THE Main Street ECONOMIST
Agricultural and Rural Analysis

Issue 2, 2012 | Federal Reserve Bank of Kansas City

Rebuilding Rural Manufacturing

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Since the turn of the century, rural America has struggled with the erosion of its manufacturing base. As globalization intensified, rural factories enhanced their productivity to compete with foreign companies. Though rural manufacturers upgraded their productive capabilities, it was not enough to forestall sharp cuts in factory jobs. According to the Census Bureau, rural communities have lost roughly a third of their factory jobs since 1995. The recent recession only intensified this collapse as one out of every eight rural factory jobs disappeared in 2009 alone.

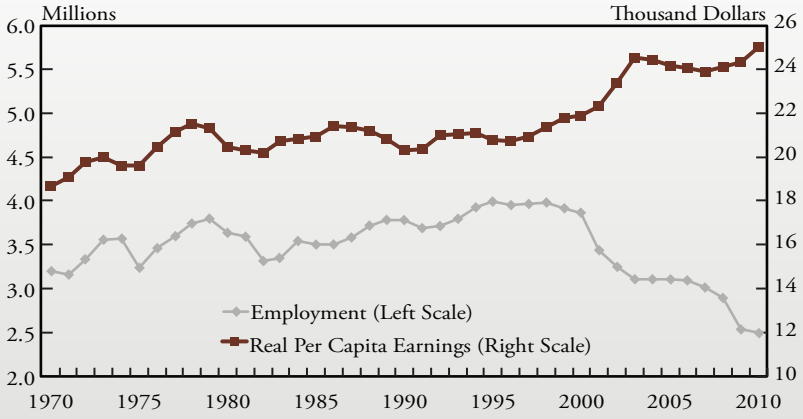
During the past two years, rural manufacturing has rebounded with a vengeance. Stronger global economic growth and a drop in the value of the dollar from its highs a decade ago boosted U.S. manufactured exports. Rural factories have tapped global markets and a booming agricultural sector to spur rising employment and incomes. While the prospect of additional strength at rural factories remains promising, the rebuilding of rural America's manufacturing base rests on the retooling of rural factories with skilled workers for competition in global markets.

Rural Manufacturing Trends

Rural America has traditionally been home to a vibrant manufacturing base. During the 1970s, the number of rural factory jobs rose 1.3 percent per year, more than three times faster than urban factory job growth (Chart 1).[1] After a sharp contraction during the recessions of the early 1980s, rural manufacturing bounced back during the late 1980s with additional expansions in factory jobs during the early 1990s. In fact, though rural America accounted for roughly 17 percent of total U.S. employment in the 1990s, it accounted for 20 percent of all U.S. manufacturing jobs by the mid-1990s, up from 16 percent prior to the 1970s.

During the past decade, however, rural communities have struggled with the hollowing out of their manufacturing base. Intense foreign competition and a strong dollar, which weighed on the price competitiveness of U.S. products, intensified a trend of outsourcing U.S. manufacturing jobs to low-wage countries (Burke, Epstein and Choi). In the first decade of the 21st century, rural communities lost more than a third of their manufacturing

Chart 1
Rural Manufacturing Employment and Earnings



Calculations based on Bureau of Economic Analysis data

jobs, similar to their metro peers.

To compete in global markets, rural manufacturers responded by enhancing productivity gains. By adopting advanced manufacturing techniques and new technologies, such as bio-technology and computerized systems, U.S. manufacturers became much more efficient. From 2000 to 2010, U.S. manufacturing doubled its gross domestic product (GDP) per worker, and total manufacturing output rose 11 percent from 2000 to 2010, despite sharp workforce reductions. Increased productivity lifted average annual earnings at U.S. manufacturers by 0.6 percent per year. While GDP data is not available for rural manufacturers, rising wages often reflect increased productivity. From 2000 to 2010, per capita annual earnings for rural manufacturing workers rose 1.3 percent per year, double the national rate. As a result, strong earnings growth suggests that rural manufacturers fostered robust productivity gains.

Evidence suggests that rural productivity gains over the past decade were driven by a shift toward high-skilled manufacturing. Specifically, the gains in rural manufacturing earnings were concentrated in a handful of high-skilled manufacturing sectors. Over the past decade, the only manufacturing sectors that experienced increases in total real earnings were the petroleum and coal products, machinery, chemical, and beverage and tobacco products sectors. These were also the only manufacturing sectors with more than a third of their jobs in high skilled occupations and many of these sectors produced some of the strongest productivity gains at the national level.[2] Moreover, the steepest declines in manufacturing earnings emerged in low-skilled sectors, such as textile and apparels, which experienced intense foreign competition and outsourcing.

Rekindling Rural Manufacturing

While the U.S. economy is mired in a sluggish recovery, rural manufacturing appears to be striking new economic fortunes. Economic growth in developing countries has spawned demand for commodity-based products. Rural manufacturing has leveraged booming commodity markets and rising exports to stage a rebound in jobs and income.

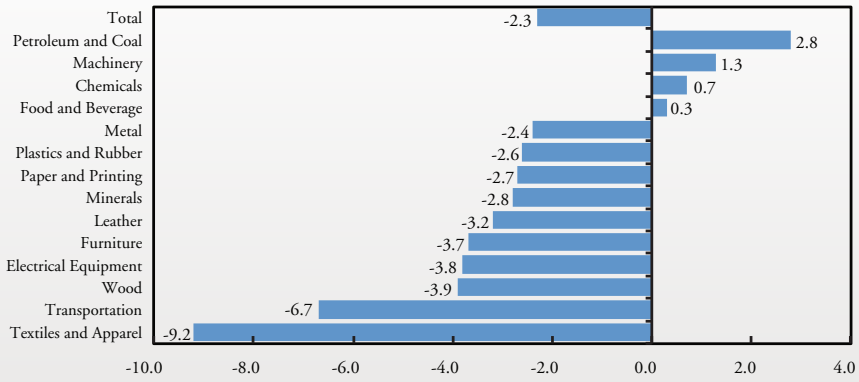
Over the past year, rural manufacturing has rebounded, posting stronger job and income gains than the nation as a whole. According to Current Population Survey data, rural manufacturing jobs jumped 3.8 percent in 2011, double the national rate. Rural factory workers continued to put in overtime as the number of hours worked remained above 41 hours per week through the first quarter of 2012. Stronger labor demand fueled strong wage growth as per capita

average weekly earnings rose more than 7 percent over the past year.

U.S. manufacturers are fulfilling strong global demand for commodity-based manufactured products. During the past decade, rising incomes in developing countries, especially China, triggered robust demand for both food and fuel. Since 2000, China accounted for 40 percent of the world's increase in crude oil consumption.[3] Additionally, China was the top export market for U.S. agricultural products in 2010.[4] U.S. manufacturers helped fulfill this demand by boosting their exports of fuel and food products. Since 2005, U.S. exports for fuel products (petroleum and coal) and processed foods have surged, rising 33 and 12 percent per year respectively, compared with 8 percent annual gains for average U.S. manufactured exports.[5]

Industries with the strongest export gains have fueled the strongest growth in rural manufacturing. With a larger concentration of commodity-based manufacturing activity, rural manufacturing has reaped the benefits of rising food and fuel exports. For example, food manufacturing is the largest rural manufacturing industry, accounting for 15 percent of rural manufacturing earnings. During the past decade, earnings at food manufacturing plants have risen almost 3 percent per year and 0.3 percent per year after adjusting for inflation (Chart 2). Real earnings at rural petroleum and coal manufacturing plants have surged almost 3 percent per year during the past decade, although the industry accounts for less than 2 percent of total rural manufacturing earnings.

Chart 2
Total Earnings by Rural Manufacturing Industry



Average Annual Percent Change (2011 to 2010)
Calculations based on Bureau of Economic Analysis data

Booming commodity markets and farm incomes have also spurred strong gains in farm-related manufacturing. Since 2006, U.S. farmers have nearly doubled their annual purchases of combines and tractors, contributing to 1.3 percent annual gains in the real earnings at rural machinery factories since the turn of the century. In addition, real earnings at chemical manufacturers have increased almost 1 percent annually, due in part to increased demand and price of agricultural chemicals.

During the recent economic recovery, food and fuel manufacturing industries have also posted the strongest job gains. According to the Current Population Survey, employment at rural food manufacturing plants is up 11.0 percent annually since the end of the recession in 2009. During the same time, petroleum and coal product employment is up 7.5 percent annually. In addition, employment levels are rising at additional manufacturing plants that process commodities. For example, employment at wood product plants has surged 18.3 percent per year since 2009, and primary metal manufacturing plant jobs rose 14.8 percent annually.

SUSTAINING THE MANUFACTURING REBOUND

The rebound in rural manufacturing brings a sense of hope and optimism to rebuilding rural America's manufacturing

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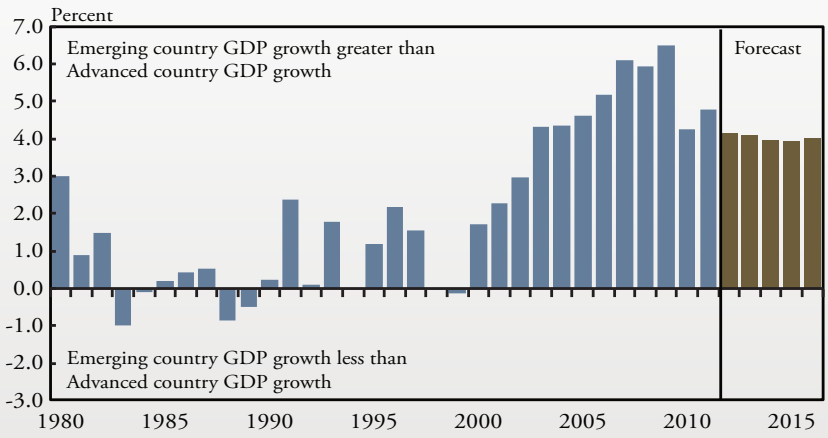
Chart 3
Difference Between Advanced and Emerging Country GDP Growth



Calculations based on International Monetary Fund data

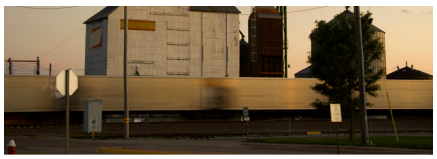
base. Yet, the continued growth of rural manufacturing hinges on the competitiveness of rural factories in global markets. A variety of factors—exports, innovation, and labor—will shape rural America's manufacturing future.

With 95 percent of the global population living outside of the United States, global markets offer a large consumer base for U.S. manufactured goods.[6] Since 2000, U.S. exports have surged, especially to developing nations. In fact, U.S. exports to developing nations have increased 8.2 percent annually, double the gains to other nations, with the largest gains in food products, petroleum and coal products, primary metals, and chemicals.[7]

The expectations of rising populations and incomes in emerging or developing nations could continue to offer new market opportunities for rural manufacturers. According to the United Nations, 95 percent of the world population gains between today and 2030 are expected to arise in less developed nations. Since 2000, emerging nations have led world economic growth. In fact, from 2000 to 2010, annual GDP growth was 4.4 percent stronger in emerging nations than in economically advanced nations (Chart 3).[8] In contrast, from 1980 to 2000, the difference between emerging and advanced nation economic growth was only 0.7 percent per year. If developing nations' strong demand for commodities and first-stage processing of manufacturing goods continues, rural manufacturers could be well-positioned for additional growth.

Rural manufacturers' ability to compete for these emerging global markets will rest on productivity and innovation. Rural communities, in general, are not thought of as major centers of innovation. In fact, the per capita number of patents is much higher in more urbanized cities (Orlando and Verba). Rural communities, however, are much more effective in generating patents associated with incremental innovations, suggesting that rural businesses are effective in adapting existing technologies to more mature business settings. Although rural manufacturers may be less likely to discover breakthrough technologies than their urban counterparts, the ability to adopt and adapt existing technologies appears to be essential to enhancing productivity and the global competitiveness of rural manufacturers. In fact, the National Institute of Standards and Technology (NIST) documents a series of success stories about the transfer of technology through its Manufacturing Extension Partnerships. In addition, the Small Business Administration has a Small Business Technology Transfer Program (STTR) to support R&D and its transfer to smaller firms.

Yet, innovation and technology adaption requires high-skilled



workers—a challenge for some rural communities. The rebuilding of rural manufacturing during the recent economic recovery has coincided with the increased hiring of high-skilled labor. Professional and technical occupations, such as engineers, scientists, and technicians, have accounted for all of the net job gains at rural factories since 2009.[9] With rural communities facing generally lower unemployment rates and a smaller share of the labor force with some level of post-secondary education, many struggle with access to these high-skilled workers. In response to Federal Reserve surveys, rural businesses in general and rural manufacturers in particular indicate a need for technically skilled employees. Rural businesses commonly indicate the need for engineers, welders, tool and die casters, and other technical skills.

This recent trend has focused new attention on the importance of technical degrees. Although 73 percent of the professional and technical positions in rural manufacturing are filled by workers with at least an associate's degree or some college training, roughly half of rural residents have these qualifications. To enhance this matching of jobs and people, rural manufacturers across the nation are teaming with universities and community colleges to educate a new generation of workers with technical skills. Community and technical colleges have a long history supporting rural manufacturing through producing skilled workers, distributing innovation and technology, and delivering business services and information (Rosenfeld and Sheaff). For example, facing the nation's second lowest unemployment rate, Nebraska's manufacturers are partnering to educate a new generation of skilled workers. The Nebraska Advanced Manufacturing Coalition, a partnership between business, education and government, has initiated a Dream It, Do It campaign to expand the pool of workers with science, technology, engineering and math skills.

In sum, rural manufacturing is forging a beachhead in the economic recovery. After a decade of steep job cuts, rural manufacturers have posted strong job growth since 2010. Though the bounce back is still a long way from replacing the jobs lost over the previous decade, the rebound provides some promise for additional job and income gains in the future.

Economic growth in developing nations may offer the brightest glimpse of hope for rural manufacturing and export activity. Despite the economic challenges associated with outsourcing, the most successful rural manufacturing sectors have adopted advanced technologies to enhance their productivity and manufacturing efficiency. To remain competitive globally, rural factories may need to harness new innovations and adapt emerging technologies to their business needs. And rural America may need to enhance the skill of its labor force to rebuild its manufacturing base.

ENDNOTES

[1]Manufacturing job and earnings data by U.S. metropolitan area status was obtained from the Bureau of Economic Analysis regional economic data, www.bea.gov.

[2]High-skilled occupations are defined as professional/technical and managerial occupations based on Holzer and Lerman (2009). Occupation data for rural manufacturing industries were obtained from the Current Population Survey.

[3]Petroleum consumption data obtained from the Energy Information Administration.

[4]Agricultural export data obtained from the Foreign Agricultural Service, USDA.

[5]Export data by industry was obtained from the U.S. International Trade Statistics, U.S. Census Bureau.

[6]World population data obtained from the United Nations.

[7]U.S. export data obtained from WISERTrade.

[8]World economic growth data obtained from the International Monetary Fund.

[9]Occupation and educational attainment data were obtained from the Current Population Survey.

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