

FEDERAL RESERVE BANK OF NEW YORK

www.newyorkfed.org/research/current_issues

Current Issues

IN ECONOMICS AND FINANCE

SECOND DISTRICT HIGHLIGHTS



Economic Restructuring in New York State

Erica L. Grosben, Simon Potter, and Rebecca J. Sela

When economic activity slows down, labor markets may undergo extensive structural change—the permanent reallocation of workers across industries. Job losses can be heavy, and creating new jobs and retraining displaced workers to fill them can take time. A high degree of restructuring may help to explain why New York State’s most recent downturn persisted for well over two years.

New York State’s most recent economic downturn continued long after the national recession ended.¹ The National Bureau of Economic Research (NBER) designated November 2001 as the “trough” of the U.S. recession—the end of the economic decline and the beginning of the expansion—but state-specific indicators suggest that New York’s economy did not rebound until August 2003. In addition, measured by percentage employment losses, the state downturn has been more severe than its national counterpart.²

In this issue of *Second District Highlights*, we investigate the reasons for the depth and persistence of New York State’s downturn. Pursuing a line of argument that has been used to explain tardy job growth in the national recovery, we look at the role of structural change—the permanent reallocation of workers across industries and occupations—in the state’s delayed recovery. We also consider how two other factors—the September 11 terrorist attacks and the specialization of New York’s urban workers in innovative fields—may have shaped the state’s business cycle in conjunction with structural change in recent years.

Our analysis of industrial payroll data suggests that structural change may indeed have contributed to the depth and duration of New York State’s latest downturn.

Downturns in the state have entailed more restructuring of employment than have recent national recessions, and the degree of restructuring during state downturns has generally deepened over time. The state’s receptiveness to innovative businesses, we find, has likely heightened the structural turnover in jobs. By contrast, the September 11 events have countered this trend, producing purely temporary job losses that were reversed once the recovery began.

Recessions, Structural Changes, and New York

Cyclical versus Structural Adjustments

Recessions mix cyclical and structural adjustments. Cyclical adjustments are reversible responses to lulls in demand for firms’ products, while structural adjustments transform a firm, industry, or region by relocating workers and capital. The job losses associated with cyclical shocks are temporary: at the end of the recession, industries rebound and laid-off workers are recalled to their old firms or readily find comparable employment in another firm. By contrast, structural job losses are permanent; they can only be offset by new jobs in other firms or occupations.

Although structural change occurs throughout the business cycle, the pace of structural job losses often accelerates

during recessions. Slack demand can force firms with declining employment to downsize, reorganize, or close more rapidly than they would have done otherwise. In addition, recessions can slow the creation of new jobs as employers lose confidence in the future and find their access to new financing diminishing.

Sources of Structural Change

Structural employment changes can be traced to changes in consumption patterns, shifts in trade flows, and advances in technology. The demographic trend toward an older, more affluent U.S. population, for example, has led to an increase in the consumption of personal, travel, health, and entertainment services and a concomitant expansion of the workforce in these industries. The growth of trade has intensified competition across regions and countries, compelling many manufacturers to trim their workforce, relocate operations to other states or countries, or close altogether.³ Finally, the use of new technologies in the production process has enabled firms to increase productivity and permanently reduce their labor needs—particularly their need for less-skilled workers. All three of these factors have contributed to a decline in manufacturing jobs and a rise in services jobs—fundamental structural shifts taking place in both New York and the nation (Federal Reserve Bank of New York 2001; Orr 1997; Groshen and Robertson 1993).

One form of technological growth that may have been especially effective in spurring structural change in New York State is the development of innovative products and services. New York's large stock of human capital, ready accessibility to commuters from surrounding areas, well-developed mass transit programs, and ample supply of venture capital have helped give the state's urban areas a competitive advantage in the production of the "new." Indeed, New York ranks high in indexes of creativity and information technology and has patented more inventions per capita than the nation as a whole each year since 1974 (see box). This receptiveness to innovation has attracted many new and creative businesses (Carlino, Chatterjee, and Hunt 2001), reshaping the state's industry mix and generating jobs.

However, while these businesses, as start-ups, have brought new jobs to New York, they often shed jobs as they mature. Taxes in New York State are relatively high and goods and services expensive; in New York City especially, the space for production facilities is very limited and the cost of living markedly exceeds the national average. For these reasons, new companies that are ready to expand often choose to move their routine production operations to other states or countries, although they may well keep their head offices and their most creative personnel in New York.

The apparel industry provides an example of this cycle. New York has long been a center of innovation in fashion. Although employment in this industry grew nationwide

How Innovative Is New York State?

There is no single agreed-upon measure of innovation or creativity for geographic regions. Existing measures vary substantially in their construction and results. However, most measures place New York State in the upper half of the distribution. Consider the following:

- Catalytix, Inc. and the Richard Florida Creativity Group rank New York 3rd, behind only Massachusetts and California, in their "Creativity Index" (<http://www.catalytix.biz/acrobat/vol1issue4.pdf>).
- The Beacon Hill Institute's "Metro Area and State Competitiveness Report 2003" ranks New York State 10th in technology and 6th in finance competitiveness. Among 50 metro areas, New York City, Rochester, and Buffalo rank 15th, 4th, and 14th in technology and 11th, 48th, and 43rd in finance, respectively. Previous rankings have been similar (<http://www.beaconhill.org/BHISTudies/Compete2003%20Data/Compete2003WebONLY.pdf>).
- The Progressive Policy Institute ranks New York State 10th of 50 in their "New Economy" index of the states (<http://neweconomyindex.org/states/index.html>). Their metro area index ranks New York City 17th, Rochester 21st, and Buffalo 31st, out of 50 (<http://www.neweconomyindex.org/metro/>).
- Since 1974, inventions per capita in New York have exceeded those in the nation by 15 percent on an average annual basis (U.S. Patent and Trademark Office [2002]).

until the 1970s, New York State began losing apparel manufacturing jobs as early as the 1950s. Since the 1970s, employment has fallen in both New York and the nation because of increased automation and competition from abroad. Thus, production has moved from the region where innovation occurs to less costly areas. Still, much of the fashion design and the marketing of high-style clothing—the most inventive parts of the business—have remained in New York.

A similar process may now be at work within financial services. Many financial firms are moving their back-office operations out of New York—or even overseas—although they often keep their headquarters in the state.

These examples suggest that industry turnover and structural employment change are inevitable consequences of New York's appeal to young and innovative businesses. As these businesses transfer routine operations to other regions, new industries take their place and the cycle of job creation and relocation begins again. This process can put considerable pressure on the state's workers, who must have

very flexible skills to make the transition from older industries and products to newer ones.

New York's Downturn and Earlier Business Cycles

Before we examine the role that structural change may have played in New York's most recent downturn, we place that episode in its historical context. How did the state's downturn in 2001-03 compare in length and severity with earlier state and national downturns?

To identify the beginning and ending dates of the state downturns, we use the New York State Coincident Economic Index (CEI), a composite measure of economic activity that is published by the Federal Reserve Bank of New York (Orr, Rich, and Rosen 1999).⁴ To date the recessions for the United States, we use the peak and trough dates set by the NBER.

New York's economic slowdowns in the 1970s and at the beginning of the 1990s lasted much longer than the corresponding national recessions;⁵ they started earlier and ended later (Chart 1). By contrast, the two state downturns of the early 1980s (here treated as one "double-dip" episode) closely matched the national recessions in duration and were the least severe in recent decades, as shown by the relatively mild drops in the CEI.

The most recent state downturn—like those in the 1970s and the 1990s—was much more persistent than its national counterpart. It did not reach a trough until August 2003, almost two years after the national trough. As the steep decline in the CEI indicates, the 2001-03 state downturn was also quite deep.

In the sections that follow, we investigate whether structural change can explain why New York State's downturns in the

1970s, the 1990s, and the early years of this decade outlasted the corresponding national downturns. As part of our inquiry, we track the prevalence of structural changes in each of the state downturns and look for a pattern over time. We also investigate the degree to which particular industries underwent structural employment changes during different downturns.

Extent of Structural Change in State Downturns

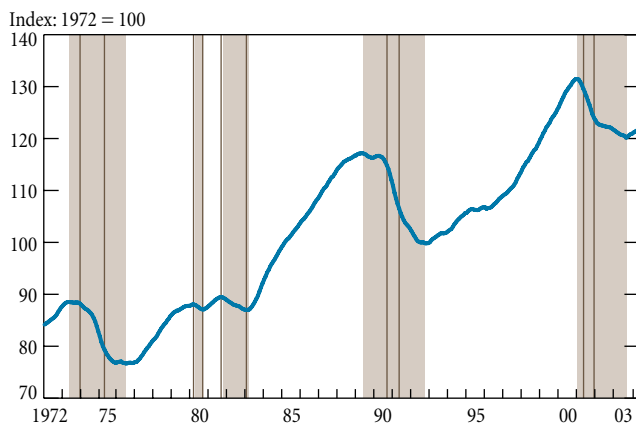
To assess the influence of structural employment changes in state downturns over the past three decades, we examine payroll employment data for all fifty-seven state industries identified by two digits in the Standard Industrial Classification (SIC) system. Following Groshen and Potter (2003), we isolate those industries that experienced structural job gains and losses from those that underwent cyclical job adjustments by comparing the growth in employment experienced by each industry during the downturn with the growth experienced by that same industry during the one-year recovery period after the trough. To facilitate our later comparisons between state industries and their national counterparts, we use the U.S. recession and recovery dates established by the NBER rather than the dates of the New York-specific slowdowns and expansions.⁶

If an industry loses jobs during both the recession and recovery, we conclude that the particular job losses sustained are permanent and we identify the industry as one that is declining structurally. Similarly, we identify an industry that gains jobs in both periods as one that is growing structurally. By contrast, we identify an industry that loses jobs during the recession but regains them during the recovery as one that is undergoing cyclical—or more properly, procyclical—change; the job losses and subsequent job recoveries parallel the contraction and expansion phases of the business cycle. Industries that expand their payrolls during the recession and cut them during the recovery are deemed to be experiencing countercyclical change.

Next we produce a measure of the prevalence of structural change in each state downturn by asking, Of all jobs in New York State at the beginning of the downturn, what percentage were in industries that would grow or decline structurally (Table 1)? During the downturn of the mid-1970s, industries that underwent structural change accounted for only 30 percent of all jobs. Less than a decade later, the 1980s downturn saw structural changes in industries that accounted for nearly half of all jobs. By the downturn of the 1990s, a sizable 94 percent of all jobs were in industries that would grow or decline structurally.

The pattern that emerges in these three decades is one in which job adjustments during recessions have become progressively more structural. To be sure, the most recent state downturn appears to depart somewhat from this pattern:

Chart 1
New York State Coincident Economic Index



Source: Federal Reserve Bank of New York.

Note: The shaded areas indicate periods identified as state downturns by the CEI; the bands mark periods designated national recessions by the NBER.

Table 1
**Prevalence of Structural Change in New York State
 Downturns, 1970-2003**

Date of Recession	Percentage of New York State Jobs in Industries That Experienced . . .			
	Cyclical Change	Structural Gains	Structural Losses	Structural Change ^a
1970s	70	8	22	30
1980s	53	42	5	47
1990s	6	12	81	94
2001-03	33	23	44	67

Sources: U.S. Bureau of Labor Statistics; authors' calculations.

^aSum of percentages in the second and third columns.

industries accounting for 67 percent of all jobs underwent structural changes—a decline from the high of 94 percent in the previous downturn. Nevertheless, structural change was still markedly more prevalent in the most recent downturn than in the downturns of the 1970s and early 1980s.

Moreover, we contend that the observed increase in cyclical change during the 2001-03 recession may stem in part from the unusual effects of the September 11 attacks. Many industries that incurred heavy job losses in the immediate aftermath of the attacks saw their payrolls rebound during the recovery that followed; because of the reversal of job losses, these industries were counted as cyclically changing.

In addition to examining the prevalence of structural change in New York State's downturns, we also consider the direction of the structural change. How widespread were structural job gains relative to structural job losses in each downturn? The question is important because the type of change that predominates will help determine the severity of the downturn. A recession in which many industries expand structurally entails some hardship because workers must retrain to find jobs in growing sectors, but a recession in which industries largely contract produces heavy net job losses that put a much greater strain on the economy.

In the downturn of the 1970s, more than twice as many jobs were in industries experiencing structural losses than in those experiencing structural gains (Table 1, columns 2 and 3). In the recession of the early 1980s, however, almost 90 percent of employment in structurally changing industries—or 42 percent of total employment—was in industries experiencing such gains. This contrast helps explain why the 1980s downturn could entail considerably more structural change than its predecessor yet be substantially milder—as the movements of the CEI in Chart 1 attest.

At the beginning of the downturn of the 1990s, 81 percent of all jobs were in industries that would decline steadily (Table 1, column 3). In the 2001-03 downturn, almost two-thirds of the jobs in industries that changed structurally were in industries that declined, while one-third were in

industries that gained jobs. These results suggest that while structural job losses were less prevalent in the most recent downturn than in the deep downturns of the 1970s and 1990s, they were much more widespread than in the mild downturn of the 1980s.

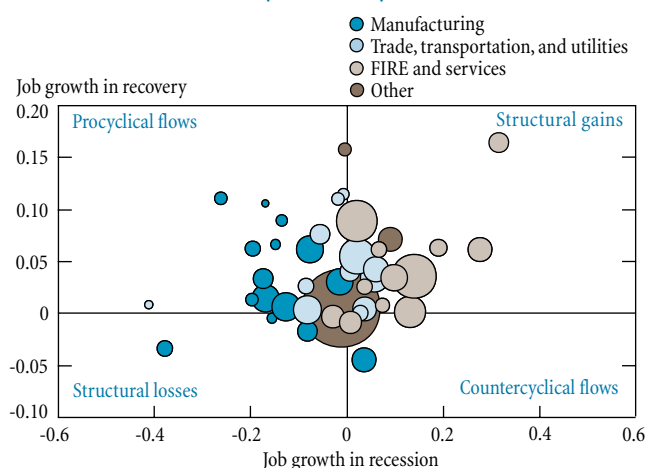
Job Adjustments in Key Industries

How did key industries fare in the past four state downturns? To clarify the dynamics of the downturns further, we identify the industries that changed structurally and those that changed cyclically in each downturn.

During the downturn of the mid-1970s, manufacturing experienced largely cyclical job losses. The construction industries, by contrast, were declining structurally, losing almost a third of total employment (100,000 jobs) from 1973 to 1976. In the milder downturn of the 1980s, manufacturing industries again underwent a cyclical decline, while overall job growth was buoyed by structural growth in the finance and services industries (Chart 2). In the 1990s cycle, job losses in manufacturing proved to be structural, as did those in construction and finance. The industries that showed the greatest structural growth were social and health services.

In the 2001-03 state downturn, industries that experienced the most pronounced cyclical employment losses included retail trade, leisure and hospitality, and other services—industries that we would expect to be set back by the September 11 attacks (Bram 2003). These industries shrank sharply from August to October 2001, then recouped jobs afterward (Charts 3 and 4). Indeed, by September 2003, employment in leisure and hospitality had surpassed its previous

Chart 2
**Job Adjustments by New York State Industries during
 the Recession and Recovery of the Early 1980s**



Sources: U.S. Bureau of Labor Statistics; authors' calculations.

Notes: Industries are defined according to the Standard Industrial Classification system; NBER dates, adjusted to cover a full year, are used for the recession and recovery. FIRE refers to finance, insurance, and real estate.

Chart 3
Cyclical Employment Patterns in Two New York State Industries



Sources: U.S. Bureau of Labor Statistics; authors' calculations.

peak. These observations suggest how the employment effects of September 11 magnified the cyclical changes in New York State's most recent downturn.

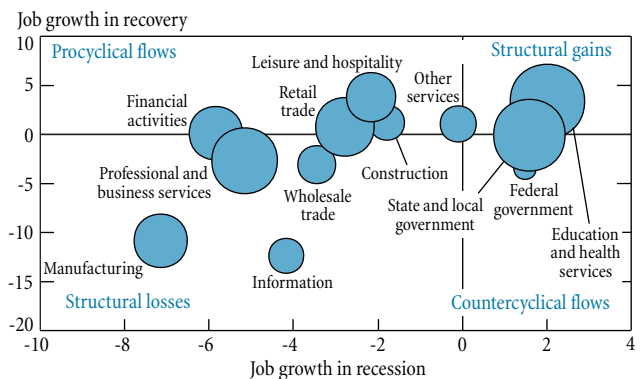
The industries that declined structurally over the course of the 2001-03 state downturn included manufacturing, information, and professional and business services (Chart 4). By contrast, education and health services showed persistent job growth. With the exception of the decline in professional and business services, these patterns are consistent with long-run employment trends in New York. Manufacturing payrolls shrank in New York through much of the 1990s, continuing the structural decline observed in the recession of the early 1990s. Education and health services employment, by contrast, grew throughout the 1990s, and continued to grow during the 2001-03 downturn and recovery.

Professional and business services jobs—a grouping that includes the management of companies, computer systems design, and temporary help services—broke with their long-term trend during the most recent downturn. From the end of 1991 to the end of 2000, employment in these industries increased by more than 40 percent in New York State, and by 50 percent in the nation as a whole. The decline in these industries after November 2000 came on the heels of very strong growth during the 1990s and thus could reflect investment overhangs in the technology and information sectors, stock market weakness, corporate scandals, or new efficiencies.

Comparing Structural Change in the New York State and U.S. Downturns

We have seen that three of New York State's four most recent recessions proved much more persistent than their national counterparts. We have also seen that structural reallocation has played an increasingly large role in the state recessions.

Chart 4
Job Adjustments by New York State Industries during the 2001 U.S. Recession and Subsequent Recovery



Sources: U.S. Bureau of Labor Statistics; authors' calculations.

Note: Industries are defined according to the North American Industry Classification System; NBER dates are used for the recession and recovery.

Could a greater degree of structural change in New York State's recessions help explain why the state downturns have lasted longer than the corresponding U.S. recessions?

To determine whether the state downturns have, in fact, involved more structural change than the national recessions, we compare the employment growth patterns of the state industries and their national counterparts. We first calculate how each state industry's share of total employment changed during and after each of the four recessions, and then repeat this exercise for each national industry. We identify a state industry as having a higher rate of structural growth than its national counterpart if its employment share increases more during both the recession and the subsequent recovery than the employment share of the national industry. Analogously, a state industry whose employment share decreases more than its national counterpart's during both the recession and recovery is deemed to have a higher rate of structural decline.

A state industry is identified as having a more cyclical experience than the corresponding U.S. industry if its employment share increased (decreased) more during the recession but decreased (increased) more during the recovery than the employment share of the U.S. industry.

Using these findings, we then calculate the percentage of New York State jobs in each of four industry groupings (Table 2): industries that experienced a higher rate of structural growth than their national counterparts, industries that experienced a higher rate of structural decline, industries that experienced a higher rate of structural change, and industries that experienced deeper cyclical swings.

This breakout indicates that in three of the four past recessions, more than three-quarters of New York jobs have

Table 2

A Comparison of Structural Change in New York State Downturns and U.S. Recessions, 1970-2003

Date of Recession	Percentage of New York State Jobs in Industries That Experienced ...			
	Deeper Cyclical Swings Than Their U.S. Counterparts	A Higher Rate of Structural Growth Than Their U.S. Counterparts	A Higher Rate of Structural Decline Than Their U.S. Counterparts	A Higher Rate of Structural Change Than Their U.S. Counterparts ^a
1970s	15	0	85	85
1980s	38	32	30	62
1990s	13	0	87	87
2001-03	21	21	58	79

Sources: U.S. Bureau of Labor Statistics; authors' calculations.

^aSum of percentages in the second and third columns.

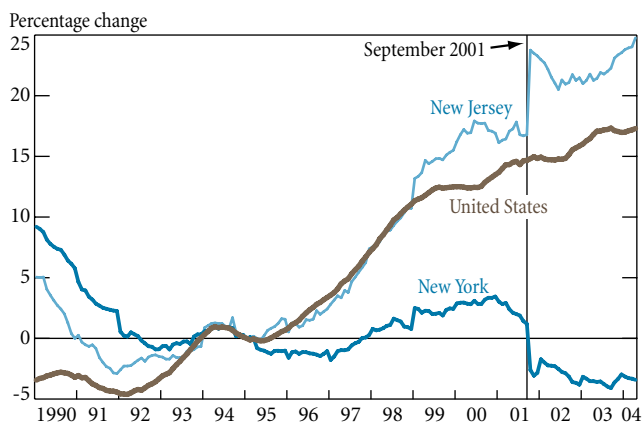
been in industries that are experiencing a higher rate of structural change than their national counterparts. The pattern is most pronounced in the recessions of the 1970s and 1990s, when 85 percent or more of the state's jobs were in industries that were undergoing greater structural adjustments. But even in the most recent recession, industries experiencing greater structural change accounted for a striking 79 percent of all state jobs.

All three of these state downturns lasted considerably longer than the corresponding U.S. recessions. These findings suggest that the greater duration of the state downturns may stem in part from the higher degree of structural change in the state labor market. Significantly, in the 1980s downturn—the one state downturn that did not outlast its national counterpart—the percentage of jobs in state industries that underwent greater structural change than their national counterparts was, at 62 percent, markedly lower than in the state downturns of the 1970s, 1990s, and 2001-03.

The direction, as well as the extent, of the structural change may also help account for variations in the duration and severity of the downturns. In the downturns of the 1970s and 1990s, all of the industries that experienced a higher rate of structural change than the corresponding U.S. industries were declining. The uniform contraction of these industries in the state clearly helped make these two downturns longer and deeper in New York State than in the United States as a whole. By contrast, during the 1980s downturn, slightly more than half of the jobs in industries whose structural adjustments exceeded those of their national counterparts were in industries that expanded—a feature that may have contributed to the relative mildness and more limited duration of this state downturn.

The direction of structural change in the 2001-03 recession presents a somewhat mixed picture. Certain industries, such as electronics manufacturing and durable goods trade, contracted sharply in the nation, but declined at a slower rate in New York.

Chart 5

Financial Activities Job Growth
Percentage Change from January 1995

Source: U.S. Bureau of Labor Statistics.

Other industries grew more rapidly in New York than in the nation. But while the most recent state downturn does not show an unalloyed pattern of industry decline, it is the case that, of all jobs in the state industries that underwent greater structural change than their U.S. equivalents, more than three-quarters were in industries that declined. This large percentage may also help to explain why the 2001-03 state downturn continued on long after the national recession ended.

Finally, the influence of September 11 on the degree and direction of structural change merits comment. A few smaller industries that grew more rapidly in New York State than in the nation over the most recent downturn probably benefited from the reconstruction that followed the attacks. Construction and passenger transit, for example, may have boosted their payrolls to handle the rebuilding efforts in downtown Manhattan.

In addition, the September 11 events may have exacerbated the structural decline of the state's financial sector. While U.S. jobs in this sector increased 1.1 percent during the recession and recovery, New York State's finance jobs fell more than 6 percent (Chart 5). Many of these jobs have not returned to New York. Indeed, as we indicated earlier, the state's finance industry follows the structural pattern of a maturing sector in which the more routine jobs have been moving out of New York. If so, the attacks of September 11, which displaced or disrupted many financial businesses, expedited a movement that was already under way. While we have argued that the September 11 events generally magnified cyclical job adjustments in the 2001-03 downturn, they appear to have reinforced a structural shift in this case.

Conclusion

Employment in New York State peaked in December 2000, and the state's economy declined from that point until

August of 2003—long after the nation’s recession had ended. The state downturns of the 1970s and 1990s followed a similar pattern, outlasting their national counterparts by a considerable margin. Our look at industry payroll data over the last three decades suggests an explanation for the unusual tenacity of these downturns—in each case, New York State experienced considerably greater structural change in its labor market than did the United States.

While structural job losses predominated in the most recent downturn, some state industries grew structurally, changing the industry composition in the state. New York’s role as a magnet for creative new businesses has also led to shifts in the industry mix. Such changes present challenges for the labor market, compelling workers and communities to make long-term adjustments. While these adjustments are often painful, they may well set the stage for future healthy job growth.

Notes

1. Throughout this article, we use the term “downturn” to refer to the declining phase of state business cycles and “recession” to refer to the declining phase of U.S. business cycles. The two events are measured somewhat differently and can follow divergent paths.

2. From March 2001 to November 2001, employment declined 1.2 percent in the nation and 2.3 percent in New York State.

3. As a state, New York is likely to experience a higher rate of trade-related structural change than the nation because relocating jobs to another state is generally much simpler than shifting jobs overseas. The states are linked by a common currency and similar laws and face no barriers to trade among themselves; thus, labor resources move easily from one state to another. In addition, New York may have an even more mobile workforce than many other states. Fully 40 percent of the state’s employment is concentrated in New York City, within close range of New Jersey and Connecticut. Many of New York City’s workers commute from these states; by the same token, city residents can easily commute to jobs in the neighboring states. This high degree of worker mobility may also translate into increased mobility for employers.

4. Historical and recent values for this index can be found at <http://www.newyorkfed.org/research/regional_economy/coinincident_summary.html>.

5. The CEI is a weighted average of four series: payroll employment, real earnings, the unemployment rate, and average weekly hours in the manufacturing sector. Since this is not a direct measure of output, a comparison to national employment peaks and troughs is also in order; the results are similar.

6. This approach preserves consistency and yields results similar to those obtained when New York dates are used. Since seasonally adjusted industry-level SIC employment data are not available over a long enough period, we adjust the dates of some recessions slightly to obtain a recession over a period of twelve, twenty-four, or thirty-six months, using the New York–specific downturn dates as a guide. Our analysis of seasonally adjusted employment data for industries defined according to the North American Industry Classification System (NAICS) uses the official recession dates (see Chart 4). We obtained similar results using SIC data.

References

Bram, Jason. 2003. “New York City’s Economy before and after September 11.” Federal Reserve Bank of New York *Current Issues in Economics and Finance* 9, no. 2 (February).

Carlino, Gerald A., Satyajit Chatterjee, and Robert Hunt. 2001. “Knowledge Spillovers and the New Economy of Cities.” Federal Reserve Bank of Philadelphia Working Paper no. 01-14, September.

Federal Reserve Bank of New York. 2001. “Economic Restructuring in Western New York State.” *Regional Economy of Upstate New York*, fall. Available at <http://www.newyorkfed.org/research/regional_economy/Fall2001.pdf>.

Groschen, Erica L., and Simon Potter. 2003. “Has Structural Change Contributed to a Jobless Recovery?” Federal Reserve Bank of New York *Current Issues in Economics and Finance* 9, no. 8 (August).

Groschen, Erica L., and Laura Robertson. 1993. “Are the Great Lakes Cities Becoming Service Centers?” Federal Reserve Bank of Cleveland *Economic Commentary*, June 1.

Orr, James. 1997. “Industrial Restructuring in the New York Metropolitan Area.” Federal Reserve Bank of New York *Economic Policy Review* 3, no. 1 (February): 61-74.

Orr, James, Robert Rich, and Rae Rosen. 1999. “Two New Indexes Offer a Broad View of Economic Activity in the New York–New Jersey Region.” Federal Reserve Bank of New York *Current Issues in Economics and Finance* 5, no. 14 (February).

U.S. Patent and Trademark Office. 2002. *Patent Counts by Country/State and Year*. Available at <http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cst_utl.pdf>.

About the Authors

Erica L. Groschen is an assistant vice president in the Research and Market Analysis Group’s Domestic Research Function, Simon Potter a research officer in the Business Conditions Function, and Rebecca J. Sela an assistant economist in the Domestic Research Function.

Second District Highlights, a supplement to *Current Issues in Economics and Finance*, is published by the Research and Market Analysis Group of the Federal Reserve Bank of New York. Dorothy Meadow Sobol is the editor.

The views expressed in this article are those of the authors and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System.