New York in the World

The Impact of the Global Economy on New York State and City

SUNY LEVIN Institute

Center for an Urban Future

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The SUNY Levin Institute was created in the 21st Century to meet the challenges of globalization and the global economy. We are designed to serve the State University of New York and the people of New York. As an incubator of new initiatives, we put an emphasis on innovation and entrepreneurship.

Our mission is:

To support New York's and the nation's economic and social vitality through innovative and competitive responses to the challenges of today's global economy.

We do this by:

• Delivering new models of learning for students and working professionals to develop the needed skills to compete successfully in the 21st Century world;

• Conducting relevant research and public engagement initiatives to deepen the knowledge and raise the awareness of the challenges and opportunities of the global economy.

• Identifying needed and appropriate action to provide for a sustainable economy and society in New York and the nation

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The Center for an Urban Future is an independent New York City-based think tank devoted to shining a light on the critical opportunities and challenges facing New York, and engaging policymakers with workable solutions and fresh ideas. The Center's primary focus is on growing and diversifying the economy, identifying emerging growth sectors, expanding economic opportunity and targeting problems facing low-income and working-class neighborhoods.

By publishing reports that are fact-driven, non-ideological and accessible to a wide audience, we aim to elevate important and underappreciated issues onto the radar of public officials and influence the creation of intelligent and innovative policies that strengthen New York.

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The Challenge

New York and the United States confront challenges of epochal dimensions that are changing our world, our work and our lives. They are driven by new technologies and the dynamics of globalization. They are accelerated by the profound shifts in wealth, influence and power within and among nations.

They are accentuated by current economic and financial conditions at home and in the global economy. Our future and that of New York in the world will be determined by our ability to understand and act creatively and fearlessly upon the historic challenges and changes we face.

"SUNY's mission is integrally linked to the economic revitalization of New York State. New York in the World represents the continuation of an essential conversation about what we in New York must do to revitalize our economy. This will come through a well educated and prepared work force to master the skills and jobs in the new global economy, spur innovation and entrepreneurship to ensure a better tomorrow for future generations. The Power of SUNY lies in our ability to bring together friends and leaders from the communities we serve in this spirit of learning and shared purpose. New York in the World will help to galvanize this force into New York State's competitive response to globalization and ensure a prosperous future for all New Yorkers."

Nancy Zimpher
Chancellor
The State University
of New York

"In an era when economies recognize no borders and knowledge is the greatest international currency, public universities have a distinctive role to play in engaging scholars and policymakers with real-world issues. New York, with its great diversity of people and resources, already has a global outlook. The New York in the World" project will provide the intellectual leadership, rigorous data and rich, informed discussion that will not only help today's New Yorkers—and tomorrow's—shape a successful future for the city and state but contribute to international progress, as well. It is the kind of engaged university of the 21st Century that we at the Corporation hope will grow and prosper."

Vartan Gregorian
President
Carnegie Corporation
of New York

Foreword

New York in the World is a state-wide research and public engagement initiative to assess the benefits of, costs of, and the needed responses to the impact of globalization facing all of New York. Led by the SUNY Levin Institute this initiative is rooted in a particular reality: no other state in the nation can show such extremes of both the gains and the losses caused by the consequences of new technologies and the power shifts in the new global economy. From Wall Street to the North Country, from Montauk to Buffalo, New York and New Yorkers are living through the epic drama of our time. Each of us has our own personal story within the larger drama. Each of us is aware of the challenges we face. However, until now there has been no comprehensive study to document and explain where New York stands in today's global economy, how we got here and where we may be headed.

The report published here was researched and written by the Center for an Urban Future, which was commissioned by the SUNY Levin Institute to create a fact driven and accessible portrait of New York in this age of globalization. The report focuses on New York from the perspectives of principle economic sectors and regions, particularly the largest metro regions in the state. We want to thank and commend the CUF's Executive Director Jonathan Bowles and his team for the fine work they did on this demanding project. It has been an excellent collaboration.

The findings of this report will serve as a resource for broader and deeper public engagement. This includes public forums, media initiatives and on-line engagement across the state as well as in New York City. Taken together, New York in the World informs and engages stakeholders in ongoing discussion and decision making on New York's competitive position in the global economy.

As part of the State University of New York, the SUNY Levin Institute and its New York in the World initiative support the University's efforts to mobilize its vast resources to help revitalize the New York economy. We thank the Carnegie Corporation of New York whose support has made this project possible. We also thank the members of the SUNY Levin Institute Board and the New York in the World Advisory Council for their time and engagement.

The New York that emerges in this report is the latest chapter in the long and rich narrative of the city and the state. From the beginning, the enterprise led by the first Dutch settlers at the foot of Manhattan Island was driven by a global perspective and diversity as well as commerce and opportunity. In 1640 18 languages were spoken by the approximately 400 settlers in what is now New York City. That same year, the Dutch gave up their monopoly on trade and investment and invited others to build businesses and engage in commerce: a recognition that greater growth and prosperity would come through freer trade and investment; that this, in turn, would attract ever more financial and human capital, the money used by the people who would build New York. These traits remain dominant in New York's DNA today.

We live in the age of globalization and a global economy, with changes occurring at a speed and a scale unprecedented in human history. We cannot escape this even if we wanted to. But we can meet it and work to turn it to our advantage. We at the SUNY Levin Institute and at the Center for an Urban Future hope this report will help to guide us to that end.

Matthew Nimetz
Chairman, SUNY Levin Institute

Garrick Utley
President, SUNY Levin Institute

Linda Sanford
Co-chair, Advisory Council
New York in the World

Alair Townsend
Co-chair, Advisory Council
New York in the World

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Introduction

For centuries, nations have traded globally and populations have crossed oceans. But in the 1970s, the world began to be transformed by explosive growth in the international movement of capital, goods, and services and by a dramatic rise in the movement of populations among regions, especially from developing to developed countries. This process only accelerated in the 1990s as the emergence of the Internet and the laying of fiber optic cables made doing business across the world much easier, and when approximately 3 billion people in China, India, Russia and Eastern Europe entered the global labor pool after those economies and political systems opened.

While economists generally find that this inexorable shift to a global economy has been a net positive for the United States, there have been clear winners and losers—among workers, businesses and, perhaps most starkly, the nation's geographic regions.

Arguably, no state has benefited more and suffered worse from globalization than New York.

The shuttered steel, auto, footwear and chemical plants in Buffalo, Binghamton, Utica-Rome, Syracuse and other upstate regions are a constant reminder of the devastating loss of production jobs throughout the state over the past four decades, economic carnage that has resulted in an alarming decline in prosperity, the outmigration of hundreds of thousands of New Yorkers and decades of economic stagnation. Between 1970 and 2000, a period that closely tracks the rise of the global economy, New York State lost 50 percent of its manufacturing jobs—a larger decline than Pennsylvania, Ohio, Michigan, Massachusetts, New Jersey and every other Northeastern and Midwestern state we examined. Between 2000 and 2010, manufacturing jobs in New York declined by another 39 percent, greater than all of these other states except Michigan, which had a 47 percent drop. New York's population growth between 1970 and 2010 (6.3 percent) was also below every one of these competitor states. Globalization was not the only factor in this massive economic dislocation—technological advances, productivity increases, cost differences between the states, and the rapid growth of the South and Sunbelt all played a role—but as we show in this report, it was a major contributor.

At the same time, the meteoric increase in foreign direct investment in New York City and the new markets being tapped by the city's investment banks, law firms, architects, fashion designers and many other sectors underscores the enormous benefits that globalization has delivered to the city and the broader downstate region.

But this report—the first comprehensive assessment of globalization's impact on New York State and City—shows that the transformation to a global economy has not merely benefited downstate and hurt upstate. The picture is more complicated than that. Indeed, we show that growing numbers of upstate companies are taking advantage of globalization to export their products. Two upstate regions—Albany and Rochester—have fared much better in the new global landscape than other areas. And while globalization has largely benefited the downstate region, it has left New York City with a smaller share of decent-paying industrial jobs than every other American city and contributed to falling income levels relative to the nation in the boroughs outside of Manhattan.[1]

While Americans and New Yorkers routinely debate the benefits of globalization, there is little doubt that it is the most powerful economic force of our time. The movement to a global economy over the past four decades has opened the playing field for countless U.S. companies to penetrate new markets overseas. In 2008, 48 percent of the income of the firms on the Standard & Poor's index of the 500 largest publicly traded companies in the U.S. came from abroad, up from 32 percent in 2001.[2] Similarly, a 2010 study by the Business Roundtable and the United States Council Foundation showed that 49 percent of profits of U.S.-based multinational corporations came from their foreign affiliates, compared to just 17 percent in 1977 and 27 percent in 1994.[3]

Globalization has also lowered the cost of a multitude of goods and services for American consumers. It is no secret, for instance, that Wal-Mart has been able to offer steep discounts on its products in large part because roughly 70 percent of its merchandise comes from Chinese suppliers.

At the same time, globalization has made it economically feasible to produce goods and increasingly to provide services in countries where costs are much lower. The increasing global competition that resulted from this has caused many American firms to go under and set in motion an ever-increasing shift in jobs overseas, in everything from apparel and steel manufacturing to call centers and financial research. A 2008 survey of 1,600 companies conducted by Duke University's Fuqua School of Business and the Conference Board revealed that 53 percent had an "offshoring strategy," up from just 22 percent in 2005.[4]

But while the basic facts about how globalization has impacted the United States are relatively well known, there has been no comprehensive analysis of how globalization has impacted New York City and New York State.

Until now.

This report takes an in-depth look at the myriad ways that globalization has impacted New York. Based on more than a year of research, the report draws upon an extensive economic and demographic analysis, a historical review, focus groups conducted in communities from Long Island to Buffalo, town hall meetings in Utica-Rome, Farmingdale and Binghamton, and more than 150 individual interviews with academics, economists, business owners, community leaders and government officials.

There has been no comprehensive analysis of how globalization has impacted New York City and New York State.

The study begins with an examination of how the forces of globalization have affected a number of key industry sectors in New York, from agriculture and architecture to finance, higher education and manufacturing. This is followed by a close look at the impact of globalization on New York City, Long Island and six major upstate metropolitan areas—Albany-Schenectady-Troy, Binghamton, Buffalo, Syracuse, Rochester and Utica-Rome—that together account for 78 percent of New York's population. While the primary purpose of the report is to assess the impact of globalization, the report also attempts to lay a foundation for a broader discussion of these issues and points to possible steps that public and private sector leaders could take to strengthen New York's competitive position in the world, mitigate some of the negative impacts of globalization and enable far more New York residents and businesses to reap the benefits of globalization.

Although the benefits differ by region and industry, there have been clear statewide benefits from globalization. For one, it has enlarged the pie for so many of the state's companies, providing business growth opportunities that arguably wouldn't have been there otherwise. "If our firm were investing only in the U.S., we would be investing much less and we would be smaller," says Matthew Nimetz, chief operating officer of private equity firm General Atlantic. "Our office here in Manhattan is larger because our organization and our investment horizon is global."

From 2001 to 2009, the international share of total revenue has increased significantly at nearly all of the major multinational corporations headquartered in the state that we examined, from Avon to Kodak. (See Chart 1[6])

As of 2006, nearly one-fifth (19.1 percent) of all manufacturing workers in the state depended on exports for their jobs.[7] Overall, New York is third in total manufactured exports, behind California and Texas. Between 1999 and 2008, the value of those exports increased by 120 percent, significantly higher than the national increase of 85 percent.[8]

Major Findings

During the course of our research, several themes emerged. These include:

1 No region in New York—and for that matter, no place in the United States—has been spared from experiencing negative impacts from globalization. As just one example, while New York City has by and large benefited from global economic changes, since the 1960s nearly 300,000 of the city's apparel manufacturing jobs have moved overseas or were eliminated in large part due to foreign competition.

2 The key difference across the state is that in some regions the upsides of globalization have far exceeded the downsides.

3 Few places in the world have benefited more from globalization than New York City. This is largely because it has built a vibrant, globally-competitive, knowledge-based economy that has generated enormous new wealth. The unmatched pool of highly educated workers from around the U.S. and across the world is a big reason for the city's success, as is its formidable clusters in several sectors that are benefiting from globalization—from finance and fashion design to legal services.

4 Long Island, Westchester and much of the New York City metropolitan region has benefitted from its proximity to the city, from their own finance sectors and from diversifying their economies. On the whole, these suburban areas have arguably had a greater net benefit from globalization than New York City since they have a smaller share of low-skilled employees than the five boroughs and, thus, have suffered fewer negative impacts.

5 The benefits of globalization have been limited and sporadic in the Binghamton, Buffalo, Syracuse and Utica-Rome metropolitan areas. On balance, the economic dynamics of globalization have harmed these areas more than they have helped. One reason for this is that manufacturing accounted for an extraordinarily high share of all private sector jobs in these and other upstate metro areas before global competition heated up. Adding to the problem, these cities have a relatively small share of highly educated workers and lack industry clusters in high-end professional business services.

6 The Albany-Schenectady-Troy and Rochester areas are faring better in the globalized economy than the other four upstate metro areas we reviewed. Albany-Schenectady-Troy enjoys the stabilizing economic benefits of the state capital workforce. But the region is also building a substantial, globally-competitive research and advanced manufacturing sector. The Rochester area has benefitted from its legacy of tech-oriented manufacturing and research. Both of these regions have taken advantage of their strong academic research institutions.

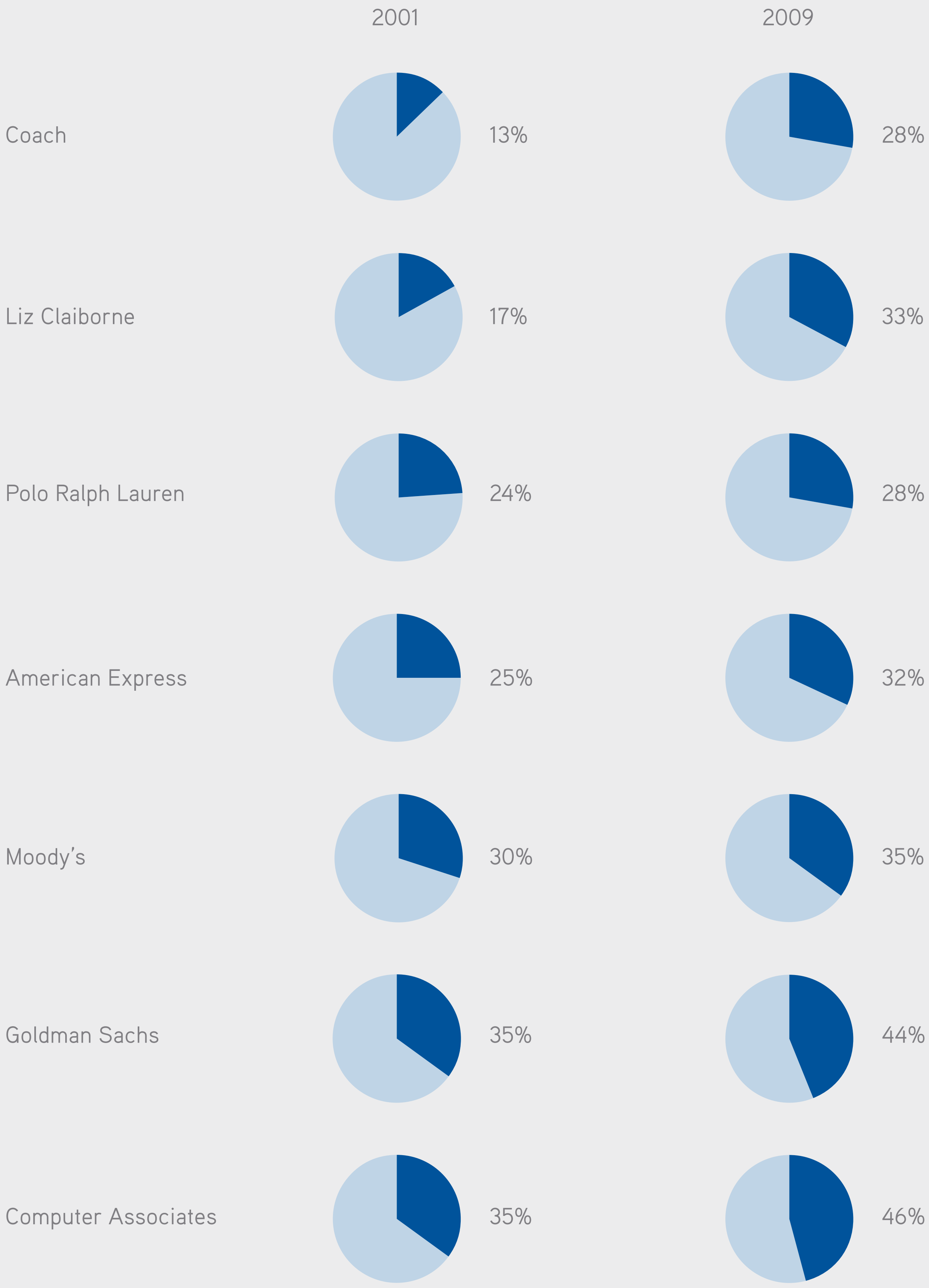
7 While globalization has contributed to more job losses than gains upstate, one promising sign is that a growing number of upstate companies have been expanding by exporting their goods and services. The list of these global businesses in New York includes Dynabrade, an Erie County firm that exports 55 percent of its production; Gleason Corporation, a Rochester-area company which gets around three-quarters of its sales overseas; GM's PowerTrain division in Tonawanda, which has been shipping engines to GM facilities in China; and Digital Analysis, a Skaneateles firm that designs and fabricates hazardous waste abatement systems around the world.

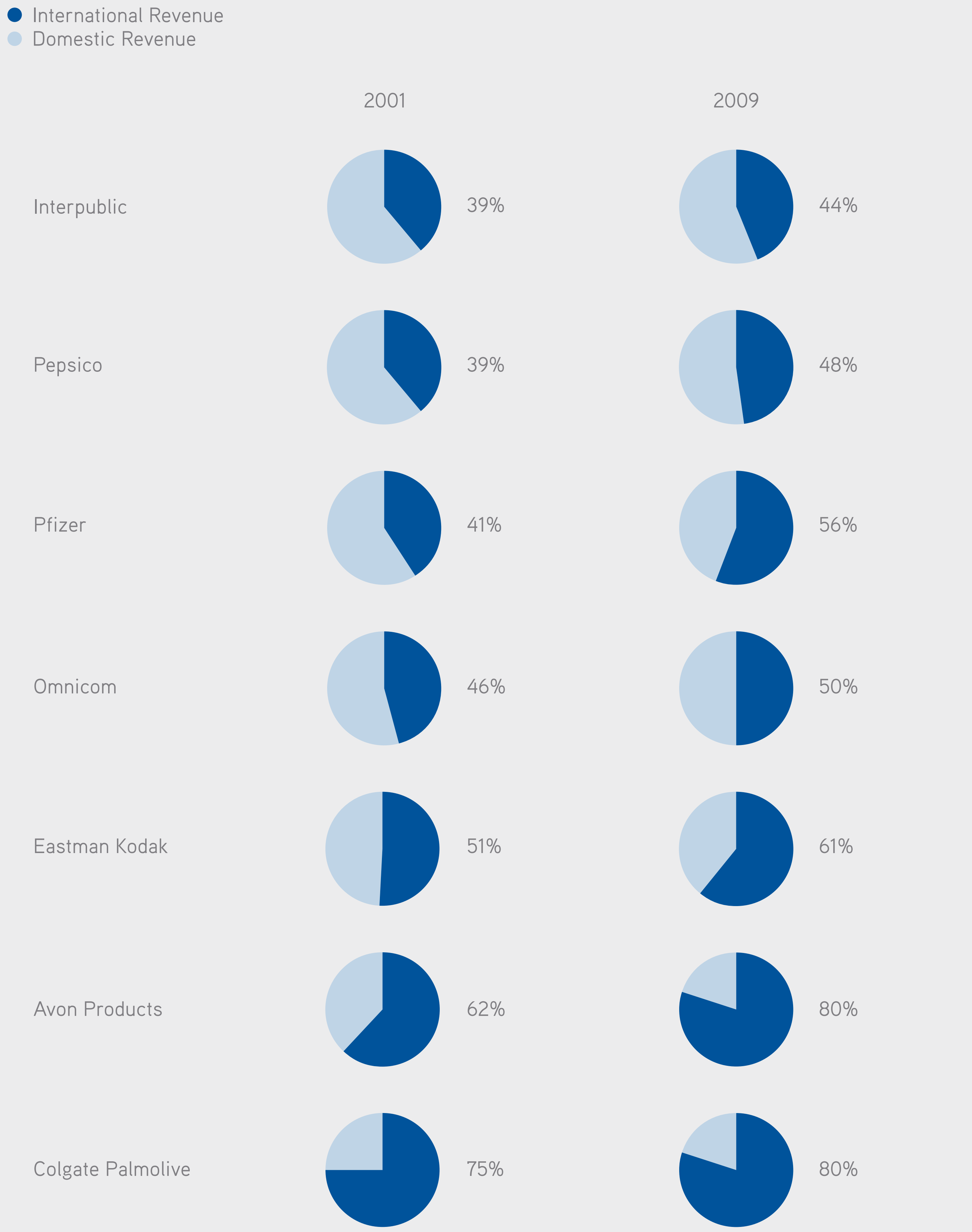
8 Globalization is one reason why New York City has developed a "barbell" economy during the past few decades, with growing numbers of both high-wage and low-wage jobs but comparatively little growth at the median income levels—at least for individuals with low educational attainment levels. As one indication of this, Manhattan's per capita personal income went from being 209 percent of the nation's median level in 1970 to 301 percent in 2008.[5] At the same time, however, the share of US personal income went down considerably in the Bronx (from 93 percent of the U.S. in 1970 to 72 percent in 2008), Brooklyn (from 100 percent to 86 percent) and Queens (from 134 percent to 95 percent).

9 Regions with the greatest intellectual capital and capacity for innovation and that are most closely linked to the global economy—through direct international flights—have the clear competitive advantage in the global era.

10 Immigration has provided a critical spark for the downstate region over the past few decades. Similar benefits have been elusive upstate. In none of the six major upstate cities or in their host county has there been a significant increase since 1970, 1980 or 1990 in the share of the population that is foreign born, although Utica and Schenectady have been exceptions.

1. International Revenue Growth at Selected Companies




International Revenue
Domestic Revenue
2001
2009
Interpublic
39%
44%
Pepsico
39%
48%
Pfizer
41%
56%
Omnicom
46%
50%
Eastman Kodak
51%
61%
Avon Products
62%
80%
Colgate Palmolive
75%
80%

“Globalization is a two-edged sword. It’s good and bad.”

In addition, both upstate and downstate New York are benefitting from the growing numbers of international students attending colleges and universities. In the 2009-10 school year, a record 76,146 international students were enrolled in New York State, 11 percent of the total for the nation. While New York University (ranked third) and Columbia (ranked fifth) are among the leaders in the number of international students enrolled, upstate universities have done well, too. SUNY University at Buffalo is 12th in the nation, while Cornell is 22nd. The net direct contribution to New York’s economy by international students in the 2008-09 school year was $2.2 billion, according to NAFSA, the Association of International Educators.[9]

While most of the individuals interviewed around the state acknowledged positives from globalization, the price is also clear. “The positive effect of globalization is the ease in which ideas and technologies can be shared across the world. It makes possible a small high-tech start up to grow and prosper in Binghamton, while they may work with people in all parts of the country and throughout the world,” says Stacey Duncan, government relations manager for the Greater Binghamton Chamber of Commerce. “The negative effect, particularly in the Greater Binghamton area, is that larger manufacturing firms have gradually had to downsize or leave the area, which has a negative impact on our local economy through the loss of jobs, issues pertaining to the ‘brain drain’ and a hit on our local tax base.”

“Globalization is a two-edged sword,” adds Mark Peterson, president and CEO of Greater Rochester Enterprise. “It’s good and bad.”

New York City has realized enormous benefits from globalization.

It's impossible to walk the streets of New York City or read one of the city's newspapers without noticing the outsize influence of globalization. Banks from China, Brazil and numerous other countries have opened outposts in the city. International firms from H&M to Uniqlo dot the retail landscape. A Russian billionaire recently became a major investor in the Atlantic Yards development in Downtown Brooklyn. The government of Abu Dhabi bought a 75 percent stake in the Chrysler Building. The number of foreign tourists has reached an all-time high and 37 percent of the city's population is foreign born.

This is just the tip of the iceberg.

Overall, foreign direct investment has been responsible for about 10 percent of New York City economic output, according to a 2008 study by the Partnership for New York City. An enormous share of this investment has been in the finance sector. Foreign-based financial services firms now employ tens of thousands of people and occupy millions of square feet of office space in New York. The names of foreign-owned finance industry companies—UBS, Credit Lyonnais, Deutsche Bank, Barclay's Capital—appear on Manhattan office towers. In the recent financial industry crisis, billions of dollars of foreign investment helped stabilize firms like Morgan Stanley and Citigroup, while UK-based Barclay's took over much of the failed Lehman Brothers. Last year, three of China's largest banks chose New York for their first U.S. offices.

Ken McCarthy, senior managing director at real estate brokerage firm Cushman & Wakefield, says that foreign corporations opening offices in New York, in finance in particular, were a major factor in New York's economic resurgence after the 1970s. As McCarthy explains, in the 1970s major U.S. corporations headquartered in the city "did not see that they had to be here" and many moved away. "They have been replaced by international corporations and headquarters of foreign corporations that decided to participate in the U.S. economy," he says. "Every major financial institution in the world, if they are in the U.S., is headquartered in New York."

Globalization has also given New York-based financial services firms lucrative and profitable new overseas opportunities. From 2001 to 2009, the international share of total revenue at Goldman Sachs increased from 36 percent to 44 percent; at American Express it rose from 25 percent to 32 percent. In the first nine months of 2010, Europe, Asia and Latin America accounted for almost three-fourths of Citigroup's profits.

The five largest investment banks in the world are based in the city, which also hosts nine of the world's 18 largest hedge funds and five of the world's ten largest private equity firms. These are truly global operations that raise capital and invest around the world.

Finance is just one piece of the puzzle, however. In fact, one of the reasons that New York City has been among the world's greatest beneficiaries of globalization is that so much of the city's economy is global today—a claim that few other American cities can make. For instance:

• Globalization has expanded the international practices of the city's major law firms. New York's 12 largest law firms currently have a total of 122 foreign offices.

• New York City's architectural and engineering firms are involved in many of the major developments occurring in the globe's fastest-growing cities, from Shanghai and Hong Kong to Dubai and Abu Dhabi.

• New York-based construction firms are involved in projects around the world; Turner Construction of New York managed the construction of the world's tallest building, the Burj Khalifa, in Dubai.

• In the 1980s, New York City emerged as the world's fashion capital. Roughly 800 fashion design and merchandising companies have their headquarters in the city, which is more than double that of Paris.

• New York's ad agencies are generating increasing shares of their business from overseas. Grey Group, one of New York's major agencies, had offices in 40 foreign countries in 1991. Today it has offices in more than 83 countries.

• New York City leads the nation in the number of international students in its colleges and universities, a record total of 60,791 in the 2009-2010 academic year.[10] This growth has helped boost employment in higher education, one of the fastest growing parts of the city's economy over the past decade.

• From 1995 to 2009, the number of shipping containers handled at the Port of New York and New Jersey more than doubled.

• New York, along with London, is one of the world's two pre-eminent markets for fine art. Wealthy art investors fly to Manhattan from all over the world to attend auctions at Sotheby's, Christie's and Phillips De Pury. The industry's economic impact is substantial; Sotheby's, alone, has 500 employees in New York.

• The city's renowned hospitals consistently attract wealthy patients from around the globe for surgeries, treatments and other procedures.

• In 2010, New York City hosted a record 9.7 million foreign tourists, a 43 percent increase from both 2000 and 2005. Sixty-percent of the visitors to the Museum of Modern Art are foreign nationals.

In addition to so many globally-competitive industry clusters, New York City has benefited from its enormous regional labor market. It supplies workers with almost any skill set needed in the global marketplace, from creating innovative new financial instruments to conserving Renaissance paintings. The competitive importance of New York's talent advantages were recognized in the 2010 Cities of Opportunity rankings by PricewaterhouseCoopers and the Partnership for New York City, which gave the city the highest scores among 21 cities worldwide in measurements of intellectual capital such as the percent of population with higher education and share of top 500 universities. In 2009, 59 percent of Manhattan residents at least 25 or older held at least a bachelor's degree, a 17 point increase since 1990.

The city has also benefited immensely from the surge in foreign immigration that began in the 1970s. From 1970 to 2008, the city's foreign-born population more than doubled, from 1,373,099 to 3,048,981. Immigrants have revitalized neighborhoods from Brighton Beach to Flushing.

Another factor is that cities that are easily accessed from around the world have a tremendous advantage. Advances in communications technology might have been expected to lead to the dispersal of New York City's corporate management, finance and professional services functions. But the opposite has occurred. In a highly dispersed global economy, more than ever business people need a central, globally accessible place to meet face-to-face. John F. Kennedy and Newark airports together host 94 different airlines, more than any other U.S. city, and have non-stop flights to 128 international destinations.

In most of upstate north and west of Poughkeepsie, globalization's benefits, though important, have been limited and have not offset the harm from manufacturing employment decline.

Over the last four decades, the upstate economy has undergone a major restructuring under which manufacturing jobs were replaced largely by jobs in health care, educational and other services that usually pay much less than manufacturing. In the Binghamton, Buffalo, Syracuse and Utica-Rome metropolitan areas, there are limited numbers of jobs tied to the global knowledge economy and that pay well enough to offset the income lost from when manufacturing contracted. The Albany-Schenectady-Troy and Rochester areas are doing better in this regard.

In the 1970s, upstate New York was a national manufacturing powerhouse. Bethlehem Steel employed 20,000 workers in its Lackawanna steel mills, General Electric employed 27,000 making turbines and generators in Schenectady, and Kodak employed nearly 60,000 making photographic products in Rochester. In 1975, manufacturing comprised at least 40 percent of private industry employment in three of the six major upstate metropolitan areas: 47 percent in Binghamton, 45 percent in Rochester and 40 percent in Utica-Rome. By 2008, manufacturing had shrunk to only 20 percent of employment in Binghamton, 17 percent in Rochester and 13 percent in Utica-Rome in 2008.[11]

Globalization played a major role in manufacturing's employment decline. In the 1960s, General Electric moved radio production from Utica to Asia. Trico Products invented the modern windshield wiper in Buffalo in 1917 and employed 3,000 workers there until moving to Mexico. Kodak's single-use cameras were initially made in Rochester but now come from China.

Many manufacturing jobs also were lost as foreign manufacturers gained market share in products that were made in New York. Endicott-Johnson employed over 20,000 workers making footwear in the Binghamton area, but footwear is hardly made in the U.S today. The automotive manufacturing industry was a mainstay of the upstate industrial economy, but as the "Detroit three" auto makers steadily lost market share to foreign imports they cut production capacity and closed plants such as GM's Tarrytown Assembly Plant and Ford's radiator plant near Troy.

Nevertheless, there have also been major non-globalization reasons for the contraction in manufacturing employment. In the 1970s and into the 1980s, when manufacturers moved production from upstate New York, it was more likely to the U.S. South than to other countries, thanks to a potent combination of non-union labor, lower taxes and electric power costs, the success of the civil rights movement and the widespread availability of air conditioning. At the same time, major New York State manufacturers are increasingly relocating production to be closer to booming markets in emerging economies.

Technological advances in manufacturing that require fewer workers for the same output are also responsible for a large share of upstate's manufacturing employment decline. Kent Gardner, president and chief economist of the Center for Governmental Research (CGR) at the University of Rochester, says that when Kodak still made photographic film in Rochester they introduced productivity improvements that enabled the same amount of film to be made with thousands fewer workers. Don Rust says that when he became manager of GM's engine plant in Tonawanda in the 1980s they made one engine per day per worker, but by the 1990s efficiency improvements had raised the rate to more than two engines per day. To be sure, many of the productivity improvements were in response to the relentless pressure on the bottom line from foreign competition. For instance, it was foreign competition that ultimately forced the automotive sector to improve efficiency and require far fewer workers per vehicle.

The decline in manufacturing employment in New York State picked up steam after 1990. The reasons include new technology and advancement in manufacturing productivity. In addition, the spread of free trade agreements has been identified by some as a significant contributor. Most important, though, has been the rapid development of larger, sophisticated, and low cost manufacturing supply chains in China and other countries.

The Buffalo, Syracuse and Utica-Rome and to a lesser extent the Binghamton metro areas have been disadvantaged because their economies were based in large part on blue collar production such as steel, fabricated metals, footwear and other assembly-line work. Their workforces were not readily re-trainable for occupations in globally-competitive industries. They lacked industry clusters in finance, professional services and technology that could benefit from globalization.

Indeed, one of the biggest challenges for upstate cities today is that, unlike New York City, few of them have developed significant concentrations in service sectors that have benefited from globalization and, in many cases, offer high wages. For instance, while New York City has 44.7 percent of all private sector jobs in the state, it has a disproportionately large share of the state's jobs in high-end service sectors that are still competitive in today's global economy, including the securities industry (with 89.1 percent of jobs in the state), motion picture and sound recording (84.9 percent) advertising (82.3 percent), publishing (65.7 percent) and legal services (63.0 percent).[12]

A global knowledge economy puts a premium on talent, innovation and creativity. Although there are many colleges and universities in the Buffalo, Syracuse and Utica-Rome metro areas, the percentage of the population of the these metro areas that hold bachelor's or graduate degrees is lower than the statewide average. At the same time, many of the talented young people who do graduate from upstate colleges and universities too often leave for regions where job opportunities are more plentiful. For example, at the town hall meeting we held on the campus of SUNY-IT in Utica-Rome, only a fraction of the students in the audience raised their hands when we asked if they see their future in the region.

In a globalized economy, ready access to cities around the world is important. But most airports upstate lack direct international flights.

To be sure, there are many individual examples of businesses that are fully engaged in the global economy in these four upstate metro areas. Grand Island (Erie County) is the home of Cannon Design, a 600-employee architectural firm that has a Shanghai office and is planning to open offices in Jordan and India. At Hodgson Russ, one of Buffalo's largest law firms, twenty lawyers are assigned to the firm's Asia practice group and the firm's brochure has been translated into Chinese.

But population, wage and personal income trends indicate that most of the major metro areas upstate are having only limited success in offsetting the economic damage from the contraction in manufacturing employment. From 1970 to 2010, the population declined by at least 25 percent in Buffalo (down 44 percent), Utica (32 percent), Rochester (29 percent), Syracuse (26 percent) and Binghamton (26 percent). Since 1970, the average annual wage compared to the U.S. fell sharply in the Binghamton, Buffalo, Syracuse and Utica-Rome metro areas. Binghamton recorded the greatest decline: From 1970 to 1990, the average annual wage slipped from 109 percent to 102 percent of the U.S. average; but with large employment losses in high-wage manufacturing during the subsequent decades, the average annual wage there fell to 83 percent of the U.S. level by 2008.

The Albany-Schenectady-Troy and Rochester areas are more successfully transitioning to a globally competitive "knowledge economy" than their upstate neighbors. In 2010, Forbes Magazine ranked Rochester the 14th and the Capital District the 15th most innovative of 100 metropolitan areas in the nation. As the seat of state government, manufacturing initially accounted for a smaller share of private industry employment (27 percent in 1975) compared to other upstate metro areas. Consequently manufacturing employment declines have impacted the Albany-Schenectady-Troy area less than in other areas.

Meanwhile, the impact of manufacturing jobs losses is being ameliorated by the expansion of the area's existing globally-connected, high-tech sector. Indeed, there are 9,185 workers in the "scientific research and development services" subsector in the Albany-Schenectady-Troy area, nearly twice as many as in the Buffalo metro area, which has a larger population. From 2000 to 2008, employment in professional and technical services increased by more than 5,000, which according to the State Labor Department was primarily due to growth in research and development-related employment.

Rochester has been hit hard by downsizing at Kodak, which went from a peak of about 62,000 area employees in 1982 to about 7,400 today. Still, as the home of Kodak, Xerox and Bausch & Lomb, Rochester traditionally had a strong technology base. The area's high-tech talent pool is helping to offset the economic damage from Kodak's contraction, and is putting the area in a good position to compete successfully in the global economy. A number of former Kodak employees have drawn on their expertise to start new companies or have found work at other firms. Rochester has a small, unique-in-the-world photo-optics and imaging industry cluster that has clear potential for growth and export expansion.

A global knowledge economy puts a premium on talent, innovation and creativity

Globalization opportunities and challenges for New York

New York State as a whole has many competitive advantages in the global economy, including highly-skilled workers in globally competitive industry clusters from finance and fashion to medical manufacturing and international law, an array of highly-regarded colleges and universities, and one of the world's most successful global cities.

However, the rest of the world is not standing still. At a time when talent is the most important indicator of success in the global economy, too few young people in New York have the skills that employers need today and, in many upstate regions, too many college graduates are moving elsewhere for their careers and not enough are arriving from other places. While the state's strong academic research institutions have the potential to fuel an innovation-led economy, New York has barely begun to harness these assets for local economic growth. Levels of entrepreneurship are lower than they should be, and only a fraction of the state's businesses have attempted to export.

The goods manufactured in lower-wage counties are moving up the value-added ladder and beginning to compete with some of the more advanced products made in New York. Restrictive U.S. visa and immigra-

tion rules make it difficult for New York businesses to hire the world's best talent. New York's physical infrastructure—airports, highways, mass transit and rail—are in need of repair and in some instances need to be expanded. And New York City faces competitive challenges to its position as world financial capital.

Despite all the challenges, however, globalization also brings clear opportunities for New York. Eighty-seven percent of global growth will come from outside the United States over the next five years, while 95 percent of global consumers currently reside outside of the U.S. "The real opportunity for New York is to capitalize on the global economy," says Rob Simpson, president of CenterState CEO, a Syracuse-based regional economic development organization.

How can New York preserve and build on its advantages and thrive in the face of stiffening global competition? How can upstate regions that have on balance been harmed by globalization begin to reap more of its benefits?

These are some of the critical questions this report seeks to answer.

How did globalization come about?

Today's globalization resulted from a series of economic, technological and political developments occurring primarily over the past four decades. The lowering of tariffs and ending of restrictions on currency convertibility contributed to growth in world trade. Microprocessors, digitalization and fiber optic communications enabled massive amounts of information to be processed and instantly transmitted around the world, allowing markets to become truly global.

Financial services deregulation increased international capital flows to areas of opportunity. Regularly-scheduled intercontinental flights made international travel routine. The end of the Cold War and China's economic reforms integrated new regions into the world economy.

Section 1

Industry Sectors

Industry Sectors

Ask anyone in New York—or elsewhere in the country, for that matter—how globalization has impacted the economy, and more often than not you'll hear about the offshoring of manufacturing jobs that's steadily accelerated over the past few decades. This certainly came up time and again during the more than 150 interviews we conducted around the state. As global transportation networks dramatically reduced the cost of shipping long distances, New York manufacturers started to experience intense pressure from foreign competitors, and, as a result, many either went out of business or moved their production plants overseas where real estate and labor costs were much cheaper.

But while manufacturing may be the most widely discussed example of a sector that has been hit hard by globalization, a number of industries with a major presence in the state have benefited from globalization. For instance, through more globally interconnected capital markets, investors on Wall Street gained access to huge new pools of capital—German pension funds, or real estate investment vehicles in Hong Kong—and profits soared. Because the most sophisticated and innovative financial firms were already firmly ensconced in New York City and London, those two cities were able to secure their place as the world's only full-service financial hubs.

However, although it is certainly in a class of its own, financial services has not been the only New York-based industry to reap huge rewards from an increasingly interconnected global economy. Universities like NYU, Cornell and University at Buffalo have dramatically increased their foreign student enrollments, and the number of foreign tourists travelling to New York has skyrocketed. Similarly, booming development in Asia and the Middle East has led to steady growth in overseas business for New York-based architects and engineering firms while New York-based fashion designers are tapping the ever-increasing purchasing power of consumers in Asia.

Moreover, globalization has even benefitted a number of New York-based manufacturers. Although a vast majority of lower skilled assembly plant production has indeed been off-shored to countries from Mexico to China, higher value added manufacturing work, and of course research and development, continues to do well in a number of regions of the state, from pharmaceutical research in Rockland County to high-tech electronics manufacturing in Albany and Binghamton.

This section provides a look at more than a dozen key industries in New York that have been impacted by globalization—starting with manufacturing, but also including sectors from agriculture and architecture to higher education and legal services. We believe that examining how globalization has helped and hurt New York State in so many important sectors is a starting point for understanding the consequences of globalization for New York State and why some regions have fared better than others.

In order to keep the report manageable, we have concentrated on sectors that, according to our research, have been affected the most by globalization. As a result, the section does not go into detail about otherwise important sectors such as health care and energy.

Linchpins of the Economy

Manufacturing

In 1950, there were 1.9 million manufacturing workers in New York State. In that year, many of the state's—and the nation's—greatest industrial enterprises, including General Electric, Kodak and Corning, were at or near their peak production. In 1970, manufacturing employment was still a robust 1.8 million, but by 1980, it had slipped to 1.4 million and by 1990 to 1.1 million. By the turn of the century, manufacturing employment in New York was less than half its 1950 level.

The refrain, "We no longer make anything in America" reflects the popular perception that manufacturing employment plummeted because production moved to low-wage countries like Mexico and China. And of course in New York, there are plenty of examples of this: Windshield wipers were invented and produced for years by Trico Products in Buffalo, but starting in the late 1980s the company began to move production first to Mexico and then China. Kodak moved the production of its disposable cameras from Rochester to Shanghai, and Swingline moved its famed stapler plant from Long Island City to Nogales, Mexico. Because of cheaper sources of labor in other countries, Syracuse China is no longer made in Syracuse and Endicott-Johnson shoes are no longer made in Endicott or Johnson City. Buffalo Color employed 3,000 workers making synthetic indigo dye for denim, but dye imports started coming from China and then Korea and Buffalo Color laid off its last 170 workers in 2003.[13] "These days," says Mark Peterson of the Greater Rochester Enterprise, a nonprofit, "the simple assembly of manufactured goods has been off-shored, and those companies engaged in the lowest value-added assembly work are either in low-wage countries or out-of-business."

Nevertheless, although it is certainly an important part of the story, off-shoring to low-wage countries has been only one factor in New York State's manufacturing employment decline.

First, long before the move to Mexico or other low-wage countries, manufacturers like GE and Carrier were relocating their production plants to right-to-work states in the American South, where land was cheap and they didn't have to employ union labor. As with the move to foreign countries, dramatically cheaper shipping costs, in this case brought about by the Interstate Highway System, allowed manufacturers to consider land and labor costs as more important factors in their location decisions.[14]

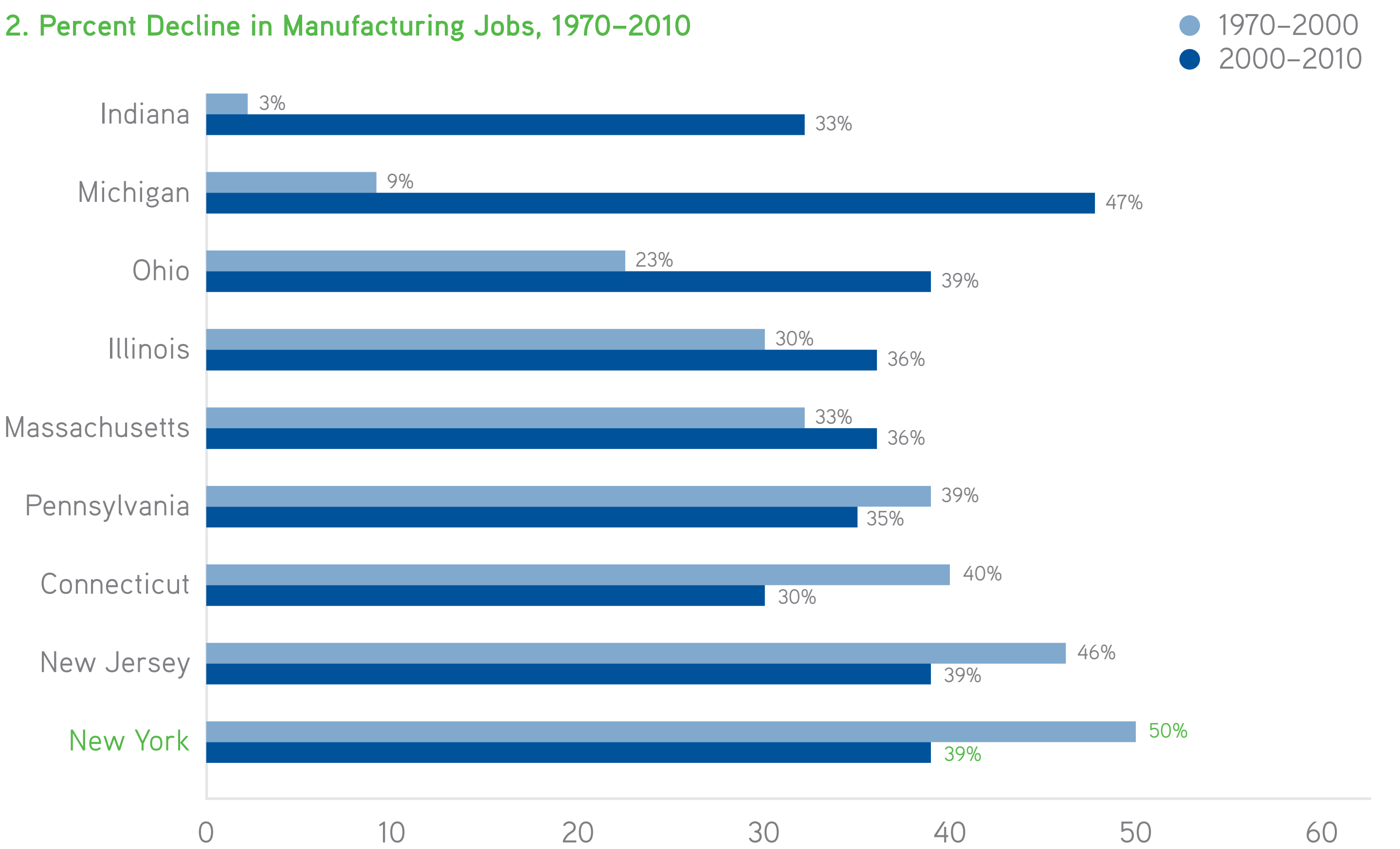
Second, the development of computer integrated machinery and more efficient management systems allowed manufacturers to produce more with far fewer workers. Assembly-line plants, in particular, started to integrate computer-controlled machines and automated storage and retrieval systems in the 1980s. At Kodak's old film production facility in Rochester, for example, it originally took 14 workers to carefully mix filmmaking chemicals early in the process of film production, but in the 1980s a precision machine was developed to do that job. These days most of the workers at Kodak Park sit behind computer screens and closed-circuit TV monitors.[15] Also, in the 1980s, manufacturers started to adopt new techniques to better optimize production flow. For example, so-called 'lean' and 'just-in-time' manufacturing practices, largely adopted from Toyota, introduced fail-safes to reduce errors by equipment operators and reduced inventory and its associated carrying costs. Don Rust, the manager of the General Motors Powertrain plant in Tonawanda, says that his plant used to make one engine per employee per day. But due to more sophisticated machinery and more efficient production processes, they are able to produce 8,000 engines in one day with around 3,900 workers.

Third—and finally—New York manufacturers started to shed jobs and even close plants due to increased competition both at home and abroad. Western New York's big integrated steel mills, for example, started laying off thousands of workers already in the 1970s, in part because non-union mini-mills mostly in the American South and Southwest were dramatically undercutting them in price. And then, in the early 1980s, as Japanese and German automakers started to make major in-roads among American car buyers, Ford, GM and Chrysler started to dramatically cut production and lay-off workers at their upstate plants.

Although off-shoring was already happening in the 1960s and 70s, it wasn't until new free trade agreements were signed in the 1990s that it became a widespread practice among manufacturers. In a 2003 study, the Economic Policy Institute calculated that NAFTA had led to the creation of 46,000 jobs in New York State between 1993 and 2003 but had led to the loss of 103,000 jobs in the state during that time. More recently, a study by the Fiscal Policy Institute and the Alliance for American Manufacturing concludes that China has been a major factor in New York's manufacturing employment loss since it joined the World Trade Organization in 2001. According to the report, 2.3 million U.S. jobs—two-thirds of which are in manufacturing—were displaced by Chinese workers between 2001 and 2007. Net job losses in New York was pegged at 127,000, the third most of any state.

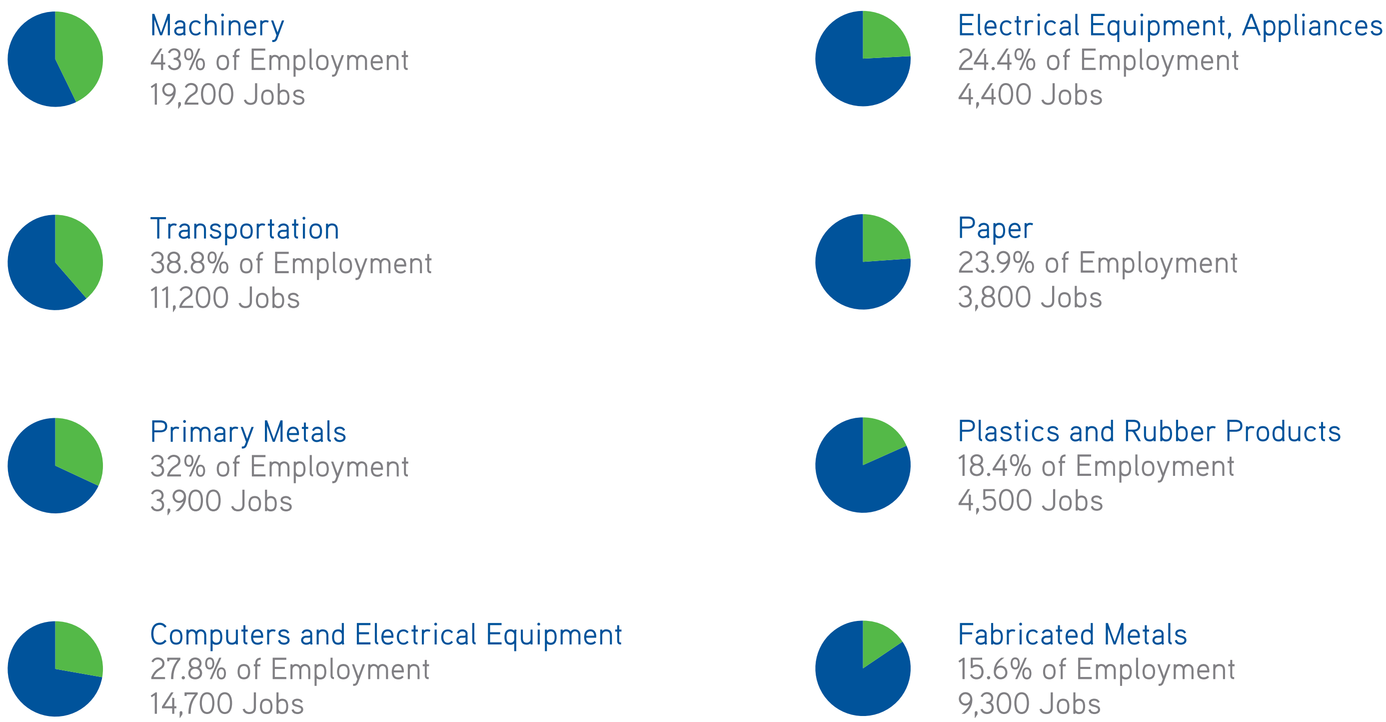
Of course job losses in manufacturing would have continued even if NAFTA and other free trade agreements hadn't been signed, but those agreements almost certainly sped up the process. Between 1975 and 2000, manufacturing employment in New York fell by 38 percent, but during the much shorter period between 2000 and 2008, it declined 29 percent statewide and nearly 50 percent in the state's largest

2. Percent Decline in Manufacturing Jobs, 1970–2010



Source: US Bureau of Labor Statistics. Manufacturing employment from 1970 to 2000 was measured by Standard Industrial Classification (SIC) system; since 2000 by the North American Industry Classification System (NAICS).

3. New York State's Export-Related Employment



Source: Office of Trade and Industry Information (OTII), Manufacturing and Services, International Trade Administration, U.S. Department of Commerce. http://tse.export. gov/JOBS/ChartDisplay.aspx

manufacturing center—New York City. Mary Martino, director of labor relations at United Way of Buffalo and Erie County, says that she assisted workers at 47 different plant closings in Erie County in 2007 alone and many were due to outsourcing or increased foreign competition, including American Axle, which moved hundreds of jobs to Mexico. Arthur Wheaton, a workplace and industry specialist at Cornell University's School of Industrial and Labor Relations, says that Ford's plant in Buffalo used to stamp metal used in the company's auto assembly plant in Atlanta, but largely because of NAFTA U.S. automakers now build almost all of their small cars for the North American market in Mexico. "Ford built a plant in Mexico that both stamps metal and assembles cars," Wheaton says.

Free trade agreements have also opened up new consumer markets abroad—a good thing for many of the manufacturers that have stayed in New York. However, a major trend has seen New York State based companies moving their production facilities to be closer to their fastest growing markets overseas. The consequences of this geographic shift in investment can be severe for New York State. For example, Peter Koveos, director of the Kiebach Center for International Business at Syracuse University, says this is a major reason Carrier moved air-conditioner production from Syracuse to China in the mid-2000s. "China is where the market is," he says, "so they had to go there."

However, globalization has not been all bad for New York's manufacturing sector. A number of the state's manufacturers have transitioned to higher-value added production and dramatically expanded their exports. The Long Island, Albany, Binghamton, and Rochester metropolitan areas in particular have growing high-tech manufacturing bases, where large and small companies alike are developing and producing microprocessors, circuits and electronics packaging, wind and nuclear power technologies, fiber-optic glass and lasers, among many other high-tech—and, even more importantly, growing—industry subsectors.

For example: Ninety percent of GEs turbine production in Schenectady is exported, much of it to emerging economies. After the GlobalFoundries plant opens in Saratoga County in 2012, by far the biggest market for its semiconductors will be outside of the U.S., according to the Semiconductor Industry Association. Sung Lee, an executive at WelchAllyn, a medical device manufacturer in Syracuse, says that exports have made up 30 percent of his company's revenue and 90 percent of its revenue growth over the last few years.

Manufacturers Who Are Taking Advantage of Globalization

In our interviews across the state, we found that a growing number of manufacturers throughout the state are benefiting from globalization by exporting their products. The following are just a few examples.

Dynabrade (Clarence, Erie County)
This designer and maker of advanced abrasive power tools for grinding, deburring, sanding, and polishing, did not export until the 1990s. Today, however, the company exports 55 percent of its production, all of which is done in New York. Mike Saraf, the firm's director of sales, says he expects to eventually export 70 percent of their production. The international growth has led the company, which has about 225 employees in Western New York, to add workers in assembly and shipping, as well staff in international sales.

Koike Aronson (Arcade, Wyoming County)
Koike Aronson makes advanced laser metal cutting machinery and welding positioners. Owned by Koike of Japan, the company's international sales grew from about 10 percent to almost 40 percent of company sales between 2002 and 2008. This has led to significant employment growth in Wyoming County, where 85 percent of the company's manufacturing takes place. Jerry Leary, the company's president, says that their Wyoming County plant now has 170 employees, not all of whom are production workers. "We went from three degreed engineers to 14 today and a lot of what they do is design work for the parent company as well as product made in the U.S," says Leary, noting that their engineers "start at $50,000 [annual salary] plus benefits."

Gleason Corporation (Rochester)
Gleason makes computer-guided machine tools that precision cut gears. One of their products is bevel gears, which are used in wind turbines. Gleason has successfully tapped the global market, selling to more than 40 countries and 75 to 80 percent of the company's total sales are outside of the U.S. In 2008, nearly one-third of the company's orders came from China and 70 percent of the machines Gleason has sold in China were produced in the company's Rochester factory.

Eastman Machine (Buffalo)
Family-owned Eastman Machine is the oldest manufacturer in Buffalo, says Chris Johnston, president and CEO of World Trade Center Buffalo-Niagara. Eastman Machine's traditional business was the manufacture of textile cutting equipment, but because of severe contraction in the American clothing manufacturing industry, Eastman switched gears. Now the company's product includes fully-automated CNC cutting machines, "and they have tailored their products to cut Kevlar and rotor blades for GE windmills," says Johnston. "They have focused more on automated precision cutting equipment used in higher-end end cutting," he says.

General Motors PowerTrain Division (Tonawanda)
The productivity improvements achieved at GM's engine plant in Tonawanda have now led to GM exporting engines from Tonawanda to China. Cornell's Arthur Wheaton says that sevewral years ago engines for GM cars were being shipped from Shanghai to an assembly plant in Ontario, but now that GM is selling more cars in China than in the U.S., engines from Tonawanda, where there is excess capacity, are being shipped to GM in China.

Finance

The financial services industry plays a hugely important role not only in New York City but New York State. In 2009, finance and insurance generated a little more than one-fifth of private industry wages in the state—not including employee cash bonuses—and 17 percent of the state's private industry gross domestic product. Since the 1970s, the industry's importance to the state's economy has grown tremendously. In 1975, finance, insurance and real estate (FIRE) generated 16 percent of New York City wages but by 2008, 35 percent of the city's wages came from just finance and insurance.

Globalization has been a huge factor in the industry's growth.

From 1980 to 2007, the world's financial assets—including bank deposits, private and public debt and equity—nearly quadrupled in value in relation to the global gross domestic product. New York City's financial services firms took full advantage of this growth by pursuing new opportunities in overseas markets. In the first nine months of 2010, Europe, Asia and Latin America accounted for almost three-fourths of Citigroup's profits, for example. Moreover, the success of New York's financial services industry is reflected in the industry's widening trade surplus with the rest of the world, which has gone from $7.8 billion in 1997, to $11.2 billion in 2000, to $40.7 billion in 2008. As the nation's financial capital, New York's financial services industry has been responsible for the lion's share of this surplus. "We have exported much more in financial services than we have imported," says David Belkin, a senior economist with the New York City Independent Budget Office.

Globalization has also benefitted New York's financial services sector through foreign direct investment (FDI). A study by the New York City Partnership in 2008 concluded that FDI was responsible for about 10 percent of New York City's economic output and that nearly half of the FDI in New York State was in the finance and insurance sectors. Two decades ago, foreign financial firms had relatively modest presences in New York City. But today they account for tens of thousands of jobs and millions of square feet of office space. Foreign investment has also strengthened several New York-based financial firms. In recent years, for example, the Abu Dhabi Investment Authority has invested $7.5 billion in Citigroup, while the China Investment Authority and Mitsubishi UFJ Financial Group have together invested more than $14 billion in Morgan Stanley. The China Investment Authority has also invested in American International Group, the Blackstone Group, and Black Rock. And it was a foreign firm, Barclays Capital, which bought most of the failed Lehman Brothers in 2008.

Goldman Sachs illustrates the growing importance of global investing to New York's finance industry. From 2001 to 2009, the foreign share of the bank's total revenue increased from 36 percent to 44 percent, while its workforce has spread across the globe during that time.

To be sure, competition from other financial capitals like London and the expansion of financial service companies in emerging economies such as China and India have eroded New York's global market share in financial services. And increasingly off-shoring of information technology and financial analysis work is impacting local employment levels. But the enormous growth in worldwide wealth—China alone has 343,000 individuals worth more than $1 million—has also provided new opportunities for New York's financial services firms to increase revenue and profits. Without these new international revenues, growth in the industry would have been a fraction of what it has been. Matthew Nimetz, chief operating officer of the private equity firm General Atlantic, says that globalization has "enlarged the pie." About half of his firm's $2 billion annual investments are abroad, Nimetz says.

New York has a strong global presence in virtually every aspect of the finance industry, though in most cases it has been losing market share as other growing financial centers emerge. For instance:

Diamond and Jewelry Industry

Prior to a plunge in diamond prices in the early 1980s, New York City was a center of diamond cutting, with approximately 1,000 cutters located on 47th Street. Since the 1980s, however, much of the diamond cutting has moved to India, China, and Israel, where labor costs are lower. Today the number of diamond cutters left in New York is closer to 100, with the remaining cutters focused on large, high quality diamonds.

The decrease in the numbers of diamond cutters has made some observers nervous about New York's place in the industry. But New York still maintains its own advantages. Ben Janowski, president of Janos Consulting, a consulting firm that advises the diamond companies in New York, says that all of the advertising, marketing, and press are in New York City. And despite the decrease in cutting, he says that the U.S. "still represents over 50 percent of the world's jewelry market." He explains that the "more enterprising organizations, who are aware of it, find it increasingly valuable to be based in New York. Even if you cut in Israel or India you need to have an office here for distribution purposes."

Michael Grumet, executive director of the 47th Street Business Improvement District, says that over 90 percent of the diamonds that enter the U.S. do so in New York City. Still, most of the growth in gem purchases is coming from Asia, not the U.S.

Equity markets

In the first half of 2010, the U.S. accounted for 51 percent of the value of global share trading. New York is the clear beneficiary, since the New York Stock Exchange and NASDAQ dominate U.S. equity markets. While the New York exchanges have generally maintained a consistent share of the value of shares traded—NYSE accounted for 23.5 percent in 1990 and 23.4 percent in 2009, their share of the world's equity market capitalization has eroded over the past two decades as a result of globalization. In the first half of 2010, U.S. markets accounted for 34 percent of global market capitalization, down from 43 percent during the period from 1990 to 2006. NYSE alone has seen its share of world market capitalization shrink from 30.3 percent in 1990 to 24.1 percent in 2009.

Investment banking

New York continues to be the world's largest investment banking center. The five largest investment banks in the world are all based in New York: JPMorgan Chase, Bank of America-Merrill Lynch, Goldman Sachs, Morgan Stanley, and Citibank. They are followed by foreign banks such as Deutsche Bank, Credit Suisse, UBS, Barclays Capital and Royal Bank of Scotland, all of which have major New York operations. These companies have profited greatly over the past two decades as investment banking has become a thoroughly globalized business. JPMorgan Chase's investment banking arm, for example, serves nearly 20,000 clients in more than 100 countries. In 2009, nearly half of the investment bank's $28 billion in net revenue was generated in Asia, Europe, the Middle East and Africa.

Hedge funds

There were only 200 hedge funds in 1968, but in the past two decades their number has exploded—today there are over 10,000—as has the amount of wealth they have generated.[16] As the world's leading center for global hedge fund management, New York has clearly benefited from the sector's meteoric growth. The city hosts nine of the world's 18 hedge fund firms that have more than $15 billion in assets, and in 2010, firms based in New York managed 41 percent of global hedge fund assets.[17] Though this is down from 52 percent in 2000, New York's next largest competitor (London) has just 15 percent of the world's hedge fund assets.[18] Overall, the city's hedge funds handle $800 billion in assets.

Private equity funds

Globalization has been a major factor in the growth of private equity funds, which generally invest in securities of private companies. The first private equity firm got started in the 1960s, but by 2004 there were more than 2,700 of these businesses worldwide.[19] As with other facets of the financial industry, New York has been a leader in the field. Five of the world's ten largest private equity firms in terms of capital raised over the last five years are headquartered in New York: Goldman Sachs Principal Investment Area (ranked first), Kohlberg Kravis Roberts (third), Apollo Global Management (fifth), Blackstone Group (seventh) and Warburg Pincus (ninth).

Asset management

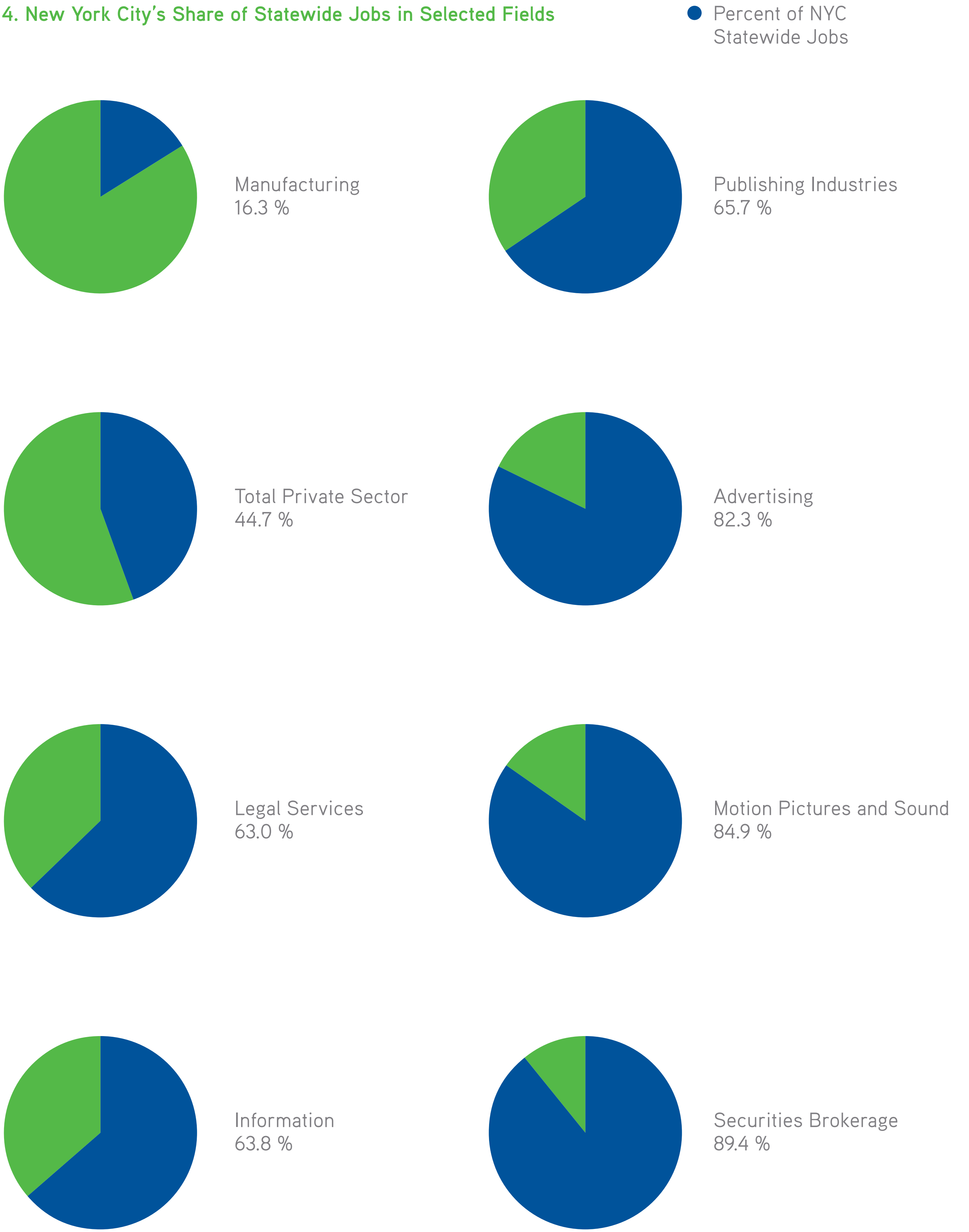
Asset management firms, which manage assets and provide wealth advisory services to private and institutional investors, have also expanded substantially in recent years—and much of this growth is due to global markets. For instance, roughly 61 percent of the assets managed by BlackRock, New York's largest asset management firm, are located outside of the U.S. (See chart 5 on page 28 for a breakdown of the domestic and global assets managed by the city's five largest asset managers.) And New York's asset managers are expanding their global reach. Goldman Sachs, recently announced that it was dramatically expanding its asset management operations in both Brazil and Europe.[20]

Wholesale/commercial banking

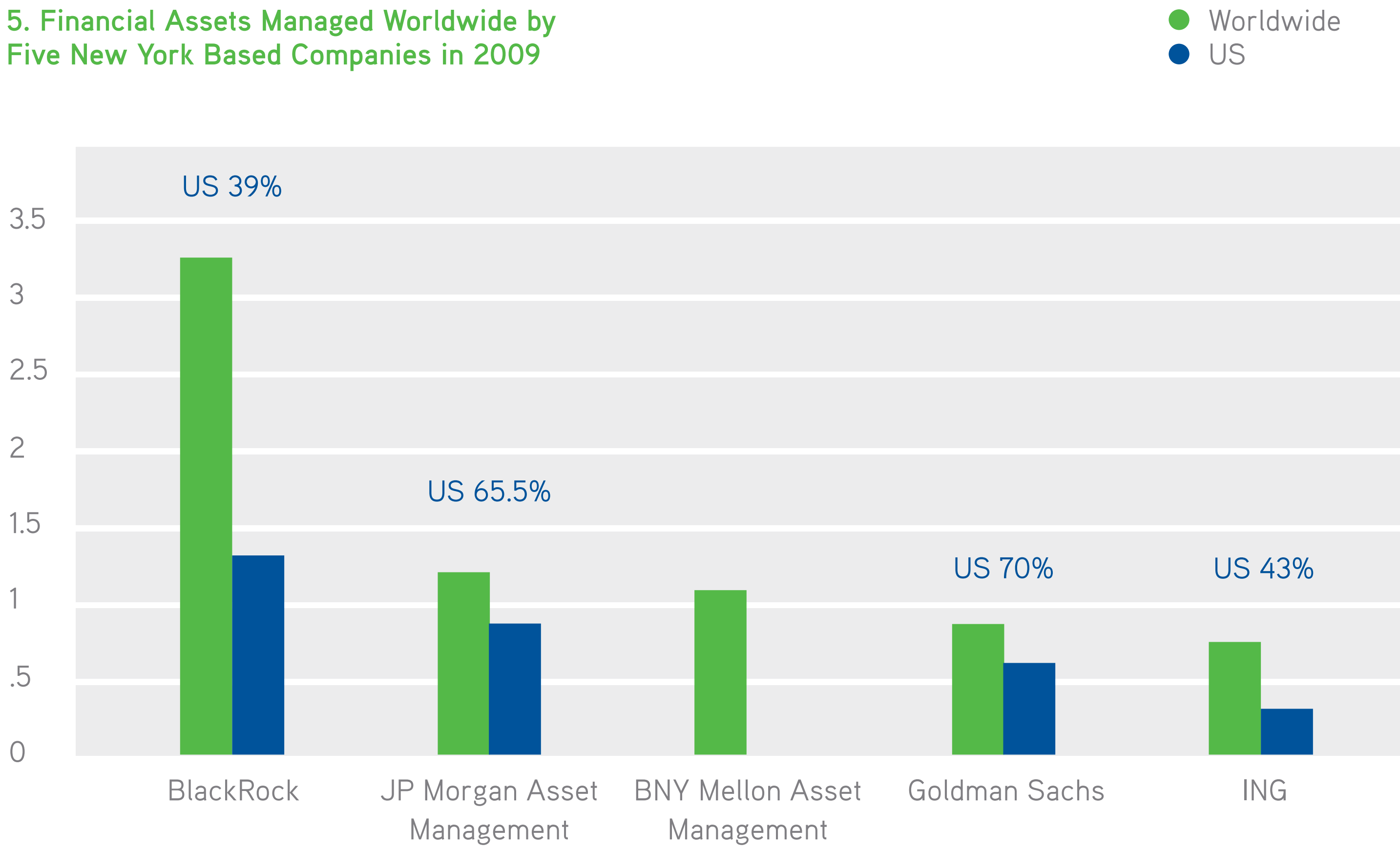
It wasn't until the 1970s that foreign banks began to arrive in New York in substantial numbers, initially in order to do business with corporations from their own countries. According to the New York State Banking Department, there were 28 foreign bank agencies and 19 foreign bank branches in New York in 1970. But by 1980 those numbers had more than tripled and total assets increased 13-fold. Fueled by increasingly interdependent financial markets and the growing importance of the U.S. dollar as the international reserve currency, foreign banks continued to dramatically expand their presence in the U.S. during the 1980s and 90s. New York was already the country's financial capital, so it was the most logical place to locate their corporate offices.

In 2006, according to a recent report, there were 200 foreign bank branches, agencies and commercial bank

4. New York City's Share of Statewide Jobs in Selected Fields



5. Financial Assets Managed Worldwide by Five New York Based Companies in 2009



subsidiaries in New York City, or 42.5 percent of the total number in the entire U.S. Those banks or bank subsidiaries employed more than 62,500 employees statewide and had $1.5 trillion in assets. More recently, several of China's largest banks—including the Industrial and Commercial Bank of China, China Construction Bank, and China Merchants Bank—opened New York City branches. Warren Hochbaum, New York State Banking Department deputy superintendent, says that each of these banks now has "only three to four dozen American hires at the present time, to get the ball rolling." But he does not expect them to remain so small for long: "These three institutions have possibilities of tremendous growth," says Hochbaum.

Insurance

Insurance remains an important sector for New York, but the city has lost ground to international competitors in recent decades. The industry has become much more globalized, as risks have been reinsured mostly by European or Bermuda-based reinsurance companies. London is now the largest international insurance market. Rae Rosen, senior economist and assistant vice-president with the Federal Reserve Bank of New York, says that New York used to be the hub of the industry, "but we lost it." Employment data backs up her observation. From 1990 to 2008, employment in New York City's insurance industry declined from approximately 83,000 to 56,700.

Although globalization has been highly beneficial to New York City and the city's financial firms, there have been some clear downsides. One is that while New York clearly strengthened its position as a place where finance firms have their headquarters, almost all of the employment growth in the world's financial industry has happened elsewhere. Indeed, even as employment in the securities industry nationally and internationally has increased dramatically over the past few decades, New York City has roughly the same number of securities industry jobs as it did in 1987. The city was home to 163,000 jobs in this sector in 1987 and 162,800 in the fourth quarter of 2010.[21]

Many of the new jobs have been added in other parts of the U.S.—the securities industry added 351,200 jobs nationwide over the past 20 years, but just 16,500 in New York State, a significant portion of the


NYSE

The Secret to NYC's Success in Finance

Talent is the backbone of the industry and emphasizes that innovation is central to New York's success in global financial services.

What makes New York City the "Finance Capital of the World"? Our research suggests that it is attributable to New York's ability to attract the world's best talent in finance; the city's impressive cluster of specialized and ancillary financial services, which is unparalleled in the world except by London; its attractive regulatory structure; and the city's accessibility to so many other parts of the globe.

In 2010, London and New York were tied for first place in the annual City of London Global Financial Centres Index. The Index considers the availability of skilled personnel as the most important factor, with the regulatory environment second. "Market access," which includes considerations such as the value of trading in financial instruments and the "clustering effect" of many different financial services firms being in one city, also ranks high.

It might have been expected that advances in communications technology would have led to a dispersal of the industry from New York. But face-to-face contact remains crucial and clustering is as important as ever. In his 1989 paper, Face to Face: Why Foreign Banks Still Love New York, New York University Professor Mitchell Moss addressed the belief that communications technology would lead to the decentralization of financial services and concluded that advances in communications technology "have in many ways reinforced, rather than weakened, the most competitive edge that large central cities enjoy in the growth of finance and business services—the advantage of being able to conduct a wide range of business with a large number of people face-to-face…"

Matthew Nimetz of General Atlantic says that 20 years ago, his firm moved from Manhattan to Greenwich, Connecticut. More recently, though, General Atlantic moved its main office back to Manhattan.

"We found that people want to meet. The bankers and lawyers are here. In Manhattan, you can have several meetings in one day at different places—perhaps a negotiating session at a law firm in the morning, a meeting with bankers for lunch, and dinner with CEOs."

In a globalized world economy, negotiations and dealmaking frequently involve players in several different locations across the globe. New York is often where they will meet. As Nimetz explains, "Say there's a coal mine in India, with two corporate headquarters, perhaps one in Houston. The asset is not in New York, but here is where you meet." New York's extensive direct air links to rest of the world as well as amenities such as top restaurants and hotels are critical to making these meetings possible. Nimetz stresses the importance of New York's accessibility, noting that Bank of America has been moving some operations from its Charlotte headquarters to New York. "Being in Charlotte [can] add days a year to total travel time," he observes.

Ann Li, senior director of financial services and international business at the New York City Economic Development Corporation, says that talent is the backbone of the industry and emphasizes that innovation is central to New York's success in global financial services. In addition, however, she says that the availability in one place of a wide array of financial services is crucial. New York and London are preeminent in finance because they offer a much broader array of financial services expertise and specialties than their competitors. Other major financial centers operate mostly in niches, she says. Rae Rosen of the Federal Reserve Bank of New York says New York and London are the only cities to offer a full supermarket of services.

employment growth has been overseas.[22] By 2008, Morgan Stanley had roughly 500 people employed in India doing research and statistical analysis; approximately 100 of Goldman Sachs' 3,000 employees in Bangalore were working on investment research; and JPMorgan had 200 employees in Mumbai doing industry analysis and marketing research for its investment banking operations around the world.[23]

Consider where the job growth has occurred for Citigroup and JPMorgan, two of the city's largest employers. In 1992, New York City was home to 21 percent (16,862) of Citicorp's 81,000 employees firm-wide. But by 2004, New York had just 9 percent (27,144) of Citigroup's 300,000 employees (the company had changed its name after several mergers).[24] Similarly, in 1992, 49 percent of all the employees at Chemical Banking Corp., Chase Manhattan Corp. and J.P. Morgan & Co. were based in New York (43,623 out of 88,595 total at the three firms). By 2004, after mergers between the Chemical and Chase, and then Chase and J.P. Morgan, only 13.8 percent of all employees at J.P. Morgan Chase & Co. were in New York City (20,257 out of 146,572).[25]

The securities industry added 351,200 jobs nationwide over the past 20 years, but just 16,500 in New York State.

Finance Jobs Upstate

While New York City accounts for over 90 percent of securities industry employment in the state, there were 116,762 finance and insurance jobs upstate (north and west of Putnam and Rockland counties). And globalization has not entirely bypassed the upstate finance and insurance sector. Downtown Buffalo is a hub of global operations for United Kingdom-based bank HSBC, which has 2,000 employees there. Chris Johnston, president of the World Trade Center Buffalo-Niagara, says that employees in HSBC's Buffalo offices are working on a global internet platform. And upstate has indirectly benefitted from globalization because the high cost of operating in New York City has led some financial institutions to relocate workers to lower-cost upstate. Citigroup recently relocated several hundred workers from New York City to Buffalo.

Higher Education

There's little doubt about the growing power of higher education in the state's economy, and in regions throughout New York. Over the past two decades, employment in the "colleges, universities and professional schools" sector statewide increased by 85 percent, from 139,000 jobs in 1990 to 257,100 in 2010. During the same period, private sector jobs grew by just four percent.[26]

Globalization has contributed to this growth in a couple of clear ways. First, global competition has prompted employers in nearly every industry to seek out workers with higher educational attainment. As a result, the number of Americans—and New Yorkers—going to college has greatly increased. In addition, college and universities create wealth by "exporting their services to foreign students," and in recent years the number of international students enrolled at colleges in New York State has increased significantly.

Over the last two decades, as more and more students from rapidly developing countries like India and China come to the U.S. for undergraduate and graduate school, the value of the U.S.'s educational exports has sky-rocketed from $6.2 billion in 1992 to $19.9 billion in 2009. New York State's colleges and universities have played a big role in that increase.

Although New York State has only 7 percent of the U.S. population, its universities and colleges serve over 11 percent of the nation's foreign students. In the 2009/10 academic year, 76,146 international students were enrolled in the state, second only to California (which had 94,279 foreign students). That year New York State had four universities in the nation's top 25 for foreign student enrollment: NYU at number 3 (with 7,276 international students), Columbia at number 5 (6,833), University at Buffalo at number 12 (4,911) and Cornell at number 22 (4,115). (New York City was the top metropolitan area in the nation, by far, for international students, with 60,791 enrolled at area schools in 2009-2010.)[27]

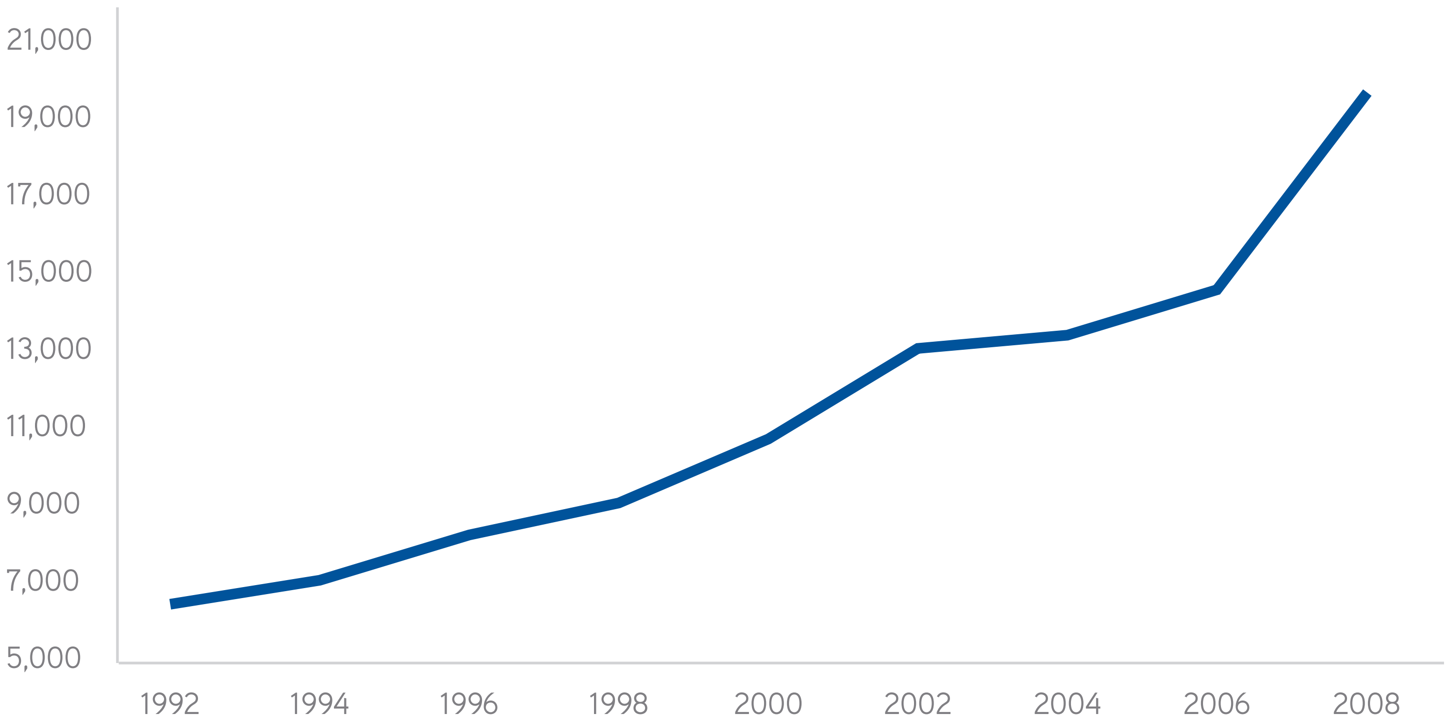
At the SUNY system alone, there were 18,772 international students enrolled in fall 2009. Much of the growth has coincided with the acceleration of globalization: SUNY had only 545 international students in 1960. It grew to 4,441 in 1973 and 9,744 in 1999, but then nearly doubled in the past decade. This increase has benefited SUNY and communities across the state that are home to SUNY campuses; the economic impact of international students enrolled in SUNY institutions in the 2009-2010 school year was $406.8 million.

Even some small, specialized schools have substantial numbers of international students. The number of international students at Manhattan's School of Visual Arts soared by nearly 60 percent between 2004 and 2010, according to Kaori Uchiska, director of the International Student Office at SVA. SVA now boasts 817 international students, roughly 20 percent of total enrollment. Meanwhile, SUNY's Fashion Institute of Technology enrolled 1,100 foreign students in 2009. Graduate schools tend to have even higher percentages of foreign students than undergraduate schools. Thirty-four percent of the 2009 entering class and 39 percent of the 2008 entering class at Columbia University Business School, for example, were non-U.S. citizens, up from 22 percent in 2005 and 26 percent in 2001.

The economic benefits of international students to New York State are immense. In 2008/09, New York's foreign students spent $2.2 billion in tuition, fees and living expenses. Although New York City's top schools bring in the most money from exports, several upstate schools, including Cornell University, Syracuse University, and University at Buffalo, bring in tens of millions of dollars from foreign student enrollment every year.[28]

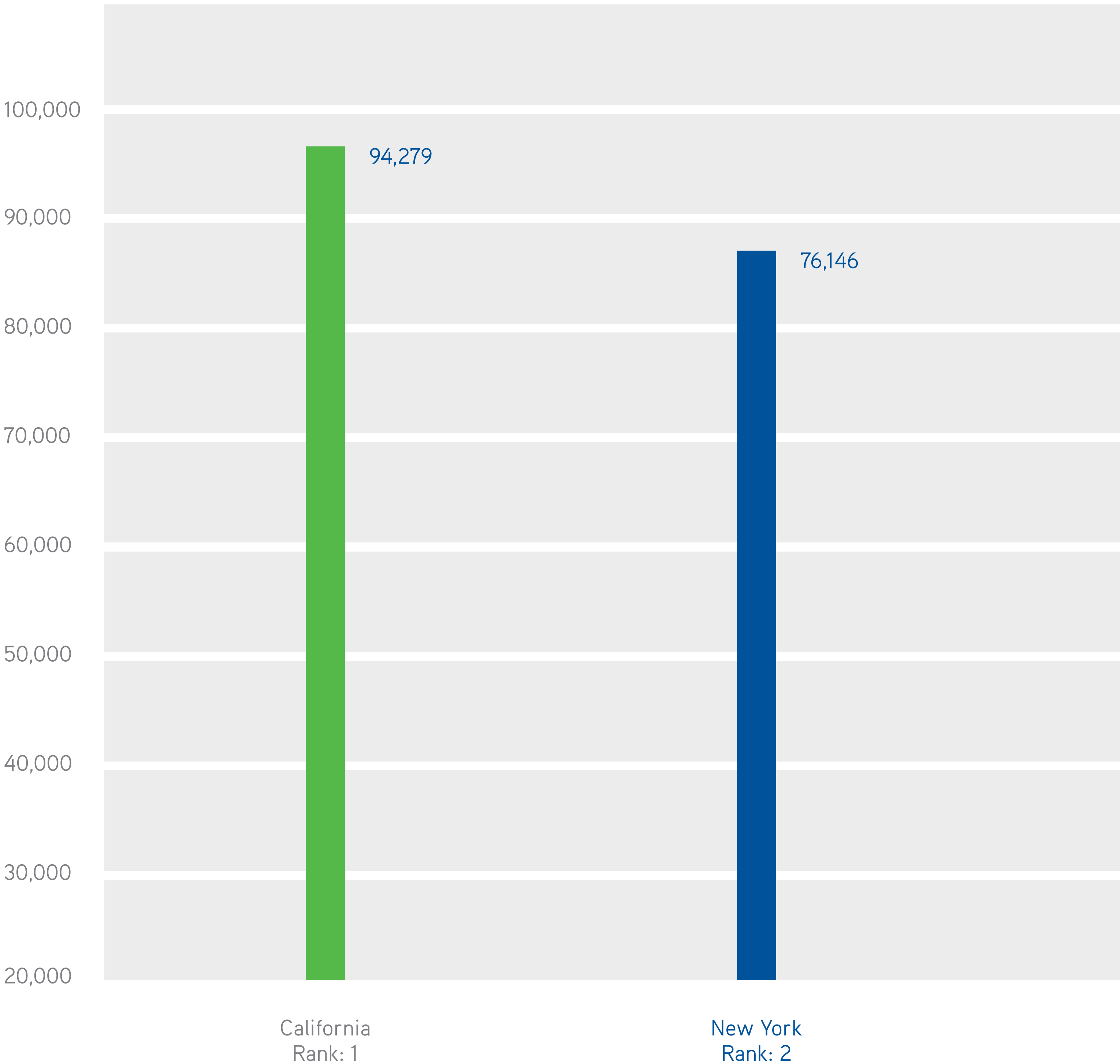
Other important benefits cannot be measured in dollars. Ann Murray, president of Herkimer County Community College, says that international students provide local students with exposure to people from other countries. "We have 98 international students. We would like to have 150 in five years. The intent is to expose Herkimer students to the international, global perspective. If you are entering a diverse world, you need to have access to different realities and ethnicities."

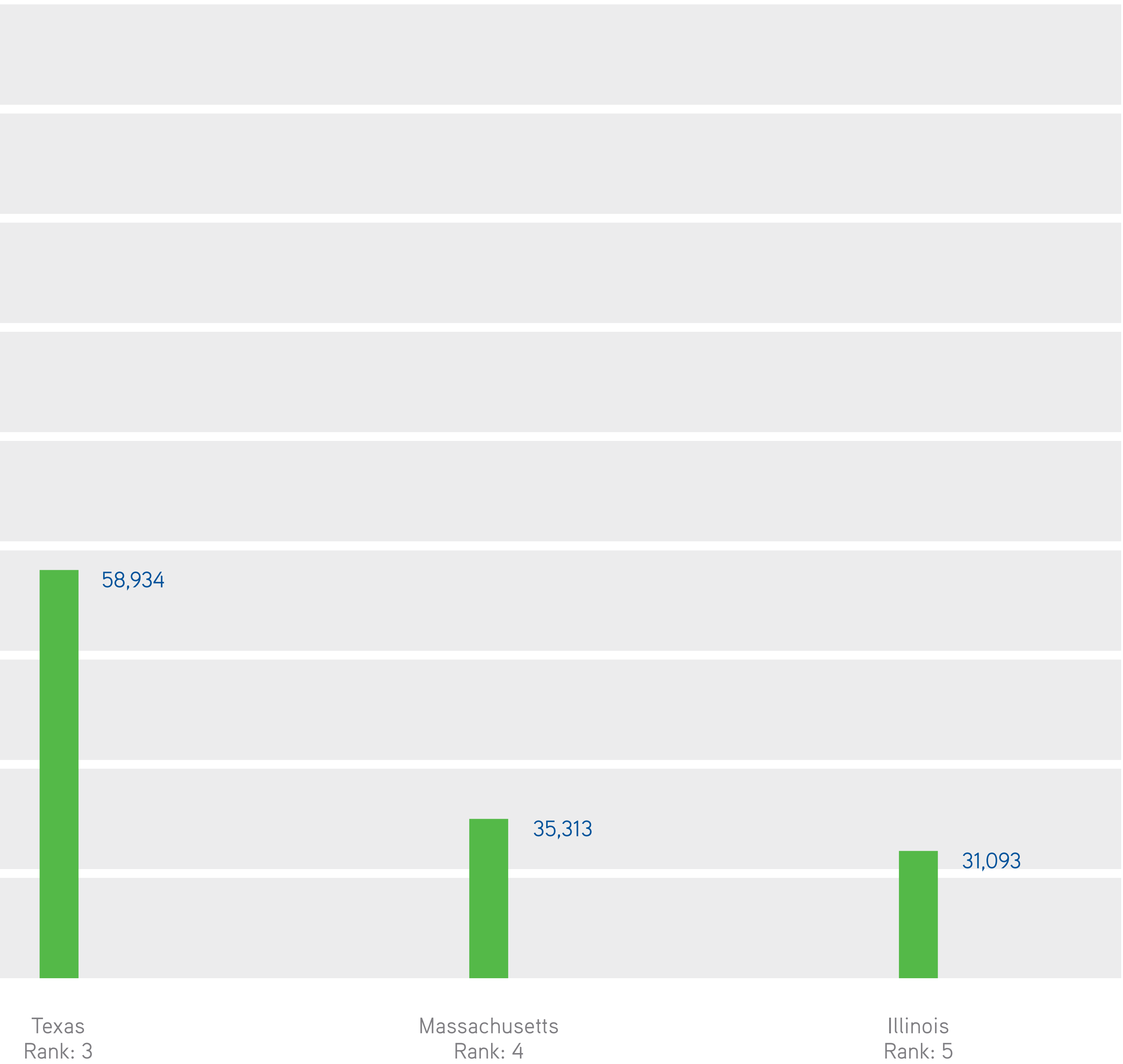
6. Foreign Students Studying in New York at SUNY



In 2008/09, New York's foreign students spent $2.2 billion in tuition, fees and living expenses.

7. Top States For Hosting International Students 2009–2010



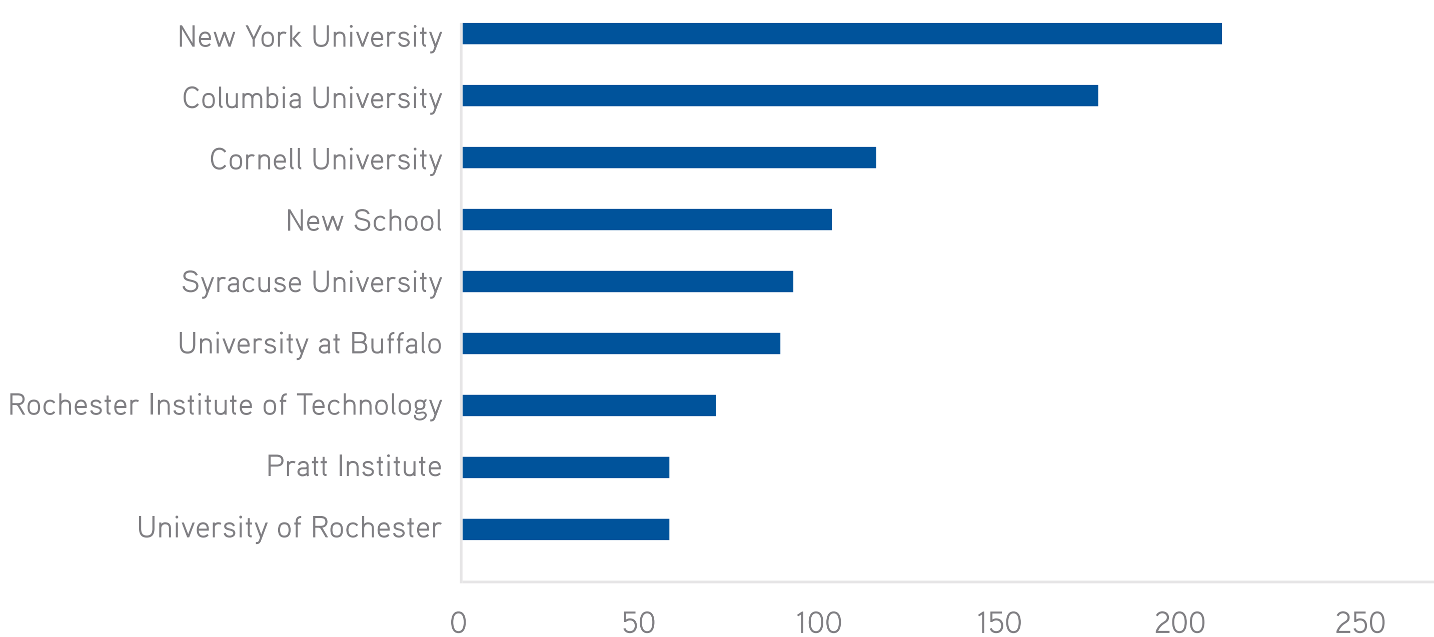

58,934
35,313
31,093
Texas
Rank: 3
Massachusetts
Rank: 4
Illinois
Rank: 5

For similar educational reasons, most New York State colleges and universities have extensive study abroad programs, and several are in the process of building expensive overseas campuses.[29] In the 2008/09 academic year, over 21,000 students at New York schools studied abroad. And NYU alone had more than 3,500 students overseas that year. Indeed, NYU has perhaps the most ambitious international plans of any university in the nation. As part of its plan to become the "Global Network University," in 2010 NYU opened a comprehensive four-year degree granting campus in Abu Dhabi and is planning to open another one in Shanghai. NYU spokesperson John Beckman says that New York benefits when a student at an overseas campus decides to study in New York for six months or a year. "They may realize this is where they want to come for their career," he explains.

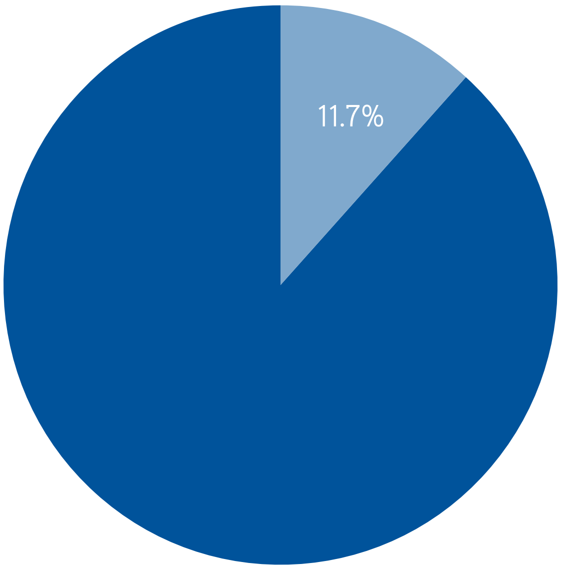
The State University of New York has developed a strategic plan, the Power of SUNY, which includes an ambitious global component. Part of the plan involves an aggressive international recruitment strategy aimed at increasing international student enrollment by 14,000 over the next five years. SUNY's Vice Chancellor for Global Affairs, Mitch Leventhal, points out that this will result in more than $200 million in additional tuition revenue by the plan's fifth year, which will be used, in part, to create thousands of study abroad scholarships for New York students. According to Leventhal, "SUNY is purposefully leading the "Smart Trade" movement," an effort to capitalize on the export of educational services.

New York is well represented among the top 20 U.S. institutions with the most students studying abroad: Among those with the most students studying abroad for at least a year are Sarah Lawrence College (3rd), SUNY Fashion Institute of Technology (7th), Hamilton College (10th) and Barnard College (16th). Among those with the most students studying for a semester (trimester) are Colgate University (2nd), Skidmore College (6th) and Vassar College (9th).[30]

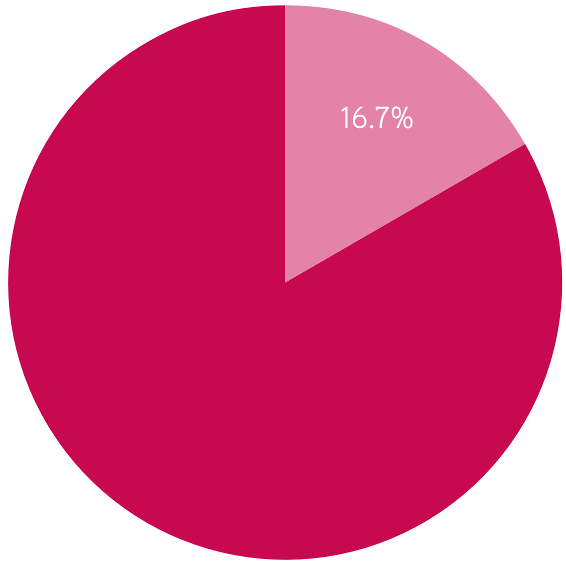
8. Economic Benefits of International Students at Selected Universities in New York in Millions



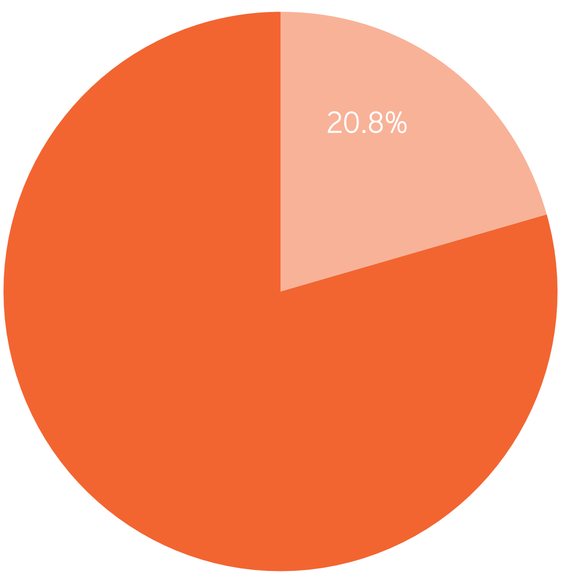
9. Percent of International Students in Selected Universities in New York in 2008/2009



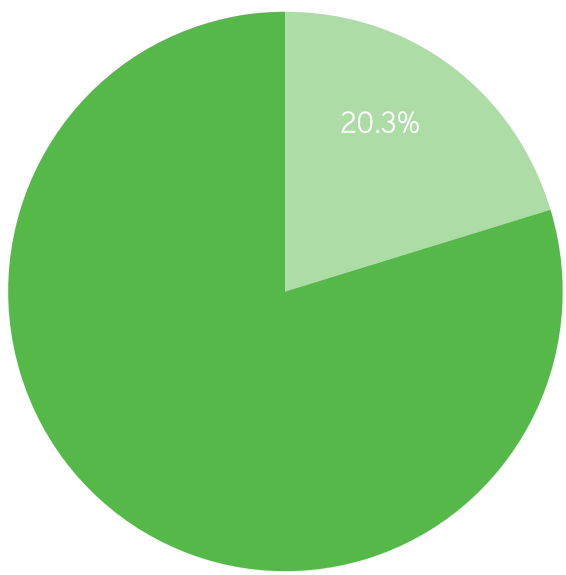
New York University
Total: 43,208
International: 7,276
U.S. Rank: 3



University at Buffalo
Total: 28,881
International: 4,911
U.S. Rank: 12



Columbia University
Total: 24,188
International: 6,833
U.S. Rank: 5



Cornell University
Total: 20,609
International: 4,115
U.S. Rank: 22

Agriculture

As the country's third largest dairy producing and second largest apple producing state, New York's biggest agricultural exports are in dairy and apples.

In 2008, dairy products accounted for half of New York's total agriculture revenue of $4.5 billion. Jessica Zheim, director of communications at the New York State Department of Agriculture and Markets, says that New York dairy farmers are selling their domestic surplus to meet a growing demand for milk in countries like China and India, where a growing middle class is quickly developing new tastes for milk products. Former Commissioner of Agriculture and Markets, Patrick Hooker, reports that New York is exporting $200 million of milk products a year.

However, imports from Europe, Canada, New Zealand and Australia of milk protein concentrates (MPCs), which are used in protein shakes, granola bars and other products, are also a significant competitive hurdle, says the Farm Bureau's Julie Suarez. Hooker calls it "very frustrating that there is no possible check on the importation of MPCs. There's no control over this. Congress still has not picked this up."[31] Also, the rise of global markets has mainly benefitted large commercial farms at the expense of medium sized farms. "They lack the scale to weather global commodity pricing declines," says Suarez. "Medium-size farms just haven't reached the scale that allows for greater production efficiencies, and they tend to be more in the wholesale rather than direct retail marketing chain, which makes them increasingly more vulnerable."

New York exports approximately 10 percent of the more than 13 million bushels of fresh apples that go to market every year, but apple growers are also dealing with increased competition from abroad. Fifty-three percent of the apples grown in New York

are processed into apple sauce, juice, vinegar and preserves; one of the country's largest apple sauce manufacturers, Mott's, is based near Rochester, for example. But, over the last decade, New York apple farmers have faced a surge of Chinese concentrate imports. According to the U.S. Department of Agriculture, apple concentrate imports from China accounted for about 60 percent of the U.S. apple juice supply in 2007. Julie Suarez says that the increase in Chinese concentrate has forced many New York farmers into the fresh apple market. "We lost a relatively lucrative outlet for apples that were undersized or otherwise unmarketable for fresh, such as apples with minor hail storm damage," Suarez says. She says that farmers are now concerned about Chinese farms moving into fresh market production. "If that happens, frankly, it will jeopardize our ability to produce apples in this country for anything other than pick your own operations."

In addition to dairy and apples, New York has major wine and maple syrup industries. However, although new global markets have definitely benefitted maple syrup farmers with growing exports to Europe, Japan and even China, wine growers are still finding themselves shut out of several lucrative markets abroad because of the lack of progress on free trade agreements at the Federal level, says Julie Suarez. Free trade agreements with Korea, Columbia and Panama, which proponents say could boost U.S. agricultural exports by $2.5 billion a year, are all currently stalled in Congress. "South Korea has tremendous potential for us in wine," says Suarez. "They are buying and consuming a lot of Chilean and other South American wines right now, while our wine guys are virtually shut out."

New York dairy farmers are selling their domestic surplus to meet a growing demand for milk in countries like China and India

Real Estate

In the 21st Century New York City continues to attract major overseas investments in property. The latest buyers or leasers of commercial real estate and private residences are from China. Japanese investors made headlines in the 1980s when they spent $846 million for control of Rockefeller Center. Since then, foreign participation in the commercial real estate market has increased dramatically. Technological advances in communications, the growing number of overseas investors looking for good returns, and the development of new kinds of investment vehicles such as real estate investment trusts have worked together to make commercial real estate a truly global, not just local, business.[32]

Foreign investing was especially strong during the run-up in global real estate values that ended abruptly in 2008. In just one year, 2006 to 2007, direct foreign real estate investment in Manhattan nearly doubled, from $4.1 billion to $8.1 billion. Ken McCarthy, managing director at the real estate firm Cushman & Wakefield, says one major factor contributing to the rise in foreign investment has been the rapid growth of Asia and Middle East oil wealth. From 2004 to 2006, Middle East investors spent nearly $8 billion on New York City real estate, including Istithmar, the investment vehicle of Sheik Mohammed bin Rashid Al Maktoum of Dubai, which bought 230 Park Avenue, the former Knickerbocker Hotel in Times Square, the W Hotel in Union Square, 280 Park Avenue and a 99-year lease for 450 Lexington Avenue. In 2008, the government of Abu Dhabi bought a 75 percent stake in the iconic Chrysler Building for $800 million. The Pierre Hotel on New York City's Fifth Avenue is now owned by India's TATA Group.

Even after the Great Recession, New York City real estate continues to be very attractive to foreign investors. The Association of Foreign Investors in Real Estate (AFIRE) recently ranked New York City ahead

Technological advances in communications, the growing number of overseas investors looking for good returns, and the development of new kinds of investment vehicles such as real estate investment trusts have worked together to make commercial real estate a truly global, not just local, business.

of Paris, Tokyo, Sydney, San Francisco, Hong Kong and Shanghai as the most preferable market in which to invest. In 2010, $3.3 billion of the total of $10.1 billion in direct acquisitions of U.S. commercial property were in New York City, and 18 percent of New York commercial real estate sales involved non-U.S. investors, compared to 7 percent for the U.S. as a whole.[33]

Although not as big or lucrative, New York City's residential real estate market has also become much more international in recent years. In May 2011, the Wall Street Journal reported that 15 to 20 percent of home sales in Manhattan were to foreign buyers.[34] Foreign purchasers are encouraged by favorable exchange rates and a perception that the New York City residential market is relatively stable. Moreover, real estate agents say that foreign buyers are attracted to New York for much the same reason they buy in Paris and London—the city is cosmopolitan and pleasant, with lots of amenities and cultural offerings.

However, wealthy individual investors are not the only players in New York's residential housing market. In the run-up to the domestic housing crash in 2008, international investment groups like the Rockpoint Group, BlackRock, Dawnay Day, Cammeby's International and Ocelot Capital, among others, started to invest in dozens of large, rent-stabilized housing buildings in neighborhoods throughout the city with the intention, some observers say, of eventually converting their subsidized units into market rate units as the neighborhoods gentrified and became more expensive.[35] In 2005, for example, the Rockpoint Group and Stellar Management bought the Riverton Houses—a Harlem complex consisting of seven, 13-story buildings—and, after investing in improvements, refinanced their mortgage at a much higher valuation. Investment groups could of course use the equity to invest elsewhere, but, according to Benjamin Dulchin, executive director of the Association of Neighborhood Housing Developers (ANHD), even the underwriters often didn't have the resources or inclination to properly appraise the properties.

For foreign banks, the market for large, subsidized housing complexes in Manhattan was especially hard to evaluate, he says, but either way nearly all of the underwriters would repackage the mortgages in a security and sell them to other investors, thereby mitigating the risk of a possible default. Credit Suisse, in particular, was a major factor in these kinds of deals, says Dulchin. "They're the ones who invented the model and brought it to scale." After the 2008 market crash, dozens of investment groups, including Rockpoint and Stellar Management, began to default on these deals. And affordable housing advocates say there may be more than 100,000 units still at risk.[36]

High-End Professional Services

Legal Services

Law firms employed 119,200 people across the state in May 2011, with 63 percent of the jobs in New York City. While the sector has long been strong in New York, it has benefited from the international expansion of New York-based law firms.

In 2008, the U.S. exported legal services worth $7.3 billion and imported services worth $1.9 billion. Much of this surplus can be credited to large New York City-based law firms, whose international practices have grown to meet the needs of the increasingly international finance and corporate management business, including antitrust, asset finance, tax and trade finance, international litigation, cross-border corporate mergers and acquisitions and global financial restructurings.

Fourteen of the 50 top global law firms, according to the Practical Law Company, have their headquarters in New York City, while 32 other firms on the list have offices in New York.[37] By comparison, Chicago has five PLC Global 50 law firms and London nine.

In recent years, New York firms have opened offices in the Middle East, Latin America and especially Asia, augmenting offices already opened in Europe. The explanation in law firm Proskauer Rose's newsletter for why the firm opened an office in Hong Kong applies to many other New York firms: "The Chinese and Pacific Rim economies are expanding at a robust rate… Business activity in the area likely will equal and even surpass that of the U.S. and the E.U. in the not-too-distant future."

New York City law firms are in great demand abroad because New York is where so much of the world's financial deals are transacted, and because, as H. Rodgin Cohen, former chairman of New York-based Sullivan & Cromwell, explains, the U.S. economy is so huge that international legal issues will often involve some element of U.S. law. Also, the U.S. and U.K. both have hundreds of years of legal tradition and established principle, Cohen says, and because of that nearly 70 percent of contracts world-wide are written in English. But, according to Edward Kowalewski, director of International Trade Programs at the Empire State Development Corporation, law firms with many international clients are not limited to New York City. A number of upstate law firms, he says, also work internationally, particularly with respect to trade finance and cross boarder deals. A partner in one of Buffalo's largest law firms, for example, says their international work is growing rapidly. Most of it is Canada-related, he says, but their firm also has business in Europe and, more recently, China.

The internationalization of New York's largest law firms benefits New York, because it provides more legal work and billings and helps to boost partner profitability. "We try to run [Sullivan & Cromwell] as a single unit," explains Cohen. "The foreign offices strengthen the firm and make it more profitable."

However, changes now occurring in the practice of corporate law could weaken the relative position of New York's global law firms. Corporations are putting downward pressure on law firm billings and asking to pay flat fees for services rather than hourly rates. Moreover, discovery work such as reviewing emails and documents is increasingly being automated or off-shored. For these and other reasons, employment in 250 of the largest U.S. law firms has declined each year since 2008.

In 2008, the U.S. exported legal services worth $7.3 billion and imported services worth $1.9 billion.

Advertising

Roughly 16 percent of all advertising jobs in the U.S. are in New York State, with the lion's share of them in Manhattan.[38] Employment in the sector remained flat over the past decade (with New York City home to 55,800 advertising jobs in May 2001 and 55,700 in May 2011), but the rest of the country lost jobs in the field during the same period. The global nature of New York's ad agencies may be a key factor as the city increased its overall share of the nation's jobs in advertising from 11.4 percent in 2001 to 13.1 percent in 2011.

Indeed, globalization has created tremendous growth opportunities for many of New York's biggest ad agencies. Two of the world's largest advertising and communications holding companies, Omnicom and Interpublic, are based in New York. In 2010, 43 percent of Interpublic Group's $6.5 billion in revenue and 47 percent of Omnicom's $12.5 billion in revenue was generated from outside of the U.S. Grey Global Group, another major New York agency, has offices in over 83 countries, up from 40 in 1991.

Advertising has become more international as brands have become more global. Large, international ad firms have an advantage with these companies because they can offer a single point of contact and economies of scale. And because those firms have so many regional offices, they can offer services that are truly cross-cultural and understanding of local markets.

Andrew McLean, president of the International Advertising Association and an executive at Group M, an advertising agency, says that New York is a natural hub for advertising because it's where most of the media buyers are and where so much creative talent congregates. "Advertising is a people business," says MacLean, "and people gravitate to other talented people." McLean also credits New York as a unique place to conduct business and points to the city's cultural offerings and nightlife as important factors for the industry. "A vast number of our clients are not based in the U.S.," he says, "and they always want to come to New York to meet us."

As with financial and legal services, New York ad agencies compete primarily with London-based firms for international work, and agency mergers and consolidations have no doubt suppressed some employment growth. Moreover, because creative work tends to be in-country, any local increase in employment is likely to be limited to management.

The global nature of New York's ad agencies may be a key factor as the city increased its overall share of the nation's jobs in advertising from 11.4 percent in 2001 to 13.1 percent in 2011.


Silverstein Properties / dbox

Architecture

Globalization has changed the practice of architecture itself by making it easy to work from anywhere.

New York City has easily the largest collection of architecture firms of any city in the U.S., and one of the largest in the world. In 2009, for instance, the five boroughs of New York had 40 percent more architectural firms than the next closest U.S. city (Los Angeles) and two thirds as many as the third closest (Chicago). Dozens of the city's architecture firms, such as Pei, Cobb, Freed & Partners, Skidmore, Owings and Merrill, Beyer Blinder Belle, and Perkins Eastman, have been working internationally for decades. But due in large part to the rapid pace of development in countries like China, Singapore and the United Arab Emirates, these and other big firms' international revenues have been increasing dramatically over the last five to ten years.

For example, according to data published by the Architectural Record, international revenues among New York City's ten largest firms increased from $164 million in 2005 to $408 million in 2008; revenues dropped to $301 million in 2009 due to the global financial crisis, but even with that drop international revenues were not only up 84 percent from four years earlier, they represented a much larger share of these firms' total revenue (39 percent in 2009 versus 28 percent in 2005).

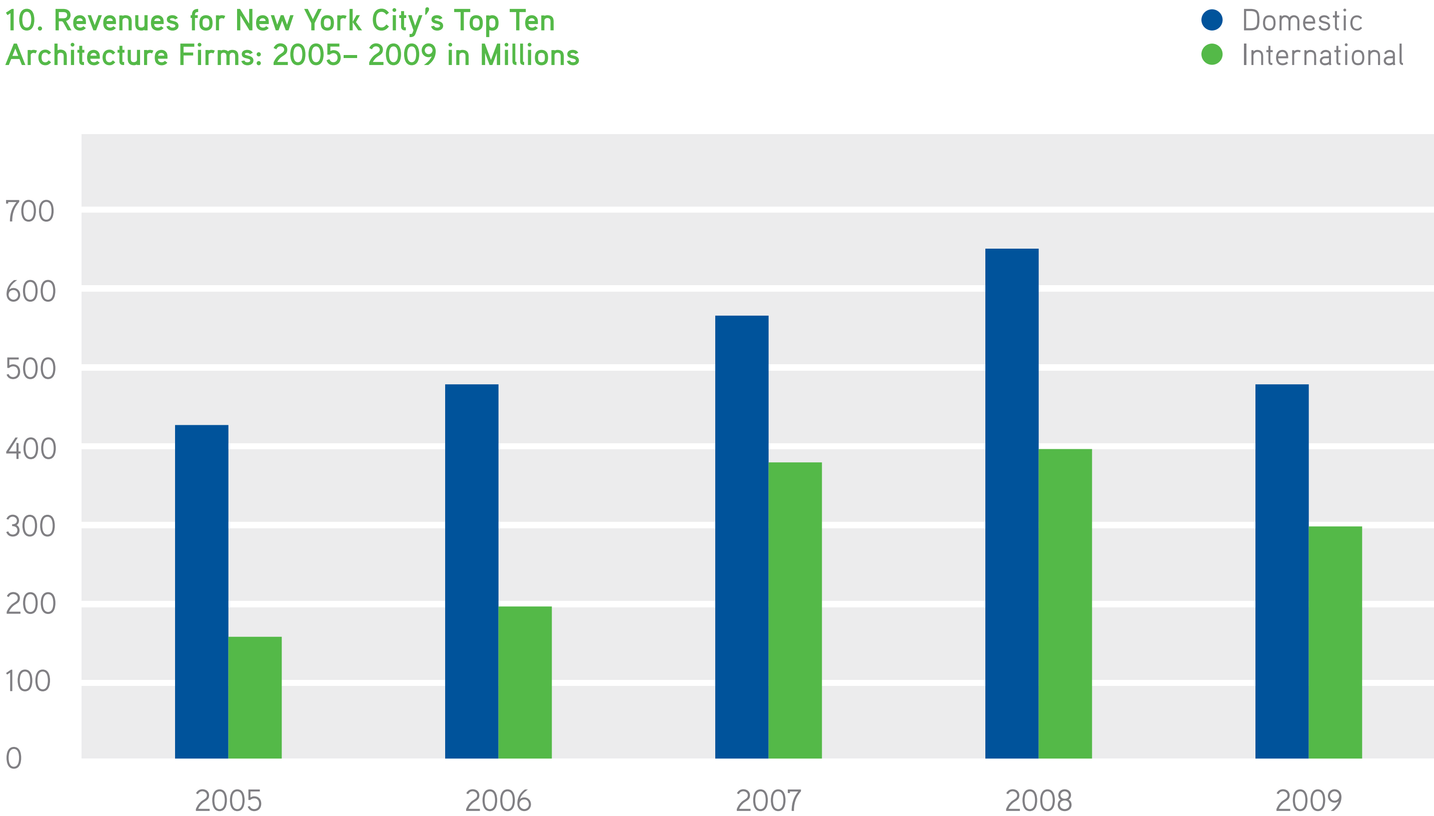
New York-based Kohn Pedersen Fox, designed the Shanghai World Financial Center, the tallest building in China, and is currently working on designs for a new airport for Tianjin—China's fourth largest city—in addition to four skyscrapers in Marina Bay, Singapore. Rafael Viñoly is the principal designer behind three major new developments in Abu Dhabi, including the master plan for New York University's new campus there.

"New York is probably the global center for architecture, urban planning, urban design and landscape architecture," says Tom Balsley, the principal of Thomas Balsley Associates, a leading New York-based landscape architecture firm. "A friend of mine is a talent agent for Korean developers looking for New York-based architects. A lot of his clients may interview someone from Chicago or someone from San Francisco or L.A., but those places haven't established themselves as global centers for architectural design like New York has."

Frederic Bell, executive director of the New York chapter of the American Institute of Architects, says that globalization has given New York firms more work in the boom as well as in the recession. But beyond the financial benefit, Bell says globalization has changed the practice of architecture itself by making it easy to work from anywhere. "Globalization has led to a psychology where people don't have artificial boundaries," says Bell. "They don't say this is our turf and we don't want a Nouvel [or another outside architect] to work here."

In the Architectural Record's 2010 rankings of the 250 highest grossing firms in the U.S., New York City had 18 firms, and all but five received a significant portion of their revenues from overseas sources. Several like Skidmore, Owings and Merrill and Kohn, Pedersen, Fox, had higher international revenues than domestic revenues. However, although international contracts are definitely more common among larger firms, many of the old barriers to doing international work have largely faded, and it is now extremely common for small, boutique firms to win lucrative contracts abroad. For example, Steven Holl Architects, a New York-based firm with 29 architects, has been working on not one but three multi-billion dollar projects in China, including a "horizontal skyscraper" in Shenzhen, just north of Hong Kong. And WORKac, another New York-based firm with just 14 architects, is currently redesigning a kilometer-long section of Shenzhen's premier shopping district.

10. Revenues for New York City's Top Ten Architecture Firms: 2005– 2009 in Millions



Architecture firms like to locate in New York, because the city's nearly unrivaled pool of talent allows them to scale up quickly when big contracts come through. New York is also home to an unparalleled number of cultural non-profits, museums, and schools that are supportive of architectural research, including the Museum of Modern Art, the New Museum, Cooper Union and Columbia University's School of Architecture, Planning and Preservation. And of course being physically closer to influential publications like the New Yorker, the New York Times, the Architectural Record and Metropolis Magazine, all of which cover architecture and architectural design, can help provide much needed visibility and prestige.

At the same time, not all of New York State's globally active firms are in New York City: Cannon Design, based in Grand Island in Erie County, for example, earned more total revenue in 2010 than all but ten other firms in the country, with international revenues worth $34 million. The firm has offices in 17 cities, including Shanghai, and is planning to open additional offices in Jordan and India.

Architecture firms like to locate in New York, because the city's nearly unrivaled pool of talent allows them to scale up quickly.

Fashion

New York City's dominance in fashion clearly begins with talent. Arguably, no other city in the world has as much fashion design talent concentrated in one place. For instance, the city is home to 42 percent of the nation's fashion designers. And Parson's School of Design, the Fashion Institute of Technology (FIT) and the Pratt Institute all have programs capable of attracting the best talent from around the world.

Moreover, New York's concentration of everything from pattern makers and fabric shops to publications like Vogue and WWD creates a nurturing ecosystem for design that can't be found anywhere else. "New York City and the Garment Center in particular provide all the resources necessary for designers to launch their fashion brands," says Andrew Ward, acting executive director of the Garment Industry Development Corporation (GIDC). "I work with over 400 designers a year locating production resources, and New York City is the only place where you can find the fabrics, trims, high end tailoring and low minimums necessary to launch a collection business."

In all, over 800 fashion design and merchandising companies have their headquarters in New York, which is more than double that of Paris, the city's next closest competitor. And not only are the vast majority of the city's fashion brands—including everything from Donna Karan to Diane von Furstenberg to Calvin Klein—exported to markets abroad, foreign companies will often come here in order to draw from the city's one-of-a-kind talent pool. According to Tim Marshall, provost of Parson's School of Design, a South Korean holding company called SK Networks recently opened a studio in Chelsea in order to create products destined for the Chinese market. "A fashion studio for the building of these Chinese brands," remarks Marshall. "They didn't have the talent there."

New York's evolution as a global fashion hub is a fairly recent development. Before the 1970s, New York was considered more a center for fashion manufacturing and merchandising than for design, says Steven Kolb, executive director of the Fashion Designers of America. Kolb says that began to change in the 1980s as designers like Bill Blass started to become internationally known. New York's reputation as a leader was then later solidified, when the city's Fashion Week, occurring in the spring and fall, was rescheduled to come before the shows in Paris and Milan. "By showing first, we started to break the notion that we're copying Europe," says Kolb. "New York had always been considered a commercial market—about selling—but now it also became known for the ability to create products." With more than 250 separate events and 232,000 visitors, the semi-annual Fashion Week is now one of the most anticipated trade shows in the world.

Pamela Ellsworth, who heads the Global Fashion Management Program at FIT, says New York is without a doubt undergoing a "design renaissance." "We seem to be doing particularly well because the U.S. makes it relatively easy to start up a business," says Ellsworth, "which Paris does not. The employment laws are more difficult in France and, to a lesser extent, in England." However, Ellsworth also notes that design is only one part of the industry and New York's greatest global strength is in marketing and management. "New York's fashion industry is good at learning very quickly what the customer wants and reacting to it," she says. "And New York companies are better than their international competitors at e-commerce."

Media

New York is an international media and communications hub. Major international media conglomerates such as TimeWarner, News Corporation, Warner Music Group, Universal Music Group, Bloomberg LLP and Viacom are headquartered in Manhattan. According to the New York City Economic Development Corporation (EDC), media firms employ more than 300,000 people or nearly 10 percent of the city's private sector workforce, and generate $30 billion in annual revenue.

Globalization has clearly had an impact on New York's media sector. However, many of New York's media companies still serve more of a local and national market than an international one. And although much of the industry is currently undergoing dramatic changes, most of the causes are driven by digital technology, including, first and foremost, the rise of the Internet and the ease with which customers can access and share content for free. Newspaper publishers have seen their advertising revenue drop dramatically, and music publishers have seen an entire medium and delivery mechanism—namely, CDs and the stores that sold them—disappear completely. Still, New York media companies have suffered much less than companies in most other parts of the country: For example, over the last decade, employment at city newspapers has fallen just 13 percent, compared to 32 percent nationally, while employment at magazines and other periodicals has fallen by 18 percent, compared to 24 percent nationally. Even more dramatic: Since 2001, the number of people employed at New York City radio companies, including the satellite radio company Sirius XM which has its headquarters in New York, has risen by 45 percent and at cable companies by 30 percent, whereas the national employment in both industries has fallen significantly.

One reason New York City's media sector may be holding on and even succeeding in some cases is the strength of its brands and their influence abroad. For example, both the New York Times and Wall Street Journal have a global reach online as well as in print. Although the Times' online advertising is reportedly nowhere near as lucrative as its print advertising, the website is reaching far more viewers both domestically and internationally than its print editions ever did: According to the latest figures www.nytimes.com is easily the most visited newspaper website in the U.S., with over 30 million unique visitors per month.[39] And according to Diane Kennedy, president of the New York News Publishers Association, the website's international audience has definitely been a big and growing part of that readership.

International news agencies like Xinhua, the official press agency of the People's Republic of China, and media conglomerates like Zee TV, an India-based satellite television company, have been expanding their presences in New York, in order to both broaden their North American coverage for viewers at home and reach a wider audience abroad. Ethnic publishers like the News-India Times, El Diario/La Prensa, and a variety of other language media companies that cater to the needs of New York's immigrants, have also been doing comparatively well.

Much of the recent growth in the media industry has been driven by technological innovators such as Google, Yahoo!, Facebook and Amazon. And although these companies are largely based on the West Coast, both Yahoo! and Google have large New York City offices. Google's largest concentration of workers outside of California is in New York, with 2,200 workers and growing. The company recently purchased 111 Eighth Avenue for $1.8 billion, reportedly with the intention of expanding there.

According to paidContent, a non-profit that tracks the digital media industry, a number of New York-based companies are among the top 50 digital media companies in the U.S. as measured by revenue generated from online content and advertising. They include: IAC (at #6), a company that runs dozens of websites like Dictionary.com and Vimeo, AOL (#7), News Corp (#8), NBC Universal (# 11), CBS (#12), Universal Music Group (#17), Viacom (#18) and WebMD (#20).[40] Moreover, a number of prominent digital media and technology companies have recently been founded in New York, including Waterfront Media, Etsy, Foursquare, and Bit.ly. Although the biggest market by far for most of these companies is still in the U.S., web-based social platforms and content providers are expanding rapidly into new international markets.

A number of New York-based companies are among the top 50 digital media companies in the U.S. as measured by revenue generated from online content and advertising.

Finally, for New York's film and television industries, both prominent exports, globalization has brought both advantages and disadvantages. As with fashion and architecture, globalization has broken down cultural and political barriers; the growing middle classes in China, India, and Brazil, in particular, are consuming American cultural products at a rate never seen before. But globalization has also enabled a sharp spike in piracy. According to a 2006 study by the Motion Picture Association (MPA), for example, an estimated 93 percent of all films sold in China are pirated.[41]

Global Growth Sectors

Tourism

In 2009, tourists spent $46 billion in New York State and $28 billion in New York City, the number one U.S. destination among foreign tourists. Although only 20 percent of visitors to New York City in 2009 were from a foreign country, they spent $13.3 billion, or 47 percent of all tourist dollars in the city. Moreover, the number of foreign tourists in New York has been growing steadily over the last decade: As the accompanying chart shows, except for 2001, 2002 and 2003, the number of foreign tourists visiting New York has increased every year since 1998.

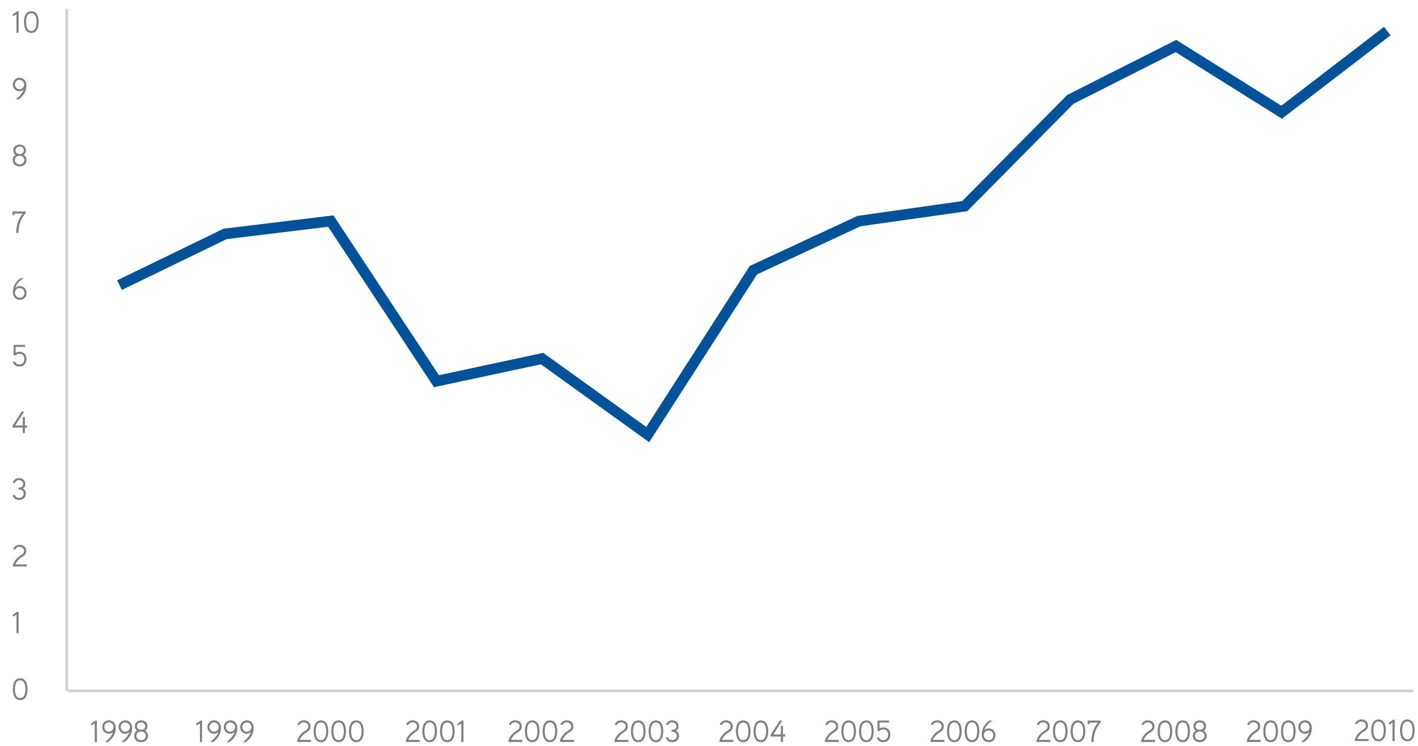
NYC & Company reports that 84 percent of foreign tourists dine out, 60 percent sightsee, 60 percent visit historical places, 46 percent visit art galleries or museums and 33 percent go to concerts, plays or musicals. According to the Broadway League, a trade organization for Broadway theaters, in 2008/09, international visitors accounted for 21 percent of all admissions to Broadway plays and musicals, which was the highest share in recorded history.

Also, of course, 90 percent of foreign visitors go shopping. Anyone visiting the Century 21 department store in lower Manhattan will likely hear more customers speaking foreign languages and British-accented English than customers speaking American English. Ken McCarthy, managing director at Cushman & Wakefield, says that foreign tourism has buttressed Manhattan storefront rental rates and hotel property valuations. "It is one reason why Fifth Avenue between 47th and 57th Streets is the most expensive retail strip in the world," says McCarthy.

However, except for Niagara Falls, and not counting Canadians who often venture across the border on routine shopping trips, upstate New York has comparatively few foreign visitors. A review of tourism's role in the upstate economy issued in 2004 by the Buffalo Branch of the Federal Reserve Bank of New York concluded that tourism is not a particularly large factor outside of Glens Falls, Jamestown, Dutchess County and Niagara Falls. However, officials in the Buffalo-Niagara Falls area are trying to lure tourists to venture past the falls and into Buffalo. Leah Mueller, tourism sales director at the Buffalo Niagara Convention & Visitors Bureau, estimates that 50 percent of the area's tourists are there to see Niagara Falls. But, increasingly, people are coming to Buffalo for accommodation, cultural events, dining and nightlife, she says. In 2009, Buffalo area tourism officials attended two major trade events in order to promote the city: the World Travel Market in London and the U.S. Travel Association's International Pow Wow in Florida. They have also reached out to international travel agencies in New York City.

In 2009, tourists spent $46 billion in New York State and $28 billion in New York City, the number one U.S. destination among foreign tourists.

11. Foreign Tourists in New York City in Millions



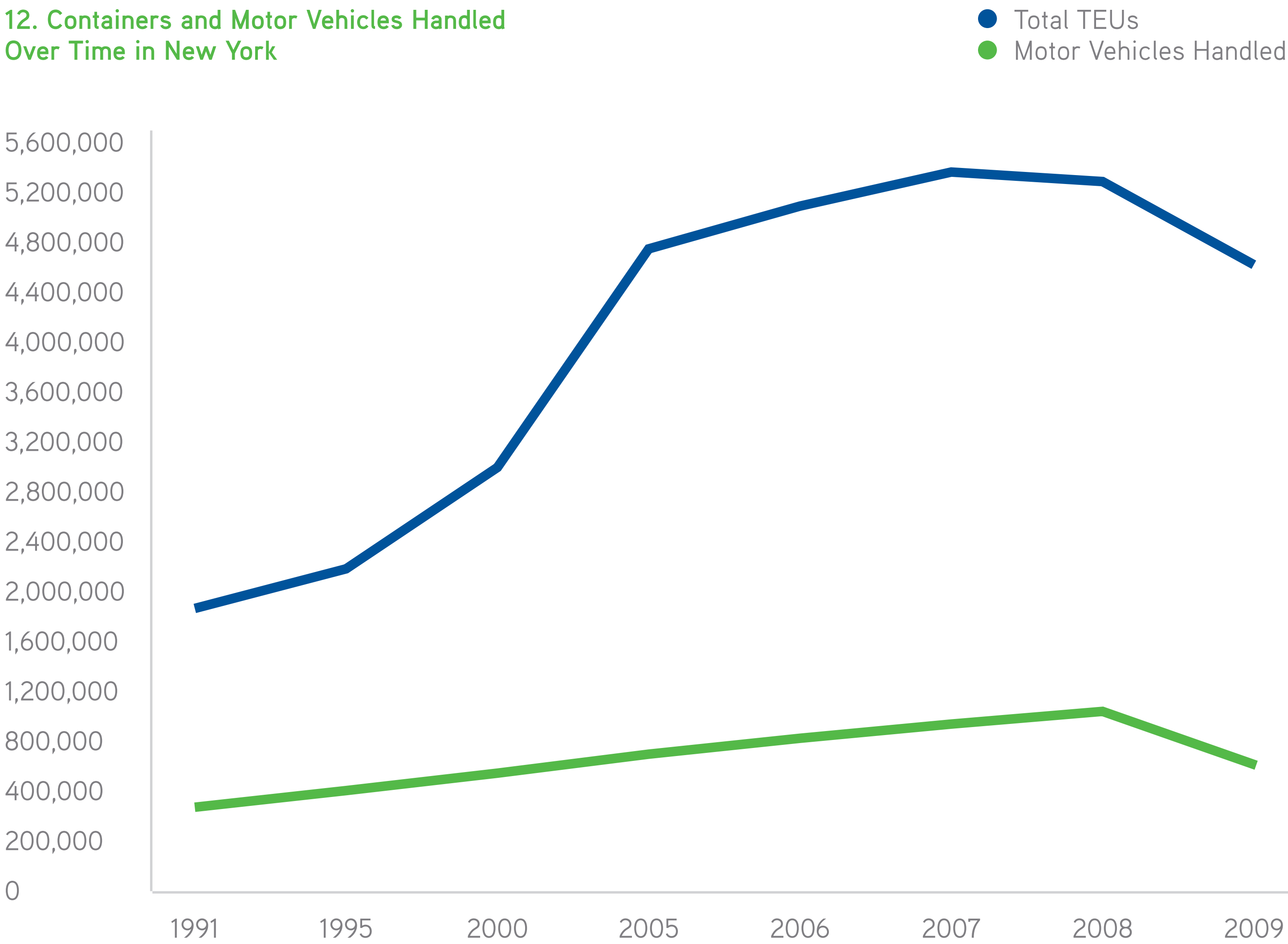
Marine and Air Cargo

From 1995 to 2009, the value of U.S. goods exports increased by 86 percent and imports by 112 percent.[42] The rise in trade has generated substantial new business for New York's ports, especially the Port of New York and New Jersey. From 1991 to 2009, the number of containers (TEUs, or "twenty foot units") passing through the port grew 144 percent, and bulk cargo metric tons rose 62 percent. The number of motor vehicles handled at the port decreased dramatically in 2009 due to the recession, but until 2008 it had been increasing significantly for nearly two decades.

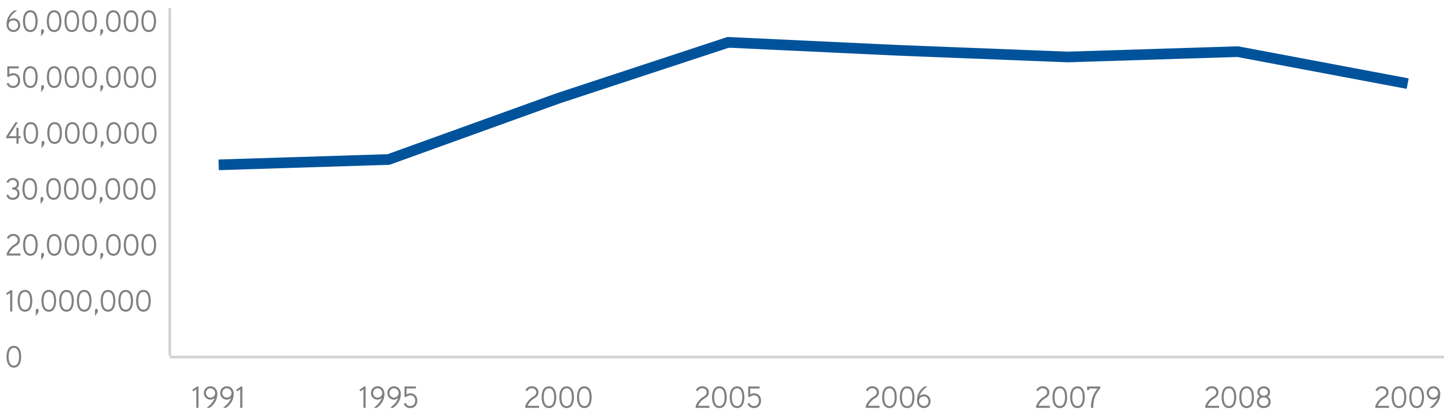
The New York-New Jersey port is an important generator of jobs. In 2009, the Port Authority calculated that containerized cargo was responsible for 34,926 jobs in the region, bulk cargo for 3,954 jobs and motor vehicles "roll on/roll off cargo" for 1,274 jobs. In addition, there were 10,000 jobs in freight forwarding and customhouse brokers, and 97,160 jobs in warehousing and distribution. The New York Shipping Association calculated that, in 2008, the Port of New York and New Jersey supported 44,800 jobs and nearly $1.4 billion in personal income in New York State.[43] More jobs are on the way. When a fourth ship berth and related container terminal facilities planned for the Howland Hook Marine Terminal on Staten Island are complete, another 311 permanent jobs will be added to the 555 already there.

Globalization has benefitted some upstate ports as well. The recent Russian drought, for example, has depressed production in that country and raised the demand for U.S. grain, some of which is shipped through the Port of Albany. Richard Hendrick, general manager of the port, says that prior to the drought no grain came through Albany at all. "Now we're expecting to export a quarter of a million tons this year [2010]," he says. The port is also exporting large amounts of scrap iron, with seven ships of scrap

12. Containers and Motor Vehicles Handled Over Time in New York



13. Bulk Cargo in Metric Tons Handled Over Time in New York



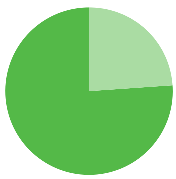
Source, US Department of Transportation Maritime Administration
Source: PANYNJ 2009 Trade Statistics.

14. Revenue Freight In Short Tons at JFK International and Newark Liberty International Airports*

International
Domestic

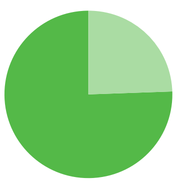
JFK

1995



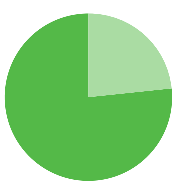
Total: 1,637,677
International: 1,244,075
Domestic: 393,602

2000



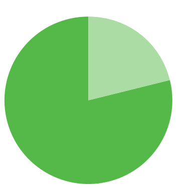
Total: 1,864,422
International: 1,406,883
Domestic: 457,539

2005



Total: 1,721,099
International: 1,318,813
Domestic: 402,286

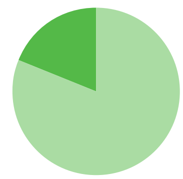
2008



Total: 1,473,466
International: 1,162,020
Domestic: 311,426

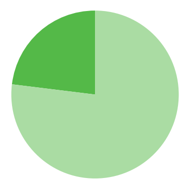
Newark

1995



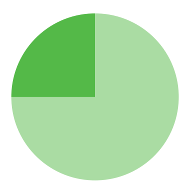
Total: 958,419
International: 179,767
Domestic: 778,652

2000



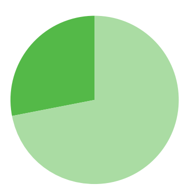
Total: 1,070,380
International: 245,781
Domestic: 824,598

2005



Total: 957,603
International: 239,108
Domestic: 718,495

2008



Total: 869,450
International: 243,601
Domestic: 625,848

*LaGuardia Airport handles less than 1% of Port Authority air freight tonnage.

last year bound for China, as well as electric power units manufactured by General Electric in nearby Schenectady. The Port of Oswego handles 120 vessel calls a year. John Daniels, executive director of the Port of Oswego Authority, says that the port's international traffic has expanded considerably in the last few years. "Additional international work has probably added 25 percent to our employment just in the last year. In the last two years we've probably seen about a 40 percent increase, where before we just weren't seeing that type of traffic at all."

In contrast to marine ports, international air freight tonnage at the downstate region's major airports has not increased at all in recent years. In fact, at JFK it declined slightly between 1995 and 2008 and increased only moderately at Newark. A 2006 report by the Port Authority noted that JFK Airport used to handle the highest volume of cargo of any U.S. airport, but has slipped to 14th. The report noted that many air cargo carriers have moved their operations to other airports because of poor access to JFK and unpredictable traffic congestion between the airport and Manhattan.

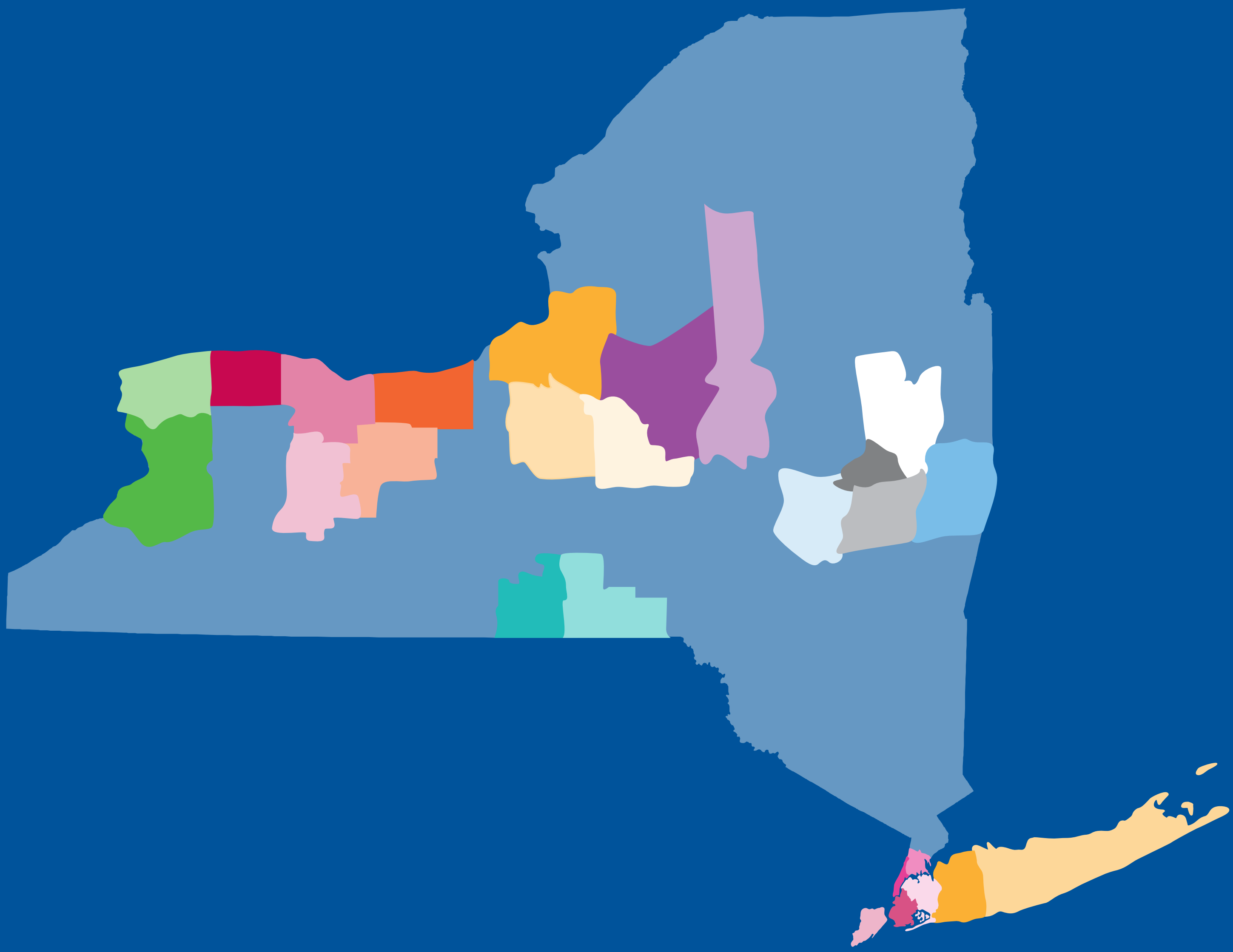
JFK Airport used to handle the highest volume of cargo of any U.S. airport, but has slipped to 14th.

Still, the economic benefits of the global air freight on New York are very substantial. In 2005, the Port Authority reported that JFK Airport was responsible for 15,580 cargo brokerage and distribution jobs and 4,340 truck transportation jobs. Moreover, in 2005, according to the report, 77 percent of JFK's cargo was international.

Section 2

Metro Area Comparisons

15. New York State Metro Regions



Buffalo–Niagara Falls
- Erie
- Niagara

Rochester
- Orleans
- Monroe
- Livingston
- Wayne
- Ontario

Binghamton
- Tioga
- Broome

Syracuse
- Oswego
- Onondaga
- Madison

Utica–Rome
- Oneida
- Herkimer

New York City
- Manhattan
- Bronx
- Queens
- Brooklyn
- Staten Island

Albany–Schenectady–Troy
- Schenectady
- Albany
- Saratoga
- Rensselaer
- Schoharie

Long Island
- Nassau
- Suffolk

Metro Area Comparisons

Whether or not globalization was at the heart of most job losses in manufacturing, one thing is hard to deny: Very few regions outside of New York City have received many of the benefits of a more globally integrated economy.

Cities like Buffalo, Binghamton, Syracuse, and Utica continue to struggle with high poverty rates and the slow growth of higher wage jobs; in quite a few cases, vacant properties and hollowed out downtowns have made it harder to attract high-skilled workers or to hold on to younger residents. Over the last four decades, New York City too has struggled to replace higher-paying manufacturing jobs and has seen incomes drop significantly in the Bronx, Brooklyn and Queens. Nevertheless, after an initial period of decline in the 1970s, the country's largest city has rebounded to become one of the most successful and globally integrated economies in the world. Surging profits in financial services has allowed city government to maintain a wide range of services, while New York's professional service and knowledge sectors have continued to attract some of the world's most talented and innovative workers.

However, although New York City has lost more jobs in manufacturing than any other region of the state, it has also enjoyed a number of inherent advantages: In 1975, only 20 percent of New York's private sector workers were employed at manufacturing companies, compared to 47 percent in Binghamton, 45 percent in Rochester and 40 percent in Utica. Moreover, even within manufacturing, the city relied much less on huge employers like GE, Kodak, IBM or Bethlehem Steel, and so had much less at stake when its manufacturing companies decided to downsize or relocate their production operations elsewhere. Finally, long before globalization, New York City was a major cultural and research center capable of attracting innovators from all over the world, and so when companies were fleeing the city in the 1970s, others quickly came to take their place. Although things got pretty bad in a number of neighborhoods, the city center never experienced the same levels of real estate disinvestment as has occurred in other metro areas across the state.

To be sure, most cities upstate aren't going to reverse decades of job losses and declining wages in just a few years—and a number will likely go on being much smaller than they once were. But, as the descriptions below make clear, nearly all of those cities can also boast of several major assets that could be sources of growth in an increasingly global economy, including prestigious research institutions, R&D consortiums, globally competitive companies, and, in three or four cases, major cluster strengths in high-tech manufacturing.

Very few regions outside of New York City have received many of the benefits of a more globally integrated economy.

New York City

For nearly two centuries, New York City was one of the largest and most important manufacturing hubs in the world. For decades the city was dotted with huge sugar refineries, printing presses, breweries, industrial bakeries, and mass-market furniture plants, but for well over one hundred years the city's most dominant manufacturing sector by far was in the production of clothing. Unlike the capital- and land-intensive industries of most upstate cities—e.g. steel in Buffalo or film in Rochester—the garment trade was populated by hundreds of small companies. The cutting and sewing of suits and dresses required a large and relatively cheap supply of labor, but for the most part it could also be done in modest buildings or even out of one's own home.

During the late 1940's and early 50s, more than one million New Yorkers, or 30 percent of all workers, were engaged in the manufacturing sector, and exactly one third of those were employed in the apparel industry.[44] But by the 1960s, technological and transportation advances had already started to depress manufacturing employment. A number of big manufacturers moved out of their vertical inner-city plants into much larger, horizontal ones in other parts of the country, including the Long Island suburbs. Garment manufacturers were losing market share to overseas competitors relying on much cheaper sources of labor. Between 1965 and 1975, the city lost 328,000 manufacturing jobs, including 93,000 in apparel and 34,000 in printing. Unsurprisingly, those losses were a shock to the city's economy.

The most important factor pulling globally competitive companies to New York is the importance of face-to-face interactions in fields that require extensive research and innovation.

Like most other cities across the country, New York had lost a significant number of residents during the suburbanization of the 1950s, but the depressed economy and concomitant fiscal crisis of the 1970s drove away many more New Yorkers. Between 1970 and 1980, the city lost 823,000 people. A number of Fortune 500 companies moved to the suburbs. Crime rates soared and the per capita personal income dropped precipitously in every borough but Staten Island. In 1975, the city narrowly avoided having to declare bankruptcy, and in the resulting deal with the state and federal governments had to give up much of its own authority over its own finances.

But even though New York continued to lose large numbers of manufacturing jobs, the city's economy started to turn around soon after that, and by the 1980s the city was growing again. The biggest reason for that turnaround was growth in the financial services industry. New, more sophisticated tools allowed investors on Wall Street to better evaluate risk, while new, more connected capital markets allowed them to access bigger pools of capital to invest in the first place. Employment grew but median wages grew even more. In 1975, the financial/insurance/real estate (FIRE) sector accounted for 17 percent of New York City's private sector wages, but by 2000 that sector had grown to 38 percent of wages, while commodities and securities alone accounted for 25 percent. Due in large part to globalization, New York City's financial services sector has become the single biggest contributor to both state and city tax revenues. In 2008, according to the Office of the State Comptroller, business and personal income tax collections from Wall Street activities generated approximately 20 percent of state tax revenues and 12 percent of city tax revenues.[45]

Ann Li, senior director of financial services and international business at the city's Economic Development Corporation (EDC), says that New York and London are now the only full-service financial centers in the world and that other competitors such as Singapore operate mostly in niches. Li says that she used to favor tax breaks designed to keep important financial firms in the city but now believes New York can keep these firms by virtue of its human capital advantages alone. "Tax breaks are not sustainable," Li says. "We need to build New York as the pre-eminent [financial] center regardless of taxes. Prada never goes on sale."

16. New York City's Status as a Leading Global City

Rank	Global Power City Index 2009**	The Global Cities Index 2010*	The Knight Frank Global Cities Index 2011	Cities of Opportunity Ranking 2011
1	NEW YORK	NEW YORK	NEW YORK	NEW YORK
2	LONDON	LONDON	LONDON	TORONTO
3	PARIS	TOKYO	PARIS	SAN FRANCISCO
4	TOKYO	PARIS	TOKYO	STOCKHOLM
5	SINGAPORE	HONG KONG	BRUSSELS	SYDNEY

*Source: Foreign Policy, A.T. Kearney, and the Chicago Council on Global Affairs
**Source: Institute for Urban Strategies, the Mori Memorial Foundation

At one time, it seemed like common sense that once advances in telecommunication took root, companies that depended on the generation and communication of ideas would be able to disperse and relocate wherever it was most convenient, but the exact opposite has in fact happened. Dozens of banks and financial services companies have moved from other parts of the country and world to New York City since the 1970s, as have major law firms, ad agencies, media and technology companies, and engineering and architectural offices. As New York has become less hospitable to garment manufacturing, it has become one of the world's most important centers for garment—or fashion—design, with over 800 fashion design and merchandising companies headquartered in New York. Because New York-based fashion brands like Liz Claiborne, Polo Ralph Lauren, Donna Karan, and Calvin Klein are recognized and sold around the world, the exporting of designs has become an exceedingly important part of the city's economy.[46]

One important reason New York has been able to attract high export companies in the knowledge and professional service industries is the convenience it offers: In an economy where negotiations frequently involve players from opposite sides of the globe, converging in Manhattan, with its abundant hotels, restaurants and international flights, is simply more comfortable and practical than most other places. Another big draw is the city's lifestyle: New York is where highly skilled, highly trained workers from all over the world want to live, not only because of its restaurants and cultural offerings but because of its huge labor market. If a young recruit happens to have a spouse with a career, New York City provides plenty of attractive job opportunities in a variety of fields and disciplines. And, of course, for those without a spouse, as Harvard economist Edward Glaeser has recently point out, Manhattan's much larger than average share of singles makes it an attractive place to find one.[47]

But perhaps the most important factor pulling globally competitive companies to New York is the importance of face-to-face interactions in fields that require extensive research and innovation. Study after study has shown that telephones and video chats on the Internet serve best as reinforcements to in-person communication rather than as replacements for it. This appears to be doubly true for companies that benefit from interdisciplinary crosspollination as well as for smaller companies that need to collaborate with other firms or service providers, since, in both cases, serendipitous exchanges and unforeseen collaborations play an important role in advancing ideas.

For these reasons, New York City continues to attract not only large numbers of immigrants but also highly-educated professionals from other parts of the country. In 2005, for example, nearly two-thirds of the 127,000 people who moved to the city from elsewhere in the U.S. had a bachelor's degree or higher, while nearly one-third had a graduate or professional degree. According to the most recent census figures, nearly 60 percent of Manhattan residents have at least a bachelor's degree, which is up from 42 percent in 1990. By comparison, only 32 percent of residents statewide have at least a bachelor's.

However, even as New York City has profited immensely from globalization—or, more generally, from the rise of a global economy that rewards human and intellectual capital—it has led to greater income disparities between individuals with college degrees and those with only a high school diploma or less. From 1990 to 2007, the real hourly median wage in New York City declined even as the city's real gross domestic product grew 63 percent.[48] While Manhattan's per capita income has soared in recent decades, the Bronx, Brooklyn and Queens—all former manufacturing centers that have relatively few jobs in high-end services sectors—have each grown considerably poorer over the last 30 years despite pockets of new economic vitality in many neighborhoods. In 1970, all three boroughs had a much higher per capita personal income as a percentage of the nation's than they had in 2008: The Bronx went from 93 percent to 72 percent; Brooklyn dropped from 100 percent to 87 percent; and Queens—the most dramatic of all—fell from 134 percent to 94 percent (Median set at 100).

To be sure, one reason for these dramatic shifts is the huge influx of poorer immigrants from the developing world—New York City now has nearly 1.7 million more immigrants than it had in 1970. But another, arguably bigger reason is the disappearance of stable, middle income jobs for individuals with low levels of educational attainment. Globalization has undoubtedly contributed to this. Like in most upstate regions, New York City has seen higher paying manufacturing jobs continue to decline rapidly through the 2000s. In the last decade, New York has lost nearly 100,000 manufacturing jobs, a 56 percent decrease, while low-paying jobs in home health care (which is up 114 percent), social assistance (16 percent), and food services (29 percent) have all grown rapidly during that time.

Long Island

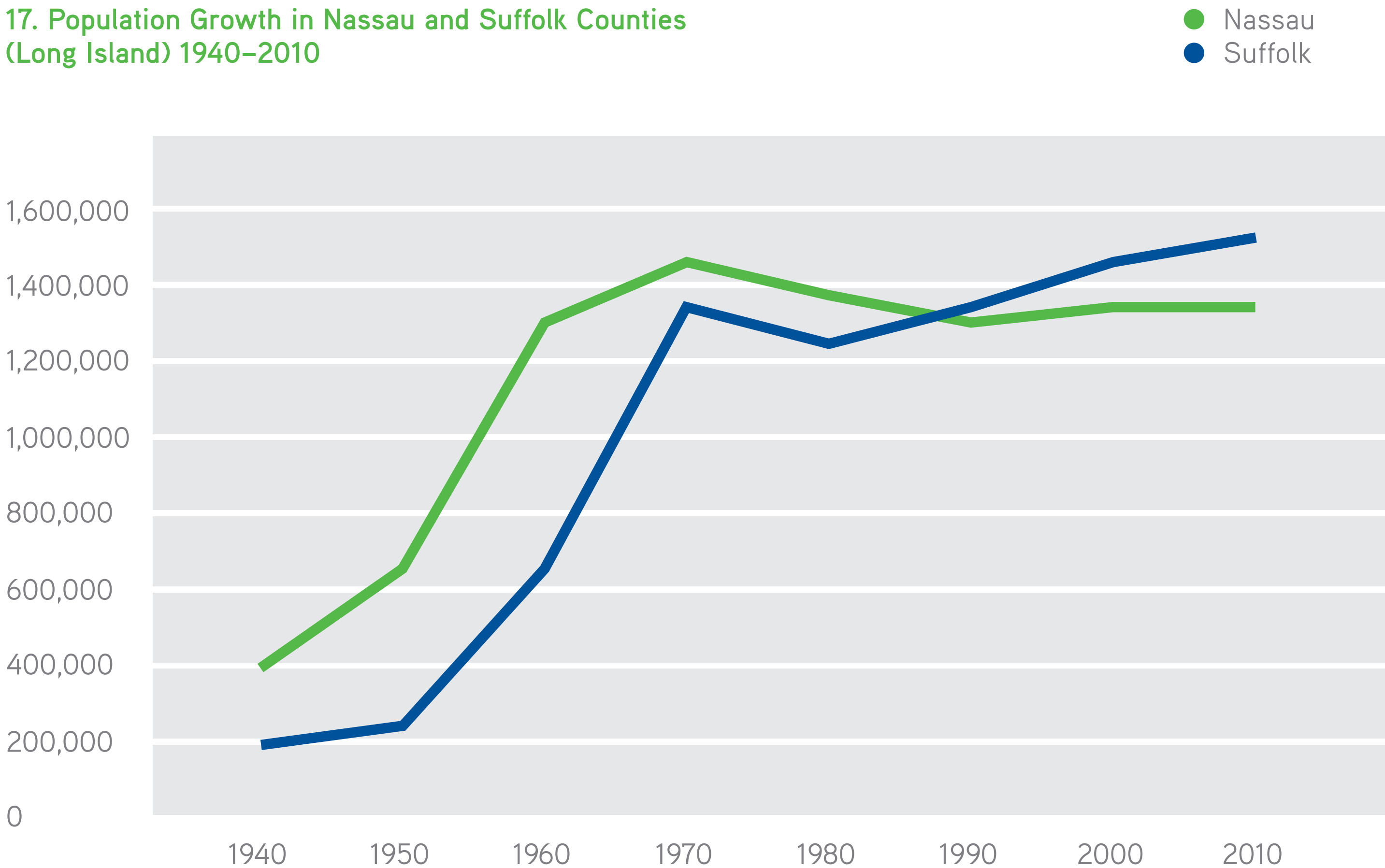
Towns along the Long Island Sound have long been suburban outposts for wealthy Manhattan commuters, but it wasn't until William Levitt started mass producing inexpensive houses in and around Hempstead in the late 1940s that Long Island became a popular destination for New York City's middle class. By building thousands of houses over a short period of time, Levitt was able to sell modern, convenient homes at a price middle income earners could afford. And so, over the next decade, as highways were expanded and home mortgage tax deductions broadened, Long Island's residential population exploded. Between 1950 and 1960, Nassau County's population doubled, going from 667,000 to 1.3 million. Suffolk County's population doubled too during the same period—and then doubled again the following decade.

Over the past 50 years, well paid white collar workers have continued to commute to Manhattan for work. Rae Rosen of the Federal Reserve Bank says that a "large percentage of the higher-paid workforce in New York City commutes into the city," so Long Island's prosperity has also been fueled, in part, by law firm partners, securities brokers and other highly-paid professionals who commute to Manhattan.

However, the area's lack of density and public transit infrastructure has made it relatively hard for poorer workers to find housing and jobs. As a result, Long Island has remained one of New York State's wealthiest communities. In 1970, the area's per capita personal income was 129 percent of the U.S.'s median level. By 2008, that had increased to 143 percent. The percentage of income that comes from government assistance programs has also remained much lower than the state or national average.

Although Long Island's economy has without a doubt benefitted from being in close proximity to Manhattan, it has also had several strong home-grown industries

17. Population Growth in Nassau and Suffolk Counties (Long Island) 1940–2010



of its own. The Grumman Aircraft Engineering Corporation, for example, was founded on Long Island in 1929 and remained one of the country's largest manufacturers of military aircraft well into the 1980s. At its peak in 1985, Grumman employed 23,000 people at its sprawling Bethpage campus in Nassau County. Other large defense contractors such as the Sperry Corporation, which made radars and navigation equipment, and Fairchild, another manufacturer of fighter jets, operated large production facilities on Long Island for decades.[49]

In 1975, Nassau and Suffolk Counties, though larger in population, had about as many workers in manufacturing as Buffalo did, and, unlike Buffalo, manufacturing employment continued to grow significantly until 1985. Like almost everywhere else in the state, manufacturing jobs declined precipitously over the next two decades, with especially large losses in the 2000s. But largely because of the area's history of defense contractors and world-class research institutions like the Brookhaven National Laboratory and SUNY Stony Brook, Long Island continues to have a strong cluster of defense related contractors and other high tech companies. Hauppage Industrial Park, for example, one of the largest industrial parks in the country with over 55,000 workers, houses dozens of computer and information technology companies, and electronics manufacturers. And one of the largest and fastest growing software development companies in the world, CA Technologies, has its headquarters in Suffolk County.

"After WWII the defense industry that was here gave rise to a very large core of intellectual capital," says Hubert Keen, president of SUNY Farmingdale. "Now you see those engineers and their offspring running companies in all kinds of technologies. The real problem on Long Island is the expense," adds Keen. "You need to earn a lot in order to live here comfortably."

In a focus group conducted for this report, several executives at Long Island-based companies echoed that sentiment, saying that the high cost of living and lack of affordable housing made it difficult to fill positions. For example, a high-tech defense contractor called Telephonics has advertised over 50 new positions in the last few years, but filling them has been a challenge, says Joe Battaglia, the company's president. "An engineering job may pay $70,000, but you can't live on Long Island on that," says Battaglia. "And in addition to engineers I need technicians and engineering associates."

Albany-Schenectady-Troy

Although Albany and Troy have both had significant manufacturing sectors—including a number of paper mills in Albany and textiles companies in Troy—for most of the 20th century a huge percentage of the region's manufacturing employment was concentrated at just two companies in Schenectady: General Electric and the American Locomotive Company (ALCO). During WWII, those two companies employed over 55,000 people, and would continue to provide a sizable share of the region's jobs through the 1960s.

However, after years of declining profits caused in part by the railroad industry's transition to diesel engines, ALCO closed down its plant in 1969. Then, in the mid-1970s, GE decided to take much of its production operations to the South. Needless to say, Schenectady's economy was traumatized. In less than 15 years, tens of thousands of workers had lost their jobs. As in Buffalo and Utica-Rome, the city and surrounding county started to decline in population, while its poverty rate and vacant properties dramatically increased. And yet, compared to most other upstate metro areas, the region as a whole has weathered the downturn in manufacturing employment reasonably well. Between 1970 and 2000, the metro area lost over 22,000 manufacturing jobs, a 40 percent contraction, but its per capita personal income has barely moved, going from 105 percent of the U.S.s in 1970 to 106 percent in 2009. Moreover, the region's residential population has increased by nearly 78,000 people or 10 percent since 1970. In New York State, only the Poughkeepsie metro area has seen a greater population increase during that time.

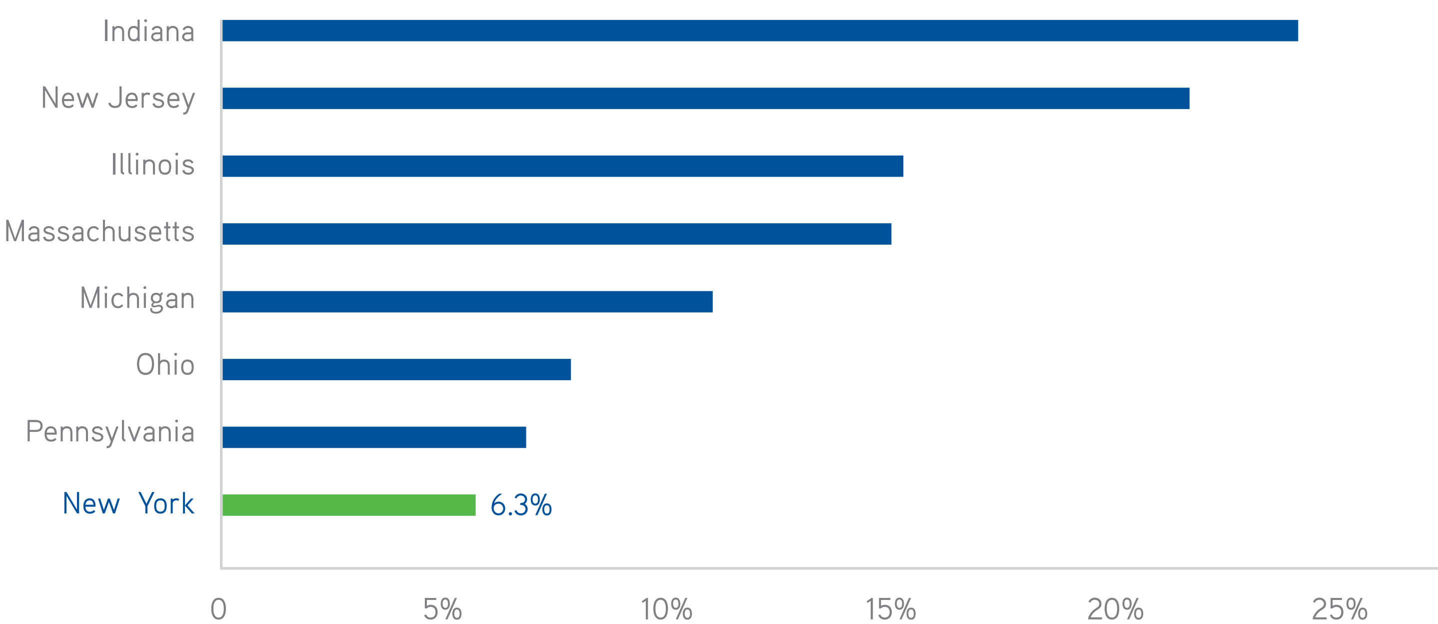
The biggest and most obvious reason for the Capital District's success is the presence of so many state government employees. When manufacturers were just starting to downsize in the 1960s, state government began to dramatically expand. Governor Nelson

Rockefeller invested hundreds of millions of dollars into the State University of New York system, for instance, and started construction on two huge government campuses, the Harriman State Office Campus and Empire State Plaza. By 2000, 52,307 people or 13 percent of the region's workforce were state employees, with many other private sector jobs—including non-profit workers, lobbyists, and contractors—depending directly on the functions and expenditures of state government.

But that hasn't been the region's only advantage. The Albany metro area has long benefitted from prestigious research universities like Rensselaer Polytechnic Institute (RPI) and SUNY Albany. It has greatly benefited from GE's R&D operations in Schenectady, including the renewable energy unit, which develops wind power technologies, and the Power and Water Division, which manufactures turbines and generators.[50] Although total manufacturing employment has continued to decline since 2000, human capital advantages like these have been fueling a remarkable increase in other high-tech manufacturing ventures. In 2001, state lawmakers invested hundreds of millions of dollars in a state-of-the-art nanotechnology complex at SUNY Albany that has since attracted a vibrant cluster of firms and labs specializing in microprocessors. IBM committed $100 million to a state Center of Excellence program at the complex. And SEMATECH, the international computer chip R&D consortium, took up $400 million in state incentives to open development labs and offices there, a move that Governor George Pataki in 2003 characterized as "the most exciting development [in New York State] since the construction of the Erie Canal."[51]

A related project—and one of the most expensive in recent memory—is the Luther Forest Technology Park in exurban Saratoga County. In 2006, when Silicon-Valley-based GlobalFoundries signaled an interest in building a semiconductor (or microchip) factory in New York, state lawmakers passed an incentives package worth an estimated $1.3 billion, including $650 million in direct payments, to seal the deal.[52] When the factory opens in 2012, it is expected to employ 1,600 high-skilled workers and attract dozens of new companies to the region. Some economists question the size of the incentives package, which comes to more than $800,000 for every job provided by GlobalFoundries, but Michael Tucker, president of the Center for Economic Growth, a local business group, says it has already lured several high-tech business-

18. Population Growth in New York versus Selected States, 1970–2010



es, including a highly specialized tool cleaner. One area of concern, Tucker says, is providing enough workforce training for residents. “GlobalFoundries will find workers even if they have to move them here from somewhere else,” he says, “but it would be better to prepare the people who are already here.”

The Hudson Valley Community College (HVCC) recently built an education facility in Saratoga County that will train technicians to work on semiconductor, photovoltaic, wind and geothermal manufacturing. Over the next few years, HVCC president Andrew Matonak expects there to be hundreds of job openings for technicians in these and other higher-skill manufacturing industries. “We have the capacity to grow, but we’re trying to encourage more applicants,” Matonak says. “Having a sufficient academic background is somewhat of an issue. Students need pretty good math skills and skills in problem solving and working in groups.”

A recent study based on 2009 data, turned up 21,274 high-tech jobs in the Capital District with an average annual salary of $78,000—and at a time when the vast majority of cities were seeing their high-tech workforces decline, Albany’s increased by 341 jobs.[53] Although the report found only 75 semiconductor manufacturing jobs, the expected numbers of workers at GlobalFoundaries alone would put the Capital District among the top regions in the country for semiconductor manufacturing employment.[54]

Binghamton and the Southern Tier

For much of the 20th century the biggest and most influential presence in the Triple Cities of Binghamton, Johnson City and Endicott was the shoe manufacturer Endicott-Johnson. As a prominent proponent of welfare capitalism and a vehement trade protectionist, owner and chief executive George F. Johnson financed the construction of homes and medical clinics for employees and built dozens of important community assets such as libraries, swimming pools and of course the famous Triple Cities area carousels. Yet, long after Endicott-Johnson started to downsize in the late 1960s, Binghamton would remain highly dependent on manufacturing employment, with a larger share of the region’s workforce engaged in manufacturing than any other metro area in the state. IBM, which was founded in Endicott in 1911, reached a peak of 11,000 area workers in the mid-1980s. And both Singer-Link (or later CAE-Link), a manufacturer of flight simulators, and the GAF Corporation, a manufacturer of film, employed thousands more.

Between 1975 and 1985, Binghamton actually saw modest increases in manufacturing employment, though due to steeper increases in other sectors such as health care, the share of private sector workers in manufacturing declined from 47 percent to 41 percent. However, matters changed dramatically in the late 1980s and early 90s. IBM’s profits (and stock price) had been plummeting for years, and in the early 90s, the company started to look for ways to cut down on employment, offering senior workers bonuses of up to one year’s salary if they left or retired early. A little later, IBM sold its Owego plant and closed down a development lab in Glendale. In just four years, the company had trimmed its staff by several thousand workers. Then, after years of declining sales due to foreign competition, Endicott-Johnson was finally bought out and its management personnel and much of its production operations were either let go or transferred to Tennessee. Overall, between 1985 and 1995, the region lost 38 percent of its manufacturing workforce (15,000 jobs), and the area's population and per capita personal income started to decline as a result.

In 1970, the per capita personal income in the Binghamton metro area was 99 percent of the U.S.'s. By 2000, it had fallen further than any other metro area in the state to 82 percent. Since 2000, Binghamton's high tech manufacturers, including a number of prominent defense contractors, have continued to suffer. According to Christian Harris at the state Department of Labor, Universal Instruments, Flextronics, and Lockheed Martin have all dramatically downsized or closed in the last ten years. "There was some buildup by Lockheed Martin to build the new Presidential helicopter fleet," Harris says, "but then that contract was cancelled [in 2009]."

Although Binghamton faces serious challenges to overcome, it also has a number of assets, including one of SUNY's major research centers.

Although Binghamton faces serious challenges to overcome, it also has a number of assets, including one of SUNY's major research centers. Still, the Binghamton area shows a serious disconnect between graduating large numbers of students and retaining the talent in the region. For instance, Broome County has one of the lowest educational attainment levels in the state. According to the latest figures, just 26 percent of residents have a bachelor's degree or more, compared to 31 percent in Erie County, 38 percent in Albany County, and 32 percent statewide. The region is also getting older and now has a higher percentage of residents who are 65 and older than almost anywhere else in the state: 16.4 percent versus 13.4 percent statewide and 12 percent in New York City.

However, Binghamton *does* still have a vibrant labor market for highly specialized engineers. Lockheed Martin, BAE Systems, Rockwell-Collins, L-3 Communications, Universal Instruments, McIntosh Laboratories, and Endicott Interconnect Technologies together employ thousands of engineers in the area.[55] And SUNY Binghamton has an engineering school with especially strong programs in electronics manufacturing. In 2005, an industry group called the Flex Tech Alliance partnered with SUNY Binghamton and Cornell University to create the Center for Advanced Microelectronics Manufacturing (CAMM) at a sprawling former IBM facility in Endicott (now owned by Endicott Interconnect). Three years later the Center opened a 10,000 square foot "clean room" in order to develop test-volume electronics products, including a so-called roll-to-roll printing process that would allow manufacturers to etch circuits on thin sheets of plastic and print them out like paper.[56]

Buffalo-Niagara Falls

Like Rochester, Syracuse and Utica, Buffalo's original economic and urban growth was due to the construction of the Erie Canal in the 1820s. As the canal's Western terminus, Buffalo was where goods including grain and pork were unloaded from large 'laker' boats onto the flat-bottom barges suitable for the canal. By the 1870s, railroads would largely overshadow the canal in importance, but the city continued to serve as a major gateway to the fertile wheat fields and, increasingly, iron ore mines of the Midwest.

By the 1950s, there were over 150,000 production workers in the Buffalo metropolitan area, with an unusually high percentage working in primary metals and fabricated metals plants.[57] The world's second largest steel manufacturer, Bethlehem Steel, had over 20,000 workers at its Lackawanna plant as late as 1965. And the Donner Hanna Coke plant, Hanna Furnace plant and many others employed tens of thousands more. However, in the 1960s, the steel industry started to undergo a dramatic shift, which left these expensive, integrated mills unable to compete. Buoyed by the construction of new high efficiency plants, foreign steel manufacturers started encroaching on the U.S. market and in little more than ten years went from having 3 percent of the domestic market share to 18 percent. A little later, smaller so-called 'minimills'—facilities that melt scrap metal directly into iron ore and rely chiefly on non-union labor—began to pose another big threat, as companies like Nucor and Steel Dynamics built scores of new mills and upgraded their production capacity. Between 1965 and 1977, the Lackawanna plant laid off 12,500 workers and in 1983 had to shut down completely. If they hadn't already, nearly all of the other Buffalo-area metals manufacturers would follow suit soon afterward.

During the same period, the construction of the Saint Lawrence Seaway—and more broadly containerized shipping networks, using purpose-built ships and trucks—began to chip away at Buffalo's chief transportation advantages, its railroads and interior port. For the first time, foreign manufacturers could begin to access huge new swaths of the U.S. market without relying on rail at all. Similarly, many Buffalo-area manufacturers began moving production out of state and then offshore. In the late 1970s and 80s, local manufacturers such as Standard Milling, a Kansas-city based flour company, and Trico Products, a huge manufacturer of windshield wipers, began to shed jobs and close plants.[58] Even Ford and GM, which still have significant presences in Buffalo, had to cut back dramatically.[59]

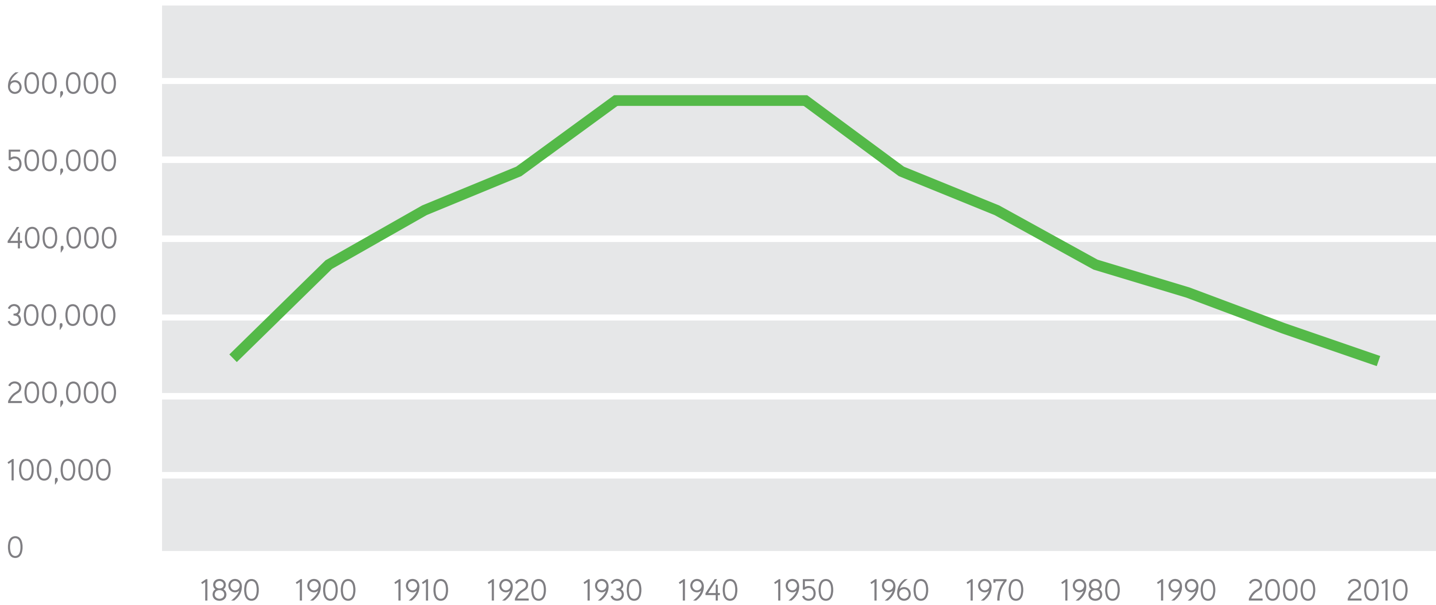
By that point, it wasn't just Buffalo city that was losing residents to the surrounding suburbs; the whole metropolitan region started to decline in population. Over 100,000 residents left the Buffalo-Niagara region between 1970 and 1980. Between 1975 and 1985, the manufacturing sector lost 38,000 jobs, and the share of private sector employment in manufacturing dropped ten percentage points. Today, the metro area is home to about the same number of people as it had in 1950, and Buffalo city is about as big as it was in 1890. The city's large number of abandoned properties--more than 10,000 as recently as 2007—have become a major problem for the city.[60]

Buffalo's blue collar industrial legacy has in many ways made it harder to transition to a high-tech, knowledge economy with higher paying jobs. A Brookings Institution report on manufacturing in the Buffalo area issued in 2002 said, "Buffalo has no particular comparative advantage in the new high-technology industries; therefore, it is not an important manufacturing center for such products."[61] Buffalo has never had sufficient R&D infrastructure capable of generating strong industry clusters like Boston's biotech companies or Rochester's high tech optics manufacturers. As one economist who closely follows

Buffalo's industrial legacy has in many ways made it harder to transition to a high-tech, knowledge economy with higher paying jobs.

19. Population of Buffalo: 1890–2010

Source: U.S. Census Bureau



the Western New York economy observed, "Manufacturing has been growing some high wage and high skill jobs, but not in this part of the country. We don't have the same sorts of locational advantages for that type of manufacturing; that requires human capital and spin-offs from clusters."
Buffalo-Niagara Falls's most important remaining geographic advantage is cheap hydro-electric power, which continues to benefit a number of chemical manufacturers and, according to recent reports, may be a big reason a major solar-cell silicon manufacturer and even Yahoo! are opening up new facilities in the region.

Over the last decade, as traditional manufacturing jobs have continued to decline, service sector jobs in health care, retail, administrative support services and amusements have all gained significantly. Western New York has 16,000 jobs in back office operations for insurers, collection agencies, banking and mortgage companies. One of the largest recent expansions was by GEICO, which opened a claims-processing center employing 3,000 people. But, since service sector jobs like these tend to be low-paying, job growth in these industries hasn't kept the metro area's average annual wage from dramatically falling over the last 40 years, from 108 percent of the U.S. in 1970 to 86 percent in 2009. Poverty has become a huge issue. According to a recent report, only Detroit and Cleveland have higher rates of poverty among major U.S cities.[62]

However, Buffalo *does* have a number of important economic assets. It has the third largest airport in New York State, for example, with an attractive new terminal and a growing number of Canadian travelers who use it as their primary airport. It has an important research hospital in the Buffalo-Niagara Medical Center, and the largest research university in the State University of New York system. For years local officials had championed an ambitious university expansion plan—called UB 2020—that would have poured $5 billion into new research facilities, faculty hires and housing for additional students, but state legislators, amidst huge budget shortfalls in the spring of 2011, have cut the proposed funding to $35 million, a tiny fraction of the original funding request.[63]

The region is also home to several companies that have not only managed to survive in the global economy but thrive: For example, Cannon Design, one of the largest architectural firms in the world

with over 1,000 employees and offices in 19 cities, including Shanghai and Mumbai, is headquartered in Grand Island in Erie County. In 2009, Cannon Design's revenue exceeded $170 million, $33 million of that coming from overseas clients. Only 10 other firms in the entire country had higher revenues for that year.[64] Buffalo is also home to several prominent law firms specializing in international trade, and research labs for manufacturers like Honeywell and Praxair Technology. Even some traditional assembly line manufacturers have found a way to make it work in Western New York and, like Dynabrade, a power tools designer and manufacturer, have added jobs by dramatically increasing their exports to Canada and other countries. Dynabrade didn't export at all until the 1990s but now the company exports 55 percent of its production and, according to sales director Mike Saraf, expects to expand that to 70 percent in the not too distant future.

Over the last decade, as traditional manufacturing jobs have continued to decline, service sector jobs in health care, retail, administrative support services and amusements have all gained significantly.

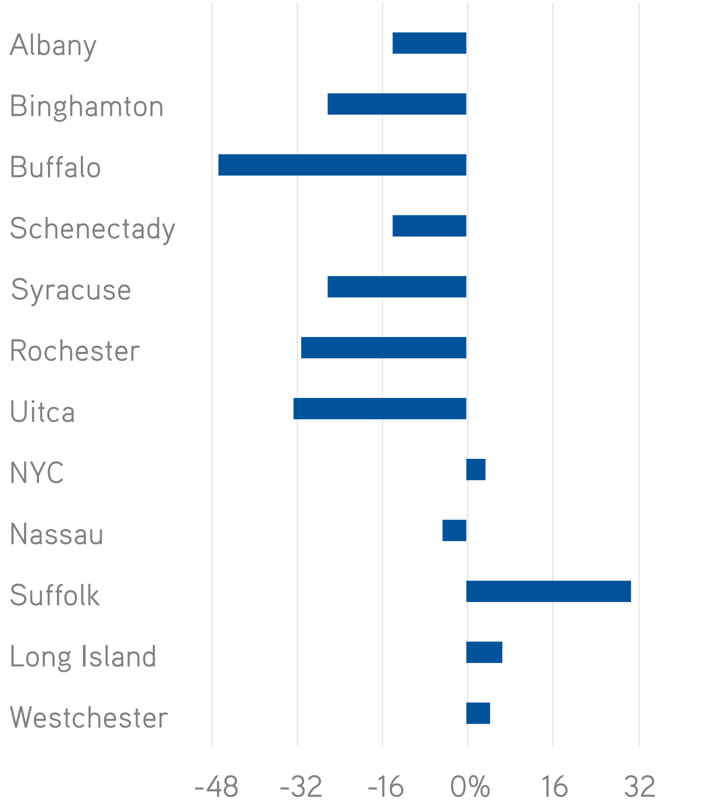
Rochester

At first glance, Rochester's rapid growth in the late 19th and early 20th centuries looked a lot like Buffalo's. The Erie Canal, and a bit later a world-class network of railroads made the city an important stop for the shipment of raw materials from the Midwest. However, at about the time when Buffalo was solidifying its place as a major center for the production of steel, Rochester was building a cluster of high-tech optics manufacturers, with the Eastman Kodak company developing some of the world's first consumer cameras and Bausch & Lomb manufacturing lenses, binoculars and microscopes.

By the middle of the 20th century, the Rochester metro area had grown to more than 900,000 residents, and, if anything, the region depended even more than Buffalo on well paying jobs in the manufacturing sector. Kodak, Bausch & Lomb, and Xerox each had huge production facilities in the region. The Rochester city-based Kodak Park, for example, measuring 1,300 acres with 154 manufacturing buildings, would remain the company's biggest camera works plant until 1967, when it began to relocate much of its production to the nearby town of Gates.

Manufacturing jobs continued to grow significantly until the early 1980s, when the rise of foreign competition and the development of new production efficiencies started to drive down employment dramatically. Restructuring at Kodak was a big reason for those losses. In 1982, Eastman Kodak employed 62,000 people in the Rochester metro area, or nearly 14 percent of all non-farm workers in the region.[65] In the following ten years, the company shed more than 20,000 jobs, followed by 18,000 more in the 1990s. Today, Kodak's regional employment stands at only 7,400 workers, an 88 percent drop in less than 30 years. Former three-term mayor, William Johnson, says it's hard to overstate the effect Kodak's downsizing had on the city. "You can't move around without

20. Percent Change in Population, 1970–2010 in Thousands



seeing the impact of the shrinkage of Kodak," he says. "Eastman loved this community and his successors largely followed his model. But now no more."

The loss especially of blue collar manufacturing jobs has undoubtedly hurt Rochester's economy. Overall, the region lost 86,000 manufacturing jobs between 1980 and 2009.[66] The metro area's per capita personal income went from being 112 percent of the U.S.'s in 1970 to 99 percent in 2008, while the percentage of personal income that comes from disability, food stamps, or other government assistance payments has doubled in that time while remaining virtually unchanged statewide. Bob Trouskie, a former GM factory worker and current regional director of the Workforce Development Institute, a Rochester-based non-profit, says that a vast majority of the higher paying union jobs in manufacturing have been replaced by lower paying service jobs. "In the past, if Kodak was downsizing, you could still get a job at Xerox or Bausch & Lomb, but now you have to leave the region if you want those kinds of jobs."

Nevertheless, Rochester has done much better than most of its upstate peers. Unlike Buffalo, for instance, the region experienced only ten years of declining population (between 1970 and 1980); its labor participation rate is much higher than most other upstate cities, and the median value of owner-occupied homes have remained roughly equivalent to the national average. Kent Gardner, director of the Center for Governmental Research at the University of Rochester, says that the biggest reason for the region's relative success is its high-tech management and R&D infrastructure. Kodak, Bausch & Lomb, and even Xerox—which moved its headquarters to Connecticut in 1969—have all kept much of their management offices and research labs in the area. Both the University of Rochester, now the region's largest employer, and the Rochester Institute of Technology have developed prestigious optics and imaging programs.

The sector has also become much more entrepreneurial. As assembly-line and production level jobs have dried up, the companies doing R&D in optics, photonics and imaging have proliferated. Today, more than 60 different optics companies call the Rochester metropolitan area home—and many of those companies are expanding. For example, Picometry, an aerial imaging company, recently added 50 new positions. VirtualScopics, a company that provides imaging and analysis to pharmaceutical companies, is expanding its research staff to 67. Even some of the region's older mainstays like Xerox and Bausch & Lomb are growing their higher-skill production facilities. Largely because of the quality of the region's workforce, Xerox recently announced that it would be expanding a toner factory that it built in 2007.

In 2001, then Governor George Pataki announced ambitious plans to build on Rochester's unique optics and imaging cluster by founding a Center of Excellence where scientists and engineers from Kodak, Corning, Xerox, the University of Rochester and RIT could collaborate on research into photonics (or light) for the development of new cutting-edge technologies. The Governor hoped to raise hundreds of millions of dollars in both private and public funds for the venture, saying it could lead to the creation of dozens of new companies and thousands of jobs. However, in 2003, the so-called Infotonics Center opened in a 123,000 square foot former Xerox facility in Canandaigua, more than 20 miles away from Rochester, and some observers say the center's isolation badly hampered its chances at success.

In stark contrast to Albany's Nanotech Center, another Center of Excellence located right across the street from SUNY Albany, students and scientists at the University of Rochester and RIT couldn't access the facility without driving fairly long distances, and of course isolated research parks don't generate the kinds of adjacencies—including separate research labs, start-ups, restaurants and bars—that have created productive research communities in other cities. The University of Rochester's Kent Gardner says it was a major missed opportunity. "The center has been a sinkhole," says Gardner, "there was no vision for it or even a real business plan. The state put it in Canandigua which was too far from RIT or the University of Rochester." In 2010, Rochester's Infotonics Center closed altogether and what remained of its assets were absorbed by Albany's Nanotech Center.[67]

Manufacturing jobs continued to grow significantly until the early 1980s, when the rise of foreign competition and the development of new production efficiencies started to drive down employment dramatically.

Syracuse

Syracuse is still sometimes called 'Salt City' after one of its earliest and most important industries, but the city never relied on a single industry or company to the degree that Buffalo, Rochester or Schenectady did. At different times, Syracuse has been home to major chemical and steel companies, automobile and television manufacturers, but its largest and most important corporate presence, the Carrier Corporation, now the largest producer of air-conditioners in the world, employed just 6,200 people at its peak, which is nowhere near the size of Kodak's peak employment in Rochester or GE's in Schenectady.

The percentage of workers employed in manufacturing was also significantly lower than most of its upstate peers; in 1975, for instance, roughly 30 percent of all workers in Syracuse worked at manufacturing companies, compared to 45 percent in Rochester and 47 percent in Binghamton. Manufacturing employment would peak in 1980 at roughly 60,000 jobs and then decline by 7,500 in the following ten years. Another 6,000 manufacturing jobs would be lost in the 1990s, and, after layoffs at two of the city's biggest production facilities (Carrier's DeWitt plant and Chrysler's New Process Gear plant), nearly 12,000 in the 2000s.

But Syracuse's manufacturing companies would ultimately lose their grip as the area's biggest employers, not because of layoffs but because of huge job gains in other sectors. Between 1980 and 1990, the region gained 25,908 jobs in what the SIC industry classification system categorized as the service sector, including health care, education and administrative support companies, as well as 17,962 more in retail. By 2000, those two sectors alone would constitute 55 percent of all private sector jobs in the region, compared to 17 percent in manufacturing. Seven out of ten of the city's largest employers are now in education, health care or retail, while only two are in manufacturing.

Richard Deitz, senior economist at the Federal Reserve Bank of New York-Buffalo Branch, says that job growth in education and health care has definitely helped keep Syracuse afloat. The metro region's per capita personal income, for instance, has remained pretty stable since the 1970s, and in contrast to Buffalo, Utica and Binghamton it never experienced a dramatic decline in population. But growth in those industries hasn't led to a lot of higher paying jobs either. "There hasn't been a lot of turnover in the labor force," Deitz says, "not a lot of immigrants compared to other places, and not much in-migration of talent." Sung Lee, an executive at Welch-Allyn, a medical device manufacturer and one of Syracuse's largest current employers, agrees that the region lacks high-skilled talent. Finding advanced tech workers in Central New York has been a challenge for the company. "We have to recruit from outside of the area, which is hard to do," says Lee, "but on the other hand we have a high retention rate. It's affordable here, and people like it."

In the last few years, local leaders have tried to build on Carrier's legacy by building a $41 million Center of Excellence specializing in indoor air quality, an increasingly important component of green building technologies and a factor in the influential LEED certification process. Carrier has invested $1.5 million in the Center, and Syracuse University is a major partner.[68] The Clean Tech Center, a business incubator for start-ups specializing in energy efficiency and renewable energy technologies, also recently received a $1.5 million grant from the New York State Energy Research and Development Authority (NYSERDA), making it one of the best funded clean tech incubators in the country, according to a San Francisco-based VC group.[69]

However, the future of Syracuse's larger R&D infrastructure would seem to depend on what Carrier ultimately does with the research labs at its former production plant in DeWitt. When the company closed down the plant in 2004, the CEO said it was committed to keeping a significant portion of its R&D operations in place. Since then, Carrier has kept 1,100 workers at the DeWitt campus and says that it has invested $350 million in engineering research there.[70] But several local economic development leaders also question whether the company really has a long-term incentive to keep a significant number of labs and engineers in Central New York. It has already demolished some of its research facilities and moved

several labs to factories in other places. And, unlike Kodak and Bausch & Lomb, the company long ago relocated its management personnel to Connecticut.

Robert Simpson, president of CenterState CEO, a Syracuse-based business group, says that the region's best opportunities for growth, and ones that play into the global economy, are in defense and radar systems and clean energy and renewable technologies.[71] Bob Trachtenberg, president of the Central New York Technology Development Organization, says that another promising approach would be to concentrate, not on a single industry sector, but an export market like Canada's, and dramatically increase funding for assistance programs. "Have trade fairs, visits, and marketing," Trachtenberg says. "Have our exporters get to know their potential importers."

There hasn't been a lot of turnover in the labor force, not a lot of immigrants compared to other places, and not much in-migration of talent.

Utica-Rome

After Utica's famed textile mills began to close down and migrate south during the 1940s, local leaders successfully lured several major high-tech manufacturers to the region in the 1950s, including Sperry-Rand, a defense contractor, Chicago Pneumatic Tool and General Electric. GE had operated a much smaller radio production plant in Utica during WWII, but in the early 50s they greatly expanded the department and added another plant to produce military electronics. By the 1960s, the company's regional employment was up to 9,000 workers. During the same period, the Grifiss Airforce base grew to 10,000 civilian and military workers, and a number of homegrown companies such as Revere Copper & Brass and Utica Drop Forge & Tool were aggressively expanding.

But, as in so many other industrial cities in New York and across the country, the tide started to turn early in the 1970s. Largely because of GE's decision to move most of its Radio Receiver Department overseas, manufacturing employment dropped by nearly 10,000 jobs between 1970 and 1975. Then, after a period of relative stability, the closings and layoffs continued apace in the 1980s and 90s. Due to increased foreign competition in the tableware and cutlery markets, Revere and Oneida Ltd. started to layoff a significant number of production workers. GE sold its military electronics plant to Lockheed Marietta (later known as Lockheed Martin), which soon after started to shed workers because of defense spending cuts. In the mid-1990s, the Griffiss Airforce base shut down, and Lockheed closed what remained of its electronics plant. Overall, between 1970 and 2000, the region lost over 20,000 manufacturing jobs and, largely as a consequence, started to lose a significant number of residents. During those same three decades, the Utica-Rome metro area lost 42,000 residents or 12 percent of its population. Worse still, the area's per capita personal income, which was already lower than the statewide average, fell 14 percentage points, from 92 percent of the U.S. to 78 percent (median set at 100).

Mark Barbano, a regional analyst at the State Department of Labor, says the area suffered more than other places because it didn't have many human capital advantages. "We don't have a major university like Syracuse," says Barbano. "We have Utica College [and SUNY IT] but not a huge university that dominates the area." The region has also continued to have much lower than average educational attainment levels: In 1990, only 17 percent of residents had a bachelor's degree, for instance, and now, two decades later, only 19 percent do. In part because of the region's low-skilled workforce, newly created jobs have been overwhelmingly in sectors such as health care, social assistance and administrative support services, all sectors that pay lower than average wages. The Utica-Rome area's largest single employer is now Turning Stone Resort and Casino, where, according to figures at the State Department of Labor, gaming dealers can expect to earn an annual income of $19,700.

However, according to Barbano, the Rome Airforce lab still employs over 1,000 high-tech engineers, many of whom specialize in radio and radar. The Griffiss Airforce base has been turned into an industrial park with several high-tech tenants such as BAE Systems, L-3 Communications and Premier Aviation, a company that services 747s. SUNY IT has also recently partnered with the Nanotech Center in Albany to build an incubator for small- and medium-sized nanotech companies. But, in the recent past, perhaps the region's biggest and most successful economic development effort has been its embrace of refugees from Vietnam, Belorussia, Burma and especially Bosnia.

The Mohawk Valley Resource Center for Refugees had been helping to place refugees in Utica-Rome already in the early 1980s, but during the Balkan War in the 1990s, placements of Bosnians increased dramatically. According to Peter Vogelaar, the resource center's executive director, approximately 13,000 refugees have been placed in Utica-Rome over the last three decades. Over 5,000 Bosnians moved to the city during the mid to late 1990s. By compensating for the outmigration of residents in the 1990s, says Vogelaar, the refugees prevented Utica from falling to 50,000 residents, which would have impacted state and federal funding levels. And because many of the new arrivals bought houses and opened small businesses, including grocery stores and restaurants, they brought life back to Utica's hollowed-out commercial and residential neighborhoods.

Section 3

Assets in a Global Economy

Assets in a Global Economy

Attracting Highly-Skilled Workers and Developing Local Talent

There is no easy-to-follow formula for states, cities and regions to succeed in today's ultra competitive global economy. Undoubtedly, there is a long list of things that could help the state and all of its regions remain competitive, from modernizing the state's sagging infrastructure to reducing the high cost of doing business. Our research points to four big-picture keys to success in the global economy: talent, trade, R&D-fueled innovation and immigrants.

Existing programs are frequently not aligned with industry trends or employer needs. Adjusting program curricula to shifting industry needs is a real problem.

For decades, it was accepted wisdom among economic development officials that cities and states simply had to recruit or retain large companies and the workforce would follow. But things have changed, and in today's global economy, the most successful companies increasingly follow the talent.

In his recent book Triumph of the City, economist Edward Glaeser notes that educational attainment levels can predict the success of urban areas better than almost any other metric. Over the last 30 years in the U.S., for example, cities with higher educational attainment levels have seen both their populations and economic productivity rise much faster than less well educated cities. As a rule, writes Glaeser, when the percentage of the population with at least a B.A. rises by 10 percent, the per capita gross metropolitan product rises by 22 percent. The exponential increase in benefits seems to come from the effect more education has on the productivity of co-workers and other collaborators—or, as Glaeser words it, "…people experience both the direct effect of their own extra learning plus the benefits that come from everyone around them being more skilled."[72]

Based on this strong correlation between productivity and education, it won't be terribly surprising to find out that Manhattan, one of the richest counties in the U.S., is also one of the most educated, with nearly 60 percent of residents having at least a bachelor's and nearly 30 percent having a graduate degree. However, outside of New York's wealthier districts, educational attainment levels in the state remain troublingly low. For example, in Schenectady, Binghamton, and Utica, the share of the population with a college degree is significantly lower than the statewide average and, worse, not rising nearly fast enough to be competitive with other regions. Over the last two decades, for example, the percentage of Utica residents with at least a bachelor's has only risen two percentage

points (from 17 percent in 1990 to 19 percent in 2009); and in Binghamton it has only grown 6 percentage points (from 21 percent to 27 percent). One reason for these low numbers is almost certainly the poor performance of the public school system across the state. On the 2009 National Assessment of Education Progress tests, the gold standard in measuring student achievement, New York students ranked in the bottom half of states in 4th grade reading and science and 8th grade reading, science and math.

The level of science and math education—or what policy makers refer to as STEM (Science, Technology, Engineering, and Mathematics) education—at the primary and secondary school level is especially troubling to many officials at the state's universities and colleges. "By my own observation, on average, the mathematics and science capabilities of our current students are not even as good as students 10 to 15 years ago," laments one upstate SUNY college president. Hubert Keen, president of SUNY Farmingdale on Long Island, agrees. "Too few students pick up an interest in STEM before college," Keen says, "[and too few are getting to] the level required for science and engineering in college."

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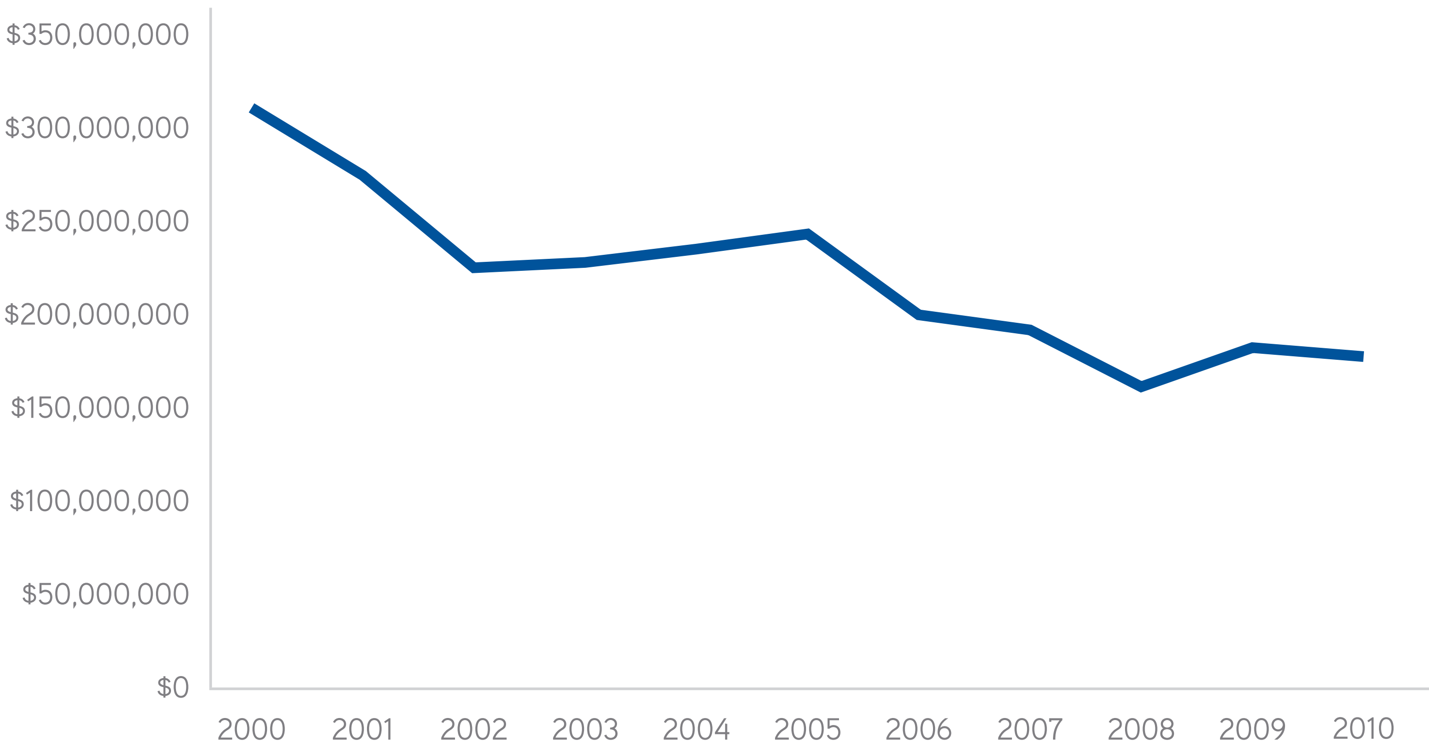
21. Federal Workforce Funds for New York State



Despite persistently high unemployment rates across the state, a number of high-tech companies we spoke to for this report say they have had trouble finding enough qualified applicants to fill openings. "Skilled workers are getting hard to find," explains Mark Pulver, CEO of Syracuse Castings, which makes manhole covers, sewer grates and hatches. "Our older workers were great, but we need to hire new ones with different skills, workers who can use CNC [computer numerical control] equipment, and who can program robotics."

Worker retirements and a shortage of qualified replacements are a major concern of the Rochester Tooling and Machining Association. The Association sponsors a precision machining program at Monroe County Community College, and a recent newsletter reports that even though the program had its highest enrollment in eight years in 2010 "…we are not scratching the surface of the need."

To be sure, the demand for less-skilled assembly line work has without a doubt dramatically decreased in the last several decades, but many higher skilled manufacturing positions have remained, and moreover, in a number of regions of the state, including Long Island and the Capital District, they are even growing. Yet the state's workforce development programs have not been able to keep pace with the demand. Federal funds for workforce training have dropped precipitously since the 1970s. Over the last ten years alone, federal Workforce Investment Act (WIA) funds to New York State have fallen from $305 million to $169 million, a 45 percent decrease.

Furthermore, existing programs are frequently not aligned with industry trends or employer needs. David Kaczor, director of marketing at the Erie County Workforce Investment Board, says that adjusting program curricula to shifting industry needs is a real problem. "Between state and federal approvals it can take years," he says.

In addition to developing a better local workforce through improved educational and workforce training programs, it is also important for the state to do a much better job of holding onto the skilled talent it already has. In our interviews for this study, we heard countless stories of upstate cities losing their best college graduates to other, more globally-competitive regions within and outside the state. Similarly, the 2010 report of the state Task Force on Diversifying

New York's Economy Through Industry-Higher Education Partnerships concluded that "the well-publicized `brain drain' of graduates and others leaving for greener pastures has plagued the New York, particularly the upstate region."

Dr. Nabil Nasr, director of the Golisano Institute for Sustainability and assistant provost at the Rochester Institute of Technology (RIT), travels around the world for his work and has seen this first hand. He says, "There are people I met in Singapore who were Kodak people now running companies. I also met Kodak people in industrial parks in China."

In many cases, upstate cities have been losing talented graduates simply because there are more job opportunities elsewhere, particularly for those seeking highly paid jobs in finance, professional services and creative industries—all of which tend to be clustered in a handful of cities, such as New York City, Los Angeles, San Francisco, Boston, Austin, Portland and Washington, D.C. For example, SUNY campuses may produce gifted architects, but chances are good that those students will seek opportunities in design centers such as New York City or San Francisco. Meanwhile, engineers graduating from Cornell or RIT often feel the pull of high-tech meccas like Silicon Valley and Boston, and many of those with MBA's migrate to Wall Street.

While many highly-skilled young people are relocating for opportunity, some move because they want to live in vibrant downtown areas where there are restaurants, shops and other amenities in walking distance. Unfortunately, too many upstate cities lack these environments.

The challenge of attracting and retaining talent isn't just an upstate issue. In a time of ever-increasing competition for the most experienced and talented workers, New York City officials worry about losing its talent to overseas competitors. The Partnership for New York City has said that the biggest danger to New York's future as a financial capital is that talent migrates to other places and is permanently lost.

A related challenge for New York is continuing to attract immigrants. Tens of thousands of both low- and high-skilled immigrants come to New York every year to pursue jobs and educational opportunities, but because of problematic immigration laws, many are unable to remain here.

Helping New York's Businesses Export and Compete Globally

To survive in the intensely competitive global marketplace, New York State goods and service providers must look to new markets abroad and increase their exports. The U.S. is the world's leading service exporter, and New York City's financial services, legal services and architecture and engineering companies are a big reason why. A number of advanced manufacturers across the state have also been increasing their exports to Canada and other foreign markets in recent years. But far too few of New York's companies today are exporting. This is a clear concern, but also a major opportunity for the future.

Expanding exports creates jobs, generates economies of scale in business operations, and makes companies more innovative as they compete in world markets. For example, Dynabrade International, a Buffalo-based manufacturer of advanced power tools, began exporting in the 1990s and now exports 55 percent of its production. Expanding into new international markets has allowed the company to add jobs and create new products. "It created my position," says director of international sales and marketing Mike Saraf. "We've also added people in assembly and shipping to account for the new business and people in marketing who are international specialists. More and more of our new products come from ideas from our international markets," he adds.

New York ranks third among U.S. states in the value of its goods exports. Between 2000 and 2009, their value increased 37 percent, slightly exceeding the 35 percent increase for the U.S.

The U.S. Commerce Department's Export Assistance Center in Buffalo helps small and medium-size companies expand their exports. Rosanna Masucci, senior international trade specialist at the Center, says small and medium size companies "are realizing they have to export if they want to stay in business." She adds, "Globalization has really affected how they do business. And they realize they have to be more accepting of customers from around the world." Still, only one percent of U.S. businesses export, and less than half of those sell goods and services to more than one country.

In much of upstate, especially in Central New York, the Mohawk Valley and the Southern Tier, many companies do not fully understand the global imperative. Peter Koveos, director of the Kiebach center for International Business at Syracuse University, remarks, "We work with small companies that try to go international or that want to expand internationally, and you can tell which ones are committed. They get it and they are activists in reaching out to the global marketplace. But there are others who are too conservative and still do not realize what is going on out there. They need resources and training and education to get ready for the global economy."

Expanding exports creates jobs, generates economies of scale in business operations, and makes companies more innovative as they compete in world markets.

However, New York State's export assistance budget has been slashed every year for the last three years and now stands at a paltry $1.5 million, or only about 1.4 percent of the $103 million spent on international trade development by all states in 2008. The Empire State Development Corporation (ESDC), which runs the state's biggest export assistance programs, has only nine international specialists—seven in New York City, one in Buffalo and one in Syracuse. An upstate economist told us that ESDC is very good when they can help you, "but their budget is pathetic and because of that they can't travel, not even within the state."

Moreover, a vast majority of the state's assistance programs are targeted to manufacturing companies, even though the state's service exports come close to matching manufacturing exports in value and a number of service exporters, from fashion designers to architects and engineers, are smaller enterprises with fewer international specialists at their disposal.

Creating and expanding programs to spread the word about the need to export and helping owners to locate the information and tools to do so should be a priority. For some firms, simply getting some help with translations would make a big difference. For example, an official of a Buffalo area business assistance group says that one of their clients was surprised to see the immediate hike in web hits and sales when they translated their website into several different languages.

Building on the State's R&D Assets to Create a Larger Innovation Economy

Despite the dramatic employment decline in manufacturing over the last four decades, and major corporate restructurings at a variety of large companies, both downstate and upstate New York continue to have some of the nation's largest and most distinguished research and development establishments. These include major academic research centers such as Cornell, Mt. Sinai School of Medicine, Columbia, Rockefeller University, the SUNY University Centers, the University of Rochester and Rensselaer Polytechnic Institute, as well as large corporate R&D centers for companies like Pfizer, General Electric, Kodak, IBM and Corning. Government-run research labs include the Brookhaven National Laboratory on Long Island and the Air Force Research Laboratory in Rome.

Major R&D efforts are happening in almost every region of the state. For example, according to the Center for an Urban Future's 2009 report about New York's innovation economy, a healthy 42 percent of R&D spending at the state's colleges and universities was occurring upstate, versus 51 percent in New York City and 7 percent in Long Island and Westchester. The upstate region did even better in terms of industry spending on R&D at colleges and universities; 68 percent was spent upstate versus 25 percent in New York City and 8 percent in Long Island and Westchester.[73]

R&D centers are important because they attract scientists and engineers from around the world and are natural incubators of innovation in fields as diverse as bioscience and nanotechnology, pharmaceuticals and clean-tech. Moreover, a critical mass of scientific and engineering research can give rise to self-sustaining clusters of companies and, in the right circumstances, foster the growth of entirely new ventures. If New York is going to remain competitive in a global economy, it will have to take steps to both keep and build on these important economic assets. However, there are a number of important challenges to address, including increased foreign competition and anemic venture capital funding for new research-backed businesses.

Although R&D operations have been greatly expanded in certain parts of the state, research capabilities are also rapidly developing in China, India and other countries, where researchers are paid a fraction of what their New York peers earn. For example, General Electric's R&D headquarters has been located just outside of Schenectady since the early 20th Century; its Global R&D Center there now has over 2,000 employees and was recently expanded. But the company has also recently built a 1,000-person technology center in Shanghai, where it does research on clean coal, new materials, digital manufacturing and power electronics. In 2009, GE announced that its Bangalore R&D Center, which opened in 2000, would be expanded to 2,000 researchers and engineers, and in 2011 it announced that it would be opening a new, fifth R&D center in Rio de Janeiro. GE spokesperson Todd Alhart explains, "A global company like GE needs to have a global presence to be successful, and we're going after talent all over the world." Similarly, IBM's home research centers are in Yorktown Heights and Hawthorne, but in 1995 the IBM China Research Laboratory was opened in Beijing, and in 2008 the company added another major center in Shanghai.

In a report on the impact of China's industrial policy on Upstate New York in 2009, the U.S.-China Economic and Security Review Commission found that "by relocating their research, development, and innovation functions overseas, New York manufacturers have retained fewer talented employees and have reduced high-paying jobs in New York."[74] The Commission also reported that China is strategically targeting R&D in fields that are important to New York, such as wind and solar power and photo-optics. Yet another concern is that manufacturers will eventually off-shore their R&D in order to be closer to their production facilities. For example, although Carrier has publicly committed to keeping the bulk of its research operations in Syracuse, it closed its air-conditioning plant in 2003 and several labs have slowly followed. Just last year it moved a chiller lab from Syracuse to its South Carolina plant.

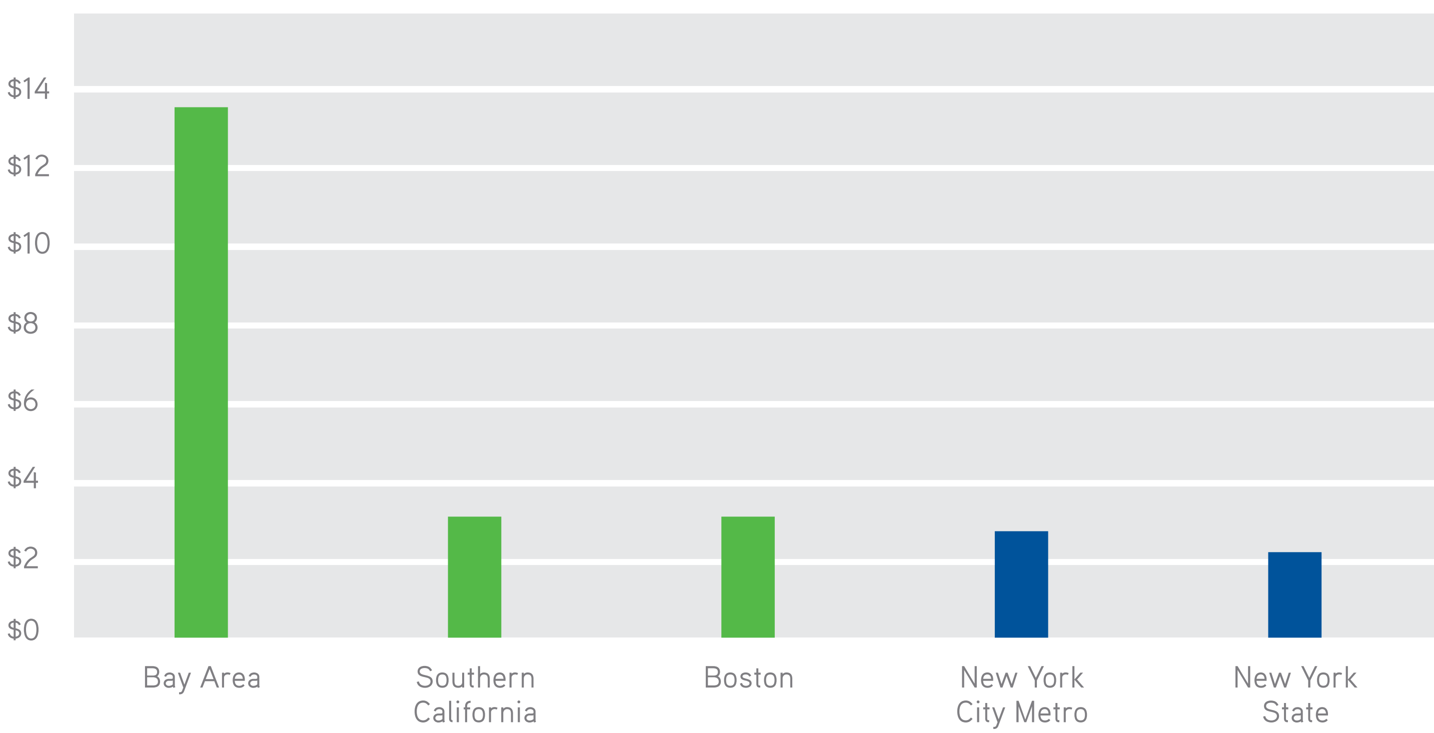
Finally, despite recent developments like Albany's Nanotech Center, which has attracted hundreds of millions of dollars in private investments, New York's vaunted scientific institutions have lagged behind in commercializing their research and thereby creating new businesses and jobs.[75] In other parts of the country, particularly the San Francisco Bay Area but also the Boston and San Diego regions, universities like Stanford and MIT have fostered a culture in which researchers routinely spin-off discoveries into new business ventures. Google, Cisco and Sun Microsystems, for example, are all multi-billion dollar businesses that grew out of research conducted at Stanford University.

Cultivating a high-tech cluster is important for any state in today's digital age. Globalization has forced established companies in industries such as finance, publishing, media and advertising to invest in new technologies in order to become more competitive and tap new markets. At the same time, more and more Americans are making use of new technologies in every facet of their life. All of this has created a significant growth opportunity for emerging tech firms.

As the home of IBM, Corning, CA Technologies, SEMATECH, GE and others, New York State clearly has the foundation for significant growth in the tech space. However, New York has been slow to become a hotbed of technology entrepreneurship. The most recent "State New Economy Index" published by the Information Technology and Innovation Foundation

22. Venture Capital Investments in Top Five US Cities 2010–2011 in Billions

Source: Dow Jones Venture Source



(ITIF) and the Kauffman Foundation ranks New York State 10th nationally—behind well-known tech powerhouses California and Massachusetts, but also after Washington, Maryland, New Jersey, Connecticut, Delaware, Virginia and Colorado. According to the report, New York is only 25th among all states in "high-tech jobs", 25th in "scientists and engineers," 26th in "Industry Investment in R&D" and 14th in "venture capital."[76]

At the same time, it has been rare for any region in New York to be mentioned in the same breath as leading technology hubs such as Silicon Valley, Boston/ Cambridge, San Diego, Raleigh Durham or Austin. And New York—especially upstate—has not done particularly well in attracting venture capital. Between the first quarter of 2010 and the first quarter of 2011, Bay Area businesses attracted $13.4 billion in VC investments, with 1,054 rounds of financing; Boston businesses attracted $3 billion, with 342 rounds of financing. However, despite being the preeminent center of finance with a number of major VC firms, businesses in the New York metro area only received $2.9 billion in VC funds, with 420 rounds of financing. As the chart below shows, the rest of New York State was even worse off, with fewer VC funds than New York City's suburban counties in New Jersey and Pennsylvania.

The good news is that over the past three years New York City has achieved significant momentum in its tech sector, particularly among digital media and Internet companies. The city is home to a growing number of successful startups, including Foursquare, Gilt Group, Tumblr and Hunch. In addition, Google recently opened an office in Manhattan and now has around 2,200 employees there, half of which are engineers. And as further indication of the dramatic turnaround, several California-based venture capital firms have opened offices in New York. The Bloomberg administration has attempted to build on this momentum by creating a number of incubators, establishing seed funds for tech entrepreneurs and, most recently, developing a high-profile competition to attract an applied science and engineering campus to the city.

Other regions across the state have had some success in nurturing high-tech companies, as we mention elsewhere in this report. For example, there are more than 100 life science and bioinformatics companies in Western New York, according to Cesar Cabrera, a regional analyst with the New York State Department of Labor; Rochester has more than 60 optics companies and the Utica-Rome area has a growing number of cyber security firms.

R&D centers are important because they attract scientists and engineers from around the world and are natural incubators of innovation in fields as diverse as bioscience and nanotechnology, pharmaceuticals and clean-tech.

Tapping the Catalytic Power of New York's Immigrants

In 1965, President Lyndon Johnson signed the Immigration and Nationality Act, ending the national origins formula that had restricted immigration to the U.S. since 1924 and unleashing a wave of immigration from nations around the world. Immigration to the U.S. doubled in the next five years and doubled again by 1990.

Perhaps no other city in the country—and few anywhere in the world—have benefitted more from immigration than New York City. Of course New York has been the biggest single destination for immigrants going back to the Civil War, but a large percentage of the immigrants who arrived in the U.S. after the 1960s also went no further than the New York City limits. Between 1970 and 2008, New York's foreign-born population increased 122 percent, while the share of the total population that is made up by foreign born residents more than doubled, from 17 percent to 37 percent. In the 1990s, the peak decade for immigration since 1970, 1.2 million immigrants, or more than the entire population of all but eight other U.S. cities, resettled in New York.

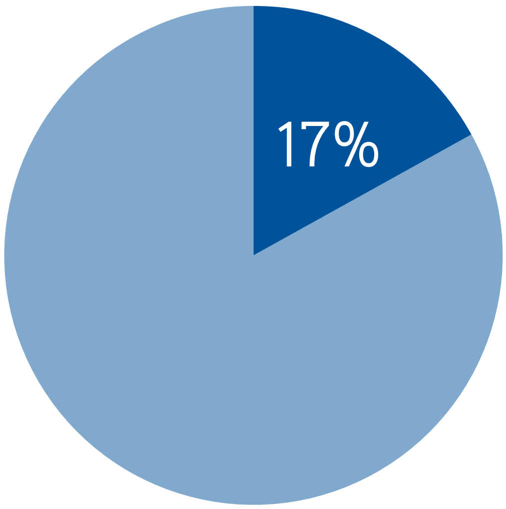
Immigrants have been a key factor in the city's population growth. For example, between 2000 and 2007, over 800,000 New York City residents moved away. But, combined with a natural population increase of 400,000 (through child birth), a net gain of more than 600,000 immigrants was more than enough to offset that loss.[77] Moreover, immigrants provide most of the city's workers in manufacturing, construction, hotels and restaurants and more than 40 percent of the workers in education, health and social services. And, contrary to popular perception, immigrants constitute a huge share of the city's white collar workforce. According to a report by the Fiscal Policy Institute, 50 percent of the city's doctors, 33 percent of financial managers, and 25 percent of architects are foreign-born.

Dozens of neighborhoods across New York City—from Brighton Beach and Sunset Park in Brooklyn to East Elmhurst and Flushing in Queens—have experienced tremendous growth and revitalization due to the number of immigrants who opened businesses and bought homes. Stuart Schneiderman, a long-time store owner in Flushing, says that part of Queens was in serious decline during the 1970s and 80s. "Businesses were going out and none were coming in. People who had retired and decided not to operate their businesses anymore didn't have anyone to step into their shoes." But the surge of new residents from China and South Korea turned the area dramatically around in the late 1990s and 2000s. Today, the district has become the city's fifth busiest shopping district. Hundreds of grocery stores, restaurants, banks, and specialty stores line both sides of Main Street; a shopping mall and 14-story Sheraton hotel have recently gone up. Says Schneiderman, "It could have become a desolate area full of abandoned buildings but it was all reversed."

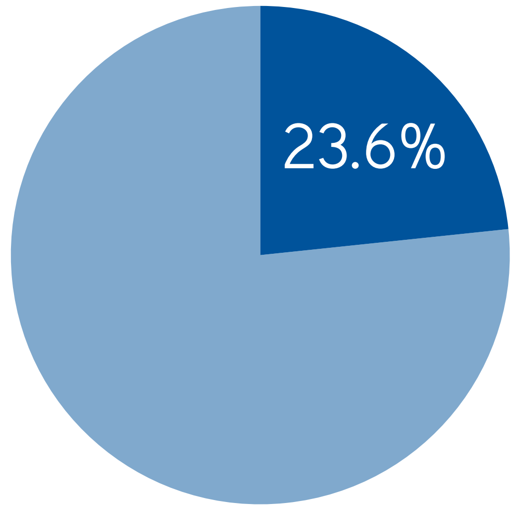
Long Island and Westchester County have also been dramatically affected by immigration. From 1970 to 2008, the foreign-born share of Nassau County's population more than doubled, from eight percent to 20 percent, an increase of nearly 160,000. Westchester County's foreign-born population share also doubled in that time, from 12 percent to 24 percent, an increase of almost 122,000. In the case of Westchester, the increase was driven by the cities of Mt. Vernon, New Rochelle and Yonkers, all three of which saw their foreign-born population shares rise from around 12 percent in 1970 to 30 percent in 2008. Without the immigration influx, the population of New Rochelle would have declined more than it did, and there would have been no population increases in Mt. Vernon or Yonkers.

One significant difference between upstate and downstate immigrants is that upstate immigrants are considerably more likely to come from Europe and to have more formal education.

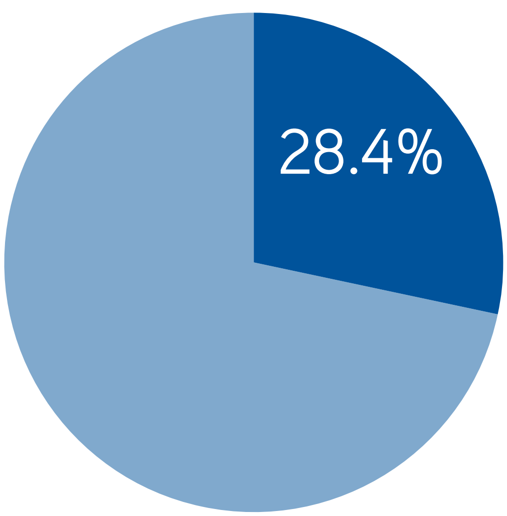
23. Change in Percent of Foreign-born In New York City



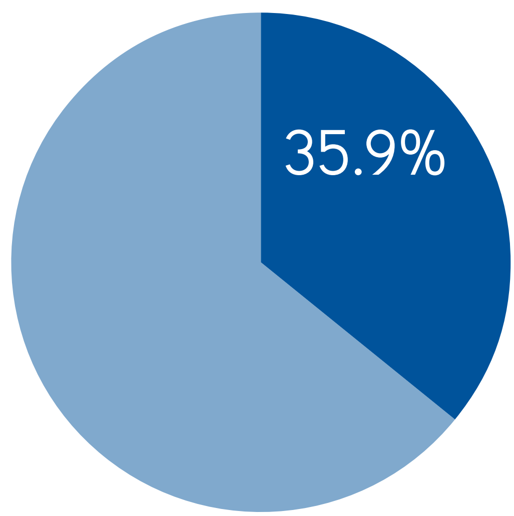
1970
Total Population: 7,894,862



1980
Total Population: 7,071,639

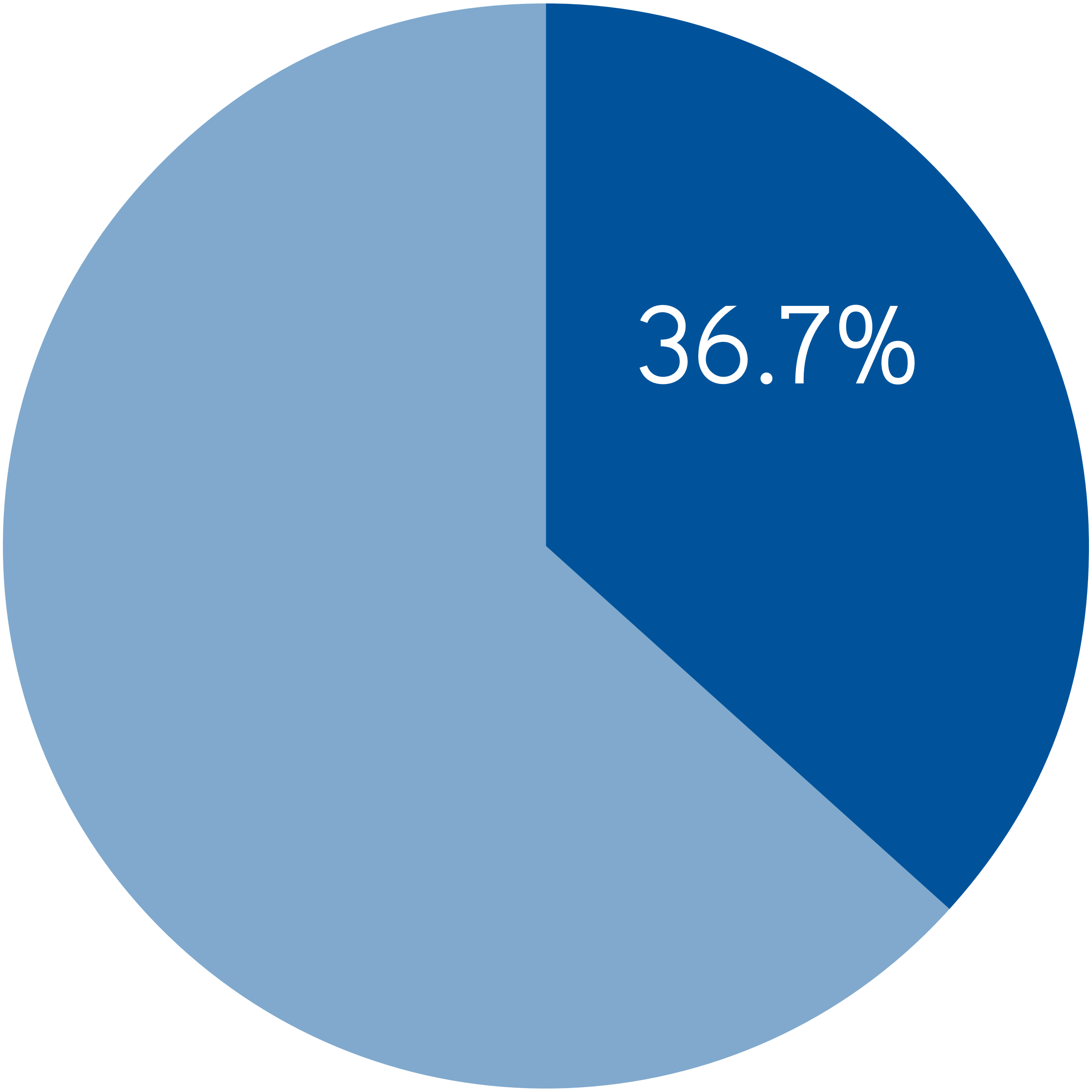


1990
Total Population: 7,322,564



2000
Total Population: 8,008,278

● NYC Foreign–born



2008[78]
Total Population: 8,308,163

Perhaps no other city in the country—and few anywhere in the world—have benefitted more from immigration than New York City.

The story upstate has been very different. During the 1970s and 80s the number of foreign-born residents of the largest upstate cities declined, rather than increased. After 1990, a number of regions such as Erie County around Buffalo and Onondaga County around Syracuse started to see significant increases, but their share of immigrants are still much lower than downstate metropolitan areas. However, Schenectady and Utica are two big exceptions.

In 2002, Schenectady Mayor Albert P. Jurczynski took trips to the Richmond Hill section of Queens in order to persuade Guyanese immigrants there to move to his city. Hundreds of people accepted his offer of a one-day bus trip to Schenectady, on which he was the tour guide. His efforts succeeded. Between 2000 and 2008, the foreign-born population of Schenectady more than doubled and in 2008 foreign-born residents comprised 13.2 percent of Schenectady's population, an increase from 5.3 percent in 2000. Because of the influx, from 2000 to 2008 the city's population did not decline for the first time in 50 years. Guyanese immigrants have bought houses from the City of Schenectady that were slated for demolition. According to Hemwati Ramasami, a development specialist at the Schenectady City Planning Department, many have begun to open small grocery stores, restaurants, and specialty stores that sell Indian or religious-related products (about half of Guyanese are Indian and 40 percent are Hindu).

In Utica-Rome, an extensive refugee resettlement program run since 1981 by the Mohawk Valley Resource Center for Refugees, has similarly been encouraging immigrants, particularly refugees from war-torn countries like Bosnia and Burma, to settle in the area. And largely as a result of those efforts the city's foreign-born population grew from 5.4 percent in 1990 to 13.0 percent in 2008. Social worker Judith Owens-Manley says it was the Center's expansion in the 1980s to assist Cambodian, Laotian and Vietnamese refugees, a wave of Russian Pentecostal Christian refugees in 1988, and the arrival of Bosnian refugees in the 1990s that led to the surge in the city's foreign-born population. Bosnians began to arrive in 1993, when Congress voted to include Bosnians in the U.S. refugee allotment. Since then, the Center has resettled 5,000 Bosnians, the city's single largest refugee group. Like the Guyanese in Schenectady, Utica's new arrivals have been remodeling homes and opening small businesses.

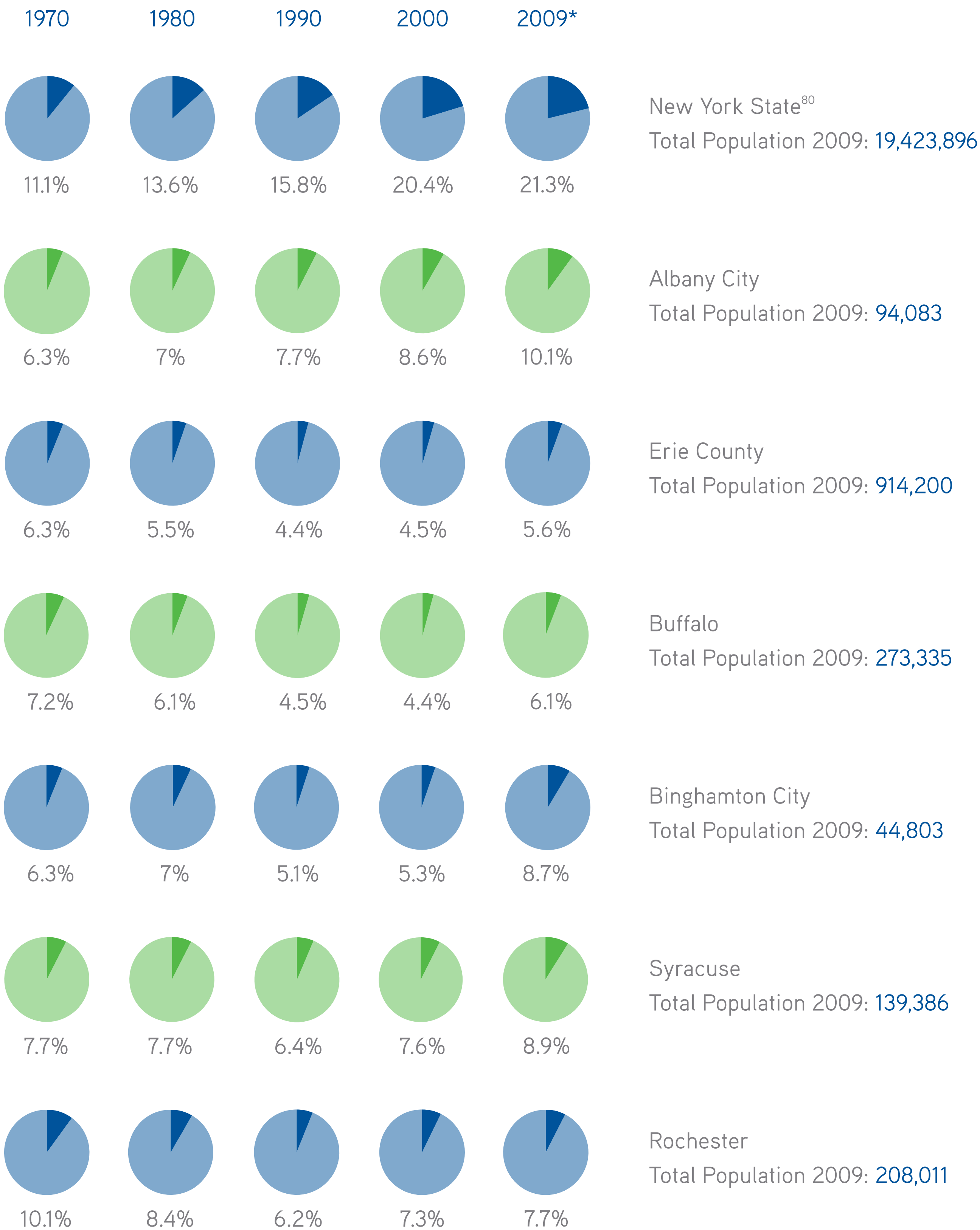
One significant difference between upstate and downstate immigrants is that upstate immigrants are considerably more likely to come from Europe and to have more formal education, according to a 2007 Federal Reserve Bank study.[79] In 2000, over 40 percent of upstate foreign-born residents were from Europe, compared to fewer than 20 percent in New York City. Latin America accounted for only 13 percent of upstate foreign born residents, compared to more than 50 percent in New York City. Moreover, upstate's foreign born residents tend to be more educated than native born residents.

Visa and immigration restrictions have proved to be a major obstacle to growth in a number of New York State industries, from high-tech manufacturing to financial services. In 2008, the Partnership for New York City surveyed international companies operating in New York City to better understand how well the city is competing in attracting global talent, and the results were alarming. Because of the country's visa and immigration policies, the report stated, thousands of jobs are being lost and "whole divisions and functions of companies and professional service firms are being relocated overseas."[81] Maria Gotsch, CEO of the New York City Investment Fund, calls obstacles to immigration "problem number one, two and three" for high-tech employers in New York.

One serious obstacle is the low cap of only 65,000 H-1B work visas for foreigners who possess professional-level expertise in fields such as engineering, math, accounting and law. In 2006, New York State accounted for 11.2 percent of H-1B visas issued nationwide, second to California. Among the major users of H-1B visas in New York City are investment banks, universities, technology suppliers and medical centers, and they are also important in architecture, fashion, education and law. Short-term B-1 "Visitor for Business" visas are available but they do not allow paid employment and there can be long waiting times for approval.

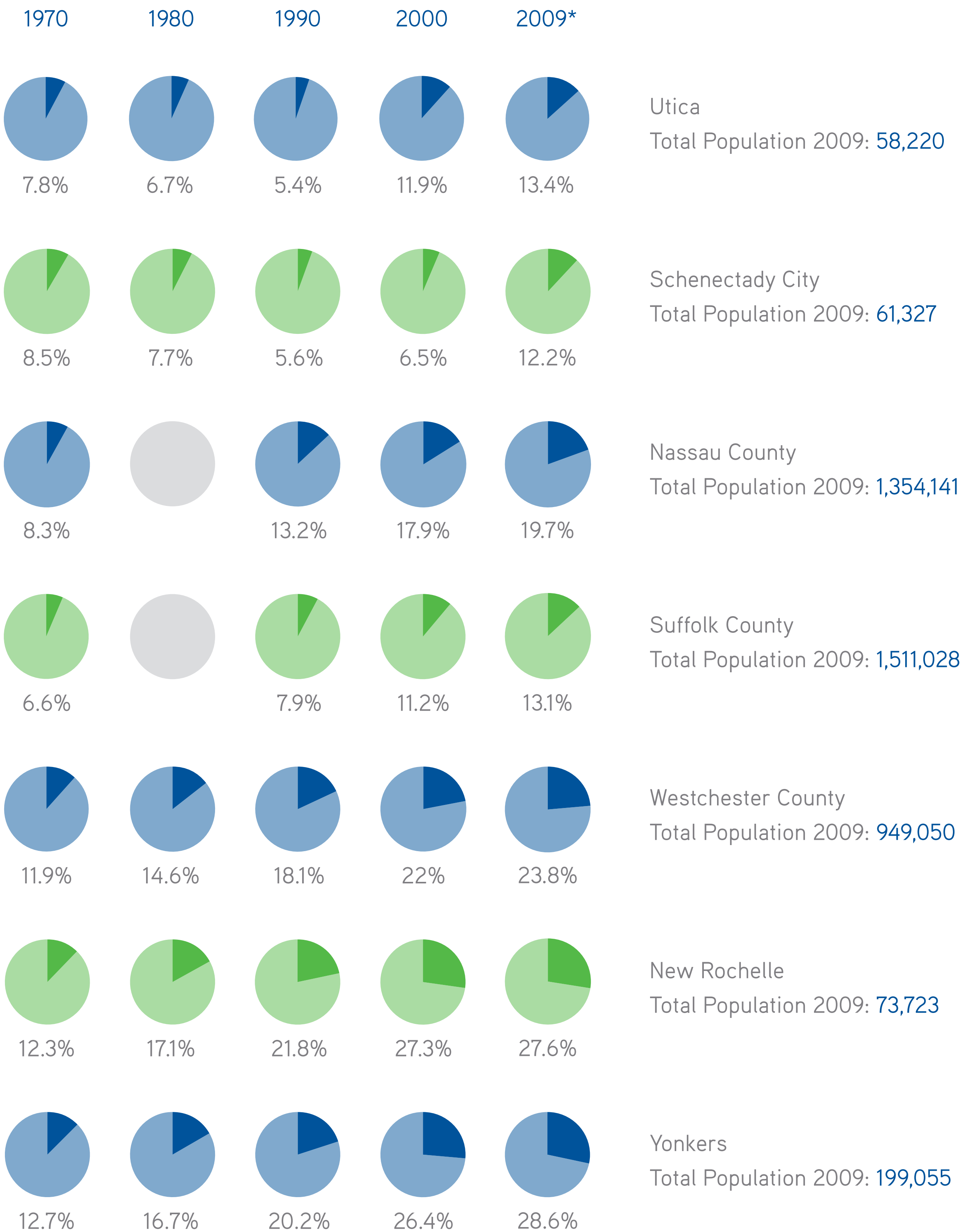
Perhaps even more problematic is the shortage of Green Cards and permanent resident visas, which causes New York to lose some of its most skilled and experienced workers. Many highly-educated foreigners come to New York on short-term visas that enable them to study at local universities or work at finance companies or tech firms, but they have to leave when their visas expire or if they are laid off. For instance, under the Optional Practical Training authorization, students can work after their graduation but for only one year. Because many students end up having to leave after they graduate, New York's colleges and universities are in effect educating foreign students so they can go back home and work for New York's competitors.

24. Change in Percent of Foreign-born in New York State



Data Not Available

*American Community Survey
2005-2009 Five-Year Estimates



Section 4

The Road Ahead

The Road Ahead

Talent, Growth Strategy, and Assets: Opportunities for New York in the Global Economy

This report was designed to investigate the impact of the global economy on New York State and New York City. After more than a year of gathering data and interviewing scores of people throughout the state, we set out to illustrate where and how New York has benefitted and suffered from the dynamics of globalization. We conclude that, on balance, New York State has benefitted from these forces, although it is clear that the gains and the losses have not been distributed evenly across the state. This is one of the realities of the ultra-competitive global and increasingly technology-driven environment in which New Yorkers live and work.

Another reality is that the forces of globalization are here to stay. Since there is no turning back the clock, parts of the state that have not realized gains from the global economy will find it increasingly important to take steps to ensure they have a better chance of doing so in the years ahead. At the same time, the regions and industry sectors that have generally managed to benefit from globalization are by no means guaranteed of continuing their success in the future. If anything, New York state and city will only face greater competition in the years ahead—the city's finance industry will face new threats from emerging centers in Singapore, Shanghai and Dubai as well as London. More of the state's high end business services sectors will outsource work overseas; and all regions of the state will see more competition to attract and retain the most highly-skilled workers.

While this report was never intended to serve as blueprint for reviving the long-struggling upstate economy or staving off threats to Wall Street's dominance, we believe that our findings should serve as a fact-driven foundation for planning to strengthen New York's competitive position in the world, mitigate the negative impacts of globalization and enable more New York residents and businesses to reap the benefits of globalization.

The SUNY Levin Institute commissioned the Center for an Urban Future to research and write this report in collaboration with the Institute and an Advisory Council. In this section, we highlight some of the most pressing challenges and most promising opportunities that emerged from the research, which will serve as an essential resource as the SUNY Levin Institute moves forward with its program of public engagement for the New York in the World initiative. This effort will engage stakeholders; be they political, business, labor and education leaders, policy analysts and advocates or any citizen concerned about the future quality of life and standard of living in New York.

Talent for the 21st Century World

Invest in Education and Skills Development

Educational policy is often separated from economic development. But in the increasingly competitive global economy, state and local efforts to improve the quality of and access to public education—from pre-k to graduate engineering programs—should be considered an essential component of efforts to grow the economy and strengthen regions. Today, regions with the greatest intellectual capital have an enormous advantage. Indeed, New York City has succeeded in today's global economy in large part because it has had an almost unparalleled ability to attract the best and brightest from across the country and around the world. But other regions in the state have had far less success at this; as a result, their ability to succeed economically is largely dependent on building up the skills of their local population. Even New York City will likely become more dependent on its local workforce as a number of other global cities become increasingly fierce competitors for the most highly skilled workers.

New Yorkers at every level, from state government to communities must make education and skills development the highest priority. These should include global workforce skills needed to meet the demands of today's global economy. In addition to improving overall student achievement, there should be a specific emphasis on STEM (Science, Technology, Engineering and Math) education skills, an area in which too many New Yorkers (and Americans) are seriously deficient. The state should set a goal of increasing the number of New Yorkers in every region who complete a two or four year higher education degree program. A goal of "5 in 5", a five percent point increase in a five year period would focus public attention on the urgent need for this.

Develop Strategies to Retain and Attract Talent

Producing more highly-educated young people will only have a limited impact if New York's metro areas are not able persuade a substantial number of them from moving elsewhere (either downstate to New York City or out of state) when they are ready to begin their careers. People follow jobs and opportunity. As a result, it is critical for policymakers and local stakeholders to develop new strategies for retaining more of their own college graduates. This begins with creating employment opportunities, but New York State and community leaders would be wise to learn from initiatives to prevent "brain drain" that have been implemented in cities and states including Philadelphia, Boston, Utah, Maine, Vermont and Indiana. Many of these efforts have included a push to increase the number of internships at local businesses. For instance, a Philadelphia study found that 64 percent of students who interned locally stayed in the region after graduating.[82] Other strategies have included marketing campaigns to overcome negative stereotypes that some college students may have about their regions; sponsoring events and activities that expose college students to each city's unique social and cultural resources; holding business plan competitions that aim to increase the number of young entrepreneurs who start local businesses; and redeveloping downtown areas to create a more appealing environment for young professionals.[83]

Research points to the importance of improving the quality, access and affordability of higher education. A number of states have launched new scholarship programs to keep students in-state while others have developed academic programs in emerging industries. Studies have shown that graduates who attended high school in the same region or state that they attended college are more likely to stay in the same region after college. For instance, roughly 85 percent of Philadelphia's native college graduates stayed in their region after college, compared to 29 percent of the city's non-native students.[84]

New York officials should also follow through on the recommendations from the state's own Task Force on Diversifying New York's Economy Through Industry-Higher Education Partnerships, which said that "a variety of tactics must be employed to retain and recruit talented students, faculty, managers and entrepreneurs to New York." Among these are recruitment of doctoral and, in particular, post-doctoral researchers to the state's graduate schools and companies and promoting university-industry collaboration through joint research or start-up incubation.

Embrace Community Colleges as Mechanisms to Retrain Displaced Workers

The sluggish economy has only added to the serious challenges for thousands of New Yorkers with limited skills whose jobs were eliminated in the recession or off-shored even before that. Community Colleges have become vital educational and training platforms for New York State's workforce. Beyond their traditional students, community colleges that are effectively plugged in to the workforce needs of their region's employers can help mitigate the negative impact by retraining displaced workers in fields where there are openings. "One of things that's been a real plus for Rochester is that we have a whole portfolio of career-focused programs at a community college, so that when someone comes off the production floor at Kodak and wants to move to a different technical field, there are a lot of opportunities at Monroe Community College," says Kent Gardner from Rochester's Center for Governmental Research. "In many places, when they are displaced from a job, they relocate to Raleigh Durham or elsewhere. In Rochester, people have been able to stay in the community and get retrained."

Other states such as North Carolina and California have created strong partnerships between employers and community colleges, but New York needs to do more in this field.

Create Immigration-Friendly Policies to Attract and Retain Immigrants

New York State, like the United States as a whole, is becoming increasingly dependent on immigrant talent to maintain its competitive position in the global economy. While New York City and its surrounding region are a testament to the power of immigrants, most of the largest upstate cities have not seen meaningful gains in the number of foreign born residents over the past few decades. And in our focus groups, several participants mentioned that local residents, civic leaders and even businesses have too often been unwelcoming to newcomers from abroad. This must change.

The Global Detroit initiative to recruit immigrants to that hard-hit city, the Welcoming Center for New Pennsylvanians and the Office of New Bostonians are important examples of steps to attract immigrants to replenish lost population, to provide local employers a capable workforce, and, perhaps most importantly, provided a critical entrepreneurial spark.

State officials, as well as other stakeholders, should continue to lobby for easing the counterproductive immigration and visa restrictions that make it more difficult for New York to attract and keep talent from around the world.

New York should take a page from what a growing number of Midwestern and Northeastern cities and states are doing to help jumpstart their scarred economies: they are actively pursuing strategies to attract immigrants.

Growth Strategy for the New Global Economy

Promote and Support Entrepreneurship

In recent years, the state has committed significant resources to support the growth of emerging industries from biotech and digital imaging to clean tech. As much as it makes sense for the state to support the development of clusters in promising sectors from clean tech to biotech, the state should engage in a more broad-based effort to increase the number of entrepreneurs and start-up businesses in communities across New York—not only in high-profile technology sectors, but in every part of the economy. It is never easy to predict which industries will become the economic engines of the future. However, evidence shows that efforts to increase the number of entrepreneurs will pay dividends economically and create positive momentum for revitalizing struggling cities. Indeed, perhaps more than any other economic strategy, seeding new businesses in a broad range of industries may offer the best hope for upstate cities whose large employers are downsizing or moving out and downstate cities that need to further diversify their economies.

In our interviews across the state, we heard that many cities lack a strong entrepreneurial culture and that New Yorkers—particularly those living upstate—too often shun opportunities to start businesses in favor of taking jobs at existing companies. This mindset needs to change. While this may not happen overnight, aggressive new efforts to promote and support entrepreneurship—particularly in inner cities, where new storefronts might have an energizing effect and bolster efforts to keep young professionals from moving to other regions—could lay the groundwork for future economic growth.

Build Upon the State's R&D Assets to Expand the Innovation Economy

New York's strong research and development infrastructure represents a clear opportunity for growth in today's global economy. Several regions throughout the state are home to globally competitive research institutions and private sector R&D facilities. Indeed, our research finds that the presence of academic research institutions in the Albany and Rochester regions is one reason why those areas have held up better than other places upstate in the last few decades. The potential (and necessity) of a greater coordination of private sector and university based research (and development) is already demonstrated in the public/private collaboration and investment in nanoscience and other initiatives in the Albany region. This needs to be maintained and built on at other centers of research and development in the state.

Capitalizing on these assets will require planning and investment. To begin with, the state must make it a priority to retain private sector R&D facilities that will face increasing pressure to relocate overseas. At the same time, New York's public and private universities must do far more to support and promote a culture of entrepreneurship among scientists and students, and increase their partnerships with private industry. State and local government officials should support these efforts, and leverage their own investments in higher education to push academic leaders to take these entrepreneurial steps. Until this happens, New York will never fully harness the vast potential of these institutions to become catalysts for local entrepreneurship and economic growth.

Help More New York Businesses Export and Compete Globally

While many businesses have struggled amidst increasing global competition, access to global markets also represents a huge opportunity for businesses. Although a growing number of New York-based companies are beginning to take advantage of the chance to grow globally, the sad truth is that too few businesses across the state are exporting their goods and services. Far too many aren't even trying. In our focus groups, we heard that many companies either do not understand why they should export or do not know how to go about it.

State and local economic development officials should be doing far more to help New York businesses export. Expanding the international trade division of Empire State Development might be a good start, but it would also be wise to provide resources to locally-based small business assistance organization around the state that have the capability to create—or expand—export assistance programs. Too few export assistance programs currently exist for small and medium sized businesses.

View Colleges and Universities as Economic Drivers for Regional Growth

Colleges and universities have become increasingly critical job generators for regions throughout New York State. Employment growth in the higher education sector will likely continue as more young people from across New York and throughout the world see the value of a college education in today's knowledge economy. And, unlike many other sectors, colleges and universities are firmly rooted assets that probably won't be sending jobs overseas anytime soon even as they increase their international ties. As one recent report put it, "In many respects, the bell towers of academic institutions have replaced smokestacks as the drivers of the American urban economy."[85]

Despite this, New York State has not previously made higher education a major component of its economic and workforce development strategy. There are promising signs that this is changing now, but much more should be done to harness the state's many colleges and universities as anchors of regional economic growth. The 64 SUNY campuses and the 23 CUNY colleges and schools along with a vast network of private, independent colleges and universities constitute an outstanding resource for all of New York.

While the state's economic development officials should do more to integrate educational institutions into its future growth strategy, many of the state's colleges and universities in New York could undoubtedly improve in some areas, too—from more aggressively promoting entrepreneurship among their students and faculty to working more closely with regional employers to ensure that they offer relevant degree programs in emerging fields of economic growth.

Improve Connections Between Upstate Cities and New York City.

Proximity to New York City, one of the nation's few truly global cities, should be a real asset for upstate metro areas. Indeed, the Hudson Valley has arguably fared better than much of the rest of upstate because of the relative ease with which its residents can get to and from Manhattan. Unfortunately, the same connections have not been made between New York City and upstate areas or even between the large upstate metro areas themselves, in large part due to the sheer distance between these centers. New York is a big state. Although it has the interstate highway network it does not have adequate rail or air connections linking population and commercial centers.

In addition to transportation infrastructure issues addressed below, other connections within New York State need to be strengthened. This too involves mindset and perception changes between many New Yorkers upstate and downstate. For example, New York City is the world's financial center; while in Upstate New York new innovative enterprises are emerging that require capital to build their businesses. Greater efforts are needed to bridge this divide, to bring upstate businesses together with the New York City investment community.

There is also significant potential to create downstate/upstate partnerships in efforts to grow industries such as clean tech and life sciences. For instance, New York City has exceptional research capacities but little room for emerging companies to grow or manufacture products, while several upstate regions have ample space and manufacturing capacity that tech companies require.

Assets for a Competitive New York

Maintain New York's Key Competitive Advantages

As important as it is for policymakers to tap new opportunities for the state to benefit from globalization, it is perhaps even more critical to shore up existing assets. As described in this report, these are primarily economic sectors in the New York City metro area that have adapted quickly and successful to the demands of the global economy. Most importantly, New York City must not lose its status as the world's leading financial centers amidst challenges from emerging hubs like Singapore, Shanghai and Dubai and longtime competitor London. As seen in this report, tax and other revenue generated by these NYC industries are indispensable for New York State's fiscal health, more than ever in these difficult times.

Upgrade the State's Physical Infrastructure

Governments in Europe and especially Asia have been making massive public transportation investments to improve economic efficiency and become more competitive. New York State could benefit greatly from similar investments in public transportation. New York City metro area's economy is totally dependent on public transportation managed by a state agency. Other priorities include addressing the congestion and routine flight delays at New York City area airports.

Bridging the physical gap between New York City and upstate regions could produce important dividends for upstate communities. One way to do this is through construction of high-speed passenger rail service along the Empire Corridor, an expensive undertaking but one that could have an important payoff.[86] It would link the more vibrant downstate and Capital District economies that fared comparatively well under globalization with upstate metro areas that have experienced few of the benefits of globalization. High-speed rail travel may seem a distant hope in today's economic environment, but it should not be forgotten.

Although the energy sector has not been a particular focus of this report, we recognize the impact of the global energy resources and markets on New York. New York, like the nation, must move aggressively to maintain adequate and competitively priced energy sources as well as take needed steps to meet environmental concerns. Ample, reliable and affordable energy will be central to New York's future growth and competitiveness.

Lower the Cost of Doing Business in New York

Because it is such a magnet for top talent and a center for international and national air travel, among its other attractions, many firms in the New York City metro region accept that they pay a premium in taxes and other costs to reap the advantages of locating there. But this should not be treated with complacency. In the current and future highly competitive global environment there will likely be an increase in alternative attractive locations for New York City firms. The commercial and location attractions currently enjoyed by New York City definitely do not exist in most upstate communities, which are most often competing purely on cost with other states. New York has the nation's third highest combined state and local taxes, and among the nation's highest worker's compensation insurance rates and electric power rates. In our focus groups and interviews, business leaders, especially upstate manufacturing executives, reported that New York's relatively high operating costs are a major deterrent to locating facilities in the state.

These disincentives for investing in New York State are well known across the country and abroad. As is widely recognized, this needs to change. This change will not be easy, just as the many other essential steps identified in this report will not be easy. But action must be taken to ensure the competitiveness and future prosperity of New York in the World.

Action must be taken to ensure the competitiveness and future prosperity of New York in the World.

References

1 Per capita personal income, compared to the U.S., declined in Brooklyn, Queens and the Bronx between 1970 to 2008. It stayed the same in Staten Island.

2 Harold Meyerson, "Business is Booming," *The American Prospect*, January 28, 2011.

3 Ibid.

4 Ibid.

5 The median is set at 100.

6 Data compiled from company 10Ks. Note: The 41 percent figure for Pfizer is from 2003, not 2001.

7 TrendStats Express application. http://tse.export.gov

8 TrendStats Express application. http://tse.export.gov

9 NAFSA calls its calculation "conservative" because it is based only on payment by international students of tuition, fees and living expenses less support received in the U.S. and does not take into account any "multiplier effect."

10 Institute of International Education, *Open Doors 2010*. The 60,791 figure is for the New York City metro area.

11 The definition of manufacturing was slightly more limited in 2008 than 1975.

12 Data from NYS Department of Labor, May 2011.

13 In Buffalo, alone, in 2010 and 2009 Trade Adjustment Act benefits were certified for workers at: Arcelor Mittal Lackawanna, Astella U.S. Technologies, Avox Systems, Cameron International, Henkel Corporation, M.A. Moslow & Brothers, Sun Chemical, SPX Corp, Strippit, Inc. and Transpro. The Henkel plant, in Olean, had 230 workers as recently as 2006. In 2007 Henkel said it would cut back and move its epoxy molding compounds unit to a joint venture plant in China. By 2008 it was down to 105 workers. The company expects to entirely close the plant in 2011. Avox Systems, a manufacturer of respiratory products for the aerospace industry that employs 350 workers, transferred work to Mexico; the New York State Labor Department reported that pressure from a competitor in Asia forced the shift. Arcelor Mittal had taken over the surviving Bethlehem Steel operations in Lackawanna.

14 United States Congress, Office of Technology Assessment, *The Technological Reshaping of Metropolitan America*, 1995, p. 160.

15 Barbara Hagenbaugh, "U.S. manufacturing jobs fading away fast," USA Today, December 12, 2002.

16 Mario J. Gabelli, "The History of Hedge Funds - The Millionaire's Club," October 25, 2000; and HedgeCo Networks, "The History of Hedge Funds," August 6th, 2009.

17 Measured by location of fund manager.

18 Source for all data in this paragraph: International Financial Services London

19 Bowne, "Private Equity Firms Growing More Influential," February 2005. This article is an excerpt from "The New Kings of Capitalism," an article in *The Economist* by Matthew Bishop published on November 27, 2004.

20 Source: *Crain's New York Business*, February 1, 2010, p. 16.

21 Securities Industry and Financial Markets Association (SIFMA).

22 Ibid.

23 Heather Thomas, "Cost-Cutting in New York, but a Boom in India," *New York Times*, August 12, 2008.

24 Center for an Urban Future analysis of data from 1995 and 2006 "Book of Lists," published by Crain's New York Business.

25 Ibid.

26 New York State Department of Labor.

27 http://opendoors.iienetwork.org/?p=150817

28 The Institute for International Education reports that when personal and family funds are added to assistance from their home countries, "almost 70 percent of all international students' primary funding comes from sources outside of the United States."

29 In 2010, NYU opened its first 4-year, degree granting program at its new campus in Abu Dhabi and is in the process of building another similar campus in Shanghai. Money spent in the form of tuition and fees at these campuses count toward NYU's total exports.

30 Institute of International Education, U.S. Study Abroad: Leading Institutions. Accessed at http://www.iie.org/en/Research-and-Publications/Open-Doors/Data/US-Study-Abroad/Leading-Institutions-Duration-Institutional-Type/2008-09

31 In 2004, Senator Charles Schumer said that MPC imports cost NY farmers $96 million the previous year.

32 A study in 2010 by CBRE Richard Ellis found that due to "financial specialization in a world of increasingly globalized capital and real estate markets" New York's international financial center market is highly correlated to Hong Kong, London, Singapore, Tokyo and Zurich. See: "How Did They Fare? A Comparative Analysis of Office Markets in International Financial Centers"

33 Real Property Analytics, as reported in "Foreign buyers return to New York," *Crain's New York Business*, May 16, 2011. 39

34 Candace Jackson, "The New Global City: Russians in London, Brazilians in Miami—and Chinese almost everywhere. The biggest players in the residential-real-estate scene today often come from halfway around the world," *Wall Street Journal*, May 13, 2011.

35 The Association for Neighborhood Housing and Development, *Predatory Equity: The Evolution of a Crisis*, November 2009.

36 Charles Bagli, "In Harlem Buildings, Reminders of Easy Money and the Financial Crisis," New York Times, June 9, 2011.

37 U.S. Bureau of Labor Statistics. In May 2011, New York State was home to 67,800 of the nation's 425,400 jobs in "advertising and related services."

38 PLC Global 50

39 PBS News Hour, "With New York Times' New Paywall, Will Readers Still Flock to Site?" March 17,2011.

40 paidContent, "The paidContent 50: The Most Successful Digital Media Companies in the U.S.," March 2011.

41 BBC, "China film piracy costs '2.7bn,'" June 19, 2006.

42 http://www.census.gov/foreign-trade/statistics/historical/exhibit_history.pdf

43 This statistic is total jobs, which includes direct, indirect and induced jobs. The Port Authority has calculated that approximately 60% of total jobs are direct jobs. New York Shipping Association, Inc., *The Economic Impact of the New York-New Jersey Port Industry 2008*, September 2009.

44 For example, in 1947, total manufacturing employment was 1.072 million and employment in the apparel and other textiles sector was 349,000.

45 Office of New York State Comptroller, "The Securities Industry in New York City," November 2009, p.14.

46 David Giles and Cristina Maldonado, *Growth By Design*, The Center for an Urban Future, June 2011.

47 Edward Glaeser, *Triumph of the City*, Penguin Press, New York, 2011.

48 Fiscal Policy Institute.

49 The mid-1980s were the peak for defense sector employment. In 1986, 80,566 people were employed at defense contractors in Long Island, according to the NYS Department of Labor. See Philip Lutz, "Flying Again," *New York Times*, August 24, 2003.

50 GE is also investing in new production facilities in the Capital District, including a battery plant in Schenectady employing 350 people, and a mammography equipment plant in Rensselaer County employing 250 people.

51 Richard A D'Errico, "Group: Is Sematech abandoning Texas for Albany?," *The Business Review*, May 28, 2010.

52 Drew Kerr, "State starts borrowing to pay for GlobalFoundries package," *Post Star*, November 30, 2009. GlobalFoundries rival Intel is building a new chip factory outside Portland without state subsidies. " Larry Rulison, "Fab rival builds with less aid," *Times Union*, July 3, 2011.

53 TechAmerica Foundation, "Cybercities 2010: The Definitive Analysis of the High-Technology Industry in the Nation's Top 60 Cities." According to the report, 53 of the nation's top 60 metro areas lost high-tech jobs in 2009.

54 Larry Rulison, "We're a high-tech mecca," Times Union, December 9, 2010.

55 According to the Bureau of Labor Statistics, Binghamton has a higher percentage of engineers than any other major upstate metropolitan area. 4.7 percent of all employment in the area is in the 'engineering/architecture' occupational category, compared 2.3 percent in Rochester and 1.8 percent in Albany and 1.4 in Buffalo.

56 Tom Gibson, "Let the Circuits Roll," *Progressive Engineer*, April 2009.

57 Robert Crandall, "The Migration of U.S. Manufacturing and its Impact on the Buffalo Metropolitan Area," Federal Reserve Bank of New York, June 6, 2002.

58 At Trico Products' 1986 annual meeting the company president announced, "Today we have an inability to find individuals who will work for wages that would allow us to keep all our operations here. We're surely not going to stand by and watch our profits drop until we had to go bankrupt." The company starting moving its production work—including its equipment—to Mexico in 1986. Trico employees in Buffalo were paid an average $15 an hour and in Mexico only $1.20 to $1.30 an hour. A total of 3,000 production jobs were relocated to Mexico, with the last 60 relocated in 2004.

59 John Slenker, an analyst for the New York Department of Labor, says that Buffalo's automotive industry now employs only about one third as many workers as it did in the 1970s.
58 Ken Belson, "Vacant Houses, Scourge of a Beaten-Down Buffalo," New York Times, September 13, 2007.
60 Ken Belson, "Vacant Houses, Scourge of a Beaten-Down Buffalo," *New York Times*, September 13, 2007.

61 Robert W Crandall,, *The Migration of U.S. Manufacturing and Its Impact on the Buffalo Metropolitan Area*, Brookings Institution prepared for the Federal Reserve Bank of New York, Buffalo Branch, June 2002.

62 "Buffalo named third-poorest city in the U.S., *Buffalo Business First*, September 29, 2009.

63 Daniel Robison, "Future of University of Buffalo unclear after 'NY SUNY 2020," *The Innovation Trail*, May 4, 2011.

64 Charles Linn, "2009 Revenues of Record's Top 250," *Architectural Record*, June 2010.

65 Barbara Hagenbaugh, "U.S. manufacturing jobs fading away fast," USA Today, December 12, 2002.

66 This is an approximation. In 2000, the QCEW changed from the SIC industry classification system to NAICS, which broke manufacturing employment into four separate categories, including manufacturing, information, management and other. The change affects Rochester's job count more than most cities, given the high number of management employees in the area. The QCEW's 2000 SIC count found 109,430 employees in manufacturing, while the survey's NAICS count found only 101,079 that year, a difference of 8,351 workers. If we assume this number remains roughly the same over the next eight years and subtract it from the total, the decline in manufacturing jobs between 1970 and 2008 comes to 86,165.

67 Andrea Deckert, "Infotonics Center to merge with Albany Center," *Rochester Business Journal*, September 20, 2010.

68 IBM, however, has invested $100 million in Albany's nanotech Center of Excellence.

69 Marie Morelli, "Syracuse's Clean Tech Center ranks No. 6 on list of top 10 'cleantech clusters' in the world," *The Post-Standard*, March 03, 2010.

70 Charley Hannagan, "Carrier Corp. to invest $30 million at DeWitt Campus," The Post-Standard, July 9, 2010.

71 In addition to the Clean Tech Center and Center of Excellence, Syracuse is home to both Lockheed-Martin (2,300 employees) and SRC Tec Incorporated (885 employees), two prominent defense contractors specializing in radar and defense systems.

72 Edward Glaeser, *Triumph of the City*, Penguin Press, New York, 2011, p. 28.

73 Jim O'Grady and Jonathan Bowles, "Building New York City's Innovation Economy," Center for an Urban Future, September 2009.

74 2009 Report to Congress, U.S.-China Economic and Security Review Commission, p 87.

75 O'Grady and Bowles.

76 "The 2010 State New Economy Index," ITIF and Kauffman Foundation, November 2010.

77 American Community Survey 2006-08 survey.

78 James Orr, Susan Weiler and Joseph Pereira, Current Issues in Economics and Finance, *Second District Highlights, The Foreign-Born Population of Upstate New York*, Federal Reserve Bank of New York, October 2007.

79 Based on 2006-2008 survey

80 Partnership for New York City, *Winning the Global Race for Talent – How U.S. Visa & Immigration Policies Threaten the New York Economy & Cost American Jobs and How We Can Fix It*, March 2008.

81 TIP Strategies & Next Generation Consulting Inc., "Growing Vermont's Next Generation Workforce: *Discovery Report*," April 2007.

82 Ibid.

84 Justin Sabrsula, "Recent College Graduate Retention and Attraction: Regional Brain Drains and Brain Gains," Angelou Economics, August 2007.

85 ICIC/CEOs for Cities: "Leveraging Colleges and Universities for Urban Economic Revitalization."

86 In our interviews, several people cited the need for high speed rail networks to connect upstate cities with other important regional centers, including Toronto and Cleveland—not just New York City.

Afterword

This report on New York in the World is not the end of a process but the beginning of a broader and deeper engagement to ensure New York's future competitiveness and prosperity in the global economy. This engagement raises an essential question that goes beyond economics, data or government policy, as important as these are; how will New Yorkers, along with all Americans, react to the challenges we face? The answers ultimately lie not only in the realm of leadership, politics and education, but also in culture, and individual aspiration. In short, are we up to the challenge? The answer must be, yes.

Americans are noted, and admired around the world, for our high level of energy, self reliance and an ability to adapt. New Yorkers share these qualities just as they are the heirs to and the actors in a unique narrative that built The Empire State and its leading city, which today is unquestionably the world's leading global city.

As we look at the New York of today and tomorrow, there are many issues and challenges that need to be addressed, as we have seen in this report. As New Yorkers look at their lives and their aspirations, it seems imperative that they weigh in on the discussion and decisions that will be made about their New York, their community and our common future. Supporting this is the mission of the SUNY Levin Institute's New York in the World initiative. How this conversation grows, and the action it leads to, are critical steps as we look to the future of New York in the World.

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New York in the World

The Impact of the Global Economy on New York State and City

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