Economic SYNOPSES
short essays and reports on the economic issues of the day
2010 ■ Number 13

City Growth and Industry Employment Reallocation

Rubén Hernández-Murillo, *Senior Economist*
Christopher J. Martinek, *Senior Research Associate*

In the past few decades, the composition of U.S. employment across industries has shifted away from low-tech and basic goods–producing sectors toward professional and specialized personal services sectors. Furthermore, most sectors with positive employment growth use skilled labor intensively, while most sectors with negative employment growth use unskilled labor intensively. Between January 1990 and January 2010, for example, employment in iron and steel mills manufacturing declined by about 57 percent, while employment in textiles and apparel manufacturing declined by about 50 percent and 82 percent, respectively. In contrast, over the same period, employment in professional and business services increased by 53 percent, education and health services by 80 percent, and leisure and hospitality services by 40 percent.

These large shifts in the skill composition of employment did not occur uniformly across all U.S. cities, however. Some cities experienced labor reallocation from unskilled to skilled sectors within the local labor market, while others experienced net migration in and out of the local labor market that varied in magnitude across skilled and unskilled sectors. These different patterns contributed to the fortunes and misfortunes of cities across the United States.

Two alternative views on urban growth offer explanations for how employment is reallocated across industries and space. The first, which we call the industry concentration story, suggests that the initial prominence of an industry in a city is an important determinant of growth of that industry in that city. This is because interaction among firms within the *same industry* improves their productivity and/or because the city's geographic characteristics or natural resources prove attractive for that industry regardless of the industry's skilled labor intensity.

The second, which we call the human capital externalities story, suggests that a higher initial level of skilled labor in a city creates positive effects on productivity growth that spill across *all industries* and raise overall employment growth in that city. This view also suggests that industry-specific employment growth in a city is quite sensitive to the initial levels of local skilled labor.

Cities initially more specialized in older technologies may have had more difficulty adapting to newer technologies because skills in initially dominant industries were not useful to new industries.

Economist Curtis Simon at Clemson University found that, across cities, overall employment growth and employment growth in industries that use skilled labor intensively are positively correlated with initial levels of skilled labor, supporting the human capital externalities story.[1] Simon also found that industry-specific employment growth is almost always negatively correlated with the initial size of an industry within a city, which indicates a tendency for cities to have a more diversified distribution of industries over time. He also reports that employment growth in industries that use skilled labor intensively is negatively correlated with the initial manufacturing employment share. This indicates that cities initially more specialized in older technologies may have had more difficulty adapting to newer technologies because skills in initially dominant industries were not useful to new industries. In contrast, the author found that growth in industries that use unskilled labor intensively is positively correlated with the initial manufacturing employment share, which suggests that in cities with larger manufacturing employment shares the manufacturing sector may have partially provided labor for growing services industries that use unskilled labor intensively.

These findings suggest that, while the industry concentration story may help explain why some cities choose to specialize in certain industries, the human capital externalities story is more useful for understanding how cities grow over time and how they can adapt to shocks that lead to employment reallocation across industries. In fact, recent evidence indicates that cities with a larger supply of skilled labor employ skilled labor more intensively across all industries. This is particularly true in larger cities.[2] Therefore, cities with a relatively abundant supply of skilled labor in declining sectors may have faced fewer difficulties by reallocating employment from the declining sectors to the rising sectors. ■

[1] Simon, Curtis J. "Industrial Reallocation across U.S. Cities, 1977-1997." *Journal of Urban Economics*, July 2004, *56*(1), pp. 119-43.

[2] Hendricks, Lutz. "The Skill Composition of U.S. Cities." Unpublished manuscript, University of North Carolina Chapel Hill, 2009.