# THE REGIONAL ECONOMY

*OF UPSTATE NEW YORK*

Winter 2002

***Buffalo Branch,***
***Federal Reserve Bank of New York***
***160 Delaware Avenue***
***Buffalo, NY 14202***
***Tel: (716)849-5023***
***Fax: (716) 849-5218***
***www.newyorkfed.org/buffalo***

***Barbara Walter***
***Senior Vice President and Branch Manager***

***Reggie Melson***
***Community Affairs Representative***
***reggie.melson@ny.frb.org***

***Richard Deitz, Ph.D.***
***Regional Economist***
***richard.deitz@ny.frb.org***

***Ramon Garcia***
***Assistant Economist***
***ramon.garcia@ny.frb.org***

***For the online version of this and other economic research published by the Federal Reserve Bank of New York, visit: www.newyorkfed.org/rmaghome/regional***

▼▼▼▼▼▼▼▼▼▼

***Small Business Survey***

***The full report of our small business survey on barriers to growth and other issues will be available in February 2002. For information contact Connie Poniatowski at (716)849-5023.***

## Economic Diversity and New York State

Is it better for an economy to be centered in a few key industries or to have a broad base encompassing many different industries? Research indicates that for the most part, diversified economies grow faster than those concentrated in select industries.[1] While the highly specialized economy of Silicon Valley has ridden the rising tide of the technology industry, other economies heavily dependent on a single industry, such as steel, may face a different fate.

In this issue of the *Regional Economy*, we consider why broad-based economies have some advantages over their more specialized counterparts. We show that diversity can be a spur to productivity and innovation, and that firms in a region with many types of businesses will enjoy easy access to the resources and services needed for production. In addition, we argue that regions with a broad mix of industries possess a buffer against economic shocks that adversely affect individual industries.

In the second half of the article, we use a specialized index to assess the diversity of New York State's economy and that of its chief metropolitan counties. We find that some parts of the state—including Rochester, Niagara Falls, and Binghamton—show a high concentration in a few key industries, while others—Long Island, Buffalo, and Syracuse—are more diversified. Although the state as a whole has not increased its diversification since the mid-1980s, its overall level of industrial diversity has remained above the national average.

### Benefits of Economic Diversity

Broad-based regional economies offer several advantages to businesses. Consider that businesses routinely require the products and services of other businesses. A manufacturer of automobiles, for example, will need materials and parts such as steel, tires, and windows, as well as the services of advertising agencies, banks, and lawyers. In a diverse economy that encompasses many types of businesses, firms often have ready access to needed goods and services. Moreover, because these firms can choose from among a number of suppliers, they may pay less for goods and services than firms in more specialized economies.

Broad-based economies may also encourage productivity because they offer more opportunities for the specialization of labor. It is well known that automobiles can be produced at a faster rate on an assembly line—where each worker repeats a specific task—than in a production process where each worker performs all the tasks. By this same reasoning, the auto manufacturer may realize gains by, say, outsourcing some of its bookkeeping tasks. The manufacturer's internal accounting department is likely to have only a few workers performing all bookkeeping, auditing, and tax preparation tasks. An outside accounting firm, however, will have a multitude of accountants, each specializing in a different task. Such firms can cater to the very specialized needs of the automaker at the same time that they meet the individual needs of other companies in the area. By taking advantage of the opportunities to specialize, these firms can achieve higher productivity and make it possible for their customer firms to purchase their products and services at lower costs. In general, a business is likely to find that it can outsource some of its needs more cheaply than it can satisfy them from within.

A diverse economic environment in which many firms provide goods and services to other firms also tends to spur innovation. For example, an auto manufacturer may have its own department dedicated to producing shock absorbers for the company's autos. But shock absorbers can be used in many other products—in motorcycles, airplanes, printing presses, and even bridges. If an independent company were solely concerned with the production of shock absorbers, it would be more likely to seek out new opportunities to increase its business. Thus it would have an incentive to develop new applications for its products and, more generally, to devise better methods of absorbing energy and vibration. The department within the automaker, by contrast, has no such incentive. In this way, a diverse economy with many types of specialized industries encourages innovation.

In addition to benefiting businesses, a diverse economy offers considerable advantages to consumers. Consumers value variety and choice, and the availability of a wide array of goods and services in a region represents an important benefit for residents. In particular, a range of amenities—from restaurants to concerts and shopping—provides residents with possibilities unavailable in less diverse areas.[2]

## Diversity as a Buffer against Risk

A broad industry base also helps protect a region from downturns in particular industries. A highly concentrated economy in which the vast majority of workers are employed in a few key industries is susceptible to shocks in those industries. But if an economy has many different types of businesses, it is less likely to experience vast swings. Indeed, research shows that more diverse economies experience less volatility than economies with concentrations in a small number of key industries.[3]

In the same manner that investors diversify a portfolio of assets to protect against risk, a regional economy with a broad mix of industries is protected from fluctuations. Investors often own stocks in many different companies to guard against a failure of a specific company. They also diversify the types of investments they hold, investing across many different sectors of the economy to protect against losses in any one sector. If a region possesses a dominant industry, its economic performance is highly dependent on the performance of that industry. Since much of the economic activity in the region will be closely linked to the dominant industry, a downturn will inflict losses not only on that industry, but also on the many other companies that sell their products or services to the industry. By the same token, a dominant industry that performs well can boost economic activity in its region. Essentially, a regional economy with a diverse industrial base will generally follow a steadier course, with fewer sharp swings in economic activity.

## Diversity in New York State

Researchers have used different methods to derive measures of a region's economic diversity. One measure of diversity is the degree to which economic activity is evenly distributed among industries. Employment data are typically the only consistently reliable data to measure industry activity at the local level. With this measure, maximum diversity is defined as a uniform number of workers in different industries. But this approach presents a problem since employment in a given industry does not necessarily correspond to the level of economic activity, or production, in that industry.

An alternative measure uses location quotients—that is, the percentage of total regional employment attributable to a particular industry divided by the percentage of total U.S. employment attributable to the same industry. If location quotients for all industries in a region were exactly one, the industrial composition of the region's employment would mirror that of the nation. Location quotients of greater than one for any particular industry indicate that the industry is more heavily represented in the region than in the nation, and as these numbers get larger, regional concentration in particular industries is increasingly apparent.

To assess the degree of diversity in New York State and its most populated counties, we create an index using an average of location quotients across industries for a region, where each industry is weighted by its relative size. The reciprocal of this average yields an index between zero and one.[4] The index essentially measures the degree to which a region's industry mix differs from the nation's. When it is close to one, the industrial employment profile of a region mimics that of the nation and is considered more diverse. A value of one would indicate that the region has exactly the same percentage of its total employment in each and every industry as has the nation. The closer the index is to zero, the more the region has concentrations in particular industries that make it differ from the national profile.

We calculate this index using data from the U.S. Census Bureau's *County Business Patterns*, which gives detailed employment figures by industry classification for every county in the nation for the years from 1986 to 1997.[5] Table 1 reports the index values for New York State and all other states (and the District of Columbia) in 1997. New York ranked as the seventeenth most diverse state in the country. Illinois, Texas, and Pennsylvania headed the ranking; their industry employment profiles most closely approximated the national profile. Alaska, Nevada, and Wyoming showed the least diversity; with marked concentrations in particular industries, they diverged sharply from the national profile.

Tracking the index from 1986 to 1997 for New York State and the U.S. average of all states (Chart 1), we see that diversity has been increasing over time for the states on average, but not for New York State. Nevertheless, throughout the period, New

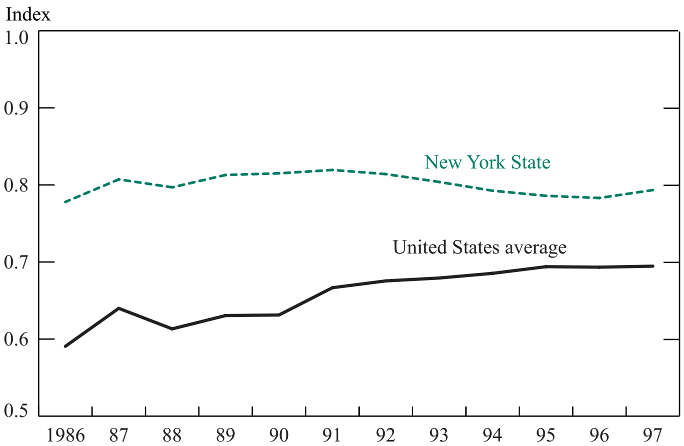
**Table 1**

**Industrial Diversity: How the States Rank**

| | Diversity Index | Rank | | Diversity Index | Rank |
|---|---|---|---|---|---|
| Illinois | 0.99 | 1 | Kentucky | 0.70 | 27 |
| Texas | 0.97 | 2 | Iowa | 0.70 | 28 |
| Pennsylvania | 0.97 | 3 | Kansas | 0.68 | 29 |
| Florida | 0.96 | 4 | Nebraska | 0.68 | 30 |
| Ohio | 0.94 | 5 | New Hampshire | 0.67 | 31 |
| Colorado | 0.94 | 6 | New Mexico | 0.66 | 32 |
| California | 0.94 | 7 | Delaware | 0.65 | 33 |
| Maryland | 0.93 | 8 | Montana | 0.64 | 34 |
| Missouri | 0.91 | 9 | North Dakota | 0.63 | 35 |
| New Jersey | 0.89 | 10 | Arkansas | 0.59 | 36 |
| Tennessee | 0.89 | 11 | North Carolina | 0.58 | 37 |
| Oregon | 0.87 | 12 | Vermont | 0.58 | 38 |
| Virginia | 0.84 | 13 | Hawaii | 0.58 | 39 |
| Minnesota | 0.83 | 14 | Louisiana | 0.55 | 40 |
| Massachusetts | 0.80 | 15 | Mississippi | 0.55 | 41 |
| Oklahoma | 0.79 | 16 | South Carolina | 0.53 | 42 |
| **New York** | **0.79** | **17** | South Dakota | 0.53 | 43 |
| Indiana | 0.79 | 18 | Idaho | 0.49 | 44 |
| Georgia | 0.77 | 19 | Maine | 0.41 | 45 |
| Utah | 0.77 | 20 | West Virginia | 0.34 | 46 |
| Wisconsin | 0.77 | 21 | Rhode Island | 0.31 | 47 |
| Washington | 0.76 | 22 | Alaska | 0.27 | 48 |
| Connecticut | 0.74 | 23 | District of Columbia | 0.19 | 49 |
| Michigan | 0.74 | 24 | Nevada | 0.17 | 50 |
| Arizona | 0.74 | 25 | Wyoming | 0.16 | 51 |
| Alabama | 0.74 | 26 | **Mean** | **0.68** | |

Source: U.S. Bureau of the Census; *County Business Patterns,1997*; authors' calculations.

**Chart 1**
**Trends in Industrial Diversity, 1986-97**




Source: U.S. Bureau of the Census; *County Business Patterns;* authors' calculations.

York's overall level of industrial diversity exceeded the national average.

The level of diversity also differed among regions in the state. Chart 2 reports the index values for the most populated counties in New York. The most diverse county economies are those centered in Long Island, Buffalo, and Syracuse. Employment in these economies is distributed broadly across different industries. What explains the high level of diversity in regions like Buffalo and Syracuse, often thought of as highly concentrated in manufacturing? As the manufacturing sector has shrunk in recent decades, the industries that remain have gained a greater share of total employment.[6] Thus, the composition of these economies is now much more varied, and much closer to the national composition.

New York State's least diverse economies are in Rochester, Niagara Falls, Binghamton, and Utica. These economies have employment concentrated among fewer industries and a considerable number of workers employed by large companies. A great percentage of Rochester's workforce is employed at two large companies involved in imaging, Kodak and Xerox, and at other businesses performing closely related activities. Although Binghamton has seen recent layoffs at IBM, a high percentage of the city's workers are still employed in the computers and electronics industry. The Niagara County economy, adjacent to Buffalo's Erie County, is driven by the area's largest private employer—Delphi Harrison, a producer of automotive parts. The county also has a high concentration of chemical producers. Utica's economy has a large percentage of its workforce in the insurance industry, at companies such as Fleet Financial and Met Life, and in the primary metals manufacturing industry. Another of its large employers is Oneida Inc., a producer of dinnerware and crystal.

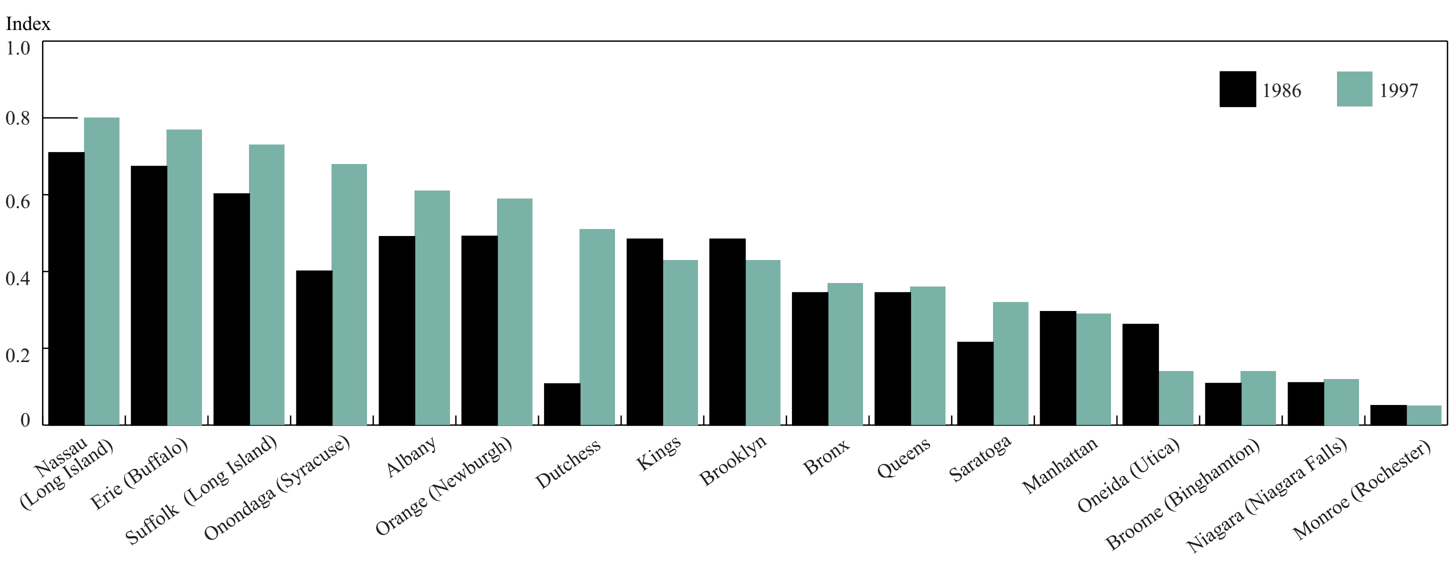
Counties that became more concentrated over the period include three downstate, Manhattan, Kings, and Brooklyn, and one upstate, Oneida. The remainder of the counties under study became more diverse. In particular, Dutchess County's diversity index rose dramatically from 0.1 to 0.5. This increase reflects the dispersion of activity into different industries, likely as a result of deep job cuts by the county's dominant employer, IBM.

## Conclusion

Diversity clearly has its advantages. An economy that encompasses many different industries offers local businesses convenient access to resources and services. Moreover, firms that shift from providing certain goods and services internally to outsourcing often realize significant cost savings. Diversity encourages the specialization of labor and motivates firms to find new uses for products and to expand markets. At the same time, a broad-based economy offers variety and choice to consumers through the availability of a multitude of goods and services.

New York State tends to be more diverse than other states in the nation. Although the state as a whole has not increased its diversity since the mid-1980s, most of upstate New York has. The only heavily populated counties in the state that did not see

**Chart 2**
**Industrial Diversity in Selected Metropolitan Counties of New York State**




Source: U.S. Bureau of the Census; *County Business Patterns;* authors' calculations.

an increase in diversity over this period were Oneida and the downstate counties of Manhattan, Kings, and Brooklyn. All other areas increased industrial diversity between 1986 and 1997, with Dutchess County's increase being the most pronounced. Long Island, Buffalo, and Syracuse are the most diverse economies in the state, while Rochester, Binghamton, and Niagara Falls are the most concentrated. Currently we are seeing one of the potential costs of a highly specialized economy as Rochester continues to lose large numbers of jobs at major employers in its key industries. These losses will likely lead to diversification as the remaining industries grow in relative importance. Indeed, much of upstate New York's gains in industrial diversity have stemmed from the severe job cutbacks that occurred in its once-dominant manufacturing industries.

## Notes:

[1] See Glaeser et al. (1992), Quigley (1998), and Deitz (2001).

[2] Note that an emphasis on the benefits of economic diversity is not at odds with recent research regarding the advantages of industry clusters. (See, for example, "Understanding Regional Economic Growth in the New Economy: Industry Clusters," *Regional Economy of Upstate New York,* Federal Reserve Bank of New York Buffalo Branch, summer 2000.) Industrial diversity leads to specialization, thus permitting highly specialized clusters to form. An economy can be diverse and at the same time possess such clusters.

[3] See Thomas (1997), Sherwood-Call (1990), and Deitz (2001).

[4] The index used here was developed by Hachman (1995):

$$DIV_i = \frac{1}{\sum_{j=1}^{J} (E_{ij}/EUS_j) \times E_{ij}}$$

where $E_{ij}$ represents the share of total employment in industry $j$ (at the three-digit Standard Industrial Classification) for region $i$, and $EUS_j$ denotes national share of employment in industry $j$. It is the inverse of the mean location quotient for a region, with the weights equal to each industry's employment share.

[5] Data available for the years prior to 1986 are not as reliable as data for the post-1986 period, according to the U.S. Census Bureau. In 1998, the federal government replaced the Standard Industrial Classification system with the North American Industry Classification System. The change creates a series break and, for many industries, prevents the observation of trends across the two systems.

[6] See "Economic Restructuring in Western New York State," *Regional Economy of Upstate New York,* Federal Reserve Bank of New York Buffalo Branch, Fall 2001.

## References:


Deitz, Richard. 2001. "Regional Diversity, Volatility, and Economic Growth," paper presented at the American Real Estate and Urban Economics Association annual meetings (January 4).

Glaeser, Edward, Hedi Kallal, Jose Sheinkman, and Andrei Shleifer. 1992. "Growth in Cities*." The Journal of Political Economy* 100, no.6 (December): 1126-52.

Hachman, Frank. 1995. *Economic Report to the Governor*. State of Utah, 207-213.

Quigley, John. 1998. "Urban Diversity and Economic Growth." *Journal of Economic Perspectives* 12, no. 2 (Spring): 127-38.

Sherwood-Call, Carolyn. 1990. "Assessing Regional Economic Stability: A Portfolio Approach." Federal Reserve Bank of San Francisco. *Economic Review* (Winter): 17-26.

Thomas, Craig. 1997. "Regional Volatility and Diversity." Economy.com. *Regional Financial Review* (May): 18-24.


*Richard Deitz and Ramon Garcia*