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Paul Isely
Grand Valley State University

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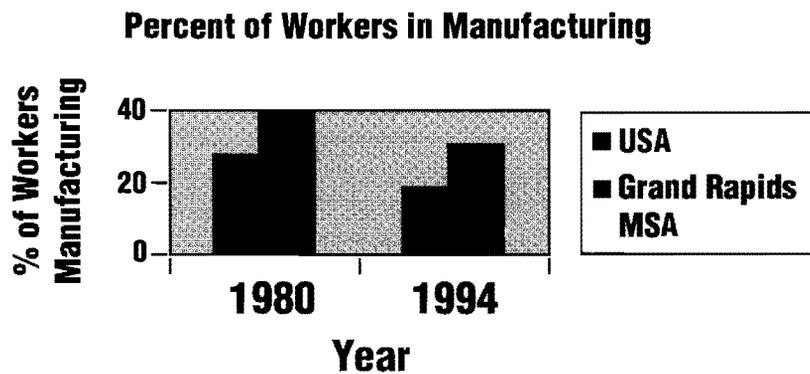
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Structural Change in West Michigan

Paul Isely, Economics Department, Seidman School of Business, Grand Valley State University

The basic economic structure of Michigan, as well as the entire Mid-West region has changed in response to lessons learned during the 1980's. The region once known for high unemployment and outdated manufacturing processes is now seen as a thriving economic region that is outpacing the rest of the United States. In West Michigan's Grand Rapids MSA, there are several trends that are different than the rest of the country. I will focus on changes to workers and the technology they use.

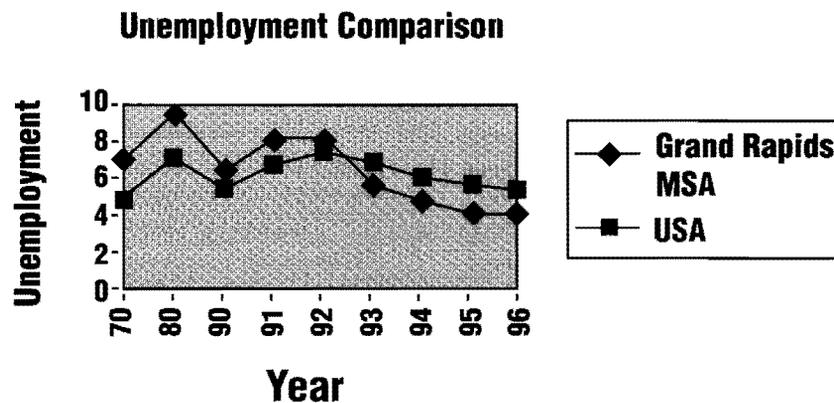
Workers in West Michigan are far more likely to be involved in manufacturing activity. It has long been noted that areas involved in manufacturing have more unemployment during recessions. After the severe recession in the early 1980's the mix of manufacturing and services started to change in the entire United States. In West Michigan, the percentage of jobs that are in manufacturing has also been decreasing, but is still high compared to the United States as a whole.



Source: Seidman School of Business (1997). Grand Rapids Metropolitan Data Book.

Many experts feel that this mix of service and manufacturing could result in sub-average growth rates in the region. These experts are able to point to the level of unemployment in the Mid-West and show that the region regularly performs worse during times of economic hardship. This was primarily blamed on the region's dependence on cyclical businesses, such as the automobile and the furniture industries. However, the business leaders of West Michigan have been able to overcome these predictions and now the level of unemployment in the area is remarkably low.

The following chart shows how the Grand Rapids MSA have fared compared to the United States as a whole. Two things are immediately obvious. First, the unemployment rate in the region was historically higher than in the rest of the United States just as was predicted. Secondly, unlike the predictions of higher unemployment in the region, the 1990s have had relatively low unemployment. So what has happened to derail the dire predictions of the late 1980s?



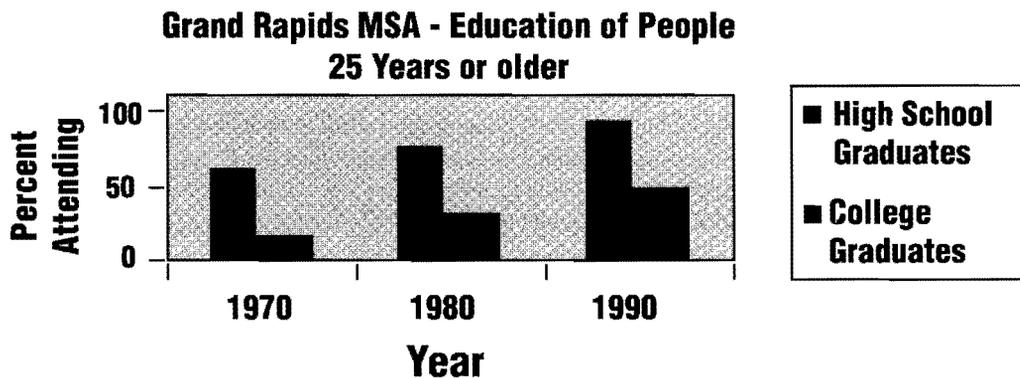
Source: Seidman School of Business (1997). Grand Rapids Metropolitan Data Book.

Although there are many external factors that can influence unemployment rates, probably the most notable change in the Mid-West and West Michigan are the productivity improvements in the region's manufacturing plants. These gains can be linked to the early adoption of lean manufacturing processes. Lean manufacturing requires management to implement new technologies and management strategies to react to consumers needs and feedback while keeping variable costs at a minimum. The willingness to adopt advanced manufacturing techniques and new technologies has greatly improved the regional economy.

Advanced manufacturing techniques have led to more flexible manufacturing processes. Adaptable systems allow manufacturers to keep plant utilization high through versatile use of machinery. Overall, there has been a 230% increase in use of Flexible Manufacturing Systems¹. Flexibility in the manufacturing system is improved with better communications within the company. The use of computer control on factory floors and computer networks has given managers and engineers immediate feedback in the production process. The use of these systems has improved the productivity in West Michigan manufacturing plants.

Strong anecdotal evidence that companies in the area have aggressively adopted and continue to use new technologies can be seen by looking at the use of computer aided design (CAD). It has been suggested that CAD is a precursor technology to more complex technologies used in lean manufacturing processes. Over the last 5 years there has been more than a 200% increase in companies using CAD systems. However, this has led to a 200% increase in manufacturer's using CAD to control machines and an amazing 400% increase in firms' use of CAD in procurement². The fact that some of the manufacturing and automotive industries in the region were among the first to use this technology on a large scale suggests that they have also adopted other advanced technologies to aid productivity.

As technology in the manufacturing sector increases, the workforce also must be more educated. The workforce in West Michigan has increased its educational attainment over the last 20 years matching the trend seen across the nation. This trend is reinforced by a 19% increase in state appropriations to universities in the region over the last 5 years³. Not only have graduation rates been increasing, but a base of manufacturing knowledge is also centered in the region. West Michigan has a group of skilled workers that can pass knowledge to new workers in the workplace. This has made West Michigan a source for highly skilled workers. In fact, it appears that when the auto industry needs high value-added components assembled by skilled workers, they look to West Michigan and Northern Indiana for the creation of new plants⁴.



Source: Seidman School of Business (1997). Grand Rapids Metropolitan Data Book.

Structural change in West Michigan has meant an increase in technology and the skill of workers. This combination of changes has made it possible for the region to grow quickly resulting in a decreased unemployment rate. This decline in unemployment has resulted in critical labor shortages in spite of the combination of high regional population growth rates and high regional labor participation rates. These labor shortages have forced the firms in the area to continue to adopt technology and use higher skilled labor. These improvements should ultimately sustain productivity improvements in the West Michigan area, provided firms do not have to relocate to find workers elsewhere.

¹ Klier, Thomas (1996). Structural Change and Technology in the Manufacturing Sector. Federal reserve Bank of Chicago working paper for the workshop "The Midwest Economy".

² Ibid

³ Seidman School of Business (1997). Grand Rapids Metropolitan Data Book.

⁴ Rubenstein, James (1996). The Evolving Geography of Production - Is Manufacturing Activity Moving Out of the Midwest? Evidence from the Auto Industry. Federal Reserve Bank of Chicago working paper for the workshop "The Midwest Economy".