

Beyond Post-9/11: A Colloquium on the Future of the Port Authority of New York and New Jersey

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# **Meeting the Needs of the Workforce in a Shifting Regional Economy**

**Beyond Post-9/11: A Colloquium on the Future of the Port Authority of New York  
and New Jersey**

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## Abstract

*The tri-state region (New York/New Jersey/Connecticut) supports a highly complex and diverse labor market that has been subject not only to the shocking events of September 11th, 2001, but also to broad demographic and economic trends that have shaped the structure of work and the makeup of the available workforce. This paper examines the shifts that occurred in the regional economy throughout the past decade and discusses the possible implications of these changes for the Port Authority of New York and New Jersey, educational institutions, and state and local governments.*

## Introduction

This paper reviews labor market trends over the past 10 to 15 years within the New York metropolitan region.<sup>1</sup> Specifically, the paper examines how the composition of the region's workforce and employment changed during the 1990s. Many of these changes were fundamental, including likely permanent shifts away from an economy based on manufacturing toward one based on service and information jobs. A key implication of this shift will be an increasing reliance on jobs requiring high levels of formal education and training. Over the next 10 years, these jobs are projected to grow more than twice as fast as jobs requiring low to moderate levels of training. At the same time, employers' expectations for workers are changing, as even jobs involving only moderate to low levels of formal training require workers adapt their skills as their jobs evolve.

Accompanying this shift in the structure of the region's employment was a departure from population trends that emerged during the 1970s and 1980s. After a pair of decades characterized by steady flight from urban areas and an increasing suburban population, the urban population stabilized during the 1990s — currently the region's population is split almost evenly between the urban core of New York City and the Northern New Jersey counties of Essex, Hudson, and Union and the outer suburban ring. This urban resurgence was largely due to a wave of immigration. The region maintains some of the nation's most significant immigrant communities, with foreign-born population rates for both urban and suburban areas two to three times the national average.

This powerful immigration influence helped create a racially and ethnically diverse labor force, as well. While all ethnic groups in the region grew during the 1990s, the rates for Asians, African Americans, and Latinos were significantly higher than the growth rates for Whites. As a result, while Whites are projected to remain the largest share of the regional workforce in the short and medium range, the economy will continue to depend on an increasingly diverse labor pool. As members of the baby boom generation age and retire from the labor force, the immigrant population will also be relied upon to take up some of the slack created by the departure of this large cohort.

In addition to the racial and ethnic diversity present in the workforce, the region has a substantial amount of educational diversity. Overall, the region is more educated than the nation

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<sup>1</sup> The New York metro region is defined here as the 5 counties (Bronx, Kings, New York, Queens, and Richmond) within New York City; Nassau and Suffolk counties on Long Island; 7 counties (Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, and Westchester) in New York State, immediately north of New York City; and 14 counties (Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Union, Somerset, Sussex, and Warren) in northern and central New Jersey.

as a whole, with a rate of residents holding four-year degrees higher than the national average. The educational distribution across the region is wide, however, with several counties ranking well below the national mean in the share of their residents who failed to complete high school.

## **The Demographic Characteristics of the Workforce Are Shifting**

### **Demographic Trends**

The broader demographic and specific workforce characteristics of the New York-New Jersey metropolitan region are driven by long-standing dynamics along with more recent shifts in basic trends. The region had been characterized by extraordinarily slow population growth, rapid suburbanization, and absolute urban decline. However, since 1990, the region's population started to grow much more rapidly and began to close the gap with the nation. While suburbanization persisted, population growth in the regional core rebounded and nearly matched that of the suburban ring. It was this urban resurgence — driven by immigration from abroad — that brought the region to a more competitive growth posture vis-à-vis the nation.

The region's historic role as an immigration gateway has been resurrected, leading to the growth of a much more diverse population and labor force. As a result, a number of the region's counties, both urban and suburban, rank among the more diverse, immigrant-driven counties in the nation. Despite this transformation, however, Whites will still account for the majority of the population and the labor force for the foreseeable future. As the (predominately White) baby boom generation continues to age and exit the labor force, diversity will increase, accelerating the transformation already underway.

### **Overall Population Trends**

The overall population growth of the region in the 1970s and 1980s badly lagged that of the nation. However, since 1990, this growth gap has narrowed considerably. The population of the United States grew by 24% between 1969 and 1990, while the region's population grew by less than 1% over this same span.

Between 1990 and 2002, the region underwent a demographic resurgence. Over these 12 years, the region's population grew by nearly 10%, a growth rate more than 10 times as large as the regional rate for the two previous decades. Following a 20-year period in which the population increased by an average of approximately 8,000 people per year, the region realized annual population increases of nearly 150,000 during the 1990s. The national growth rate decreased between 1990 and 2002 compared to its level in the 1970s and 1980s, falling to 15.4% from its previous 24%.

**Table 1: Total Population and Change in Population**

	1969	1990	Change: 1969-1990		2002	Change: 1990-2002	
			Number	Percent		Number	Percent
<b>United States</b>	<b>201,298,000</b>	<b>249,622,814</b>	<b>48,324,814</b>	<b>24.0 %</b>	<b>287,973,924</b>	<b>38,351,110</b>	<b>15.4 %</b>
<b>Regional Total</b>	<b>17,916,323</b>	<b>18,083,234</b>	<b>166,911</b>	<b>0.9</b>	<b>19,882,488</b>	<b>1,799,254</b>	<b>9.9</b>
<b>Regional Core</b>	<b>9,933,759</b>	<b>9,162,643</b>	<b>(771,116)</b>	<b>(7.8)</b>	<b>10,006,776</b>	<b>844,133</b>	<b>9.2</b>
<b>New Jersey Sector</b>	2,075,004	1,826,993	(248,011)	(12.0)	1,934,765	107,772	5.9
Essex	925,274	778,564	(146,710)	(15.9)	795,905	17,341	2.2
Hudson	611,436	554,289	(57,147)	(9.3)	609,936	55,647	10.0
Union	538,294	494,140	(44,154)	(8.2)	528,924	34,784	7.0
<b>New York Sector</b>	7,858,755	7,335,650	(523,105)	(6.7)	8,072,011	736,361	10.0
Bronx	1,462,899	1,207,053	(255,846)	(17.5)	1,358,370	151,317	12.5
Kings	2,596,639	2,303,679	(292,960)	(11.3)	2,475,650	171,971	7.5
New York	1,543,762	1,487,073	(56,689)	(3.7)	1,555,434	68,361	4.6
Queens	1,966,669	1,957,281	(9,388)	(0.5)	2,227,172	269,891	13.8
Richmond	288,786	380,564	91,778	31.8	455,385	74,821	19.7
<b>Suburban Ring</b>	<b>7,982,564</b>	<b>8,920,591</b>	<b>938,027</b>	<b>11.8</b>	<b>9,875,712</b>	<b>955,121</b>	<b>10.7</b>
<b>New Jersey Sector</b>	<b>3,671,930</b>	<b>4,280,584</b>	<b>608,654</b>	<b>16.6</b>	<b>4,855,391</b>	<b>574,807</b>	<b>13.4</b>
Bergen	893,713	826,129	(67,584)	(7.6)	894,454	68,325	8.3
Hunterdon	68,600	108,128	39,528	57.6	126,685	18,557	17.2
Mercer	305,795	326,477	20,682	6.8	358,180	31,703	9.7
Middlesex	572,957	673,469	100,512	17.5	772,410	98,941	14.7
Monmouth	450,967	554,210	103,243	22.9	627,668	73,458	13.3
Morris	376,544	421,803	45,259	12.0	478,622	56,819	13.5
Ocean	199,210	434,623	235,413	118.2	536,769	102,146	23.5
Passaic	460,958	470,951	9,993	2.2	496,508	25,557	5.4
Somerset	195,059	241,464	46,405	23.8	307,722	66,258	27.4
Sussex	75,367	131,346	55,979	74.3	148,875	17,529	13.3
Warren	72,760	91,984	19,224	26.4	107,498	15,514	16.9
<b>New York Sector</b>	<b>4,310,634</b>	<b>4,640,007</b>	<b>329,373</b>	<b>7.6</b>	<b>5,020,321</b>	<b>380,314</b>	<b>8.2</b>
Dutchess	218,638	260,238	41,600	19.0	287,675	27,437	10.5
Nassau	1,424,424	1,286,905	(137,519)	(9.7)	1,339,265	52,360	4.1
Orange	218,367	308,803	90,436	41.4	355,802	46,999	15.2
Putnam	54,375	84,222	29,847	54.9	98,530	14,308	17.0
Rockland	223,240	265,981	42,741	19.1	291,230	25,249	9.5
Suffolk	1,092,090	1,322,686	230,596	21.1	1,455,727	133,041	10.1
Sullivan	52,073	69,545	17,472	33.6	74,132	4,587	6.6
Ulster	139,775	166,049	26,274	18.8	180,066	14,017	8.4
Westchester	887,652	875,578	(12,074)	(1.4)	937,894	62,316	7.1

The resurgence of the region's urban core — New York City and Essex, Hudson, and Union counties in northern New Jersey — spurred much of this population growth. Between 1969 and 1990, the core's population fell by 7.8%, while the population in the suburban ring increased by 11.8%. Both segments of the region added population between 1990 and 2002, with the core growing by 9.2% and the suburbs growing by 10.7%. This shifting trend stabilized the population balance between the core and the suburban ring. In 1969, the core accounted for 55.4% of the region's population, compared to 44.6% for the suburban ring. But, suburban growth and urban decline reduced the core's share to 50.7% by 1990, and increased the ring's share to 49.3%. As urban population growth resumed over the next 12 years, the core's share fell only slightly to 50.3% by 2002, while the ring's share grew to 49.7%. Thus, the region's population is now roughly evenly divided between the regional core and suburban ring.

## **Immigration**

The region's stronger population growth and the demographic resurgence of the regional core are mainly the consequences of immigration. Similar to its role during the intense period of immigration in the early 20th century, the region has served as a gateway for immigrants during the immigration wave of the 1990s. As a result, the region maintains a foreign-born population rate much higher than the national average. In 2000, 28.4% of the region's population was foreign born, more than double (11.1%) that of the nation. The percentage of foreign born (34.3%) in the regional core was more than triple that of the nation. Immigration also bolsters the suburban ring's population, with 16.2% of those living in the suburbs born outside the United States. Among the top 30 counties in the United States in 2003 by percentage of foreign-born population, Queens, Hudson, and Kings (Brooklyn) counties ranked, respectively, second, third, and fourth in the nation, trailing only Miami-Dade County, Florida. Overall, the region accounts for 11 of the top 30 counties, followed by California, which has 9.

## **Race and Ethnicity**

With immigration influencing the region's demography so powerfully, it is not surprising that the region has also grown more ethnically and racially diverse. For example, while the region's total population grew by 1.6 million people (8.7%) between 1990 and 2000, the White population grew by only 0.9%, the slowest rate of growth among any racial-ethnic group. In contrast, the African American (9.9% growth), Latino (33.9% growth), and Asian (66.7% growth) populations all grew much more quickly than the White population during the 1990s.

In 1990, relative to the nation, the region's population had a lower percentage of Whites (70.1% versus 80.3%), and a higher share of African Americans (18.3% versus 12.1%), Latinos (15.2% versus 9.0%), Asians (4.8% versus 2.9%), and "other races" (6.5% versus 3.9%). The rapid growth of the region's minority population widened this gap by 2000, despite an increase in diversity nationally. The regional share of Whites fell to 65.1% while the national share of Whites fell to only 77.1%. At the same time, the region remained more Latino (18.8% versus 12.5%), more African American (18.5% versus 12.6%), and more Asian (7.4% versus 3.9%)

**Table 2: Population Share**

	1969		1990		2002	
	Number	Share	Number	Share	Number	Share
<b>Regional Total</b>	<b>17,916,323</b>	<b>100.0 %</b>	<b>18,083,234</b>	<b>100.0 %</b>	<b>19,882,488</b>	<b>100.0 %</b>
<b>Regional Core</b>	<b>9,933,759</b>	<b>55.4</b>	<b>9,162,643</b>	<b>50.7</b>	<b>10,006,776</b>	<b>50.3</b>
<b>New Jersey Sector</b>	<b>2,075,004</b>	<b>11.6</b>	<b>1,826,993</b>	<b>10.1</b>	<b>1,934,765</b>	<b>9.7</b>
Essex	925,274	5.2	778,564	4.3	795,905	4.0
Hudson	611,436	3.4	554,289	3.1	609,936	3.1
Union	538,294	3.0	494,140	2.7	528,924	2.7
<b>New York Sector</b>	<b>7,858,755</b>	<b>43.9</b>	<b>7,335,650</b>	<b>40.6</b>	<b>8,072,011</b>	<b>40.6</b>
Bronx	1,462,899	8.2	1,207,053	6.7	1,358,370	6.8
Kings	2,596,639	14.5	2,303,679	12.7	2,475,650	12.5
New York	1,543,762	8.6	1,487,073	8.2	1,555,434	7.8
Queens	1,966,669	11.0	1,957,281	10.8	2,227,172	11.2
Richmond	288,786	1.6	380,564	2.1	455,385	2.3
<b>Suburban Ring</b>	<b>7,982,564</b>	<b>44.6</b>	<b>8,920,591</b>	<b>49.3</b>	<b>9,875,712</b>	<b>49.7</b>
<b>New Jersey Sector</b>	<b>3,671,930</b>	<b>20.5</b>	<b>4,280,584</b>	<b>23.7</b>	<b>4,855,391</b>	<b>24.4</b>
Bergen	893,713	5.0	826,129	4.6	894,454	4.5
Hunterdon	68,600	0.4	108,128	0.6	126,685	0.6
Mercer	305,795	1.7	326,477	1.8	358,180	1.8
Middlesex	572,957	3.2	673,469	3.7	772,410	3.9
Monmouth	450,967	2.5	554,210	3.1	627,668	3.2
Morris	376,544	2.1	421,803	2.3	478,622	2.4
Ocean	199,210	1.1	434,623	2.4	536,769	2.7
Passaic	460,958	2.6	470,951	2.6	496,508	2.5
Somerset	195,059	1.1	241,464	1.3	307,722	1.5
Sussex	75,367	0.4	131,346	0.7	148,875	0.7
Warren	72,760	0.4	91,984	0.5	107,498	0.5
<b>New York Sector</b>	<b>4,310,634</b>	<b>24.1</b>	<b>4,640,007</b>	<b>25.7</b>	<b>5,020,321</b>	<b>25.2</b>
Dutchess	218,638	1.2	260,238	1.4	287,675	1.4
Nassau	1,424,424	8.0	1,286,905	7.1	1,339,265	6.7
Orange	218,367	1.2	308,803	1.7	355,802	1.8
Putnam	54,375	0.3	84,222	0.5	98,530	0.5
Rockland	223,240	1.2	265,981	1.5	291,230	1.5
Suffolk	1,092,090	6.1	1,322,686	7.3	1,455,727	7.3
Sullivan	52,073	0.3	69,545	0.4	74,132	0.4
Ulster	139,775	0.8	166,049	0.9	180,066	0.9
Westchester	887,652	5.0	875,578	4.8	937,894	4.7

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

**Table 3: Percentage Foreign-Born  
U.S. vs. Region, 2000**

<b>Location</b>	<b>Percentage Foreign-Born</b>
<b>United States</b>	<b>11.05</b>
<b>Regional Total</b>	<b>25.34</b>
<b>Regional Core</b>	<b>34.28</b>
<b>New Jersey Sector</b>	<b>27.72</b>
Essex	21.19
Hudson	38.52
Union	25.05
<b>New York Sector</b>	<b>35.85</b>
Bronx	28.95
Kings	37.79
New York	29.43
Queens	46.13
Richmond	16.37
<b>Suburban Ring</b>	<b>16.16</b>
<b>New Jersey Sector</b>	<b>17.49</b>
Bergen	25.14
Hunterdon	6.32
Mercer	13.87
Middlesex	24.23
Monmouth	10.37
Morris	15.45
Ocean	6.49
Passaic	26.64
Somerset	18.13
Sussex	5.67
Warren	5.78
<b>New York Sector</b>	<b>14.88</b>
Dutchess	8.42
Nassau	17.86
Orange	8.41
Putnam	8.79
Rockland	19.10
Suffolk	11.17
Sullivan	7.94
Ulster	5.89
Westchester	22.25

**Table 4: Percentage Foreign-Born Population  
Top 30 U.S. Counties**

<b>Rank</b>	<b>County</b>	<b>Percent</b>
1	Miami-Dade County, FL	50.0
2	Queens County, NY	45.3
3	Hudson County, NJ	40.0
4	Kings County, NY	37.0
5	Santa Clara County, CA	36.5
6	Los Angeles County, CA	35.8
7	San Francisco County, CA	35.5
8	San Mateo County, CA	32.2
9	Passaic County, NJ	31.0
10	Alameda County, CA	30.5
11	Bronx County, NY	30.1
12	Union County, NJ	29.5
13	Broward County, FL	29.4
14	Orange County, CA	29.3
15	Suffolk County, MA	29.2
16	Montgomery County, MD	28.4
16	New York County, NY	28.4
18	Fairfax County, VA	28.3
19	El Paso County, TX	28.0
20	Monterey County, CA	27.4
21	Bergen County, NJ	26.7
22	Middlesex County, NJ	26.6
23	Essex County, NJ	25.9
24	Cameron County, TX	25.3
25	Hidalgo County, TX	25.2
26	Westchester County, NY	24.3
27	Harris County, TX	23.4
28	Tulare County, CA	23.1
29	Contra Costa County, CA	22.3
29	Fort Bend County, TX	22.3

*Source:* U.S. Census Bureau, American Community Survey

than the balance of the nation. Thus, while Whites remain the dominant labor force sector, the region’s economy increasingly depends on a much more diverse foreign-born workforce.

### **Age Structure Dynamics**

Changes in the age structure of the region’s population are also expected to influence the composition of the labor force. The major age shift between 1990 and 2000 involved the maturing of the fabled baby boom generation — the oversized population cohort born during the high birth years between 1946 and 1964 — into the 35- to 54-year-old sector of the population. During the 1990s, the 35- to 44-year old-sector (younger boomers) grew by 16.6%, while the 45- to 54-year-old sector (older boomers) grew even more quickly, by 30.1%. These two age groups



**Table 5: Regional Race/Ethnicity Structure Change, 1990-2000**

Race/Ethnicity	1990	2000	Change: 1990-2000	
			Number	Percent
<b>Total</b>	<b>18,037,201</b>	<b>19,603,130</b>	<b>1,565,929</b>	<b>8.7</b>
White	12,647,516	12,763,785	116,269	0.9
African American	3,303,340	3,631,559	328,219	9.9
American Indian, Eskimo, or Aleut	46,374	91,643	45,269	97.6
Asian or Pacific Islander	873,748	1,456,371	582,623	66.7
Other Race	1,166,223	1,659,772	493,549	42.3
Hispanic or Latino	2,746,912	3,677,489	930,577	33.9

Note: Hispanics/Latinos are of any race and are not included in total.

Source: U.S. Bureau of the Census, Decennial Census

**Table 6: Race/Ethnicity Structure  
Region vs. U.S., 1990 and 2000**

Race/Ethnicity	1990 Share		2000 Share	
	Region	U.S.	Region	U.S.
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
White	70.1	80.3	65.1	77.1
African American	18.3	12.1	18.5	12.6
American Indian, Eskimo, or Aleut	0.3	0.8	0.5	0.9
Asian or Pacific Islander	4.8	2.9	7.4	3.9
Other Race	6.5	3.9	8.5	5.5
Hispanic or Latino	15.2	9.0	18.8	12.5

Note: Hispanics/Latinos are of any race and are not included in total.

Source: U.S. Bureau of the Census, Decennial Census

dominate the current labor force, but as the oldest boomers begin to turn 60 (in 2006), the baby boom — largely White — is on the verge of a two-decade-long exit from the labor market. The subsequent generation — the “baby bust,” born between 1965 and 1976 — is significantly smaller, creating substantial labor force shrinkage in the 25- to 34-year-old sector during the 1990s. As a result, the middle-aged labor force (between 35 and 44 years old) is shrinking during the current decade.

Since the baby bust population will not be sufficient to replace the departing baby boomers, the regional economy must rely on both the “baby boom echo” and its increasing foreign-born population. Replacing the rapidly maturing, highly educated baby boom generation presents a significant demographic challenge. Echo boomers — children of the baby boom born between 1977 and 1995 — represent the second great population bulge produced during the twentieth century, falling just short in size of the original baby boom. The baby boom echo caused the rapid growth in the 5- to 14-year-old population in the 1990s (22.4%) and is currently swelling the ranks of the “20-somethings.”

This age structure transformation is not unique to the region. A comparison with the United States shows only minimal variation between the nation and region in 1990 and 2000. While the age composition doesn’t vary dramatically, it should be noted that the overall population of the nation, and by implication, the labor force, grew faster than the region.

## **Review of Significant Trends in the Education and Skill Levels of the Region’s Workforce**

### **Education Levels of Residents**

Workers in the New York City metropolitan area, including northern and central New Jersey, are more likely to hold four-year college degrees than are workers across the nation. In 2000, 30% of New York-New Jersey metropolitan residents aged 25 and older held at least a bachelor’s degree, compared to 25% of adults nationally. An additional 23% of metropolitan area residents had completed either an associate’s degree or some college short of a bachelor’s degree. More than half of the region’s population aged 25 and older received some sort of formal postsecondary education.

Further, the education level of the region’s population increased during the 1990s. From 1990 to 2000, the percentage of metropolitan area residents aged 25 and older with at least a bachelor’s degree increased from 25% to 30%. Over the same span, the share of those with a graduate degree, including master, doctoral, and other professional degrees, increased from 10% to 12%. The national number grew slightly more quickly — the percentage with bachelor’s degrees jumped from 20% to 25% while the share with graduate degrees went from 7% to 9%. That is, while the broad New York metropolitan area remains above the national average in terms of the share of its citizens with high levels of education, its growth rate for this measure is slower.

**Table 7: Regional Age Structure Change, 1990-2000**

Age Group	1990	2000	Change: 1990-2000	
			Number	Percent
<b>Total Population</b>	<b>18,037,201</b>	<b>19,603,130</b>	<b>1,565,929</b>	<b>8.7</b>
Under 5 years	1,225,359	1,328,709	103,350	8.4
5 to 14 years	2,251,178	2,754,575	503,397	22.4
15 to 24	2,499,203	2,477,757	(21,446)	(0.9)
25 to 34	3,221,215	2,956,287	(264,928)	(8.2)
35 to 44	2,785,319	3,247,034	461,715	16.6
45 to 54	2,023,493	2,632,551	609,058	30.1
55 to 64	1,678,360	1,741,872	63,512	3.8
65 and over	2,353,074	2,464,345	111,271	4.7

Source: U.S. Bureau of the Census, Decennial Census

**Table 8: Age Structure  
Region vs. U.S., 1990 and 2000**

Age Group	1990 Share		2000 Share	
	Region	U.S.	Region	U.S.
Under 5 years	6.8	7.3	6.8	6.8
5 to 14 years	12.5	14.2	14.1	14.6
15 to 24	13.9	14.6	12.6	13.9
25 to 34	17.9	17.5	15.1	14.2
35 to 44	15.4	15.1	16.6	16.0
45 to 54	11.2	10.2	13.4	13.4
55 to 64	9.3	8.5	8.9	8.6
65 and over	13.0	12.5	12.6	12.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: U.S. Bureau of the Census, Decennial Census

**Table 9: Share of Population Aged 25 and Over By Level of Educational Attainment in 1990 and 2000: NYC Metropolitan Area and United States**

<b>Level of Educational Attainment</b>	<b>NY Metro Area</b>		<b>United States</b>	
Less than High School	25%	21%	25%	20%
High School	29%	27%	30%	29%
Some College	15%	17%	19%	21%
Associate's Degree	5%	6%	6%	6%
Bachelor's Degree	15%	18%	13%	16%
Graduate Degree	10%	12%	7%	9%
<b>Share with a Bachelor's Degree or Higher</b>	<b>25%</b>	<b>30%</b>	<b>20%</b>	<b>25%</b>

Source: 1990 and 2000 Decennial Census.

Although the New York metropolitan area's rate of college-educated residents compares favorably with the national average, several other metropolitan areas have larger population shares with college degrees. For example, 37% of their adults aged 25 and older in both the San Francisco-Oakland and the Washington-Baltimore regions have at least a four-year degree, the highest such rates in the nation. Denver (35%), Boston (34%), and Seattle (32%) all have higher percentages of adults with a college degree than New York (30%). However, Chicago (29%), Philadelphia (27%), Los Angeles (24%), and Detroit (24%) all have lower percentages of college graduates than New York.

Educational attainment rates vary significantly within the region. The counties with the highest percentage of residents with a four-year degree have rates almost twice that of the national average. For example, almost half of Manhattan residents aged 25 and older hold at least a bachelor's degree. Several suburban New Jersey counties — Somerset (47%), Morris (44%), and Hunterdon (41%) — each have at least 40% of their adult population with four-year degrees, as does New York's Westchester County (41%). However, other urban counties in New York City and northern New Jersey have relatively high shares of residents with less than a high school education, including Bronx (38%), Kings (Brooklyn) (31%), Hudson (29%), Passaic (27%), and Queens (26%), exceeding the national average of 20%.

Analyzing these two measures — percentage of adults holding four-year degrees and percentage of adults who did not complete high school — helps describe the distribution of education levels across the metropolitan area's counties. Counties with relatively higher rates of college degree holders and lower rates of failing to complete high school are generally suburban counties, located outside New York City and the dense urban areas of northern New Jersey. These include the counties surrounding New York City to the north and east (Bergen, Rockland, Putnam, Westchester, and Nassau) and several counties in central New Jersey (Hunterdon, Monmouth, Morris, and Somerset). Manhattan (49% college degree, 21% less than high school) also belongs in this group.

**Table 10: U.S. Metropolitan Areas by Share of Population 25 and Older Holding at Least a Four-Year College Degree**

<b>Metro Area</b>	<b>Percentage of Population With at Least a Four-Year Degree</b>
San Francisco/Oakland/San Jose, CA	37%
Washington/Baltimore, DC/MD	37%
Denver/Boulder/Greeley, CO	35%
Boston/Worcester/Lawrence, MA	34%
Seattle/Tacoma/Bremerton, WA	32%
<b>New York/Northern New Jersey/Long Island</b>	<b>30%</b>
Chicago/Gary, IL	29%
Philadelphia, PA	27%
<b>NATIONAL AVERAGE</b>	<b>25%</b>
Los Angeles/Riverside/Orange County, CA	24%
Detroit/Ann Arbor/Flint, MI	24%
Cleveland/Akron, OH	24%
Miami/Fort Lauderdale, FL	23%

Source: 2000 Decennial Census.

The counties within the metropolitan area with a moderately educated population are either located in the outer ring of New York City suburbs (Mercer, Middlesex, Ocean, Sussex, and Warren in New Jersey, and Dutchess, Orange, Suffolk, and Ulster in New York) or are part of the concentrated urban areas in northern New Jersey and New York City (Essex, Hudson, Union, and Queens). These counties generally have both four-year degree rates and less-than-high-school rates close to the national mean. A few of these counties — Mercer (34% with four-year degree) and Middlesex (33%) — have four-year degree rates significantly above the national average, but also have larger under-educated populations than their neighboring counties. The most heavily urban counties (Essex, Hudson, Union, and Queens) within this group have four-year degree rates and less than high school rates both exceeding the national average. These urban counties, housing cities such as Newark, Jersey City, Elizabeth, and the borough of Queens, include many of the region's transportation facilities. Four counties within the metropolitan area (Bronx, Kings [Brooklyn], Passaic, and Sullivan) have four-year degree rates below the national average and less-than-high-school rates above the national average. A complete list of the educational attainment rates by county appears in Appendix A.

## Structure of Jobs in the Region is Changing

The New York-New Jersey regional economy, as part of a large and interrelated national and world economy, has experienced continuous and profound shifts in employment patterns. The broad sweep of two centuries of regional economic development can be described as a movement from an agrarian-based economy linked by ship and water routes, to a manufacturing economy connected to the rest of the nation and the world by rail and road, to a service- and

information-based economy connected by fiber optic cable instantaneously to everywhere. Accordingly, the employment profile of the region has changed with these fundamental shifts in economic activity and it will continue to do so as global competition places relentless pressure on businesses. An examination of recent employment shifts for the region is revealing.

## **Decentralization of Employment**

Table 11 presents a 35-year perspective on total employment in the region including the spatial changes that have occurred within the region during this time. Data for the eight-county urban core and the 20-county suburban ring are provided. A comparison is also made with the United States. From 1969 to 1996, the centrifugal forces of de-concentration dominated the employment dynamics of the region. At a time when U.S. employment grew by 67.1%, total employment in the region grew only by 17.8%, or by 1.5 million jobs. But, this difference masked a distinct dichotomy of employment changes within the region. Jobs increased in the suburban ring by 1.9 million or by 60.5% (a pace not far below the U.S. growth rate), but employment actually declined by 358,000 jobs, or by 6.6% in the eight-county core area. Both the New York core and the New Jersey core counties lost jobs at about the same rate (6.6% and 6.8% respectively). Only two counties in the core area gained jobs over this time (Queens and Richmond). This loss of employment in the region's core corresponded to urban decline and the seemingly relentless de-concentration of people and businesses that occurred simultaneously.

Employment in the suburban ring counties, in contrast, boomed. Jobs in the suburban ring increased by over 1.9 million and growth occurred in every county. The 11 New Jersey suburban counties accounted for 58% of this increase (one million new jobs) for a rate of growth of 73.8%, significantly above the national rate of job growth. Middlesex County (210,000 jobs), Bergen County (176,000 jobs), and Morris County (171,000 jobs) had the largest gains among the 11 New Jersey counties. Employment in the nine New York suburban counties rose by 791,000 (48.6%), dominated by increases in Suffolk (344,000 jobs) and Nassau counties (155,000 jobs).

However, after 1996, a distinctly different pattern emerged, as the long-term de-concentration of jobs stabilized and job growth rates within the region nearly equalized. From 1996 to 2002, employment in the U.S. increased by 9.8%. The region's total employment grew by a rate that was near the pace of national growth. This contrasted markedly from the previous sharp divergence between the national and regional employment growth rates of the earlier period. Moreover, within the region, the change in employment was much more balanced. Employment grew in every core county and total employment in the core rose by 402,000 jobs, or by 8%. This represented a sharp turnaround from the 6.6% loss in the previous period. The job gains in the core counties represented 43% of the region's total increase in employment (936,000 jobs). Manhattan dominated the gains of the core counties (145,000 jobs), but substantial increases also occurred in Kings County (88,000 jobs) and in Queens County (68,000 jobs). The New Jersey core counties added 45,000 jobs, for a gain of 4.6% (vs. the loss of 6.8% in the earlier period).

**Table 11: Total Employment**

	Employment 1969	Employment 1996	Change: 1969-1996		Employment 2002	Change: 1996-2002	
			Number	Percent		Number	Percent
<b>United States</b>	<b>91,057,200</b>	<b>152,150,200</b>	<b>61,093,000</b>	<b>67.1 %</b>	<b>167,033,500</b>	<b>14,883,300</b>	<b>9.8 %</b>
<b>Regional Total</b>	<b>8,489,530</b>	<b>10,000,906</b>	<b>1,511,376</b>	<b>17.8</b>	<b>10,937,194</b>	<b>936,288</b>	<b>9.4</b>
<b>Regional Core</b>	<b>5,400,695</b>	<b>5,042,741</b>	<b>(357,954)</b>	<b>-6.6</b>	<b>5,444,644</b>	<b>401,903</b>	<b>8.0</b>
<b>New Jersey Sector</b>	<b>1,062,625</b>	<b>990,155</b>	<b>(72,470)</b>	<b>-6.8</b>	<b>1,035,371</b>	<b>45,216</b>	<b>4.6</b>
Essex	484,562	435,690	(48,872)	-10.1	451,244	15,554	3.6
Hudson	289,045	278,277	(10,768)	-3.7	295,836	17,559	6.3
Union	289,018	276,188	(12,830)	-4.4	288,291	12,103	4.4
<b>New York Sector</b>	<b>4,338,070</b>	<b>4,052,586</b>	<b>(285,484)</b>	<b>-6.6</b>	<b>4,409,273</b>	<b>356,687</b>	<b>8.8</b>
Bronx	271,417	266,002	(5,415)	-2.0	304,495	38,493	14.5
Kings	649,916	565,629	(84,287)	-13.0	653,954	88,325	15.6
New York	2,794,092	2,506,505	(287,587)	-10.3	2,651,374	144,869	5.8
Queens	568,176	607,351	39,175	6.9	675,299	67,948	11.2
Richmond	54,469	107,099	52,630	96.6	124,151	17,052	15.9
<b>Suburban Ring</b>	<b>3,088,835</b>	<b>4,958,165</b>	<b>1,869,330</b>	<b>60.5</b>	<b>5,492,550</b>	<b>534,385</b>	<b>10.8</b>
<b>New Jersey Sector</b>	<b>1,461,306</b>	<b>2,539,734</b>	<b>1,078,428</b>	<b>73.8</b>	<b>2,809,909</b>	<b>270,175</b>	<b>10.6</b>
Bergen	370,077	546,476	176,399	47.7	580,219	33,743	6.2
Hunterdon	23,772	58,805	35,033	147.4	72,090	13,285	22.6
Mercer	149,855	224,151	74,296	49.6	249,721	25,570	11.4
Middlesex	227,944	437,874	209,930	92.1	483,466	45,592	10.4
Monmouth	157,651	290,387	132,736	84.2	328,662	38,275	13.2
Morris	141,115	313,101	171,986	121.9	363,249	50,148	16.0
Ocean	56,005	169,193	113,188	202.1	194,939	25,746	15.2
Passaic	210,071	217,220	7,149	3.4	220,328	3,108	1.4
Somerset	73,524	190,096	116,572	158.5	213,268	23,172	12.2
Sussex	20,242	49,138	28,896	142.8	56,847	7,709	15.7
Warren	31,050	43,293	12,243	39.4	47,120	3,827	8.8
<b>New York Sector</b>	<b>1,627,529</b>	<b>2,418,431</b>	<b>790,902</b>	<b>48.6</b>	<b>2,682,641</b>	<b>264,210</b>	<b>10.9</b>
Dutchess	95,504	131,615	36,111	37.8	146,521	14,906	11.3
Nassau	574,046	728,931	154,885	27.0	775,662	46,731	6.4
Orange	92,013	145,816	53,803	58.5	166,107	20,291	13.9
Putnam	12,006	28,899	16,893	140.7	35,527	6,628	22.9
Rockland	74,770	125,805	51,035	68.3	143,467	17,662	14.0
Suffolk	312,402	656,649	344,247	110.2	754,906	98,257	15.0
Sullivan	24,892	31,855	6,963	28.0	34,428	2,573	8.1
Ulster	52,154	75,177	23,023	44.1	84,646	9,469	12.6
Westchester	389,742	493,684	103,942	26.7	541,377	47,693	9.7

In total, the suburban ring counties added 534,000 jobs for a 10.8% growth rate. This was above the region's growth rate (9.4%) and above the national growth rate (9.8%). The New York suburban counties grew by 10.9% (264,000 jobs), slightly faster than the New Jersey suburban growth of 10.6% (270,000 jobs). The New Jersey suburban counties accounted for just over 50% of the total increase in jobs. The similar increase in jobs in the suburban ring for the New York and New Jersey counties was in distinct contrast to the large dominance of the New Jersey suburban counties in the prior period (New Jersey had 57.7% of the suburban ring employment growth in the earlier period).

Table 12 lists the employment share for the components of the region at the start of the period (1969), at the point where employment in the core counties stabilized (1996), and at the time of the latest data available (2002). There was a large decline in the employment share of the core between 1969 and 1996 when employment in the eight counties fell by 358,000 jobs and the core's share plummeted from 63.6% to 50.4%. The five New York core counties' employment share declined from 51.1% to 40.5%. Manhattan bore the brunt of this decline with its share falling from 32.9% to 25.1%. The three New Jersey core counties share fell from 12.5% to 9.9%. As a result of the strong growth in jobs during this time in the suburban ring, its share of employment rose correspondingly from 36.4% in 1969 to 49.6% in 1996. Thus, by 1996, the two areas had approximately the same total employment, a marked contrast to the 1.8 to 1 job ratio of core to suburban jobs that existed in 1969. The major gains in share in the suburban ring in New Jersey occurred in Bergen, Mercer, Middlesex, Monmouth, Morris, Ocean, and Somerset Counties. In New York, significant share increases occurred in Nassau, Rockland, Suffolk, and Westchester Counties.

In the ensuing six years, jobs grew by similar rates in the core and the suburban ring. As a result, the share of employment in each area remained relatively stable. The core's employment share fell by only .6% to 49.8%, or by .1% per year, compared to the nearly .5% point per year drop of the earlier period. Nevertheless, by 2002, the suburban ring had more jobs than the core area for the first time in the history of the region, indicating the fundamental spatial shift in the location of the critical mass of jobs.

During this most recent period, Manhattan continued to lose employment share (from 25.1% to 24.2%) while Kings, Queens, and Bronx counties in the New York core actually gained (albeit slightly) in share. All the New Jersey core counties lost share. In the suburban ring, gains in employment share were most pronounced in Morris, Monmouth, Mercer, and Ocean counties in New Jersey and Suffolk County in New York.

### **Trends in Employment by Industry: Shift from Manufacturing to Services/Information**

Along with the significant spatial changes in employment, the region also experienced profound structural changes, as the service and information economy increasingly became the engine of economic growth. Table 13 lists the change in employment by business sector between 1990 and 2000 for the region. The 1990s began with a recession, moved to a slow "jobless



**Table 12: Total Employment Share**

	1969 Employment		1996 Employment		2002 Employment	
	Total	Share	Total	Share	Total	Share
<b>Regional Total</b>	<b>8,489,530</b>	<b>100.0 %</b>	<b>10,000,906</b>	<b>100.0 %</b>	<b>10,937,194</b>	<b>100.0 %</b>
<b>Regional Core</b>	<b>5,400,695</b>	<b>63.6</b>	<b>5,042,741</b>	<b>50.4</b>	<b>5,444,644</b>	<b>49.8</b>
<b>New Jersey Sector</b>	<b>1,062,625</b>	<b>12.5</b>	<b>990,155</b>	<b>9.9</b>	<b>1,035,371</b>	<b>9.5</b>
Essex	484,562	5.7	435,690	4.4	451,244	4.1
Hudson	289,045	3.4	278,277	2.8	295,836	2.7
Union	289,018	3.4	276,188	2.8	288,291	2.6
<b>New York Sector</b>	<b>4,338,070</b>	<b>51.1</b>	<b>4,052,586</b>	<b>40.5</b>	<b>4,409,273</b>	<b>40.3</b>
Bronx	271,417	3.2	266,002	2.7	304,495	2.8
Kings	649,916	7.7	565,629	5.7	653,954	6.0
New York	2,794,092	32.9	2,506,505	25.1	2,651,374	24.2
Queens	568,176	6.7	607,351	6.1	675,299	6.2
Richmond	54,469	0.6	107,099	1.1	124,151	1.1
<b>Suburban Ring</b>	<b>3,088,835</b>	<b>36.4</b>	<b>4,958,165</b>	<b>49.6</b>	<b>5,492,550</b>	<b>50.2</b>
<b>New Jersey Sector</b>	<b>1,461,306</b>	<b>17.2</b>	<b>2,539,734</b>	<b>25.4</b>	<b>2,809,909</b>	<b>25.7</b>
Bergen	370,077	4.4	546,476	5.5	580,219	5.3
Hunterdon	23,772	0.3	58,805	0.6	72,090	0.7
Mercer	149,855	1.8	224,151	2.2	249,721	2.3
Middlesex	227,944	2.7	437,874	4.4	483,466	4.4
Monmouth	157,651	1.9	290,387	2.9	328,662	3.0
Morris	141,115	1.7	313,101	3.1	363,249	3.3
Ocean	56,005	0.7	169,193	1.7	194,939	1.8
Passaic	210,071	2.5	217,220	2.2	220,328	2.0
Somerset	73,524	0.9	190,096	1.9	213,268	1.9
Sussex	20,242	0.2	49,138	0.5	56,847	0.5
Warren	31,050	0.4	43,293	0.4	47,120	0.4
<b>New York Sector</b>	<b>1,627,529</b>	<b>19.2</b>	<b>2,418,431</b>	<b>24.2</b>	<b>2,682,641</b>	<b>24.5</b>
Dutchess	95,504	1.1	131,615	1.3	146,521	1.3
Nassau	574,046	6.8	728,931	7.3	775,662	7.1
Orange	92,013	1.1	145,816	1.5	166,107	1.5
Putnam	12,006	0.1	28,899	0.3	35,527	0.3
Rockland	74,770	0.9	125,805	1.3	143,467	1.3
Suffolk	312,402	3.7	656,649	6.6	754,906	6.9
Sullivan	24,892	0.3	31,855	0.3	34,428	0.3
Ulster	52,154	0.6	75,177	0.8	84,646	0.8
Westchester	389,742	4.6	493,684	4.9	541,377	4.9

**Table 13: Region Employment Change by SIC Sector, 1990-2000**

SIC Sector	Employment		Change: 1990-2000	
	1990	2000	Number	Percent
Total Non-farm	10,062,143	10,883,964	821,821	8.2
Private	8,610,706	9,482,581	871,875	10.1
Construction	421,411	465,201	43,790	10.4
Manufacturing	1,137,822	860,616	(277,206)	(24.4)
Transportation and Utilities	571,819	640,919	69,100	12.1
Wholesale Trade	620,031	607,194	(12,837)	(2.1)
Retail Trade	1,316,249	1,459,200	142,951	10.9
Finance, Insurance and Real Estate	1,215,457	1,242,410	26,953	2.2
Services	3,263,979	4,125,135	861,156	26.4
Government and Government Enterprises	1,451,437	1,401,383	(50,054)	(3.4)
Mining	9,295	3,820	(5,475)	(58.9)
Agricultural services, forestry, fishing and other	53,901	47,858	(6,043)	(11.2)

Source: Regional Economic Information System (Series CA 25), Bureau of Economic Analysis, U.S. Department of Commerce.

recovery,” and then the economy boomed in the last five years driven by the stock market bubble and burst of technology spending.

The overall gain in employment in the region over the decade was 822,000 jobs, for a growth of 8.2%. The service sector accounted for all the growth (861,000 jobs) for a large gain of 26.4%. Retail trade tracked the region’s large income and consumption expenditure increases and added 143,000 jobs (10.9%). Transportation and utilities (69,000 jobs), construction (44,000 jobs), and finance, insurance, and real estate (27,000 jobs) also gained jobs. The long-term decline in manufacturing employment in the region continued in the 1990s and the sector lost 277,000 jobs for a decrease of 24.4%. Wholesale trade employment fell by 13,000 jobs (-2.1%) and public sector employment also declined by 50,000 jobs (-3.4%).

Table 14 lists the change in employment share from 1990 to 2000 by business sector for the region and the United States. The region began and ended the decade with a larger share of private sector employment compared to the nation. In fact, the region’s private sector employment base increased its share from 85.6% in 1990 to 87.1% in 2000. The share of total employment in the manufacturing sector, reflecting the large jobs losses described above, fell sharply from 11.3% to 7.9%. Declines in employment share also occurred in wholesale trade (6.2% to 5.6%), finance, insurance, and real estate (12.1% to 11.4%), and government (14.4% to 12.9%). Services dominated the employment increases over the decade, and as a result, its share of total employment in the region increased significantly from 32.4% to 37.9%. Gains also occurred in construction (4.2% to 4.3%), and transportation and utilities (5.7% to 5.9%).

**Table 14: Employment Share by SIC Sector  
Region vs. U.S., 1990-2000**

SIC Sector	1990 Share		2000 Share	
	Region	U.S.	Region	U.S.
Total Non-farm Employment	100.0	100.0	100.0	100.0
Private	85.6	84.4	87.1	86.0
Construction	4.2	5.3	4.3	5.8
Manufacturing	11.3	14.5	7.9	11.7
Transportation and Utilities	5.7	4.8	5.9	5.0
Wholesale Trade	6.2	4.9	5.6	4.6
Retail Trade	13.1	16.8	13.4	16.6
Finance, Insurance and Real Estate	12.1	7.9	11.4	8.1
Services	32.4	28.4	37.9	32.4
Government and Government Enterprises	14.4	15.6	12.9	14.0
Mining	0.1	0.8	0.0	0.5
Agricultural services, forestry, fishing and other	0.5	1.1	0.4	1.3

Source: Regional Economic Information System (Series CA 25), Bureau of Economic Analysis, U.S. Department of Commerce.

When compared to the national employment shares at decade's end, the region was over-represented in transportation and utilities (5.9% vs. 5%), wholesale trade (5.6% vs. 4.6%), finance, insurance, and real estate (11.4% vs. 8.1%), and services (37.9% vs. 32.4%). Conversely, the region was under-represented in its employment share compared to the nation in construction (4.3% vs. 5.8%), manufacturing (7.9% vs. 11.7%), retail trade (13.4% vs. 16.6%), and government (12.9% vs. 14%). Each sector was also under-represented in employment share at the start of the decade. Slower population growth explains the under-representation in construction and retail trade and possibly government. The manufacturing sector's employment share in the region has been declining throughout the post World War II period and this trend accelerated during the decade.

As information technology penetrated the national economy in comprehensive ways and as entirely new businesses developed with it, the national employment data, based on business sector definitions using Standard Industrial Codes developed in the 1930s, became less able to capture the changes in employment structure. Accordingly, after extensive study and development, the U.S. Bureau of Economic Analysis released a new classification taxonomy for employment sectors, the North American Industry Classification System (NAICS). One major goal of this system was to capture the structural changes in the economy and the new industries that emerged with the ubiquitous adoption and spread of computer and information technology throughout the economy.

Table 15 presents the employment shares according to NAICS data for the region and the United States for 2002. Of particular interest are the new sectors that have been major drivers of employment growth for the region in the current decade — professional and business services,

**Table 15: NAICS Supersector Employment Share  
Region vs. U.S., 2002**

Sector	2002 Share	
	Region	U.S.
Total Non-farm	100.0	100.0
Private	87.1	85.8
Natural Resources and Mining	0.2	1.1
Construction	4.3	6.0
Trade, Transportation and Utilities	17.4	18.6
Manufacturing	5.7	9.6
Information	3.4	2.3
Financial Activities	11.5	8.8
Professional and Business Services	15.4	13.3
Educational and Health Services	15.2	11.7
Leisure and Hospitality Services	7.3	8.7
Other Services	5.3	5.6
Government	12.9	14.2

\* Regional non-government sectors do not equal Private Sector due to missing values for some counties.

Source: Regional Economic Information System (Series CA 2 U.S. Department of Commerce.

educational and health services, leisure and hospitality services, and information. In all those sectors, with the exception of leisure and hospitality, the region has larger employment shares than the nation. The region also has a larger employment share in financial activities. The region's employment shares are lower than the nation's shares in construction, manufacturing, trade, transportation, utilities, government, and other services.

## Skill Needs of Employers

In addition to changes in industry composition of the region's economy, the skills required by the region's employers are changing. The impact of globalization, rapid technological advancements in the workplace, and the move toward an information-driven economy have all led to increases in the skill requirements of employers in all industries.

Regional research describes these shifting requirements in detail. In 2004, the John J. Heldrich Center for Workforce Development at Rutgers University released the results of *Ready for the Job: Building Skills and Alliances to Meet Demand in New Jersey's Labor Market*, a comprehensive study of the skills required by New Jersey employers. Advisory groups composed of representatives from key New Jersey industries led the project, which included over 30 employer focus groups and interviews with over 80 employers. The study, commissioned by the state of New Jersey, profiled the skill needs required by employers in eight industries crucial to the New Jersey economy, including transportation and logistics, construction, finance, and health care.

The most obvious shifts in employer skill needs are reflected in the requirements for high-skill jobs. The region is home to many high technology industries, including the transportation, pharmaceutical, financial, and information technology sectors, each of which now require a large number of workers who have advanced degrees and/or high levels of job-specific skills. Emerging regional industries, including homeland security, e-learning, e-commerce, biotechnology, and agribusiness, are creating jobs requiring workers with specialized scientific and technical skills, as well as the interdisciplinary knowledge needed to foster continued innovation.

What may be less apparent, but equally important, is how employers are raising the bar on the skills needed to perform more common occupations, from bank tellers to truck drivers. As Alan Greenspan put it, “Workers today must be equipped not simply with technical know-how, but also with the ability to create, analyze, and transform information and to interact effectively with others.”<sup>2</sup> The *Ready for the Job* study echoes this belief, pointing to both basic and workplace readiness skills as well as to a set of “cross-industry” demand skills that will workers must have to succeed in the information economy. Employers in all industries reported that workers must continue to possess the same basic skills that have always been necessary, specifically, the ability to read, write, and perform mathematical calculations at an adult level. Workers must also still understand how to conduct themselves within a workplace, including the importance of attendance, punctuality, reliability, dress, and behavior.

However, employers in all industries studied also revealed a set of four “cross-industry” demand skills that are increasingly important for workers in all industries and levels of work to possess.<sup>3</sup> These include math and technology skills, problem solving and critical thinking skills, communication and teamwork skills, and entrepreneurship and business skills.

Industries are adopting new technologies and incorporating computers into more and more work processes. For example, vehicle operators, such as tractor-trailer truck drivers, now use computers to track their cargo and their location. A wide variety of jobs also require individuals to be able to perform basic mathematical calculations and simple algebra.

Employers in a variety of industries report that teamwork and communication skills are essential skills for a range of occupations, confirming the findings of previous academic researchers. Workers increasingly interact with people from different disciplines and cultures, and often from different jobs. They must be able to communicate effectively, both verbally and in writing. In addition, many employers organize their employees in team structures and expect the members of these teams to complete tasks through joint efforts.

Workers in nearly all occupations are expected to make independent decisions based on critical thinking in order to find the best solutions to problems. Warehouse managers, for example, must make these types of decisions as they encounter challenges that interrupt the fast-moving flow of goods. Problem solving and critical thinking skills are also essential in areas of

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<sup>2</sup> Alan Greenspan, “The Evolving Demand for Skills,” keynote address to National Skills Summit, April 11, 2000. [www.dol.gov/sec/skills\\_summit/pls3.htm](http://www.dol.gov/sec/skills_summit/pls3.htm)

<sup>3</sup> The John J. Heldrich Center for Workforce Development, *Ready for the Job*. Rutgers, The State University of New Jersey, 2004.

emerging work. This is particularly true among security professionals, who are expected to analyze data and take action within a crisis environment.

Individuals in management, supervision, and to a lesser degree, administrative jobs, must be able to apply basic business skills to meet their responsibilities to the organization's financial health. Emerging industries also need workers who have strong entrepreneurship and business skills. Rapidly emerging security areas require professionals with the technical background to both understand and create new technology as well as the entrepreneurial and management skills to help a developing sector succeed.

Employers throughout the region expect to continue to require increased skills from employees. To remain competitive, the region's governmental and educational institutions must be aware of these changing requirements and must work hard to develop and retain skilled workers.

## **Educational Requirements of Jobs in the Region**

While the most common types of occupations within the metropolitan area are those requiring only moderate to short-term on-the-job training, those occupations that require higher levels of educational are expected to grow the fastest in the future.

The most common types of occupations within the metropolitan area are those requiring only moderate to short-term on-the-job training. Over half of all jobs in the region (58%) require no formal postsecondary education. Freight and material movers, bus and truck drivers, carpenters' and electricians' helpers, and construction laborers are all examples of occupations within this category.

Occupations with moderate educational requirements currently account for 16% of metropolitan area jobs. Jobs requiring some postsecondary vocational training, such as engine mechanics, electrical repairers, and telecommunications installers, are included in this category, as are skilled trade jobs requiring long-term on-the-job training. For example, electricians, plumbers, rail car repairers, and structural iron and steel workers all fall under this description. Workers who have advanced within skilled trades to management or inspection positions also may fit within the moderate requirements category having obtained work experience in a related occupation. For example, construction managers, rail yard engineers, and transportation inspectors are all judged to be occupations requiring some moderate educational background.

Twenty-six percent of the region's jobs require significant levels of advanced education and training. These jobs require either an associate, bachelor's, or master's/professional/doctoral degree and include engineers, architects, computer software engineers and network administrators, pilots, and construction managers.

**Table 16: Occupational Spread by Educational Requirements, New York Metro Area**

<b>Jobs with High Educational Requirements</b>	<b>26%</b>
Professional, doctoral, or master's degree	4%
Bachelor's degree	18%
Associate degree	4%
<b>Jobs with Moderate Educational Requirements</b>	<b>16%</b>
Postsecondary vocational training	4%
Work experience in related occupation	6%
Long term on-the-job training	6%
<b>Jobs with Low Educational Requirements</b>	<b>58%</b>
Moderate term on-the-job training	18%
Short term on-the-job training	40%

Source: Bureau of Labor Statistics Occupational Employment Survey, November 2003.

While the number of jobs requiring only moderate to short-term on-the-job training is projected to remain larger than the other two educational groupings combined, the occupations requiring high levels of education are projected to grow at a faster rate. The State Departments of Labor in both New York and New Jersey have developed projections of occupational growth by county over the next decade. New Jersey's most recent projections cover the period from 2002 through 2012, while New York has projected occupations through 2010.

Both New York and New Jersey project approximately 10% to 11% overall job growth over the next five to seven years. Jobs requiring relatively high levels of education are projected to grow most quickly, with 16% growth cited for these jobs in New York, and 18% growth projected in New Jersey. Jobs with moderate to low educational requirements are expected to grow more slowly in both states, experiencing between 7% and 10% growth over the same period.

This group of high-growth, high-skill occupations includes computer software engineers, computer systems analysts, engineers, architects, and technicians. For example, in the New York state portion of the New York City metropolitan area, jobs in computer software engineering are projected to expand by 46% between 2000 and 2010. Jobs for computer systems analysts are projected to grow by at least 30% over the next five to seven years in the metropolitan region in both New York and New Jersey. As industries continue to increase their efficiency by adopting emerging technologies, high-skill jobs such as these will be crucial. Some occupations in the

**Table 17: Projected Job Growth by Skill Requirement for New York from 2000 through 2010**

<b>HIGH:</b> Jobs requiring either a graduate, bachelor's, or associate's degree	16%
<b>MODERATE:</b> Jobs requiring either postsecondary vocational training, work experience in related occupations, or long term on-the-job training	7%
<b>LOW:</b> Jobs requiring short to moderate on-the-job training	8%
<b>TOTAL Projected Job Growth</b>	10%

**Table 18: Projected Job Growth by Skill Requirement for New Jersey from 2002 through 2012**

<b>HIGH:</b> Jobs requiring either a graduate, bachelor's, or associate's degree	18%
<b>MODERATE:</b> Jobs requiring either postsecondary vocational training, work experience in related occupations, or long term on-the-job training	10%
<b>LOW:</b> Jobs requiring short to moderate on-the-job training	8%
<b>TOTAL Projected Job Growth</b>	11%

health care industry, such as registered nurses, physician's assistants, and medical technicians, are projected to grow quickly, as well.

While high-skill jobs, mostly in information technology and engineering, are expected to provide the most rapid job growth, some occupations requiring low to moderate levels of education are projected to expand significantly. For example, electrician, mechanic, and plumbing occupations all fare well in the state growth projections, although none of these explicitly require high levels of formal education. Rather, each of these occupations can expect to see its scope change as innovations develop and the cross-industry skills discussed above — such as the ability to learn and think critically about new technologies — become more important to everyday work functions.

## Conclusion

The labor force in the New York metropolitan area is more highly educated, more racially diverse, and has a higher percentage of immigrants than the national workforce. Over the past fifteen years, the regional economy has shifted its focus from a dependence on manufacturing jobs to a dependence on information and service-based jobs. This trend is



expected to continue, with jobs requiring high levels of formal education and training projected to grow twice as fast as all other jobs. At the same time, employers' expectations for workers are changing, as even jobs involving only moderate to low levels of formal training require workers adapt their skills as their jobs evolve. The effects of technological advances and a global economy imply that employers increasingly will expect workers to be able to acquire new skills rapidly. There are a number of ways large players in the regional economy, such as the Port Authority, can both prepare for and take advantage of this changing environment.

For example, in order to better match the skills workers possess with the skills employers require, economic leaders need to establish stronger partnerships between employers and educational institutions. The Port Authority, with influence over major employers in several different industries, can use its position to take a leadership role in strengthening these partnerships. Forming alliances across industries would allow the partnerships that form to be structured more efficiently (e.g., educational institutions would be more likely to target tasks needed by multiple employers).

Along the same lines, economic leaders should continue to collect and disseminate information about the skills in demand by employers within their industries of interest. While a significant amount of this high-level information is available now (percentage of jobs requiring a college degree, typical demanded skills, etc.), there is clearly room for individual organizations to engage in deeper labor market information research. For example, where state and academic research efforts may seek to draw broad conclusions about the status of general labor market demand, specific employer groups can generate industry-based demand data to help individual firms make decisions.

Another part of developing an overall worker preparation strategy should be the targeting of workers from traditionally ignored or underutilized labor pools. As training requirements increase across the labor market, finding qualified workers will become more difficult, implying that employers will have to pursue new and creative methods of identifying potential employees. One key possibility for doing this can be encouraging interest in workers from historically untapped demographic groups. Depending on the industry, these groups may divide by race, ethnicity, gender, age, or some other characteristic.

Other strategies, such as increased awareness of specific careers, stronger secondary and postsecondary educational offerings, and more efficient use of government worker retraining funds all also have potential for helping industries adjust to the new labor force environment. As the Port Authority prepares to take a key role in leading these adjustments on a regional level, it must maintain a priority on expanding the collection of, and access to, updated labor market information of all types. The value of this information, whether developed through new partnerships, the expanded collection and sharing of data, or the continued targeting of skills in demand, is clear for the development of any meaningful regional economic plan.

**Appendix A: New York City Metropolitan Area Counties  
by Educational Attainment**

<b>County</b>	<b>Percentage with Four-Year Degree</b>	<b>Percentage with Less than High School Education</b>
Somerset County, New Jersey	47%	10%
Morris County, New Jersey	44%	9%
Hunterdon County, New Jersey	42%	9%
New York County, New York	49%	21%
Bergen County, New Jersey	38%	13%
Westchester County, New York	41%	16%
Putnam County, New York	34%	10%
Rockland County, New York	37%	15%
Monmouth County, New Jersey	35%	12%
Nassau County, New York	35%	13%
Middlesex County, New Jersey	33%	16%
Sussex County, New Jersey	27%	10%
Mercer County, New Jersey	34%	18%
Suffolk County, New York	27%	14%
Dutchess County, New York	28%	16%
Warren County, New Jersey	24%	15%
Union County, New Jersey	28%	21%
Ulster County, New York	25%	18%
Richmond County, New York	23%	17%
Orange County, New York	23%	18%
Essex County, New Jersey	27%	24%
Ocean County, New Jersey	19%	17%
Queens County, New York	24%	26%
Hudson County, New Jersey	25%	29%
Passaic County, New Jersey	21%	27%
Sullivan County, New York	17%	24%
Kings County, New York	22%	31%
Bronx County, New York	15%	38%

*Source* : 2000 United States Census

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