually associated with increases in job growth over the 1948 to 2003 time period.

As Nordhaus wrote, “Higher productivity has led to lower prices, expanding demand, and to higher employment,” all else equal.¹³ A more recent Brookings Institution paper extended this analysis to 2009, and again, found that even including last decade, sectors with increased productivity were not associated with declining employment.¹⁴

2. *Looking for Jobs: Factory-Focus vs. Supply Chain-Focus*

To truly understand the impact manufacturing has on US jobs, we need to look beyond jobs in big factories to include the jobs across integrated supply chains and local economies that depend on manufacturing. The view of manufacturing's future as a collection of job-less, ‘silent factories’ misses the importance of these jobs in three ways.

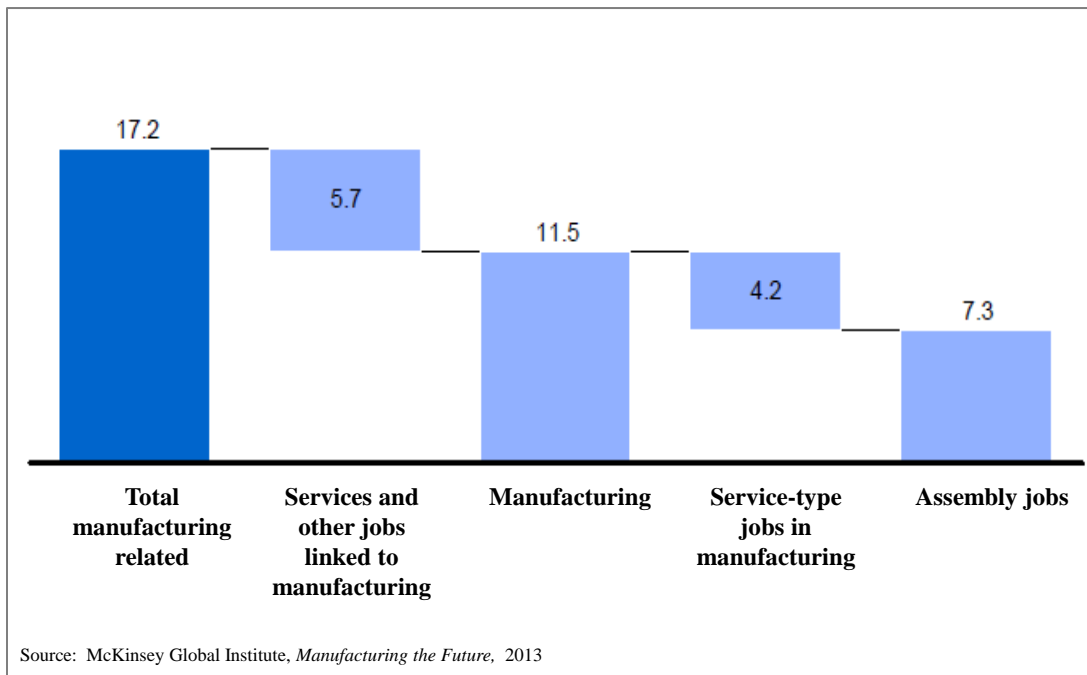
¹² Baker, Dean. "How Do You Think About U.S. Manufacturing?" *Center for Economic and Policy Research*. 25 Mar 2013: n. page. Print. <<http://www.cepr.net/index.php/blogs/beat-the-press/how-do-you-think-about-us-manufacturing>>.

¹³ Nordhaus, William. "The Sources of the Productivity Rebound and the Manufacturing Employment Puzzle." *NBER Working Paper*. No. 11354. (2005). Web. 22 Jul. 2013. <<http://www.nber.org/papers/w11354>>.

¹⁴ A Brookings paper extended Nordhaus' analysis to 2009 and confirmed its findings. *See*: Helper, Susan, Timothy Krueger, and Howard Wial. "Why Does Manufacturing Matter? Which Manufacturing Matters? A Policy Framework." *Brookings*. Feb 2012.

First, it undercounts the employment effects of the broader supply chain. The McKinsey Global Institute estimated that there are another 5.7 million jobs in integrated manufacturing supply chains. Decades ago, when manufacturers relied more on in-house shops and services, these jobs might have been counted as manufacturing. But today, when a company like GM uses an outsourced transportation fleet or software design firm, jobs which clearly rely on manufacturing, those jobs are counted as services jobs.

Figure 2: U.S. Manufacturing Supported Jobs (millions, 2010)



Second, it neglects the jobs created by manufacturing’s wealth. Research by Enrico Moretti suggests that on average a manufacturing job supports 1.6 jobs outside of manufacturing, and that more advanced manufacturing activity has even higher multiplier effects, nearly 5 jobs across the broader economy as a result of the high-wage jobs and wealth that manufacturing brings into a community.¹⁵

Third, even as the “silent factories” view undercounts the jobs manufacturing supports today, it also fails to envision the future, high-wage services jobs for which we will need manufacturing capabilities here to innovate and compete. For example, jobs developing software services and apps using the sophisticated electronics – such as the nearly 8 million lines of code in a Boeing 787 Dreamliner - now embedded in products from planes to cars to microwaves.

But if we are to win these jobs, we will need production here, as designing these systems depends in part on expertise that comes from making things and some applications will require close coordination around changes to the product itself – like building in new vehicle sensors and diagnostics to enable an automatic braking application.

¹⁵ Moretti, Enrico. “Local multipliers.” *American Economic Review*, Papers and Proceedings 100, May 2010, pgs. 1-7.

As an example of the impact on high-end service jobs and important capabilities in Michigan today, the fastest growing technical jobs are software systems and application developers, growing at 37% and 24% respectively, three to four times as fast as technical occupations overall, largely because of demand for programmers who can build new software applications for automobiles.¹⁶

IV. The Future for U.S. Manufacturing: The Case for Renaissance from a Dynamic Perspective

Recently, a debate has begun about whether the positive economic performance of manufacturing is evidence of a renaissance in manufacturing or whether it reflects gains from a normal recovery.

Some have seized on reports by Goldman Sachs and Morgan Stanley questioning whether the positive manufacturing sector performance since 2010 indeed reflected what economists call ‘structural factors’, those that might signal a broader renaissance, or only ‘cyclical factors’, those driven by a recovery at this stage of the business cycle. These reports assessed recent economic data and concluded only that the evidence was insufficient to make a case for a manufacturing renaissance at this point, claiming that most of the employment and production growth was due to a cyclical recovery. But the interpretations of these reports went further; Wall Street Journal articles covering these reports included “Signs of Factory Revival Hard to Spot” and “The Myth of the Manufacturing Renaissance.”

What it is important to note is that these reports took a static ‘snap-shot’ approach to the analysis for a manufacturing renaissance. They essentially asked, looking at the economic data so far, do we have evidence that manufacturing is undergoing a renaissance? While we have some significant disagreement with their static analysis, the real issue is that they failed to ask the right question. The most important issue from a public policy perspective is not whether a static ‘snap-shot’ analysis provides proof of a manufacturing renaissance at this moment in time, but whether when looking at existing trends, is there evidence that there could be a manufacturing renaissance allowing the U.S. to capture broader innovation benefits to the economy *if* we put in place the right policy measures?

We believe the answer is yes.

1. Challenging the ‘Snap-Shot’ Assessment and Approach

While the heart of our disagreement with the renaissance-skeptics is about the importance of taking a dynamic view of manufacturing competitiveness – it is hard to accept the premise that what we are seeing right now is simply what happens in a normal recovery, for the following four reasons:

¹⁶ In Michigan, the fastest growing technical job is software developers for systems (36.9%), followed closely by software developers for applications (23.5%) compared with only 8% growth in technical occupations overall. See: Trop, Jaclyn. “Detroit, Embracing New Auto Technologies, Seeks App Builders.” *The New York Times*. June 30, 2013.

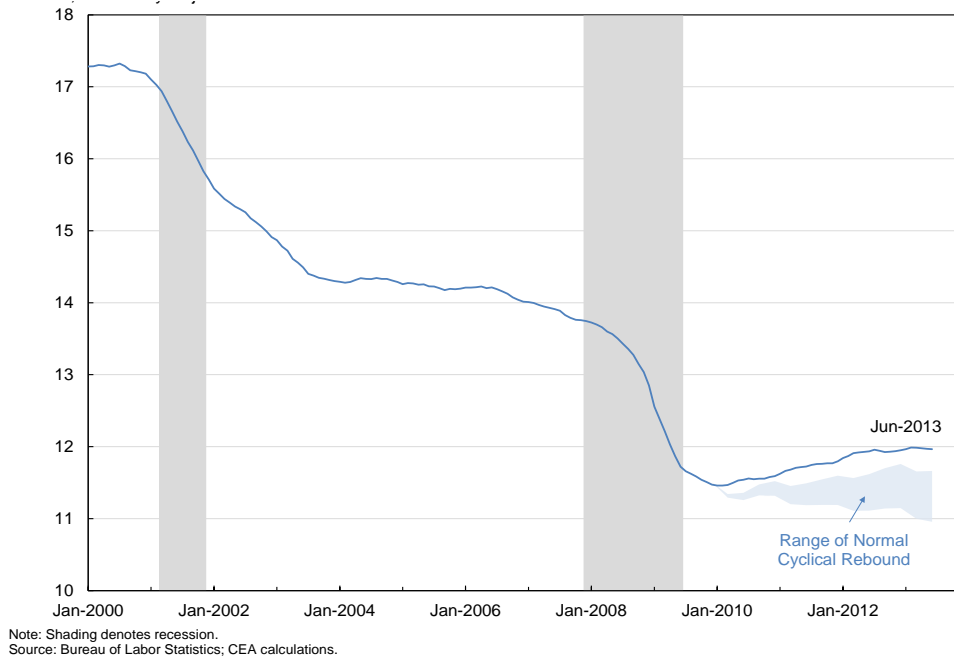
- **The Auto Rescue:** First of all, the notion that the recent recovery in manufacturing and manufacturing jobs is simply cyclical stunningly ignores the role of public policy in helping to revitalize the auto industry. As the economic crisis unfolded, the Bush CEA had projected expected losses of at least 1 million jobs if GM and Chrysler were to fail. Instead, due to policies taken initially under the Bush Administration and then furthered and implemented under President Obama, there has been a remarkable auto industry comeback that has been a major component of recent manufacturing strength. The auto industry has added 325,000 jobs since GM and Chrysler emerged from bankruptcy. And auto manufacturing has added 140,000 jobs since January 2010, more than a quarter of manufacturing's overall job growth; auto production growth has also played a central role in the employment and production expansions in industries like fabricated metals, primary metals, and machinery.
- **The Goldman Sachs and Morgan Stanley Pieces were Less Negative than Reported:** While the reports expressed skepticism as to whether existing statistics could prove we were currently in a manufacturing renaissance, the actual analysis was far less negative than the headlines suggested. Morgan Stanley acknowledges that times have changed and finds that “[t]here is clear evidence that the draining of US manufacturing capacity into China [and emerging markets] has stopped”. Similarly, Goldman stated that “[t]he outlook for the manufacturing sector is reasonably bright. Over the next few years, we expect US manufacturing to grow a bit faster than the economy as a whole.” When combined with the last three years, Goldman’s predictions would spell the longest period of outperformance since the 1960s.¹⁷
- **U.S. Increasing Share of Global Exports:** The U.S. has rapidly increased its competitiveness for global exports. According to the investment firm Bridgewater, even while global exports have slowed, the U.S. has gained global share at a faster pace than all major countries except for China.¹⁸ In 2012, US exports grew five times as fast as those of advanced economies, and three times as fast as exports from emerging Asia. Even as export growth slows globally, down 13 percent from the 2012, the US continues to outperform its advanced economy peers, continuing to grow its exports even as advanced economy exports overall suffer a steep fall off.
- **Analysis by President’s CEA Suggests Structural Changes Under Way:** Alan Krueger, the Chair of the President’s Council of Economic Advisers first explored this question in the Economic Report to the President and the analysis suggested that part of the job gains over the past three years potentially reflected “the start of a

¹⁷ BLS, *Current Employment Statistics*, US Department of Labor. Retrieved July 2013 from <http://www.bls.gov/data/>.

¹⁸ Jensen, Greg, et al. "Is a US Manufacturing Renaissance Beginning?" *Bridgewater Daily Observations*. 26 Apr 2013.

longer-term trend toward the ‘in-sourcing’ of manufacturing.”¹⁹ More recently, Jim Stock, a member of CEA compared the current recovery to previous recoveries, much like the Goldman analysis, and after adjusting for changing long-term trends brought about by increased globalization and other factors over the last decade, found that the recent performance strongly suggests that manufacturing employment and production growth cannot be explained by a cyclical recovery alone.

Figure 3: Manufacturing Employment (millions, seasonally adjusted)



2. *The Right Question: Do Trends Suggest the Potential for a Manufacturing Renaissance If We Adopt the Right Policies?*

Stepping back, the question of whether or not a manufacturing renaissance is possible should be measured not by a static snapshot analysis of job and production growth, but rather by whether a long-term improvement in our competitiveness for manufacturing location and global exports is possible if we adopt the right policies.

Of course, in an export-driven sector like manufacturing, near-term employment performance will be subject to global economic headwinds. And it remains true that the most important factor in the US manufacturing sector’s performance over the next 12 months could easily be the global pace of recovery. But as growth improves, our newfound competitiveness can position us to capture a greater share of it if we put in place the right policies.

¹⁹ Krueger, Alan, et al. "Chapter 7: International Trade and Competitiveness." *Economic Report of the President*. Washington, DC: Council of Economic Advisers, 2013. Web. 22 Jul. 2013. <http://www.whitehouse.gov/sites/default/files/docs/erp2013/full_2013_economic_report_of_the_president.pdf>.

There are major economic trends that point to the potential for significantly increased competitiveness in U.S. manufacturing. This view of a new competitiveness or renaissance comes not from political leaders but from top business consultants that are sharing this analysis with companies making location decisions. These trends include:

- **Closing the Cost Gap as a Result of Rising U.S. Productivity and Rising Costs Abroad:** The Boston Consulting Group has found that the U.S. is more cost competitive than all of our advanced economy competitors and the cost gap with China could close to 10 percent by 2015.²⁰ That analysis is supported by Bridgewater and others, which looked at unit production costs and found that the U.S. is below countries like Germany, and when adjusting for productivity lower than places like Mexico and Brazil.
- **Abundant Low-Cost Energy:** Thanks to a surge in domestic production from shale gas, U.S. natural gas prices are less than half of Europe and one-third less than places like Japan and South Korea. As a result, companies have announced tens of billions of new investment in energy-intensive manufacturing. While the most energy intensive industries represent only a fraction of employment, the lower input costs and improved domestic demand from lower energy prices could have knock-on effects for a broad range of industries.
- **Recognition of the “Hidden Costs” of Long Supply Chains, Including Logistics Uncertainty and IP-Risk:** Of manufacturing executives surveyed by Morgan Stanley more than 50 percent listed supply-chain shortening as a top reason for why they chose to bring new production back to the U.S. and more than 30 percent identified IP protection. Companies we have engaged suggest that there are a broad set of costs, including travel and time managing far flung supply chains, not often factored when they initially chose to relocate away from the U.S.

As a result of these trends, companies are taking notice and actively evaluating investment in the U.S. A survey by the Boston Consulting Group last year found that nearly 50 percent of companies with more than \$10 billion in sales were actively considering relocating production from China to the U.S.²¹ Morgan Stanley’s recent survey suggests the re-shoring outlook is even more positive over the medium-term with more than 70 percent of respondents predicting expansion in the US over the next five years.

In addition, important new platform technologies are emerging. These platform technologies with broad commercial impacts where we have an innovative edge, like bio-based and bio-engineered products, additive manufacturing processes, advanced materials and robotics, and digital manufacturing, will be consequential for our future competitiveness in manufacturing, dependent upon our ability to translate inventive initiative into ongoing production. The

²⁰ Sirkin, Harold, Michael Zinser, and Douglas Hohner. "Made in America, Again: Why Manufacturing Will Return to the U.S." The Boston Consulting Group, August 2011. Web. 22 Jul 2013. <<http://www.bcg.com/documents/file84471.pdf>>.

²¹ Boston Consulting Group. "More than a third of large manufacturers are considering reshoring from China to the U.S." Press release. April 20, 2012.

combination of economic and technological trends offers a unique opportunity for U.S. manufacturing growth.

V. Policy Matters

Despite these positive trends, a renaissance of U.S. manufacturing is not going to happen on its own, and its outcome is not predetermined. It requires long-term capital investments by both firms and governments. It requires rebuilding our workforce and technological capabilities. It requires establishing new institutions that can bring together the complementary activities manufacturers require to compete globally. It requires strengthening our small and medium manufacturers critical to innovation and to so many supply chains. It requires our communities and regions to build the local capabilities to compete. In short, for a manufacturing renaissance to occur, policy matters.

As one executive of a major technology firm told the President during an Insourcing Forum in January 2012, “Recent trends are making us look again at locating more in the United States. But it is not a sure thing. What you do on encouraging research and development and manufacturing policies, tax policies, and infrastructure makes a difference.”

The policy response in the auto industry proved critical not only to saving jobs, but in ensuring that the industry did not follow the vicious cycle described by Pisano and Shih, where like consumer electronics we lost the ability to compete for the next investment. But while that was an exceptional policy for an exceptional crisis, the President has outlined a wide-ranging manufacturing strategy that lays a foundation to make us more competitive for location in a lasting way and help us capture the positive manufacturing spill-over impacts that can be critical to our future high-wage jobs and economic competitiveness and even to our national security and military readiness.

The President’s strategy recognizes that a race to the bottom on cost is not a race we want to win, and evidence from high-wage countries like Germany, South Korea, and Japan, suggests that there is a different path. We, of course, want to avoid undue burdens and costs on our manufacturers, but we can also encourage investment and make it ‘sticky’ by rebuilding the capabilities that have eroded, promoting virtuous cycles, and taking steps to capture spill-over benefits.

The President has put together an unprecedented effort to focus and coordinate manufacturing policy and programmatic implementation. The White House Office of Manufacturing Policy – co-chaired by the National Economic Council and the Department of Commerce under the leadership of Secretary Penny Pritzker – serves as a multi-agency partnership to support and drive the President’s manufacturing agenda.

The President’s strategy is built around five pillars:

1. *Making the US More Cost Competitive for Production*

Cost matters, even if it's not the only source of manufacturing advantage. That's why we've proposed:

- **Tax Reform:** Reforming the tax code through a pro-U.S. location business tax reform package that lowers overall rates to 28 percent and 25 percent for manufacturers, that expands and makes permanent the R&D tax credit, and that puts in place a minimum tax on foreign earnings to reduce the race-to-the-bottom incentives of tax havens.
- **Modernizing our Infrastructure:** This must be part of any manufacturing strategy as it can reduce supply chain costs, will help our manufacturers export around the world, and speed time to market.
- **Harnessing our Natural Gas and Energy Resources:** We recognize the unique opportunity from abundant, low-cost domestic energy resources, particularly natural gas. We must seize that opportunity.

2. *Spurring Innovation through Next Generation Technologies*

- **Creating a Network of 15 Advanced Manufacturing Innovation Institutes:** One of the President's flagship manufacturing initiatives is the creation of a network of manufacturing innovation institutes. These institutes bring together companies and universities, supported by Federal agencies, to co-invest in world-leading technologies and capabilities. Each institute creates the necessary focus for collaborative investments in pre-competitive technologies, provides scale that exceeds the capabilities of any one firm, and serves as a "teaching hospital" where engineers and workers can develop applied skills in advanced manufacturing. The first of these institutes on additive manufacturing launched last year in Youngstown, Ohio, and three more are underway with support from multiple federal agencies. These are exactly the types of federal investments that catalyze private activity and help strengthen the industrial commons of a region.
- **Increasing Federal Investment in Advanced Manufacturing R&D:** The private sector will continue to be the core source for American innovation, but Federal investment in pre-competitive, basic and applied research must be a central pillar of a manufacturing strategy. We have consistently called for increases in Federal R&D funding, especially in our advanced manufacturing programs.
- **Investing in U.S. leadership in Key Technologies:** We have also made key R&D investments in important platform technologies where there is real promise including bio-based products, clean energy, advanced vehicles, materials, robotics, and other platform technologies with broad benefits, building the underlying capabilities needed to compete for the next generation of products and the high-wage jobs that go with them.

3. Strengthening Skills, Communities, and Supply Chains to Attract Investment

We need to rebuild our industrial commons. Our high-skilled production workers in many companies are nearing retirement age. Our communities have too often lost the assets they need to attract new investment. And our small and medium manufacturers have struggled as big customers and suppliers have gone elsewhere. We must rebuild the important connections between workers, communities, and smaller firms in the supply chain if we are going to experience a manufacturing renaissance.

- **Investing in a Skilled Workforce:** The President has taken steps to strengthen technical and vocational training, particularly through investments in community colleges and a proposal to create an \$8 billion Community College to Career Fund. The President has also called for resources to strengthen and reform the Manufacturing Extension Partnership, a Federal-State program that supports smaller firms in all 50 states.
- **Strengthening Manufacturing Communities:** And recognizing the potential for vicious cycles, we have called for a \$6 billion Manufacturing Communities Tax Credit to help communities in the process of suffering a major job loss – whether from a factory closing or some other event – to receive a credit that could help immediately attract investment back into the community. In addition to this credit, earlier this year we announced the Investing in Manufacturing Communities Partnership – an initiative to coordinate economic development resources across the Federal government to support local strategies to build the capabilities needed to compete for manufacturing location – which Secretary Pritzker and her team are taking particular leadership in implementing.

4. Capturing our Fair Share by Leveling the Playing Field and Opening Access to Markets

We haven't always insisted on capturing our fair share of global manufacturing – either because previous administrations did not adequately demand that our trading partners play by the same rules, or we failed to vigorously compete for export growth or new investment.

In 2001, when China entered the WTO, we put an important provision in place called Section 421 that allowed the U.S. to protect against explicit harm from Chinese imports to domestic industry. From 2001 to 2008, Chinese import penetration in the U.S. rose faster than in other countries – more than twice as fast as Germany or the UK – and China's share of U.S. imports doubled to 16 percent. Still, the Section 421 was not used. Early in President Obama's first-term, he launched a Section 421 action against Chinese tires, and in addition to saving an estimated 1,000 jobs, the President's action sent a clear message. Since then the President has taken additional action to make clear he plans to enforce our trade laws to give US manufacturers an even playing field, which has included eight WTO cases against China. In 2012, The U.S. initiated a case China for providing impermissible export subsidies to autos and auto parts manufacturers located in designated 'export bases', with total subsidies amounting to \$1 billion between 2009 and 2011. Separately, earlier last year the Administration initiated an enforcement action against China concerning their unfair imposition of antidumping and countervailing duties

on U.S. auto exports to China, which impacted more than 60% of our exports to China and disproportionately fell on GM and Chrysler because of the actions the President took to support the auto industry through the crisis. While we continue to face challenges associated with China, the share of Chinese imports has stabilized since 2009.

- **Leveling the Playing Field by Enforcing Trade Agreements:** To strengthen our ability to protect American workers against unfair trade practices from our partners, including China, the President created a new Interagency Trade Enforcement Center, which brings to bear the resources we need to pursue more trade cases when our partners are not playing by the rules. The Administration has called for more funding to expand our capability to challenge unfair trade practices around the world that disadvantage American workers and businesses.
- **Opening Markets:** Enforcing the existing rules, though, is not enough. As part of the President's ambitious push to double our exports, we have sought to open access to markets through a 21st century model trade agreement. The Administration continues to make progress on the Trans-Pacific Partnership and recently launched the Trans-Atlantic Trade and Investment Partnership.

5. *Actively Promoting Investment and Insourcing in the U.S.*

The President has made encouraging insourcing and investment in the U.S. from both domestic and foreign-domiciled firms, a key pillar of his overall manufacturing agenda. While the Administration's push for investment is broader than the manufacturing sector, it is particularly important for manufacturing.

- **Launching SelectUSA, Our First Ever Federal Investment Promotion Capability:** Too often we have left our states and cities to compete against countries for location. This Administration launched SelectUSA, the first-ever federal program to attract and promote investment to the U.S. and this fall will be hosting the first Investment Summit to connect investors from around the world with our governors, mayors and economic development officials. The Administration has called on Congress to fully fund this effort and will continue to take steps to leverage our resources around the world to promote U.S. investment.
- **Using the Bully Pulpit to Encourage Insourcing:** The President has called on companies to do more to invest in the U.S. and hosted an Insourcing Forum in 2012 to showcase firms bringing production and employment to the U.S. and meeting with CEOs to identify ways to do more. For firms around the world, in 2011 the President released an Open Investment Statement reaffirming the Administration's policy to promote and encourage investment from both domestic and foreign-domiciled firms.

But as we make progress on the President's manufacturing strategy where we can and call on Congress to act where we must, we believe that our first mission as policy-makers is to have our thumb on the scale in favor of encouraging U.S. location. The President's strategy was designed to balance the need to support cost reduction with the need to invest in capabilities, to recognize

the complex nature of vicious and virtuous cycles, and to appreciate the role that local economies play in promoting national outcomes.

But most of all, the President's manufacturing strategy demonstrates our view that we have an opportunity, if we make the right policy choices, to drive a real manufacturing renaissance and capture the broader benefits to our economy that go with it.

Thank you.