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A NEW WAVE OF MANUFACTURING?

LARRY JOHNSON, INTERIM DEAN
DALTON STATE SCHOOL OF BUSINESS

Has the tide turned for U.S. manufacturers? Is resurgence in manufacturing just around the corner? There is mounting evidence that something positive is happening. The February Purchasing Managers Index at 54.2 along with an additional 4,000 manufacturing jobs in January shows expansion in the sector. In fact, the manufacturing sector has shown growth every month since the summer of 2009. Manufacturing accounts for 12 percent of the country's GDP. While nowhere close to the 30 percent of GDP in 1970, we are seeing the first uptick in U.S. manufacturing in 30 years. Manufacturing contributed 20 percent of global economic output in the decade ending in 2010 and 37 percent of global productivity growth from 1995 to 2005 according to the McKinsey Global Institute.

The National Association of Manufacturers cites the following statistics:

- The United States is the world's largest manufacturing economy, producing 18.2 percent of global manufactured products, according to the World Bank. China is second with 17.6 percent.
- U.S. manufacturing produces \$1.8 trillion of value each year, or 12.2 percent of U.S. GDP. For every \$1 spent in manufacturing, another \$1.48 is added to the economy.
- Manufacturing supports an estimated 17.2 million jobs in the U.S.—about one in six private sector jobs. Nearly 12 million Americans (or 9 percent of the workforce) are employed directly in manufacturing.
- In 2011, the average U.S. manufacturing worker earned \$77,060 annually, including pay and benefits. The average worker in all industries earned \$60,168.
- U.S. manufacturers are the most productive workers in the world, far surpassing the worker productivity of any other major manufacturing economy, leading to higher wages and living standards.
- U.S. manufacturers perform two-thirds of all private sector R&D in the nation, driving more innovation than any other sector.
- Taken alone, U.S. manufacturing would be the 10th largest economy in the world.

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BUSINESS ANALYTICS highlights manufacturing, the economic fabric of Northwest Georgia.

Along with "A New Wave of Manufacturing" by Interim Dean of the School of Business **Dr. Larry Johnson**, **Dr. Marilyn Helms**, Sesquicentennial Chair and Professor of Management, writes about her exclusive interview with Bob Shaw, founder of Shaw Industries, who provides a unique perspective on manufacturing in the flooring sector and discusses his latest venture, Engineered Floors. And **Dr. Robert Culp**, Assistant Professor of Economics, casts an eye on the growing importance of manufacturing in the southeastern U.S. and Northwest Georgia.

In addition, please join Dalton State's Center for Economic Research and Entrepreneurship and the Greater Dalton Chamber of Commerce at the Manufacturing Trends Luncheon on April 10 at the Dalton Country Club. **Mr. Gardner Carrick**, Vice President of Strategic Initiatives at the Manufacturer's Institute in Washington, D.C., will speak and should provide a view from the top on changes going on in manufacturing. ■

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Images courtesy of Engineered Floors, LLC

The Dalton State School of Business is accredited by the Association to advance Collegiate Schools of Business, an honor earned by less than 5 percent of the world's 13,000 business schools. AACSB International advances quality management education worldwide through accreditation, thought leadership, and value-added services.





THE FUTURE OF DALTON'S CARPET CLUSTER – REMARKS BY BOB SHAW

DR. MARILYN HELMS
SESQUICENTENNIAL CHAIR AND PROFESSOR OF MANAGEMENT
DALTON STATE SCHOOL OF BUSINESS

During a recent interview with **Mr. Bob Shaw** at the headquarters of his latest venture, Engineered Floors, LLC, he remarked, “We have a carpet advantage in Dalton, Georgia. Everyone here was practically born under a tufting machine.”

It seems Dalton, Georgia, quickly evolved from a 20th century cottage industry making bedspreads into today's center of carpet manufacturing. Fueled by the area's available transportation which included two railroad lines, advances in technology moved from tufting bedspreads to tufting carpet after World War II. Dalton had a ready pool of workers with specialized tufting skills for the new industry. After the 1970s, the area's manufacturers developed techniques for improving carpet's stain and wear properties and developed new patterns and styles. Increased demand for carpet saw a boom in the late 1980s, and the need for labor reached an all-time high. Dalton had an influx of much-needed employees from Mexico and other parts of Latin America to staff the over 340 carpet mills. The area boasted production of some 90 percent of the functional carpet produced world-wide—all made within a 65 mile radius of Dalton. By 2008, the housing boom was over, and Dalton's enviable four percent unemployment doubled and then rose to 12.4 percent by 2012. An article in *The New York Times* August 20, 2012, reported Dalton had lost more jobs than any other metropolitan area in America and saddened the community.

To manage costs and falling production, mills streamlined and improved efficiency, eliminating a number of entry-level jobs. Mills and companies merged and consolidated and added a wider array of floor covering products to their carpet lines to include hardwood, area rugs, laminates, hard surfaces, resilient flooring, and “green” flooring with ever-increasing recycled content, as well as flooring made from renewable resources. Companies increased their reclamation and recycling efforts and created the Carpet America Recovery Effort, a joint industry-government initiative sharing offices with the Carpet and Rug Institute, a trade association supporting research and customer advocacy for the industry.

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A NEW WAVE...

(Continued from page 1)

So it begs the question as to what is going on. As manufacturing matured in the U.S. in the 1960s, the manufacturing model moved to lower cost countries resulting in a loss of 6 million U.S. jobs. Now some of these lower-cost countries are losing their advantage. Advances in robotics, information systems, and modern communications are making the U.S. more competitive.

My students often say “Does the U.S. produce anything these days? It all seems to come from China.” And my response is always “You can import a lot of Christmas toys from China for the price of one Boeing 787.” While the number of factory jobs continues to decline, highly skilled technicians operate the machinery, scientists and engineers develop new products, systems analysts streamline the process, programmers develop the communication infrastructure to move product to the consumer, and financial analysts and managers determine how to do all this in the least costly manner.

Periods of rapid economic growth are usually ushered in by advances in technology. Horses gave way to steam engines. Steam engines gave way to gas and diesel engines. Craft production gave way to assembly lines. Computers and information technology of the 1960s and 1970s set the stage for the economic growth of the 1990s. After two recessions since the start of the 21st century, maybe things will change based on advances in robotics, communications, and hydraulic fracturing. Oil production in the U.S. has increased 40 percent since 2008, and the U.S. has 2.203 trillion cubic feet of natural gas, enough to last for 100 years according to the Energy Information Agency. Advanced technology and low cost energy could give way to another surge in manufacturing and thus improve the lives of all Americans. ■

REMARKS BY BOB SHAW *(Continued from page 2)*

Today, Dalton remains a concentrated industry cluster or a strategic grouping of inter-related carpet and floor covering industries that drive wealth creation in North Georgia and represent the value chain from suppliers to end products with support services and specialized infrastructures. But what happens to an industry cluster that has passed the maturity stage of the life cycle? This was the first question I wanted to pose to the cluster's leading entrepreneur and carpet pioneer, Bob Shaw.

Mr. Shaw began his career as CEO of Star Dye Company in 1958, a company founded by his father in 1946. Star Dye expanded from dyeing rugs to manufacturing carpet and began finishing carpet as "Shaw Industries." Shaw Industries went public in 1971 and reached sales of \$4 billion in 1999, merging with Cabin Crafts and Sutton and Queen Carpets. In January 2001, the company was sold to Berkshire Hathaway, Inc. Other key area carpet mills include Mohawk Industries Inc., Beaulieu Group, LLC, and J & J Industries, Inc. In 2010 Mr. Shaw reentered the industry with a new company, Engineered Floors, LLC.

However, before I could ask my question, Mr. Shaw began talking, and I started writing. He agreed that our area of Northwest Georgia has had a depression—not a recession but a real depression. Carpet's downturn has been linked to the drop in new construction, delayed apartment repairs, little to no remodeling, and a drop in consumer confidence. He remarked the carpet industry dropped from its 2005 peak by some 40 percent. Last year, 2012, was the first year the carpet industry experienced an upturn when measured by year-to-year performance. Mr. Shaw forecasts 2013 may see a gain of six to 10 percent of the original 40 percent loss.

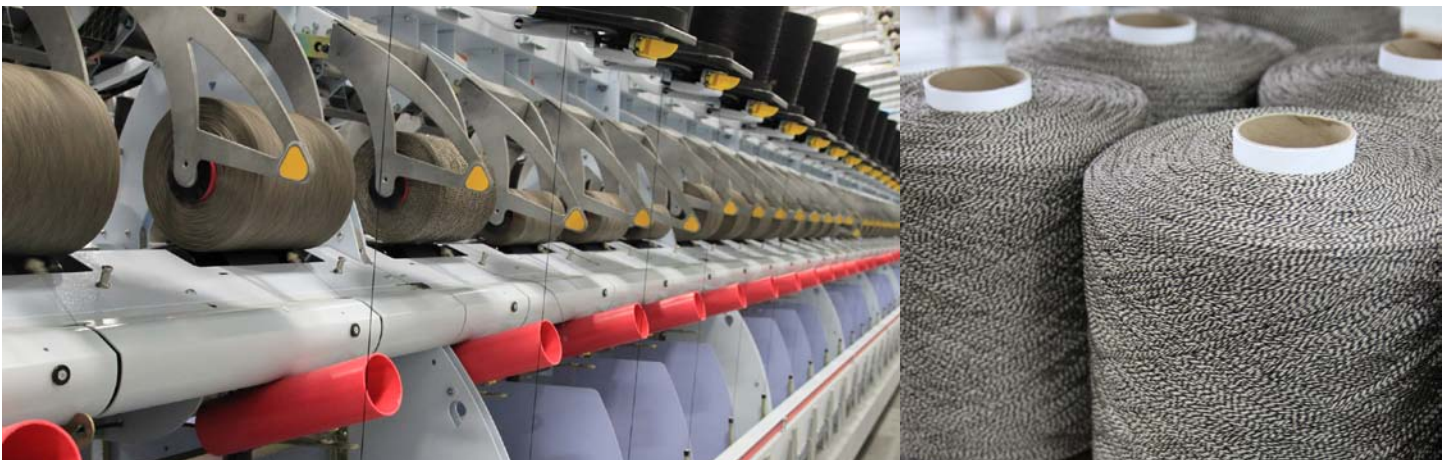
My pre-interview research confirmed that in January 2013, for example, Georgia's manufacturing sector surged according to the Purchasing Managers Index. Also, 2013 is projected to be a better year than 2012 from a manufacturing standpoint with forecasters predicting a rise in the state's gross domestic product. From a U.S. perspective, manufacturing is seen as one of the most dynamic sectors.

The McKinsey Global Institute notes that manufacturing drives higher standards of living and productivity and improves the economy, but analysts caution that changes in technology and robotics, for example, are reducing the need for manual labor. The manufacturing worker of the future appears to be a more highly educated professional with a graduate degree or a qualified technician, mechanic, electrician, or 3D printer operator and programmer. The McKinsey report also notes that the U.S. leads in available affordable energy to support manufacturing but again stresses that manufacturing cannot be expected to generate the high levels of employment in advanced economies that it did decades ago.

When I asked Mr. Shaw if today's manufacturing jobs are different in their scope and requirements, he commented, "Those things make for good press, but carpet is about manufacturing. The jobs are not highly technical, but we are now more dependent on computers to run a machine than we are on the slipstick (slide rule)." Though he later agreed that today's manufacturing jobs are not as physical as in the past, efficiency per employee is constantly improving, and this raises the standard of living of employees.

We moved on to talk about opportunities in the carpet and floor covering industry. Mr. Shaw predicts those who survive this downturn will do quite well. But, changes in the

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REMARKS BY BOB SHAW

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industry are making it different. His Engineered Floors uses pre-dying, an innovation that saves time in the manufacturing process. In considering international competition, Mr. Shaw stated that carpet does not have foreign competition and Dalton is not fighting to bring carpet manufacturing back to the U.S. like some industries. In fact, 95 percent of the carpet made in the U.S. is purchased domestically. Considering the entire world, the U.S. uses 70 percent of all soft floor covering.

Carpet's future seems very strong to Mr. Shaw. Carpet remains a desirable product. It is soft and warm and adds soundproofing and safety to homes. Carpet is favored for use in bedrooms, which comprise an average of 57 percent of a home's square footage, even though tile, laminates, and other hard surfaces may be more popular in other rooms. And while today's entry-level homes may be smaller than in the recent past, Mr. Shaw astutely noted that the number of bedrooms has not decreased. Multi-family units use more carpet, and it is replaced more often. Apartments, for example, have carpet over 80 percent of the floors.

Mr. Shaw's latest venture adds a new innovation to carpet manufacturing by designing the product around today's yarn system, with the tufting and backing processes remaining the same. The growth in pre-dyed polyester has been critical. Instead of buying yarn, Engineered Floors is now making yarn in a more efficient, backward vertical integration process. His company spends less by using older machines. Mr. Shaw listed several major trends in carpet production, first from the loom to the tufting machine; then from carrying white yarn to carrying pre-dyed face fibers; to more pre-dyed inputs and continuous filament and not staple fibers. His focus on the pre-dyed polyester fiber is the latest trend.

When our discussion shifted to Dalton and the area's future and possible changes, Mr. Shaw remarked, "Carpet is who we are. It's like asking Detroit what will you change to become." Yet he quickly added that new businesses would continue to support the region's carpet and floor covering industry by offering satellite services, including computer services, trucking, and consulting services, and will even increase the need for lawyers, doctors, and everyone with ties to the community. Mr. Shaw added that the U.S. population will increase in the future—by some 27 percent and with this growth will come more carpet customers. The eight year slump that started in 2005 is ending, and with population growth, some 58 to 60 million more people will buy carpet because it is desirable in homes and because home ownership is still desirable.

Mr. Shaw did cite major problems in the state of Georgia, largely the state income tax which is not shared by surrounding states and which limits the area's attractiveness for new manufacturing entrants. He's in Dalton because he lives here and is concerned for the success of the region but agrees the state is not tempting for new entrants given the regressive tax situation.

While Dalton has a surrounding carpet cluster, Mr. Shaw remarked that there are no other carpet clusters—not in California and not overseas—and he was firm that no one will take carpet manufacturing away from the area. Yet he is clear that the original advantages of the co-location of carpet manufacturers in the area—water and sewage for example—are no longer as important. Production facilities need power, but this is available U.S.-wide. We also have interstate access, but our key advantage is the people in our area who know the industry.

I turned to my favorite topic of higher education and inquired about what a college education offered for employees and what skills Dalton State should stress for the future. He agreed that a college education offers discipline and shows students, the future workforce, can finish what they start. Mr. Shaw agreed he was an entrepreneur and like entrepreneurs, no one else would hire them.

I closed by asking Mr. Shaw what readers of **BUSINESS ANALYTICS** need to know. Rapidly he responded, "Have we gone through the bubble? Yes. We had 18 months of available homes in inventory, and now we are down to only four months. The excess is going away, and we are in better shape to finance new home construction and purchases. Most people still want to own a home. The problems that remain are psychological. People are keeping automobiles for 12 years, and the average life of carpet has also been extended. People have put off making big ticket purchases. We've had a massive shrinkage in our area where once unemployment was less than four percent to a totally under-employed population in four or five years' time. Today we have eight percent unemployment. The missing piece is wages have not gone up and consumer confidence has not increased." He mentioned the increasing life expectancy of the population (82 for women; 79 for men) and the fact that living longer hurts Social Security and increases taxes.

But Mr. Shaw closed on the same positive note he started with—"Our carpet industry has all the right factors for recovery and no China or developing world location is going to take this away from Dalton." Well spoken by the consummate entrepreneur with the same passion, drive, and energy that have always characterized him and which virtually parallels the entire carpet and floor covering cluster. ■

FUTURE OF MANUFACTURING IN THE SOUTHEAST U.S. AND NORTHWEST GEORGIA

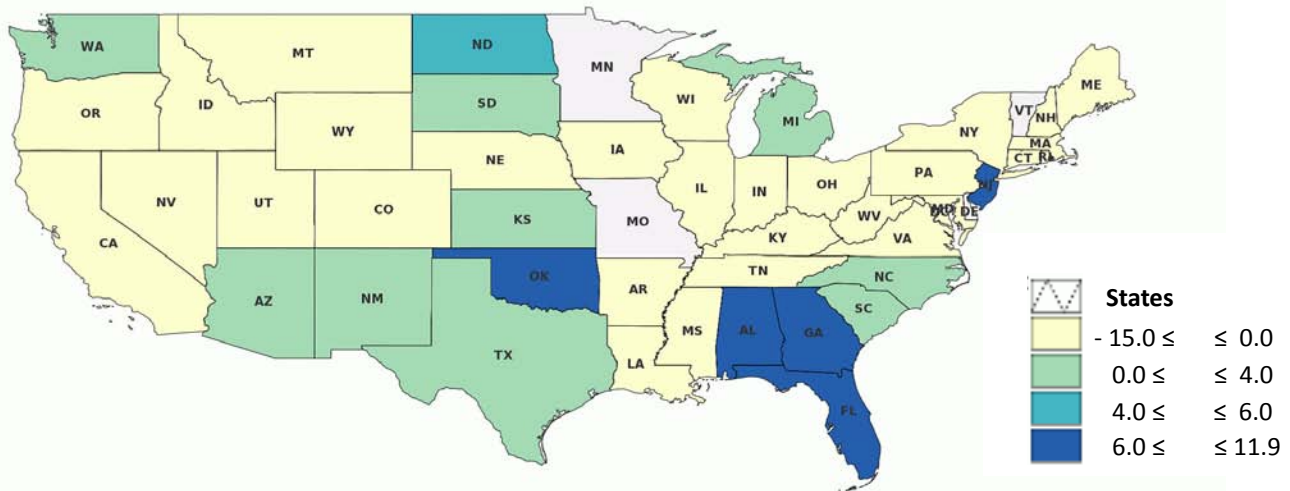
DR. ROBERT CULP, ASSISTANT PROFESSOR OF ECONOMICS

September's Positive News

While September's job report showed manufacturing job losses in most of the country, strong manufacturing job gains were

achieved in the Southeast. Manufacturing jobs grew at an annual rate of 6.6 percent in Georgia, 7.6 percent in Florida, and 11.9 percent in Alabama. Manufacturing job growth was also strong in Oklahoma and New Jersey.

2012 Manufacturing Job Gains (in Thousands)



Longer Term Trends

The pattern of job growth in manufacturing for September continues a decades' long pattern in manufacturing location. Over the last 50 years, the South's population has risen 30 percent faster than the nation's. Total employment has risen 35 percent faster in the South than the nation as a whole. According to Jeffrey Lacker, President of the Federal Reserve Bank of Richmond, these gains occurred because of the "South's slower transition from agricultural to industrial production and from the smaller role of organized labor" which provided low wage laborers needed to compete with foreign competition. For example, automakers BMW, Volkswagen, GM, Daimler, Honda, Ford, Nissan, Kia, Hyundai, and Toyota now call the region home. As John Bussey recently wrote in a *Wall Street Journal* report:

"Since 1990, foreign auto companies opened some 15 new assembly plants in the U.S., two thirds of which are located in the South. Waves of parts suppliers followed, along with other companies that service the manufacturing sector."

Changing Manufacturing Job Market

Lacker explains, however, that in the past few decades, many of the new jobs, such as those at VW's recently opened facility in Chattanooga, require workers with greater skills. Lacker states that the story is similar for other capital-intensive industries, such as aerospace and pharmaceutical manufacturing:

"In many cases, however, the case for locating plants in the United States seems to be less about shipping costs and more about proximity to the scientific and engineering expertise that make production processes more efficient. All of these new manufacturers also are looking for skills that are a notch above those of the typical textile or furniture worker."

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FUTURE OF MANUFACTURING...

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The region's recent growth in aerospace is a good example. Airbus is the most recent company to locate facilities in the South—joining Boeing in South Carolina and General Electric and Lockheed Martin in Alabama. Aerospace employs more than 73,000 people in Alabama alone. Alabama's growth is instructive. The location of various governmental space facilities, such as Marshall Space Flight Center, and other military aeronautics facilities in the 20th century brought a network of engineers to the state. Their progeny, educated at Georgia Tech, Tennessee Tech, the University of Alabama, and various other higher education institutions, provided the region with a continued source of high skill workers that created the economic foundations needed for the South's nascent aerospace industry and other high tech companies in the region. The rise in highly educated workers in the South is driving the growth of companies locating to the region.

Competition from the Midwest

While the Southeast has benefited from the shift in manufacturing from the Northeast and the higher wages these jobs create, these wage increases have reduced the Southeast's wage advantage. Additionally, states are making changes to provide a more business friendly environment. As Mr. Bussey explains:

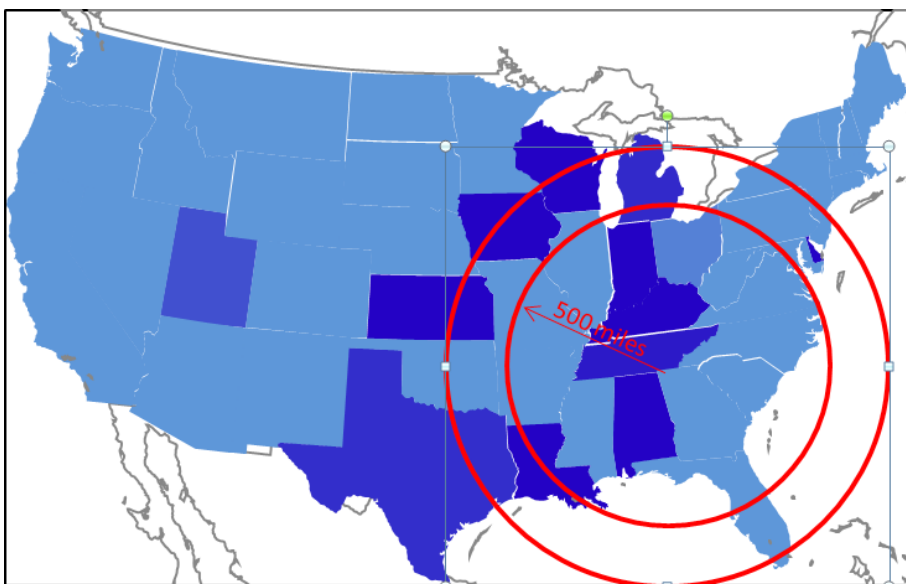
“Meanwhile, business costs are falling in other parts of the U.S. An index compiled by Moody's Analytics shows that business costs in Midwestern states are now barely higher than in the South. In a report in April, the Brookings Institution wrote that the “dynamics” that favored the South may have changed.”

These findings are in line with the results of the 2011 U.S. Census' Annual Survey of Manufacturers. This report includes data on capital expenditures in manufacturing by state. Capital expenditures are purchases by companies of equipment, machinery, and facilities. These give an indication of the amount of new business investment. To accommodate for differences in state populations, the per capita capital expenditures by state for working age adults (18-64) are shown on the map below.

These results confirm that many Southern states are still benefiting from high levels of manufacturing investment—a sign of future manufacturing strength, however, the results also confirm Moody's Analytics and Brookings Institution findings of Midwestern states gains. While the results show that many Southern states were in the top 12 of per capita capital investment, Kentucky (#7), Tennessee (#9), Alabama (#8), Louisiana (#2), and Texas (#11) gained capital investment significantly higher than the national average, many Midwestern states gained significant manufacturing capital investment: Kansas (#1), Wisconsin (#4), Indiana (#5), Iowa (#6), and Michigan (#10). The only Northeast state to perform well in capital investment was Delaware (#3). Utah earned the #12 spot.

Implications for Northwest Georgia

Growth in the Midwest should not negatively impact growth in Northwest Georgia. Northwest Georgia is within one day delivery (700 miles) of each of these manufacturing areas and is within easy one day freight delivery (500 miles) of all manufacturers in the Ohio Valley. (See graph below.)



2011 Manufacturing Capital Expenditures per Capita (Working Age Population 18 - 64)*

*Inner radius shows easy one day freight delivery. Outer radius is within one day delivery.

Scale:



Manufacturing Investment Per Capita

FUTURE OF MANUFACTURING...

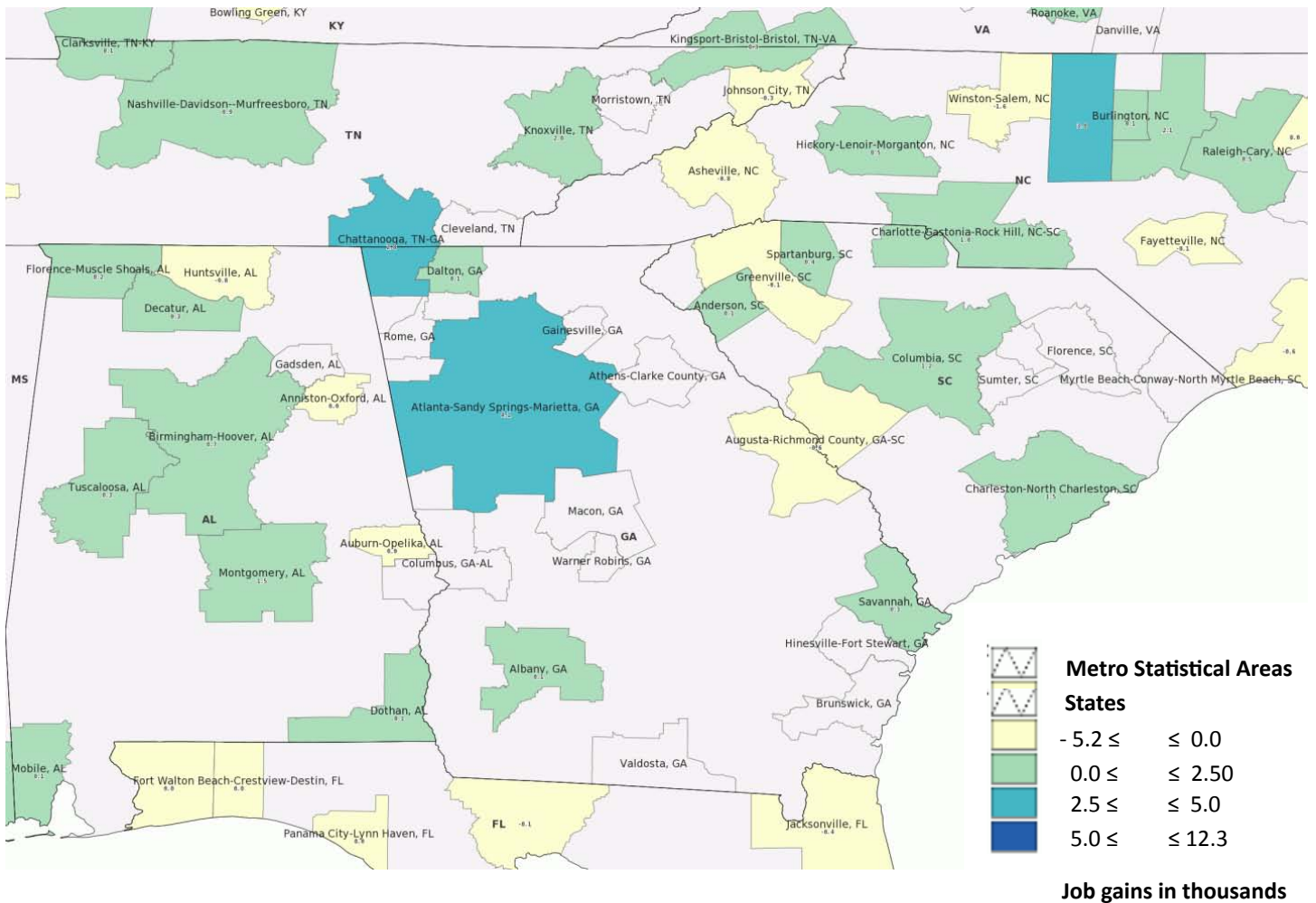
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Recent manufacturing trends support that manufacturing growth in the Northwest Georgia region will remain strong. Manufacturing employment in the Chattanooga Metropolitan Statistical Area grew at a 9.2 percent rate, while the Dalton MSA was still able to grow at a 0.5 percent rate even though the carpet industry is still suffering from a weakened housing market.

These results show that Northwest Georgia is building a strong manufacturing base and growth in Northwest Georgia should continue and even strengthen as the economy recovers. Additional growth is also expected as suppliers to the area's new manufacturers find it advantageous to locate their facilities closer to their customers. ■

In terms of absolute manufacturing job gains, Northwest Georgia is still growing at a faster rate than most of the region. Only Atlanta and the Burlington (North Carolina) MSAs have experienced rates of growth comparable to Northwest Georgia.

2012 Manufacturing Job Gains (in Thousands)





The Center for Economic Research and Entrepreneurship was created to aid small business development and growth by providing in-depth and meaningful research, information on economic and business trends, and assistance to local Chambers of Commerce, economic development organizations, businesses, and service organizations.

Among the Center's first community offerings are two workshops on entrepreneurial activity:

Workshop I:

Recognizing and Creating Entrepreneurial Opportunities

This workshop is designed for anyone who is interested in starting a business and will focus on the benefits, costs, and reasons to become an entrepreneur. Participants will explore how entrepreneurs find opportunities to start new businesses by creatively exploiting changes in their careers and personal lives and by recognizing opportunities where others see problems. Participants will review paths to small business ownership and learn how to explore the feasibility of a business idea, how to find a competitive advantage, and how to determine the value of a business.

Workshop II:

Exploring Your Market

This workshop is designed for the individual who is interested in self-employment and wants to explore the feasibility and potential for a new business venture. In this session, participants will be taught how to research their markets before opening a business and how to gather information from both primary and secondary sources. And because market research helps business owners to know their customers and how those customers decide to buy, participants will be taught how to make marketing research an integral part of a business. Finally, there will be a review of successful market segmentation strategies that are designed to help businesses develop a market positioning strategy and ultimately a marketing plan.

To schedule a workshop, call the Dalton State School of Business at 706.272.4507.



You are cordially invited to attend

**Manufacturing Trends Luncheon:
Issues and Challenges
Affecting the U.S. Manufacturing Sector**

featuring

**Gardner Carrick
Vice President of Strategic Initiatives
The Manufacturing Institute
Washington, D.C.**

Wednesday, April 10

12 noon

Dalton Golf & Country Club

\$15, pre-registration required
To register, go to www.daltonchamber.org
and click on Events List

For additional information, call:
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