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Before the Joint Economic Committee

"Manufacturing in the USA: Why We Need a National Manufacturing Strategy?"

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Mr. Chairman and members of the Committee, my name is Mark Zandi, and I am the chief economist of Moody's Analytics, an independent subsidiary of the Moody's Corporation. I became an employee of Moody's nearly six years ago when I sold the economic consulting firm I cofounded. This testimony represents my personal views and not those held or endorsed by Moody's.

The purpose of this testimony is to assess current conditions in the nation's manufacturing base, its contribution to the economic recovery and the economy more broadly, its prospects, and the role policymakers should play in supporting long-term growth in manufacturing activity and jobs.

American manufacturers have struggled for much of the past 40 years, and they were hit exceptionally hard during the Great Recession. Despite these travails, manufacturing has made a strong contribution so far to the current recovery, notwithstanding some significant but temporary disruptions caused by the Japanese catastrophe in March. Manufacturing's prospects are also bright given its much improved international competitiveness and what should be strong demand from fast growing overseas markets for U.S.-produced goods. With some deft policymaking, manufacturing will be an important driver of this nation's long-term economic growth.

Economic backdrop

Two years into recovery, the U.S. economy has made significant strides since the dark days of the Great Recession.[i] Real GDP and corporate profits are above their prerecession peaks, the private sector has created over 2 million jobs, and the unemployment rate has fallen by a percentage point. Businesses and households have come a long way, reducing debt and getting their financial houses in order. The banking system has recapitalized and is profitable.

An important part of ending the recession and jump-starting the recovery has been the government's monetary and fiscal policy response. This includes a wide range of efforts, including the Federal Reserve's zero-interest rate policy and quantitative easing, several rounds of fiscal stimulus, the TARP-funded support to the financial system, auto industry and housing, and a plethora of regulatory efforts to shore up the financial system. Without these aggressive steps, the economic downturn would have been measurably more severe and the cost to taxpayers much greater.[ii]

Despite its progress, the economy has a long way to go before returning to anything considered normal. Even with recent job gains, nationwide employment is 7 million below its prerecession peak, unemployment is hovering close to 9%, and while they are no longer aggressively laying off workers, businesses remain very reluctant to hire. Households are also much less wealthy than they were, as stock prices have yet to fully recover the losses suffered during the recession, and house prices continue to decline.

The recovery is also very halting, as is evident from the economy's recent disappointing performance. Real GDP growth during the first half of 2011 is set to come in close to 2%, meaningfully below the economy's estimated potential—that rate of growth necessary to generate enough jobs to maintain a stable unemployment rate. Indeed, job growth has moderated this spring and unemployment has stopped declining.

The shortfall in growth is due most significantly to a surprising surge in oil and food prices. Gasoline prices jumped from around $2.75 per gallon for regular unleaded late last year to nearly $4 per gallon in early May. Every 1-cent increase in the cost of a gallon of gasoline costs U.S. consumers about $1.25 billion over a year. Even though gasoline has since retreated to around $3.75 per gallon, consumers will likely spend an additional $100 billion or more this year than they spent in 2010 to fill their tanks. Add in higher grocery costs, and consumers have effectively used up the temporary payroll-tax break they received as part of last year's tax-cut deal to fuel their autos and put food on their tables. Without the payroll tax cut, growth would have essentially ceased this spring.

Fallout from the Japanese earthquake and tsunami has also been more serious than first thought when the disaster struck in mid-March. U.S. vehicle production in particular was significantly disrupted by a cutoff of essential parts and materials from closed Japanese factories. Considering all ancillary impacts, the incident likely will subtract almost a percentage point from real U.S. GDP growth in the current quarter. This is significant given the importance of vehicle production and manufacturing more broadly in the current recovery.

Surging oil and food prices and the Japanese quake do not explain the slowdown completely, however. Amplifying their economic consequences is an extraordinary edginess among consumers, businesses and investors. Prices are highly visible for gasoline, a commodity nearly everyone relies on; few things unsettle confidence like watching those prices rise. Even more disconcerting, the price run-up stems from Middle East unrest and strong demand from emerging economies such as China—things beyond U.S. control, at least in the near term.

Skittishness is evident in businesses' desire to hoard cash. With profit margins about as wide as they have ever been, many firms, particularly large and midsize ones, are effectively minting money. Companies are investing more, raising dividend payouts and stock repurchases and boosting mergers and acquisitions—still the cash piles up. The quick ratio for nonfinancial corporate businesses—liquid assets as a share of short-term liabilities—is at a post-World War II high. Yet firms cannot seem to shake the fear that they will be caught short if they take a chance and deploy their cash reserves more aggressively.

Investors also appear to have lost some faith. Stock prices are off about 6% from their late April high; while this is less than half the drop that followed the outbreak of Europe's debt crisis in spring 2010, it still equals about $1 trillion in lost wealth. While the economy and the stock market can each affect the other, the causal chain seems currently to be running mainly from stock prices to consumer spending. Judging by sales at high-end retailers, high-net worth households are especially sensitive to the value of their equity holdings.

Further blows to sentiment could ignite a negative feedback loop, undermining growth and raising the specter of a new recession. While such a scenario cannot be dismissed, it is more likely that confidence will remain sturdy enough for the impediments to growth to fade and for the economy to reaccelerate. Indeed, the Japanese economy is already rebounding and oil prices have probably peaked: While the Middle East remains unsettled and little Libyan production is likely soon, the Middle East's other oil fields and pipelines are operating, and Saudi Arabia has promised to make up any shortfall in output. Growth in oil demand is also moderating as high prices curb consumption in the developed world and policymakers move to slow overheating in emerging economies.

A revival in economic growth also depends on a timely resolution of Washington's debt-ceiling debate. It is hard to believe that Congress will not act to raise the debt ceiling over the next few weeks. A failure to do so would—at the very least—force budget cuts severe enough to push the economy into recession. Financial markets are calm now because investors do not believe policymakers will go down this path; turmoil will erupt quickly if lawmakers actually do. The result would be another "TARP moment," as in 2008 when Congress initially voted down the Bush administration's request for a $700 billion bank bailout fund. Congress reversed itself a few days later as stock prices cratered. Despite the quick about-face, the TARP votes created serious economic damage, and similar damage can be expected this summer if political brinkmanship over the debt ceiling continues much longer. Assuming it ends soon, however, the debt-ceiling debate could produce something positive: namely, agreement on a future deficit-reduction goal and a budget mechanism to achieve it.

Manufacturing's troubled past

Another key to the recovery and the economy's long-term performance is a strong and sustained revival in the nation's manufacturing base. Aside from housing, manufacturing suffered more during the Great Recession than any other sector of the economy. The statistics from the recession are grim: Industrial production fell more than 20% during the downturn, the sharpest drop since the defense build-down after World War II and more than twice the average decline in production during past recessions (see Table 1). The fall in activity was broad-based, with more than three-quarters of manufacturing industries suffering consistent declines in production and employment.

Table 1: Significant Manufacturing Downturns Since World War II	
% peak-to-trough decline in industrial production	
Sources: Federal Reserve Board, Moody's Analytics	
December 2007-June 2009	**-20.4**
December 1973-May 1975	-15.5
February 1957-April 1958	-13.6
March 1979-December 1982	-11.5
July 1953-April 1954	-9.5
January 1960-February 1961	-8.6
October 1948-July 1949	-8.1
October 1969-November 1970	-7.0
June 2000-November 2001	-6.6
September 1990-March 1991	-4.7
Based on total industrial production before 1972, manufacturing industrial production thereafter.	

The unprecedented decline in manufacturing during the Great Recession had a number of causes, most notably the crises in the vehicle and housing industries, a deep worldwide recession and draconian investment cuts by U.S. businesses in technology and other equipment.

Nearly one-third of the decline in real manufacturing gross output during this recession was in the vehicle industry (see Chart 1). Vehicle production fell by two-thirds, amid a plunge in demand and the near bankruptcies of General Motors and Chrysler. Parts suppliers were also hit extraordinarily hard. Vehicle production has one of the largest economic multipliers of any industry; for every lost job in vehicle assembly, about nine more jobs are lost elsewhere in manufacturing and the rest of the economy.

Problems in the vehicle industry and the fallout on the broader economy of the GM and Chrysler bankruptcies would have been measurably more severe if not for the help of the federal government. If the two automakers had not received federal financial aid beginning in December 2008, their bankruptcies would have resulted in liquidations, causing a very serious disruption to the already-reeling financial system and economy. Even with the government's help, the vehicle industry suffered mightily, as did the economy.

More than a tenth of the decline in real manufacturing output in this recession occurred in production related to construction. The decline in homebuilding and home sales during the more than five-year housing bust badly hurt industries ranging from lumber and wood products to fabricated metals to furniture and appliances. Housing starts are now near their lowest levels since WWII.

The deep global recession was also a significant problem for U.S. manufacturers. More than a third of U.S. manufacturing output is shipped overseas. With nearly the entire global economy suffering a severe downturn, exports declined sharply. Approximately a fourth of the decline in real manufacturing output during the downturn was due to lower exports.

Chart 1: Behind the Collapse in Manufacturing
Share of real gross output decline during the Great Recession

Other 24%
Vehicle 32%
Business Equipment 31%
Construction 13%
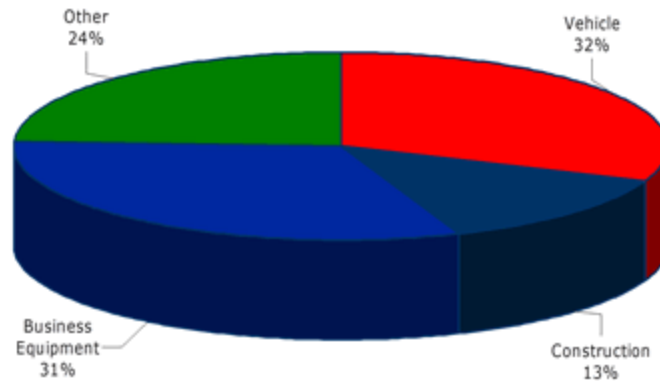
Much of the rest of the decline in manufacturing output during the downturn was due to the sharp pull-back in technology and equipment investment by U.S. businesses. Nearly every business in every corner of the nation struggled during the downturn. For many, draconian cost-cutting was necessary to survive. Real investment in equipment and software thus fell more than 20%, to a level last seen after the technology bust in the early 2000s.

It is important to note that manufacturing struggled long before the Great Recession. Industrial production actually fell over the decade of the 2000s, recording the worst 10-year performance on record. Even during the Depression-wracked 1930s, U.S. industrial production was able to eke out a small gain (see Chart 2).

Chart 2: Manufacturing's Lost Decade
Change in industrial production, %
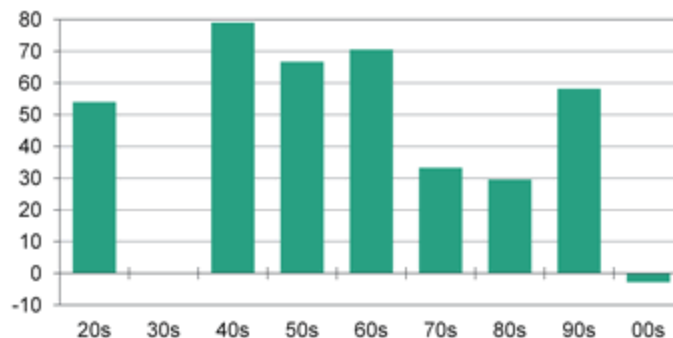
Sources: Federal Reserve Board, Moody's Analytics

The slide in manufacturing employment was even more severe, with 5 million manufacturing jobs lost during the 2000s (see Chart 3). Even during the debilitating recessions of the early 1980s, the decline in manufacturing employment was less than half that. After the loss of these jobs, fewer than 12 million workers are now employed in manufacturing, the lowest number since just before World War II. Manufacturing now accounts for less than 10% of total payroll employment, compared with more than a third of the workforce just after World War II.

Chart 3: Manufacturing Jobs Evaporate

U.S. manufacturing employment, mil

Sources: BLS, Moody's Analytics
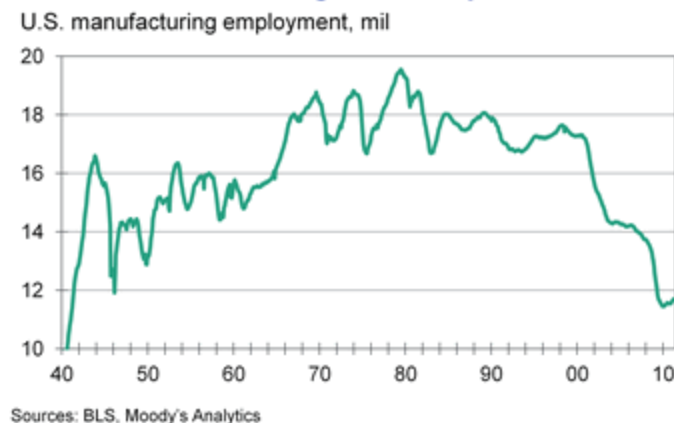
Manufacturing's role in the business cycle

Manufacturing plays an outsize role in shaping the U.S. business cycle. Manufacturing activity declines sharply in recessions and rebounds strongly in recoveries. Considering business cycles since World War II, over half the decline in GDP during recessions is due to falling manufacturing production. In several recessions, the decline in manufacturing was even greater than the decline in real GDP, as growth in other sectors offset some of the drag from manufacturing. Manufacturing is also vital to powering the U.S. economy out of recession into recovery. In the first two years of recoveries since World War II, manufacturing has been responsible for nearly 40% of the growth in GDP.[iii]

Manufacturing's large role in the ups and downs of the business cycle is due to the impact of large inventory swings and a high sensitivity to interest rates in many manufacturing industries. Most recessions are preceded by a buildup of inventory as confident manufacturers, wholesalers and retailers anticipate continued vigorous sales. When those sales do not materialize, they work hard to cut inventories, reducing production and employment. In recessions, the inventory drawdown and resulting hit to production are often very large. These inventory cycles were larger before new inventory management techniques and technologies became available, but they are still instrumental in influencing the business cycle. Recessions are also preceded by rising interest rates, which weigh heavily on the demand for manufactured goods, which are often financed. After interest rates decline in response to recessions, demand and thus manufacturing output increase early in a recovery.

Manufacturing's contribution to the current recovery has been especially important, accounting for about two-thirds of nominal GDP growth since the end of the Great Recession (see Chart 4). Much of the improvement is due to a rebound in vehicles and related manufacturing. Abstracting from the recent Japan-related disruptions to the vehicles industry, production is about three-fourths of what it was just prior to the recession. Moreover, the multipliers that worked to severely depress activity when manufacturing output was falling during the recession are now fueling much stronger growth. Manufacturing is also receiving an important lift from strong turnarounds in business investment and exports, which are increasing at double-digit rates. The only significant drag on manufacturing remains depressed construction activity.

Manufacturing's contribution to employment gains in this recovery has also been important, albeit not nearly as large as its contribution to GDP. Of the 1.8 million total jobs created since job growth resumed in early 2010, nearly a quarter million are in manufacturing. Many of the quarter million temporary help jobs created during this period are also in factories. Since manufacturing jobs pay more than average for the economy as a whole, their increase has provided a significant boost to incomes. Almost a fifth of the gain in total wages and salaries during this recovery comes from manufacturing.

Chart 4: Manufacturing Contribution to Recovery
Manufacturing's share of GDP growth, 7 qtrs into recovery
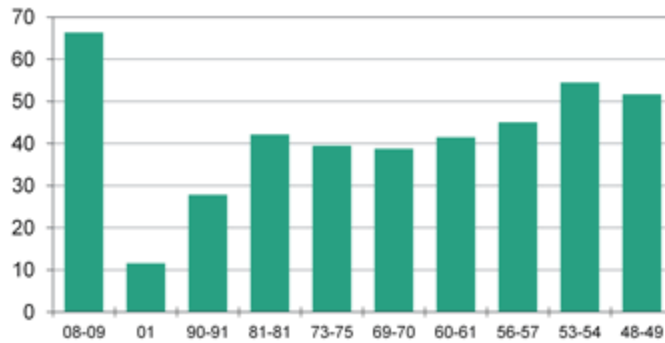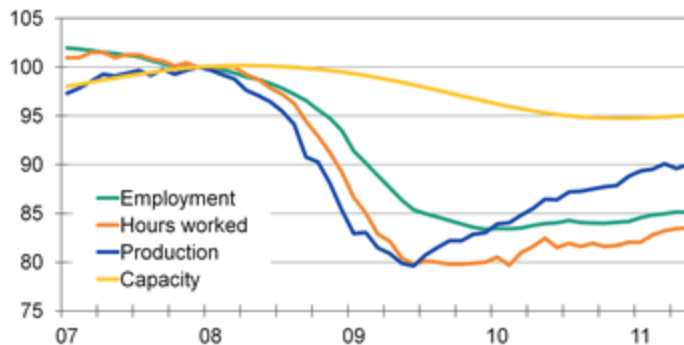
Sources: BEA, Moody's Analytics

Despite these impressive gains, manufacturing activity has yet to return to prerecession levels. Industrial production has recovered about half of what it lost during the downturn (see Chart 5). Production is measurably higher in information-processing equipment, defense and energy-related materials, but it still lags in textiles and apparel, furniture and appliances, and construction-related materials. Despite the gains in factory employment and hours worked, output in these industries remains more than 15% below its levels just prior to the recession. Even manufacturing capacity is down 5% from its peak; the only other time factory capacity has contracted since World War II was briefly just after the tech bust.[iv] The only gauge of manufacturing's health that has returned nearly to prerecession levels is the profits of manufacturers.

Chart 5: Climbing Out of a Deep Hole
Manufacturing activity, Dec 2007=100

Sources: Federal Reserve, BLS, Moody's Analytics

Manufacturing's broader economic contribution

Manufacturing's importance to the broader economy goes beyond its share of GDP and employment. It goes without saying that some goods production is vital to national defense. The nation must maintain its ability to meet the needs of a military that operates in all corners of the globe. Relying on other nations to produce the goods necessary to arm and maintain the U.S. military would be a mistake.

Manufacturing is especially important as a source of jobs that can support middle-income households. The average manufacturing wage was just over $58,000 last year, compared with $49,000 for the typical nonfarm job (see Table 2). For context, the highest-paying industry is mining, at $90,000 a year, and the

lowest is leisure and hospitality at $22,000. While pay scales in manufacturing have been coming down relative to other industries, they still remain among the most attractive.

Table 2: Wages and Salaries Per Employee $ ths, 2010 Sources: BEA, Moody's Analytics	
Mining	89.57
Information Services	76.93
Financial Services	73.40
Wholesale Trade	65.28
Professional and Business Services	61.89
Manufacturing	**58.43**
Government	52.79
Transportation & Wholesaling	52.06
Construction	51.77
Nonfarm	**49.29**
Health Services	44.96
Educational Services	37.93
Retail Trade	27.99
Leisure and Hospitality	21.96

Manufacturing is also vital to many smaller metropolitan areas and rural communities across the nation where a local factory may be among the largest employers. Manufacturing is particularly important in the Midwest and parts of the South. (see Table 3 and Chart 6). These areas suffered mightily during the Great Recession when manufacturing was in free fall, but they are enjoying solid recoveries with the revival in activity. Some of the strongest job recoveries in the country have been seen in manufacturing centers from central Pennsylvania through Ohio and Indiana to Iowa and Wisconsin. Despite these gains, the cumulative loss of jobs has been massive, and unemployment will likely remain high in these areas for years.

Chart 6: Where Manufacturing Is Most Important
Manufacturing share of total employment, 2010, U.S.=8.8%

Below U.S.
Near U.S.
Above U.S.
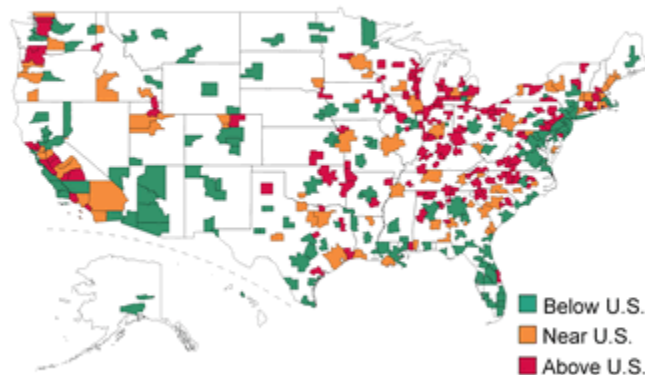
Manufacturing is also essential to research and development, innovation, and ultimately to productivity and living standards. Manufacturing has long experienced the most rapid productivity growth of any sector of the economy. Over the past decade, for example, labor productivity in manufacturing has risen close to 3% per year, compared with nearer 2% in the rest of the nonfarm business sector. Many processes and technological innovations developed and honed by manufacturers ultimately find their way into the rest of the economy.

Table 3: Manufacturing Share of Economic Activity

Sources: BEA, BLS, Moody's Analytics

| | Gross Product Share | | Employment | | Employment Growth Since Job Growth Resumed | |
	2010	Rank	2010	Rank	% Change, Feb 2010-April 2011	Rank
United States	11.77		8.88		2.02	
Alabama	16.27	10	12.63	5	-0.31	41
Alaska	3.70	49	3.91	45	-3.15	48
Arizona	9.10	35	6.22	39	1.62	27
Arkansas	14.03	14	13.76	3	0.19	39
California	12.48	22	8.94	27	0.81	37
Colorado	7.37	41	5.64	41	1.76	26
Connecticut	10.25	32	10.33	17	1.21	32
Delaware	6.48	43	6.31	38	0.38	38
District of Columbia	0.22	51	0.18	51	-7.69	51
Florida	5.36	46	4.27	44	-0.19	40
Georgia	10.62	30	9.01	26	1.22	31
Hawaii	1.92	50	2.20	50	-5.09	49
Idaho	13.12	19	8.78	29	2.07	22
Illinois	12.50	21	9.96	20	3.34	15
Indiana	26.81	2	15.97	1	3.30	16
Iowa	17.01	7	13.62	4	3.52	12
Kansas	13.15	18	12.06	9	1.25	30
Kentucky	16.93	8	11.81	10	4.47	5
Louisiana	16.70	9	7.30	34	4.36	6
Maine	11.09	29	8.58	30	1.76	25
Maryland	6.30	44	4.56	43	-1.40	43
Massachusetts	10.40	31	7.98	32	1.03	34
Michigan	17.01	6	12.27	8	7.00	2
Minnesota	13.55	15	11.07	14	2.60	19
Mississippi	17.19	5	12.46	6	-2.19	44
Missouri	12.08	25	9.16	24	3.39	14
Montana	5.12	47	3.84	46	-2.99	46
Nebraska	11.76	26	9.74	21	3.84	10
Nevada	4.13	48	3.39	48	-6.77	50
New Hampshire	13.41	16	10.55	15	1.84	23
New Jersey	7.62	40	6.68	35	-2.71	45
New Mexico	9.13	34	3.62	47	-3.10	47
New York	5.70	45	5.34	42	-0.85	42
North Carolina	19.00	3	11.17	13	1.16	33
North Dakota	7.70	39	6.03	40	4.00	8
Ohio	16.22	11	12.32	7	3.07	17
Oklahoma	11.33	28	8.06	31	9.66	1
Oregon	28.48	1	10.24	18	3.01	18
Pennsylvania	12.15	24	9.99	19	2.57	20
Rhode Island	7.92	38	8.79	28	1.49	28
South Carolina	15.62	12	11.50	11	3.54	11
South Dakota	8.85	36	9.16	25	5.51	3
Tennessee	15.44	13	11.40	12	1.28	29
Texas	13.16	17	7.84	33	1.81	24
Utah	12.80	20	9.41	22	4.17	7
Vermont	12.17	23	10.36	16	3.95	9
Virginia	8.51	37	6.36	37	0.91	36
Washington	11.67	27	9.28	23	2.35	21
West Virginia	10.01	33	6.58	36	1.02	35
Wisconsin	18.52	4	15.75	2	5.23	4
Wyoming	7.29	42	3.07	49	3.49	13

Moreover, productivity gains in many service businesses and in government are driven by sophisticated manufacturing equipment. Losing this type of manufacturing could diminish the ability to generate strong productivity gains in the rest of the economy, even if such equipment can be purchased overseas. Significant economies are generated by having manufacturers located near one another and near nonmanufacturing activities.

Manufacturing's prospects

For the first time in nearly 40 years, it is fair to say that manufacturing's prospects are bright. In the near term, vehicle-related manufacturing will continue to rebound. Vehicle sales are up strongly from their recession lows, but they remain well below levels consistent with a well-functioning economy. In an economy operating and growing at potential, vehicle sales should be running near 15.5 million units annually, compared with the current pace of 13 million units (see Chart 7).[v] Actual sales have been consistently below this trend sales pace for three years, resulting in pent-up demand. Households are putting off vehicle purchases they would have typically made in times past. Vehicle sales and production are thus expected to steadily rise back to trend, and then to exceed that pace while the pent-up demand is worked off. This will provide substantial support to manufacturing during the next two to three years.


Chart 7: Pent-Up Demand Developing for Autos
Light vehicle sales, mil

Sources: BEA, Moody's Analytics
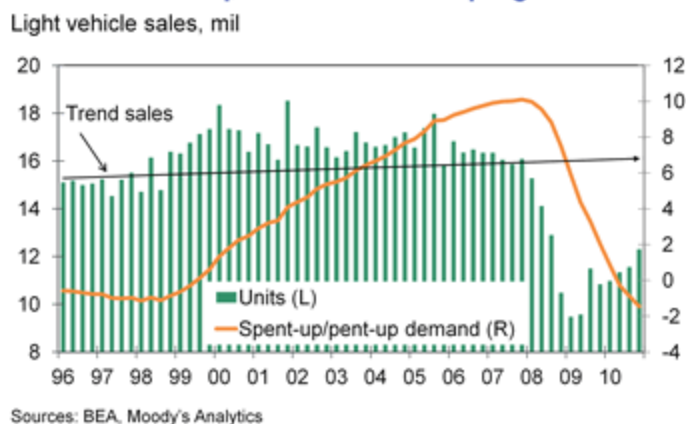
Manufacturing will also receive a sizable boost from an eventual revival in construction. Rampant overbuilding during the housing bubble led to a collapse in construction during the recession that has lasted through the recovery so far. Total private construction, including housing and commercial building, is as low as it has been as a share of GDP going at least back to World War II.[vi] While it will take some time to absorb all the excess vacant homes and commercial space currently on the market, this process is well under way. Vacancy rates are falling quickly. Construction is expected to pick up in earnest beginning next year and grow through the middle of the decade, lifting manufacturing along with it.

The biggest reason to be optimistic about U.S. manufacturing's prospects is its heightened level of global competitiveness. The fortunes of U.S. manufacturers, and of the entire economy for that matter, are increasingly dependent on the ability to compete effectively against foreign producers. Well over a third of U.S. manufacturing output is sold overseas, yet an even larger share of U.S. demand for manufactured goods is met by imports (see Chart 8). Global competition was very hard on U.S. manufacturers over the past 40 years, and the trade deficit in manufactured goods grew steadily. The last time manufacturing exports and imports were balanced was in the 1970s, when trade accounted for only a tenth of manufacturing output and demand.

**Chart 8: Manufacturing Depending More on Trade**
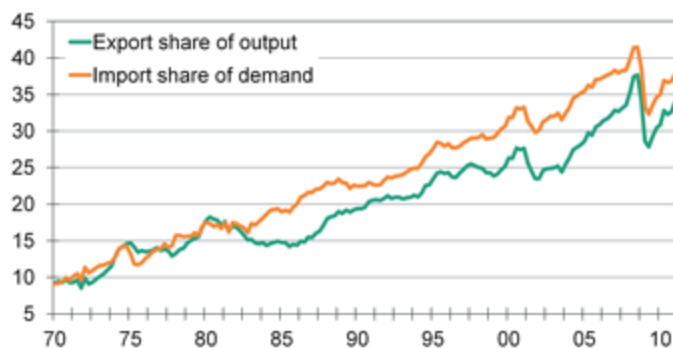
Sources: BEA, Moody's Analytics

This will change as U.S. manufacturers work to become more competitive. Any U.S. manufacturer that survived the Great Recession must be doing something right, staying very cost effective and/or holding a global market niche. Indicative of this is the ability of U.S. manufacturers to keep unit labor costs—labor compensation per unit of output—essentially unchanged since the early 1990s (see Chart 9). Compensation has increased, but productivity growth has kept pace with compensation gains, in sharp contrast with the nearly threefold surge in labor costs during the 1970s and 1980s. Reinforcing U.S. competitiveness are quickly rising labor costs in much of the rest of the world, including fiercely competitive emerging markets such as China.

Chart 9: Growing More Cost-Competitive

Manufacturing unit labor costs, 2010=100
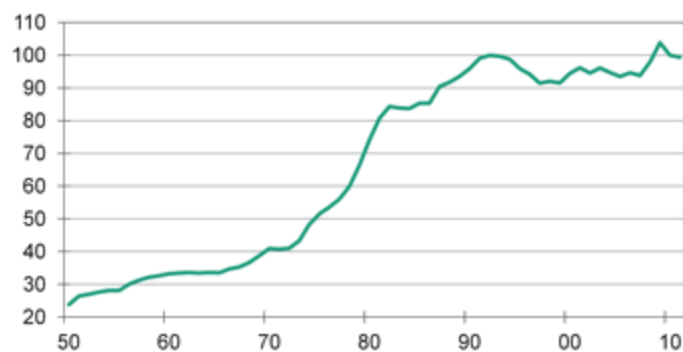
Sources: Bureau of Labor Statistics, Moody's Analytics

Optimism about U.S. manufacturing competitiveness becomes even more compelling when considering the steady decline in the value of the U.S. dollar against most other currencies. On a broad, trade-weighted basis the dollar has fallen approximately 25% over the past decade, and it will likely continue to decline slowly against emerging-market currencies. Global manufacturers are increasingly looking to locate and expand in the U.S., particularly those with investment horizons that extend through the current decade. A weaker U.S. dollar puts upward price pressure on the commodities and materials that many U.S. producers import, but the benefits of an orderly and modest decline in the dollar against emerging-economy currencies far outweighs this negative.

U.S. manufacturers will also benefit increasingly from rapid economic development in emerging economies. Not only do these nations require large amounts of capital goods and manufactured material to

fuel their development, but they are increasingly interested in purchasing the more sophisticated manufactured goods produced in the U.S. These include high-tech machinery and electronics, aircraft, satellites and other telecommunications equipment, sophisticated materials, pharmaceuticals, and processed foods, among other items.

While it will take many years for the U.S. trade deficit in manufactured goods to disappear, the process is under way in earnest. U.S. manufacturers who have long seen the dark side of global trade are moving toward the bright side, where they will be long into the future.

Policy don'ts

There are number of things policymakers should and should not do to support growth in the nation's manufacturing base. The most obvious thing policymakers should not do is erect trade barriers to limit trade in manufactured goods. This would be very counterproductive. To date, despite the very difficult economy, global policymakers have done an admirable job of keeping protectionist sentiments at bay. Efforts to further liberalize global trade and investment have stalled, but they have not backtracked to any significant degree. Yet with persistently high unemployment, particularly in developed economies, these sentiments could well boil over. U.S. policymakers must resolve not to allow this to occur.

Policymakers should work to reduce barriers to free trade erected by other nations. Arguably most critical is China's policy of undervaluing its currency. Given the large and growing trade imbalance with China, U.S. policymakers should continue to pressure their Chinese counterparts to further revalue the yuan (see Chart 10). China's currency has appreciated by 20% since the revaluation process began five years ago, but it remains approximately 25% undervalued against the dollar.[vii] This gives Chinese manufacturers an unfair competitive advantage in global markets. A reasonable expectation would be for China to allow its currency to rise no less than 5% per year over the next five years. This would allow a smooth transition for their manufacturers and provide steady relief to U.S. manufacturers.

Chart 10: China's Currency Is Undervalued
U.S. trade deficit, $ bil, 12-mo moving sum
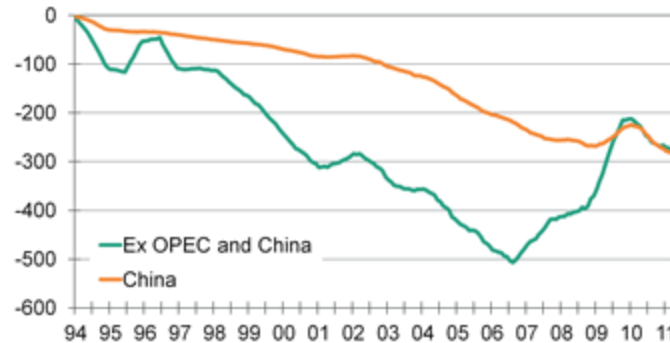
Sources: Census Bureau, Moody's Analytics

Industrial policies directed at specific industries or companies have not been particularly successful in supporting manufacturing activity. To be sure, the U.S. does not have extensive experience with such policies, but what experience we do have and what we have learned from other developed economies suggests that targeted industrial policies are not very effective.

Various states have used what might be labeled industrial policy to entice specific companies to locate and expand within their borders. These incentives include tax breaks, infrastructure improvements and regulatory easing. The most successful efforts have attracted foreign vehicle manufacturers to the southern U.S. While such policies may make some sense in small states that lack significant economic diversity,

they are less compelling in more complex state economies and at the national level.

Policy dos

A much more effective way to support manufacturers would be to lower their business costs, including labor, capital, and transportation and telecommunication.

Manufacturers appear especially nervous about their ability to fill job openings that are becoming available as skilled workers among the large baby-boom cohort retire. Many of the most skilled U.S. workers are aging, and it is difficult to fill their spots. This skill shortage threatens to become a key constraint on growth for many manufacturing businesses.

To address this problem, policymakers should invest in technical schools and community colleges. Technical schools and community colleges provide significant value, particularly in hard-pressed communities whose residents lack the financial resources to attend private four-year colleges or even state-funded universities. These schools can also alleviate a growing problem for many manufacturers, namely the lack of a qualified workforce. Large multinational manufacturers seem increasingly willing to partner with these schools: The firms help pay teachers' salaries and build offices or other facilities, in exchange for a say over the schools' curriculum. Policymakers should look to aid these efforts with additional funding to schools that attract manufacturing partners.

Manufacturers would also benefit from reform of the unemployment insurance system, including the expansion of work-share programs. Work-share allows manufacturers to avoid some layoffs by cutting workers' hours, with government making up some of the employees' lost compensation. This allows businesses to avoid severance costs and keep valuable employees whose skills are difficult to replace. Workers are increasingly willing to give up some hours to avoid being laid off. The unemployment insurance program should also provide incentives to unemployed workers to invest in their own retraining. Federal efforts to facilitate the retraining and education of displaced workers have been inadequate, and there has been little research into the design and implementation of effective retraining programs. This is especially important for unemployed workers in distressed regions of the country.

Corporate tax reform that includes broadening the base and lowering marginal rates would boost the global competitiveness of U.S. manufacturers. The corporate tax code has grown into a complex patchwork of inefficient and arguably unfair provisions, encouraging businesses to spend significant resources solely to reduce their tax exposure. Policymakers should also consider moving from a worldwide to a territorial corporate tax system. The worldwide system is out of step with taxation in much of the rest of the world and encourages U.S. corporations to hold significant earnings overseas for long periods.

To lower the cost of capital for small manufacturers, policymakers should work to expand lending by the Small Business Administration. SBA lending has been encumbered in today's tight credit environment, as depository institutions that implement the lending programs remain cautious about extending credit. Their reluctance continues despite changes in SBA programs to prompt more lending. It may even be worthwhile to empower the SBA to experiment with indirectly providing equity capital to new businesses. A dearth of equity capital appears to be a significant impediment to business formation, particularly in manufacturing.

To lower the cost of transportation, telecommunications and energy, policymakers could provide consistent support to public investment in transportation networks, the internet backbone, and the electric grid. As a potential example of this support, Build America bonds issued as part of the recent fiscal stimulus efforts have been very successful. A national infrastructure bank, which could marry private capital with financial support from the government, would provide a substantial boost to this effort.

Conclusions

The nation's manufacturers have suffered mightily in recent decades. The Great Recession was especially debilitating. Yet manufacturing is making a comeback. Manufacturers who survived that severe

downturn are highly competitive and poised to grow, particularly as global trade turns from a gale-force headwind to a steady tailwind. The success of manufacturers is vital to our broader economic success. Manufacturing is key to the economic well-being of many communities across the country, and to the innovation and technological progress necessary to power the economy's long-term growth. Policymakers should not target specific industries and companies for help from the federal government, but should carefully consider manufacturing's monumental difficulties, its importance in our economy, and its promise when designing and implementing economic policy.

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[i] The business cycle dating committee of the National Bureau of Economic Recession dates the Great Recession from December 2007 to June 2009.

[ii] See "How the Great Recession Was Brought to an End," Alan Blinder and Mark Zandi, July 27, 2010. http://www.economy.com/mark-zandi/documents/End-of-Great-Recession.pdf

[iii] More precisely, this is based on the average share of nominal GDP growth accounted for by nominal output growth in goods-producing industries seven quarters after business-cycle troughs since World War II.

[iv] Despite the shuttering of factories, manufacturing capacity utilization is still only 76%; a level above 80% is needed to be consistent with a well-functioning manufacturing base.

[v] This is based on an econometric model of vehicle sales that accounts for demographic, income, wealth and auto lending, and leasing trends. It also assumes real gasoline prices will average $3.50 for a gallon of regular unleaded over the next four years. The current sales pace of 13 million units abstracts from the Japanese quake impacts.

[vi] Residential and nonresidential investment in structures declined to a record low 4.7% of GDP in the first quarter of 2011. The previous low was 6.5% during the early 1990s recession; the average share since World War II is 8.3%.

[vii] This is based on an econometric equation of bilateral trade between China and the U.S. To stabilize the China-U.S. trade deficit in the next five years, the nominal dollar/yuan exchange rate must rise about 25% over this period.