

# fedgazette

Regional Business &amp; Economics Newspaper

minneapolisfed.org

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## Manufacturing an uptick



By RONALD A. WIRTZ  
Editor

**O**n a sunny day in May of last year, workers at OEM Fabricators, a heavy-industry fabrication shop in Woodville, Wis., did not come dressed in the work clothes they normally wear to weld, machine, paint and assemble products for customers. Instead, they came in suits and ties to pay distant respects to the deceased.

Despite coming off a strong year of growth, the company was hosting a funeral. Even the community showed up. Workers dug a hole and laid a wooden coffin to rest right there on company grounds. And then they celebrated, ate and danced to a Dixieland band. For they had all shown up to bury the recession—literally, it was inscribed on the coffin—that was long past for the company, but still lingering on the minds of many.

OEM President Mark Tyler said the faux funeral was meant to change people's mindset. Times were tough during the recession. "It dropped a piano on our head" in terms of sales, and employment was more than halved to about 150 workers, Tyler said. The company's fortunes soon turned around, but you wouldn't have known or felt it around the company.

"You know the guy in [the comic strip] Li'l Abner that always had the black cloud over his head? Well that's what it felt like for a long time, even within the company. We were growing; we were coming out of the [downturn]. And yet there was this feeling that things were bad," said Tyler. "But things weren't bad. Things were good—we're riding this rocket ship in terms of revenue growth, and earnings are strong. And so we thought, 'How do we break this attitude?' And we said, 'Let's bury it,' and thought a New Orleans-style funeral might be appropriate."

Continued on page 2

*Many manufacturers have seen growth and good near-term prospects since the recession. That's positive news for the Ninth District economy, but means something different today than in manufacturing's heyday*



Photography by Stan Walhauser

2011 revenues grew 75 percent at OEM Fabricators (above photos) and are on a similar pace this year. The company's current workforce is 50 percent larger than its prerecession peak.



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Manufacturing from page 1

**The Quick Take:** Manufacturing has been a bright spot in an otherwise sluggish economic recovery. After being pummeled by the recession, output growth returned to manufacturing in 2009, and employment gains followed a year later and have continued. Gains have been seen across district states, largely in durable goods manufacturing. Sources of that growth include inventory restocking after steep recession cutbacks, growing exports, and strong energy and agricultural markets. There is even anecdotal evidence that some production is being “reshored” from other countries. The recession itself can take some backhanded credit for forcing companies to reevaluate and improve their products, processes and personnel.

Many hope the sector’s rebound will return the industry to its historical prominence in the national economy. That’s unlikely. Despite strong output growth, manufacturing employment has risen only modestly and is still far from prerecession levels. But that’s actually good news for the sector: Rising output coupled with modest job gains is an indication of high productivity, a key to manufacturers’ future competitiveness.

OEM hasn’t looked back on the dark days. Last year, revenues grew 75 percent and are on a similar pace this year, Tyler said. The company expanded its Woodville site, and it expects to move into its biggest facility yet in neighboring Baldwin. The company’s current workforce of 500 is 50 percent larger than its prerecession peak.

Not all manufacturers are experiencing the same success as OEM, but the sector in general has been a bright spot in an otherwise sluggish recovery. Output has recovered, and many firms are seeing revenues, particularly sales of durable goods, return to and often exceed prerecession levels. Even manufacturing employment has risen in district states, reversing many years of decline.

Many factors are involved, including a bounce-back in orders stemming from steep inventory cutbacks during the recession, strong exports and some evidence that more orders are being filled in the United States rather than else-

where—all of it facilitated by a seemingly manic focus on productivity and adding value to products, courtesy of the recession. Firms that managed to hang on through the recession have been forged stronger by the need to reevaluate products, processes and personnel from top to bottom. The experience made companies leaner and more efficient, and their products more competitive.

Many hope for a manufacturing renaissance that might return the industry to its former prominence in the national economy—creating jobs, vacuuming up unemployed workers and making “Made in the USA” more than an economic wish or election slogan. Manufacturing output is doing its part, rebounding past prerecession levels. But manufacturing employment—while growing of late—is still far below prerecession levels, and the long-term job trend since the 1970s is decidedly downward.

But maybe counterintuitively, given the public’s preoccupation with job

growth, the dual trend of rising output and modest job growth is itself a positive development for manufacturing because it signals rising productivity, a key to long-term health and survival for firms and their workers.

Recession: R.I.P.

The manufacturing industry had a forgettable past decade, thanks mostly to bookend recessions. After mostly treading water in the middle of the decade, manufacturing establishments and related employment in the Ninth District were pummeled by the Great Recession of 2007. District states lost more than 1,300 (net) manufacturing firms, countless others saw cutbacks and 150,000 manufacturing jobs were eliminated (see Chart 1).

But things started turning around for many manufacturers by about the middle of 2009, when the recession officially ended. Some, even much, of the early rebound was simply rebuilding inventories, which fell dramatically during the recession as businesses across the economy cut orders in light of the financial crisis and simply used what they had on hand. Manufacturers responded in kind; shipments sank during the recession, then steadily rebounded.

Daniel Berdass is president of Bermo Inc., a manufacturer of metal components in Circle Pines, Minn. During the last recession, “we dropped tremendously,” he said, and employment shrunk by about half. But business started rebounding within two years, “and it’s been a snowball ever since.”

Bermo sales since the recession’s nadir are up 300 percent—from the “teens to the sixties [million],” according to Berdass—and are now above prerecession levels. Employment has grown on par with revenues as well, he said, and the company now employs over 200 people at its 286,000-square-foot headquarters facility.

Similar stories of transition, rebound and growth are easy to find around the Ninth District. Bus maker Motor Coach Industries is adding about 80 jobs in Pembina, N.D., a community of just 600 on the Canadian border. In the Twin Cities, steel-maker Gerdau is investing \$50 million to significantly increase capacity at its St. Paul plant. Just to the east, Polaris Industries, a maker of all-terrain and other recreational vehicles, is adding 89 jobs at a 140-worker plant in Osceola, Wis., a partial reprieve from its 2010 announcement that it would close the plant entirely and eliminate more than 500 jobs. In Sioux Falls, S.D., Twin City Fan & Blower is building a new

50,000-square-foot facility and expects to hire more than 50 employees.

Not everyone’s a winner in the sector’s recovery, of course. Agribusiness giant ADM closed its ethanol plant in Walhalla, N.D., this summer, eliminating 61 jobs. In Sartell, Minn., a Verso Paper plant that employed 259 workers was destroyed by fire in May and will not be rebuilt given high operating costs and sluggish paper markets. At the end of last year, Ford Motor Co. closed its 86-year-old truck facility in St. Paul, putting 800 people out of work. At its zenith in the 1970s, the plant employed more than 2,000.

Though some manufacturing indicators softened over the summer, most macro measures suggest that the industry needle has moved to the positive side overall. For example, the number of manufacturing job vacancies has been on the steady uptick, from fewer than 2,000 in the fourth quarter of 2009 to 4,900 two years later, according to surveys by the Minnesota Department of Employment and Economic Development (DEED). The Mid-America Manufacturing Index, which regularly surveys producers in Minnesota and the Dakotas, has indicated expansion among district manufacturers since the summer of 2009. (See Chart 2; this summer, however, producers started reporting some softness. More on current conditions later in the article.) That optimism was validated by steep increases in manufacturing output in district states since 2009, which outpaced the sector’s recovery nationwide, according to the federal Bureau of Economic Analysis (see Chart 3).

Strong optimism and output have led to recent hiring—a notable reversal for the sector—starting in 2010 (see Chart 1). From June of that year to June 2012, manufacturing employment grew by 5 percent among all district states, or about 41,000 jobs. Though the manufacturing base in the Dakotas is still quite small—fewer than 70,000 jobs combined—the two states saw sector employment expand by nearly twice the district rate (see Chart 4).

But not all manufacturing jobs are created equal, and statewide data obscure a large amount of industrial variation. For example, employment has grown significantly faster among makers of durable goods—things like machinery, transportation equipment, metal fabrication—compared with nondurable goods (see Chart 5).

Even within durable goods, some sectors have not recovered. In 2005, wood products employed 52,000 workers across district states, many of them making lumber and other products for

the housing industry. The subsequent housing bust sawed off about 40 percent of jobs—some 20,000—by 2010. Since then, employment levels have been merely flat. Responding to a *fedgazette* online survey, the owner of a western Montana lumber company said it has had to cut payroll significantly, adding that any “sunny spot” in manufacturing seen elsewhere “doesn’t exist here. ... I honestly don’t believe we’ve hit bottom. Public confidence in our area is as bad as I have seen it in 37 years.”

## Energy and ag

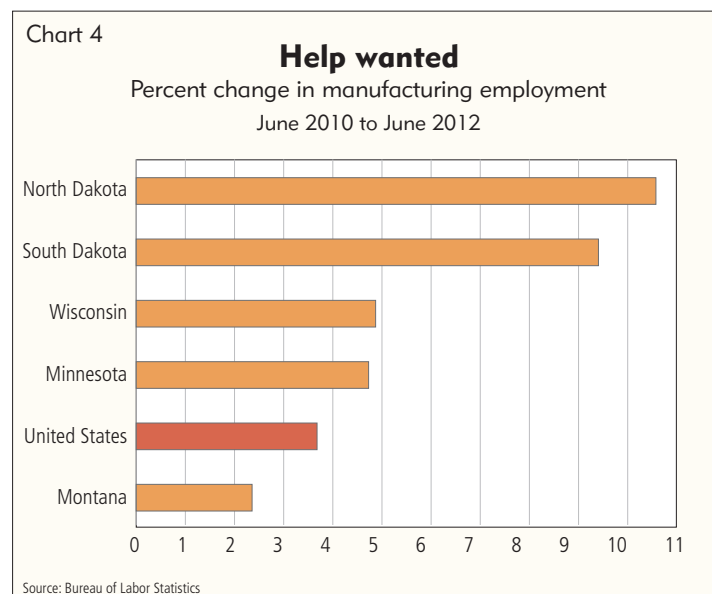
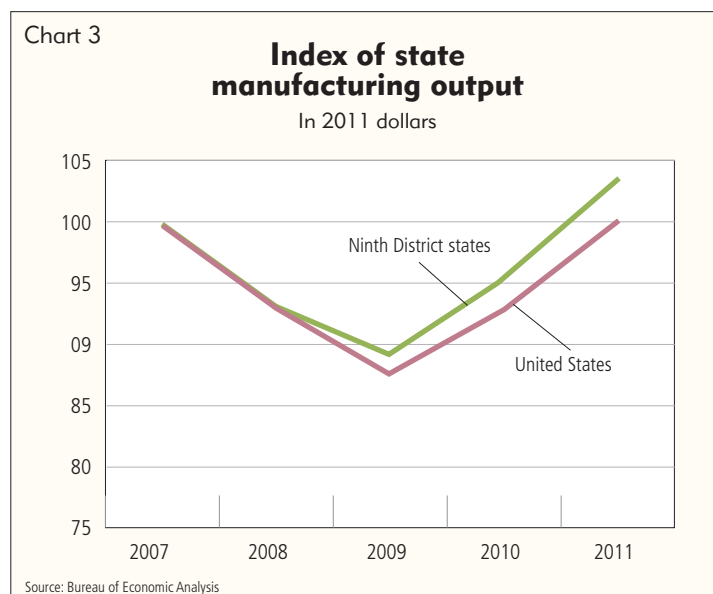
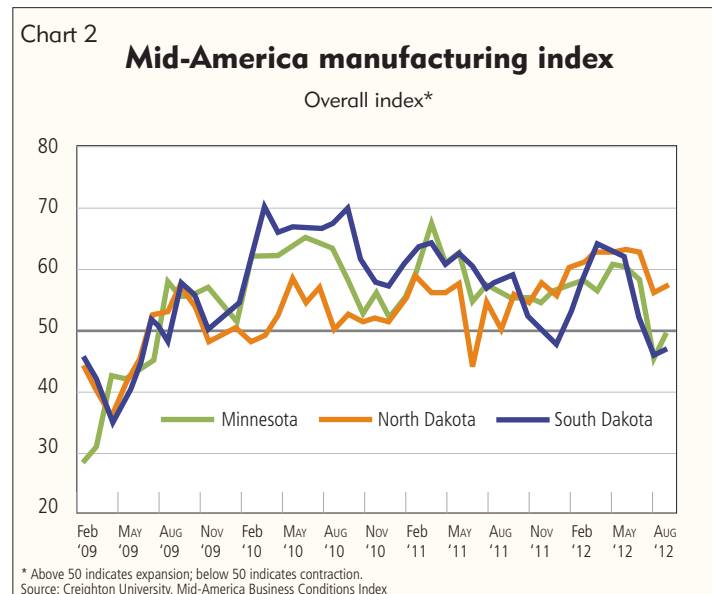
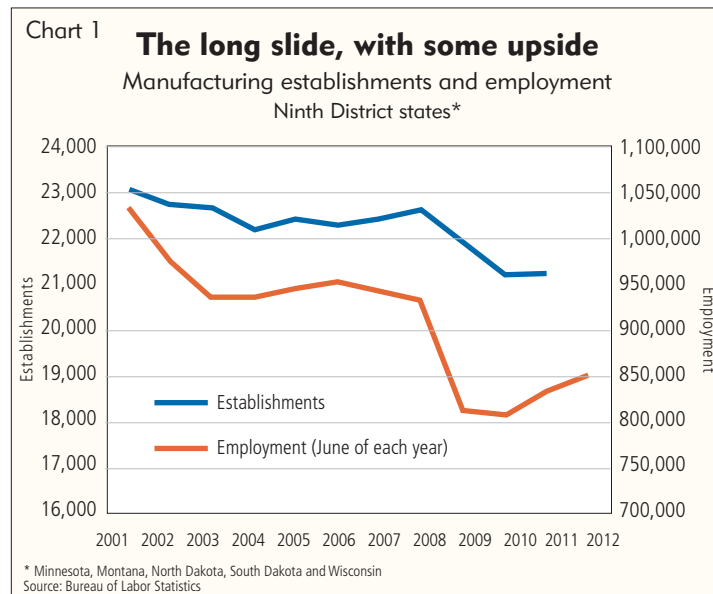
For those industries seeing growth, there are many sources, but a few seem to stand out. Robust energy and agricultural sectors are big consumers of machinery and other durable goods, and manufacturers serving these markets have seen little downside in recent years, according to Andy Peterson, head of the North Dakota Chamber of Commerce. “Those two sectors have been blown out of the water, and companies can’t keep up.”

With strong crop prices for several years running, farmers are taking the opportunity to invest in their operations. That translates into more tractors and other farm equipment purchased from the likes of Bobcat, a Bismarck, N.D., maker of compact loaders, excavators and other farm equipment. The firm announced in April that it was expanding and adding about 200 jobs in partnership with Menlo Worldwide Logistics.

International companies are also looking to bring products closer to their final markets. Last month, German-based Geringhoff announced plans to invest over \$20 million in a new plant in St. Cloud, Minn.—its first manufacturing facility in the United States, which will make corn-harvesting and other farm machinery. The move will create 100 jobs initially, with significantly more anticipated in the future.

A strong ag sector also trickles to niche markets like drainage tile for farmland. In February of last year, Willmar, Minn.-based Prinsco opened a tile production facility in Beresford, S.D., and broke ground on a second district facility this year in Fargo, N.D. But that’s only the half of it. Advanced Drainage Systems also opened a production facility in Buxton, N.D., in early 2011 and this summer announced plans for a new multimillion-dollar facility in Watertown, S.D.

The nationwide oil and gas boom, including intensive drilling of the Bakken oil shale formation in western North



Dakota and eastern Montana, has been another obvious source of demand for manufacturers. Mark Oelke owns M&W Machine, a small machining interest in Three Forks, Mont. Via email, Oelke said 2008 and 2009 “were rough years. ... I came real close to laying off a very seasoned employee.”

So in 2011, “as a means of survival,” Oelke started traveling to the Bakken, about 400 miles away. It worked. Oelke found business for its boring, milling, welding and other machines, and the company also bought two computer numerical control machines “to cater to what some of the companies were asking for.” That year, business grew by 30 percent and has leapt by 150 percent so far this year—90 percent of which was oil-patch-related—allowing M&W to add three employees. Now, he said, “There’s no downturn in sight.”

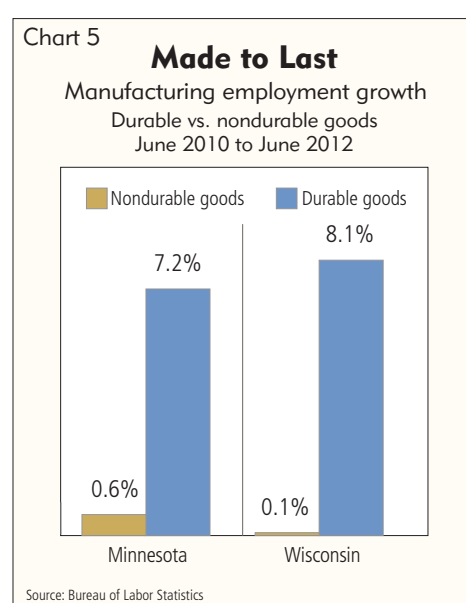
OEM Fabricators—remember the funeral in western Wisconsin?—derives more than 40 percent of its current business from oil- and gas-related products, including items like large engine mani-

folds, stator frames for motors and generators, mixing tanks and myriad other mechanical components. The company has a history of serving others in the energy sector. But as companies have become active in the Bakken, “we have seen increased activity from nearly all of them. ... It’s just been an accelerator,” said Tyler, company president.

Prospects also look good for steady business going forward, according to Tyler. “We have been watching the energy sector outlook and have gotten the sense that we are in a level of activity that is sustainable for many years.”

## Forged by fire

Many other factors have helped the manufacturing sector. Exports, for example, have grown at exceptional rates since the recession (see sidebar on page 6). Employer costs also haven’t risen much—workers’ wages have been held in check by the downward pressure of widespread unemployment. From 2007 to 2011, unadjusted average weekly



manufacturing wages in district states rose between 7 percent (Montana) and 12 percent (North Dakota)—barely ahead of the rate of inflation only because inflation has been so low.

But in the most fundamental sense, the recession appears to have played



## Manufacturing from page 3

an important, if unwelcome, role in the manufacturing rebound. Industry sources widely described the recession as a meet-your-maker event that put everything under the microscope. Those that survived can't help but be leaner, more strategic and more productive for the experience.

"In this recession, very few companies didn't get forced to think about their personnel," said Bob Kill, CEO and president of Enterprise Minnesota, a state-chartered organization affiliated with the Department of Commerce that offers fee-based consulting services to manufacturing firms. But in this recession, he added, "more than in the previous two [recessions], companies have really had to invest." And it's not all capital investment. Increasingly, companies are investing in analytics—that's where Enterprise Minnesota comes in—to see how processes can be more streamlined and efficient to cut labor, energy and other costs.

"Sometimes when you invest, you don't spend money," Kill said. "It means sometimes not investing in any new equipment, but improving production processes" or finding other efficiencies that get passed on to customers. As a result, "firms were better able to weather the storm. ... What we have left are firms that can compete."

At OEM Fabricators, "there is no doubt that the recession drove improvements in our operations," said Tyler. The company looked at personnel and processes, and "many changes were made, leaning our operations." Employment was slashed during the recession, and while it bounced back fairly quickly, it was done carefully "to retain the efficiencies gained during the recession," he said. The company also hired some "outstanding, highly skilled" employees who were available as a result of the downturn.

As business increased coming out of the recession, the company also invested heavily in new equipment and technology, which Tyler said "drove even higher levels of productivity." While OEM employment is 50 percent higher than be-

fore the recession, sales have more than doubled. The company is in the process of expanding to an 80,000-square-foot facility in Baldwin, Wis., its third and largest plant.

It's the same story at Nicolet Plastics, a plastics injection molding company located in Mountain in the northeastern part of Wisconsin. President and CEO Bob MacIntosh said the company downsized its workforce by more than 20 percent in 2009. As business rebounded, "we were able to manage most of the growth with the remaining workforce and some added automation." The company is doing about \$2 million more in business—now at about \$10 million—than it did in 2008, "and we still have not gotten back to the '08 employment levels."

Many sources also talked about "going up the value chain" to develop products whose competitive advantage is based on more than just low price. That's the case even for seemingly mundane items like packaging and product containers. Thirty years ago, the container industry "was a brown box to get something to the end user," said Jim Haglund, owner of Central Container of Minneapolis, which employs about 150 people throughout its 175,000 square feet of plant and generates about \$30 million annually in revenue.

The container industry has evolved. Haglund said the company made a big commitment during the last decade to go "lean and green," hiring the design and engineering talent to go after new, value-added product markets like medical supplies. This brought some growing pains. To package medical products, Haglund said, "it seems like we go through the same ropes as the stent you put in your body." These companies, he added, "are very strenuous and demanding. But it forced us to get good in quality."

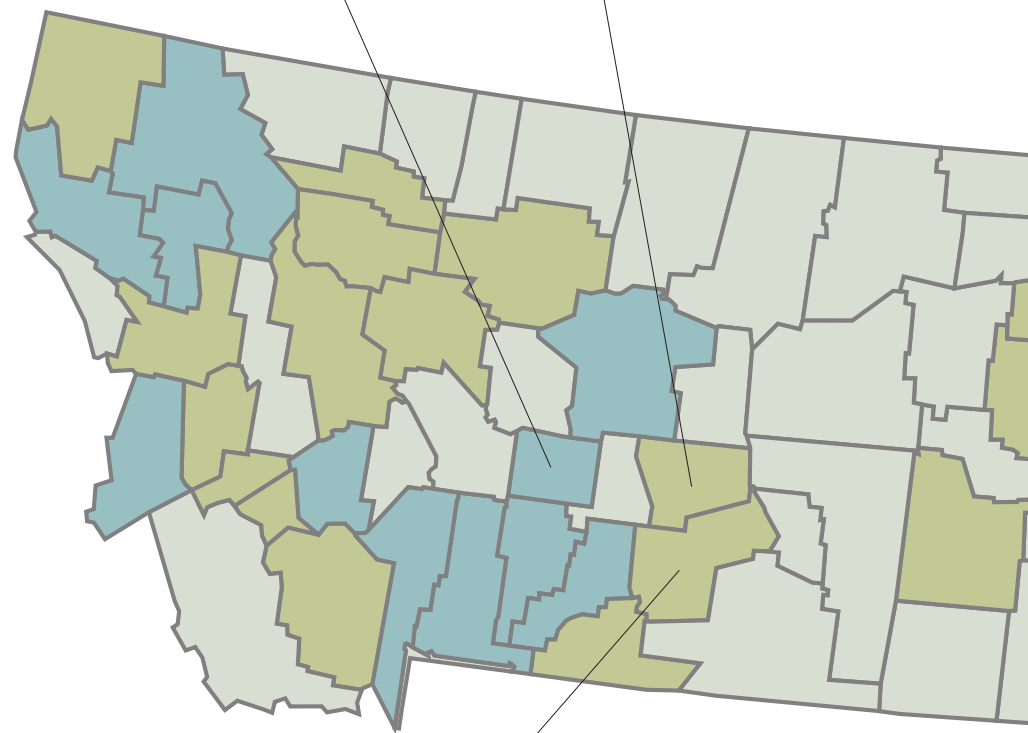
Striving for quality brought the security of better margins. Haglund said that for a \$5,000 medical device, "it's not a big deal if the packaging is 50 cents more than a competitor. It is a big deal if the product is [worth] two dollars."

During the recession, Central Container's revenues dropped about 15 percent. Slowly, they rebounded. Last year was "not bad," Haglund said, and this year the company's revenues are up 10 percent, moving it above prerecession levels. "I'm pretty positive," he said, evident in the fact that the company expected to add 13 workers by year's end.

These anecdotes give life to the macro data, which show that productivity is rising among

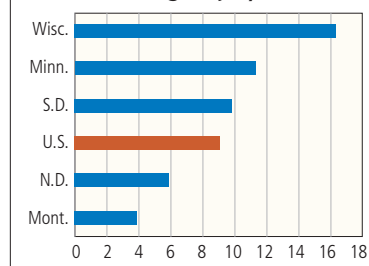
Rural Wheatland County has the state's highest ratio of manufacturing jobs, at 9.5 percent. But that's just 54 workers, given nonfarm employment < 600.

Manufacturing jobs in Musselshell County rose 32 percent from 2001 to 2010, but fell 4.4 percent last year—opposite the contraction and growth trend virtually everywhere else.



In Billings, Bay Ltd., maker of steel structures for the oil industry, grew fourfold since last year to 200 workers, expects to add 50 more by year's end.

Manufacturing employment ratios

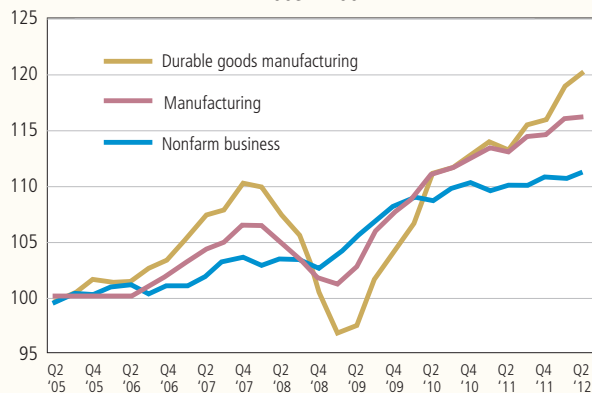


Source: Bureau of Labor Statistics

Manufacturing has seen strong growth as of late, but the presence of manufacturing jobs varies widely among Ninth District counties and has a clear "eastern" orientation: The share of manufacturing jobs is much higher in Minnesota and Wisconsin than in the Dakotas and Montana (see chart). Within the Dakotas, manufacturing is highest among its eastern counties.

Chart 6 Labor productivity rising faster in manufacturing

Quarterly index of output per hour of labor  
2005 = 100



Source: Bureau of Labor Statistics

manufacturing firms—and particularly among those producing durable goods. Productivity has also been rising faster in manufacturing than in all other nonfarm businesses (see Chart 6). (There is, however, some debate about how to measure manufacturing productivity. See interview on page 10 with Susan Houseman, a labor economist with the W.E. Upjohn Institute.)

## Big challenges remain

But none of this is to suggest that district manufacturers have found refuge from the tempest of global competition. Challenges are omnipresent, from Chinese competition to the need to constantly innovate to satisfy finicky, fickle buyers.

Kill, from Enterprise Minnesota, said

the optimism of manufacturing CEOs is "tinged with caution." The European debt crisis, America's own debt problem, a slow national economy, health care reform and other economic concerns "get in the minds of people, and they get more conservative," said Kill, adding that order backlogs "are good, but future visibility is still very short range."

This summer various manufacturing indicators were starting to soften. The Institute for Supply Management's factory index saw three consecutive months below 50 (the benchmark for industry expansion). The Mid-America Manufacturing Index, a regional subset of the Institute's survey, also dipped into negative territory (see Chart 2 on page 3).

If that weren't enough, firms fortunate enough to be doing good business

# Made in the Ninth District

## Ratio of manufacturing to total employment, by county

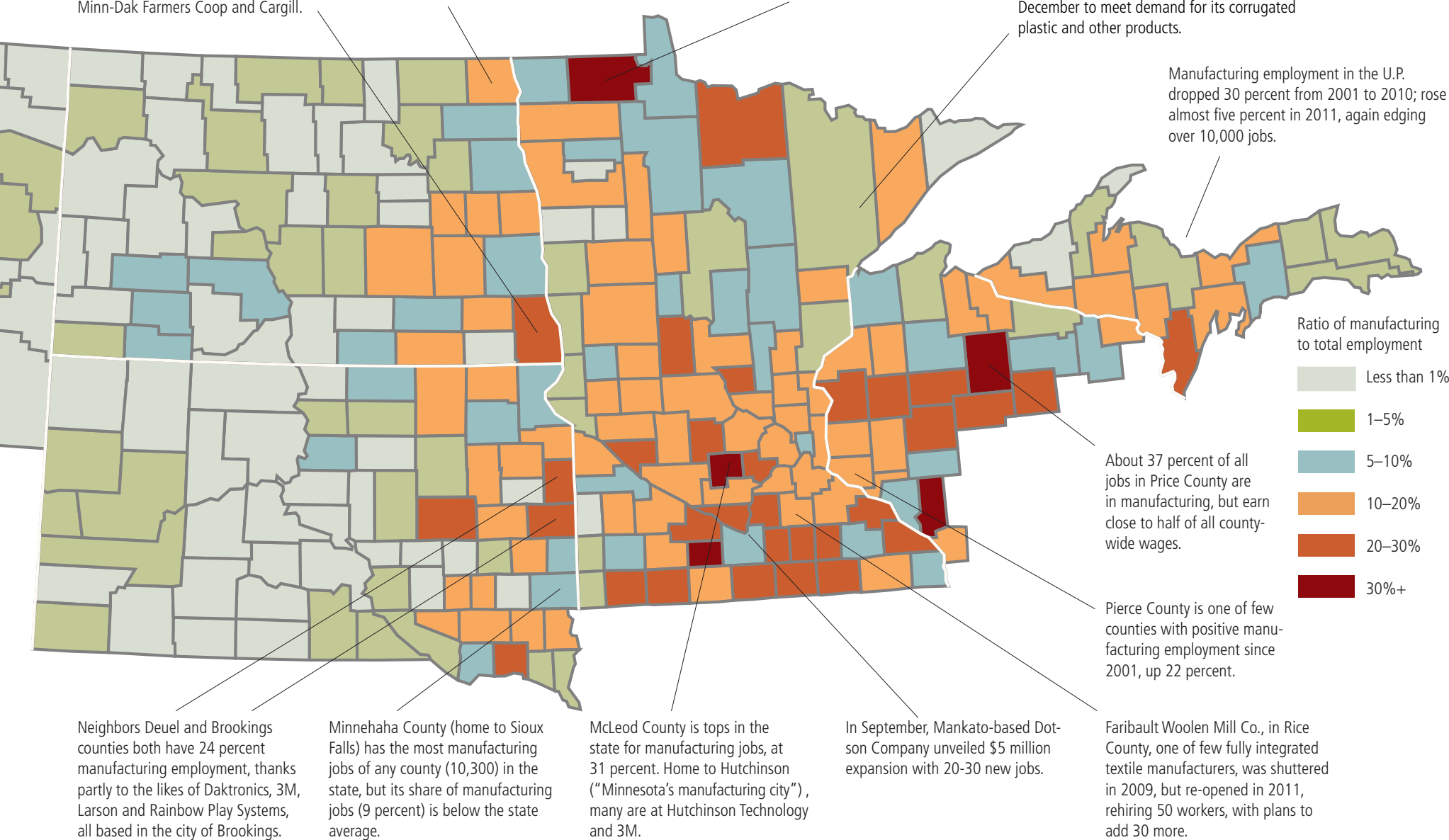
Richland County has the state's highest share of manufacturing (22 percent), thanks to several large manufacturing plants in or near Wahpeton, including Woodcraft Industries, Minn-Dak Farmers Coop and Cargill.

Rural Pembina County has almost 16 percent of its jobs in manufacturing, many at bus-maker Motor Coach, which expects to add 81 workers to the payroll this year.

In Roseau County, 52 percent of jobs are in manufacturing, highest in the district. A county of 15,000 people, it's home to Polaris and Marvin Windows.

Minnesota Diversified Industries, a nonprofit manufacturing employer of workers with disabilities, has created more than 250 jobs at facilities across the Iron Range since last December to meet demand for its corrugated plastic and other products.

Manufacturing employment in the U.P. dropped 30 percent from 2001 to 2010; rose almost five percent in 2011, again edging over 10,000 jobs.



are having difficulty finding qualified workers. A *fedgazette* survey of Montana manufacturers found that revenue increased over the past two years for half of the 55 respondents (one quarter had flat revenue and another quarter saw revenue decline). But two of three respondents said finding the necessary labor was difficult. In the past year, employers have expressed similar sentiment in surveys by the DEED and Enterprise Minnesota.

Skilled labor conditions are even tighter in North Dakota, which has the envious challenge of dealing with an oil boom and virtually uninterrupted economic growth over the past decade. Peterson, from the state chamber of commerce, said that an executive at Case New Holland told him: "Give me 50 trained

welders, and I'll hire them today. Give me 50 more, and I'll hire them tomorrow. Give me 50 more, and I'll hire them the day after." Those stories abound in North Dakota. He noted that two other large manufacturers in the state had all the business they could handle, "and they can't get enough workers. ... Their greatest fear is not finding enough workers to grow in North Dakota."

Randy Schwartz, director and CEO of the nonprofit Dakota Manufacturing Extension Partnership, pointed out that North Dakota manufacturers are looking for workers whose skill sets are similar to those working in the oil and gas industry, where wages "are roughly double what they are in many manufacturing companies." With such hot competition for skilled labor, Schwartz said,

"more manufacturers are going to have to avoid becoming the workforce feedstock for the energy industry."

### Is this different?

Despite these myriad challenges, many are cautiously optimistic about the future of manufacturing. Some are gaining confidence from an increasing number of anecdotes about manufacturers "reshoring" jobs back home, or giving contract work to domestic suppliers rather than sending the work abroad (see article on page 7).

The encouraging thing about this manufacturing recovery is that sector employment has rebounded more quickly this time compared with the 2001 recession (see Chart 7 on page 7)

and to date is roughly in line with the recovery after the 1991 recession, which was subsequently followed by strong manufacturing growth for most of that decade. The Mid-America survey and others also continue to be upbeat regarding future employment.

That's good news for workers and policymakers fretting about continued high unemployment. But job gains in the sector will probably be comparatively modest; despite 41,000 new manufacturing jobs in district states since the upturn, the industry employs 100,000 fewer workers than it did before the recession, while output in most district states has generally equaled or surpassed prerecession levels.

There is little reason to believe manufacturing will significantly reverse the



# Exporting growth

*District manufacturers are succeeding in international markets*

Try it. You might like it.

That philosophy might explain the success district manufacturers are having in international markets: More firms are exporting and, as a result, total exports have helped many manufacturers grow since the recession.

"We've seen a lot of changes" among businesses that export, said Bob Kill, CEO and president of Enterprise Minnesota. Companies today have greater market savvy, regardless of size, Kill said. "Companies used to think you had to be big to export."

Save for a brief but hellacious drop in 2009, exports have been flying off the shelves of district manufacturers for the past decade (see Chart 1). Exports were particularly strong in 2010 and 2011, rising 17 percent and 10 percent, respectively. That's due in large part to rising numbers of manufacturers looking elsewhere for new markets. Again, except for the drop in 2009, the number of Minnesota firms exporting some product has steadily increased and is currently at record levels, according to the Minnesota Trade Office (see Chart 2).

Many of those firms have moved into international markets because of the weak dollar against most currencies, which makes U.S.-made products more competitive (a.k.a. cheaper) in other countries. For the past decade, the dollar has been persistently falling in value, except for a spike during the financial crisis and a recent uptick during the first half of 2012 in response to the European debt crisis (see Chart 1).

By far the biggest—and often first—destination for district exports is Canada, thanks to a common border as well as similar language and culture. Exports there grew by more than 40 percent from 2009 to 2011 (to \$14 billion) and are up about 10 percent through the first half of this year.

As firms get a feel for the procedure—and potential—of exporting, they also start to spread product wings, so to speak. "As companies grow, they get more sophisticated, and they realize where growth is," often leading them to Latin and South America, and later into China and other parts of Asia, according to Kill. Mexico and China round out the top three destinations for district exports; each exceeds \$3 billion in exports, a 50 percent rise since 2007.

Some believe there is great potential for still more export growth. In July, Minneapolis became home to a new branch of the Export-Import Bank of the United States, an independent federal agency that supports exports by doing things like insuring payments from foreign buyers. Given a "wealth of export-related assets" in the Twin Cities and statewide—including 19 Fortune 500 companies and high visibility in many industries—"we believe that Ex-Im Bank can help this area increase exports at a faster rate in the coming years," said Denis Griffin, the bank's Minneapolis regional office director.

While the most obvious markets for local exports are Canada, China and Mexico, "we want to encourage companies to seek out opportunities across the globe." The bank has a presence in 175 countries and, based on internal research, it believes countries like Brazil, India, Indonesia, Nigeria, South Africa, Turkey and a few others are well positioned to become larger importers of U.S. goods, according to Griffin.

## Slower, but still growing

This year, exports to all destinations have continued to increase, but at a more modified pace, rising 6 percent through May of this year compared with the same period a year ago. Sources attributed some of the pullback to nervousness over the sovereign debt crisis in the European Union and its effect on the global economy. But to date, that nervousness has not translated to lost sales.

The Minnesota Trade Office, for example, typically helps small to medium-sized manufacturers export their goods. "They may have nervousness regarding what is taking place in the EU, but haven't indicated that things have changed dramatically, and not enough to alter their outlook on this market," said Jeffrey Phillips, an MTO international trade representative, via email.

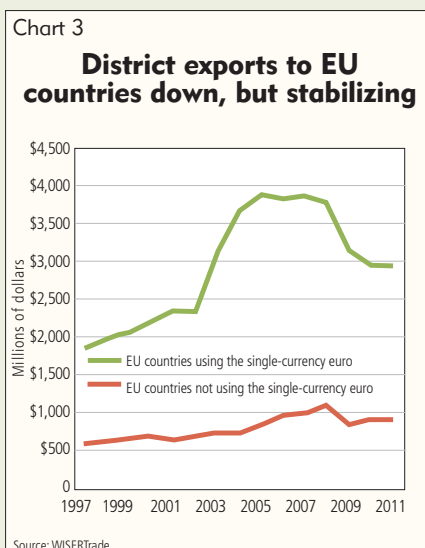
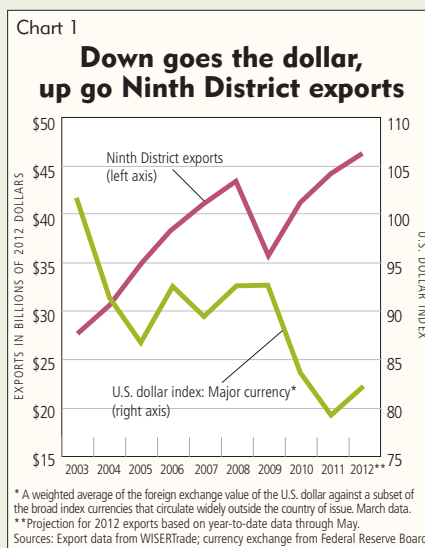
In fact, EU exports appear to have stabilized since the recession. From 2007 to 2009, exports to the 27-country EU fell by close to \$1 billion and have since been flat. Most of that drop came from the 17 countries in the single-currency eurozone (see Chart 3).

Phillips pointed out that Europe still has 10 of Minnesota's top 25 export markets, and "there remains huge opportunities for manufacturers to enter or expand their sales in the EU." In fact, the agency has seen an increase in manufacturers asking for assistance or attending training seminars related to so-called CE marking—consumer safety certification that allows products such as machinery, medical devices and telecom equipment to be sold within the EU.

But while things play out in the EU, firms are looking elsewhere for growth. In 2009, the EU represented 27 percent of Minnesota's overall exports. By 2011, it had fallen to 20 percent.

"Europe is not on the minds" of exporting businesses because there are many other burgeoning markets on the radar, said Kill. "China, South America, Asia clearly are larger [export targets] because they are growing."

—Ronald A. Wirtz



## Manufacturing from page 5

sector's steadily sliding share of employment—from 25 percent 40 years ago to 10 percent—because manufacturing today simply requires less labor than it once did, thanks to new technology and rising worker skills. New manufacturing jobs often demand a range of mechanical and computer skills to run sophisticated machines that do most of the production work. "Mechatronics" has become something of a buzzword in some manufacturing circles. It represents a skill set—as well as a curriculum in some district technical colleges—that combines mechanics, electronics, software and other technology, according to Kill. It transitions the manufacturing worker from brawn to brains, but requires fewer workers to produce the same number of widgets.

Kill acknowledged the trade-offs. "Does it require as many employees? No. Is it skilled? Absolutely. Does it pay more? Absolutely," said Kill. "This is where [manufacturing] is going."

So while manufacturing in the Ninth District has made a solid recovery by many measures, there is just as much work ahead if manufacturers hope to remain competitive. As Central Container's Haglund put it, "Status quo used to be status quo. Now status quo is regression."

For a final tale of both promise and peril in manufacturing, gather around Daniel Berdass, from Bermo Inc., who is something of a celebrity within the industry. "Everyone wants to hear my horror stories. It makes them feel good," said Berdass.

While Bermo is currently seeing strong growth in its metal components business, it's been a volatile arc. It went through gut-wrenching upheaval in the last two recessions. In 2001, the company was an international supplier to computer and electronics firms like Dell during the high-flying 1990s. The collapse of the Internet and telecom bubble with the 2001 recession saw the "loss of 90 percent of our business in 45 days." The company shut down six plants abroad, leaving only its Twin Cities facility, and employment shrank from 1,200 to just 110. That period "was probably the most difficult thing I ever experienced. You wouldn't believe the trauma," Berdass said.

So the company decided that the only feasible, yet risky, move was to shift into heavy equipment prototyping, fabricating and stamping. The thinking, according to Berdass, was that "the bigger and the heavier, the better a chance [production] has to stay" in the United States at which point the company could expect to compete for business.

Berdass said that retrenchment finally took hold after about five years, just in time for a smackdown by the 2007 recession. Revenues dropped and em-





As the container industry has evolved, Central Container has hired the design and engineering talent to go after value-added product markets like medical supplies. Striving for quality brought Central Container the security of better margins. This year's revenues are up 10 percent, and the company expects to add 13 workers by year's end.

ployment got cut in half. But while the firm struggled, "we were used to this. We knew how to shrink." Recovery took a couple of years, but today "things look very good, very strong," said Berdass. Even among his competitors, "95 percent of us are doing very well."

But none of the recent success is much comfort to Berdass because he knows how fast things can change. "It's very scary. Certainly the next six months look strong ... but we're very cautious."

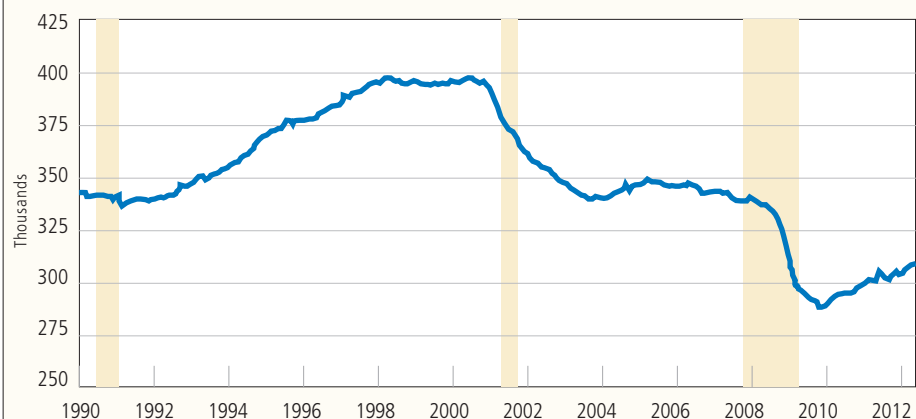
Whether the current upturn in manufacturing is merely a temporary sunny spot or something more long lasting is "a question I ask myself every day, and

I have no idea," said Berdass. "You get whacked twice in eight years, it's very hard. I'm scared. From here it looks strong. But we could get [contracts] canceled tomorrow and things will look terrible. It's happened before." **f**

Chart 7

### Manufacturing a recovery?

Minnesota manufacturing employment, seasonally adjusted



Shaded area denotes recession periods  
Sources: Bureau of Labor Statistics and National Bureau of Economic Research

# Made (again?) in the USA

*A shrinking cost gap reportedly has more manufacturers "coming home." Whether that's happening is hard to say, but any employment effects would likely be modest*

By RONALD A. WIRTZ  
Editor

The small community of Jackson, Minn., might not be the first place you look to see global manufacturing trends at work.

Tucked along the bottom of the state near Interstate 90, the community of 2,800 people might be more renowned for an odd pairing of American artifacts: Fort Belmont, one of only two civilian-built 19th century forts ever constructed in the Midwest, and Jackson Speedway, where all varieties of hobby and modified stock cars and other vehicles race around a half-mile dirt oval for purses of up to \$10,000.

But in the northwestern part of town, in the city's industrial park, sits a new addition to a heavy manufacturing and assembly plant owned by AGCO, an ag-equipment giant with worldwide operations, headquartered in Duluth, Ga. The 600,000-square-foot facility has traditionally made self-propelled field sprayers and a variety of track- and center-pivot tractors. Some production has come through consolidation, as AGCO acquired other ag-related companies over the past two decades and brought that production to Jackson, eliminating jobs in other Minnesota communities along the way.

But earlier this year, about 100 new workers started assembling high-horsepower Massey Ferguson and Challenger wheeled tractors—products the company had been making in Beauvais, France. Tractor components—almost everything short of the wheels and batteries—are mostly still made in France or elsewhere and then put in a kit and shipped to Jackson for assembly.

That might not sound like a particularly economical way to build tractors, but Greg Peterson, the company's director of investor relations, explained that these tractors were destined for U.S. farmers anyway, and "it's cheaper to ship parts because you can put them in a container," which takes up less space than a fully assembled tractor. Peterson said there are also savings in wages and benefits; workers in Jackson receive about 10 percent to 15 percent less in total com-

**The Quick Take:** The trend in "reshoring"—bringing previously offshored manufacturing production and jobs back home—is widely heralded, but poorly documented. A growing number of anecdotes and other evidence suggest that some reshoring is occurring, particularly for items destined for domestic markets, the result of rising overseas production costs and better recognition of hidden costs and logistics issues. But reshoring's effect on manufacturing employment in the district is likely very modest given the high-automation, low-labor demands of most reshored products.

pensation than workers in France.

"After all the puts and takes in a financial sense, [the production transition] is a wash," he said. The company expects to reap additional financial benefits over the next few years as it looks to produce many components in the United States, possibly even in Jackson.

Welcome to manufacturing's updated math, which is generating a growing number of anecdotes about firms like AGCO bringing manufacturing back to the United States. The phenomenon goes by a variety of names—reshoring, homeshoring, inshoring, insourcing—and happens in different ways. Corporations can return in-house production from international plants to domestic ones; or they might source such production to outside firms, giving contracts to U.S. vendors rather than those in other countries.

There are myriad reasons for doing so, but most center on the narrowing gap in labor costs between domestic and international locations, better recognition of indirect costs and logistics issues with overseas production and even the marketing opportunity to stamp "made in the USA" on products.

The extent of reshoring is guesswork because hard data are nonexistent. There are enough anecdotes to suggest that reshoring is occurring, giving rise to the hope of renewed manufacturing

Continued on page 8





### Manufacturing's new math

Earlier this year, about 100 new workers started assembling high-horsepower Massey Ferguson and Challenger wheeled tractors at AGCO's 600,000-square-foot facility in Jackson, Minn. The tractor components—almost everything short of the wheels and batteries—are mostly still made in France or elsewhere and then put in a kit and shipped to Jackson for assembly.

It's cheaper to ship parts because they can be put in a container, which takes up less space than a fully assembled tractor. There are also savings in wages and benefits, and the marketing opportunity to stamp "made in the USA" on the product.



### Reshoring from page 7

growth across the Ninth District and the nation. But reshoring is likely to have a limited effect, especially on employment, because factors that made offshoring a global phenomenon are still present, especially for low-value products requiring lots of labor.

However, a shrinking gap in labor costs combined with other considerations—transportation costs, customer service needs, supply chain logistics—have made it feasible for manufacturers to produce more goods domestically, especially those with a high level of specialization and automation.

## Manufacturing boom(erang)

A host of private surveys suggest that many companies are giving reshoring some consideration. Last April, the Boston Consulting Group found that more than one-third of U.S.-based manufacturing executives at companies with sales greater than \$1 billion are either planning or considering reshoring some production back from China.

Another survey released in July by CoreNet Global, an association of corporate real estate executives, reported that 51 percent of corporate real estate asset managers expected a rebound in domestic manufacturing from offshore locations. This recovery will be driven both by companies bringing manufacturing plants and jobs back to the United States or by choosing not to off-

shore in the first place, according to the report—a trend it said "will continue strongly through the year 2020."

MFG.com, an online marketplace for manufacturers, found that 40 percent of almost 260 small manufacturers surveyed said they had received a contract that was previously sourced to a foreign supplier. In earlier research by the organization, 22 percent of product manufacturers reported returning a portion of their production back to North America, and 33 percent were researching such a move.

But the full extent of reshoring is hard to put your finger on. There are no reliable counts of reshoring activity at virtually any scale, not even back-of-the-envelope estimates to quibble over. "We've been asked that question a lot in the last year or two, but I'm not aware of any numerical studies," said Neal Young, director of economic analysis at the Minnesota Department of Employment and Economic Development. "Everything we've seen has been anecdotal."

And there are plenty of reshoring examples. You can't get any more American than softball, the "ting" of batted balls echoing across virtually every community in the country—and sometimes all the way to China. That's where bats from Miken, based in Caledonia, Minn., were outsourced about eight years ago. But last year, the company decided to return production to Caledonia.

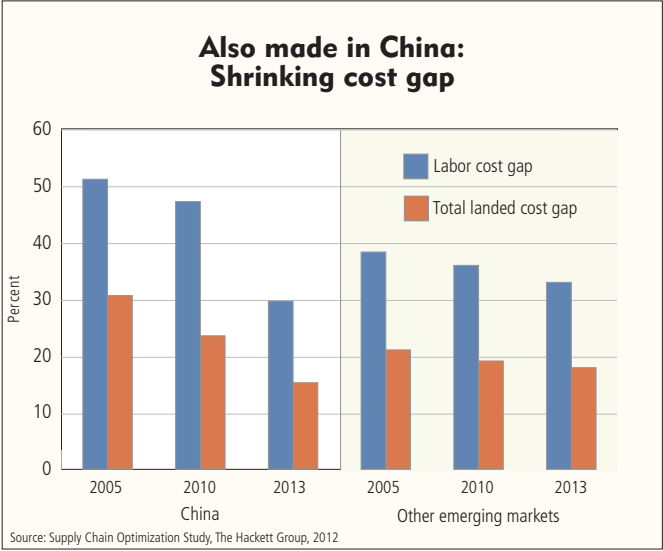
The company declined to be interviewed and hasn't disclosed employ-

ment changes in Caledonia, but said via email that it "regularly reviews its supply chain and manufacturing costs, and in doing so, we made the decision to move some of our manufacturing back to the U.S. from China." Specifically, costs had risen in China, and the return to local production allowed the company "to tap into a high-quality labor market, while improving our supply chain logistics at lower manufacturing costs."

Miken's experience underlies a fundamental driver of reshoring activity. Overseas manufacturing costs—especially in China—have been rising. Boston Consulting Group estimated that Chinese factories were seeing wage and benefit increases of 15 percent to 20 percent per year, one reason it believes the United States will be "in a strong position" to gain 2 million to 3 million manufacturing jobs by the end of the decade.

As overseas costs rise, the gap between domestic and international production has been closing. A study by the Hackett Group projected that the wage gap between the United States and China will fall from 51 percent in 2005 to 30 percent in 2013 (see chart, reprinted with Hackett's permission).

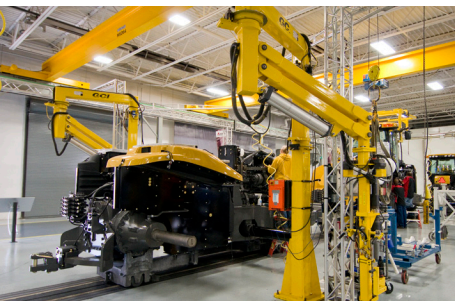
But wages are only part of the story. Among other reports on the matter, Hackett's study found that the gap in total landed costs—raw materials, component costs, transportation and logistics, inventory carrying costs, taxes and duties—have been halved from 31 percent to 16 percent, and similar cost reductions were also seen in comparison with other emerging, low-cost countries (see chart). These structural changes "are definitely permanent" under the most likely scenarios imagined by the companies tracked by Hackett, said Michael Janssen, the firm's chief research officer, in an interview. "They expect the gap to shrink further. The only thing that changes is the time frame" in terms of how quickly things might occur.







Photography by Stan Walhauser



## District reshoring

Manufacturers in the district are seeing the cost-gap phenomenon firsthand. Jim Haglund, president of Central Container in Brooklyn Park, Minn., said he's been going to China for 30 years. He's watched productivity there steadily improve, but lately he's seeing costs rise. "Inflation is hitting them, and workers are demanding more money." Combined with higher transportation and other costs, the price gap is now closer to about 20 percent, Haglund believed. "Once you put pen to paper, it costs more" to be in China than many first realized.

Add in customer service needs—like quicker product adjustments—and more manufacturers have started to rethink their offshoring strategy. Haglund said Central Container is seeing business increase for contracts with medium- to lower-quantity volumes, where cost isn't necessarily the overriding factor. His company now does more business with a high-tech stamping company (which Haglund couldn't name for privacy reasons) that wanted better quality and quicker turnaround. "Where quality and inventory [control] and service are concerned, that's where it's coming back. Items that we lost eight or nine years ago, we're getting back."

It's a similar story at OEM Fabricators, a Woodville, Wis., heavy-industry contract manufacturer. Customers are looking more closely at "time to market" from the prototype stage to final product rollout, and "many of our customers

are accepting the concept that there are other important considerations beyond simply the price," said President Mark Tyler. Supply chain control is also becoming more important, "and closer [proximity] typically means more opportunities to reduce supply chain costs," he said.

Nicolet Plastics, a plastics injection molding company in Mountain, Wis., has also seen an increase in domestically sourced products, said President and CEO Bob MacIntosh. The company has embraced so-called quick response manufacturing to reduce the cost of producing low-volume, customized products. Along with immediate product savings, lower volumes mean less inventory for customers "as well as less chance of [product] obsolescence. If a customer is buying container loads of product from overseas, it had better be right when it arrives."

Producing goods closer to their final sales market offers obvious logistics advantages. It has the added perk of capitalizing on rising buyer preferences for goods made here. Peterson, from AGCO, said, "In marketing, there is a big advantage" to bringing the new tractor production to its Minnesota plant in Jackson. The company built a 17,000-square-foot visitors center in Jackson where, along with historical company and agricultural artifacts, visitors can get a glimpse of the assembly line so that "farmers can come in and see their tractor roll off the assembly line."

## A "positive" net zero?

Despite these positive developments for district manufacturers, the impact of reshoring is likely to be more muted than all of the anecdotes might imply, especially in terms of employment.

For one, the Chinese manufacturing dragon is far from dead. In June alone, the United States carried a \$27 billion trade deficit in manufactured goods. Outsourcing to China and other low-cost countries will still be the way to go for many U.S. manufacturers producing goods that are even moderately labor intensive. "The advantage in China is still labor. ... Its labor scale is unbelievable," said Janssen. Apple, for example, is famous for employing huge numbers of foreign workers for manual tasks, like putting stickers on an iPad or putting it in a box. Such jobs are simply impractical in the United States, he said. "There's not enough people in the U.S." willing to do similar work for a comparable wage.

But Janssen noted that cost increases in China are real and not likely to go away soon. As factories there continue to pump out goods and earn profit, Chinese workers are asking for something in return—a normal transition in any growing economy. Workers there, Janssen said, "don't want to live like peasants any more. They want the things we want," like better living conditions and material goods. This leaves U.S. companies with three options: Increase labor productivity at Chinese plants, move production to lower-wage countries or

bring it closer to developed markets.

But a lost job in China—or other low-cost country—does not equal a new job here. A plant in China with 100 workers might employ only 10 workers if it were located in the United States because the domestic plant—by necessity—would be highly automated to offset much higher wage and benefit costs, according to Janssen. Such capital investments are also easier today because of the low cost of capital.

Hackett's research suggests something of a rebalancing in manufacturing production, rather than a reshoring stampede. A May report by the group found that companies are exploring reshoring for nearly 20 percent of their offshore manufacturing capacity between 2012 and 2014. While that's a positive development for U.S. producers and their workers, this repatriated production would only "roughly offset the jobs that will otherwise move offshore, indicating that the great migration of manufacturing offshore over the past several decades is stabilizing."

In other words, "the good news is that we've gotten to net-zero jobs. We've finally reached an equilibrium," said Janssen. "That's bad news for China. But unfortunately, [the resulting job growth here] is not as much as politicians would like." **f**





Susan Houseman, a senior economist at the Upjohn Institute

## Susan Houseman on measuring manufacturing productivity

*Editor's note: American manufacturing continues to get leaner and meaner, booking strong productivity gains every year and allowing production of more goods with fewer people. But wages for manufacturing workers haven't kept pace, as economics suggests they should if workers are more productive. What gives?*

*Some research indicates that productivity growth may be overstated. The fedgazette interviewed Susan Houseman, a senior economist at the Upjohn Institute in Kalamazoo, Mich. Houseman and three Federal Reserve System economists authored a 2010 study that identified biases in the way manufacturing productivity is measured.*

*Houseman holds a Ph.D. in economics from Harvard University, has taught at the University of Maryland School of Public Affairs and worked as a visiting scholar at the Brookings Institution.*

**fedgazette:** Your research, which takes a close look at how productivity in manufacturing is measured, was a collaboration with three Federal Reserve economists. How did you come to work with them?

**Houseman:** I had the idea that some key manufacturing output and productivity statistics were biased because of offshoring and was looking for a way to estimate the size of the bias. My co-authors had documented the growth of offshore outsourcing by American manufacturers, and we were able to estimate that bias using their detailed data and models of the manufacturing sector.

We intentionally ended our analysis in 2007, because we did not want to incorporate the recession into the paper. Things got pretty quirky then. Imports were tanking along with the rest of the economy, and we wanted to focus on longer trends.

**fedgazette:** We've been hearing about impressive productivity gains in manufacturing for a while. Is your research essentially saying they aren't really there?

**Houseman:** I would like to make two points. First, a very important fact, but one I find most people don't know—including some people who write a lot about the manufacturing sector—is that manufacturing growth in real [price-adjusted] value added and productivity wasn't that strong without the computer

and electronics industry. The computer industry is small—it only accounts for about 12 percent of manufacturing's value added. But it has an outsized effect on manufacturing statistics.

We make that point, I think, pretty clearly in our 2010 paper. But I still see a lot of analysts who say, "Look at how fast manufacturing is growing; manufacturing output is growing faster than GDP. There's nothing wrong; manufacturing is doing great." But we find that without the computer industry, growth in manufacturing real value added falls by two-thirds and productivity growth falls by almost half. It doesn't look like a strong sector without computers. That's the first point.

The second point, which was the focus of the 2010 paper, is that there's been a lot of growth in manufacturers' use of foreign intermediate inputs since the 1990s, and most of those inputs come from developing and low-wage countries where costs are lower. We point out that those lower costs aren't being captured by statistical agencies, and so, as a result, the growth of those imported inputs is being undercounted.

**fedgazette:** How is it that lower-cost manufacturing in other countries influences U.S. productivity statistics and results in incorrect measurements?

**Houseman:** It is hard to get your teeth into the problem, which fundamentally has to do with price index theory and

**We find that without the computer industry, growth in manufacturing real value added falls by two-thirds and productivity growth falls by almost half. It doesn't look like a strong sector without computers.**

how things are deflated. But let me illustrate with a hypothetical example.

Suppose an auto manufacturer used to buy tires from a domestic tire manufacturer. Then it outsources the purchase of its tires to, say, Mexico, and the Mexicans sell the tires for half the price. That price drop—when the auto manufacturer switches to the low-cost Mexican supplier—isn't caught in our statistics. And if you don't capture that price drop, it's going to look like, in some statistical sense, the manufacturer can make the same car but only needs two tires.

**fedgazette:** So the important part is to measure the changing value of inputs better.

**Houseman:** Yes, exactly. We have pretty good measures of the value of inputs. But if, say, the dollar value of inputs falls, that could be because manufacturers are using fewer inputs or because the price of the inputs dropped. Our statistical agencies try to measure price changes, but they miss them when the price drops because companies have shifted to a low-cost supplier. So because we don't catch the price drop associated with offshoring, it looks like we can produce the same thing with fewer inputs—productivity growth. It also looks like we are creating more value here in the United States than we really are.

**fedgazette:** You said that the growth in productivity in manufacturing is not



Photographs by Leslie Lance





that large if you take out computers. The corollary is that productivity growth in the computer and electronics industry has been pretty strong. Are you suggesting that it is also mismeasured? Does the logic you've spelled out in the example with automobile tires also apply to the computer and electronics industry?

**Houseman:** Yes, it applies to the computer industry too, and we include estimates of the bias to productivity growth in the computer industry in our paper. But because actual productivity growth is so high in that industry, these [bias] corrections account for a relatively small percent of the growth in that industry.

The standard argument is that the rapid productivity growth in computers is coming from product innovation. This year's computers and semiconductors are faster and do more than last year's models. And that product innovation essentially gets captured in the price indexes the government uses to

deflate computer and semiconductor shipments. The price indexes for most products increase over time—that's inflation. But, for example, the price indexes used to deflate computer shipments have actually fallen by a whopping 21 percent per year since the late 1990s. Those rapid price declines largely reflect adjustments for the growing power of computers. And that extraordinary decline in computer price indexes translates into extraordinary growth in real value added and productivity in the computer industry as measured in government statistics.

So, in some statistical sense, today's computer may be the equivalent of, say, 13 computers in 1998. But that doesn't by itself mean fewer workers are needed to manufacture a computer today than in the past. Product innovation doesn't displace workers; we're not buying fewer computers because they're more powerful. If anything we're buying more of them.

**The point is that when you have an industry where [the government is] aggressively adjusting prices for quality changes, an error can really swing the numbers not only in that industry, but also in the manufacturing sector and even in GDP.**

Could there be other measurement issues in the computer industry? Sure. It's a really hard sector to measure for various reasons. Global supply chains are complex and rapidly changing, and there's a big lag in the collection of data the government needs to get the industry structure right. It's also really important that imported IT products are deflated the same way domestic ones are.

So there could be a lot of errors, but it's hard to say how big they might be or even the direction of any bias. The point is that when you have an industry where [the government is] aggressively adjusting prices for quality changes, an error can really swing the numbers not only in that industry, but also in the manufacturing sector and even in GDP. So we have to be, in my view, very cautious in interpreting aggregate numbers when one industry is dominating the data.

**fedgazette:** It has been considered something of a puzzle that as productivity in manufacturing has grown, employment in factories has declined and wages for existing workers haven't kept pace. Does your research suggest a resolution to this puzzle?

**Houseman:** We do argue that productivity is overstated. So that's one piece, but it's not the only piece of the puzzle.

Another piece of it is that the rapid growth in manufacturing productivity is being driven by one industry—computers—and what's driving productivity growth in computers is improvements in quality of the product, which doesn't have any implications per se for jobs or workers' wages. The reason jobs in computers have been lost is not because productivity growth has crowded them out; not at all. It's because much of the production has gone overseas.

So there's that. And then another standard story has to do with automation. Basically, capital is substituting for labor. Automation can lead to job losses. And the returns from automation, or

higher capital use, won't necessarily be shared with workers.

Then, finally, there's probably been some shifting in the sorts of production that occur here. In particular, less of the labor-intensive production is done in the United States, and that would result in job losses and higher labor productivity. Again, the gains from that productivity growth aren't necessarily going to be shared with remaining workers. So part of the answer to the puzzle is that even if productivity gains are real, there's really nothing that guarantees those gains will be broadly shared by workers. Certainly some people have done very well in the economy, but those individuals typically haven't been production workers.

**fedgazette:** So what is the "right" way to measure manufacturing productivity, if that's even possible? You wrote your paper in 2010. Has any progress been made since then?

**Houseman:** For a start, it's important to catch the kind of price drops that we talked about in our paper—price drops associated with rapid shifts from high- to low-cost—often foreign—suppliers. It's fair to say that for the most part, the way price indexes are constructed in the United States, the "law of one price" is assumed to hold all the time. That is, it's assumed there are no price differences among stores or suppliers to businesses once differences in quality of the products they sell are taken into account.

But a point we try to make clearly in our 2010 paper is that a lot of the price changes occur because new suppliers enter the market, offer lower prices for similar products and drive out old suppliers. There's a lot of evidence both domestically and internationally to suggest that this is an important piece of price dynamics that just isn't captured in the way we collect price statistics.

So the Bureau of Labor Statistics is considering whether it would be worthwhile to change the way price data are collected to better capture price movements. The idea that the BLS has is to collect price data from the purchaser rather than the seller.

There's a bigger question, though, about how to think about productivity in a national sense given the extensive global operations of multinational companies. Where do you "book" their value added? The more value added booked in a country, the higher its measured productivity.

That's a really big question, and something that the measurement community is just beginning to grapple with.

**fedgazette:** Thank you.

—Joe Mahon



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October 2012

