

Comments on Changes to Regional Employment Data: Benchmark Revisions and NAICS Conversion

by Tom DeCoff

This article discusses the impact of two major revisions to Bureau of Labor Statistics (BLS) employment data made during 2003. The first change, the annual benchmark revisions, anchored data to the 2002 benchmark. These revisions show that job losses in New England over the past two years were more severe than previously reported. Meanwhile, for the first time since the implementation of the Standard Industrial Classification (SIC) system in 1939, all existing industry classifications were redefined as BLS introduced the North American Industry Classification System (NAICS) to a range of employment-related data series.

The 2002 Benchmark Revisions

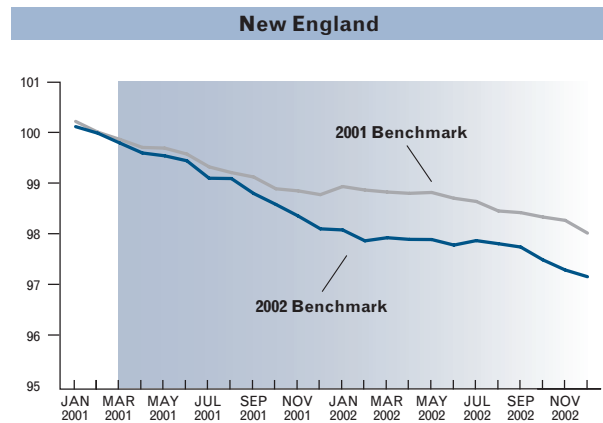
In March 2003, the BLS released revised state and regional employment data based on the 2002 benchmark, affecting data for 2001 and 2002. Following on the heels of the downward revisions incurred in the 2001 benchmark, employment levels in New England were further reduced by the 2002 revisions. The slight growth in the region's average employment level during 2001, previously reported at 0.2 percent, was reduced to a 0.1 percent gain. Furthermore, what was earlier estimated to be a 0.8 percent decrease in New England's average monthly employment during 2002 was revised downward to a 1.5 percent falloff. Downward revisions to payroll employment resulted in lower job counts regionally in each month of 2001 and 2002, with the sharpest reductions evident around the end of 2001 and beginning of 2002 (see Figure 1).

Employment in five of the six New England states was revised downward in most of the months from early 2001 through 2002 (see Figure 1, continued). Vermont was the only state in the region where employment was reported higher as a result of the 2002 benchmark; downward revisions lowered

Figure 1
Total Employment in New England

Index December 2000 = 100

■ NBER-Dated Recession



job counts in Maine, New Hampshire, Rhode Island, and especially Massachusetts, where, in 2002, some 35,000 fewer jobs were tallied. Revisions to employment in Connecticut were also generally downward, but smaller in magnitude than in the other states.

After revisions, job losses from December 2000 to December 2001 were considerably larger than previously reported in Massachusetts (-2.7 percent), New Hampshire (-1.5 percent), Rhode Island (-0.9 percent), and Maine (-0.7 percent). Connecticut and Vermont also lost jobs during 2001, but no more than indicated by earlier estimates (see Table 1). Between December 2001 and December 2002, Maine and Vermont showed small declines, despite indications of growth in the earlier data. Connecticut, Massachusetts, and New Hampshire also showed job losses for this period.

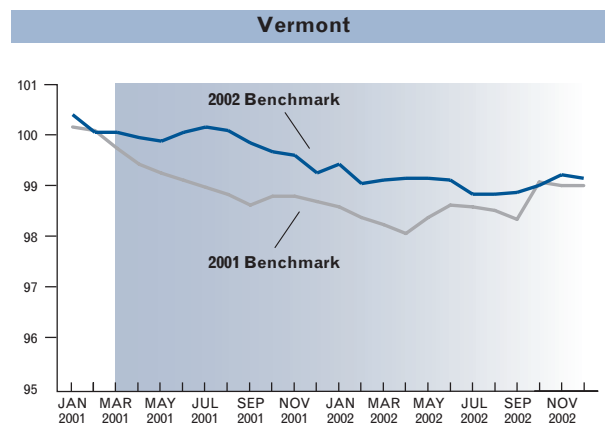
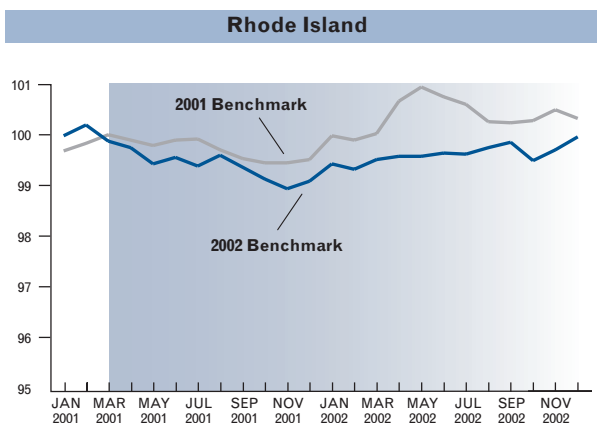
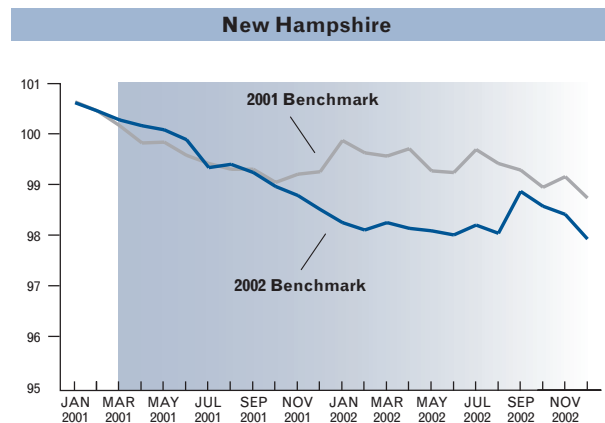
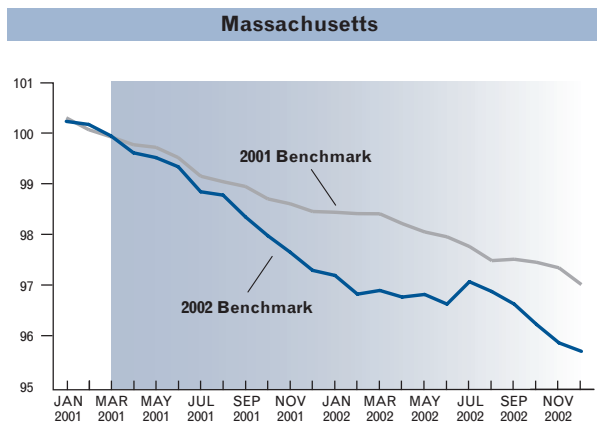
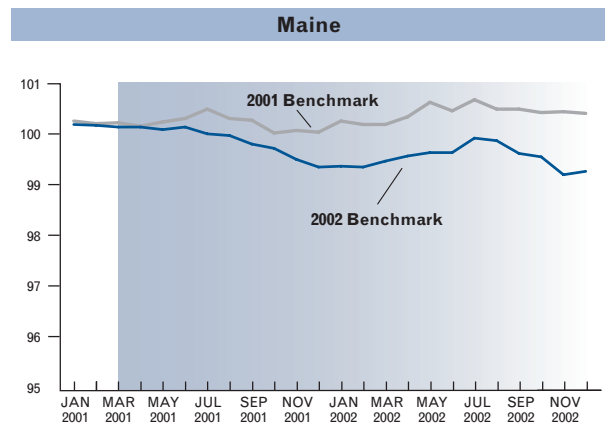
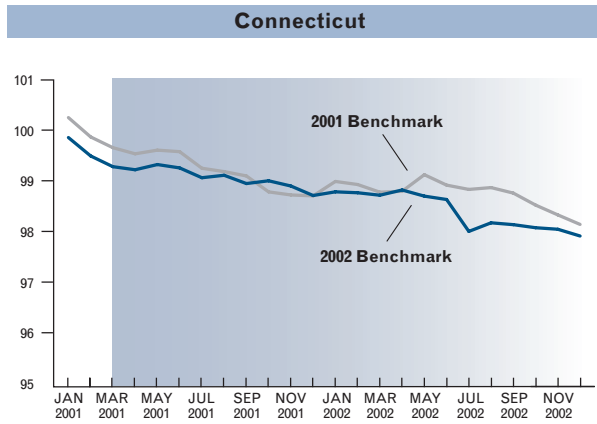
The revised data also indicate that for New England as a whole, the recession job losses in 2001 were considerably deeper than in the nation. Furthermore,

Figure 1, continued
Total Employment in New England

Index December 2000 = 100

Data are seasonally adjusted.

NBER-Dated Recession



the region's recovery continued to drag in 2002, when employment in the region declined 1.0 percent from December 2001 to December 2002, while the decline nationwide was more modest (0.4 percent). Through December 2002, the region lost nearly 3 percent of its January 2001 pre-recession peak employment level,

while the nation lost less than 2 percent of jobs from its March 2001 peak level.

The NAICS Conversion

Concurrent with the March 2003 release of the 2002 benchmark revisions for the states, BLS con-

The Benchmark Procedure

Monthly state employment data are estimates of job counts based on data from the Current Employment Statistics (CES) sample of nonfarm establishments. Once a year, these sample-based estimates are realigned to benchmarks, or comprehensive counts of employment primarily derived from data reported in unemployment insurance (UI) tax reports. Nearly all employers are required to file these reports with state employment security agencies. In general, sample-based estimates for each state from the prior year are replaced with benchmark levels. While annual benchmark revisions to state-level data occur each March, national data are revised in June. Because state and national series are

developed through independent estimation and benchmarking processes, the individual state employment totals do not sum to the national totals, before or after the revisions.

This year, because industry employment data were converted to a new classification system (as discussed in this article) simultaneously with benchmark revisions, employment levels according to the 2001 benchmark and 2002 benchmark cannot be compared at the industry level. Total employment figures are comparable, however, notwithstanding altered seasonal adjustment procedures and slight definitional changes.

Table 1: Comparison Between 2001 and 2002 Benchmark Revisions to Nonagricultural Employment

	2002 Benchmark					
	2001			2002		
	Annual Average 000s of Jobs	Annual Average %Change	Dec 00 to Dec 01 %Change	Annual Average 000s of Jobs	Annual Average %Change	Dec 01 to Dec 02 %Change
New England	7,026.5	0.1	-1.9	6,922.8	-1.5	-1.0
Connecticut	1,681.1	-0.7	-1.3	1,668.2	-0.8	-0.8
Maine	608.2	0.8	-0.7	605.8	-0.4	-0.1
Massachusetts	3,329.3	0.2	-2.7	3,251.6	-2.3	-1.6
New Hampshire	627.3	0.8	-1.5	618.6	-1.4	-0.6
Rhode Island	478.5	0.4	-0.9	478.9	0.1	0.9
Vermont	302.1	1.1	-0.8	299.7	-0.8	-0.1

	2001 Benchmark					
	2001			2002		
	Annual Average 000s of Jobs	Annual Average %Change	Dec 00 to Dec 01 %Change	Annual Average 000s of Jobs	Annual Average %Change	Dec 01 to Dec 02 %Change
New England	7,033.6	0.2	-1.2	6,974.2	-0.8	-0.8
Connecticut	1,682.8	-0.6	-1.3	1,672.8	-0.6	-0.6
Maine	609.2	0.9	0.0	610.4	0.2	0.4
Massachusetts	3,336.7	0.4	-1.5	3,286.7	-1.5	-1.4
New Hampshire	627.2	0.8	-0.8	625.4	-0.3	-0.5
Rhode Island	478.9	0.5	-0.5	481.9	0.6	0.8
Vermont	298.9	0.1	-1.4	297.0	-0.6	0.3

verted state-level data to the North American Industry Classification System (NAICS, rhymes with “steaks”). This conversion replaces all previous data classified by the Standard Industrial Classification (SIC) system, which was used for more than 60

years. Developed from a 1992 collaboration among the U.S. Economic Classification Policy Committee (ECPC), the U.S. Bureau of Economic Analysis (BEA), Statistics Canada, and Mexico’s Instituto Nacional de Estadística, Geografía, e Informática

Table 2: Relationship Between NAICS Supersectors, NAICS Sectors, and SIC Industries

NAICS Supersector	NAICS Sectors	SIC Industries Making the Largest Contributions
Natural Resources and Mining	NAICS 1133: Logging Sector 21: Mining	Agriculture, Forestry, and Fishing Mining Manufacturing
Construction	Sector 23: Construction	Construction Finance, Insurance, and Real Estate
Manufacturing	Sectors 31, 32, 33: Manufacturing	Manufacturing Retail Trade
Trade, Transportation, and Utilities	Sector 42: Wholesale Trade Sectors 44, 45: Retail Trade Sectors 48, 49: Transportation and Warehousing Sector 22: Utilities	Retail Trade Wholesale Trade Transportation, Communication, and Utilities
Information	Sector 51: Information	Transportation, Communication, and Utilities Manufacturing Services
Financial Activities	Sector 52: Finance and Insurance Sector 53: Real Estate and Rental and Leasing	Finance, Insurance, and Real Estate Retail Trade Services Transportation, Communication, and Utilities
Professional and Business Services	Sector 54: Professional, Scientific, and Technical Services Sector 55: Management of Companies and Enterprises Sector 56: Administrative and Support and Waste Management and Remediation Services	Services Finance, Insurance, and Real Estate Agriculture, Forestry, and Fishing Transportation, Communication, and Utilities Manufacturing Construction auxiliary establishments in all industries
Education and Health Services	Sector 61: Educational Services Sector 62: Health Care and Social Assistance	Services Transportation, Communication, and Utilities
Leisure and Hospitality	Sector 71: Arts, Entertainment, and Recreation Sector 72: Accommodation and Food Services	Services Retail Trade Finance, Insurance, and Real Estate
Other Services	Sector 81: Other Services, except Public Administration	Services Finance, Insurance, and Real Estate Manufacturing Agriculture, Forestry, and Fishing
Government	Sector 91: Federal Government Sector 92: State Government Sector 93: Local Government	Government

Source: BLS and Zeisset and Wallace.

(INEGI), NAICS is being implemented across North American agencies.

BLS converted all national-level employment data to NAICS with the release of the national benchmark revisions in June 2003.

Similar to the four-digit SIC system, NAICS categorizes by assigning two, three, four, five, or six digits to an industry or sector. The more specific the industry or sector, the more digits required. For data reporting purposes, BLS has aggregated NAICS sectors into groupings called “supersectors.” As shown

Figure 2
Components of New England's Total Employment
Comparison of SIC and NAICS

Standard Industrial Classification (SIC)

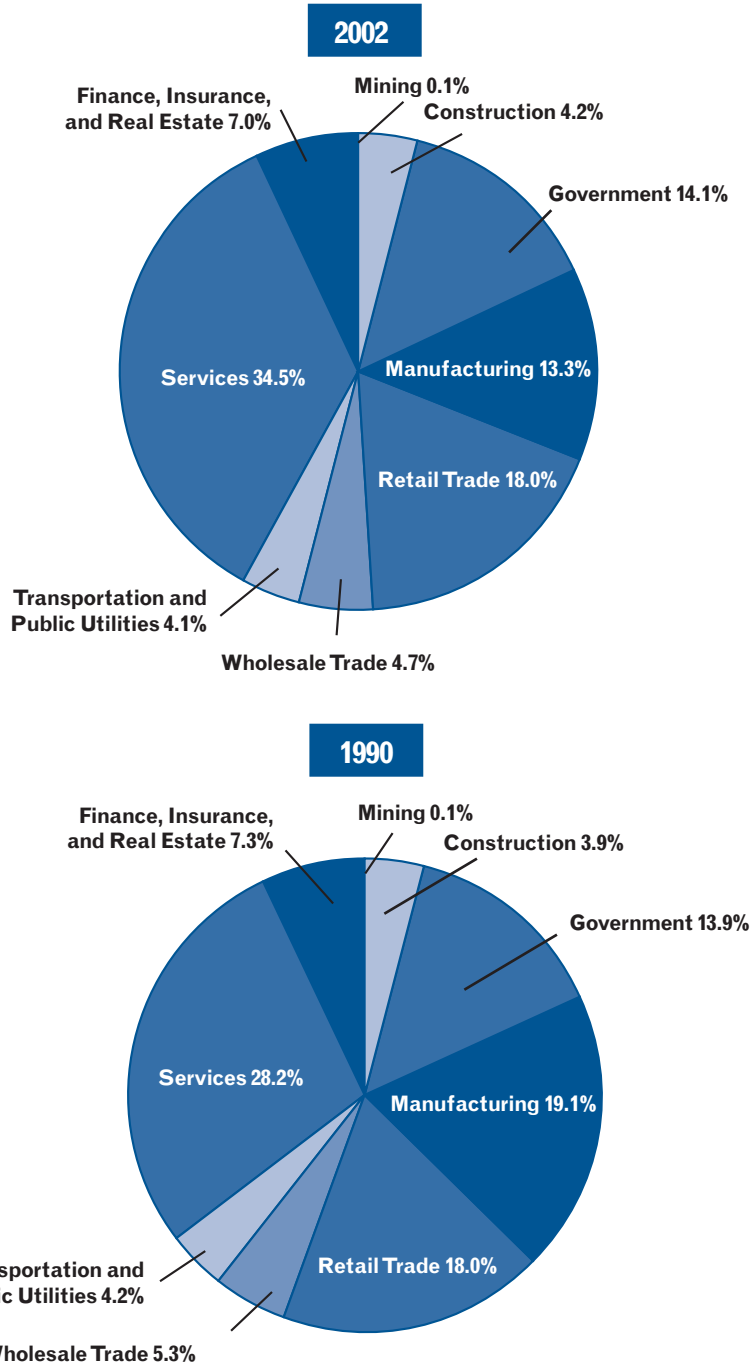
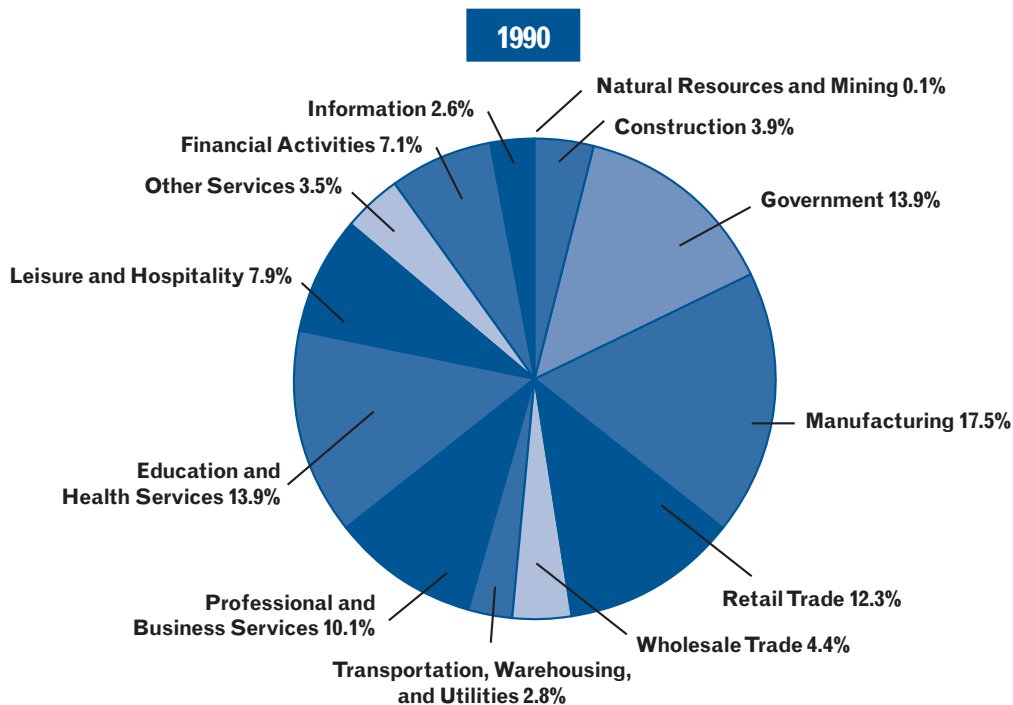
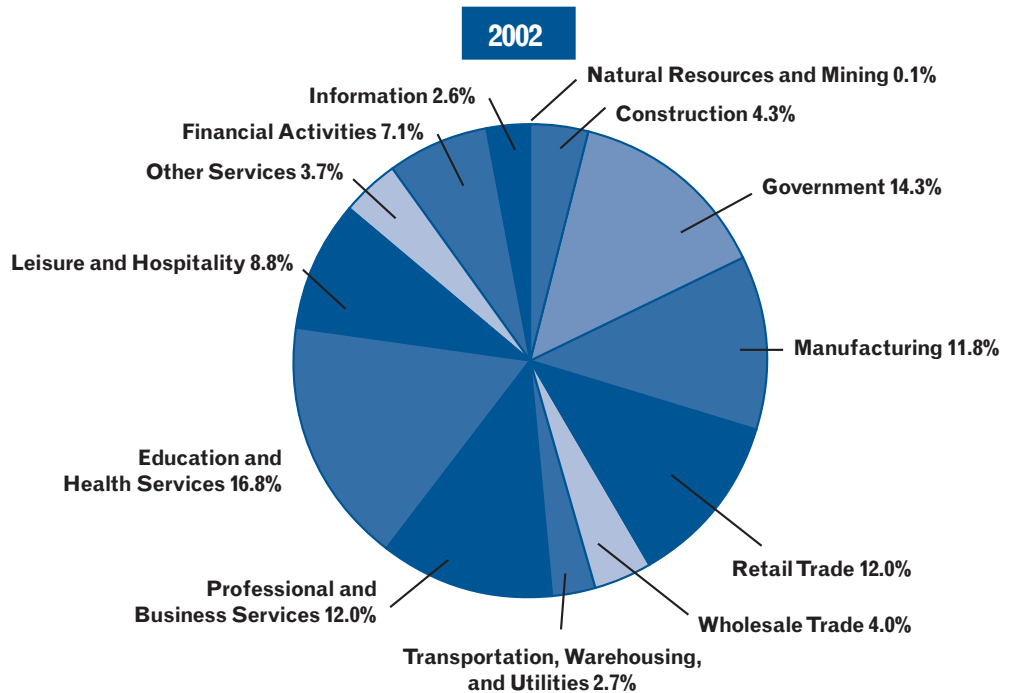


Figure 2, continued
 Components of New England's Total Employment
 Comparison of SIC and NAICS

North American Industry Classification System (NAICS)



in Table 2, supersectors comprise one or more NAICS sectors, which have been compiled from mixed SIC categories.

The Benefits of NAICS: Improvements over the SIC System

Expanded, More Current Coverage

Developed in the manufacturing-intensive era of the 1930s, the SIC system has become obsolete, with new industries emerging and manufacturing sectors shrinking. NAICS, however, allows for the classification of more industries at a greater level of detail — nearly 1,200 industries or sectors compared with SIC's 1,004 industries. NAICS also acknowledges the evolution of industries, such as the rise of information-related industries, the growth and diversification of services industries, and the emergence of high-tech manufacturing. Moreover, NAICS specifically includes newer industries such as cellular and other wireless telecommunications and Internet publishing; industries such as interior design now belong to a specific category and are no longer filed under a vague SIC category such as “business services not elsewhere classified.” Finally, NAICS definitions will be updated more frequently, roughly every five years, compared with the 10 to 15 years between revisions to the SIC system.

Consistent, Improved Categorization

NAICS takes a consistent approach to categorizing establishments into industries based on the establishment's primary “economic activity,” defined in terms of technologies or production processes used. With the SIC system, some industries were demand-oriented, or categorized based on the consumer perceptions of that industry. For example, some manufacturers may have been classified according to the types of products they produced rather than by the methods used to produce them. NAICS's process-oriented categorization is demonstrated by the rental and leasing industry (a subsector of the real estate and rentals and leasing sector), which contains rental and leasing activities of consumers and businesses formerly scattered across SIC industries. Office machinery leasing was formerly categorized in SIC business services, along with

home health equipment rentals; videotape rentals were in SIC motion picture services. Rental of passenger cars and trucks was formerly in SIC auto repair, services and parking, while boat rentals was part of SIC water transportation.

Comparability

Canada, Mexico, and the United States are all using NAICS to classify economic activity within their nations. This uniform industry classification allows comparisons across these countries and facilitates the evaluation of programs such as the North American Free Trade Agreement (NAFTA).

Initial Limitations of NAICS

While the implementation of NAICS will improve the industrial classification overall, instituting such a system does have drawbacks. The most notable limitation of NAICS is the break in data continuity. Many NAICS-based employment data series are available only from 1990 forward, an archive much smaller than the decades of SIC-based data that have been available. Some NAICS-based data, such as weekly hours and hourly earnings of manufacturing production workers, are curtailed even more, to a start date of 2000. The limited availability of historical NAICS data also precludes the seasonal adjustment of many state-level data series.

Another disadvantage of NAICS is the potential confusion to data users. As a general rule, NAICS-based data are not comparable to SIC-based data, even for the industries named identically in both systems, such as manufacturing and construction.

NAICS and Employment in New England

The introduction of NAICS has changed the picture of industry employment in New England. Figure 2 shows industry shares of total employment (annual averages) in the region for 1990 and 2002, classified by both the SIC system and NAICS. One of the notable results of the industry reclassification is the augmentation of the services sectors. In 1990, SIC-defined services accounted for 28 percent of New England's total employment; however, NAICS-defined services — the aggregate of four supersectors (professional and business services, edu-

cation and health services, leisure and hospitality, and other services) — accounted for 35 percent of regional employment in the same year. The reclassification of services also changed the picture for 2002, where SIC-based services constituted 34.5 percent of total employment, while the four NAICS-based services supersectors accounted for more than 41 percent of the region's employment.

One explanation for the boost in services industries employment is that restaurants and other eating and drinking places, classified as retail trade establishment under the SIC system, are part of the NAICS supersector leisure and hospitality. This reallocation also explains why the NAICS-based retail trade share of employment (around 12 percent in 1990 and 2002) is lower than the SIC-based share (18 percent in both 1990 and 2002).

Some industries that are especially important to New England appear as new NAICS categories. The information sector includes software publishing, computer processing services, and Internet service providers previously classified in SIC business services; publishing (but not printing) activities previously classified in SIC manufacturing; parts of motion picture production and distribution from SIC services; as well as much of the telecommunications portion of SIC transportation, communications, and public utilities. Education and health services, a NAICS supersector that is larger than average in New England, draws mostly on the

corresponding SIC services industries — educational services and health services — but also includes barber and beauty and cosmetology schools (from SIC personal services), dance and recreational instruction (from SIC amusement and recreational services), educational testing (from SIC engineering and management services), and most of the SIC social services category. The professional and business services supersector includes much of the SIC business services category (including temporary help, but not, for example, leasing activities or software publishing, as noted above) and most of the SIC engineering and management services industry. In addition, also tallied in this supersector are employees of aircraft-related R&D activities (formerly classified in manufacturing), headquarters operations (formerly classified in the industry of their main product), and waste management (formerly in SIC electric, gas, and sanitary services).

References

Bureau of Labor Statistics. "The Current Employment Statistics Program: Upcoming Changes in 2003." Presentation at the Federal Reserve Bank of Boston, January 31, 2003.

Federal Register. "North American Industry Classification System-Update for 2002," April 20, 2000.

Rhode Island Department of Labor and Training. *NAICS: North American Industry Classification System*. Undated pamphlet.

U.S. Census Bureau. North American Industry Classification System (NAICS). <<http://www.census.gov/epcd/www/naics.html>> 27 May 2003.

Walker, J.A. and J.B. Murphy. "Implementing the North American Industry Classification System at BLS." *Monthly Labor Review* December 2001: 15-21.

Zeisset, P.T. and M.E. Wallace. "How NAICS Will Affect Data Users." U.S. Census Bureau, <<http://www.census.gov/epcd/www/naicsur.html>> 14 January 2003.