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Upstate New York Regional Analysis: Demographics, Economy, Entrepreneurship and Innovation

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JUMPSTART COMMUNITY ADVISORS

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June 2011

**UPSTATE NEW YORK
REGIONAL ANALYSIS:
DEMOGRAPHICS,
ECONOMY,
ENTREPRENEURSHIP
AND INNOVATION**

CENTER FOR
ECONOMIC
DEVELOPMENT

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EXECUTIVE SUMMARY

This report has been prepared for JumpStart Community Advisors by the Center for Economic Development at Cleveland State University. The objective of this study is to provide background analysis of the Upstate New York area¹ for JumpStart Community Advisors as they conduct interviews and other qualitative research to create a Regional Entrepreneurial Action Plan for the Upstate New York area.

This report is organized into three chapters: Demographics, Economy and Industry, and Entrepreneurship and Innovation. Each chapter contains the same structure: a summary of findings based on a review of other studies and an analysis conducted by the Center for Economic Development. In most instances in the Center's analysis, a graphic or table is displayed, followed by bullet points that highlight the observations of data collected and studied. In order to create a benchmarking system, we compared Upstate New York and its sub-regions to the state of New York and the United States.

DEMOGRAPHICS

The demographic information gathered on Upstate New York revealed interesting trends and snapshots about the population. Overall, from 2000 to 2009, the 19-County Upstate New York region has seen a decline in population (-2.07%). Most of this population loss occurred in the Buffalo region, specifically Erie County, which recorded a 4.32% population decline during this 9-year period. The Rochester region (-0.52%) and Syracuse region (-0.91%) both experienced small population losses over this time period.

The workforce of Upstate New York is moderately educated and skilled. When comparing educational attainment, the Upstate New York region is, on average, on par with the state of New York and at a higher level than the United States. A closer look at educational attainment by region reveals that the educational achievement of residents of the Rochester region is significantly higher than the other Upstate New York regions, the state of New York and the United States. Among the population greater than 25 years old, the Rochester region exceeds the other regions for the percentage of associate's degrees (11.46%) and bachelor's degrees (19.33%), while the Syracuse region falls in second place (11.02% and 16.02% respectively) and the Buffalo region third (10.98% and 14.88% respectively).

Indicators of economic prosperity are a high per capita income and a low poverty rate. From 2000 to 2008, per capita income increased by 10.71% in the Upstate New York region, which is significantly larger than the growth rate in the United States (5.96%) over this period. The increase in per capita income in the Rochester region (10.63%) was on par with the Upstate New York growth rate while the Syracuse region (8.98%) was lower. However, over this 8-year period, the increase in per capita income for four of the six counties in the Buffalo region exceeded the Upstate New York average; Cattaraugus County (within the Buffalo region) exceeded all other counties in Upstate New York with a per capita income increase of 22.22%. Overall, even with these significant increases in per capita income, the Upstate New York region and its sub-regions lag behind the United States per capita income level (\$40,166 in the United States in 2008, compared to \$32,545 in the Upstate New York 19-County region). On the other hand, the poverty rate in 2009 for the Buffalo region (14.54%) was higher than the

¹ Upstate New York is defined for this study as a 19-county region that includes the Buffalo region (Allegany, Cattaraugus, Chautauqua, Erie, and Niagara Counties) the Rochester region (Genesee, Livingston, Monroe, Ontario, Orleans, Wayne, Wyoming, Yates, and Seneca Counties) and the Syracuse region (Cayuga, Cortland, Onondaga, Oswego, and Madison Counties).

Rochester region (12.39%), the Syracuse region (13.48%), the state of New York (14.16%) and the United States (14.34%).

The Upstate New York region can be said to be average when compared with the Nation in many indicators. Although there has been population loss compared to the nation, the region as a whole has higher educational attainment than the United States, has seen per capita income growth although the level is lower than the national average, and on average has lower levels of poverty. Nevertheless, it has been revealed by many other studies and in the demographic analysis that this region has a significant aging population, and a brain drain of young educated workers has caused a strain on the economy.

INDUSTRY AND ECONOMY

Over the last 30 years, accounting for size and scope of the different regions, the economy of Upstate New York has underperformed the state of New York and the United States in measures of economic growth (employment, gross product, and average wage). The trend analysis of the Upstate New York region reveals that the region maintained its competitive nature with the United States and the state of New York until the 2000 recession, and afterwards it has struggled to regain its footing. Of the three regions within Upstate New York, the Syracuse region is the highest performer in terms of economic growth over the last 30 years, while the Buffalo region lags behind the other regions.

Examining employment, gross product, and average wage shows that there has been a widening gap between the performance of Upstate New York and the United States, so much so that between 1979 and 2010 the growth rate of gross product in the United States (91.7%) was 66.2 percentage points higher than in Upstate New York (25.5%). This widening gap shows the significant economic problems of the Upstate New York economy. Between 2001 and 2010, gross product in the Upstate New York region increased 8.1% while the United States increase was more than double at 17.4%. Over the last 5 years, the Upstate New York region's gross product was flat (a decline of 0.1%), while nationally, gross product grew by 2.4% over the same period.

Manufacturing continues to be an important part of the Upstate New York economy. Manufacturing accounted for the highest share of gross product in two of the regions. It accounted for 16.8% of total gross product in the Buffalo region and 20.9% in the Rochester region. In the Syracuse region, manufacturing was the second largest sector, accounting for 12.2% of total gross product, following public administration (15.0%).

The industry clusters located within each of the Upstate New York sub-regions are different from region to region and are not integrated (aside from the overarching category of manufacturing) to create one overall economy; rather, each has a specific focus. The economic drivers in the Buffalo region are business services, advanced manufacturing, agribusiness (specifically dairy manufacturing), tourism (based around Niagara Falls), life sciences, logistics, and the emerging cluster of clean/green technologies. In comparison, the Rochester region focuses on advanced manufacturing, optics/imaging (fueled by the companies Bausch & Lomb Inc., Kodak, and Xerox in the region, as well as the University of Rochester and Rochester Institute of Technology), biotechnology/biomedical/life science, call centers, and agribusiness. Another specific difference, the Syracuse region's economy is fueled mostly by Syracuse University, healthcare, biotech/life science, manufacturing, and the emerging clusters of clean tech and the radar industry.

In addition to the clusters, the Center focused its analysis on industries that outperform others and are considered “winning industries.” There are 15 (Tier I & II) winning industries in Upstate New York. These industries vary in size and scope, but they have in common a focus on gross product growth, regional specialization, and livable wages. Of these 15 industries, 10 are in the Manufacturing sector. Breakouts of winning industries by sub-region reveal that of the 31 winning industries in the regions, the Buffalo and Syracuse regions have 8 (Tier I or II) winning industries in common: Natural Gas Distribution, Pharmaceutical and Medicine Manufacturing, Steel Product Manufacturing from Purchased Steel, Electrical Equipment Manufacturing, Wired Telecommunications Carriers, Insurance Carriers, Scientific Research and Development Services, and Remediation and Other Waste Management Services. Furthermore, the Buffalo region is a major economic driver of winning industries for the overall Upstate New York region since it has nine common winning industries with the overall Upstate New York region. This is significant since winning industry criteria is not based upon industry employment size (unless it is smaller than 500 employees); this allows for employment size to be held constant and not favor the regions with larger employment (i.e. the Buffalo region). However, it should be noted that the Buffalo region pulled down the overall Upstate New York region in growth of total employment and gross product.

ENTREPRENEURSHIP AND INNOVATION

Most of the entrepreneurship and innovation literature focuses on start-up funding and resources to foster innovation and facilitate the growth of technology companies. The literature indicates the state of New York lags behind other states in providing start-up capital to small technology firms. There is a distinct lack of venture capital in the Upstate New York region. In Upstate New York, only nine companies received venture capital dollars in 2009. Additionally, there are 11 early-stage professional capital investment firms, four private equity firms, and three revolving loan funds and micro enterprise firms. With the lack of early- and late-stage investment, the investment climate needs to be fostered.

In this analysis, patent data is used as a proxy for innovation. There were 12,000 patents (already granted and applications) in Upstate New York between 2006 and 2010. To be counted, a patent had to include at least one inventor or an assignee from the Upstate New York region. Of the 12,000 patents only 15% had an assignee from Upstate New York, indicating that businesses within Upstate New York are **not** one of the major drivers of local patents; while individual owners of patents accounted for 45% of all patents.

Examining the assignee information of patents in Upstate New York revealed interesting information. The largest holder of patents in the Upstate New York and the Rochester region is Eastman Kodak Company. The largest patent holder in the Buffalo region is Wilson GreatBatch Ltd., and John Mezzalingua Associates, Inc. in the Syracuse region. The major producers of patents in the Upstate New York economy were universities including the University of Rochester, Syracuse University, Rochester Institute of Technology, and the Research Foundation of SUNY. These universities accounted for 13% of all assignees located in the Upstate New York area.

CONCLUDING COMMENTS

There are significant challenges to overcome—structural and cultural—in the Upstate New York economy for the region to become a leader in innovation and entrepreneurship. Until 2000, Upstate New York was doing well by many economic measures in comparison to the United States, but recently the region has not been able to regain its footing. In comparison to the United States, the region also has significant ground to cover to become a national economic leader. The leadership of the region has had the foresight to address these declining trends by creating regional organizations to focus on increasing early stage professional capital and to help facilitate deal flows. However, there is still a need for investment firms to provide risk capital.

CHAPTER 1: DEMOGRAPHIC ANALYSIS

The analysis, conducted by the Center for Economic Development at Cleveland State University's Maxine Goodman Levin College of Urban Affairs, examines the demographic profile of Upstate New York. It includes analysis of population, population distribution by race and age, income, poverty, educational attainment, and foreign born population.

Upstate New York is defined for this study as a 19-county region that includes the 5-county Buffalo region² (Western New York region) the 9-county Rochester region³ (Finger Lakes region) and the 5-county Syracuse region⁴ (Central New York region).

In order to create a benchmarking system, we compared the sub-regions of the Upstate New York region to the sum of the Upstate New York region and the United States.

² Buffalo region: Allegany, Cattaraugus, Chautauqua, Erie, and Niagara Counties

³ Rochester region: Genesee, Livingston, Monroe, Ontario, Orleans, Wayne, Wyoming, Yates, and Seneca Counties

⁴ Syracuse region: Cayuga, Cortland, Onondaga, Oswego, and Madison Counties

POPULATION & GROWTH

Table 1. Population Change for Upstate New York Geographies, 2000-2009

Area	2000	2009	Difference (2000-2009)	Percent Change (2000-2009)
Buffalo Region (Western New York Region)	1,443,743	1,386,153	-57,590	-3.99%
Allegany County	49,927	49,157 ^A	-770	-1.54%
Cattaraugus County	83,955	79,689	-4,266	-5.08%
Chautauqua County	139,750	133,503	-6,247	-4.47%
Erie County	950,265	909,247	-41,018	-4.32%
Niagara County	219,846	214,557	-5,289	-2.41%
Rochester Region (Finger Lakes Region)	1,199,588	1,193,363	-6,225	-0.52%
Genesee County	60,370	57,868 ^A	-2,502	-4.14%
Livingston County	64,328	62,871 ^A	-1,457	-2.26%
Monroe County	735,343	733,703	-1,640	-0.22%
Ontario County	100,224	105,650	5,426	5.41%
Orleans County	44,171	42,051 ^A	-2,120	-4.80%
Seneca County	33,342	34,049 ^A	707	2.12%
Wayne County	93,765	91,291	-2,474	-2.64%
Wyoming County	43,424	41,398 ^A	-2,026	-4.67%
Yates County	24,621	24,482 ^A	-139	-0.56%
Syracuse Region (Central New York Region)	780,716	773,606	-7,110	-0.91%
Cayuga County	81,963	79,526	-2,437	-2.97%
Cortland County	48,599	47,996 ^A	-603	-1.24%
Madison County	69,441	69,954	513	0.74%
Onondaga County	458,336	454,753	-3,583	-0.78%
Oswego County	122,377	121,377	-1,000	-0.82%
Upstate New York Region (19 County Region)	3,424,047	3,353,122	-70,925	-2.07%
United States	281,421,906	307,006,556	25,584,650	9.09%

Source: (2000 Total Population for all study areas) U.S. Census Bureau, 2000 Decennial Census; U.S. Census Bureau, 2009 American Community Survey One Year Estimates;

^A U.S. Census Bureau, 2009 Population Estimate Program

- The population of the entire Upstate New York region declined from 3.42 million in 2000 to 3.35 million in 2009, shrinking by 2.07% (Table 1). This is in stark contrast to the United States that witnessed a population surge of 9.09% between 2000 and 2009.
- Most of the counties in the Upstate New York region lost population. Only three counties experienced population growth: Madison County (0.74%), Seneca County (2.12%), and Ontario County (5.41%).
- Cattaraugus County in the Buffalo region experienced the largest rate of decline in population from 2000 to 2009, falling by 5.08%.
- Erie County saw the largest decline of residents in total number of people (-41,018). This loss represents 58% of the population decline the Upstate New York region.
- Amongst the three regions, the Buffalo region experienced the largest decline of population in both the number of people (-57,590) and rate of decline (-3.99%). However, the Buffalo region is still the largest among the three with a total population of 1.39 million.

RACE DISTRIBUTION

Table 2. Race Distribution for Upstate New York Geographies, 2009

Area	2009 Total Population	White Alone		Black or African American Alone		Asian Alone		Two or More Races		Some Other Race		American Indian & Alaska Native Alone		Native Hawaiian & Other Pacific Islander Alone	
		Total	Percent of Total Population	Total	Percent of Total Population	Total	Percent of Total Population	Total	Percent of Total Population	Total	Percent of Total Population	Total	Percent of Total Population	Total	Percent of Total Population
Buffalo Region *	1,386,153	1,177,948	84.98%	140,349	10.13%	23,340	1.68%	20,849	1.50%	13,707	0.99%	9,729	0.70%	231	0.02%
Allegany County ^A	49,157	47,309	96.24%	671	1.37%	521	1.06%	476	0.97%	N/A	N/A	175	0.36%	5	0.01%
Cattaraugus County	79,689	74,426	93.40%	1,165	1.46%	579	0.73%	1,129	1.42%	211	0.26%	2,077	2.61%	102	0.13%
Chautauqua County	133,503	124,998	93.63%	2,495	1.87%	861	0.64%	3,116	2.33%	1,592	1.19%	362	0.27%	79	0.06%
Erie County	909,247	738,894	81.26%	122,050	13.42%	18,928	2.08%	12,498	1.37%	11,877	1.31%	5,000	0.55%	0	0.00%
Niagara County	214,557	192,321	89.64%	13,968	6.51%	2,451	1.14%	3,630	1.69%	27	0.01%	2,115	0.99%	45	0.02%
Rochester Region *	1,193,363	1,005,985	84.30%	122,459	10.26%	24,251	2.03%	19,107	1.60%	17,294	1.45%	3,682	0.31%	585	0.05%
Genesee County ^A	57,868	54,667	94.47%	1,546	2.67%	366	0.63%	734	1.27%	N/A	N/A	536	0.93%	19	0.03%
Livingston County ^A	62,871	59,355	94.41%	1,936	3.08%	622	0.99%	750	1.19%	N/A	N/A	189	0.30%	19	0.03%
Monroe County	733,703	575,851	78.49%	105,256	14.35%	21,459	2.92%	12,708	1.73%	15,981	2.18%	1,938	0.26%	510	0.07%
Ontario County	105,650	98,949	93.66%	2,517	2.38%	405	0.38%	2,563	2.43%	1,078	1.02%	138	0.13%	0	0.00%
Orleans County ^A	42,051	37,918	90.17%	3,113	7.40%	168	0.40%	593	1.41%	N/A	N/A	245	0.58%	14	0.03%
Seneca County ^A	34,049	31,436	92.33%	1,734	5.09%	342	1.00%	406	1.19%	N/A	N/A	123	0.36%	8	0.02%
Wayne County	91,291	85,656	93.83%	3,637	3.98%	574	0.63%	863	0.95%	235	0.26%	326	0.36%	0	0.00%
Wyoming County ^A	41,398	38,229	92.35%	2,509	6.06%	228	0.55%	279	0.67%	N/A	N/A	142	0.34%	11	0.03%
Yates County ^A	24,482	23,924	97.72%	211	0.86%	87	0.36%	211	0.86%	N/A	N/A	45	0.18%	4	0.02%

Sources: U.S. Census Bureau, 2009 American Community Survey One Year Estimates

^A U.S. Census Bureau, 2009 Population Estimates Program; * Data at the regional level is not available. The regional total is calculated by summing county level data only for counties with available data. Counties for which data is not available are designated with N/A.

Table 2. Race Distribution for Upstate New York Geographies, 2009, (Continued)

Area	2009 Total Population	White Alone		Black or African American Alone		Asian Alone		Two or More Races		Some Other Race		American Indian & Alaska Native Alone		Native Hawaiian & Other Pacific Islander Alone	
		Total	Percent of Total Population	Total	Percent of Total Population	Total	Percent of Total Population	Total	Percent of Total Population	Total	Percent of Total Population	Total	Percent of Total Population	Total	Percent of Total Population
Syracuse Region *	773,606	683,258	88.32%	54,327	7.02%	14,480	1.87%	11,599	1.50%	5,395	0.70%	4,457	0.58%	90	0.01%
Cayuga County	79,526	73,637	92.59%	3,472	4.37%	106	0.13%	950	1.19%	1,046	1.32%	285	0.36%	30	0.04%
Cortland County ^A	47,996	46,053	95.95%	808	1.68%	312	0.65%	652	1.36%	N/A	N/A	163	0.34%	8	0.02%
Madison County	69,954	66,800	95.49%	1,105	1.58%	490	0.70%	802	1.15%	337	0.48%	420	0.60%	0	0.00%
Onondaga County	454,753	379,333	83.42%	47,876	10.53%	12,635	2.78%	7,757	1.71%	3,599	0.79%	3,501	0.77%	52	0.01%
Oswego County	121,377	117,435	96.75%	1,066	0.88%	937	0.77%	1,438	1.18%	413	0.34%	88	0.07%	0	0.00%
Upstate New York Region	3,353,122	2,865,628	85.46%	317,179	9.46%	62,032	1.85%	51,756	1.54%	37,868	1.13%	17,692	0.53%	967	0.03%
United States	307,006,556	229,773,131	74.84%	38,093,725	12.41%	13,774,611	4.49%	7,505,173	2.44%	14,948,363	4.87%	2,457,552	0.80%	454,001	0.15%

Sources: U.S. Census Bureau, 2009 American Community Survey One Year Estimates

^A U.S. Census Bureau, 2009 Population Estimates Program

Note: Some Other Race data for Upstate NY region sum – Does not include Cortland, Allegany, Wyoming or Yates Counties

* Data at the regional level is not available. The regional total is calculated by summing county level data only for counties with available data. Counties for which data is not available are designated with N/A.

- The vast majority of the population for all counties in the Upstate New York region is classified as *White*. The Rochester region includes the counties with the smallest share of *White* population (Monroe County, 78.49%) and the largest share of *White* population (Yates County, 97.72%) (Table 2).
- 15 of the 19 counties in the Upstate New York region have shares of the *White* population that are 90% or greater.
- In 14 of the 19 counties, *Black or African American* was the second-largest racial category. Three of the remaining five counties had *Two or More Races* as their second-largest racial category: Chautauqua County (2.33%), Ontario County (2.43%), and Oswego County (1.18%). Cattaraugus County (2.61%) listed *American Indian and Alaskan Native Alone* as its second-largest racial category. For Yates County, *Black and African American* and *Two or More Races* tied (.86%) for the second-largest racial category in the county.
- Monroe County had the largest share of *Black or African American* population in any geographic location in the region (14.35%). Erie County had the second-highest share of *Black or African American* (13.42%), followed by Onondaga County where *Black or African American* accounted for 10.53% of the total population.
- The share of *White* population in the Syracuse region (88.32%) was the largest among all three regions in Upstate New York. In addition, the Syracuse region had the smallest share of *Black or African American* (7.02%) within its population.

AGE DISTRIBUTION

Table 3. Age Distribution for Upstate New York Geographies, 2009

		Under 5		5 to 19		20 to 29		30 to 39		40 to 49		50 to 59		60 & Over	
Area	2009 Total Population	Total	% of Population	Total	% of Population	Total	% of Population	Total	% of Population	Total	% of Population	Total	% of Population	Total	% of Population
Buffalo Region	1,386,153	74,943	5.41%	269,619	19.45%	181,811	13.12%	159,588	11.51%	197,920	14.28%	203,230	14.66%	299,042	21.57%
Allegany County ^A	49,157	2,649	5.39%	11,050	22.48%	7,381	15.02%	5,070	10.31%	6,208	12.63%	6,813	13.86%	9,986	20.31%
Cattaraugus County	79,689	4,572	5.74%	15,815	19.85%	9,859	12.37%	8,623	10.82%	11,185	14.04%	12,521	15.71%	17,114	21.48%
Chautauqua County	133,503	7,243	5.43%	27,114	20.31%	17,052	12.77%	15,858	11.88%	16,940	12.69%	19,400	14.53%	29,896	22.39%
Erie County	909,247	48,809	5.37%	174,501	19.19%	120,432	13.25%	105,100	11.56%	132,477	14.57%	131,442	14.46%	196,486	21.61%
Niagara County	214,557	11,670	5.44%	41,139	19.17%	27,087	12.62%	24,937	11.62%	31,110	14.50%	33,054	15.41%	45,560	21.23%
Rochester Region	1,193,363	67,671	5.67%	240,208	20.13%	158,869	13.31%	134,064	11.23%	180,083	15.09%	176,753	14.81%	235,715	19.75%
Genesee County ^A	57,868	3,280	5.67%	11,045	19.09%	6,912	11.94%	6,106	10.55%	9,032	15.61%	8,859	15.31%	12,634	21.83%
Livingston County ^A	62,871	3,129	4.98%	13,125	20.88%	9,909	15.76%	5,929	9.43%	9,581	15.24%	9,422	14.99%	11,776	18.73%
Monroe County	733,703	42,405	5.78%	149,413	20.36%	101,887	13.89%	84,133	11.47%	108,760	14.82%	105,835	14.42%	141,270	19.25%
Ontario County	105,650	5,973	5.65%	21,045	19.92%	12,223	11.57%	10,595	10.03%	16,271	15.40%	17,216	16.30%	22,327	21.13%
Orleans County ^A	42,051	2,224	5.29%	8,353	19.86%	5,324	12.66%	4,981	11.85%	6,583	15.65%	6,196	14.73%	8,390	19.95%
Seneca County ^A	34,049	1,831	5.38%	6,108	17.94%	4,682	13.75%	4,346	12.76%	4,810	14.13%	4,965	14.58%	7,307	21.46%
Wayne County	91,291	5,292	5.80%	18,281	20.02%	9,356	10.25%	10,465	11.46%	14,993	16.42%	14,403	15.78%	18,501	20.27%
Wyoming County ^A	41,398	2,074	5.01%	7,469	18.04%	5,606	13.54%	5,430	13.12%	6,750	16.31%	6,193	14.96%	7,876	19.03%
Yates County ^A	24,482	1,463	5.98%	5,369	21.93%	2,970	12.13%	2,079	8.49%	3,303	13.49%	3,664	14.97%	5,634	23.01%

Sources: U.S. Census Bureau, 2009 American Community Survey One Year Estimates

^A U.S. Census Bureau, 2009 Population Estimates Program

Table 3. Age Distribution for Upstate New York Geographies, 2009 (Continued)

		Under 5		5 to 19		20 to 29		30 to 39		40 to 49		50 to 59		60 & Over	
Area	2009 Total Population	Total	% of Population	Total	% of Population	Total	% of Population	Total	% of Population	Total	% of Population	Total	% of Population	Total	% of Population
Syracuse Region	773,606	44,599	5.77%	158,573	20.50%	105,424	13.63%	86,794	11.22%	118,007	15.25%	110,932	14.34%	149,277	19.30%
Cayuga County	79,526	4,120	5.18%	14,851	18.67%	10,637	13.38%	8,788	11.05%	12,711	15.98%	12,302	15.47%	16,117	20.27%
Cortland County ^A	47,996	2,594	5.40%	10,455	21.78%	8,546	17.81%	4,542	9.46%	6,656	13.87%	6,384	13.30%	8,819	18.37%
Madison County	69,954	3,753	5.36%	14,477	20.70%	10,150	14.51%	6,710	9.59%	10,830	15.48%	10,754	15.37%	13,280	18.98%
Onondaga County	454,753	27,105	5.96%	92,914	20.43%	59,474	13.08%	53,670	11.80%	67,995	14.95%	63,697	14.01%	89,898	19.77%
Oswego County	121,377	7,027	5.79%	25,876	21.32%	16,617	13.69%	13,084	10.78%	19,815	16.33%	17,795	14.66%	21,163	17.44%
Upstate New York Region	3,353,122	187,197	5.58%	668,498	19.94%	445,530	13.29%	379,860	11.33%	496,935	14.82%	490,413	14.63%	684,689	20.42%
United States	307,006,556	21,209,207	6.91%	62,425,270	20.33%	42,944,914	13.99%	40,328,948	13.14%	44,039,759	14.34%	40,532,426	13.20%	55,526,032	18.09%

Sources: U.S. Census Bureau, 2009 American Community Survey One Year Estimates

^A U.S. Census Bureau, 2009 Population Estimates Program

- The Upstate New York region, by age, has an evenly distributed population. One-half (50.13%) of the total population is under the age of 40, while 49.87% of the total population is over the age of 40 (Table 3).
- Courtland County in the Syracuse region has a relatively young population compared to the other counties in Upstate New York with 54.46% of the total population under the age of 40.
- Ontario County in the Rochester region, with 52.83% of the total population above the age of 40, has a relatively older population compared to the other counties in the Upstate New York region.
- Compared to the United States, the Upstate New York region has an older population. The Upstate New York region exceeded the United States in the percentage of population above 40 years old (49.87% for Upstate New York versus 45.63% for the United States).
- The Syracuse region is the youngest among the three regions with 51.11% of its population under the age of 40, as compared to 49.49% in the Buffalo region and 50.35% in the Rochester region.

PER CAPITA INCOME

Table 4. Per Capita Personal Income for Upstate New York Geographies, 2000 & 2008

Area	2000	2008	Difference (2000-2008)	Percent Change (2000-2008)
<i>Buffalo Region (Western New York Region)</i>	\$28,257	\$31,841	\$3,584	12.69%
Allegany County	\$23,725	\$26,033	\$2,308	9.73%
Cattaraugus County	\$25,953	\$31,719	\$5,766	22.22%
Chautauqua County	\$26,463	\$29,893	\$3,430	12.96%
Erie County	\$34,620	\$38,795	\$4,175	12.06%
Niagara County	\$30,525	\$32,767	\$2,242	7.34%
<i>Rochester Region (Finger Lakes Region)</i>	\$29,738	\$32,899	\$3,160	10.63%
Genesee County	\$30,201	\$32,663	\$2,462	8.15%
Livingston County	\$28,553	\$31,202	\$2,649	9.28%
Monroe County	\$38,539	\$42,082	\$3,543	9.19%
Ontario County	\$35,172	\$38,630	\$3,458	9.83%
Orleans County	\$25,799	\$28,096	\$2,297	8.90%
Seneca County	\$28,683	\$31,286	\$2,603	9.07%
Wayne County	\$30,969	\$34,353	\$3,384	10.93%
Wyoming County	\$24,303	\$29,124	\$4,821	19.83%
Yates County	\$25,425	\$28,654	\$3,229	12.70%
<i>Syracuse Region (Central New York Region)</i>	\$29,923	\$32,610	\$2,687	8.98%
Cayuga County	\$28,137	\$31,820	\$3,683	13.09%
Cortland County	\$27,589	\$29,776	\$2,187	7.93%
Madison County	\$31,410	\$32,854	\$1,444	4.60%
Onondaga County	\$35,705	\$39,814	\$4,109	11.51%
Oswego County	\$26,773	\$28,787	\$2,014	7.52%
<i>Upstate New York Region (19 County Region)</i>	\$29,397	\$32,545	\$3,148	10.71%
<i>United States</i>	\$37,907	\$40,166	\$2,259	5.96%

Notes: Per capita income adjusted for inflation to 2008 dollars

Source: U.S. Bureau of Economic Analysis, 2000 and 2008

- Per capita income grew in each of the 19 counties in the Upstate New York region from 2000 to 2008 (Table 4).
- Cattaraugus County in the Buffalo region experienced the greatest rate of increase in per capita income (22.22%), while Madison County in the Syracuse region experienced the smallest increase in per capita income (4.60%).
- Allegany County in the Buffalo region had the lowest per capita income of all geographies in the region for both 2000 (\$23,725) and 2008 (\$26,033); it was below the Upstate New York 19-county per capita income and well below the per capita income for the United States for both years.
- Monroe County in the Rochester region had the highest per capita income of all geographies in the region in both 2000 (\$38,539) and 2008 (\$42,082). It was higher than the United States in both years.
- In 2008 the per capita income in the combined 19-county region of Upstate New York (\$32,545) was well below the United States (\$40,166). However, per-capita income in Upstate NY grew much faster than in the United States; from 2000 to 2008, per capita income in Upstate New York grew by 10.71%, nearly double the growth in the United States (5.96%) during that time.

POVERTY LEVEL

Table 5. Population and Percentage of Residents below Poverty Level for Upstate New York Geographies, 2009

Area	2009 Total Population Below Poverty Level	Percent of Total Population Below Poverty Level	Male Population Below Poverty Level	Percent Population Below Poverty Level (Male)	Female Population Below Poverty Level	Percent Population Below Poverty Level (Female)
Buffalo Region (Western New York Region)*	189,452	14.54%	82,022	13.04%	107,430	15.94%
Allegany County ^A	N/A	N/A	N/A	N/A	N/A	N/A
Cattaraugus County	13,462	17.40%	5,503	14.40%	7,959	20.33%
Chautauqua County	22,704	17.72%	10,476	16.66%	12,228	18.75%
Erie County	122,962	13.87%	53,834	12.66%	69,128	14.99%
Niagara County	30,324	14.35%	12,209	11.86%	18,115	16.71%
Rochester Region (Finger Lakes Region)*	111,576	12.39%	49,488	11.29%	62,088	13.44%
Genesee County ^A	N/A	N/A	N/A	N/A	N/A	N/A
Livingston County ^A	N/A	N/A	N/A	N/A	N/A	N/A
Monroe County	95,360	13.44%	41,973	12.22%	53,387	14.58%
Ontario County	6,164	6.09%	2,731	5.44%	3,433	6.72%
Orleans County ^A	N/A	N/A	N/A	N/A	N/A	N/A
Seneca County ^A	N/A	N/A	N/A	N/A	N/A	N/A
Wayne County	10,052	11.23%	4,784	10.67%	5,268	11.80%
Wyoming County ^A	N/A	N/A	N/A	N/A	N/A	N/A
Yates County ^A	N/A	N/A	N/A	N/A	N/A	N/A
Syracuse Region (Central New York Region)*	93,621	13.48%	42,040	12.45%	51,581	14.46%
Cayuga County	9,012	12.70%	3,506	10.24%	5,506	14.99%
Cortland County ^A	N/A	N/A	N/A	N/A	N/A	N/A
Madison County	6,374	9.69%	3,240	10.03%	3,134	9.37%
Onondaga County	61,499	13.92%	27,585	12.88%	33,914	14.90%
Oswego County	16,736	14.44%	7,709	13.54%	9,027	15.31%
Upstate New York Region (based on 11 County data)*	413,768	13.42%	182,302	12.18%	231,466	14.60%
United States	42,868,163	14.34%	19,183,762	13.07%	23,684,401	15.55%

Notes: * Data at the regional level is not available. The regional total is calculated by summing county level data only for counties with available data. Counties for which data is not available are designated with N/A.

^A The population of Orleans, Livingston, Genesee, Seneca, Cortland, Allegany, Wyoming, and Yates counties is below 65,000 and is not included in ACS data;

Percentage of population below poverty level = Total population below poverty level/population for whom poverty status is determined.

Source: U.S. Census Bureau, 2009 American Community Survey One Year Estimates

- Chautauqua County in the Buffalo region had the highest overall poverty rate in 2009 among the counties in Upstate New York and United States for total population (17.72%) and male population (16.66%). Cattaraugus County, also in the Buffalo region had the highest poverty rate for female population, 20.33% (Table 5).
- Ontario County in the Rochester region had the lowest poverty rate among all other counties in the Upstate New York region and United States with a rate of 6.09% for total population, 5.44% for male population, and 6.72% for female population.
- In 2009, poverty rates in the Upstate New York region were below the United States average for total population, male population, and female population.
- The Buffalo region had higher poverty rates than the Syracuse region, the Rochester region, and the United States for total population below poverty (14.54%) and total female population below poverty (15.94%).

EDUCATION MEASURES

Table 6. Educational Attainment for Residents 25 Years and Over for Upstate New York Geographies, 2009

Area	2009 Total Population Over 25 Years Old	Less Than 9th Grade		9th to 12th Grade No Diploma		High School Graduate, GED, or Alternative		Some College, No Degree		Associate's Degree		Bachelor's Degree		Graduate or Professional Degree	
		Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older
Buffalo Region*	915,209	31,045	3.39%	74,410	8.13%	291,345	31.83%	172,298	18.83%	100,503	10.98%	136,198	14.88%	109,410	11.95%
Allegany County ^A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cattaraugus County	53,503	2,249	4.20%	5,546	10.37%	22,286	41.65%	8,245	15.41%	6,327	11.83%	4,341	8.11%	4,509	8.43%
Chautauqua County	89,876	3,750	4.17%	7,228	8.04%	30,488	33.92%	17,867	19.88%	11,536	12.84%	10,731	11.94%	8,276	9.21%
Erie County	623,299	21,381	3.43%	50,093	8.04%	178,796	28.69%	116,890	18.75%	66,122	10.61%	104,852	16.82%	85,165	13.66%
Niagara County	148,531	3,665	2.47%	11,543	7.77%	59,775	40.24%	29,296	19.72%	16,518	11.12%	16,274	10.96%	11,460	7.72%

Note: * Data at the regional level is not available. The regional total is calculated by summing county level data only for counties with available data. Counties for which data is not available are designated with N/A.

^A The population for the counties of Orleans, Livingston, Genesee, Seneca, Cortland, Allegany, Wyoming, & Yates are below 65,000 (not included in ACS data);

Source: U.S. Census Bureau, 2009 American Community Survey One Year Estimates

Data for Upstate NY region sum – Does not include Cortland, Allegany, Wyoming or Yates Counties

Table 6. Educational Attainment for Residents 25 Years and Over for Upstate New York Geographies, 2009 (Continued)

Area	2009 Total Population Over 25 Years Old	Less Than 9th Grade		9th to 12th Grade No Diploma		High School Graduate, GED, or Alternative		Some College, No Degree		Associate's Degree		Bachelor's Degree		Graduate or Professional Degree	
		Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older
Rochester Region*	618,853	21,688	3.50%	46,950	7.59%	166,620	26.92%	109,056	17.62%	70,914	11.46%	119,647	19.33%	83,978	13.57%
Genesee County ^A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Livingston County ^A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Monroe County	484,472	17,329	3.58%	38,131	7.87%	123,737	25.54%	84,323	17.41%	52,207	10.78%	97,966	20.22%	70,779	14.61%
Ontario County	71,804	1,544	2.15%	3,220	4.48%	21,154	29.46%	13,505	18.81%	10,401	14.49%	13,384	18.64%	8,596	11.97%
Orleans County ^A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Seneca County ^A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wayne County	62,577	2,815	4.50%	5,599	8.95%	21,729	34.72%	11,228	17.94%	8,306	13.27%	8,297	13.26%	4,603	7.36%
Wyoming County ^A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Yates County ^A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: * Data at the regional level is not available. The regional total is calculated by summing county level data only for counties with available data. Counties for which data is not available are designated with N/A.

^A The population for the counties of Orleans, Livingston, Genesee, Seneca, Cortland, Allegany, Wyoming, & Yates are below 65,000 (not included in ACS data);

Source: U.S. Census Bureau, 2009 American Community Survey One Year Estimates

Data for Upstate NY region – Does not include Cortland, Allegany, Wyoming or Yates Counties

Table 6. Educational Attainment for Residents 25 Years and Over for Upstate New York Geographies, 2009 (Continued)

Area	2009 Total Population Over 25 Years Old	Less Than 9th Grade		9th to 12th Grade No Diploma		High School Graduate, GED, or Alternative		Some College, No Degree		Associate's Degree		Bachelor's Degree		Graduate or Professional Degree	
		Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older	Total	% Population 25 Years and Older
Syracuse Region*	482,513	14,438	2.99%	40,138	8.32%	148,548	30.79%	93,387	19.35%	53,167	11.02%	77,287	16.02%	55,548	11.51%
Cayuga County	54,868	2,011	3.67%	6,795	12.38%	18,310	33.37%	10,499	19.14%	6,571	11.98%	7,002	12.76%	3,680	6.71%
Cortland County ^A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Madison County	44,894	1,328	2.96%	3,474	7.74%	16,962	37.78%	7,466	16.63%	5,551	12.36%	6,476	14.43%	3,637	8.10%
Onondaga County	303,761	8,482	2.79%	22,076	7.27%	80,975	26.66%	59,226	19.50%	34,216	11.26%	56,131	18.48%	42,655	14.04%
Oswego County	78,990	2,617	3.31%	7,793	9.87%	32,301	40.89%	16,196	20.50%	6,829	8.65%	7,678	9.72%	5,576	7.06%
Upstate New York Region (based on 11 County data)*	2,147,487	72,732	3.39%	173,277	8.07%	654,107	30.46%	399,801	18.62%	239,605	11.16%	348,299	16.22%	259,666	12.09%
United States	281,421,906	12,640,961	6.26%	17,144,287	8.49%	57,551,671	28.50%	43,087,484	21.34%	15,192,326	7.52%	35,494,367	17.58%	20,841,287	10.32%

Note: * Data at the regional level is not available. The regional total is calculated by summing county level data only for counties with available data. Counties for which data is not available are designated with N/A.

^A The population for the counties of Orleans, Livingston, Genesee, Seneca, Cortland, Allegany, Wyoming, & Yates is below 65,000 (not included in ACS data);

Source: U.S. Census Bureau, 2009 American Community Survey One Year Estimates

Data for Upstate NY region sum – Does not include Cortland, Allegany, Wyoming or Yates Counties

- Monroe County in the Rochester region has the largest share of population older than 25 years with a college degree (45.61%). Monroe County also has the highest percentage of population with a *graduate or professional degree* (14.61%) (Table 6).
- Cayuga County in the Syracuse region has the highest percentage of population older than 25 years old without a high-school diploma (16.05%); this is larger than all other 11 counties in the Upstate New York region where data was available and larger than the U.S. average.
- Compared to the United States, the Upstate New York region has higher percentages in key education attainment indicators. Upstate NY exceeds the nation in *associate degrees* (11.16% of the 11 counties of Upstate New York versus 7.52% for the United States) and *graduate or professional degrees* (12.09% of the 11 counties of Upstate New York versus 10.32% for the United States).
- Within the Upstate New York region, the percentage of population with a college degree in the Rochester region (44.36%) greatly exceeds the Buffalo region (37.82%) and the Syracuse region (38.55%). The Rochester region (61.98%) also outpaces the Buffalo region (56.64%) and the Syracuse region (57.90%) in percentage of population with at least some college education.

FOREIGN BORN

Table 7. Population Born Outside the United States for Upstate New York, and United States, 2000 & 5-Year Annual Average (2005 – 2009)

Area	2000			5 – Year Annual Average (2005-2009)		
	Population	Total Foreign Born Population	Percent of Total Population	Population	Total Foreign Born Population	Percent of Total Population
Buffalo Region (Western New York Region)	1,443,743	56,127	3.89%	1,392,631	64,459	4.63%
Allegany County	49,927	920	1.84%	49,391	1,001	2.03%
Cattaraugus County	83,955	1,183	1.41%	80,349	1,408	1.75%
Chautauqua County	139,750	2,643	1.89%	134,078	2,493	1.86%
Erie County	950,265	42,886	4.51%	914,200	51,011	5.58%
Niagara County	219,846	8,495	3.86%	214,613	8,546	3.98%
Rochester Region (Finger Lakes Region)	1,199,588	65,157	5.43%	1,191,761	69,261	5.81%
Genesee County	60,370	1,305	2.16%	58,208	1,215	2.09%
Livingston County	64,328	1,668	2.59%	63,162	1,359	2.15%
Monroe County	735,343	53,743	7.31%	731,621	57,334	7.84%
Ontario County	100,224	2,749	2.74%	104,205	3,335	3.20%
Orleans County	44,171	1,172	2.65%	42,380	1,342	3.17%
Seneca County	33,342	816	2.45%	34,181	921	2.69%
Wayne County	93,765	2,157	2.30%	91,658	2,438	2.66%
Wyoming County	43,424	982	2.26%	41,820	913	2.18%
Yates County	24,621	565	2.29%	24,526	404	1.65%
Syracuse Region (Central New York Region)	780,716	32,382	4.15%	773,503	34,296	4.43%
Cayuga County	81,963	1,856	2.26%	79,994	1,730	2.16%
Cortland County	48,599	1,081	2.22%	48,207	988	2.05%
Madison County	69,441	1,558	2.24%	69,868	1,494	2.14%
Onondaga County	458,336	25,929	5.66%	453,846	27,552	6.07%
Oswego County	122,377	1,958	1.60%	121,588	2,532	2.08%
Upstate New York Region (19-County Region)	3,424,047	153,666	4.49%	3,357,895	168,016	5.00%
United States	281,421,906	31,107,889	11.05%	301,461,533	37,342,597	12.39%

Note: The 2005-2009 Annual Average is in Table 7 because the 2009 series was suppressed; population counts for several geographies were too small to report.

Source: (2000 Total Population for all study areas) U.S. Census Bureau, 2000 Decennial Census; U.S. Census Bureau, 2005 - 2009 America Community Survey Five Year Estimate

- The foreign-born population is relatively small among the counties in the Upstate New York region. The Upstate New York region had much lower percentages of foreign born (5.00%) than the United States (12.39%) between 2005 and 2009 (Table 7).
- In 2000, the gap between the United States (11.05%) and the Upstate New York region (4.49%) was smaller than the average of 2005 to 2009, although the data source for 2000 is different from that for 2005-2009.
- Among all counties in Table 7, Monroe County (7.84%) in the Rochester region had the largest percentage of foreign-born residents for the average year from 2005 and 2009, followed by Onondaga County (6.07%) in the Syracuse region. Monroe and Onondaga counties are the second and third-largest counties in the Upstate New York area.
- Among all counties in Table 7, Yates County (1.65%) in the Rochester region had the smallest percentage of foreign-born residents for the average year from 2005 and 2009. It is also the smallest county in the Upstate New York region, with a population of only 24,261.
- The share of the foreign-born population in the Upstate New York region increased slightly between 2000 and the average year from 2005 and 2009 from 4.49% to 5.00%.
- Among the three regions analyzed, the Rochester region had the largest share of foreign-born population (5.81%) between 2005 and 2009. However, the Buffalo region experienced the largest increase (0.74%) of foreign born population. It grew from 3.89% in 2000 to 4.63% for the average year from 2005 and 2009.

CHAPTER 2: ECONOMY AND INDUSTRY

This analysis conducted by the Center for Economic Development at Cleveland State University's Maxine Goodman Levin College of Urban Affairs examines the economic profile of Upstate New York. First, we summarize information from other studies that were conducted on the Upstate New York economy. Second, we describe major findings from an analysis we conducted at the Center for Economic Development.

The analytical section includes an examination of trends in employment, gross product, and average wage. It identifies high-performing ("winning") industries, occupational information, top employers, economic inclusion, and economic development organizations.

Upstate New York is defined for this study as a 19-county region that includes the 5-county Buffalo region (Allegany, Cattaraugus, Chautauqua, Erie, and Niagara Counties) the 9-county Rochester region (Genesee, Livingston, Monroe, Ontario, Orleans, Wayne, Wyoming, Yates, and Seneca Counties) and the 5-county Syracuse region (Cayuga, Cortland, Onondaga, Oswego, and Madison Counties).

In order to create a benchmarking system, we compared Upstate New York region, and its sub-regions, to the state of New York and the United States.

The structure of this report is such that in most instances throughout the analysis, a graphic or table is followed by bullet points that highlight the observations of collected and studied data. The overall 19-county Upstate New York is analyzed and discussed first, and then followed by an analysis of each sub-region and then the three sub-regions are analyzed in relation to each other.

SUMMARY OF FINDINGS

This section provides a review of other studies that were conducted about the Upstate New York region and its sub-regions. These studies focus on industry clusters, workforce skills, and the role of universities in the regions.

UPSTATE NEW YORK REGION

ECONOMIC CLIMATE

Overall the literature on Upstate New York has focused on changing the economic model of the region from one that was based on manufacturing and the production of goods to that of a 21st Century knowledge economy. Even with this change, there has been a shift from highly paid manufacturing employment to lower paid service jobs in the health care and education sector.⁵ The movement of manufacturing out of Upstate New York has significantly weakened the region and has had a great impact on the ability of remaining businesses to be innovative; many firms have been off-shored.⁶

INDUSTRY CLUSTERS

The U.S.-China Economic and Security Review Commission identified four main industry clusters in the Upstate New York region that will be explored further in this analysis one region at a time. Overall, the key industries in Upstate New York are:

- Machine Tools
- Optoelectronics
- Life Sciences and Education
- Clean Tech

WORKFORCE

Much has been written about the population loss of the Upstate New York region. The loss of population over the years is combined with the fact that the population currently living in the region is growing older. In addition, those who attend a university in the region do not stay to work in the region; rather they move downstate to New York City or Long Island for employment. Studies question what the determining factor in this population loss is: a brain drain by educated people leaving or a lack of a brain gain by not attracting educated people to move to the region.⁷

⁵ U.S.-China Economic and Security Review Commission "Chapter 3: China's Industrial Policy and Its Impact on Upstate New York." Annual Report to Congress of the U.S.-China Economic and Security Review Commission 2009

⁶ U.S.-China Economic and Security Review Commission "Chapter 3: China's Industrial Policy and Its Impact on Upstate New York." Annual Report to Congress of the U.S.-China Economic and Security Review Commission 2009

⁷ Federal Reserve Bank of New York, Buffalo "A Brain Drain or an Insufficient Brain Gain?" August 2007

In order to have a vital diverse economy, it is important that Upstate New York attract and retain highly-skilled workers with 1) technical skills to fuel the advance manufacturing industry and 2) college educations, specifically professionals and managers with degrees in science and technologies. Five suggestions have been offered to have Upstate New York compete with New York City and other vibrant cities⁸:

1. Investment in the urban environment and infrastructure
2. Tuition programs sponsored by local employers
3. Come home programs to strengthen ties between university graduates and the region
4. An Upstate New York-Specific marketing effort
5. Recognition of the presence and achievements of a younger generation of civic and business leaders

THE BUFFALO REGION (WESTERN NEW YORK REGION)

INDUSTRY CLUSTERS

The Buffalo Niagara Partnership, a regional economic development and marketing organization that represents a larger geographic region than the scope of this study⁹ has identified seven industry¹⁰ clusters in the Buffalo region to concentrate their economic development efforts. They are:

ADVANCED BUSINESS SERVICES¹¹

- This sector, which is also known as the “Back Office” industry, is composed of companies that provide professional support services, such as customer service, accounting, and human resources.
- According to the University of Buffalo Regional Institute, this sector is one of the fastest growing industries and is extremely attractive to younger workers.
- Occupations related to Back Office work include Customer Services Representatives; Tellers; Accountants and Auditors; Office Clerks; General Supervisors of Office and Administrative Support Workers; Loan Officers, Bookkeeping, Accounting, and Auditing Clerks; Insurance Sales Agents; Executive Secretaries and Administrative Assistants; and Computer Software Engineers.

ADVANCED MANUFACTURING¹²

- The Buffalo region has a long history of manufacturing and in 1995 the region made a conscious shift to advanced manufacturing.

⁸ Christopherson, Susan “Attracting and Retaining a Young Skilled Workforce in Upstate New York” Community and Rural Development Institute. November 2007.

⁹ The Buffalo Niagara Partnership represents the eight county region of Allegany, Cattaraugus, Chautauqua, Erie, Niagara, Orleans, Genesee, and Wyoming Counties.

¹⁰ University of Buffalo Regional Institute “Buffalo Niagara Labor Assessment” 2010

¹¹ NAICS Categories: General Business Support (5611, 5612, 5614); Banking, Accounting & Insurance (5221, 5222, 5223, 5231, 5241, 5242, 5412); Technical Professional Services (5414, 5415, 5419, 5413); Data & Telecommunications (5171, 5172, 5179, 5182).

¹² NAICS Categories: Food, Beverage & Tobacco (3111 – 3121); Textiles & Apparel (3132 – 3152); Wood, Paper & Printing Production (3211 – 3231); Chemical-based (3241 – 3279); Metal based (3311 – 3329); Machinery (3331 – 3339); Computers & Electronics (3341 – 3359); Transportation Manufacturing (3362 – 3369); Furniture & Other Manufacturing (3371 – 3399).

- The Buffalo region’s advanced manufacturing includes sub-clusters of the automotive industry and the aircraft/aerospace industry¹³
 - Automotive Companies: American Axle and Manufacturing; Delphi; Ford; General Motors; Motorola;
 - Aircraft/aerospace Companies: Northrop Grumman, Inc; Endine, Inc.; Moog, Inc.; Sierra Technology;
- Major industry categories include: automotive part producers and their suppliers; aerospace and defense contractors; industrial chemicals; advanced plastics and new polymers; food packagers and processors.
- This sector represents several Tier I & II winning industries discussed further in this analysis. They include:
 - Basic Chemical Manufacturing
 - Plastics Product Manufacturing
 - Steel Product Manufacturing from Purchased Steel
 - Electrical Equipment Manufacturing
- Occupations related to Advanced Manufacturing include: Team Assemblers; Supervisors of Production and Operating Workers; Machinists; Production Helpers; Inspectors, Testers, Sorters, Samplers, and Weighers; Laborers and Freight, Stock and Material Movers; Welders, Cutters, and Solders; Sales Representative and Wholesale; Maintenance and Repair Workers; and Packaging and Filling Machine Operators.

AGRIBUSINESS¹⁴

- The Buffalo region has one of the top food manufacturing and food processing economic clusters in the nation. Agribusiness primarily refers to the production of food and beverages but also includes the fabrication of machinery and creation of fertilizers for the production of food and beverages.
- The state of New York is the 3rd largest dairy producing state in the nation and Western New York State accounts for 23% of New York milk production.¹⁵
- There are over 7,000 farms and 21 dairy processing plants in the Buffalo region.
- Occupations related to Agribusiness include: Packaging and Filling Machine Operators; Meat, Poultry, and Fish Cutters and Trimmers; Packers and Packagers; Food Batchmakers; Laborers and Freight, Stock and Material Movers; Production Helpers; Supervisors of Production and Operating Workers; Team Assemblers; Bakers; and Industrial Truck and Tractor Operators.
- Agribusiness represents many Tier I & II winning industries discussed further in this analysis, including:
 - Dairy Product Manufacturing
 - Animal Food Manufacturing
 - Grain and Oilseed Milling
- Regional strengths:
 - Can receive and distribute food shipments via the Great Lakes reaching Midwestern states and Canada.

¹³ The Buffalo Niagara Partnership “Industry Cluster Profile: Transportation Equipment” September 2005.

¹⁴ NAICS Categories: Agricultural Machinery and Chemical Manufacturing (3253, 3331); Agribusiness Support Activities (1151, 1152); Food & Beverage production (3113, 3114, 3115, 3116, 3118, 3119, 3121)

¹⁵ Informa Economics and Moran, Stahl & Boyer, LLC “Agricultural –Dependent Economic Development for Western New York State”

- Located near population centers to distribute food: within 500 miles of 55% of the United States population and 62% of the Canadian population including nearby Toronto.

HOSPITALITY / TOURISM¹⁶

- The Buffalo region capitalizes on its geographic vicinity to Niagara Falls, which draws over 14 million people each year.
- Buffalo also has a variety of sports teams that are a regional and national draws for sports fans.
- Tourism has a significant appeal from an economic development standpoint because injects dollars into the local economy from individuals who could spend their money in other cities.
- The occupational patterns of individuals who work in the hospitality and tourism industry tend to be low-skilled and low-wage jobs, such as Waiters and Waitresses, Cooks, Dishwashers, Cashiers, and Bartenders.
- This sector represents one Tier I winning industry discussed further in this analysis: Promoters of Performing Arts, Sports, and Similar Events

LIFE SCIENCES¹⁷

- This sector includes Medical Products, Pharmaceutical, and Research.
- The region is home to about 130 companies in the medical device, therapeutics and related sectors.
- The Buffalo Niagara Medical Campus (BNMC) is the anchor institution which drives this industry. BNMC is a consortium of the region's clinical care, research, and medical institutions which includes:
 - Roswell Park Cancer Institute
 - University at Buffalo's New York State Center of Excellence in Bioinformatics
 - Life Sciences and Hauptman-Woodward Medical Research Institute
- Top Occupations in the Life Sciences cluster are: Medical Scientists; Dental Laboratory Technicians Team Assemblers; Molding, Coremaking, and Casting Machine Operators; and General and Operations Managers.
- This sector represents a Tier II winning industry discussed further in this analysis: Pharmaceutical and Medicine Manufacturing

LOGISTICS¹⁸

- The geographic vicinity to Lake Ontario and Lake Erie makes the Buffalo region a shipping and logistics hub and home to eight international ports of entry (4 auto, 3 rail, 1 water), which contribute to \$81 billion in annual trade between Canada and the United States.
- Employment in logistics can include freight forwarding, trucking and rail transport, wholesale supply and distribution and warehousing of goods.
- Employment in this industry has grown 20% over the past decade.
- This sector represents a Tier II winning industries discussed further in this analysis: Deep Sea, Coastal, and Great Lakes Water Transportation

¹⁶ NAICS Categories: Gaming, Recreation & Entertainment (7111, 7112, 7121, 7131, 7132, 7139, 5121, 7212); Accommodations (7211, 7213); Eating & Drinking Establishments (7221, 7222, 7223, 7224); Tourism Support Services (4852, 4853, 4855, 4859, 4871, 4872, 5321, 5615, 4532, 4811, 4812, 4831, 4881, 4884).

¹⁷ NAICS Categories: Research & Development (5417); Medical Devices Manufacturing (3345, 3391); pharmaceutical & Medical Manufacturing (3254, 3261).

¹⁸ NAICS Categories: Freight Movement & Storage (4921, 4811, 4812, 4831, 4841, 4842, 4931); Wholesale (4231, 4232, 4233, 4234, 4235, 4236, 4237, 4238, 4239, 4241, 4242, 4243, 4244, 4245, 4246, 4247, 4248, 4249, 4921); Support Activities for Freight Transportation (4881, 4882, 4883, 4884, 4885, 4889)

STRENGTHS

EMERGING CLUSTER: CLEAN TECH/GREEN ECONOMY¹⁹

- The Buffalo region is looking to other clusters to expand its economy and strength and it sees Clean Tech as a good bet as the national economy moves toward the values of renewable energy and sustainability.
- The idea behind this movement is to capitalize on the region's strength in advance manufacturing and shift it towards the Clean Tech sector.
- The Buffalo Niagara Partnership identifies many different components to the Green Economy:
 - Wind
 - Solar
 - Hydropower
 - Geothermal
 - Biomass
 - Nuclear
 - Energy Transmission and Storage
 - Green Buildings
 - Transportation
 - Waste Remediation/Recycling

WEAKNESSES

Workforce Development issues plague the region. The current workforce lacks the required training for available jobs. Additionally, the region struggles with worker mismatch, attraction of high-skilled workers, and a declining and aging population. The University of Buffalo Regional Institute conducted a study on the regional skill assessment²⁰ and they issued some recommendations:

Company-Level Recommendations

1. Reevaluate requirements for hard-to-fill vacancies
2. Evaluate and monitor existing skills base
3. Coordinate employee development and recruitment efforts
4. Develop management training programs
5. Implement new-hire training programs

Regional-Level Recommendations

1. Establish regional skills partnerships and career pathways programs
2. Align regional higher education with employer demand
3. Develop a support network for candidate relocation

¹⁹ NAICS Categories: Professional & Scientific Consulting (5413, 5414, 5416, 5417); Construction (2361, 2362, 2371); Waste Processing & Recycling (5621, 5622, 5629); Agricultural (1111, 1119, 1151); Energy (2111, 2211, 2213); Wholesalers & Rental (4237, 4239, 5324); Goods Producing (3211, 3219, 3222, 3241, 3251, 3252, 3261, 3272, 3279, 3312, 3314, 3315, 3321, 3323, 3324, 3329, 3331, 3332, 3334, 3336, 3339, 3341, 3344, 3345, 3351, 3353, 3359, 3363, 3365).

²⁰ University of Buffalo Regional Initiative "Western New York Regional Skills Assessment: An Agenda for Advancing Regional Talent for Economic Growth." February 2009

THE ROCHESTER REGION (FINGER LAKES REGION)

The 2009-2010 Comprehensive Economic Development Strategy Report by the Genesee/Finger Lakes Regional Planning Council set the creation of a Regional Innovation Cluster Development project as a priority for 2011. This project is slated to connect companies and researchers to identify technologies that can be developed into products and services.²¹ This is a positive step forward for the Rochester region so that it may re-assess which industry drivers and clusters are important in the current economic conditions.

The Genesee/Finger Lakes Regional Planning Council conducted focus groups in June 2010 for three days in order to get stakeholder and citizen input into defining a regional vision for the area. The group created 10 goals:

1. Assist in the retention and expansion of existing industries in the district
2. Assist in the attraction of industries and firms to the district
3. Strengthen agriculture and agri-business
4. Promote entrepreneurship and innovation and encourage small business development
5. Assist in improving the skills of the district's workforce
6. Assist in improving the infrastructure of the district
7. Enhance tourism and marketing efforts within the district
8. Support the development of targeted regional clusters within the district, including advanced manufacturing and alternative energy
9. Strengthen regional coordination and collaboration
10. Educate leadership and the community regarding economic development and sustainable development practices

INDUSTRY CLUSTERS

Finger Lakes Wired, which is a regional cooperative to foster entrepreneurship and innovation, commissioned a report by the Center for Governmental Research to explore industry clusters in the greater Rochester region.²² It identified five strong clusters to concentrate their economic development efforts. They are:

ADVANCED MANUFACTURING

- The Greater Rochester Enterprise (GRE) identifies that a large portion of advanced manufacturing employment is based in the manufacturing of machinery, computer and electronic products, and transportation equipment.²³
- Leading manufactures in the region are: Kodak, Xerox, Delphi, Bausch & Lomb, ITT Industries, and CooperVison.
- The paper products business is a large employer and represents a Tier II winning industry discussed further in this analysis: Paper and Paper Product Merchant Wholesalers

²¹ Genesee-Finger Lakes Economic Development District. "Comprehensive Economic Development Strategy" 2009-2010

²² The Center for Governmental Research, "Growing the Economy in the Greater Rochester Region: drawing on the Competencies of the Finger Lakes." August 2007.

²³ Greater Rochester Enterprise <http://www.rochesterbiz.com/Business/Regional/Industry/Manufacturing.aspx>

OPTICS/IMAGING

- Partnerships between the University of Rochester and the Rochester Institute of Technology have produced new companies, jobs, and income for the Rochester region.
- 55% of degrees related to optical technologies earned in the United States are from the University of Rochester and Monroe County Community College has the oldest optics technology curriculum in the nation.
- According to a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis produced by Dr. Duncan Moore,²⁴ a professor of Optical engineering at the University of Rochester, there are many strengths and some weaknesses to this industry in Rochester:
 - Strengths:
 - Rich history of optics and entrepreneurship from companies such as Bausch & Lomb Inc., Kodak, and Xerox
 - Educational opportunities in the region are an asset
 - Rochester has the infrastructure for small and mid-size optics companies
 - Weaknesses
 - **Lack of angel and venture capital investment**
 - Lack of major intellectual property law; there have been numerous patent infringement cases in recent years in the region.
 - Opportunities:
 - World class research facilities: Optics and Laboratory for Laser Energetic at the University of Rochester; the Chester F. Carlson Center for Imaging and Photonics Research Laboratory at the Rochester Institute of Technology.
 - Numerous optics shops that specialize in rapid prototyping and creating the customized products in a short period of time.
 - Threats: Outsourcing
- This sector represents two Tier I & II winning industries discussed further in this analysis:
 - Medical Equipment and Supplies Manufacturing
 - Electrical and Electronic Goods Merchant Wholesalers

BIO TECHNOLOGY/BIOMEDICAL /LIFE SCIENCE

- The University of Rochester Medical Center and the biomedical industry have been instrumental in attracting new high-skilled talent to the region.
- According to a SWOT analysis produced by Dr. Raili Kerppola,²⁵ Vice President of Pharmaceuticals Evaluation and Licensing at Bausch & Lomb, there are many strengths and some weaknesses to this industry in Rochester:
 - Strengths:
 - Knowledge driven industry that provides economic growth opportunities
 - Attracts highly skilled, educated workforce
 - Weaknesses
 - Time versus Money – heavy investment into products that take time to enter the market.
 - Reliance on angel investment and risk capital.
 - Opportunities:

²⁴ Moore, Duncan “SWOT Analysis – Optics” Greater Rochester Enterprise

²⁵ Kerppola, Raili “SWOT Analysis – Biotech” Greater Rochester Enterprise

- Convergence of technology from other clusters in the Rochester economy are a plus
- Threats:
 - Sarbanes-Oxley: regulations on moving a firm from public to private and venture capitalists have to wait longer to get a return on their investment
 - Off-shoring
 - U.S. Immigration Policy – and the tightening of the visa policy discourage highly skilled technical professionals from moving to the United States.
- This sector represents two Tier I & II winning industries discussed further in this analysis. They include:
 - Drugs and Druggists Sundries Merchant Wholesalers
 - Pharmaceutical and Medicine Manufacturing

CALL CENTERS

- Call Centers for businesses services such as customer support, document management, payroll services, and processing services are located in this region
- Examples of Call Center companies: Verizon Wireless, The Sutherland Group, JP Morgan Chase, and Paychex

AGRIBUSINESS/ FOOD AND BEVERAGE MANUFACTURING

- Ties to Cornell University's world class food and wine research has helped facilitate innovation.
- Like the Buffalo region, the Rochester region has large employment in agriculture, especially in dairy product manufacturing.
- Large food manufactures in the region are:
 - Baldwin Richardson
 - Barilla America
 - Constellation Brands
 - Frito-Lay
 - Kraft Foods
 - LiDestri Foods
 - Mott's
 - Seneca Foods
 - Wegmans Foods

THE SYRACUSE REGION (CENTRAL NEW YORK REGION)

In 2005, the Battelle Institute was contracted to study the Central New York region to transform it to a knowledge-based economy.²⁶ They developed six strategies for the region to initiate:

1. Aggressively targeting middle-market companies with high potential for expansion and supporting existing industries
2. Optimizing key industry clusters
3. Creating, retaining, and attracting talent in Central Upstate New York
4. Leveraging colleges and universities as economic and community growth engines
5. Encouraging the creation and growth of a stronger entrepreneurial culture
6. Developing a broader regional consciousness

INDUSTRY CLUSTERS²⁷

HIGHER EDUCATION²⁸

- Strengths:
 - Created employment opportunities for the community through capital investments
 - Increases in the quality of student applicants through competition
 - Added enrollment of international students
 - Experienced growth of graduate school applications and MBA candidates
 - Attracted quality faculty because faculty jobs are extremely competitive
- Weaknesses:
 - State funding cuts
 - Community colleges are becoming more competitive and are offering a mix of educational opportunities, diminishing higher education market share

University of Syracuse:

The University of Syracuse is a major anchor institution in the Syracuse region, and with that distinction it has increased its role in the community. In a report on community engagements by universities,²⁹ the University of Syracuse was highlighted for their community and economic development efforts. The university has looked to strengthen ties with the community through neighborhood revitalization; Community Economic Development through Corporate Investment; Local Capacity Building; Education and Health Partnerships; Scholarly Engagement; and Multi-Anchor, City, and Regional Partnerships. The university has been active in the South Side and Near West Side neighborhoods in order to increase capacity building and the overall prosperity of these communities.

²⁶ Metropolitan Development Association. "The Essential New York Initiative: Transforming Central Upstate to a Knowledge-Based Economy" February 2005

²⁷ Source: Workforce Development Board of Oswego County *Oswego County State of the Workforce Report 2004*.

²⁸ Center State Corporation for Economic Opportunity. "2011 Center State Economic Forecast"

²⁹ Axelroth, Rita and Steve Dubb "The Road Half Traveled: University Engagement at a Crossroads." December 2010

HEALTH CARE**Strengths:**

- Major hospitals in the Syracuse region are tied to universities and create a potential for innovation in the health care community: SUNY Upstate Medical University at Syracuse
- The health care field is a major employer in the Syracuse region
- Occupational Concentrations in the Syracuse region:³⁰ Biosciences, Digital and electronic devices, Packaging, Knowledge/learning industry, Research firms, and consulting practices.
- This sector represents three Tier I & II winning industries discussed further in this analysis. They include:
 - Offices of Physicians
 - Medical and Diagnostic Laboratories
 - Scientific Research and Development Services

Weaknesses:

- The Syracuse region has a significant aging population that creates issues with end-of-life education and cost to the system while hospitals are having a problem moving individuals to nursing homes or rehab centers, increasing length of stay and associated costs.
- There is uncertainty regarding Federal Healthcare legislation
- State budget issues and impact on public facilities and public health care spending

BIOTECH/LIFE SCIENCE³¹

- Biotechnology, Pharmaceuticals, and Medical Devices
- Central New York Biotechnology Research Center is an incubator space with ties to the University of Syracuse and Cornell University.
- Major employers include: Bristol-Myers Squibb, Albany Molecular Research, and Welch Allyn
 - This sector represents two Tier I & II winning industries discussed further in this analysis:
 - Scientific Research and Development Services
 - Pharmaceutical and Medicine Manufacturing

MANUFACTURING

What once was a robust industry cluster is now diminished by offshoring and the contraction of major heavy manufactures in the region. This industry cluster is in transition, and now the largest employers are the health care and education sectors.³² Even with its significant declines manufacturing still plays a role in the Syracuse economy.

- This sector represents two Tier II winning industries discussed further in this analysis:
 - Steel Product Manufacturing from Purchased Steel
 - Nonferrous Metal (except Aluminum) Production and Processing

³⁰ Metropolitan Development Association. "The Essential New York Initiative: Transforming Central Upstate to a Knowledge-Based Economy" February 2005

³¹ Moran, Stahl & Boyer, LLC. "Resource Profile for the Biotech/Life Sciences Industry in Central New York State"

³² Center for an Urban Future. "Central New York's New Workforce." April 2009

EMERGING CLUSTER: CLEAN TECH/GREEN INDUSTRY³³

- At the head of this emerging cluster is the Syracuse Center of Excellence (COE) which is charged with the task of creating jobs and wealth in the region through research, development, and education in environmental and energy systems.
- The Syracuse COE has been working with the New York Energy Regional Innovation Cluster (NYE-RIC) to change how energy efficient buildings are developed and engineered.
- In addition, the Syracuse COE partners with Syracuse University's Environmental Finance Center to assist in facilitating research and development.
- Amongst individuals, there is some concern that the green bubble is peaking and that there are barriers to venture capital and private equity investments; this is something that this industry cluster must watch carefully.³⁴

EMERGING CLUSTER: RADAR INDUSTRY

- Sparse academic literature exists on the radar industry in the Syracuse region, but a recent article in the *Post-Standard*³⁵ has shed light on the new developments in this industry.
- Spurred by an initiative by Lockheed Martin which is located in Syracuse, parts of the Medium Extended Air Defense System (MEADS) are being designed and built in the region.
- Local businesses have invested over \$100 million in facilities in this industry.
- This sector represents one Tier I winning industry discussed further in this analysis: Navigational, Measuring, Electromedical, and Control Instruments Manufacturing.

STRENGTHS**FOCUS ON AIR TRANSPORT**

It is interesting to note that that Center State Cooperation for Economic Opportunity, a regional economic development association in the Syracuse region, created the *Fly Syracuse*³⁶ campaign to increase the amount of air travel available at the Syracuse Hancock International Airport. This initiative is important because in other regions of study for JumpStart Community Advisors³⁷ the inaccessibility to air transportation was considered as a negative to the region since management of major corporations prefer the ease of travel available by air transportation. *Fly Syracuse* could strengthen the Syracuse region and contribute to its growth.

³³ Syracuse Center of Excellence <http://www.syracusecoe.org/>

³⁴ Center State Corporation for Economic Opportunity. "2011 Center State Economic Forecast"

³⁵ Tobin, D. (2011, January 16, Sunday) "Central New York's Wave of Innovation: The Sky's the Limit for the Growing Radar Industry." *Post Standard, The*.

³⁶ Center State Corporation for Economic Opportunity <http://www.centerstateceo.com/economic-development/Air-Service-Development.aspx>

³⁷ Center for Economic Development "Upstate New York Regional Analysis: Demographics, Economy, Entrepreneurship and Innovation. February 2011.

WEAKNESSES

FINDING STRENGTHS

Literature on the regional economy of Syracuse is very sparse and what does exist is dated. Without significant study on industry clusters and innovative industries it is hard to focus economic development and workforce development efforts.

IMPROVING INCLUSION

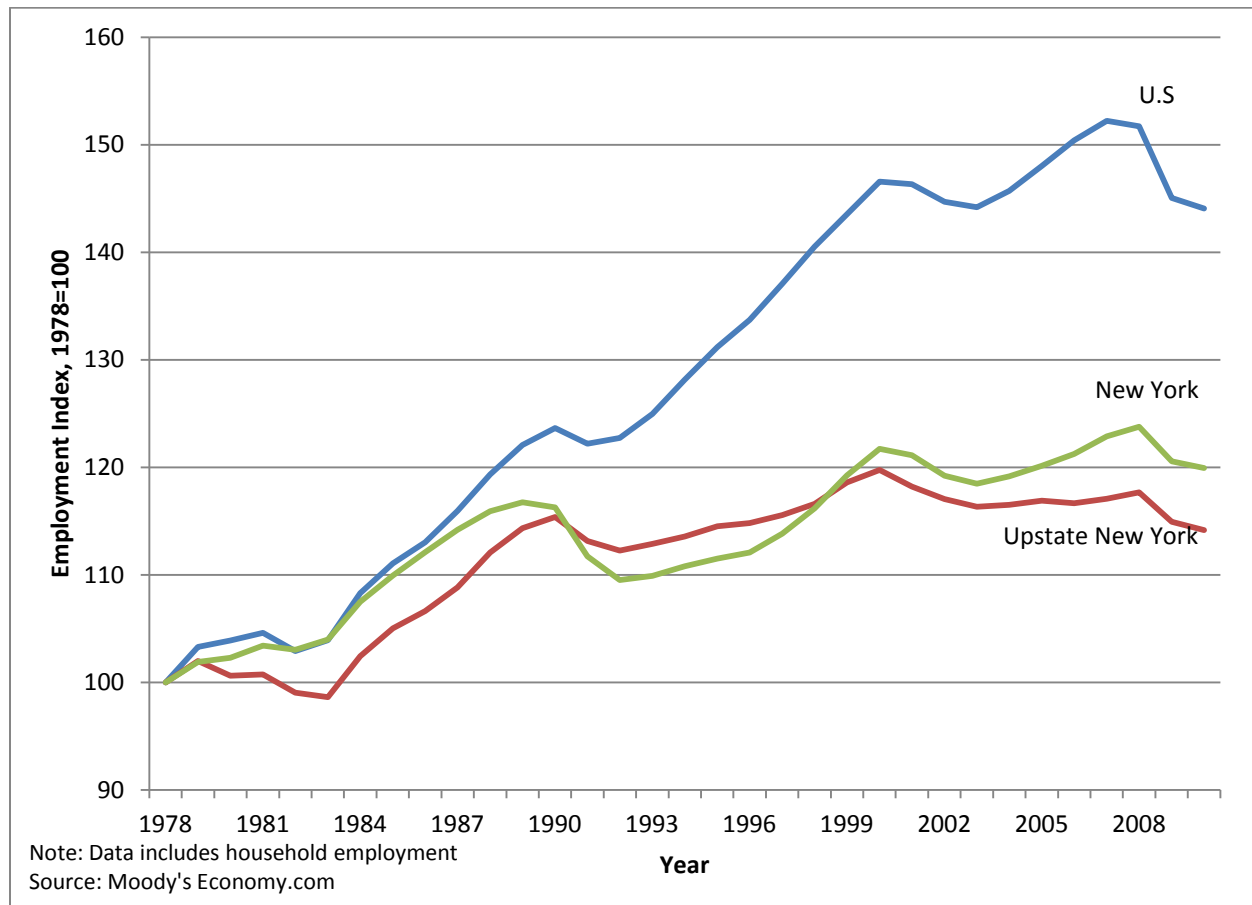
A study of a workforce survey of employers by the Center for an Urban Future³⁸ showed that 40% of respondents employ workers with a limited English proficiency, and improving the English skills of the workforce is an important priority if respondent companies are to succeed. Engaging immigrant communities and providing access to services and idea generation will improve the vitality and diversity of the Syracuse economy.

³⁸ Center for an Urban Future. "Central New York's New Workforce." April 2009

INDUSTRY ANALYSIS

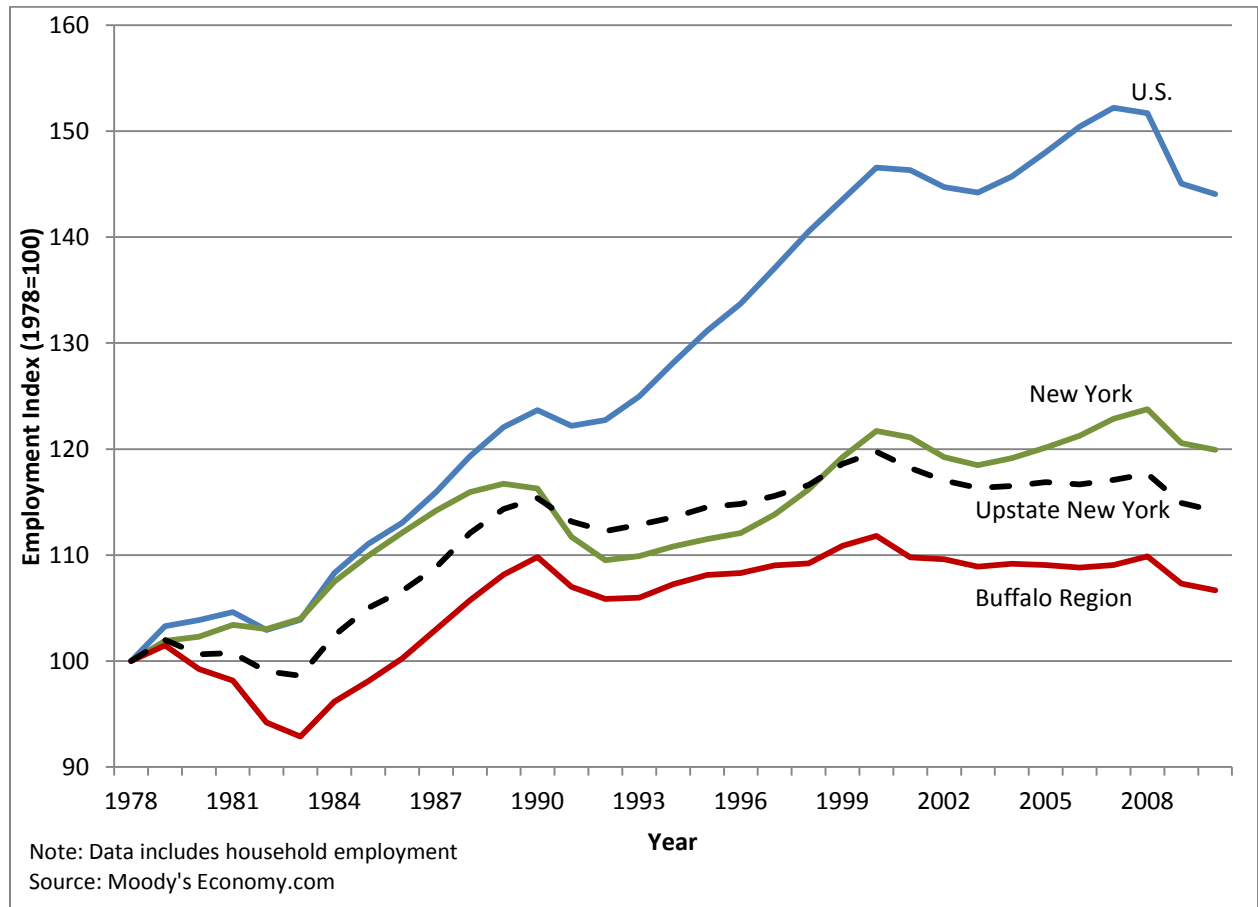
EMPLOYMENT TRENDS

Figure 1. Total Employment Growth for Upstate New York (19-Counties), New York, and the United States, 1978-2010



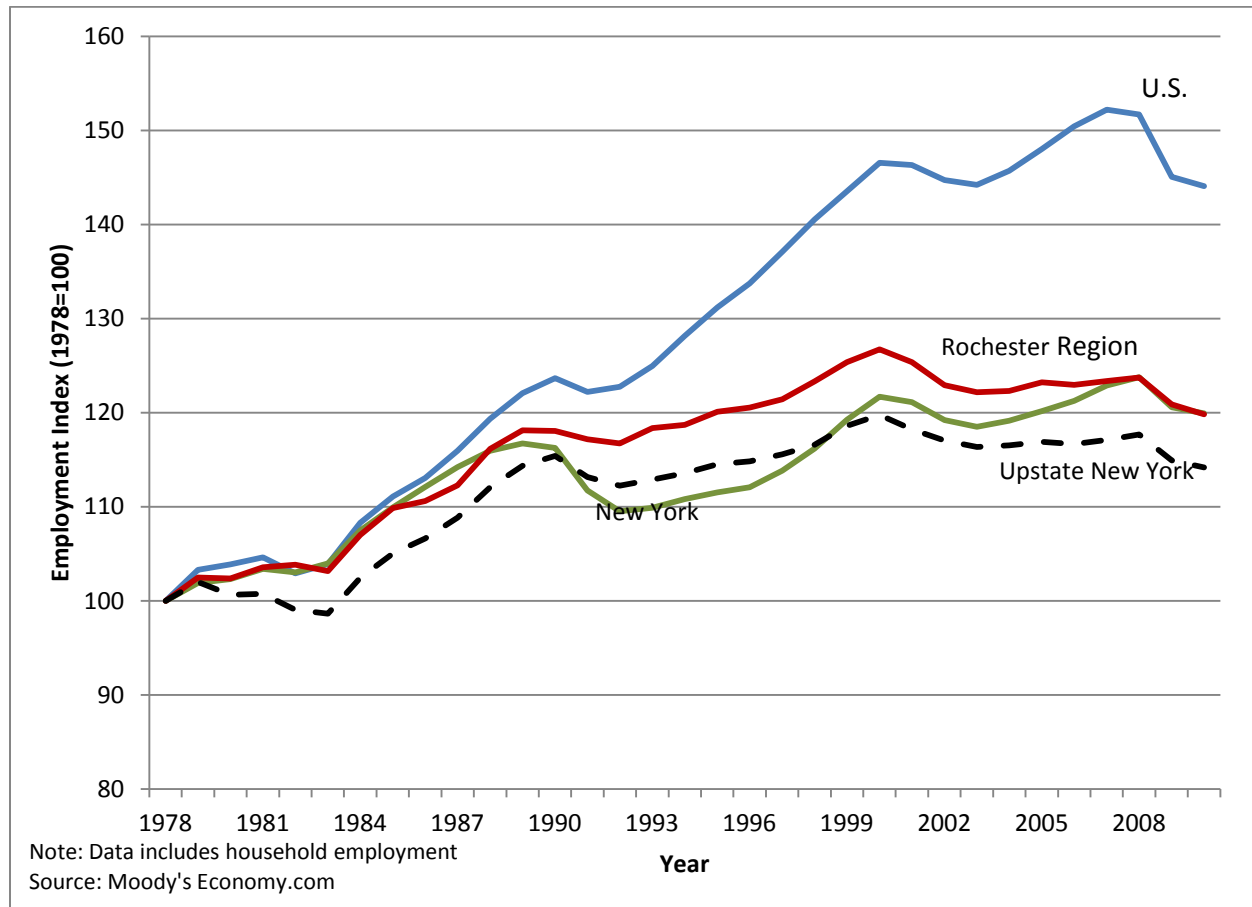
- Total employment growth in Upstate New York from 1978 to 2010 has been outpaced by the state of New York, except during the 1990-1998 years when employment in Upstate New York grew faster than in the state as a whole. Upstate New York has been outpaced for the entire series (1978-2010) by the United States (Figure 1).
- The employment index for Upstate New York peaked in 2000 (index value of 119.7) and has declined ever since.
- The employment growth rate in Upstate New York from 1978 to 2010 was 14%, which is smaller than the state of New York (20%) and the United States (44%).
- The largest over-the-year employment decrease in Upstate New York occurred from 2008 to 2009 (during the latest recession) when the economy lost 2.3% of its jobs. The progressive decline in employment from 2000 to 2010 accounts for 4.7% loss in jobs.

Figure 2. Total Employment Growth in the Buffalo Region, New York, and the United States, 1978-2010



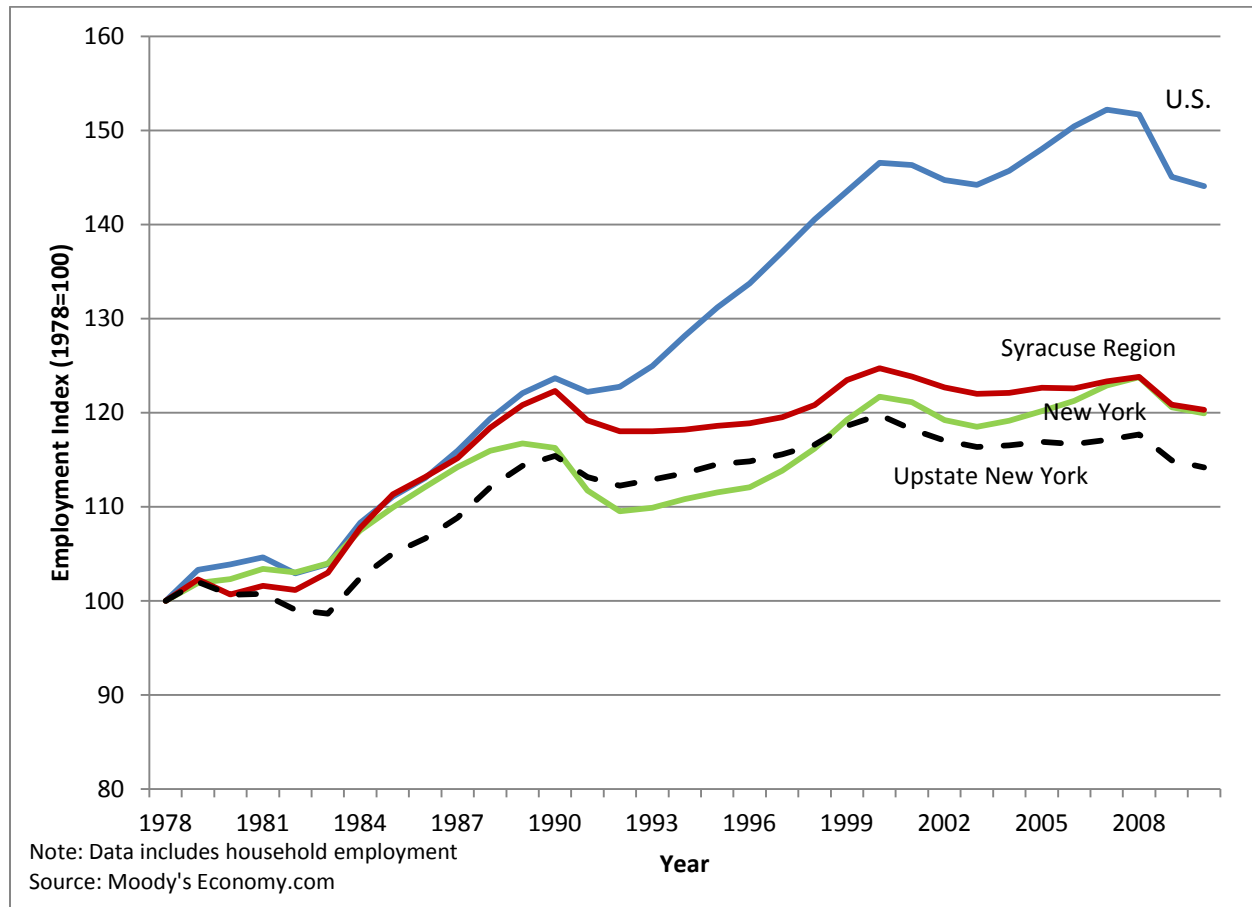
- From 1979 to 2010, total employment growth in the state of New York and the United States significantly outpaced employment growth in the Buffalo region (Figure 2).
- The employment growth rate in the Buffalo region from 1978 to 2010 was only 6.7% which is staggeringly less than the state of New York (19.9%) and the United States (44.1%).
- The largest employment decrease in the Buffalo region occurred from 1981 to 1982 when the economy lost 4.0% of its jobs. The progressive decline in employment from 1980 to 1983 accounts for a 6.4% loss of total employment over this whole period.
- The Buffalo economy has had a significant negative effect on the Upstate New York employment index (Figures 1 and 2) since the Buffalo region lags behind the other two Upstate New York regions.

Figure 3. Total Employment Growth in the Rochester Region, New York, and the United States, 1978-2010



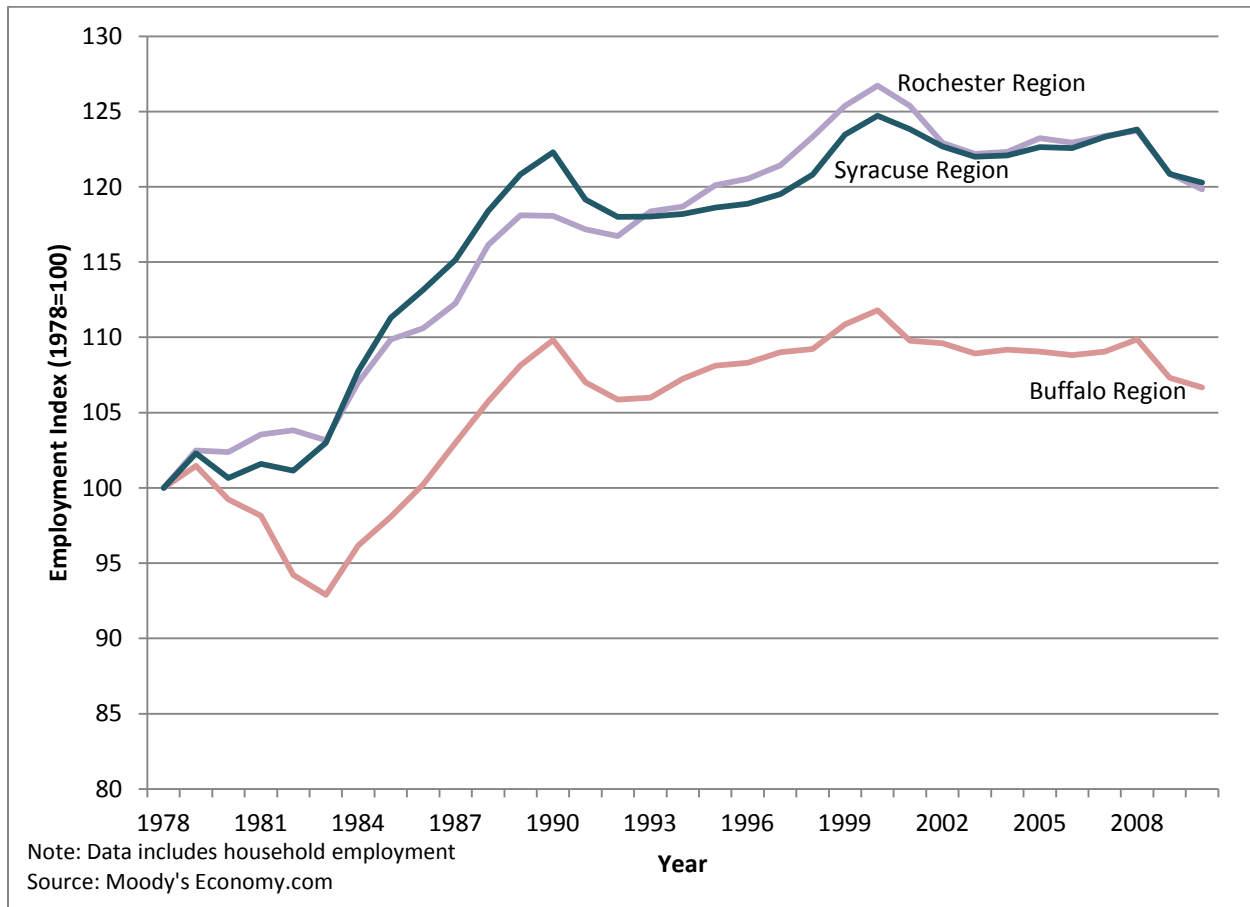
- Except for the years from 1983 to 1987, total employment growth in the Rochester region from 1978 to 2010 has outpaced the state of New York but has not outpaced the United States (Figure 3).
- The employment index for the Rochester region peaked in 2000 (index value 126.7) and has declined ever since.
- The employment growth rate in the Rochester region from 1978 to 2010 was 19.8% which is very similar to the employment growth rate in the state of New York (19.9%), but sizably smaller than the United States (44.1%).
- The largest one-year employment decrease in the Rochester region occurred from 2008 to 2009 (during the latest recession) when the economy lost 2.3% of its jobs. The progressive decline in employment from 2000 to 2010 accounts for a 6.9% loss of total employment.

Figure 4. Total Employment Growth in the Syracuse Region, New York, and the United States, 1978-2010



- Except for years from 1980 to 1983, total employment growth in the Syracuse region from 1978 to 2010 has outpaced the state of New York but not the United States (Figure 4).
- The employment growth rate in the Syracuse region from 1978 to 2010 was 20.3%, which is slightly larger than the state of New York (19.9%), but smaller than the United States (44.1%).
- The employment index for the Syracuse region peaked in 2000 (index value of 124.7) and has declined ever since.
- The largest one-year employment decrease in Syracuse occurred from 2008 to 2009 (the latest recession) when the economy lost 3.0% of its jobs. The progressive decline in employment from 2000 to 2010 accounts for a 3.6% loss of total employment.

Figure 5. Total Employment Growth in the Buffalo, Rochester, and Syracuse Region, 1978-2010



- Comparing all three Upstate New York regions to each other shows the significant employment growth of the Rochester and Syracuse regions in contrast to the Buffalo region (Figure 5). Even though Buffalo has the largest level of employment (Table 9) it has the smallest employment growth rate of the three regions.
- Over the last 30 years, the Syracuse region has the largest employment growth rate of 20.3%, just edging out the Rochester region (19.8%), while the Buffalo region was significantly lower than the other regions with an employment growth rate of 6.7%.
- The Buffalo region suffered a large employment decline between 1979 and 1983, and although it grew from 1983 through 1990, the region's employment has remained relatively flat since then.
- ***It is interesting to note that in all regions employment peaked in 2000 and has yet to regain those levels, even 10 years later.***

Table 8. Employment Change by Major Industry Sector in Upstate New York (19-Counties), New York, and the United States, 2000-2010

Industry Sector	Upstate New York		New York	U.S.
	2010 Employment	Percentage Change, 2000-2010		
Public Administration	291,224	3.0%	1.8%	7.6%
Health Care and Social Assistance	217,446	17.8%	20.5%	28.0%
Retail Trade	175,545	-7.9%	-2.5%	-5.1%
Manufacturing	163,852	-38.1%	-39.0%	-33.7%
Accommodation and Food Services	118,125	3.5%	13.5%	11.1%
Administrative and Support and Waste Management and Remediation Services	78,740	-1.0%	-11.9%	-6.9%
Educational Services	75,060	29.1%	28.4%	31.8%
Professional, Scientific, and Technical Services	69,619	6.1%	1.8%	8.5%
Other Services (except Public Administration)	65,776	10.6%	11.3%	3.9%
Wholesale Trade	56,918	-17.6%	-12.9%	-5.3%
Finance and Insurance	54,681	1.8%	-13.8%	-2.3%
Construction	53,518	-9.0%	-4.2%	-17.7%
Transportation and Warehousing	36,384	-8.5%	-9.4%	-6.7%
Management of Companies and Enterprises	28,258	15.5%	9.6%	4.7%
Information	24,168	-34.4%	-22.0%	-23.9%
Agriculture, Forestry, Fishing and Hunting	23,529	-13.9%	-14.4%	-22.2%
Arts, Entertainment, and Recreation	21,725	14.1%	16.6%	6.6%
Real Estate and Rental and Leasing	18,495	-0.4%	-0.6%	-4.0%
Utilities	8,047	-26.5%	0.8%	-6.4%
Mining, Quarrying, and Oil and Gas Extraction	1,536	-0.8%	17.8%	33.7%
TOTAL	1,582,646	-4.6%	-1.4%	-1.8%

Note: Data excludes household employment

Source: Moody's Economy.com

- Public Administration is the largest employment sector in Upstate New York with 291,224 employees, accounting for 18% of all jobs. The next largest sector, Health Care and Social Assistance, had 217,446 employees, and accounted for 14% of total employment (Table 8).
- Five sectors in Upstate New York suffered from double-digit rates of declines from 2000 to 2010 (Manufacturing, Wholesale, Information, Agriculture, and Utilities) in comparison to six sectors in the state of New York and four in the United States.
- Employment grew in nine of the 20 major industry sectors in Upstate New York from 2000 to 2010, compared to 10 in the state of New York and nine in the United States.

Table 9. Employment Change by Major Industry Sector in the Buffalo, Rochester and Syracuse Regions 2000-2010

Industry Sector	Buffalo Region (Western New York Region)			Rochester Region (Finger Lakes Region)			Syracuse Region (Central New York Region)		
	2010 Employment	Percentage of Total Employment	Percentage Change, 2000-2010	2010 Employment	Percentage of Total Employment	Percentage Change, 2000-2010	2010 Employment	Percentage of Total Employment	Percentage Change, 2000-2010
Public Administration	122,668	18.9%	3.5%	98,689	17.4%	3.5%	69,867	19.1%	1.6%
Health Care and Social Assistance	87,448	13.5%	13.5%	81,649	14.4%	18.6%	48,349	13.2%	25.0%
Retail Trade	73,958	11.4%	-6.9%	61,289	10.8%	-8.6%	40,298	11.0%	-8.6%
Manufacturing	63,586	9.8%	-38.2%	67,066	11.8%	-39.5%	33,200	9.1%	-35.0%
Accommodation and Food Services	52,627	8.1%	5.1%	38,640	6.8%	1.2%	26,858	7.3%	3.8%
Administrative and Support and Waste Management and Remediation Services	35,397	5.5%	-2.0%	26,412	4.6%	-4.5%	16,931	4.6%	7.1%
Educational Services	18,934	2.9%	15.9%	37,416	6.6%	42.2%	18,710	5.1%	20.8%
Professional, Scientific, and Technical Services	28,948	4.5%	11.2%	23,755	4.2%	-5.9%	16,916	4.6%	17.9%
Other Services (except Public Administration)	29,192	4.5%	12.5%	22,511	4.0%	19.1%	14,073	3.8%	-3.7%
Wholesale Trade	22,563	3.5%	-21.7%	19,081	3.4%	-13.3%	15,274	4.2%	-16.3%
Finance and Insurance	26,086	4.0%	7.6%	14,722	2.6%	-1.9%	13,873	3.8%	-4.2%
Construction	21,371	3.3%	-9.6%	18,491	3.3%	-11.3%	13,656	3.7%	-4.6%
Transportation and Warehousing	15,978	2.5%	-14.4%	9,689	1.7%	-1.5%	10,717	2.9%	-4.6%
Management of Companies and Enterprises	12,492	1.9%	47.1%	12,464	2.2%	5.8%	3,302	0.9%	-21.3%
Information	9,064	1.4%	-36.4%	9,830	1.7%	-26.8%	5,274	1.4%	-42.2%
Agriculture, Forestry, Fishing and Hunting	7,752	1.2%	-13.9%	10,403	1.8%	-14.1%	5,374	1.5%	-13.6%
Arts, Entertainment, and Recreation	8,797	1.4%	14.9%	7,256	1.3%	-1.5%	5,672	1.5%	41.2%
Real Estate and Rental and Leasing	7,498	1.2%	4.4%	6,939	1.2%	-7.3%	4,058	1.1%	3.9%
Utilities	2,465	0.4%	-28.4%	1,949	0.3%	-23.5%	3,633	1.0%	-26.7%
Mining, Quarrying, and Oil and Gas Extraction	617	0.1%	-1.6%	490	0.1%	5.4%	429	0.1%	-5.9%
TOTAL	647,441	100.0%	-4.6%	568,741	100.0%	-5.4%	366,464	100.0%	-3.5%

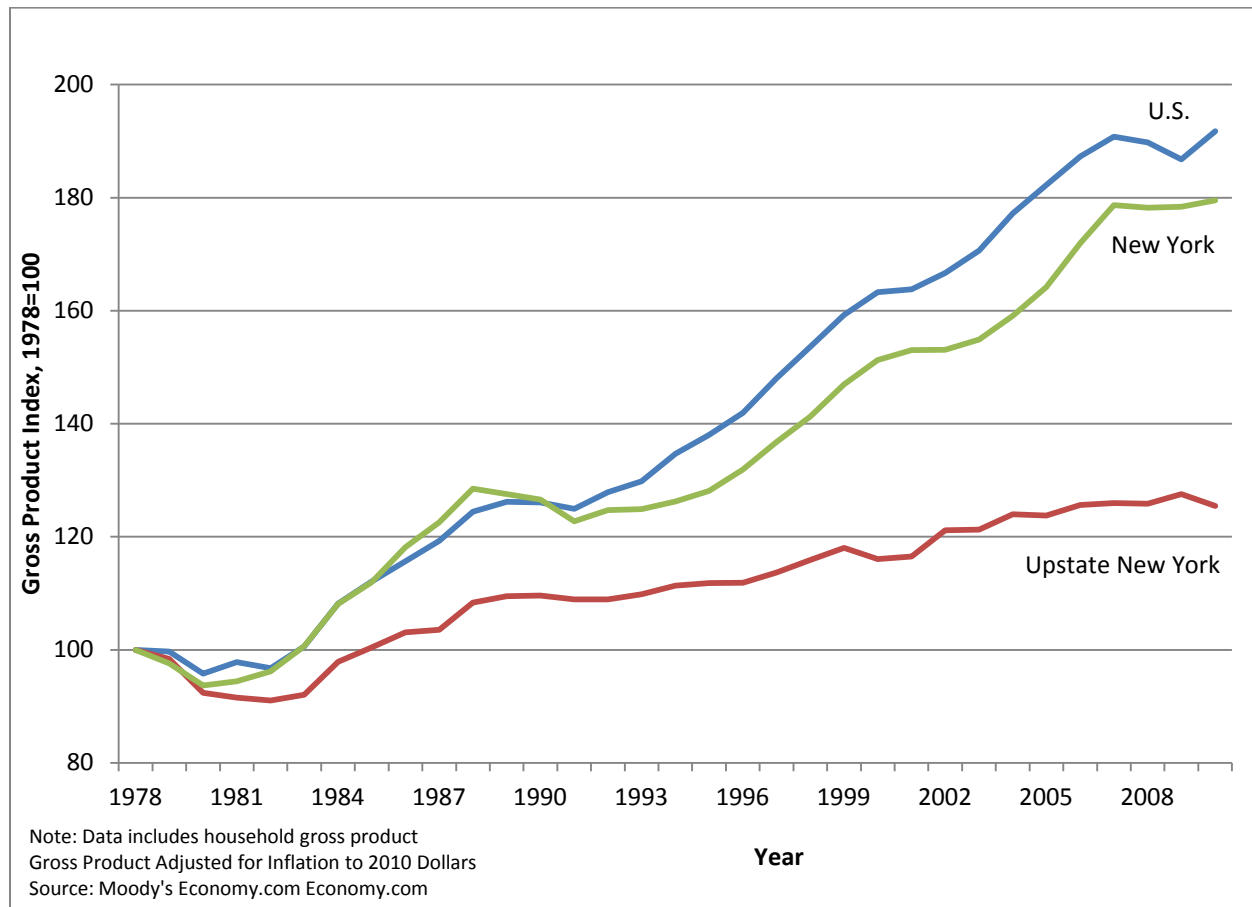
Note: Data excludes household employment

Source: Moody's Economy.com

- Public Administration is the largest employment sector in all three regions accounting for 18.9% of the employment in the Buffalo region, 17.4% in the Rochester region, and 19.1% in the Syracuse region. This sector has also had positive employment growth from 2000 to 2010 in all three regions (Table 9).
- The second largest sector for all three Upstate New York regions was Health Care and Social Assistance, (which was significantly smaller than Public Administration), employing 13.5% of the workforce in the Buffalo region, 14.4% in the Rochester region, and 13.2% in the Syracuse region. This sector experienced double-digit employment gains in all regions from 2000 to 2010.
- Six sectors in the Buffalo, Rochester, and Syracuse regions suffered from double-digit rates of declines from 2000 to 2010. All three regions experience double-digit declines in Manufacturing; Wholesale Trade; Information; Agriculture, Forestry, Fishing and Hunting; and Utilities.
- Employment grew in 10 of the 20 major industry sectors in the Buffalo region from 2000 to 2010, compared to seven in the Rochester region and eight in Syracuse region.

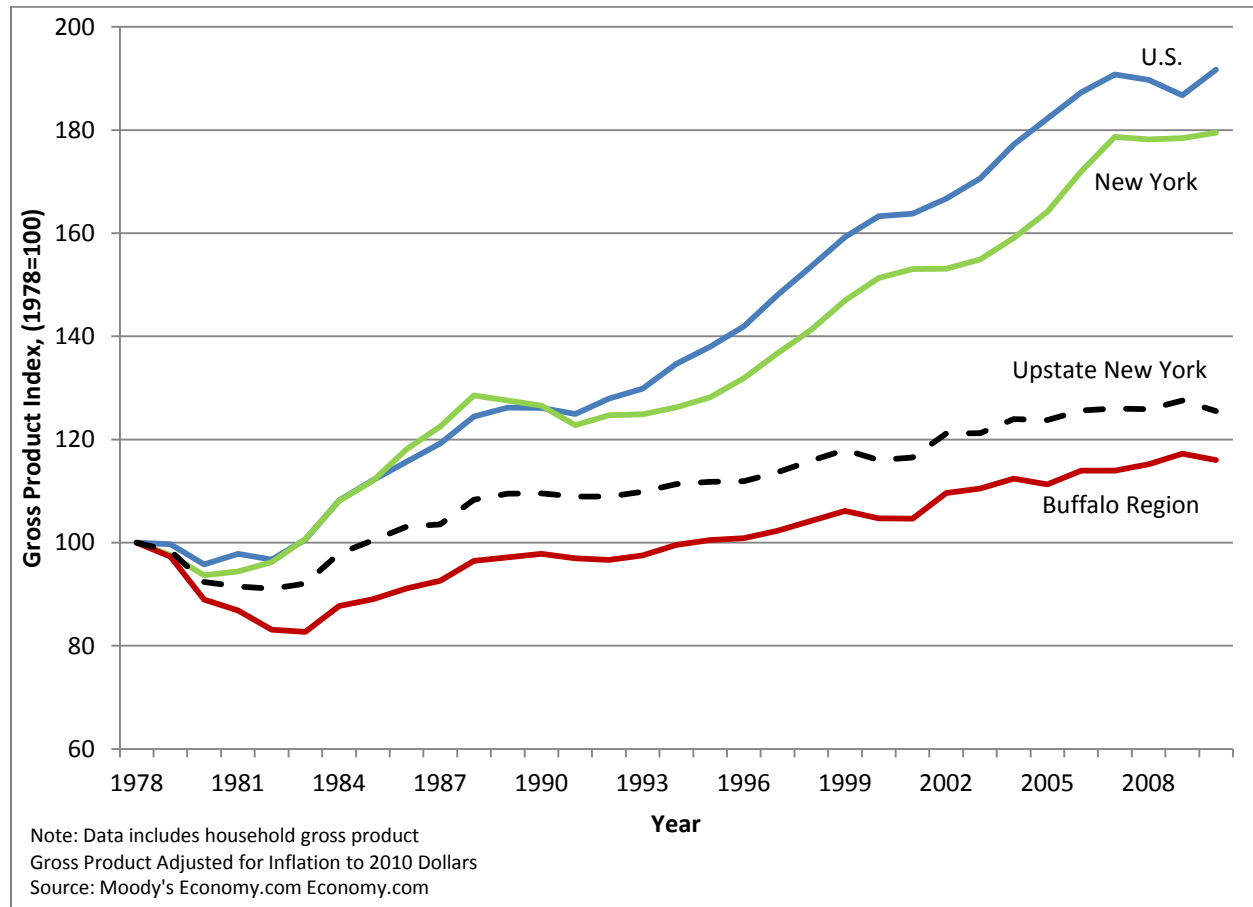
TRENDS IN GROSS PRODUCT

Figure 6. Gross Product Growth in Upstate New York (19-Counties), New York, and the United States, 1978-2010



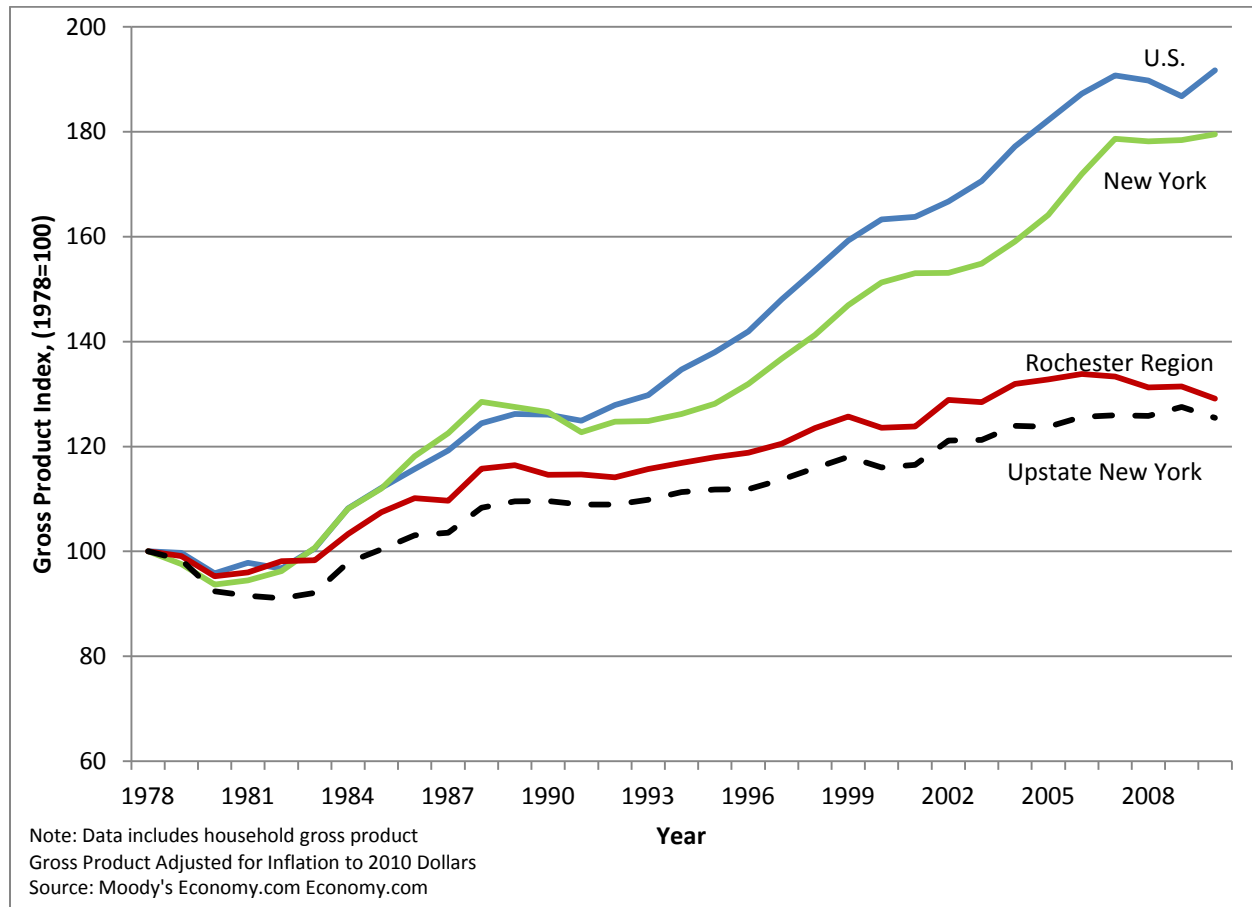
- Gross product in Upstate New York did not return to the 1978 levels until 1985; this is a longer period of time than the state of New York and the United States, which returned to 1978 levels in 1983 (Figure 6).
- The largest one-year gross product decrease in Upstate New York occurred from 1979 to 1980 when gross product declined by 6.1%.
- The difference in gross product growth between the United States and Upstate New York has grown wider over the last 30 years. Between 1978 and 1979, the difference in growth rates between the United States (a decline of 0.3%, or index of 99.7) and Upstate New York (a decline 1.6%, or index of 98.4) was 1.3 percentage points. By 2010, the difference in the 30-year growth rates increased to 66.2 percentage points; gross product in Upstate New York grew by 25.5% between 1979 and 2009, but it grew by 91.7% in the United States. This widening gap shows the significant structural economic issues of the Upstate New York economy.

Figure 7. Gross Product Growth in the Buffalo Region, New York, and the United States, 1978-2010



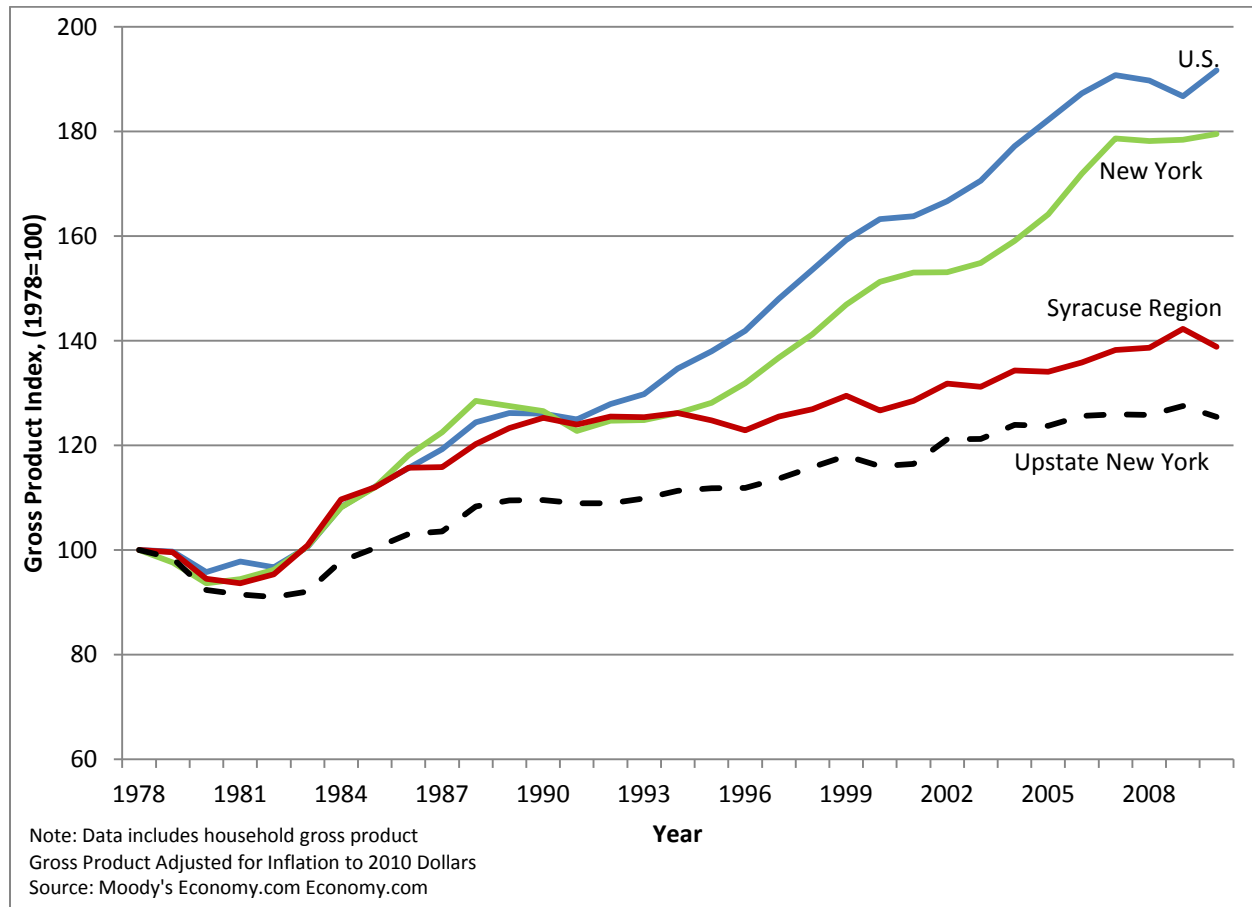
- Gross product in the Buffalo region did not return to 1978 levels until 1995. In contrast, gross product in both the state of New York and the United States had a slight dip in the early 1980s but after that grew considerably over the 30-year period (Figure 7).
- The largest one-year gross product decrease in Upstate New York occurred from 1979 to 1980 where gross product fell by 8.3%.
- The difference in gross product growth between the Buffalo region and the United States has grown wider over the last 30 years. Between 1978 and 1979, the difference in growth rates between the United States (a decline of 0.3%, or index of 99.7) and the Buffalo region (a decline 2.7%, or index of 97.3) was 2.4 percentage points. By 2010, the difference in the 30-year growth rates increased to 75.7 percentage points; gross product in the Buffalo region grew by 16.0% between 1979 and 2010, but it grew by 91.7% in the United States. This staggering gap shows the significant structural economic issues of the Buffalo regional economy.

Figure 8. Gross Product Growth in the Rochester Region, New York, and the United States, 1978-2010



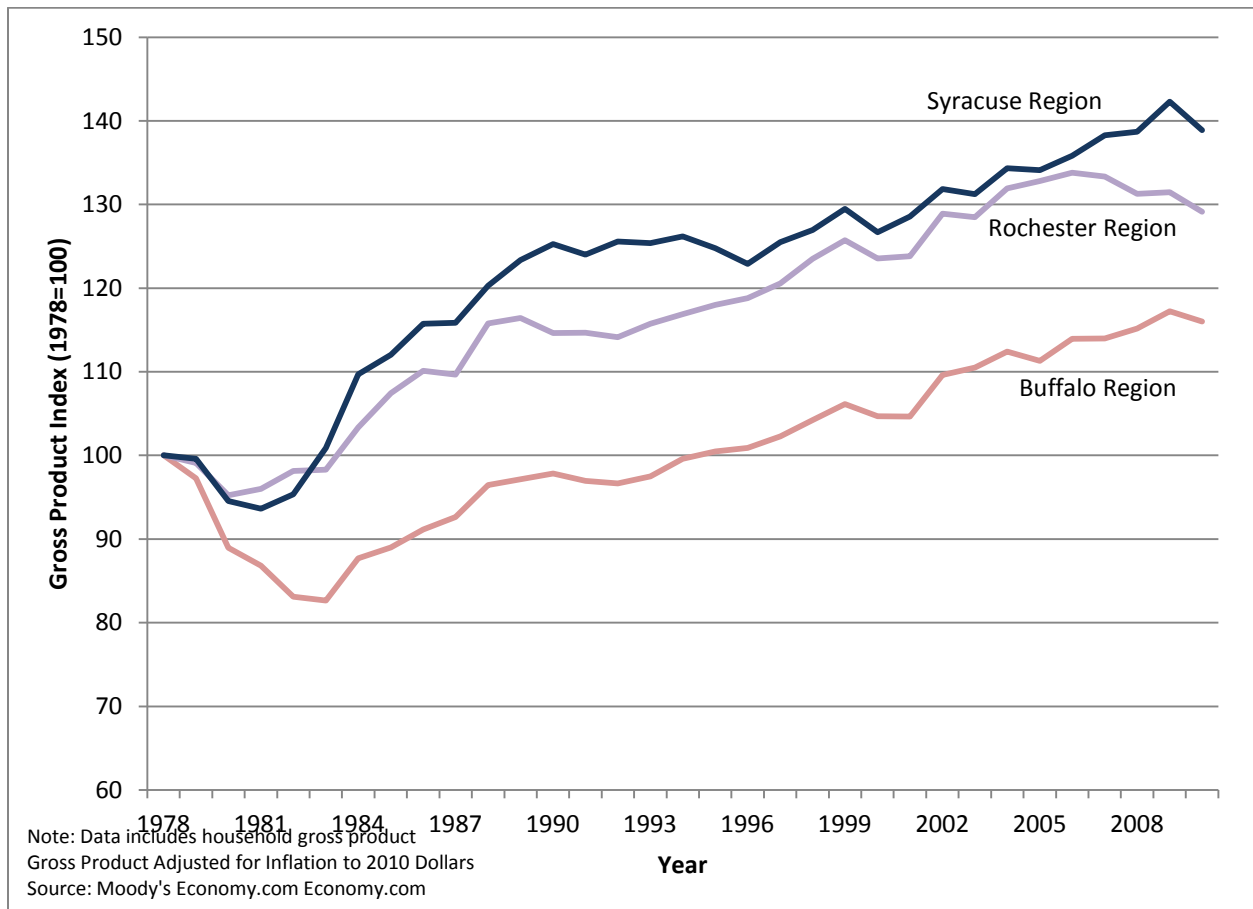
- Gross product in the Rochester region did not return to 1978 levels until 1984, which is a slight lag behind the recovery in the state of New York and the United States (Figure 8).
- The largest one-year gross product decrease in Upstate New York occurred from 1979 to 1980 where gross product declined by 3.8%.
- The difference in gross product growth between the United States and the Rochester region has grown wider over the last 30 years. Between 1978 and 1979, the difference in growth rates between the United States (a decline of 0.3%, or index of 99.7) and the Rochester region (a decline 0.9%, or index of 99.1) was 0.6 percentage points. By 2010, the difference in the 30-year growth rates increased to 62.6 percentage points; gross product in the Rochester region grew by 29.1% between 1979 and 2010, a third of the gross product growth rate (91.7%) in the United States. This widening gap shows the significant structural economic issues of the Rochester regional economy.

Figure 9. Gross Product Growth in the Syracuse Region, New York, and the United States, 1978-2010



- Gross product in the Syracuse region did not return to 1978 levels until 1983, which is on par with the similar decline and recovery in the state of New York and the United States (Figure 9).
- The largest over-the-year gross product decrease in Upstate New York occurred from 1979 to 1980 where gross product declined by 5.5%.
- The gap in gross product growth between the United States and the Syracuse region has grown wider over the last 30 years. Between 1978 and 1979, the difference in growth rates between the United States (a decline of 0.3%, or index of 99.7) and the Syracuse region (a decline 0.4%, or index of 99.5) was 0.1 percentage points. By 2010, the difference in the 30-year growth rates increased to 52.8 percentage points; gross product in Upstate New York grew by 38.9% between 1979 and 2010, but it grew by 91.7% in the United States. This widening gap shows the significant structural economic issues of the Syracuse region economy.
- ***It is interesting to note that of the three regional economies, the Syracuse region is the top performer, but it still significantly lags behind the state of New York and the United States in all three macroeconomic indicators (employment, gross product, and average wage).***

Figure 10. Gross Product Growth in the Buffalo, Rochester, and Syracuse Regions, 1978-2010



- Comparing all three Upstate New York regions shows the significant gross product growth in the Rochester and Syracuse regions in comparison to the Buffalo region (Figure 10). Even though Buffalo has the largest gross product in dollar terms (Table 11), it has the smallest gross product growth rate of the three regions.
- Over the last 30 years, the Syracuse region has the largest gross product growth rate of 38.9%, just edging out the Rochester region (29.1%), while the Buffalo region was significantly behind these two regions with a gross product growth rate of 16.0%.

Table 10. Gross Product Change by Major Industry Sector in Upstate New York (19-Counties), New York, and the United States, 2000-2010

Industry Sector	Upstate New York		New York	U.S.
	2010 Gross Product (\$Mil)	Percentage Change, 2000-2009		
Manufacturing	\$23,327.6	-23.2%	-16.4%	-14.0%
Public Administration	\$20,463.0	36.6%	32.8%	41.6%
Health Care and Social Assistance	\$12,666.6	29.9%	38.2%	52.3%
Real Estate and Rental and Leasing	\$9,418.3	21.1%	41.0%	23.6%
Retail Trade	\$9,417.4	9.3%	18.5%	8.6%
Finance and Insurance	\$8,914.3	26.0%	5.8%	12.5%
Professional, Scientific, and Technical Services	\$7,492.0	23.0%	24.4%	34.0%
Information	\$7,386.8	18.3%	19.8%	8.5%
Wholesale Trade	\$6,587.8	-1.3%	-5.6%	3.4%
Utilities	\$4,509.5	-8.7%	24.9%	41.8%
Administrative and Support and Waste Management and Remediation Services	\$4,224.1	27.9%	11.8%	19.7%
Construction	\$3,532.4	-20.1%	-10.7%	-17.6%
Accommodation and Food Services	\$3,506.6	15.3%	28.8%	29.1%
Educational Services	\$3,227.3	46.6%	51.7%	57.2%
Management of Companies and Enterprises	\$3,039.6	23.3%	25.2%	21.7%
Other Services (except Public Administration)	\$2,611.3	5.6%	25.5%	17.6%
Transportation and Warehousing	\$2,542.9	-6.5%	-1.2%	5.2%
Arts, Entertainment, and Recreation	\$1,185.2	20.3%	25.2%	29.3%
Agriculture, Forestry, Fishing and Hunting	\$997.6	26.2%	29.1%	38.0%
Mining, Quarrying, and Oil and Gas Extraction	\$214.6	53.5%	36.1%	40.4%
TOTAL	\$135,264.9	4.3%	18.6%	17.4%

Note: Data excludes private household gross product; Gross product adjusted for inflation to 2010 dollars

Source: Moody's Economy.com

- The Manufacturing sector is very important to the Upstate New York economy. It was the largest contributor to gross product in 2010 in Upstate New York (\$23.3 billion), accounting for 17% of total gross product; closely followed by Public Administration (\$20.5 billion; 15% of total gross product) (Table 10). However, Manufacturing gross product declined between 2000 and 2010 by 23.2% while Public Administration grew by 36.6%.
- The third-largest contributor to gross product was Health Care and Social Assistance (\$12.7 billion), but it was dwarfed in comparison to Manufacturing and Public Administration. The Health Care sector accounted for 9% of Upstate New York's gross product.

Table 11. Gross Product Change by Major Industry Sector for the Buffalo, Rochester and Syracuse Regions 2000-2010

Industry	Buffalo Region (Western New York Region)			Rochester Region (Finger Lakes Region)			Syracuse Region (Central New York Region)		
	2010 Gross Product (\$ Mil)	Percentage of Gross Product	Percentage Change, 2000-2010	2010 Gross Product (\$ Mil)	Percentage of Gross Product	Percentage Change, 2000-2010	2010 Gross Product (\$ Mil)	Percentage of Gross Product	Percentage Change, 2000-2010
Manufacturing	\$9,106.4	16.8%	-19.3%	\$10,399.1	20.9%	-24.8%	\$3,822.1	12.2%	-27.0%
Public Administration	\$9,028.2	16.7%	34.0%	\$6,733.9	13.5%	40.5%	\$4,700.9	15.0%	36.1%
Health Care and Social Assistance	\$4,965.2	9.2%	23.4%	\$4,574.1	9.2%	31.2%	\$3,127.2	10.0%	39.7%
Real Estate and Rental and Leasing	\$3,885.3	7.2%	18.2%	\$3,322.4	6.7%	10.9%	\$2,210.6	7.1%	47.9%
Retail Trade	\$3,779.4	7.0%	6.0%	\$3,380.5	6.8%	9.3%	\$2,257.5	7.2%	15.2%
Finance and Insurance	\$4,308.7	8.0%	36.4%	\$2,396.0	4.8%	15.2%	\$2,209.6	7.1%	20.3%
Professional, Scientific, and Technical Services	\$2,952.4	5.4%	31.0%	\$2,688.9	5.4%	5.2%	\$1,850.8	5.9%	44.0%
Information	\$2,353.8	4.3%	32.1%	\$3,379.1	6.8%	19.8%	\$1,653.8	5.3%	0.6%
Wholesale Trade	\$2,512.0	4.6%	-0.3%	\$2,367.1	4.8%	2.8%	\$1,708.7	5.5%	-7.9%
Utilities	\$1,406.7	2.6%	3.9%	\$735.9	1.5%	-26.8%	\$2,366.8	7.6%	-8.2%
Administrative and Support and Waste Management and Remediation Services	\$1,858.4	3.4%	21.5%	\$1,470.4	3.0%	26.2%	\$895.2	2.9%	47.4%
Construction	\$1,385.6	2.6%	-19.7%	\$1,232.3	2.5%	-23.9%	\$914.5	2.9%	-14.8%
Accommodation and Food Services	\$1,507.0	2.8%	17.9%	\$1,185.3	2.4%	10.4%	\$814.2	2.6%	18.2%
Educational Services	\$648.1	1.2%	46.5%	\$1,870.2	3.8%	49.9%	\$709.0	2.3%	38.7%
Management of Companies and Enterprises	\$1,128.5	2.1%	47.3%	\$1,602.8	3.2%	20.6%	\$308.3	1.0%	-16.9%
Other Services (except Public Administration)	\$1,073.2	2.0%	0.9%	\$885.3	1.8%	16.5%	\$652.8	2.1%	0.6%
Transportation and Warehousing	\$1,173.7	2.2%	-9.8%	\$622.8	1.3%	-4.9%	\$746.4	2.4%	-2.2%
Arts, Entertainment, and Recreation	\$732.3	1.4%	34.5%	\$290.0	0.6%	-4.3%	\$162.9	0.5%	18.2%
Agriculture, Forestry, Fishing and Hunting	\$210.6	0.4%	8.8%	\$597.9	1.2%	33.4%	\$189.1	0.6%	27.1%
Mining, Quarrying, and Oil and Gas Extraction	\$176.9	0.3%	104.8%	\$24.4	0.0%	-24.7%	\$13.3	0.0%	-37.0%
TOTAL	\$54,192.5	100.0%	10.8%	\$49,758.5	100.0%	4.5%	\$31,313.9	100.0%	9.7%

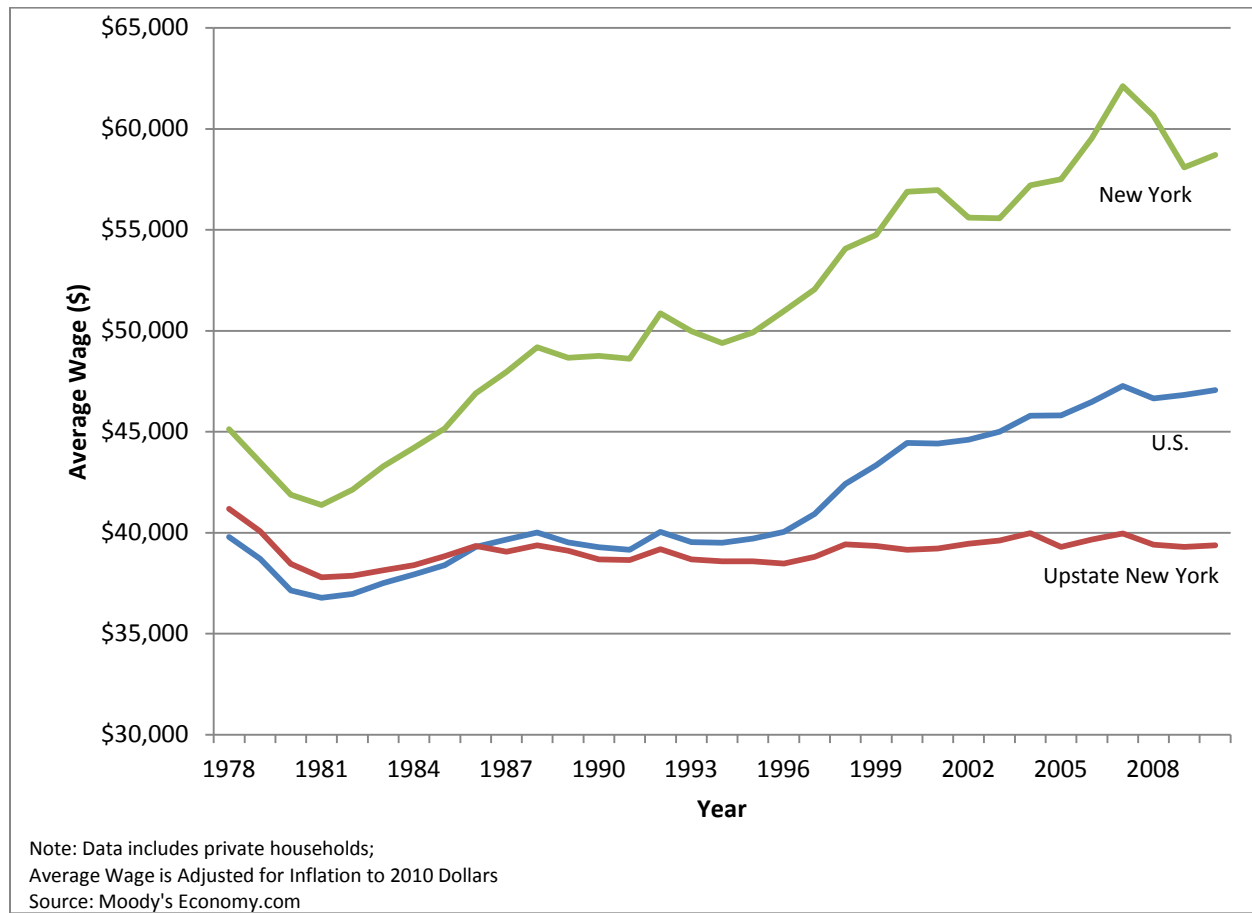
Note: Data excludes private household gross product; Gross product adjusted for inflation to 2010 dollars

Source: Moody's Economy.com

- The Manufacturing sector is very important to the Upstate New York economy. In two regions it was the largest contributor to gross product in 2010, accounting for 20.9% of the Rochester region and 16.8% of the Buffalo region. Manufacturing was the second largest sector in the Syracuse region (12.2%) (Table 11).
- Public Administration is the second largest contributor to gross product in the Buffalo (\$9.0 billion) and Rochester regions (\$6.7 billion), and the largest contributor in the Syracuse region (\$4.7 billion). In the Buffalo and Syracuse regions the gross product for this sector is of similar size to the Manufacturing industry, but in the Rochester region, Public Administration was dwarfed in comparison to the Manufacturing sector.
- Gross Product declined in all three regions between 2000 and 2010 in three sectors: Manufacturing, Construction, and in Transportation and Warehousing.
- It is interesting to note that the mix of industry sectors, as represented by the percentage each industry contributed to the overall gross product total, is similar across all three regions.

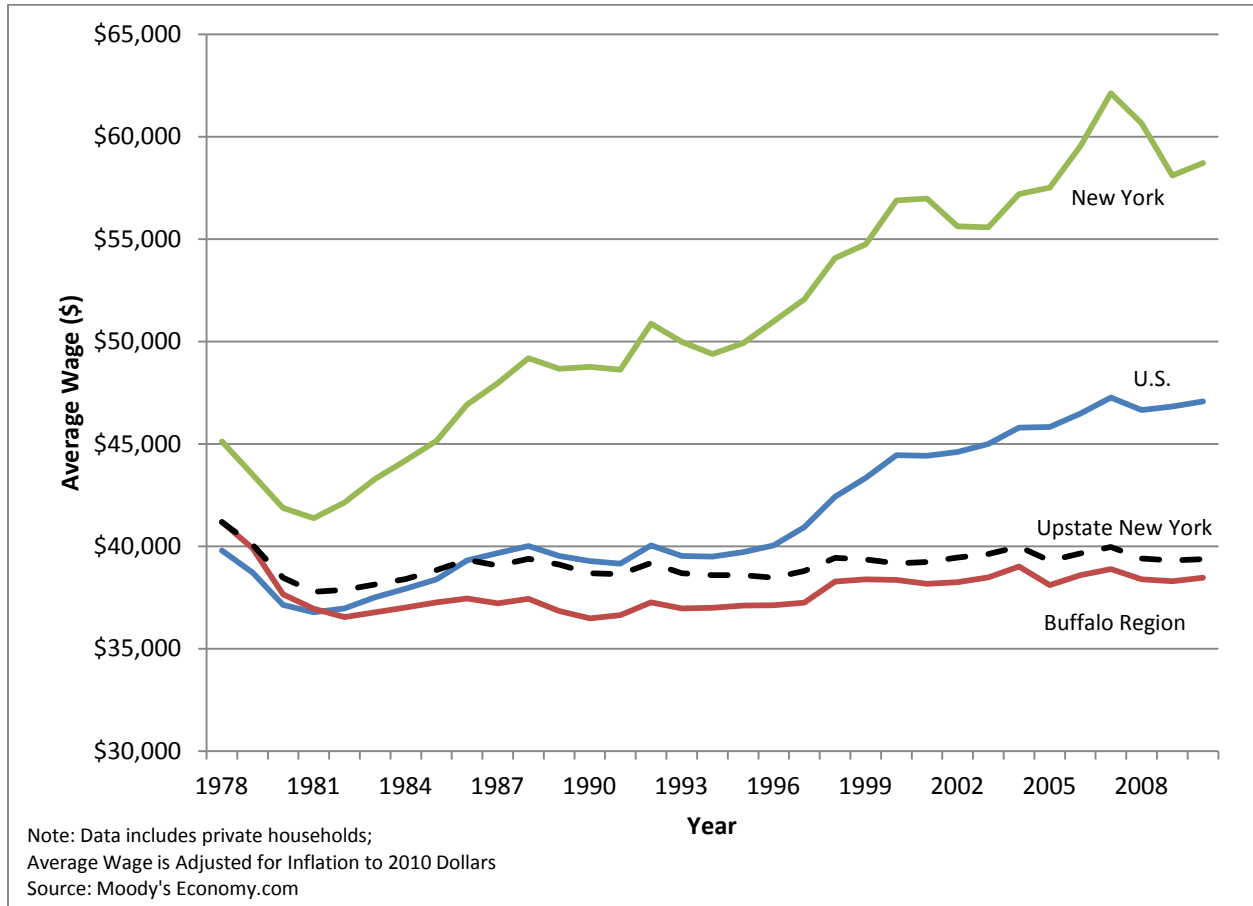
TRENDS IN AVERAGE WAGE

Figure 11. Average Wage in Upstate New York (19-Counties), New York, and the United States, 1978-2010



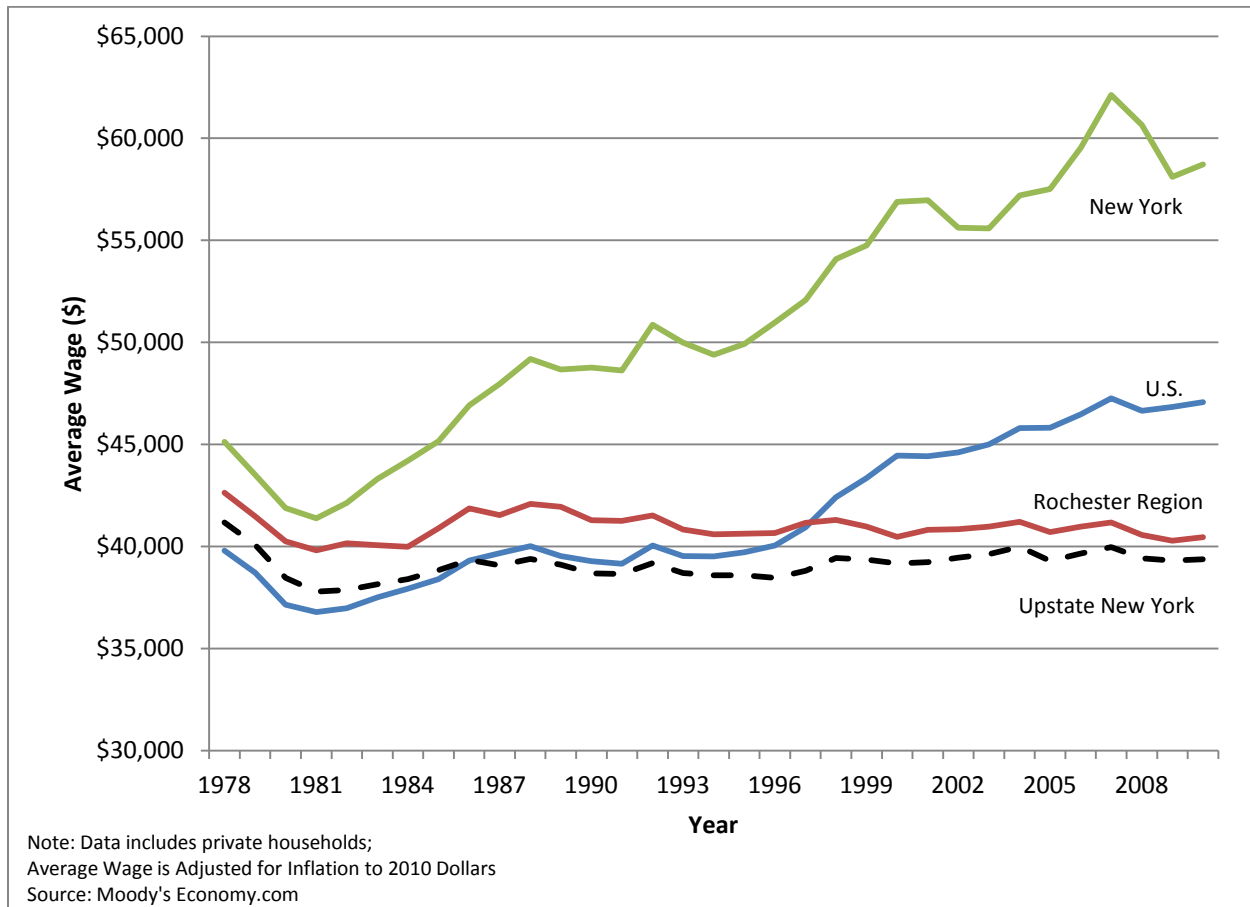
- Wages in Upstate New York have historically been lower than in the state of New York because of driving wages in the New York City region; but from 1978 to approximately 1995 Upstate New York had been competitive with the United States; since then, however, the wage gap has widened (Figure 11).
- In 1978, the average wage gap between the United States (\$38,794) and Upstate New York (\$41,181) was \$1,387 in favor of Upstate New York, but by 2010 it had shifted to \$7,689 in favor of the United States (\$47,067 in the United States versus \$39,378 in Upstate New York).

Figure 12. Average Wage in the Buffalo Region, New York, and the United States, 1978-2010



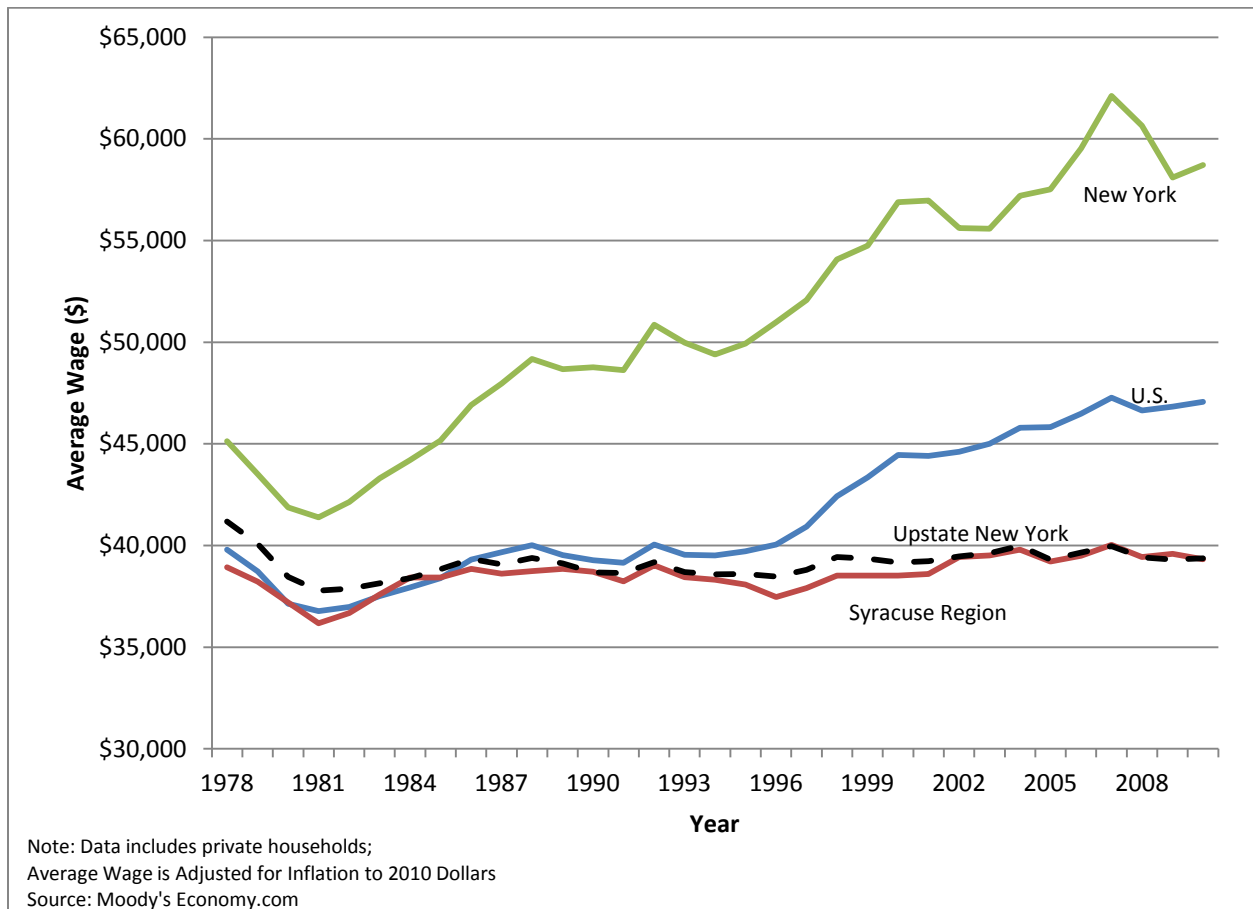
- Wages in the Buffalo region have historically been significantly lower than the state of New York because of driving wages from the New York City region; but the Buffalo region has lagged behind the United States as well and since 1982 the wage gap between the United States and Buffalo has widened (Figure 12).
- In 1978, the average wage gap between the United States (\$39,794) and the Buffalo region (\$41,180) was \$1,386 in favor of the Buffalo region, but by 2010 it had shifted to \$8,598 in favor of the United States (\$47,067 in the United States versus \$38,469 in the Buffalo region).

Figure 13. Average Wage in the Rochester Region, New York, and the United States, 1978-2010



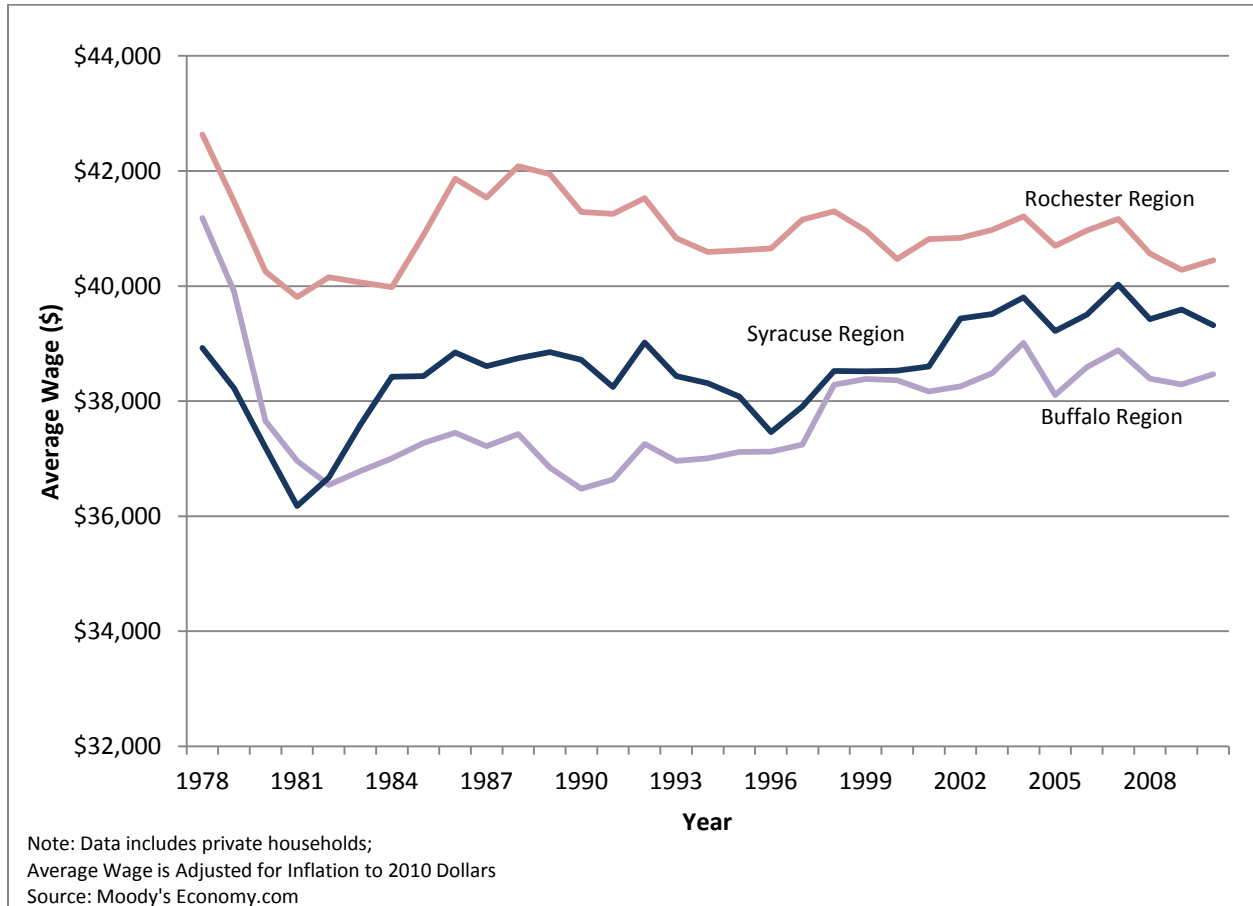
- Wages in the Rochester region have historically been lower than the state of New York because of driving wages from the New York City region; but from 1978 to approximately 1998 the Rochester region had higher wages than the United States; since then, however, the United States has surpassed the Rochester region in average wage growth and this gap has continually widened (Figure 13).
- In 1978, the average wage gap between the United States (\$39,794) and the Rochester region (\$42,632) was \$2,838 in favor of the Rochester region, but by 2010 it had shifted to \$6,618 in favor of the United States (\$47,067 in the United States versus \$40,449 in the Rochester region).

Figure 14. Average Wage in the Syracuse Region, New York, and the United States, 1978-2010



- Wages in the Syracuse region have historically been lower than the state of New York because of the driving wages from the New York City region; the Syracuse region had competitive wages in comparison to the United States until 1984. It was in 1996 that the average wage gap between the United States and the Syracuse region intensified and this gap has continually widened (Figure 14).
- In 1978, the average wage gap between the United States (\$39,794) and the Syracuse region (\$38,922) was \$872 but expanded to \$7,748 in 2010 in favor of the United States (\$47,067 in the United States versus \$39,319 in the Syracuse region).

Figure 15. Average Wage in the Buffalo, Rochester, and Syracuse Regions, 1978-2010



- Comparing all three Upstate New York regions to each other shows the difference in average wages amongst the three regions.
- Of the three regions, the Rochester region has sustained the highest average wage over the last 30 years, ending 2010 with an average wage of \$40,449 (Figure 15).
- Over the last 30 years, only the Syracuse region has had a positive growth rate in average wage (1.0%) while both the Buffalo region (-6.6%) and the Rochester region (-5.1%) have experienced declines in average wage since 1978.
- Of all three regions, the Buffalo region had the lowest average wage in 2010 of \$38,469 in comparison to the Rochester region (\$40,449) and the Syracuse region (\$39,319).

Table 12. Average Wage Change by Major Industry Sector for Upstate New York (19-Counties), New York, and the United States, 2000-2010

Industry Sector	Upstate New York		New York	U.S.
	2010 Average Wage	Percentage Change, 2000-2010		
Utilities	\$96,283	0.1%	-0.8%	8.9%
Management of Companies and Enterprises	\$65,907	-3.0%	3.9%	12.0%
Manufacturing	\$56,479	-1.3%	5.1%	3.9%
Wholesale Trade	\$56,376	12.1%	1.9%	4.5%
Professional, Scientific, and Technical Services	\$55,275	6.3%	10.9%	7.7%
Information	\$54,103	1.8%	3.7%	-0.2%
Finance and Insurance	\$52,209	-7.7%	0.2%	4.9%
Construction	\$48,057	3.2%	9.6%	7.4%
Public Administration	\$44,360	11.9%	10.1%	13.8%
Mining, Quarrying, and Oil and Gas Extraction	\$39,477	-0.9%	-4.0%	14.0%
Transportation and Warehousing	\$38,091	-3.5%	4.6%	1.2%
Health Care and Social Assistance	\$37,099	7.7%	11.8%	11.3%
Educational Services	\$34,294	9.9%	13.3%	15.6%
Administrative and Support and Waste Management and Remediation Services	\$32,609	19.6%	15.9%	13.0%
Real Estate and Rental and Leasing	\$30,663	-13.0%	-1.8%	5.6%
Arts, Entertainment, and Recreation	\$29,774	-0.9%	2.8%	7.9%
Other Services (except Public Administration)	\$24,799	-7.4%	8.4%	6.0%
Retail Trade	\$23,545	0.4%	3.5%	-2.8%
Accommodation and Food Services	\$15,639	-0.1%	-0.5%	-0.1%
Agriculture, Forestry, Fishing and Hunting	\$10,140	12.4%	15.5%	41.2%
TOTAL	\$39,378	0.6%	3.2%	6.0%

Note: Data excludes private households; Average Wage is adjusted for inflation to 2010 dollars

Source: Moody's Economy.com

- The sectors with the highest average wage in Upstate New York were Utilities (\$96,283), Management of Companies and Enterprises (\$65,907), and Manufacturing (\$56,479) (Table 12). Wages in these sectors were either stable (Utilities) between 2000 and 2010, or declined (Management of Companies and Enterprises and Manufacturing)
- Average wages grew in 11 of the 20 industry sectors in Upstate New York between 2000 and 2010, as compared to 16 in New York and 17 in the United States.

Table 13. Average Wage Change by Major Industry Sector for the Buffalo, Rochester and Syracuse Regions 2000-2010

Industry Sector	Buffalo Region (Western New York Region)		Rochester Region (Finger Lakes Region)		Syracuse Region (Central New York Region)	
	2010 Average Wage (\$)	Percentage Change (2000-2010)	2010 Average Wage (\$)	Percentage Change (2000-2010)	2010 Average Wage (\$)	Percentage Change (2000-2010)
Utilities	\$91,985	9.6%	\$67,063	-20.3%	\$114,874	3.5%
Management of Companies and Enterprises	\$55,349	-9.0%	\$78,792	3.6%	\$57,213	-3.9%
Manufacturing	\$55,940	-3.1%	\$58,034	0.8%	\$54,370	-2.0%
Wholesale Trade	\$54,193	19.1%	\$60,516	11.1%	\$54,430	2.9%
Professional, Scientific, and Technical Services	\$52,499	8.2%	\$57,882	2.3%	\$56,365	12.3%
Information	\$49,956	16.9%	\$57,244	-11.4%	\$55,378	5.4%
Finance and Insurance	\$50,853	-5.7%	\$54,263	-11.2%	\$52,579	-6.5%
Construction	\$47,104	4.2%	\$48,649	1.0%	\$48,747	4.9%
Public Administration	\$46,055	8.8%	\$43,529	15.3%	\$42,559	13.2%
Mining, Quarrying, and Oil and Gas Extraction	\$64,044	8.9%	\$26,377	-18.3%	\$19,106	-10.7%
Transportation and Warehousing	\$39,634	-1.9%	\$35,805	-6.9%	\$37,859	-2.6%
Health Care and Social Assistance	\$35,640	5.1%	\$36,904	8.4%	\$40,067	10.4%
Educational Services	\$27,174	21.9%	\$39,912	2.2%	\$30,264	11.2%
Administrative and Support and Waste Management and Remediation Services	\$31,650	14.9%	\$34,215	21.9%	\$32,106	27.2%
Real Estate and Rental and Leasing	\$30,752	-17.7%	\$28,832	-13.1%	\$33,630	-4.5%
Arts, Entertainment, and Recreation	\$46,700	10.2%	\$21,005	-9.6%	\$14,742	-22.6%
Other Services (except Public Administration)	\$22,930	-13.1%	\$24,530	-5.3%	\$29,106	1.7%
Retail Trade	\$22,452	-3.7%	\$24,157	1.0%	\$24,618	6.8%
Accommodation and Food Services	\$15,401	2.6%	\$15,882	-3.8%	\$15,757	0.7%
Agriculture, Forestry, Fishing and Hunting	\$6,494	-3.1%	\$13,753	19.2%	\$8,407	12.7%
TOTAL	\$38,474	0.3%	\$40,447	0.0%	\$39,316	2.1%

Note: Data excludes private households; Average Wage is adjusted for inflation to 2010 dollars

Source: Moody's Economy.com

- Utilities had the highest average wage in two of the three regions: Buffalo (\$91,985) and Syracuse (\$114,874) (Table 13). The highest wage in the Rochester region was in Management of Companies and Enterprises (\$78,792)
- Average wages grew in 12 of the 20 industry sectors in the Buffalo region between 2000 and 2010, as compared to 11 in the Rochester region and 13 in the Syracuse region.
- Of the three regions, Rochester had the highest average wages at \$40,447, followed by the Syracuse region (\$39,316), and the Buffalo region (\$38,474).

HIGH PERFORMANCE INDUSTRIES

UPSTATE NEW YORK (19-COUNTIES)

To identify which industries in Upstate New York are outperforming others in the region and nationally, we analyzed data at a finer detail level of industry sectors (4-digit NAICS). This analysis explores 283 industry sectors in greater depth.

“WINNING” INDUSTRIES – TIER I

To examine these high performance industries we selected industries that meet all of the following criteria:

1. **Percent Employment Change (2000-2010) > 1%** – to show employment growth
 2. **Average Wage (2010) > \$49,222.50³⁹** – to find industries that have livable wages
 3. **Percent Change in Gross Product (2000-2010) > 0.1%** – to show positive growth in output
 4. **Gross Product Location Quotient⁴⁰ (2010) > 1.2⁴¹** - to find industries that are more concentrated in Upstate New York relative to the United States.
 5. **2010 Employment > 500 employees** – to find large driver industries in the Upstate New York region.
- Table 14 shows the five industries that met the above criteria for Tier I winning industries in Upstate New York, two of which are in the Manufacturing sector (NAICS 31-33), one in the Finance and Insurance sector (NAICS 52), one in the Administrative and Support and Waste Management and Remediation Services (NAICS 56), and one in Arts, Entertainment, and Recreation industry (NAICS 71).
 - These five Tier I industries have a gross product LQ greater than 1.2 indicating the region specializes in these industries compared to the nation, have livable wages, and experienced growth in both employment and output, and are fairly large employers.
 - The largest Tier I winning industry is Insurance Carriers with 2010 employment of 15,384 and a gross product of \$2.6 billion. This single industry accounted for 2% of overall gross product in the Upstate New York region.

³⁹ This calculation was taken as 25% above the Upstate New York (19-Counties) average wage in Table 12.

⁴⁰ Location Quotient measures the specialization of an industry in a region by comparing it to data in a larger region. For our analysis:
$$LQ = \frac{\text{Upstate New York (19-Counties) gross product in industry} / \text{Total in Upstate New York (19-Counties) gross product}}{\text{US gross product in industry} / \text{Total US gross product}}$$

⁴¹ A location quotient >1.2 indicates specialization in an industry.

Table 14. Industry Winners (Tier I) in Upstate New York (19-Counties) for Employment, Gross Product, and Average Wage

		Upstate New York (19-Counties)														
		Employment					GDP					Average wage				
NAICS	NAICS Description	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2010	2000 (\$Mil)	2010 (\$Mil)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010	2000 (\$)	2010 (\$)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3115	Dairy Product Manufacturing	3,271	3,507	236	7.2%	2.60	\$433.4	\$599.1	\$165.7	38.2%	3.95	\$58,350	\$56,387	-\$1,963	-3.4%	1.15
3391	Medical Equipment and Supplies Manufacturing	6,646	7,062	416	6.3%	2.03	\$749.2	\$1,060.7	\$311.4	41.6%	2.53	\$73,721	\$57,900	-\$15,821	-21.5%	1.11
5241	Insurance Carriers	14,651	15,384	733	5.0%	1.07	\$1,847.3	\$2,625.3	\$777.9	42.1%	1.36	\$57,401	\$55,918	-\$1,484	-2.6%	0.92
5629	Remediation and Other Waste Management Services	1,527	1,747	220	14.4%	1.17	\$170.8	\$256.5	\$85.7	50.2%	1.98	\$50,553	\$70,568	\$20,016	39.6%	1.74
7112	Spectator Sports	1,631	1,857	226	13.9%	1.18	\$301.5	\$448.5	\$147.0	48.7%	1.66	\$119,384	\$147,013	\$27,629	23.1%	1.53

Source: Moody's Economy.com

“WINNING” INDUSTRIES – TIER II

The main reason for the small number of Tier I winning industries was employment change. Only 91 out of the 283 industries (32%) selected for this finer detailed industry analysis had positive employment change from 2000 to 2010.

Since there were only five Tier I winning industries in Upstate New York, we looked to find industries that are surviving the economic storm, which we will call Tier II winning industries. For Tier II winning industries, we selected industries that met four of the five criteria (all those chosen for Tier I except employment growth):

1. **Average Wage (2009) > \$49,222.50⁴²** – to find industries that have livable wages
 2. **Percent Change in Gross Product (2000-2010) > 0.1%** – to show positive growth in output
 3. **Gross Product Location Quotient⁴³ (2009) > 1.2⁴⁴** - to find industries that are more concentrated in Upstate New York relative to the United States.
 4. **2010 Employment > 500 employees** – to find large driver industries in the Upstate New York region.
- Table 15 lists the 10 industries that are Tier II winning industries in Upstate New York. Of those 10, eight are in Manufacturing (NAICS 31-33); one in the Wholesale Trade sector (NAICS 42); and one in Information (NAICS 51). All industries in Table 15 lost significant employment from 2000 to 2010; nine of the 10 industries reported double digit employment losses over this period.
 - The top five employers for 2010 out of the Tier II industries are Wired Telecommunication Carriers (7,833), Electrical and Electronic Goods Merchant Wholesalers (4,198), Pharmaceutical and Medicine Manufacturing (2,696), Electrical Equipment Manufacturing (2,569), and Basic Chemical Manufacturing (2,297).
 - Four of the Tier II industries had less than 1,000 employees. These eight industries (Animal Food Manufacturing; Grain and Oilseed Milling; Soap, Cleaning Compound, and Toilet Preparation Manufacturing; and Steel Product Manufacturing from Purchased Steel) are all within the manufacturing sector and are high-wage industries.
 - While all Tier II industries had an increase in gross product from 2000 to 2010 (under criterion #2), most had significant employment loss over this period. This indicates that even though employers were shedding workers their output increased, demonstrating productivity increases in these sectors.

⁴² This calculation was taken as 25% above the Upstate New York (19-Counties) average wage in Table 12.

⁴³ Location Quotient measures the specialization of an industry in a region by comparing it to data in a larger region. For our analysis:
$$LQ = \frac{\frac{GPI_{i,region}}{GPI_{region}}}{\frac{GPI_{i,US}}{GPI_{US}}}$$
 where $GPI_{i,region}$ = Upstate New York (19-Counties) gross product in industry GPI_{region} = Total in Upstate New York (19-Counties) gross product; $GPI_{i,US}$ = US gross product in industry ; GPI_{US} = Total US gross product

⁴⁴ A location quotient >1.2 indicates specialization in an industry.

Table 15. Industry Winners (Tier II) in Upstate New York (19-Counties) for Employment, Gross Product, and Average Wage

		Upstate New York (19-Counties)														
		Employment					GDP					Average wage				
NAICS	NAICS Description	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2010	2000 (\$Mil)	2010 (\$Mil)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010	2000 (\$)	2010 (\$)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3111	Animal Food Manufacturing	868	700	-168	-19.4%	1.32	\$120.3	\$123.8	\$3.5	2.9%	1.98	\$60,399	\$55,365	-\$5,034	-8.3%	1.15
3112	Grain and Oilseed Milling	699	572	-127	-18.2%	0.87	\$100.9	\$112.5	\$11.6	11.5%	1.31	\$62,675	\$57,658	-\$5,018	-8.0%	1.08
3251	Basic Chemical Manufacturing	3,613	2,297	-1,316	-36.4%	1.47	\$790.2	\$1,165.5	\$375.3	47.5%	2.26	\$74,712	\$69,862	-\$4,850	-6.5%	0.98
3254	Pharmaceutical and Medicine Manufacturing	3,607	2,696	-911	-25.3%	0.85	\$1,136.2	\$2,411.1	\$1,275.0	112.2%	2.52	\$112,450	\$137,569	\$25,119	22.3%	1.53
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	1,606	564	-1,042	-64.9%	0.47	\$276.5	\$527.1	\$250.6	90.6%	2.71	\$56,062	\$140,407	\$84,345	150.5%	3.09
3312	Steel Product Manufacturing from Purchased Steel	1,309	876	-433	-33.1%	1.64	\$127.6	\$161.9	\$34.3	26.9%	2.15	\$50,077	\$65,934	\$15,857	31.7%	1.19
3314	Nonferrous Metal (except Aluminum) Production and Processing	2,212	1,739	-473	-21.4%	2.24	\$278.8	\$286.2	\$7.4	2.7%	2.94	\$64,691	\$55,426	-\$9,265	-14.3%	1.28
3353	Electrical Equipment Manufacturing	3,086	2,569	-517	-16.8%	1.81	\$298.5	\$437.1	\$138.7	46.5%	2.06	\$52,195	\$51,511	-\$685	-1.3%	0.95
4236	Electrical and Electronic Goods Merchant Wholesalers	4,608	4,198	-410	-8.9%	1.16	\$548.1	\$591.0	\$42.9	7.8%	1.22	\$61,957	\$65,998	\$4,041	6.5%	1.04
5171	Wired Telecommunications Carriers	11,990	7,833	-4,157	-34.7%	1.15	\$3,252.7	\$5,184.0	\$1,931.3	59.4%	2.66	\$62,786	\$73,094	\$10,308	16.4%	1.12

Source: Moody's Economy.com

Figure 16. Industry Winners (Tier I & II): Average Wage by Employment Change, and Employment Level for Upstate New York (19-Counties)

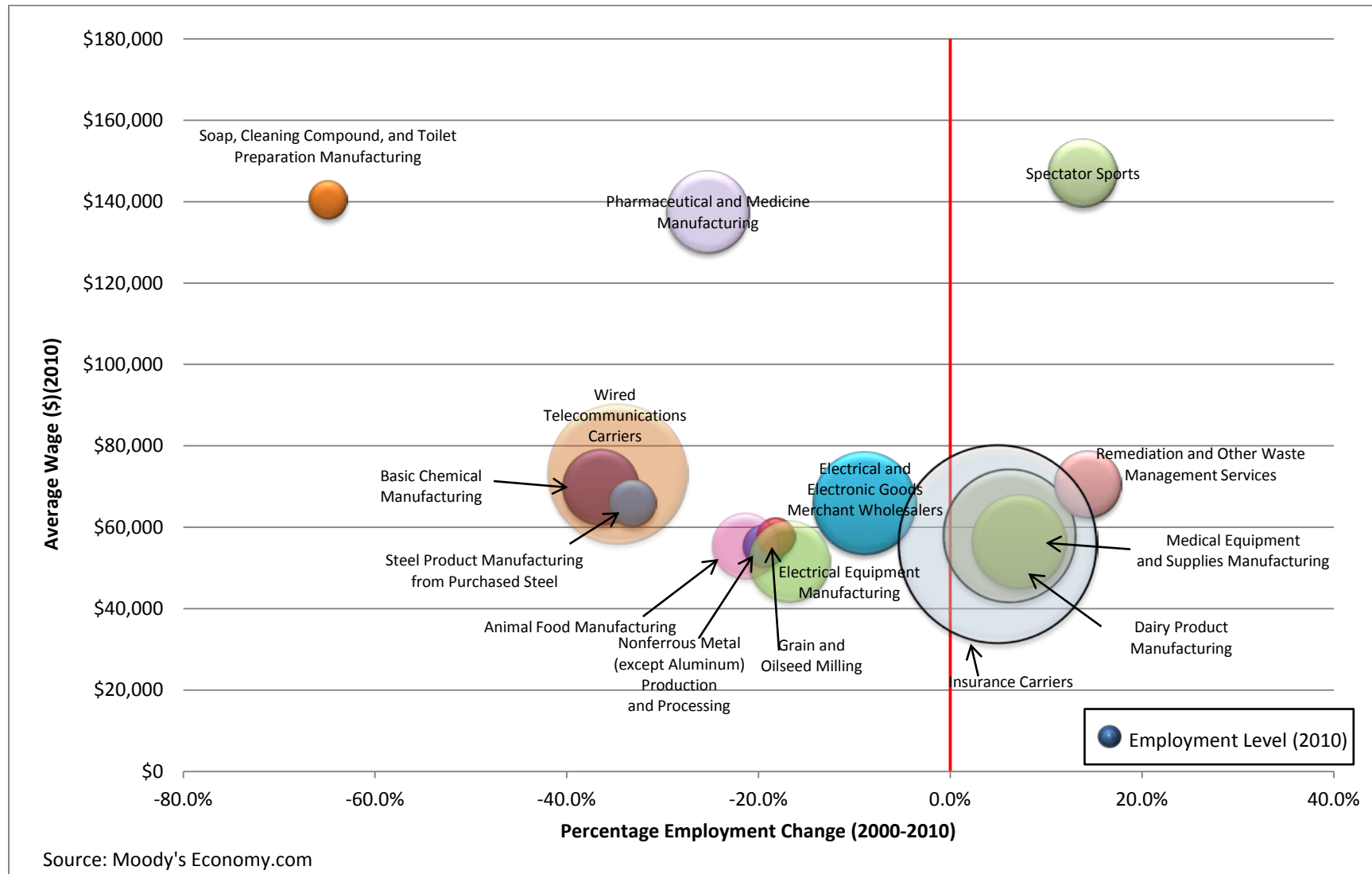
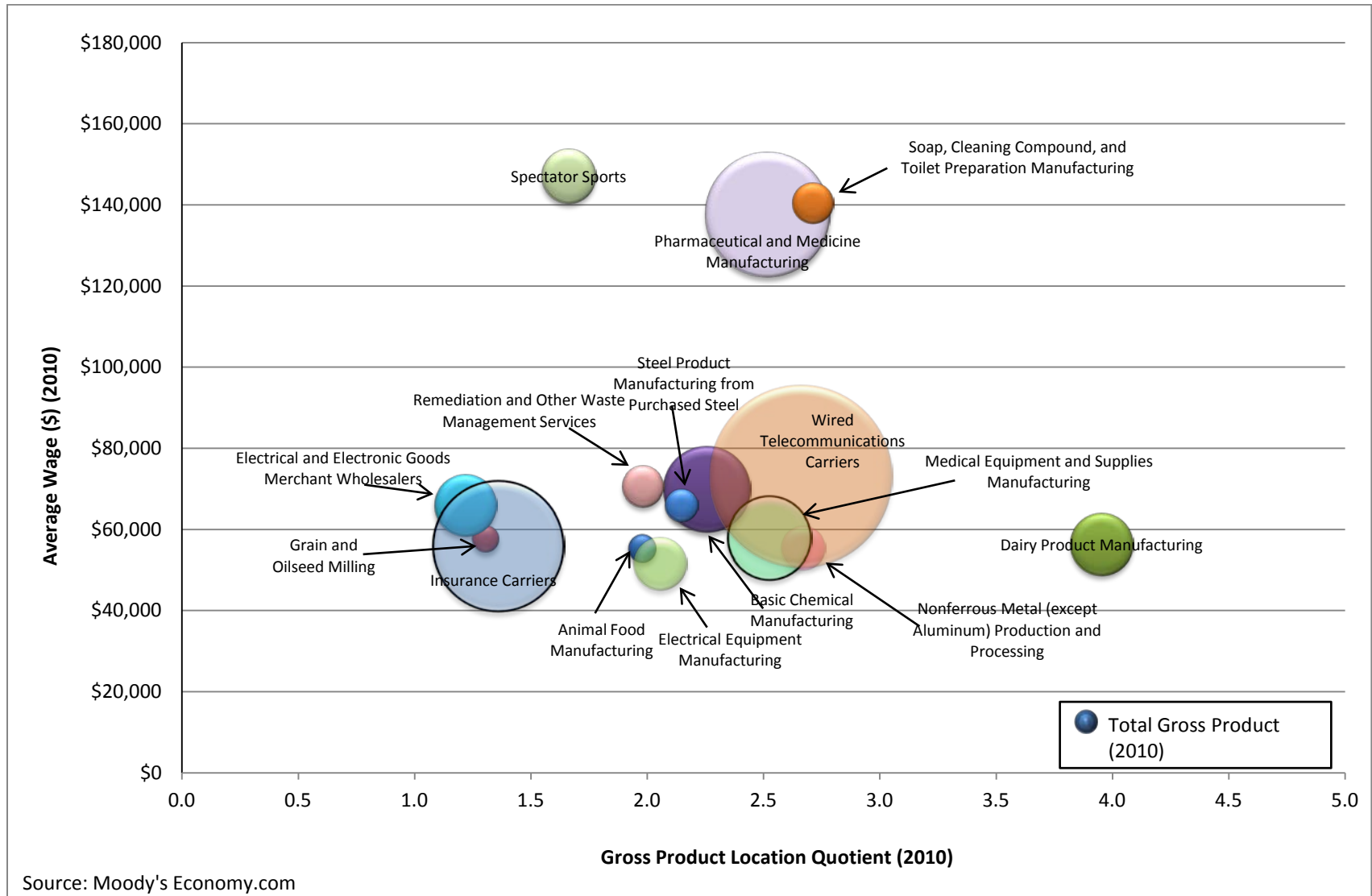


Figure 17. Industry Winners (Tier I & II): Average Wage by Location Quotient, and Total Gross Product for Upstate New York (19-Counties)



AVERAGE WAGE BY EMPLOYMENT CHANGE AND EMPLOYMENT LEVEL

- One industry from Tier I – Spectator Sports – (Table 14) experienced growth in employment between 2000 and 2010 and is paying very high wages (Figure 16). Five Tier I industries experienced employment growth and had average wages of over \$55,000. Of the 10 Tier II industries, 9 had average wages of over \$55,000.
- In Tier I and Tier II, industries with the largest employment include Insurance Carriers; Wired Telecommunications; Medical Equipment and Supplies Manufacturing; Medical Equipment and Supplies Manufacturing; Electrical and Electronic Goods Merchant Wholesalers; and Dairy Product Manufacturing (Figure 16).

AVERAGE WAGE BY LOCATION QUOTIENT AND TOTAL GROSS PRODUCT

- One Tier I industry that stands out when examining average wage, gross product location quotient, and total gross product is Dairy Product Manufacturing. This industry has a gross product location quotient of almost 4, indicating that the Upstate New York region is highly specialized in Dairy Product Manufacturing compared to the nation. Additionally, this industry has high wages and large employment (Figure 17).
- The industries of Spectator Sports; Pharmaceutical and Medicine Manufacturing; and Soap, Cleaning Compound, and Toilet Preparation Manufacturing all have high wages and a gross product location quotient greater than 1.2 indicating these industries are specialists in their field in the nation. However, these three industries are significantly different in gross product size. The Spectator Sports industry (\$448.5 million) and the Soap, Cleaning Compound, and Toilet Preparation Manufacturing industry (\$599.1 million) are much smaller than the Pharmaceutical and Medicine Manufacturing industry (\$1.1 billion).

EMPLOYMENT LOCATION QUOTIENT

Table 16. Industry Sectors in which Employment Location Quotient was Greater than 3 for Upstate New York (19-Counties)

		Upstate New York (19-Counties)				
		Employment				
NAICS	NAICS Description	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3259	Other Chemical Product and Preparation Manufacturing	30,855	7,918	-22,937	-74.3%	8.07
3333	Commercial and Service Industry Machinery Manufacturing	16,058	6,581	-9,477	-59.0%	5.49
6112	Junior Colleges	2,446	3,502	1,056	43.2%	4.58
6113	Colleges, Universities, and Professional Schools	36,081	50,142	14,061	39.0%	3.11
8131	Religious Organizations	10,186	13,909	3,723	36.6%	3.62

Source: Moody's Economy.com

- Excluding all other criteria, the five industries above represent the industries with an employment location quotient (LQ) greater than 3. With such a high LQ, the region is a national specialist in these industries (Table 16).
- Two of the industries in Table 16 are in the Manufacturing sector and represent 0.9% of all employment in Upstate New York in 2010, while two industries are in the Educational Services sector representing 3.4% of all employment.
- Two of the five industries above lost significant employment from 2000 to 2010; both were in the Manufacturing sector (Other Chemical Product and Preparation Manufacturing; and Commercial and Service Industry Machinery Manufacturing). Combined, both of these industries shed over 32,000 jobs over this time period. However, the region still has a high specialization in these industries relative to the U.S.
- The largest employer in Table 16 is Colleges, Universities, and Professional Schools, which accounted for 3% of overall employment in Upstate New York. In addition, this sector grew by 39% over the 10-year period, but the average wage in this industry for 2010 was \$42,069, below the criteria for a Winning Industry.
- Interestingly, none of these industries appears on the Tier I or Tier II winning industry list (Table 14 & 15) because the industries listed in Table 16 had a negative change in output or lower wages.

GROSS PRODUCT LOCATION QUOTIENT

Table 17. Industry Sectors in which Gross Product Location Quotient was Greater than 3 for Upstate New York (19-Counties)

		Upstate New York (19-Counties)				
		Gross Product				
NAICS	NAICS Description	2000 (\$Mil)	2010 (\$Mil)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	\$5,695.4	\$5,530.0	-\$165.4	-2.9%	3.22
3115	Dairy Product Manufacturing	\$4,334.4	\$5,991.1	\$1,656.7	38.2%	3.95
3159	Apparel Accessories and Other Apparel Manufacturing	\$894.6	\$429.2	-\$465.4	-52.0%	5.15
3259	Other Chemical Product and Preparation Manufacturing	\$41,079.9	\$26,577.1	-\$14,502.8	-35.3%	15.18
3271	Clay Product and Refractory Manufacturing	\$3,067.1	\$2,077.0	-\$990.1	-32.3%	4.60
3333	Commercial and Service Industry Machinery Manufacturing	\$23,330.5	\$8,974.6	-\$14,355.9	-61.5%	7.85
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	\$5,354.5	\$3,957.2	-\$1,397.3	-26.1%	3.20
4542	Vending Machine Operators	\$745.2	\$883.7	\$138.6	18.6%	3.51
6113	Colleges, Universities, and Professional Schools	\$16,676.6	\$26,308.3	\$9,631.6	57.8%	3.16
8131	Religious Organizations	\$696.8	\$1,702.2	\$1,005.5	144.3%	4.71

Source: Moody's Economy.com

- Excluding all other criteria, the 10 industries in Table 17 represent the industries with a gross product location quotient (LQ) greater than 3. Upstate New York is a national specialist in industries with such a high LQ.
- Seven of the 10 industries in Table 17 are in the Manufacturing sector and represent 38.8% of all Manufacturing gross product in Upstate New York in 2010.
- The industry Other Chemical Product and Preparation Manufacturing has an extremely high gross product location quotient of 15.18, demonstrating that this sector is an extreme specialist in Upstate New York economy in comparison to the United States. This industry experienced a significant decline in its gross product from \$41.1 billion in 2000 to \$26.6 billion in 2010 (-35.3%).
- Six of the 10 industries listed experienced a decline in gross product from 2000 to 2010.
- Only one of the 12 industries appears on the Tier I winning industry list (Table 14): Dairy Product Manufacturing (NAICS 3115).

THE BUFFALO REGION (WESTERN NEW YORK REGION)

To identify which industries in the Buffalo region are outperforming others in the region and nationally, we analyzed data at a finer detail level of industry sectors (4-digit NAICS). This analysis explores 283 industry sectors in greater depth.

“WINNING” INDUSTRIES – TIER I

To examine these high performance industries we selected industries that meet all of the following criteria:

1. **Percent Employment Change (2000-2010) > 1%** – to show employment growth
 2. **Average Wage (2010) > \$48,092.50⁴⁵** – to find industries that have livable wages
 3. **Percent Change in Gross Product (2000-2010) > 0.1%** – to show positive growth in output
 4. **Gross Product Location Quotient⁴⁶ (2010) > 1.2⁴⁷** - to find industries that are more concentrated in the Buffalo region relative to the United States.
 5. **2010 Employment > 250 employees** – to find large driver industries in the Buffalo region.
- These six Tier I industries have a gross product LQ greater than 1.2 indicating these industries are specialists in their field compared to the nation, have livable wages, experienced growth in both employment and output, and are fairly large employers (Table 18).
 - Table 18 shows the six industries that met the above criteria for Tier I winning industries in the Buffalo region, one of which is in the Manufacturing sector (NAICS 31-33), one in the Finance and Insurance sector (NAICS 52), one Professional, Scientific, and Technical Services (NAICS 54), one in Administrative and Support and Waste Management and Remediation Services (NAICS 56), one in Arts, Entertainment, and Recreation (NAICS 71), and one in Other Services (except Public Administration) (NAICS 81).
 - The industry with the largest employment in Table 18 is Insurance Carriers with 2010 employment of 6,091. This single industry accounted for 1% of overall employment in the Buffalo region.
 - Combined, the six industries in Table 18 account for 2.5% of total employment and 2.1% of total gross product in the Buffalo region.

⁴⁵ This calculation was taken as 25% above the average wage for the Buffalo Region in Table 13.

⁴⁶ Location Quotient measures the specialization of an industry in a region by comparing it to data in a larger region. For our analysis:
$$LQ = \frac{\text{Buffalo region gross product in industry}}{\text{Total in the Buffalo region gross product}} \div \frac{\text{US gross product in industry}}{\text{Total US gross product}}$$
 where = the Buffalo region gross product in industry ; = Total in the Buffalo region gross product; = US gross product in industry ; = Total US gross product

⁴⁷ A location quotient >1.2 indicates specialization in an industry.

Table 18. Industry Winners (Tier I) in the Buffalo Region for Employment, Gross Product, and Average Wage

		Buffalo Region														
		Employment					GDP					Average wage				
NAICS	NAICS Description	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2010	2000 (\$Mil)	2010 (\$Mil)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010	2000 (\$)	2010 (\$)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3115	Dairy Product Manufacturing	1,925	2,160	235	12.2%	3.91	\$253.2	\$403.5	\$150.4	59.4%	6.65	\$57,910	\$61,662	\$3,752	0.1%	1.29
5241	Insurance Carriers	4,658	6,091	1,433	30.8%	1.03	\$564.1	\$1,046.8	\$482.7	85.6%	1.35	\$55,134	\$56,313	\$1,179	0.0%	0.95
5417	Scientific Research and Development Services	4,364	4,437	73	1.7%	1.47	\$521.8	\$765.4	\$243.6	46.7%	1.68	\$68,089	\$91,106	\$23,018	0.3%	1.08
5629	Remediation and Other Waste Management Services	947	985	38	4.0%	1.61	\$106.8	\$148.5	\$41.6	39.0%	2.87	\$50,997	\$72,447	\$21,451	0.4%	1.82
7112	Spectator Sports	814	955	141	17.3%	1.48	\$243.6	\$377.6	\$134.0	55.0%	3.50	\$193,244	\$240,665	\$47,421	0.2%	2.57
8133	Social Advocacy Organizations	1,129	1,611	482	42.7%	1.18	\$93.4	\$170.1	\$76.7	82.2%	1.31	\$52,988	\$61,265	\$8,277	0.2%	1.08

Source: Moody's Economy.com

“WINNING” INDUSTRIES – TIER II

The main reason for the small number of Tier I winning industries was employment change. Only 85 out of the 283 industries (30%) selected for this finer detailed level of industry analysis had positive employment change from 2000 to 2010.

Since there were only eight Tier I winning industries in the Buffalo region, we looked to find industries that are surviving the economic storm, which we will call Tier II winning industries. For Tier II winning industries, we selected industries that met four of the five criteria (all those chosen for Tier I except employment growth):

1. **Average Wage (2010) > \$48,092.50⁴⁸** – to find industries that have livable wages
 2. **Percent Change in Gross Product (2000-2010) > 0.1%** – to show positive growth in output
 3. **Gross Product Location Quotient⁴⁹ (2010) > 1.2⁵⁰** - to find industries that are more concentrated in the Buffalo region relative to the United States.
 4. **2010 Employment > 250 employees** – to find large driver industries in the Buffalo region.
- Table 19 lists the 13 industries that are Tier II winning industries in the Buffalo region. Of those 12, one is in the Utilities sector (NAICS 22), seven are in Manufacturing (NAICS 31-33); two in the Wholesale Trade sector (NAICS 42); one is in Transportation and Warehousing (NAICS 48); one in Information (NAICS 51); and one in Arts, Entertainment, and Recreation (NAICS 71).
 - The top 5 employers for 2010 out of the Tier II industries are Professional and Commercial Equipment and Supplies Merchant Wholesalers (3,570), Plastics Product Manufacturing (2,913), Wired Telecommunications Carriers (2,481), Basic Chemical Manufacturing (2,125), and Electrical Equipment Manufacturing (1,839).
 - Four of the Tier II industries had less than 500 employees. These four industries (Animal Food Manufacturing; Grain and Oilseed Milling; Deep Sea, Coastal, and Great Lakes Water Transportation; and Promoters of Performing Arts, Sports, and Similar Events) are mostly high-wage industries, but account for only a very small portion (7.1%) of all employment in the Tier II industries.
 - While all Tier II industries had an increase in gross product from 2000 to 2010 (under criterion #2), most had significant employment loss over this period. This indicates that even though employers were shedding workers, their output increased, demonstrating productivity increases in these sectors.

⁴⁸ This calculation was taken as 25% above the average wage for the Buffalo region in Table 13.

⁴⁹ Location Quotient measures the specialization of an industry in a region by comparing it to data in a larger region. For our analysis:
$$LQ = \frac{\text{Buffalo region gross product in industry}}{\text{Total in the Buffalo region gross product}} \div \frac{\text{US gross product in industry}}{\text{Total US gross product}}$$

US gross product in industry ; = Total US gross product

⁵⁰ A location quotient >1.2 indicates specialization in an industry.

Table 19. Industry Winners (Tier II) in the Buffalo Region for Employment, Gross Product, and Average Wage

		Buffalo Region														
		Employment					GDP					Average wage				
NAICS	NAICS Description	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2010	2000 (\$Mil)	2010 (\$Mil)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010	2000 (\$)	2010 (\$)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
2212	Natural Gas Distribution	1,069	858	-211	-19.7%	1.39	\$223.5	\$424.8	\$201.3	90.0%	1.60	\$44,978	\$51,506	\$6,529	0.1%	0.77
3111	Animal Food Manufacturing	544	418	-126	-23.2%	1.92	\$79.1	\$82.9	\$3.8	4.8%	3.31	\$63,381	\$62,106	-\$1,275	0.0%	1.33
3112	Grain and Oilseed Milling	445	341	-104	-23.4%	1.26	\$67.0	\$75.5	\$8.5	12.7%	2.19	\$65,338	\$64,899	-\$438	0.0%	1.24
3251	Basic Chemical Manufacturing	3,391	2,125	-1,266	-37.3%	3.32	\$733.3	\$1,023.0	\$289.7	39.5%	4.95	\$73,863	\$66,281	-\$7,582	-0.1%	0.95
3254	Pharmaceutical and Medicine Manufacturing	1,746	1,734	-12	-0.7%	1.33	\$513.9	\$1,017.5	\$503.6	98.0%	2.65	\$105,080	\$90,263	-\$14,817	-0.1%	1.03
3261	Plastics Product Manufacturing	3,265	2,913	-352	-10.8%	1.23	\$283.6	\$338.5	\$54.9	19.3%	2.16	\$46,506	\$53,376	\$6,869	0.1%	1.47
3312	Steel Product Manufacturing from Purchased Steel	815	588	-227	-27.9%	2.70	\$86.4	\$115.5	\$29.1	33.7%	3.83	\$54,478	\$70,084	\$15,606	0.3%	1.30
3353	Electrical Equipment Manufacturing	2,270	1,839	-431	-19.0%	3.16	\$225.7	\$307.1	\$81.4	36.1%	3.61	\$53,655	\$50,545	-\$3,110	-0.1%	0.95
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	2,192	1,376	-816	-37.2%	0.92	\$179.0	\$181.0	\$2.0	1.1%	1.54	\$42,147	\$61,616	\$19,469	0.5%	1.66
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	4,848	3,570	-1,278	-26.4%	1.17	\$521.7	\$525.1	\$3.4	0.7%	1.21	\$56,376	\$74,814	\$18,437	0.3%	1.06
4831	Deep Sea, Coastal, and Great Lakes Water Transportation	281	253	-28	-10.0%	1.27	\$43.7	\$51.5	\$7.8	17.8%	1.75	\$59,844	\$84,218	\$24,375	0.4%	1.38
5171	Wired Telecommunications Carriers	4,435	2,481	-1,954	-44.1%	0.89	\$973.5	\$1,501.1	\$527.6	54.2%	1.92	\$50,802	\$66,822	\$16,019	0.3%	1.05
7113	Promoters of Performing Arts, Sports, and Similar Events	545	325	-220	-40.4%	0.73	\$36.1	\$36.8	\$0.7	1.9%	1.54	\$38,233	\$65,083	\$26,850	0.7%	2.31

Source: Moody's Economy.com

Figure 18. Industry Winners (Tier I & II): Average Wage by Employment Change, and Employment Level for the Buffalo Region

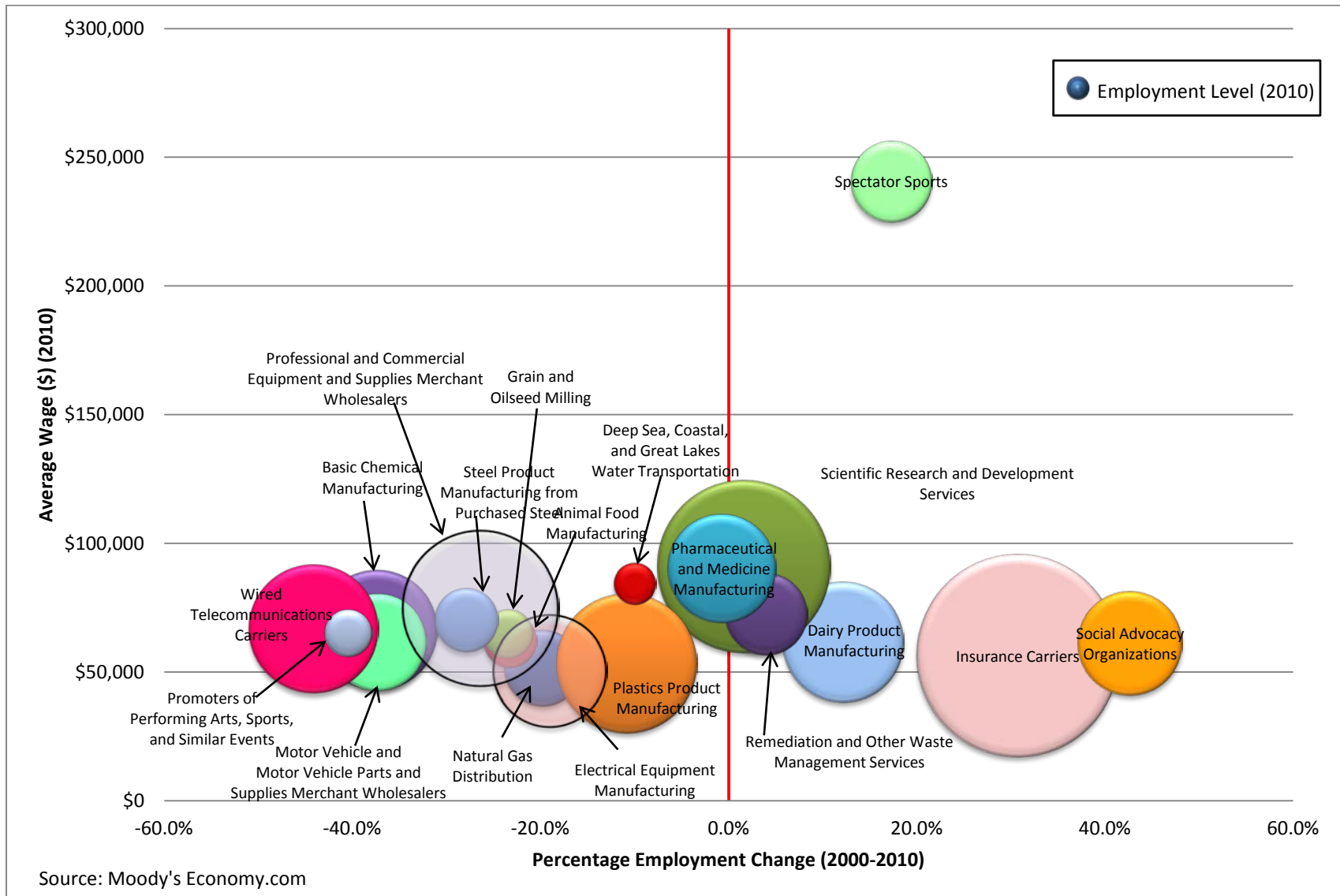
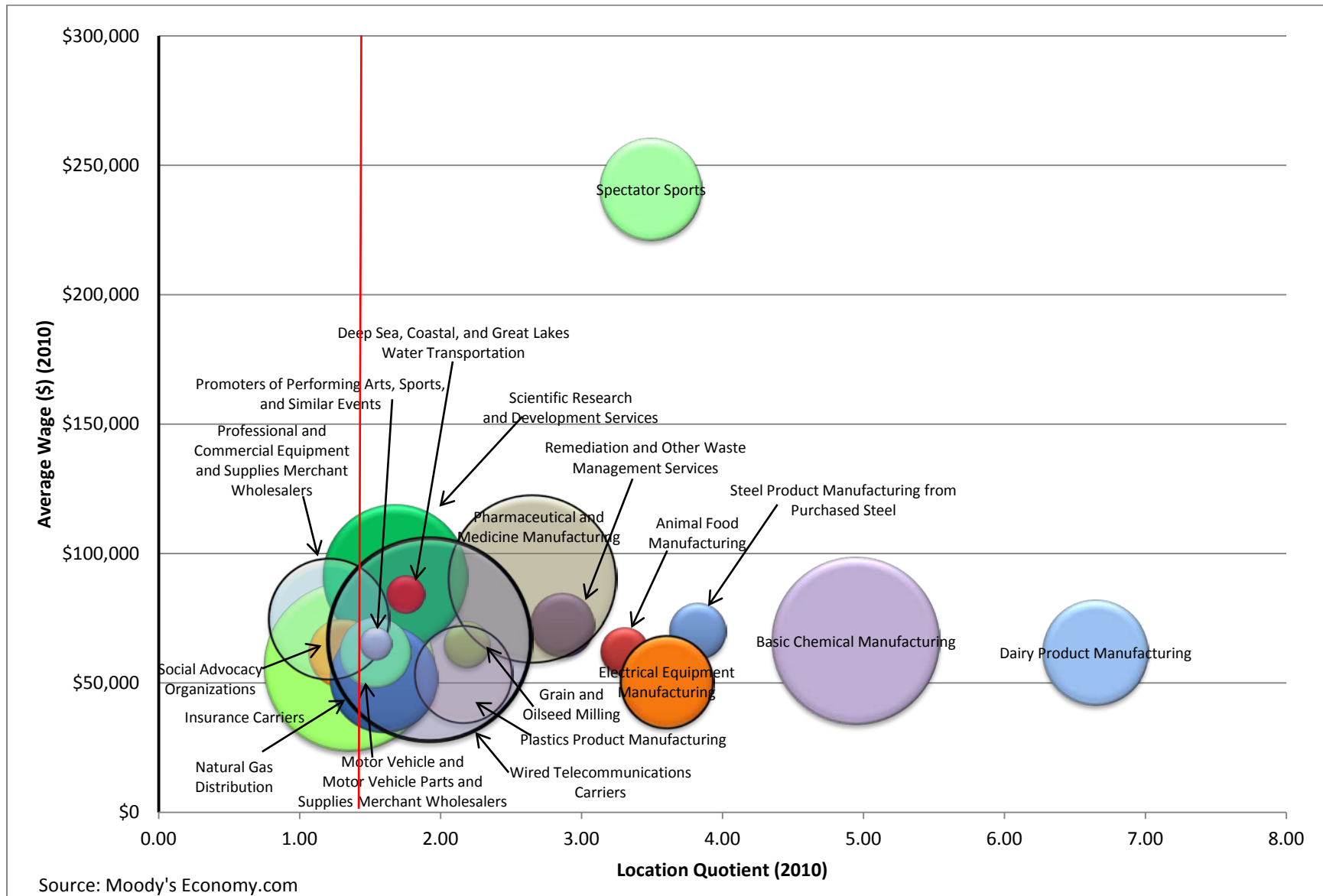


Figure 19. Industry Winners (Tier I & II): Average Wage by Location Quotient, and Total Gross Product for the Buffalo Region



AVERAGE WAGE BY EMPLOYMENT CHANGE AND EMPLOYMENT LEVEL

- One industry from Tier I —Spectator Sports— (Table 18) experienced growth in employment between 2000 and 2010 and is paying very high wages (Figure 18).
- In Tier I and Tier II, industries with the largest employment include Insurance Carriers; Professional and Commercial Equipment and Supplies Merchant Wholesalers; Scientific Research and Development Services; Plastics Product Manufacturing; Dairy Product Manufacturing; Wired Telecommunications Carriers; and Basic Chemical Manufacturing (Figure 18). Of these, only Dairy Product Manufacturing, Insurance Carriers, and Scientific Research and Development Services sectors gained employment.

AVERAGE WAGE BY LOCATION QUOTIENT AND TOTAL GROSS PRODUCT

- One Tier I industry that stands out when examining average wage, gross product location quotient, and total gross product is Dairy Product Manufacturing. This industry has gross product location quotient greater than 6 indicating that the Buffalo region is highly specialized in this industry compared to the nation. Dairy Product Manufacturing also has high wages and large employment (Figure 19).
- The industries of Dairy Product Manufacturing and Basic Chemical Manufacturing have a gross product location quotient greater than 4, indicating these industries are specialists in the Buffalo region compared to the nation and have livable wages. However, the two industries are significantly different in size. The Dairy Product Manufacturing industry has a much smaller gross product (\$403.5 million) than the Basic Chemical Manufacturing (\$1.0 billion) (Figure 19).

EMPLOYMENT LOCATION QUOTIENT

Table 20. Industry Sectors in which Employment Location Quotient was Greater than 3 in the Buffalo Region

		Buffalo Region				
		Employment				
NAICS	NAICS Description	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3115	Dairy Product Manufacturing	1,925	2,160	235	12.2%	3.91
3159	Apparel Accessories and Other Apparel Manufacturing	1,184	605	-579	-48.9%	6.10
3251	Basic Chemical Manufacturing	3,391	2,125	-1,266	-37.3%	3.32
3271	Clay Product and Refractory Manufacturing	1,317	893	-424	-32.2%	4.42
3279	Other Nonmetallic Mineral Product Manufacturing	1,775	1,070	-705	-39.7%	3.94
3322	Cutlery and Handtool Manufacturing	1,075	950	-125	-11.6%	3.92
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	1,656	1,455	-201	-12.1%	3.21
3353	Electrical Equipment Manufacturing	2,270	1,839	-431	-19.0%	3.16
6112	Junior Colleges	973	1,311	338	34.7%	4.19
8131	Religious Organizations	3,974	6,113	2,139	53.8%	3.89

Source: Moody's Economy.com

- Excluding all other criteria, the ten industries above represent the industries with an employment location quotient (LQ) greater than 3. With such a high LQ the Buffalo region specializes in these industries compared to the United States (Table 20).
- The largest employer in Table 20 is the Religious Organizations sector which alone accounted for 1.0% of total employment in the Buffalo region. In addition, this sector grew by 54% over the 10-year period, but the average wage in this industry for 2010 was well below the criteria for a winning industry.
- Eight of the industries in Table 20 are in the Manufacturing sector and represent 17.5% of all Manufacturing employment in the Buffalo region in 2010.
- Seven of the of the ten industries lost significant employment from 2000 to 2010; all were in the Manufacturing sector. These industries, combined, shed over 3,700 jobs over this time period.
- Three of the industries in Table 20 appear on the Tier I or Tier II winning industry list: Dairy Product Manufacturing (Tier I); Basic Chemical Manufacturing (Tier II) and Electrical Equipment Manufacturing (Tier II) (Table 18 & 19).

GROSS PRODUCT LOCATION QUOTIENT

Table 21. Industry Sectors in which Gross Product Location Quotient was Greater than 5 in the Buffalo Region

		Buffalo Region				
		Gross Product				
NAICS	NAICS Description	2000 (\$Mil)	2010 (\$Mil)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3115	Dairy Product Manufacturing	\$253.2	\$403.5	\$150.4	59.4%	6.65
3159	Apparel Accessories and Other Apparel Manufacturing	\$83.4	\$39.2	-\$44.2	-53.0%	11.73
3271	Clay Product and Refractory Manufacturing	\$157.8	\$115.1	-\$42.7	-27.1%	6.36
3322	Cutlery and Handtool Manufacturing	\$105.2	\$89.5	-\$15.7	-14.9%	5.52
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	\$314.4	\$255.2	-\$59.2	-18.8%	5.15

Source: Moody's Economy.com

- Excluding all other criteria, the five industries in Table 21 represent the industries with a gross product location quotient (LQ) greater than 5. Industries with such a high LQ are national specialists in their field. For the sub-regions, since a large number of industries had gross product LQs around 3, the criteria was adjusted to display gross product LQs greater than 5.
- All five industries in Table 21 are in the Manufacturing sector and represent 10% of all Manufacturing gross product in Upstate New York in 2010.
- Apparel Accessories and Other Apparel Manufacturing has an extremely high gross product location quotient of 11.73, demonstrating that this sector is an extreme specialist in the Buffalo region in comparison to the United States. This industry experienced a significant decline its gross product from \$83.4 million in 2000 to \$39.2 million in 2010 (-44.2%).
- Four of the five industries listed experienced a decline in gross product from 2000 to 2010.
- Only one of the five industries appears on the Tier I winning industry list (Table 18): Dairy Product Manufacturing (NAICS 3115).

THE ROCHESTER REGION (FINGER LAKES REGION)

To identify which industries in the Rochester region are outperforming others in the region and nationally, we analyzed data at a fine detail level of industry sectors (4-digit NAICS). This analysis explores 283 industry sectors in greater depth.

“WINNING” INDUSTRIES – TIER I

To examine these high performance industries we selected industries that meet all of the following criteria:

1. **Percent Employment Change (2000-2010) > 1%** – to show employment growth
 2. **Average Wage (2010) > \$ 50,558.75⁵¹** – to find industries that have livable wages
 3. **Percent Change in Gross Product (2000-2010) > 0.1%** – to show positive growth in output
 4. **Gross Product Location Quotient⁵² (2010) > 1.2⁵³** - to find industries that are more concentrated in the Rochester region relative to the United States.
 5. **2010 Employment > 250 employees** – to find large driver industries in the Rochester region.
- The four Tier I industries in Table 22 have a gross product LQ greater than 1.2 indicating these industries are specialist in the Rochester region compared to the nation, have livable wages, experienced growth in both employment and output, and are fairly large employers.
 - Table 22 shows the four industries that met the above criteria for Tier I winning industries in the Rochester region, one in the Manufacturing sector (NAICS 31-33), two in the Wholesale Trade sector (NAICS 42), and one in Management of Companies and Enterprises (NAICS 55).
 - The industry with the largest gross product is Insurance Carriers with 2010 gross product of \$1.6 billion. This single industry accounted for 3.2% of overall gross product in the Rochester region.

⁵¹ This calculation was taken as 25% above the average wage for the Rochester region in Table 13.

⁵² Location Quotient measures the specialization of an industry in a region by comparing it to data in a larger region. For our analysis:
$$LQ = \frac{\text{Rochester region gross product in industry}}{\text{Total in the Rochester region gross product}}$$

where $\text{Rochester region gross product in industry}$ = US gross product in industry ; $\text{Total in the Rochester region gross product}$ = Total US gross product

⁵³ A location quotient >1.2 indicates specialization in an industry.

Table 22. Industry Winners (Tier I) in the Rochester Region for Employment, Gross Product, and Average Wage

		Rochester Region														
		Employment					GDP					Average Wage				
NAICS	NAICS Description	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2010	2000 (\$Mil)	2010 (\$Mil)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010	2000 (\$)	2010 (\$)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3391	Medical Equipment and Supplies Manufacturing	2,604	2,949	345	13.2%	2.36	\$396.2	\$548.7	\$152.5	38.5%	3.55	\$99,495	\$71,729	-\$27,766	-0.3%	1.34
4236	Electrical and Electronic Goods Merchant Wholesalers	1,955	2,276	321	16.4%	1.75	\$258.6	\$329.9	\$71.3	27.6%	1.85	\$68,897	\$67,947	-\$950	0.0%	1.05
4242	Drugs and Druggists Sundries Merchant Wholesalers	788	814	26	3.3%	1.04	\$140.9	\$169.3	\$28.3	20.1%	1.26	\$94,548	\$113,216	\$18,668	0.2%	1.25
5511	Management of Companies and Enterprises	11,780	12,464	684	5.8%	1.55	\$1,329.2	\$1,602.8	\$273.6	20.6%	1.65	\$76,029	\$78,792	\$2,763	0.0%	0.98

Source: Moody's Economy.com

“WINNING” INDUSTRIES – TIER II

The main reason for the small number of Tier I winning industries was employment change; 130 out of the 283 industries (46%) selected for this fine detail industry analysis had positive employment growth from 2000 to 2010.

Since there were only four Tier I winning industries in the Rochester region, we looked to find industries that are surviving the economic storm, which we will call Tier II winning industries. For Tier II winning industries, we selected industries that met four of the five criteria (all of those in Tier I except employment growth):

1. **Average Wage (2010) > \$50,558.75⁵⁴** – to find industries that have livable wages
 2. **Percent Change in Gross Product (2000-2010) > 0.1%** – to show positive growth in output
 3. **Gross Product Location Quotient⁵⁵ (2010) > 1.2⁵⁶** - to find industries that are more concentrated in the Rochester region relative to the United States.
 4. **2010 Employment > 250 employees** – to find large driver industries in the Rochester region.
- Table 23 lists the three industries that are Tier II winning industries in the Rochester region; of these one is in the Manufacturing sector (NAICS 31-33), one in the Wholesale Trade sector (NAICS 42), and one is in Management of Companies and Enterprises (NAICS 55).
 - The largest employer of Tier II industries is Wired Telecommunications Carriers (3,802 employees in 2010) accounting for 5.1% of total gross product in the Rochester region.
 - While all Tier II industries had an increase in gross product from 2000 to 2010 (under criterion #2), most had significant employment loss over this period. This indicates that even though employers were shedding workers their output increased, demonstrating productivity increases in these sectors.

⁵⁴ This calculation was taken as 25% above the average wage for the Rochester region in Table 13.

⁵⁵ Location Quotient measures the specialization of an industry in a region by comparing it to data in a larger region. For our analysis:
$$LQ = \frac{\text{Rochester region gross product in industry}}{\text{Total in the Rochester region gross product}} \div \frac{\text{US gross product in industry}}{\text{Total US gross product}}$$
 where = the Rochester region gross product in industry ; = Total in the Rochester region gross product;

= US gross product in industry ; = Total US gross product

⁵⁶ A location quotient >1.2 indicates specialization in an industry.

Table 23. Industry Winners (Tier II) in the Rochester Region for Employment, Gross Product, and Average Wage

		Rochester Region														
		Employment					GDP					Average Wage				
NAICS	NAICS Description	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2010	2000 (\$Mil)	2010 (\$Mil)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010	2000 (\$)	2010 (\$)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3254	Pharmaceutical and Medicine Manufacturing	864	287	-577	-66.8%	0.25	\$321.6	\$937.9	\$616.3	191.6%	2.66	\$132,872	\$502,654	\$369,783	2.8%	5.45
4241	Paper and Paper Product Merchant Wholesalers	1,013	864	-149	-14.7%	1.51	\$95.4	\$96.4	\$1.0	1.1%	1.76	\$48,996	\$54,238	\$5,242	0.1%	1.16
5171	Wired Telecommunications Carriers	5,173	3,802	-1,371	-26.5%	1.56	\$1,867.3	\$2,533.2	\$665.8	35.7%	3.54	\$83,545	\$73,586	-\$9,959	-0.1%	1.10

Source: Moody's Economy.com

Figure 20. Industry Winners (Tier I & II): Average Wage by Employment Change, and Employment Level for the Rochester Region

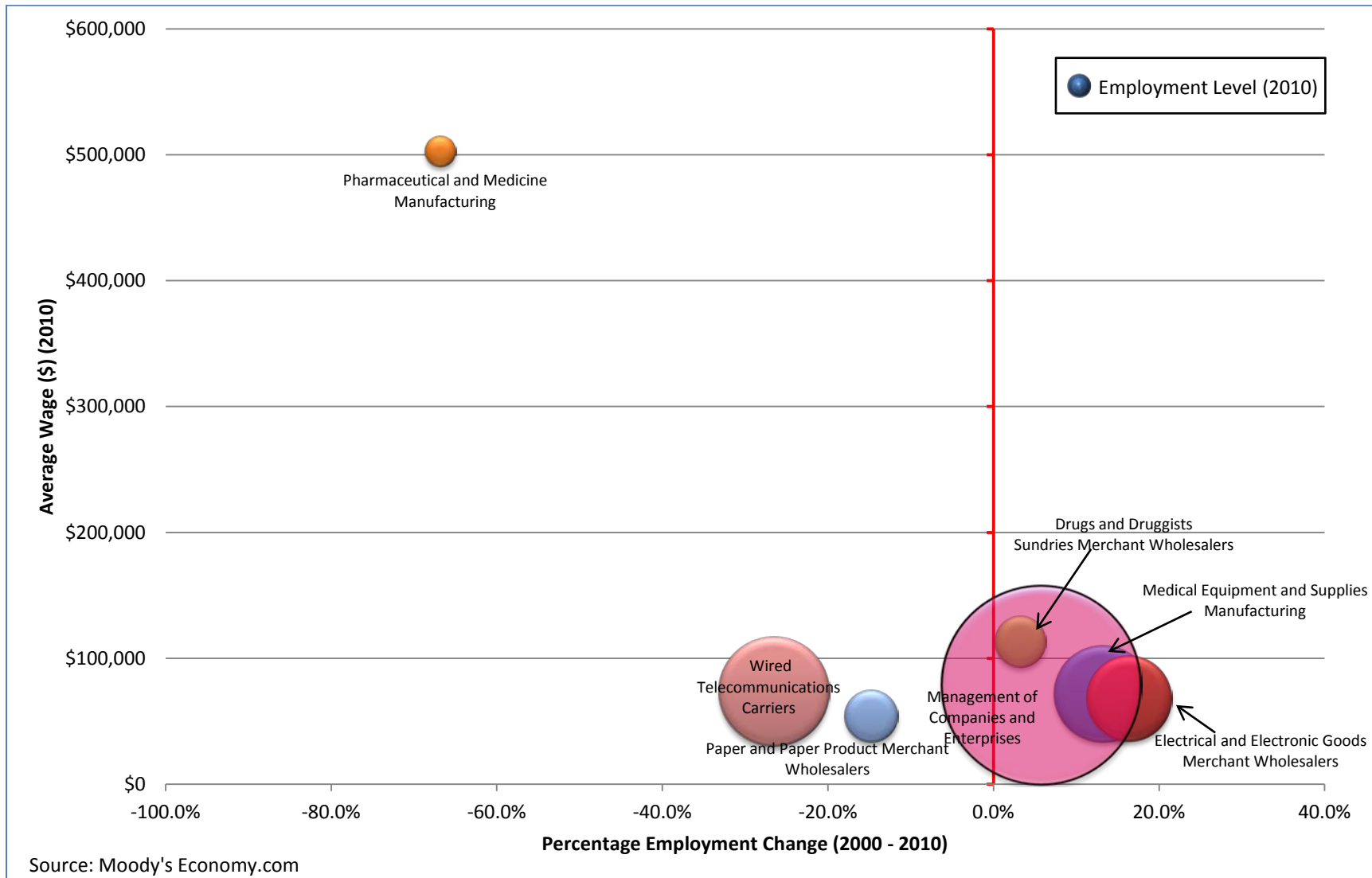
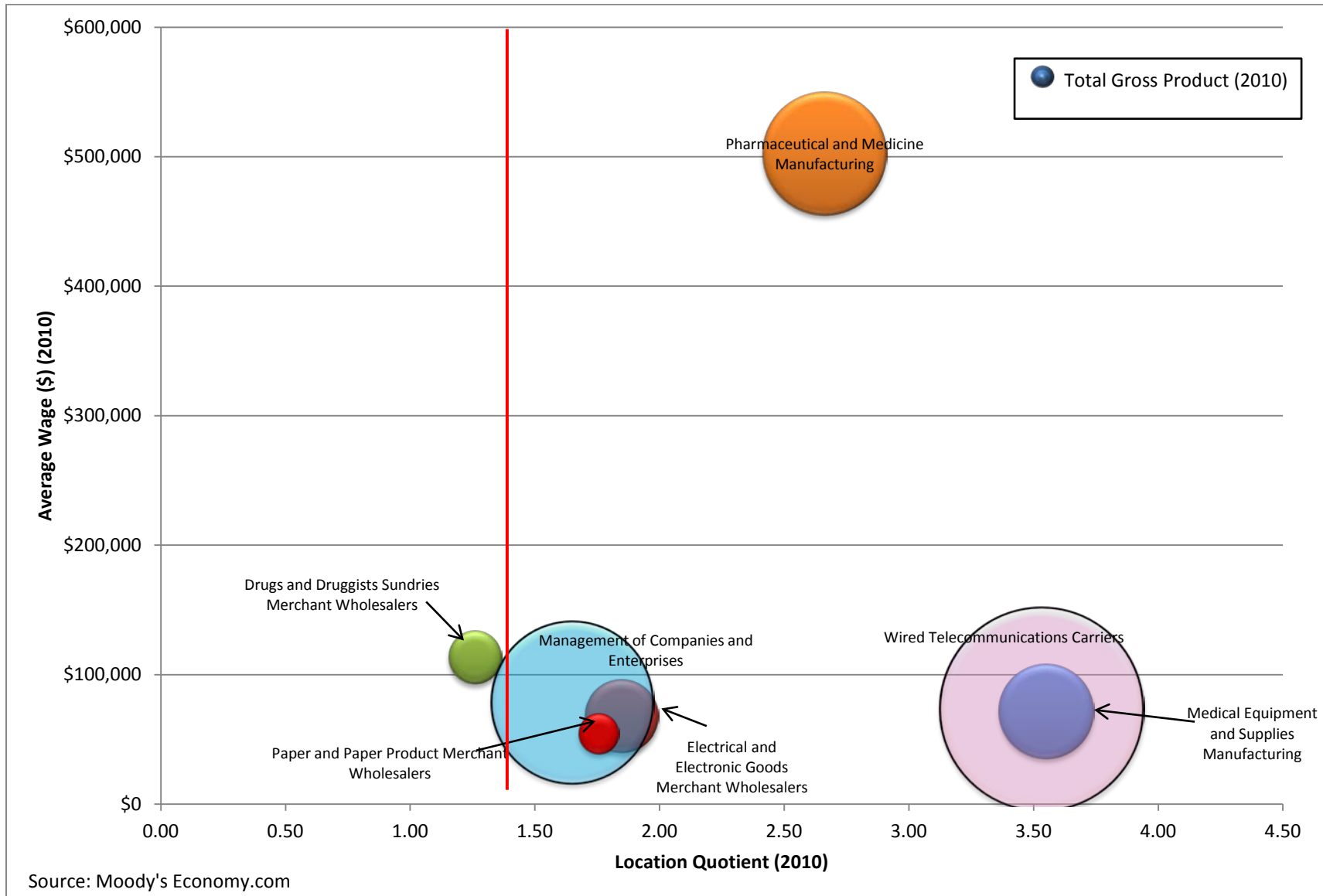


Figure 21. Industry Winners (Tier I & II): Average Wage by Location Quotient, and Total Gross Product for the Rochester Region



AVERAGE WAGE BY EMPLOYMENT CHANGE AND EMPLOYMENT LEVEL

- Four industries (Medical Equipment and Supplies Manufacturing; Electrical and Electronic Goods Merchant Wholesalers; Drugs and Druggists Sundries Merchant Wholesalers; and Management of Companies and Enterprises) from Tier I (Table 22) experienced growth in employment between 2000 and 2010 and are paying relatively high wages (Figure 20).
- In Tier I & II, industries with the largest employment include Management of Companies and Enterprises and Wired Telecommunications Carriers (Figure 20). Of these, only the Management sector gained employment.

AVERAGE WAGE BY LOCATION QUOTIENT AND TOTAL GROSS PRODUCT

- One Tier I industry that stands out when examining average wage, gross product location quotient, and total gross product is Pharmaceutical and Medicine Manufacturing. This industry has a gross product location quotient of 2.66, indicating that this industry is concentrated in the Rochester region compared to the nation; in addition it has extremely high wages and large employment (Figure 21).
- The industries of Medical Equipment and Supplies Manufacturing, and Wired Telecommunications Carriers have a gross product location quotient greater than 3 indicating these industries are concentrated in the Rochester region compared to the nation and have livable wages. However, the two industries are significantly different in size. The Medical Equipment and Supplies Manufacturing industry has a much smaller gross product (\$548.7 million) than the Wired Telecommunications Carriers (\$2.5 billion) (Figure 21).

EMPLOYMENT LOCATION QUOTIENT

Table 24. Industry Sectors in which Employment Location Quotient was Greater than 3 in the Rochester Region

		Rochester Region				
		Employment				
NAICS	NAICS Description	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	1,971	1,986	15	0.8%	3.02
3259	Other Chemical Product and Preparation Manufacturing	30,308	7,453	-22,855	-75.4%	21.13
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	3,302	3,886	584	17.7%	3.20
3332	Industrial Machinery Manufacturing	2,619	1,312	-1,307	-49.9%	3.37
3333	Commercial and Service Industry Machinery Manufacturing	15,310	6,117	-9,193	-60.0%	14.20
3335	Metalworking Machinery Manufacturing	5,250	2,311	-2,939	-56.0%	3.68
3342	Communications Equipment Manufacturing	2,438	3,228	790	32.4%	6.15
6112	Junior Colleges	931	1,300	369	39.6%	4.73
6113	Colleges, Universities, and Professional Schools	19,061	28,350	9,289	48.7%	4.89
8131	Religious Organizations	3,651	4,864	1,213	33.2%	3.52

Source: Moody's Economy.com

- Excluding all other criteria, the ten industries above represent the industries with an employment LQ greater than 3. With such a high LQ the Rochester region specializes in these industries compared to the United States (Table 24).
- Seven of the industries in Table 24 are in the Manufacturing sector and represent 39.2% of all manufacturing employment in the Rochester region in 2010.
- Four of the ten industries lost significant employment from 2000 to 2010; all were in the Manufacturing sector. These industries combined shed over 36,000 jobs over this time period; most of this employment loss was from the industry Other Chemical Product and Preparation Manufacturing.
- The largest employer in Table 24 is Colleges, Universities, and Professional Schools, which accounted for 5% of overall employment in the Rochester region. In addition, this sector grew by 49% over the 10-year period, but the average wage in this industry for 2010 was \$46,062, below the criteria for a winning industry.
- Interestingly, none of these industries appears on the Tier I or Tier II winning industry list for the Rochester region (Table 22 & 23) because the industries listed in Table 24 had a negative change in output or lower wages.

GROSS PRODUCT LOCATION QUOTIENT

Table 25. Industry Sectors in which Gross Product Location Quotient was Greater than 5 in the Rochester Region

		Rochester Region				
		Gross Product				
NAICS	NAICS Description	2000 (\$Mil)	2010 (\$Mil)	Difference (2000- 2010)	% Change (2000- 2010)	LQ 2010
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	\$68.3	\$189.1	\$120.8	176.8%	5.68
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	\$181.2	\$441.8	\$260.7	143.9%	6.18
3259	Other Chemical Product and Preparation Manufacturing	\$4,050.5	\$2,611.4	-\$1,439.1	-35.5%	40.54
3333	Commercial and Service Industry Machinery Manufacturing	\$2,200.1	\$862.3	-\$1,337.7	-60.8%	20.49
3335	Metalworking Machinery Manufacturing	\$555.4	\$280.1	-\$275.3	-49.6%	5.34
6113	Colleges, Universities, and Professional Schools	\$1,019.7	\$1,628.6	\$608.9	59.7%	5.31

Source: Moody's Economy.com

- Excluding all other criteria, the five industries in Table 25 represent the industries with a gross product location quotient (LQ) greater than 5. Industries with such a high LQ are national specialists in their field. For the sub-regions, since a large number of industries had gross product LQs around 3, the criteria was adjusted to display gross product LQs greater than 5.
- Five of the six industries in Table 25 are in the Manufacturing sector and represent 42.2% of all Manufacturing gross product in the Rochester region in 2010.
- Other Chemical Product and Preparation Manufacturing has an extremely high gross product location quotient of 40.51 as well as Commercial and Service Industry Machinery Manufacturing (20.49), demonstrating that these sectors are extreme specialists in the Rochester economy in comparison to the United States. Both of these industries experienced double-digit declines in their gross product from 2000 to 2010.
- Three of the six industries listed experienced a decline in gross product from 2000 to 2010.
- Interestingly, none of these industries appears on the Tier I or Tier II winning industry list for the Rochester region (Table 22 & 23) because the industries listed in Table 25 had a negative change in output or lower wages.

THE SYRACUSE REGION (CENTRAL NEW YORK REGION)

To identify which industries in the Syracuse region are outperforming others in the region and nationally, we analyzed data at a fine detail level of industry sectors (4-digit NAICS). This analysis explores 283 industry sectors in greater depth.

“WINNING” INDUSTRIES – TIER I

To examine these high performance industries we selected industries that meet all of the following criteria:

1. **Percent Employment Change (2000-2010) > 1%** – to show employment growth
 2. **Average Wage (2010) > \$49,145.00⁵⁷** – to find industries that have livable wages
 3. **Percent Change in Gross Product (2000-2010) > 0.1%** – to show positive growth in output
 4. **Gross Product Location Quotient⁵⁸ (2010) > 1.2⁵⁹** - to find industries that are more concentrated in the Syracuse region relative to the United States.
 5. **2010 Employment > 250 employees** – to find large driver industries in the Syracuse region.
- These six Tier I industries have a gross product LQ greater than 1.2 indicating these industries are concentrated in the Syracuse region compared to the nation, have livable wages, and experienced growth in both employment and output (Table 26).
 - Table 26 shows the six industries that met the above criteria for Tier I winning industries in the Syracuse region, one of which is in the Manufacturing sector (NAICS 33), one in the Information sector (NAICS 51), one in the Wholesale Trade sector (NAICS 42), one in the Administrative and Support and Waste Management and Remediation Services (NAICS 56), and two in the Health Care and Social Assistance sector (NAICS 62).
 - The industry with the largest employment is Offices of Physicians with 2010 employment of 6,622. This single industry accounted for 13.7% of overall Health Care and Social Assistance employment in the Syracuse region.
 - Of these six industries, three are small employing jointly only 1,687 people (Cable and Other Subscription Programming; Remediation and Other Waste Management Services; and Medical and Diagnostic Laboratories).

⁵⁷ This calculation was taken as 25% above the average wage for the Syracuse region in Table 13.

⁵⁸ Location Quotient measures the specialization of an industry in a region by comparing it to data in a larger region. For our analysis:
$$LQ = \frac{\text{Syracuse region gross product in industry}}{\text{Total in the Syracuse region gross product}} \div \frac{\text{US gross product in industry}}{\text{Total US gross product}}$$

⁵⁹ A location quotient >1.2 indicates specialization in an industry.

Table 26. Industry Winners (Tier I) in the Syracuse Region for Employment, Gross Product, and Average Wage

		Syracuse Region														
		Employment					GDP					Average Wage				
NAICS	NAICS Description	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2009	2000	2010	Difference (2000-2010) (\$Mil)	% Change (2000-2010)	LQ 2010	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2,943	3,677	734	24.9%	3.13	\$212.1	\$241.6	\$29.5	13.9%	2.53	\$51,215	\$74,621	\$23,406	0.5%	1.15
5152	Cable and Other Subscription Programming	256	373	117	45.7%	1.54	\$22.3	\$51.4	\$29.0	129.9%	1.21	\$54,224	\$68,861	\$14,637	0.3%	0.99
5417	Scientific Research and Development Services	2,378	2,648	270	11.4%	1.55	\$290.9	\$443.0	\$152.1	52.3%	1.68	\$69,658	\$88,347	\$18,689	0.3%	1.02
5629	Remediation and Other Waste Management Services	396	480	84	21.2%	1.39	\$42.6	\$73.6	\$31.1	73.0%	2.46	\$48,589	\$73,721	\$25,132	0.5%	1.82
6211	Offices of Physicians	4,855	6,622	1,767	36.4%	1.06	\$694.8	\$989.2	\$294.3	42.4%	1.38	\$74,682	\$76,740	\$2,059	0.0%	1.13
6215	Medical and Diagnostic Laboratories	421	834	413	98.1%	1.28	\$44.1	\$85.7	\$41.6	94.4%	1.66	\$54,734	\$51,139	-\$3,594	-0.1%	1.12

Source: Moody's Economy.com

“WINNING” INDUSTRIES – TIER II

The main reason for the small number of Tier I winning industries was employment change. Only 103 out of the 283 industries (36%) selected for this fine detail industry analysis had positive employment change from 2000 to 2010.

Since there were only six Tier I winning industries in the Syracuse region, we looked to find industries that are surviving the economic storm, which we will call Tier II winning industries. For Tier II winning industries, we selected industries that met four of the five criteria (all those chosen for Tier I except employment growth):

1. **Average Wage (2010) > \$49,145.00⁶⁰** – to find industries that have livable wages
 2. **Percent Change in Gross Product (2000-2010) > 0.1%** – to show positive growth in output
 3. **Gross Product Location Quotient⁶¹ (2010) > 1.2⁶²** - to find industries that are more concentrated in the Syracuse region relative to the United States.
 4. **2010 Employment > 250 employees** – to find large driver industries in the Syracuse region.
- Table 27 lists the eight industries that are Tier II winning industries in the Syracuse region. Of those eight, one is in the Utilities sector (NAICS 22); four are in Manufacturing (NAICS 31-33); one in the Wholesale Trade sector (NAICS 42), one in Information (NAICS 51), and one in the Finance and Insurance sector (NAICS 52).
 - The largest employer in 2010 out of the Tier II industries is Insurance Carriers with 5,574 employees. This single industry accounted for 40.2% of overall Finance and Insurance sector employment in the Syracuse region.
 - While all Tier II industries had an increase in gross product from 2000 to 2010 (under criterion #2), most had significant employment loss over this period. This indicates that even though employers were shedding workers, their output increased, demonstrating productivity increases in these sectors.

⁶⁰ This calculation was taken as 25% above the average wage for the Syracuse region in Table 13.

⁶¹ Location Quotient measures the specialization of an industry in a region by comparing it to data in a larger region. For our analysis:
$$LQ = \frac{\text{Syracuse region gross product in industry}}{\text{Total in the Syracuse region gross product}} \div \frac{\text{US gross product in industry}}{\text{Total US gross product}}$$
 where = the Syracuse region gross product in industry ; = Total in the Syracuse region gross product;

= US gross product in industry ; = Total US gross product

⁶² A location quotient >1.2 indicates specialization in an industry.

Table 27. Industry Winners (Tier II) in the Syracuse Region for Employment, Gross Product, and Average Wage

NAICS	NAICS Description	Syracuse Region														
		Employment					GDP					Average Wage				
		2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2009	2000	2010	Difference (2000-2010) (\$Mil)	% Change (2000-2010)	LQ 2010	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
2212	Natural Gas Distribution	630	506	-124	-19.7%	1.45	\$149.3	\$288.0	\$138.7	92.9%	1.88	\$50,983	\$59,211	\$8,228	0.2%	0.86
3254	Pharmaceutical and Medicine Manufacturing	997	675	-322	-32.3%	0.92	\$300.7	\$455.8	\$155.1	51.6%	2.06	\$107,660	\$103,864	-\$3,796	0.0%	1.16
3312	Steel Product Manufacturing from Purchased Steel	477	260	-217	-45.5%	2.11	\$39.4	\$44.3	\$4.9	12.6%	2.54	\$42,400	\$60,801	\$18,401	0.4%	1.10
3314	Nonferrous Metal (except Aluminum) Production and Processing	1,021	779	-242	-23.7%	4.33	\$109.4	\$128.1	\$18.7	17.1%	5.69	\$55,001	\$55,373	\$372	0.0%	1.28
3353	Electrical Equipment Manufacturing	461	335	-126	-27.3%	1.02	\$40.2	\$69.2	\$29.0	72.2%	1.41	\$47,032	\$62,531	\$15,499	0.3%	1.15
4233	Lumber and Other Construction Materials Merchant Wholesalers	943	658	-285	-30.2%	1.24	\$65.0	\$83.6	\$18.5	28.5%	1.78	\$35,654	\$56,306	\$20,652	0.6%	1.41
5171	Wired Telecommunications Carriers	2,382	1,550	-832	-34.9%	0.99	\$411.8	\$1,149.8	\$737.9	179.2%	2.55	\$40,016	\$81,926	\$41,910	1.0%	1.26
5241	Insurance Carriers	7,023	5,574	-1,449	-20.6%	1.67	\$864.3	\$950.7	\$86.5	10.0%	2.13	\$56,024	\$55,891	-\$133	0.0%	0.92

Source: Moody's Economy.com

Figure 22. Industry Winners (Tier I & II): Average Wage by Employment Change, and Employment Level for the Syracuse Region

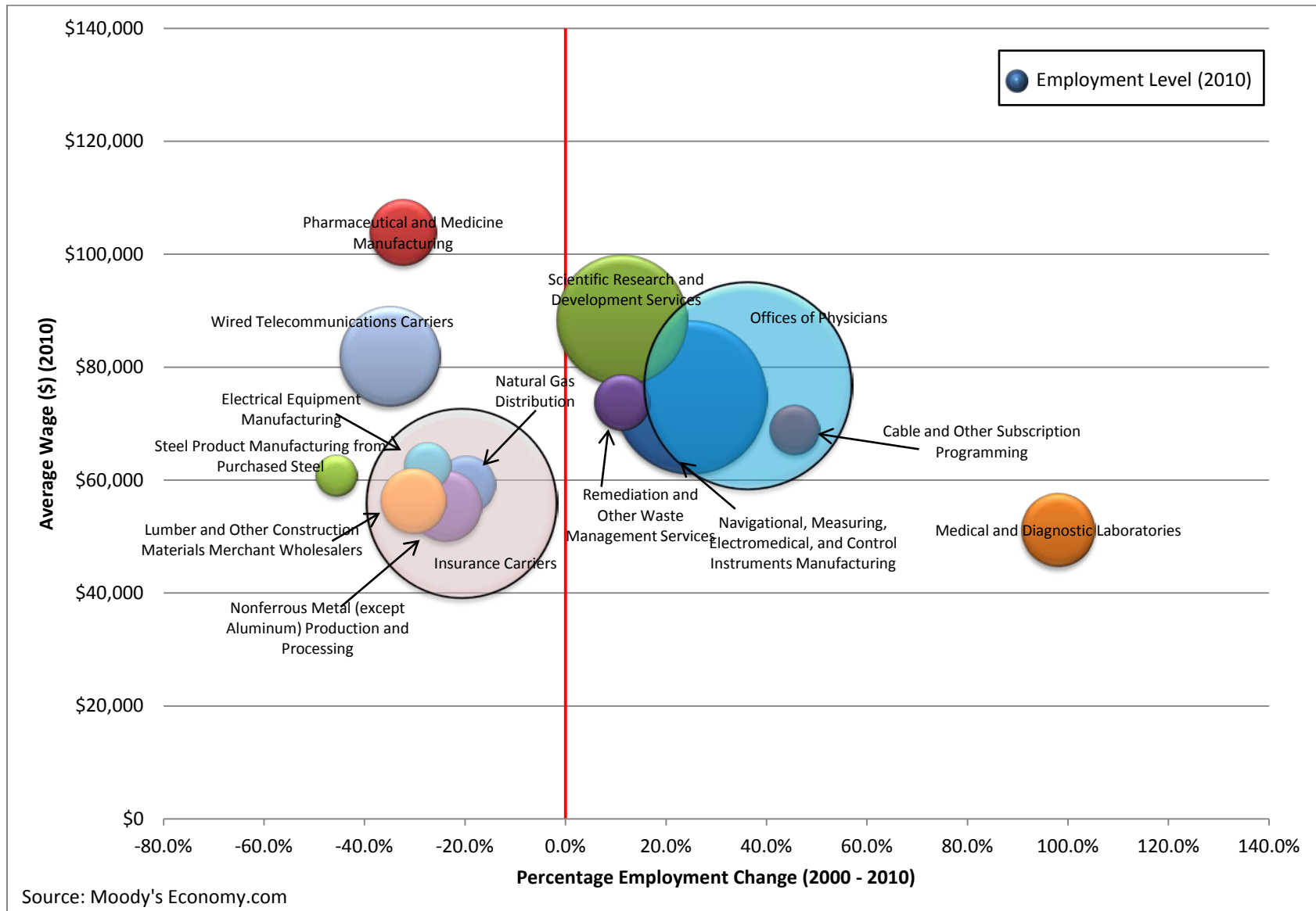
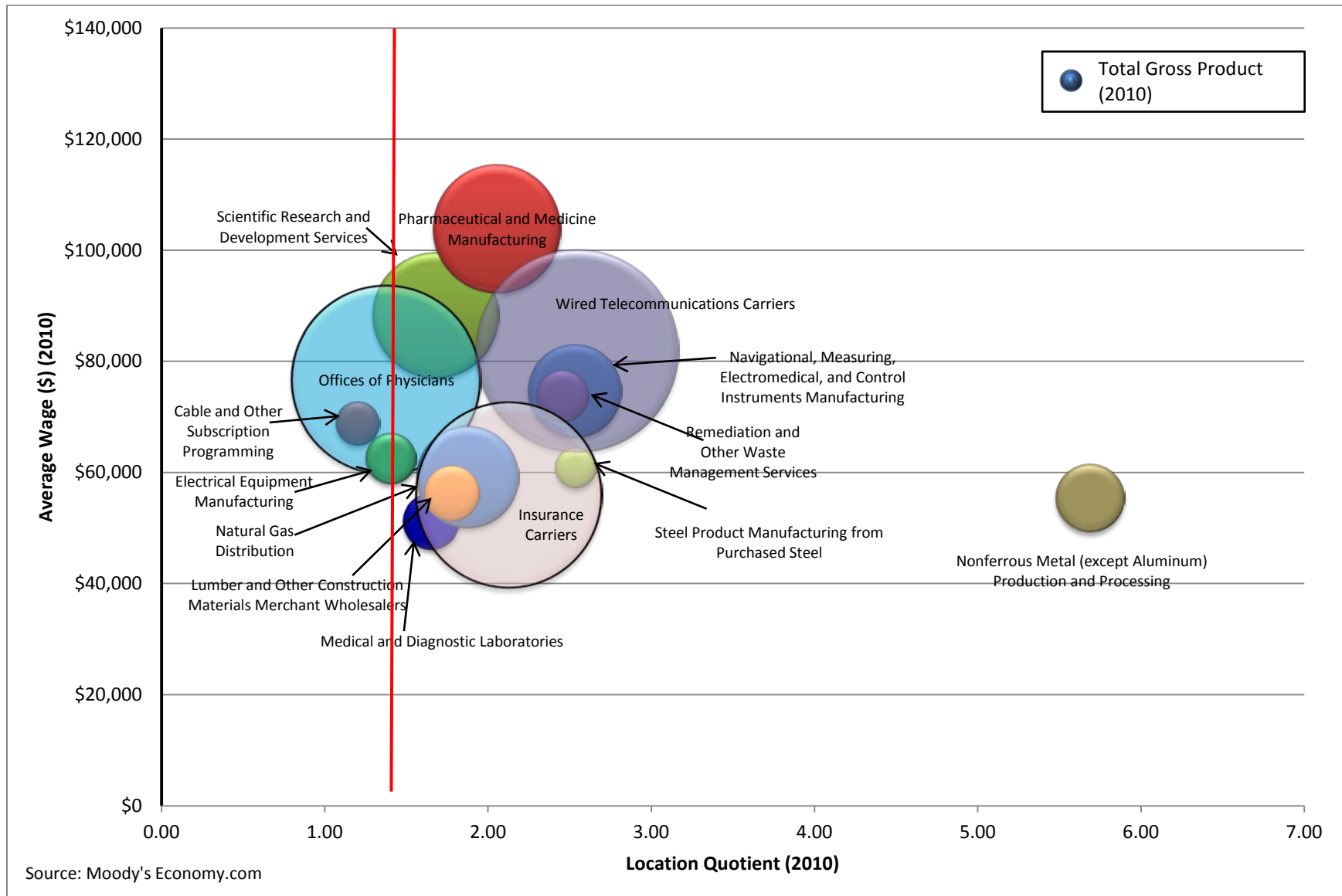


Figure 23. Industry Winners (Tier I & II): Average Wage by Location Quotient, and Total Gross Product for the Syracuse Region



AVERAGE WAGE BY EMPLOYMENT CHANGE AND EMPLOYMENT LEVEL

- One industry from Tier I — Medical and Diagnostic Laboratories— (Table 26) experienced significant growth in employment between 2000 and 2009. However this industry is paying an average wage of \$51,139. (Figure 22). Five other Tier I and II industries experienced employment growth and pay wages over \$60,000.
- In Tier I and Tier II, industries with the largest employment include Offices of Physicians and Insurance Carriers (Figure 22). Of these, only Offices of Physicians gained employment.

AVERAGE WAGE BY LOCATION QUOTIENT AND TOTAL GROSS PRODUCT

- One Tier I industry that stands out when examining average wage, gross product location quotient, and total gross product is Nonferrous Metal (except Aluminum) Production and Processing. This industry has a gross product location quotient greater than 5 indicating that this industry is an extreme specialist in their field in the nation. This industry has high wages and fairly large employment (Figure 23).

EMPLOYMENT LOCATION QUOTIENT

Table 28. Industry Sectors in which Employment Location Quotient was Greater than 3 in the Syracuse Region

		Syracuse Region				
		Employment				
NAICS	NAICS Description	2000	2010	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3313	Alumina and Aluminum Production and Processing	984	753	-231	-23.5%	4.37
3314	Nonferrous Metal (except Aluminum) Production and Processing	1,021	779	-242	-23.7%	4.33
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	4,063	1,273	-2,790	-68.7%	4.34
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2,943	3,677	734	24.9%	3.13
4542	Vending Machine Operators	346	451	105	30.3%	4.03
6112	Junior Colleges	542	891	349	64.4%	5.03
6113	Colleges, Universities, and Professional Schools	11,867	14,415	2,548	21.5%	3.86
8131	Religious Organizations	2,561	2,932	371	14.5%	3.30

Source: Moody's Economy.com

- Excluding all other criteria, the eight industries above represent the industries with an employment location quotient (LQ) greater than 3. With such a high LQ, these industries are national specialists in their field (Table 28).
- Four of the industries in Table 28 are in the Manufacturing sector and represent 19.5% of all Manufacturing employment in the Syracuse region in 2010.
- Three of the eight industries lost significant employment from 2000 to 2010; all were in the Manufacturing sector. These industries shed over 3,250 jobs over this time period.
- The largest employer in Table 28 is Colleges, Universities, and Professional Schools, which accounted for 4% of overall employment in the Syracuse region. In addition, this sector grew by 21.5% over the 10-year period, but the average wage in this industry for 2010 was \$34,942, well below the criteria for a winning industry.
- Two of the eight industries appear on the Tier I and Tier II winning industry lists (Table 26 & 27): Tier I - Navigational, Measuring, Electromedical, and Control Instruments Manufacturing (NAICS 3345) and Tier II - Nonferrous Metal (except Aluminum) Production and Processing (NAICS 3314).

GROSS PRODUCT LOCATION QUOTIENT

Table 29. Industry Sectors in which Gross Product Location Quotient was Greater than 5 in the Syracuse Region

		Syracuse Region				
		Gross Product				
NAICS	NAICS Description	2000 (\$Mil)	2010 (\$Mil)	Difference (2000-2010)	% Change (2000-2010)	LQ 2010
3271	Clay Product and Refractory Manufacturing	\$93.8	\$61.8	-\$32.0	-34%	5.92
3314	Nonferrous Metal (except Aluminum) Production and Processing	\$109.4	\$128.1	\$18.7	17%	5.69
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	\$566.1	\$149.2	-\$416.8	-74%	5.40
4542	Vending Machine Operators	\$21.8	\$37.2	\$15.4	71%	6.38
8131	Religious Organizations	\$18.4	\$43.2	\$24.8	135%	5.15

Source: Moody's Economy.com

- Excluding all other criteria, the five industries in Table 29 represent the industries with a gross product location quotient (LQ) greater than 5. The Syracuse region is highly specialized in industries with such high LQs. For the sub-regions, since a large number of industries had gross product LQs around 3, the criteria was adjusted to display gross product LQs greater than 5.
- Three of the five industries in Table 29 are in the Manufacturing sector but represent a small fraction of all Manufacturing gross product (8.9%) in the Syracuse region in 2010.
- Vending Machine Operators has the highest gross product location quotient of 6.38, demonstrating that the Syracuse regional economy is extremely specialized in this industry compared to the United States. The industry is small, but its gross product grew from \$21.8 million in 2000 to \$37.2 million in 2010 (71%).
- The industry with the largest gross product in Table 29 is Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing, but this industry encountered significant gross product losses from 2000 to 2010 by declining by almost three quarters of its size.
- Only one of the five industries appears on the Tier II winning industry list (Table 27): Nonferrous Metal (except Aluminum) Production and Processing (NAICS 3314).

“WINNING” INDUSTRY COMPARISON

Table 30. Winning Industries (Tier I and Tier II) Comparison: Upstate New York (19-Counties), Buffalo, Rochester, and Syracuse Regions

NAICS	NAICS Description	Upstate New York (19-Counties)		Buffalo Region		Rochester Region		Syracuse Region	
		Winning	Tier	Winning	Tier	Winning	Tier	Winning	Tier
2212	Natural Gas Distribution			√	II			√	II
3111	Animal Food Manufacturing	√	II	√	II				
3112	Grain and Oilseed Milling	√	II	√	II				
3115	Dairy Product Manufacturing	√	I	√	I				
3251	Basic Chemical Manufacturing	√	II						
3254	Pharmaceutical and Medicine Manufacturing	√	II	√	II	√	II	√	II
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	√	II						
3261	Plastics Product Manufacturing			√	II				
3312	Steel Product Manufacturing from Purchased Steel	√	II	√	II			√	II
3314	Nonferrous Metal (except Aluminum) Production and Processing	√	II					√	II
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing							√	I
3353	Electrical Equipment Manufacturing	√	II	√	II			√	II
3391	Medical Equipment and Supplies Manufacturing	√	I			√	I		
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers			√	II				
4233	Lumber and Other Construction Materials Merchant Wholesalers							√	II
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers			√	II				
4236	Electrical and Electronic Goods Merchant Wholesalers	√	II			√	I		
4241	Paper and Paper Product Merchant Wholesalers					√	II		
4242	Drugs and Druggists Sundries Merchant Wholesalers					√	I		
4831	Deep Sea, Coastal, and Great Lakes Water Transportation			√	II				
5152	Cable and Other Subscription Programming							√	I
5171	Wired Telecommunications Carriers	√	II	√	II	√	II	√	II
5241	Insurance Carriers	√	I	√	I			√	II
5417	Scientific Research and Development Services			√	I			√	I
5511	Management of Companies and Enterprises					√	I		
5629	Remediation and Other Waste Management Services	√	I	√	I			√	I
6211	Offices of Physicians							√	I
6215	Medical and Diagnostic Laboratories							√	I
7112	Spectator Sports	√	I	√	I				
7113	Promoters of Performing Arts, Sports, and Similar Events			√	II				
8133	Social Advocacy Organizations			√	I				

Source: Moody's Economy.com

- Table 30 combines Tier I and Tier II winning industries from Upstate New York, the Buffalo region, the Rochester region, and the Syracuse region to find commonalities amongst winning industries.
- There are two industries which are winning industries (either Tier I or II) for all four regions: Pharmaceutical and Medicine Manufacturing (NAICS 3254) and Wired Telecommunications Carriers (NAICS 5171). These two industries are both Tier II industries for all regions.
- Of the 31 winning industries in Table 30, the Buffalo and Syracuse regions have eight winning (Tier I or II) in common: Natural Gas Distribution, Pharmaceutical and Medicine Manufacturing, Steel Product Manufacturing from Purchased Steel, Electrical Equipment Manufacturing, Wired Telecommunications Carriers, Insurance Carriers, Scientific Research and Development Services, and Remediation and Other Waste Management Services.
- The Buffalo region is a major economic driver of winning industries for the overall Upstate New York region since it has nine common winning industries with the overall Upstate New York region. This is significant since winning industry criteria is not based upon industry employment size (unless it is smaller than 500 employees); this allows for employment size to be held constant and not favor the regions with larger employment (i.e. the Buffalo region). However, it should be noted that the Buffalo region lagged behind the Upstate New York region in growth of total employment and gross product.

INDUSTRY OCCUPATIONS

Table 31. Occupational Shares and Wages in Upstate New York (19-Counties) and the United States, 2009 & 2010

Occupations	2010			2009	
	Upstate New York (19 Counties)			United States	
	Employment	Share	Average Wage	Share	Average Wage
Office and Administrative Support	276,550	18.1%	\$32,203	17.1%	\$32,990
Sales and Related	148,070	9.7%	\$35,010	10.5%	\$36,020
Education, Training, and Library	133,300	8.7%	\$51,763	6.5%	\$49,530
Food Preparation and Serving Related	129,570	8.5%	\$20,763	8.6%	\$20,880
Production	119,640	7.8%	\$34,043	6.8%	\$33,290
Healthcare Practitioners and Technical	89,350	5.9%	\$63,170	5.5%	\$69,690
Transportation and Material Moving	82,990	5.4%	\$31,347	6.8%	\$32,180
Management	59,810	3.9%	\$99,827	4.7%	\$102,900
Installation, Maintenance, and Repair	58,980	3.9%	\$41,687	3.9%	\$42,210
Construction and Extraction	58,170	3.8%	\$43,210	4.4%	\$43,350
Business and Financial	55,990	3.7%	\$61,860	4.6%	\$65,900
Healthcare Support	52,540	3.4%	\$27,017	3.0%	\$26,710
Building and Grounds Cleaning and Maintenance	51,430	3.4%	\$25,357	3.3%	\$24,970
Personal Care and Service	40,290	2.6%	\$23,687	2.6%	\$24,680
Protective Service	33,360	2.2%	\$43,630	2.4%	\$41,740
Community and Social Services	31,710	2.1%	\$41,777	1.4%	\$42,750
Computer and Mathematical	31,490	2.1%	\$65,493	2.5%	\$76,290
Architecture and Engineering	27,900	1.8%	\$69,363	1.8%	\$73,590
Life, Physical, and Social Science	16,770	1.1%	\$57,160	1.0%	\$65,660
Arts, Design, Entertainment, Sports, and Media	16,370	1.1%	\$45,063	1.3%	\$51,720
Legal	11,050	0.7%	\$85,767	0.8%	\$95,820
Farming, Fishing, and Forestry	1,480	0.1%	\$28,063	0.3%	\$23,990
TOTAL - All Occupations	1,526,830	100.0%	\$41,640	100.0%	\$43,460

Note: Occupational data for the United States only available through May 2009

Source: New York Department of Labor; U.S. Bureau of Labor Statistics, Occupational Employment Survey

- Three occupational categories in Upstate New York had higher occupational shares (those with a difference greater than one percentage point) than the United States: Office and Administrative Support; Education, Training, and Library; and Production. Two of these industries are relatively low-wage industries; both Office and Administrative Support (\$32,203), and Production (\$34,043) and had a lower average wage than the average wage for All Occupations Upstate New York (\$41,640) (Table 31). These three occupational categories accounted for 34.7% of all occupations in Upstate New York.
- One occupational group in Upstate New York had lower occupational shares (those with a difference greater than one percentage point) than the United States: Transportation and Material Moving. This industry had a significantly lower wage (\$31,347) than the average wage for All Occupations Upstate New York (\$41,640) (Table 31).

Table 32. Occupational Shares and Wages in the Buffalo, Rochester, and Syracuse Regions, 2010

Title	Buffalo Region (Western New York Region)			Rochester Region (Finger Lakes Region)			Syracuse Region (Central New York Region)		
	Employment	Share	Mean Annual Wage (\$)	Employment	Share	Mean Annual Wage (\$)	Employment	Share	Mean Annual Wage (\$)
Office and Administrative Support	118,650	18.8%	\$31,720	93,820	17.2%	\$32,280	64,080	18.2%	\$32,610
Sales and Related	61,610	9.8%	\$34,160	52,880	9.7%	\$35,000	33,580	9.6%	\$35,870
Education, Training, and Library	50,450	8.0%	\$49,420	52,580	9.7%	\$50,730	30,270	8.6%	\$55,140
Food Preparation and Serving Related	58,310	9.2%	\$20,600	42,040	7.7%	\$21,200	29,220	8.3%	\$20,490
Production	50,570	8.0%	\$34,970	42,930	7.9%	\$33,020	26,140	7.4%	\$34,140
Healthcare Practitioners and Technical	35,890	5.7%	\$65,050	32,320	5.9%	\$61,490	21,140	6.0%	\$62,970
Transportation and Material Moving	35,330	5.6%	\$31,230	26,430	4.9%	\$30,330	21,230	6.0%	\$32,480
Management	23,190	3.7%	\$99,280	22,770	4.2%	\$102,930	13,850	3.9%	\$97,270
Installation, Maintenance, and Repair	22,220	3.5%	\$41,360	21,940	4.0%	\$40,780	14,820	4.2%	\$42,920
Construction and Extraction	24,510	3.9%	\$44,430	19,680	3.6%	\$42,780	13,980	4.0%	\$42,420
Business and Financial	24,030	3.8%	\$60,590	19,270	3.5%	\$63,630	12,690	3.6%	\$61,360
Healthcare Support	22,310	3.5%	\$27,080	19,440	3.6%	\$27,170	10,790	3.1%	\$26,800
Building and Grounds Cleaning and Maintenance	21,370	3.4%	\$24,990	17,530	3.2%	\$25,790	12,530	3.6%	\$25,290
Personal Care and Service	17,430	2.8%	\$23,500	14,090	2.6%	\$23,380	8,770	2.5%	\$24,180
Protective Service	13,250	2.1%	\$43,930	12,610	2.3%	\$45,000	7,500	2.1%	\$41,960
Community and Social Services	13,200	2.1%	\$41,670	11,370	2.1%	\$42,270	7,140	2.0%	\$41,390
Computer and Mathematical	12,050	1.9%	\$62,930	14,070	2.6%	\$68,530	5,370	1.5%	\$65,020
Architecture and Engineering	8,610	1.4%	\$67,270	11,830	2.2%	\$67,930	7,460	2.1%	\$72,890
Life, Physical, and Social Science	7,250	1.1%	\$52,590	5,350	1.0%	\$61,350	4,170	1.2%	\$57,540
Arts, Design, Entertainment, Sports, and Media	5,850	0.9%	\$45,040	6,790	1.2%	\$47,260	3,730	1.1%	\$42,890
Legal	4,940	0.8%	\$91,140	3,750	0.7%	\$77,770	2,360	0.7%	\$88,390
Farming, Fishing, and Forestry	400	0.1%	\$30,380	770	0.1%	\$24,700	310	0.1%	\$29,110
TOTAL - All Occupations	631,430	100.0%	\$40,610	544,270	100.0%	\$42,290	351,130	100.0%	\$42,020

Source: New York Department of Labor

- The three regions of Upstate New York (Buffalo, Rochester, and Syracuse regions) have similar occupations structures. Almost all of the occupations listed in Table 32 have similar occupational shares as compared to each Upstate New York region. Understanding the labor market structures of these regions allow for tailored workforce development policies.
- Of the three regions in Upstate New York, it is interesting to note the high occupational share of Education, Training, and Library occupations in the Rochester region (9.7%) which is significantly higher than the share in the Buffalo (8.0%) and Syracuse regions (8.6%). This occupation has a higher wage than the average wage for all occupations in these three regions (Table 32).
- The Buffalo region has a higher occupational share than the other two regions in the category of Food Preparation and Service Related, a very low wage occupation.
- The Rochester region has a higher occupational share than the other two regions in the category of Computer and Mathematical, a high wage occupation.
- The Rochester and Syracuse regions have higher occupational shares than the Buffalo region in the occupational category of Architecture and Engineering, a high wage occupation.
- Of the three regions in Table 32, the region with the highest overall wage for All Occupations is the Rochester region (\$42,290). This wage, although high is still lower than the overall wage for All Occupations in the United States (\$43,460) (Table 31 & 32).

FASTEST GROWING FIRMS

BUFFALO REGION

Table 33. Fastest Growing Private Firms in the Buffalo Region, by National Rank and Revenue Growth (2006-2009)

National Rank	Company Name	City	Buffalo Region County	Revenue (\$Mil)	Revenue Growth (2006-2009)	Founded	Employees
157	Construction and Service Solution's	Buffalo	Erie	\$3.4	1771%	2002	47
354	U.S. Energy Development	Getzville	Erie	\$55.7	830%	1980	85
407	ESC Select	Amherst	Erie	\$25.1	726%	2003	4
1285	Young + Wright Architectural	Buffalo	Erie	\$2.9	230%	2009	19
1434	Logistic Dynamics	Amherst	Erie	\$18.1	201%	2003	25
1921	Eminent Technology Solutions	Williamsville	Erie	\$3.5	140%	2004	31
2032	Synacor	Buffalo	Erie	\$60.8	131%	2001	205
2158	Energy Curtailment Specialists	Buffalo	Erie	\$41.9	120%	2001	120
2241	Vaspian	Buffalo	Erie	\$3.5	114%	2004	9
2329	Advanced Educational Products	Buffalo	Erie	\$7.4	108%	1992	34
2389	Practice Management Center	North Tonawanda	Niagara	\$5.8	104%	2002	145
3145	Worldwide Travel Staffing	Tonawanda	Erie	\$17.4	64%	1993	440
3169	The Hamister Group	Williamsville	Erie	\$43.4	63%	1977	740
3595	Buffalo Filter	Buffalo	Erie	\$11.0	47%	1995	0
3846	HVR Advanced Power Components	Tonawanda	Erie	\$2.9	38%	1993	10
3920	Safespan Platform Systems	Tonawanda	Erie	\$11.5	35%	1995	80
4091	Upstate Pharmacy	West Seneca	Erie	\$34.7	30%	1998	60
4228	SLR Contracting & Service	Buffalo	Erie	\$17.5	26%	1996	28
4301	Life Safety Engineered Systems	Buffalo	Erie	\$4.9	24%	1994	20
4555	Kee Safety	Buffalo	Erie	\$9.6	17%	1934	26
4666	Cevermethod	Elma	Erie	\$2.2	13%	2000	0
4887	Copier Fax Business Technologies	Buffalo	Erie	\$3.6	6%	1990	21

Note: Rank out of 5,000; Employees are self reported. Total may reflect employees outside of the Upstate New York region

Source: www.inc.com

- Of the 5,000 fastest growing firms in the United States, 350 are located in the state of New York, and of those, 22 are located in the Buffalo region (Table 33).
- All but one of the companies listed in Table 33 experienced at least double-digit growth from 2006 to 2009.
- Synacor (#2032) had the largest total revenue (\$60.8 million) of the companies listed in Table 33. In total, 11 firms had revenues over \$10 million in 2009.

ROCHESTER REGION

Table 34. Fastest Growing Private Firms in the Rochester Region, by National Rank and Revenue Growth (2006-2009)

National Rank	Company Name	City	Rochester Region County	Revenue (\$Mil)	Revenue Growth (2006-2009)	Founded	Employees
705	Callfinity	Rochester	Monroe	\$4.1	432%	1999	34
1044	5LINX Enterprises	Rochester	Monroe	\$48.9	289%	2001	170
1294	Sydor Instruments	Rochester	Monroe	\$3.9	228%	2004	11
1939	Fibertech Networks	Rochester	Monroe	\$66.9	139%	2000	200
2036	Butler/Till Media Services	Rochester	Monroe	\$62.5	130%	1998	65
2435	Eagle Productivity Solutions	Rochester	Monroe	\$9.4	100%	1988	80
2465	Surmotech	Victor	Ontario	\$8.6	98%	1990	52
2817	Info Directions	Victor	Ontario	\$18.1	80%	1996	152
2919	Lewis Tree Service	W. Henrietta	Monroe	\$277.1	73%	1938	3021
2963	Sutherland Global Services	Pittsford	Monroe	\$402.9	72%	1986	24000
2976	First American Equipment Finance	Fairport	Monroe	\$35.5	71%	1994	84
3235	Passero Associates	Rochester	Monroe	\$13.0	60%	1972	88
3273	M/E Engineering	Rochester	Monroe	\$25.5	59%	1991	190
3379	E-chx	Rochester	Monroe	\$11.7	55%	2001	104
3381	DDS Companies	Rochester	Monroe	\$25.1	55%	2001	200
3409	Impact Technologies	Rochester	Monroe	\$20.4	54%	1999	128
3445	Fieldtex Products	Rochester	Monroe	\$9.3	52%	1973	99
3478	NimbleUser	Pittsford	Monroe	\$3.6	51%	1992	36
3491	VarData	Rochester	Monroe	\$10.1	51%	2004	18
3525	Complete Payroll Processing	Perry	Wyoming	\$4.0	49%	1991	30
3591	RockBottomGolf.com	Rochester	Monroe	\$31.4	47%	2002	35
3770	Stefan Sydor Optics	Rochester	Monroe	\$8.4	40%	1964	50
4293	Catalyst	Rochester	Monroe	\$9.5	24%	1990	75
4347	Liberty Pumps	Bergen	Genesee	\$33.0	23%	1965	90
4394	Partners + Napier	Rochester	Monroe	\$13.4	21%	2004	150
4821	American Swiss Products	Pittsford	Monroe	\$3.0	9%	1954	10
4902	RailComm	Fairport	Monroe	\$4.7	5%	1999	55
4931	PharmaSmart	Rochester	Monroe	\$5.4	4%	2004	20

Note: Rank out of 5,000; Employees are self reported. Total may reflect employees outside of the Upstate New York region

Source: www.inc.com

- Of the 5,000 fastest growing firms in the United States, 350 are located in the state of New York, and of those, 28 are located in the Rochester region (Table 34).
- All but three of the firms listed in Table 34 experienced at least double-digit growth in revenues from 2006 to 2009; the top six firms posted triple-digit growth.
- Sutherland Global Services had by far the highest amount of revenues (\$402.9 million) of the companies listed in Table 34. Sixteen (16) total firms had revenues over \$10 million dollars in 2009.

SYRACUSE REGION

Table 35. Fastest Growing Private Firms in the Syracuse Region, by National Rank and Revenue Growth (2006-2009)

National Rank	Company Name	City	Syracuse Region County	Revenue (\$Mil)	Revenue Growth (2006-2009)	Founded	Employees
625	Systems Made Simple	Syracuse	Onodaga	\$33.8	483%	1991	68
2829	Pinckney Hugo Group	Syracuse	Onodaga	\$9.2	79%	1940	32
2906	Giovanni Food	Syracuse	Onodaga	\$13.9	74%	1934	55
3292	Finger Lakes Business Services	Auburn	Cayuga	\$2.3	58%	2002	65
3466	Air Innovations	North Syracuse	Onodaga	\$8.3	51%	1986	39
3477	Infinet Technology Solutions	Syracuse	Onodaga	\$10.6	51%	2005	26
3504	Avalon Document Services	Syracuse	Onodaga	\$4.8	50%	2000	73
3891	J.R. Clancy	Syracuse	Onodaga	\$24.2	36%	1885	55
4344	PWR	Syracuse	Onodaga	\$20.3	23%	1999	75
4642	Environmental Products & Services of Vermont	Syracuse	Onodaga	\$24.9	14%	2000	150
4872	C&S Companies	Syracuse	Onodaga	\$59.8	6%	1968	472

Note: Rank out of 5,000; Employees are self reported. Total may reflect employees outside of the Upstate New York region
Source: www.inc.com

- Of the 5,000 fastest growing firms in the United States, 350 are located in the state of New York, and of those, 11 are located in the Syracuse region (Table 35).
- All but one of the firms listed in Table 35 experienced at least double-digit growth from 2006 to 2009.
- C&S Companies had by far the highest amount of revenues (\$59.8 million) of the companies listed in Table 35. Six other firms had revenues over \$10 million dollars in 2009.

TOP EMPLOYERS

BUFFALO REGION (WESTERN NEW YORK REGION)

Table 36. Top 10 Private Employers by Number of Employees in the Buffalo Region, 2011

Rank	Company Name	Employment	Business Type
1	Kaleida Health	10,000	Health Care System
2	Catholic Health System	6,230	Health Care System
3	Employer Services Corp	6,089	Employment-related services
4	Tops Markets LLC	5,103	Supermarket retailer
5	HSBC Bank USA N.A.	5,000	Commercial Bank
6	M&T Bank	4,611	Commercial Bank
7	Seneca Gaming Corp.	3,505	Entertainment
8	Catholic Diocese of Buffalo	3,500	Parishes, Schools, and Institutions
9	Wegmans Food Markets Inc.	3,011	Supermarket Retailer
10	Roswell Park Cancer Institute	2,875	Hospital

Source: Buffalo Niagara Partnership <http://www.buffaloniagara.org/files/content/Research/DataPoints/TopBusinesses.pdf>

- Table 36 displays the Top 10 Private Employers in the Buffalo region in 2011. These employers had a total employment of 49,924.
- Three of the ten employers listed in Table 36 are in the health care field.
- Two of the companies are in the supermarket retailing industry and two are in the commercial banking industry.
- M&T Bank (#6), is ranked second among companies in the Upstate New York region on the Fortune 1000 listing and ranked 535th in the United States. M&T Bank is the only company in Table 36 on the Fortune 1,000 list; for a complete listing of the Fortune 1,000 companies in Upstate New York see Appendix A.1.
- For a comprehensive listing of the Top Employers in the Buffalo region see Appendix A.2.

ROCHESTER REGION (FINGER LAKES REGION)

Table 37. Top 10 Employers by Number of Employees in the Rochester Region, 2009

Rank	Company Name	Employment	Business Type
1	University of Rochester/Strong Health	19,441	Higher Education, Health Care
2	Wegmans Food Markets	13,381	Distribution, Retail, Real Estate Developer
3	Eastman Kodak	8,500	Manufacturer, World Headquarters, Exporter, R&D
4	Rochester General Health System	7,210	Health Care
5	Xerox	6,935	Manufacturer, Exporter
6	Rochester City School District	6,327	Education
7	Unity Health System	5,280	Health Care
8	Monroe County	4,880	Local Government
9	Lifetime Healthcare Cos.	3,542	Health Care
10	City of Rochester	3,500	Local Government

Source: Greater Rochester <http://www.rochesterbiz.com/Business/Information/Lists.aspx>

- Table 37 displays the Top 10 Employers in the Rochester region in 2009. These employers had a total employment of 78,996.
- Four of the ten employers listed in Table 37 are in the health care field and two are local governments.
- Eastman Kodak (#3), is ranked first among companies in the Upstate New York region on the Fortune 1000 listing and ranked 284th in the United States. Eastman Kodak is the only company in Table 37 on the Fortune 1,000 list; for a complete listing of the Fortune 1,000 companies in Upstate New York see Appendix A.1.
- For a comprehensive listing of the Top Employers in the Rochester region see Appendix A.3.

SYRACUSE REGION (CENTRAL NEW YORK REGION)

Table 38. Top 10 Employers by Number of Employees in the Syracuse Region, 2011

Rank	Company Name	Employment	Business Type
1	SUNY Upstate Medical University	6,400	Academic Health Science Center
2	Syracuse University	5,925	Higher Education
3	Wegmans Food Markets, Inc.	3,760	Food & Pharmacy Stores (10 locations)
4	St. Joseph's Hospital Health Center	3,150	Medical and Health Care Facility
5	Magna Drivetrain - New Process Gear Inc.	2,600	Automotive and truck transfer cases, transmissions, transaxles
6	Crouse Hospital	2,400	Medical and Health Care Facility
7	Lockheed-Martin MS2	2,350	Premier systems integrator of network-centric naval combat systems
8	P & C Food Markets Division of Penn Traffic	2,220	Food retailer, wholesaler and franchiser for 64 corporate stores, 68 Big M Markets and over 103 wholesale accounts
9	National Grid	1,860	Electric/gas utility
10	Loretto	1,825	A comprehensive continuing care system specializing in older adults

Source: Greater Syracuse Economic Growth Council http://www.syracusecentral.com/market_data/major_employers.htm

- Table 38 displays the Top 10 Employers in the Syracuse region in 2011. These employers had a total employment of 32,490.
- Three of the ten employers listed in Table 38 are in the health care field.
- For a comprehensive listing of the Top Employers in the Syracuse region see Appendix A.4.

ECONOMIC INCLUSION (MINORITY- AND WOMEN-OWNED BUSINESSES)

MINORITY INCLUSION

Table 39. Black/African Americans, Asians, and Hispanics as a Percentage of Business Owners and Percentage of the Population, for the Upstate New York Region, State of New York and the United States, 2007

Area	BLACK/AFRICAN AMERICAN			ASIAN			HISPANIC		
	% of Business Owners	% of Population	Share of Shares	% of Business Owners	% of Population	Share of Shares	% of Business Owners	% of Population	Share of Shares
The Buffalo Region									
The Buffalo CSA (Cattaraugus, Erie, and Niagara Counties)	3.91%	11.30%	0.35	2.57%	1.65%	1.55	1.20%	3.19% ^A	0.37
Allegany County	N/A	1.03% ^A	N/A	N/A	1.31% ^A	N/A	N/A	1.17% ^A	N/A
Chautauqua County	1.85%	2.07% ^A	0.89	N/A	0.44% ^A	N/A	N/A	4.81% ^A	N/A
The Rochester Region									
The Rochester CSA (Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, and Wayne Counties)	4.47%	10.34%	0.43	2.79%	2.07%	1.35	2.30%	4.77% ^A	0.48
Wyoming County	N/A	5.55% ^A	N/A	N/A	0.50% ^A	N/A	N/A	3.23% ^A	N/A
Yates County	N/A	0.74% ^A	N/A	N/A	0.35% ^A	N/A	N/A	1.59% ^A	N/A
The Syracuse Region									
The Syracuse CSA (Cayuga, Madison, Onondaga, and Oswego Counties)	3.08%	7.07%	0.43	2.40%	1.81%	1.32	1.54%	2.45% ^A	0.63
Cortland County	N/A	1.43% ^A	N/A	N/A	0.68% ^A	N/A	N/A	1.64% ^A	N/A
New York	10.43%	15.60%	0.67	10.06%	6.89%	1.46	9.87%	16.37% ^A	0.60
United States	7.09%	12.38%	0.57	5.72%	4.39%	1.30	8.34%	15.06% ^A	0.55

Note: ^A indicates population derived from U.S. Census Bureau Population Estimates (2007). Counties for which data is not available are designated with N/A. CSA is a Combined Statistical Area

Source: U.S. Census Bureau, Survey of Business Owners (2207); U.S. Census Bureau, American Community Survey (2007); U.S. Census Population Estimates (2007)

The demographic profile of Upstate New York shows that minority groups account for small shares of the regional population. Table 39 presents minority business ownership in the Buffalo region, the Rochester region, the Syracuse region, the state of New York and the United States (data are not available for some counties, and are designated with a N/A):

1. Percentage of business owners by minority group⁶³
 2. Percentage of the minority group to the total population⁶⁴
 3. Share of shares - compares the percentage of business owners to the percentage of the minority group in the total population. If this percentage =1, the share of business owners in a minority group is equal to the proportion of that group in the total population.
- Of the three Upstate New York regions analyzed, the Rochester and Syracuse CSAs had the highest share of *Black/African American* business owners of 0.43; this is still significantly lower than the state of New York (0.67) and the United States (0.57) (Table 39). For non-metro areas for which data is available, Chautauqua County has a higher share of *Black/African American* business owners of 0.89.
 - The Asian community has the highest participation (in relation to their size of population) in business ownership of other minority categories (1.30 in the United States and 1.46 in New York). Of the three Upstate New York CSAs, the Buffalo CSAs had the highest share of shares for *Asian* business ownership (1.55).
 - In comparison to the state of New York (0.60) and the nation (0.55), *Hispanics* have the lowest participation (in relation to their size of population) in business ownership in all three Upstate New York regions: Buffalo CSA (0.37), Rochester CSA (0.48), and Syracuse CSA (0.63).

⁶³ U.S. Census Bureau, Survey of Business Owners (2007)

⁶⁴ U.S. Census Bureau, American Community Survey (2007); U.S. Census Bureau Population Estimates (2007)

WOMEN-OWNED BUSINESSES

Table 40. Percentage of Women-Owned Businesses for the Upstate New York Region, State of New York and the United States, 2007

Area	Women Owned Firms	Total Firms	% of Women Owned Businesses
The Buffalo Region			
The Buffalo CSA (Cattaraugus, Erie, and Niagara Counties)	21,103	79,227	26.64%
Allegany County	974	3,326	29.28%
Chautauqua County	N/A	9,845	N/A
The Rochester Region			
The Rochester CSA (Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, and Wayne Counties)	25,611	83,903	30.52%
Wyoming County	893	2,986	29.91%
Yates County	N/A	1,797	N/A
The Syracuse Region			
The Syracuse CSA (Cayuga, Madison, Onondaga, and Oswego Counties)	15,343	54,688	28.06%
Cortland County	N/A	3,190	N/A
New York	594,589	1,956,895	30.38%
United States	7,792,353	27,097,236	28.76%

Note: CSA is a Combined Statistical Area; Counties for which data is not available are designated with N/A.
Source: U.S. Census Bureau, Survey of Business Owners 2007

- The highest percentage of women-owned businesses was in the Rochester CSA where 30.52% of all businesses are owned by women, which is higher than the other Upstate New York regions (26.64% in the Buffalo CSA; 28.06% in the Syracuse CSA), and the United States (28.76%) (Table 40).
- The Buffalo CSA (26.64%) had the smallest share of women-owned businesses among geographies in Table 40.

ECONOMIC DEVELOPMENT ORGANIZATIONS

BUFFALO REGION (WESTERN NEW YORK REGION)

- Table 41 lists **local** economic development organizations located in the five counties of the Buffalo region with contact information.

Table 41. The Buffalo Region Economic Development Organizations, 2011

Economic Development Organization Name	County	Contact	Phone	Website
Allegany County Industrial Development Agency	Allegany	John Margeson	(800) 893-9484	www.alleganyco.com
Cattaraugus County Industrial Dev. Agency	Cattaraugus	Thomas E. Buffamante	(716) 699-2005	http://www.cattcoida.com/
Southern Tier West Regional Planning & Development Board	Cattaraugus	Richard Zink	(716) 945-5301	www.southerntierwest.org
Chautauqua County Industrial Dev. Agency	Chautauqua	Bill Daly	(716) 664-3262	www.ccida.com
Dunkirk Economic Development	Chautauqua	Kory Ahlstrom	(716) 366-3333	http://www.dunkirkldc.com/
JOBS Chautauqua	Chautauqua	Todd Trantum	(716) 488-2847	http://www.chautauquaworks.com/
Westfield Development Corporation	Chautauqua	John T. Rawlinson	(716) 326-2200	http://www.westfieldny.com/about-westfield-ny/
Amherst Chamber	Erie	Colleen C. DiPirro	(716) 632-6905	www.amherst.org
Amherst Industrial Development Agency	Erie	Fredrick A. Vilonen	(716) 688-9000	www.amherstida.com
Buffalo Niagara Convention and Visitors Bureau	Erie	Peter Burakowski	(716) 852-0511	www.visitbuffaloniagara.com
Buffalo Niagara Jobs	Erie	Lisa Roy	(716) 842-1357	www.buffaloNiagara.org/Home/OurRegion/GrowYourCareer
Buffalo Niagara Partnership	Erie	Andrew J Rudnick	(716) 852-7100	http://www.thepartnership.org/
Buffalo SBA	Erie	Malcolm Richards	(716) 551-4301	http://www.sba.gov/about-offices-content/2/3134
Buffalo Urban Development Corporation	Erie	Peter M. Cammarata	(716) 856-6525	http://www.ecidany.com/budc-home
Canisius College Women's Business Center	Erie	Melinda Rath Sanderson	(716) 888-8280	http://www.canisius.edu/wbc/
Construction Exchange of Buffalo and WNY	Erie	James C. Logan	(716) 874-3435	www.conexbuff.com/
Economic Development City of Buffalo	Erie	Brendan Mehaffy	(716) 851-5035	http://www.ci.buffalo.ny.us/Home/City_Departments/Office_of_Strategic_Planning/Economic_Development
Erie County Industrial Development Agency	Erie	Al Culliton	(716) 856-6525	http://www.ecidany.com/

Source: Website of Individual ED orgs; Buffalo Niagara Partnership http://www.buffaloniagara.org/Home/About_BNE/Alliances

Table 41: The Buffalo Region Economic Development Organizations, 2011 (Continued)

Economic Development Organization Name	County	Contact	Phone	Website
Grand Island Chamber	Erie	Carolyn Konopski	(716) 773-3651	www.gichamber.org
Grand Island Economic Development Advisory Board	Erie	Laura Anderson	(716) 773-9600 ext. 721	http://www.gichamber.org/business.html
Hamburg Industrial Development Agency	Erie	Michael J. Bartlett	(716) 648-4145	hamburgida@aol.com
Lancaster Area Chamber	Erie	Kathy Wolski	(716) 681-9755	www.laccny.org
National Fuel Gas (Economic Development)	Erie	<u>Karen L. Merkel</u>	(716) 857-7000	www.nationalfuelgas.com
Small Business Development Center (SBDC) at Buffalo State College	Erie	Susan A. McCartney	(716) 878-4030	http://www.buffalostate.edu/sbdc/
Town of Clarence Industrial Development Agency	Erie	David Hartzell	(716) 741-0149	TCIDA Website
Town of Concord Industrial Development Agency	Erie	Gary Eppolito	(716) 592-3321	http://www.concordida.com/
Western New York Regional Office Empire State Development	Erie	Christina Orsi	(716) 846-8200	http://www.empire.state.ny.us/WesternNY.html
WNY Technology Development Corp.	Erie	Philip Celotto	(716) 681-9755	www.wnytcd.com
World Trade Center Buffalo Niagara	Erie	Chris Johnston	(716) 852-7160	http://www.wtcbn.com/
City of Niagara Falls	Niagara	Mayor Paul A. Dyster	(716) 286-8800	www.niagarafallsusa.org
Niagara County Industrial Development Agency	Niagara	Samuel M. Ferraro	(716) 278-8760	www.nccedev.com
Niagara Falls USA Tourism and Convention Corp.	Niagara		(716) 282-8992	www.niagara-usa.com
Niagara USA Chamber	Niagara	Kevin Schuler	(716) 285-9141	www.niagarachamber.org
USA Niagara Development Corp.	Niagara	Christopher J. Schoepflin	(716) 284-2556	www.usaniagara.org

Source: Website of Individual ED orgs; Buffalo Niagara Partnership http://www.buffaloniagara.org/Home/About_BNE/Alliances

ROCHESTER REGION (FINGER LAKES REGION)

- Table 42 lists **local** economic development organizations located in the nine counties of the Rochester region with contact information.

Table 42. The Rochester Region Economic Development Organization, 2011

Economic Development Organization Name	County	Contact	Phone	Website
Rochester Economic Development Corporation	Monroe	R. Carlos Carballada	(585) 428-6817	http://www.cityofrochester.gov/article.aspx?id=8589941225
Greater Rochester Enterprise	Monroe	<u>Mark S. Peterson</u>	(585) 530-6200	http://www.rochesterbiz.com/GRE/
Monroe County Economic Development Division	Monroe	Judy A. Seil	(585) 753-2000	http://www.monroecounty.gov/economic2-index.php
County of Monroe Industrial Development Agency	Monroe	Judy Seil	(585) 753-2000	http://www.growmonroe.org/
Empire State Development Finger Lakes Regional Office	Monroe	Robert McNary	(585) 399-7050	http://www.esd.ny.gov/FingerLakes.html
Finger Lakes Economic Development Center	Yates	Steve Griffin	(315) 536-7328	http://www.fingerlakesedc.com/
Brockport Small Business Development Center	Monroe		(585) 395-8410	http://www.nyssbdc.org/centers/centers.aspx?centid=22
Genesee County Economic Development Center	Genesee	Steven G. Hyde	(585) 343-4866	http://www.gcedc.com/index.php/gcedc/
Rochester Business Alliance	Monroe	Sandra A. Parker	(585) 244-1800	http://www.rochesterbusinessalliance.com/
Urban League of Rochester	Monroe	William G. Clark	(585) 325 -6530	http://www.ulr.org/
High Tech Rochester	Monroe	James S. Senall	(585) 214-2400	http://www.htr.org/default.asp
Excell Partners	Monroe	Theresa B. Mazzullo	(585) 389-6115	http://www.excellpartnersinc.com/
Digital Rochester	Monroe	Lisa Doerner	(585) 330-9797	http://digitalrochester.com/
The Entrepreneurs Network	Monroe	Jean Kase	(585) 753-2031	http://www.ten-ny.com/
The New York State Small Business Development Center	Monroe	Jan Pisanczyn	(585) 395-8410	http://www.nyssbdc.org/centers/centers.aspx?centid=22
SCORE	Monroe		(585) 263-6473	http://www.scorerochester.org/
Genesee County Economic Development Center	Genesee	Steven G. Hyde	(585) 343-4866	www.gcedc.com
Orleans County Industrial Development Agency	Orleans	James Whipple	(716) 278-8760	www.orleansdevelopment.org
Wyoming County Chamber	Wyoming	Laura Lane	(800) 951-9774	www.wycochamber.org
Wyoming County Industrial Development Agency	Wyoming	James M. Pierce	(585) 237-4110	econdev@wycol.com

Source: Greater Rochester Enterprise <http://www.rochesterbiz.com/Business/Information/Entrepreneurial/Support.aspx>

SYRACUSE REGION (CENTRAL NEW YORK REGION)

- Table 43 lists **local** economic development organizations located in the five counties of the Syracuse region with contact information.

Table 43. The Syracuse Region Economic Development Organization, 2011

Economic Development Organization Name	County	Contact	Phone	Website
Upstate Venture Connect	Onondaga	Martin Babinec	(315) 235-1283	http://uvc.org/
Greater Syracuse Economic Growth Council Resource Center	Onondaga	-	(877) 797-8222	http://www.syracusecentral.com/
Syracuse Industrial Development Agency	Onondaga	William M. Ryan	(315) 448-8005	http://www.syracuse.ny.us/Syracuse_Industrial_Development_Agency.aspx
Onondaga County Industrial Development Agency	Onondaga	-	(315) 435-3770	http://www.syracusecentral.com/business_resources/ida_new2.htm
Central New York Regional Planning and Development Board	Onondaga	David V. Butter	(315) 422-8276	http://www.cnypdb.org/programs/ec-dev.asp
Madison County Agricultural Economic Development	Madison	Eve Ann Shwartz	(315) 684-3001	http://madisoncountyagriculture.com/?p=527
Cortland County Business Development Corporation	Cortland	Garry Vangorder	(607) 756-5005	http://www.cortlandbusiness.com/
Central New York Regional Office Empire State Development	Onondaga	James Fayle	(315) 425-9110	http://www.empire.state.ny.us/CentralNY.html
CenterState Corporation for Economic Development	Onondaga	Rob Simpson	(315) 470-1800	http://www.centerstateceo.com/
Greater Syracuse Business Development Corporation	Onondaga	Peggy A. Adams	(315) 470-1880	http://www.gsbdc.com/
The Central New York Technology Development Organization	Onondaga	Robert I. Trachtenberg	(315) 425-5144	http://www.tdo.org/
Small Business Development Center at Onondaga Community College	Onondaga	sbdc@sunyocc.edu	(315) 498-6070	http://sbdc.sunyocc.edu/

Source: Greater Syracuse Economic Growth Council www.syracusecentral.com

CHAPTER 3: ENTREPRENEURSHIP AND INNOVATION

The analysis conducted by the Center for Economic Development at Cleveland State University's Maxine Goodman Levin College of Urban Affairs examines the entrepreneurship and innovation profile of Upstate New York. First, we summarize information from other studies that were conducted on entrepreneurship and innovation in the Upstate New York area. Second, we describe major findings from an analysis conducted by the Center for Economic Development.

Upstate New York is defined for this study as a 19-county region that includes the 5-county Buffalo region⁶⁵ (Western New York region) the 9-county Rochester region⁶⁶ (Finger Lakes region) and the 5-county Syracuse region⁶⁷ (Central New York region).

In order to create a benchmarking system, we compared Upstate New York region, and its sub-regions, to the state of New York and the United States.

The structure of this report is such that in most instances throughout the analysis, a graphic or table is followed by bullet points that highlight the observations of collected and studied data. The overall 19-county Upstate New York region is analyzed and discussed first, and then followed by an analysis of each sub-region.

⁶⁵ Buffalo region: Allegany, Cattaraugus, Chautauqua, Erie, and Niagara counties

⁶⁶ Rochester region: Genesee, Livingston, Monroe, Ontario, Orleans, Wayne, Wyoming, Yates, and Seneca counties

⁶⁷ Syracuse region: Cayuga, Cortland, Onondaga, Oswego, and Madison counties

SUMMARY OF FINDINGS

This section provides a review of other studies that were conducted about the Upstate New York region and its sub-regions. These studies focus on entrepreneurship, the entrepreneurial culture, innovation, investment, and the role the universities in this region play in innovation.

Based upon existing research studies about the Upstate New York region, it is clear that this area has rich community assets including universities, science and technology growth opportunities, and an environment that stimulates innovations. The state of New York and many regions within Upstate New York offer tax credits for businesses that incentivize innovation and entrepreneurship, including R&D tax credits. However, there are no tax credits for angel, venture capital, or risk capital investments. Even with all of these assets, there are missing links: a culture that fosters entrepreneurship and presence of risk capital within the region.

INNOVATION INDEX

The U.S. Economic Development Administration conducted research into the empirical measure of innovation in United States metro regions⁶⁸. They created an Innovation Index by combining measures on human capital, economic dynamics, productivity and employment, and economic well-being. The Rochester region is the only Upstate New York region to score above the U.S. average.

- Upstate New York (19-counties) = 97.2
- The Buffalo region (Western New York region) = 88.6
- The Rochester region (Finger Lakes region) = 104.4
- The Syracuse region (Central New York region) = 92.5
- State of New York = 102.0
- United States = 100.0
- Boston-Cambridge-Quincy, MA (MSA) = 126.7 (National leader in Innovation)

DELOITTE 2010 TECHNOLOGY FAST 500 RANKINGS

The Deloitte 2010 Technology Fast 500⁶⁹ rankings show the 500 fastest growing technology, media, telecommunications, life sciences, and clean technology companies in North America. Rankings are based on companies' revenue growth from fiscal year 2005 to fiscal year 2009.⁷⁰

There are three companies in the Upstate New York area on the Fastest 500 Ranking:

- Rank 97th: Cleveland Biolabs, Inc. (2009 revenue \$14.3 million)
- Rank 284th: Synacor (2009 revenue \$60.8 million)
- Rank 409th: PAETEC Holding Corp (2009 Revenue \$1,580 million)

⁶⁸ http://www.statsamerica.org/innovation/innovation_index/region-select.html

⁶⁹ http://www.deloitte.com/view/en_US/us/Industries/technology/technology-fast500/89225738ab4cb210VgnVCM3000001c56f00aRCRD.htm

⁷⁰ http://www.deloitte.com/view/en_US/us/Industries/technology/technology-fast500/

EXISTING ORGANIZATIONS IN THE ENTREPRENEURIAL ECOSYSTEM

The organizations described below operate within the entrepreneurial ecosystem with different framework and models than JumpStart Inc. These are emphasized to identify gaps within the entrepreneurial ecosystem for JumpStart Community Advisors.

STATE OF NEW YORK

In 2009, the Governor of the State of New York, David A. Paterson, initiated a taskforce on diversifying the New York State economy through industry-higher education partnerships.⁷¹ They identified key findings and recommendations in regard to access to capital:

Key Findings:

- Lack of available funding between technology maturity and the ability to produce company revenues (the “valley of death”) is a structural problem occurring in New York State as elsewhere.
- Angel investors currently provide the crucial start-up capital and mentoring for start-up companies.
- New York has done less than other states to make capital available to start-ups and small technology businesses.
- Investors located in the state are not being made aware of potential investment opportunities.
- Investors are frequently not integrated into the university-industry research community.
- Significant amounts of venture capital are available in New York State but most often are invested elsewhere.
- The typical faculty innovator has expertise in the laboratory, but minimal experience writing a business plan, marketing opportunities to venture capitalists, or recruiting management talent.

Key Recommendations:

- Create a seed fund for pre-revenue start-up companies.
- Provide capital gains relief for founding investors.
- Increase exposure of investment opportunities to angel investors and venture capitalists through outreach and inclusion in relevant summits, advisory boards, and campus activity.
- Promote university collaboration with the investor community.
- Existing business assistance organizations should adopt a regional hub model.
- Academic institutions should adopt a credit-for-service model, where entrepreneurial-minded students can get course credit for providing consulting services to companies.

UPSTATE NEW YORK

Much of the literature in the Upstate New York region focuses on the significant lack of risk-capital in the region. There have been some initiatives to try to address this issue, including the creation of some organizations to help facilitate deal-flow. However, there is little support to actively increase risk capital, only to advocate for its increase.

NOTE: for more information on Angel, Venture Capital, and Private Equity Investment firms see Tables 46-48

⁷¹ State of New York “Taskforce on Diversifying the New York State Economy through Industry-Higher Education Partnerships” December 14, 2009

SEED NY

- Seed NY⁷² is an awareness campaign to inform people on the urgent need for seed funding statewide in New York, how it plays a role in the entrepreneurial ecosystem, and how seed funding can transform New York to an innovation-based economy.
- This organization advocates only for the increase of risk capital in the state; it does not provide any funding.
- The organization has three areas of focus:
 1. Educate
 2. Advocate
 3. Transform

PRE-SEED WORKSHOP (PSW)

- Pre-Seed Workshop (PSW)⁷³ was started in the Rochester region in 2004 and, since then, has spread to Buffalo, Ithaca, Geneva, Syracuse, Albany, NYC, and Long Island.
- PSW is a two and a half day event which allows for hi-tech ideas to move forward towards the start-up of a new company. The workshops distill six to eight hi-tech ideas from universities or research centers and help the founders move from conceptualization to the pre-seed stage.

EXCELL PARTNERS

- Excell Partners⁷⁴ is a partnership between the University of Rochester and the state of New York to provide early stage financing to hi-tech startups in the Upstate New York region.
- They have made a strong commitment to Upstate New York: if an investment is made by Excell then the company must relocate to the region; Excell also gives special consideration to companies already located within the region.

UPSTATE NEW YORK VENTURE ASSOCIATION

- The Upstate New York Venture Association (UNYVA)⁷⁵ is a membership driven organization that promotes education and advocacy network and looks to promote and increase the quantity of venture capital and private equity investments in the state of New York.
- This organization does not provide funding; it provides only connections and information.

THE BUFFALO REGION (WESTERN NEW YORK REGION)**BRIGHT BUFFALO NIAGARA**

- Starting in 2009, Bright Buffalo Niagara⁷⁶ was created to help entrepreneurs develop their ideas in order to obtain funding.
- Bright Buffalo Niagara sponsors events in the region to further connections and information on how to court investment and, as a result, foster an entrepreneurial culture in the region.
- This organization does not provide funding; it provides only connections and information about this topic.

⁷² <http://www.seedny.org/>

⁷³ Albers, Judith J and Mark W. Wilson "Launching High-Tech Start-Up Companies in New York State: Launching High-Tech Start-Up Companies in New York State." December 2010

⁷⁴ <http://www.excellny.com/>

⁷⁵ <https://www.uvany.org/>

⁷⁶ <http://www.brightbuffaloniagara.com/>

WESTERN NEW YORK VENTURE ASSOCIATION (WNYVA)

- WNYVA⁷⁷ is a non-profit membership-based organization that aims to link investors and entrepreneurs.
- **The Buffalo Angels** is a program run out of WNYVA. According to the program's profile, they invest in companies within a 1-2 hour drive from the Buffalo/Rochester areas, and members invest \$100,000 - \$300,000 per deal; there is no particular industry in which they invest.

THE ROCHESTER REGION (FINGER LAKES REGION)**HIGH TECH ROCHESTER (HTR)**

- High Tech Rochester⁷⁸ has services targeted toward start-up, growing, and established firms in the Rochester region with multiple Centers (listed below in the Accelerators section).
- HTR runs the Manufacturing Extension Partnership (MEP) in the region.
- *Eureka! Jump Start* Program helps individuals narrow the focus of their ideas and increase capacity in one day; provides 30 days of consulting to ensure progress afterwards.
- Currently opening a Tech Commercialization Service department
- Helps clients obtain funds from a variety of sources:
 - Empire State Development
 - NYS Department of Labor
 - New York State Energy Research and Development Authority (NYSERDA)
 - City and County Development Organizations
 - SBIR and STTR Grants
 - Other special-purpose programs

THE SYRACUSE REGION (CENTRAL NEW YORK REGION)**UPSTATE VENTURE CONNECT**

- Upstate Venture Connect⁷⁹ is an organization that is building hi-tech, high-growth companies backed by private capital.
- They intend to achieve these goals by linking Upstate New York venture entrepreneurs to talent and support services.
- Upstate Venture Connect is developing an online platform entitled *Vconnect* where entrepreneurs can find the resources they need by connecting with each other and potential investors.

NEW YORK'S CREATIVE CORE

- New York's Creative Core⁸⁰ is an entrepreneurship organization with a service area larger than the Syracuse region as defined for this report. Its mission is to encourage investment and innovation in the region.

⁷⁷ <http://www.wnyventure.com/>

⁷⁸ <http://www.htr.org/>

⁷⁹ <http://uvc.org/>

⁸⁰ <http://www.creativecoreny.com/>

- The organization offers several ways in which entrepreneurs can network and collaborate including meet-up groups, a business competition, and grants.
- This organization does not provide funding; it provides only connections and information.

THE TECH GARDEN

- The Tech Garden⁸¹ cultivates revenue-producing businesses that have a positive effect on the economic environment. The Tech Garden provides a strategic advantage to early-stage and mid-sized technology firms through statewide access to resources and networks.

ROLE OF UNIVERSITIES IN REGION

THE BUFFALO REGION (WESTERN NEW YORK REGION)

UNIVERSITY OF BUFFALO

The University of Buffalo (UB)⁸² has been aggressive at identifying partnerships through its university-industry initiatives and has looked to multiple disciplines to continue this outreach. Through partnerships with the UB Office of Science, Technology Transfer and Economic Outreach (STOR), the New York State Center of Excellence in Bioinformatics and Life Sciences (COE), and the Center for Advanced Biomedical and Bioengineering Technology (CAT) have been able to:

- Work closely with almost 200 companies, of which nearly half were clients of the UB's business incubator program for emerging businesses.
- UB's incubator provides them with services such as wet lab space, flexible rents, administrative support, and access to UB resources.

THE ROCHESTER REGION (FINGER LAKES REGION)

THE UNIVERSITY OF ROCHESTER

The University of Rochester is a major force in the Rochester region in regard to its contribution to the community⁸³:

- 6th largest private employer in New York State and largest employer in the Rochester region with over 19,000 employees
- Almost 8,000 full-time undergraduate and graduate students
- Innovation and Entrepreneurship:
 - Grants: received more than \$1.8 billion in external funding over the last 5 years
 - Office of Technology Transfer:
 - Patents: invention disclosures have grown by 9.6% over the past 5 years
 - Royalties: has grown by 54% in the last 5 years

⁸¹ The Tech Garden <http://www.thetechgarden.com/>

⁸² University at Buffalo Regional Institute "An Impact Analysis of University-Industry Innovation" October 2010

⁸³ Center for Governmental Research "Economic Impact of University of Rochester and its Affiliates" April 2010

- Start-Ups: From FY2005 through FY2009, there have been a total of 26 start-up companies formed as a result of research at the University of Rochester, including both the River campus and the University of Rochester Medical Center (URMC). Of those 26 companies, 20 are still operating in the Rochester area.

ROCHESTER INSTITUTE OF TECHNOLOGY

Rochester Institute of Technology (RIT)⁸⁴ has partnered with the University of Rochester to increase technology transfer. Both are partners in Infotonics Technology Center Inc., a not-for-profit corporation formed in 2001 to operate New York State's Center of Excellence in Photonics and Microsystems.

Many of RIT's departments and centers focus on the local economy including:

- Center for Digital Media
- Center for Electronics Manufacturing and Assembly
- Center for Excellence in Lean Enterprise
- Center for Integrated Manufacturing Sciences

THE SYRACUSE REGION (CENTRAL NEW YORK REGION)

SYRACUSE UNIVERSITY (SU)

- Syracuse University⁸⁵ is a major anchor institution in the Syracuse region, and has increased its role in the community.
- SU is working to strengthen ties with the community through neighborhood revitalization; community economic development through corporate investment; local capacity building; education and health partnerships; scholarly engagement; and multi-anchor, city, and regional partnerships.
- Kauffman Foundation and SU: Two programs⁸⁶ were launched with the cooperation of the Kauffman Foundation and SU: the Kauffman Professors of Entrepreneurship and Innovation (KPEI) and the program *Enitiative*.
 - KPEI is an initiative whereby faculty from all schools and colleges within SU have been engaged in research, teaching, commercialization and community engagement in entrepreneurship.
 - *Enitiative* - SU along with five partner universities received a \$3 million grant to infuse entrepreneurship across the curriculum. **It has funded more than 160 projects.**

New York State Science and Technology Law Center (NYS STLC)

Housed within the Syracuse University's College of Law, the NYS STLC⁸⁷ assists other science and technology centers throughout the state by providing essential legal advice on intellectual property protection, patent protection, copyright and trademark law, and licensing information.

⁸⁴ US Council on Competitiveness for Infotonics Technology Center, Inc. and Greater Rochester Enterprise "Fanning the Flames of Economic Progress: Igniting Greater Rochester's Entrepreneurial Economy" September 2004

⁸⁵ Axelroth, Rita and Steve Dubb "The Road Half Traveled: University Engagement at a Crossroads." December 2010

⁸⁶ Keefe, Stacy "Entrepreneurial faculty come together to network, spread innovation" February 14, 2011
<http://insidesu.syr.edu/2011/02/14/kauffman-professors-of-entrepreneurship-and-innovation/>

ENTREPRENEURIAL CULTURE

ROCHESTER REGION (FINGER LAKES REGION)⁸⁸

- Innovations stay “locked” in companies or universities
- Though there is capital, it is not often available through angel investors or venture capital firms.
- People often do not pursue their technology projects because they feel the market opportunity is too small.

ENTREPRENEURIAL STRENGTHS

- Academic institutions
- Skilled workforce
- Quality of life
- Transportation and communications infrastructure
- Research and development institutions

ENTREPRENEURIAL WEAKNESSES

- **Risk Capital** - even with large financial assets in the region, there is little or no angel or venture capital investments. Reservation amongst those in the financial community to branch out of traditional investments.
- **Taxation and Regulation** - business leaders voiced significant concerns about level of taxation, workman’s compensation costs liability, and permitting requirements in the region.
- **Lack of Entrepreneurial Culture** – Business leaders do not embrace the attitudes that support entrepreneurship.
- **Closed/Insider Town** – Culture of the region is such that it excludes outsiders.

BUSINESS ACCELERATORS⁸⁹

THE BUFFALO REGION (WESTERN NEW YORK REGION)

1. Buffalo Niagara Medical Campus Innovation Center
 - Research and development space for life science and biotech companies on the Buffalo Niagara Medical Campus
 - Collaboration opportunities available with Roswell Park Cancer Institute, Buffalo General Hospital, Hauptman-Woodward Medical Research Institute, and other life sciences and health-related companies
2. University of Buffalo Technology Incubator
 - Located in Baird Research Park and supports new technology-based businesses
 - Has both office and wet laboratory space available
 - Services include: coaching, counseling, mentoring and networking

⁸⁷ <http://nysstlc.syr.edu/>

⁸⁸ US Council on Competitiveness for Infotonics Technology Center, Inc. and Greater Rochester Enterprise “Fanning the Flames of Economic Progress: Igniting Greater Rochester’s Entrepreneurial Economy” September 2004

⁸⁹ For a complete listing of Upstate New York Business Incubators with full contact information see Appendix A.5.

THE ROCHESTER REGION (FINGER LAKES REGION)

1. High Tech Rochester, Inc. (HTR)
 - Incubation and acceleration services for start-up and growing technology firms
 - Services offered include: evaluation of business plans, mentoring through Entrepreneurs in Residence program, and technical assistance to raise capital
2. Rochester Institute of Technology's (RIT) Venture Creations incubator
 - Incubator for “mid-seed” stage companies located next to RIT’s campus
 - Experienced on-site staff to provide technical assistance and coaching
 - Access to RIT’s faculty and student intern and co-ops
3. Rochester BioVenture Center
 - Biotechnology incubator provides the resources necessary to promote and foster the growth of early life science companies
 - Center includes lab and office space as well as access to specialized equipment
4. Cornell Agriculture & Food Technology Park (The Technology Farm) Geneva New York
 - Business Incubator affiliated with Cornell University.
 - For businesses in the areas of food and agriculture
 - Office and lab space available

THE SYRACUSE REGION (CENTRAL NEW YORK REGION)

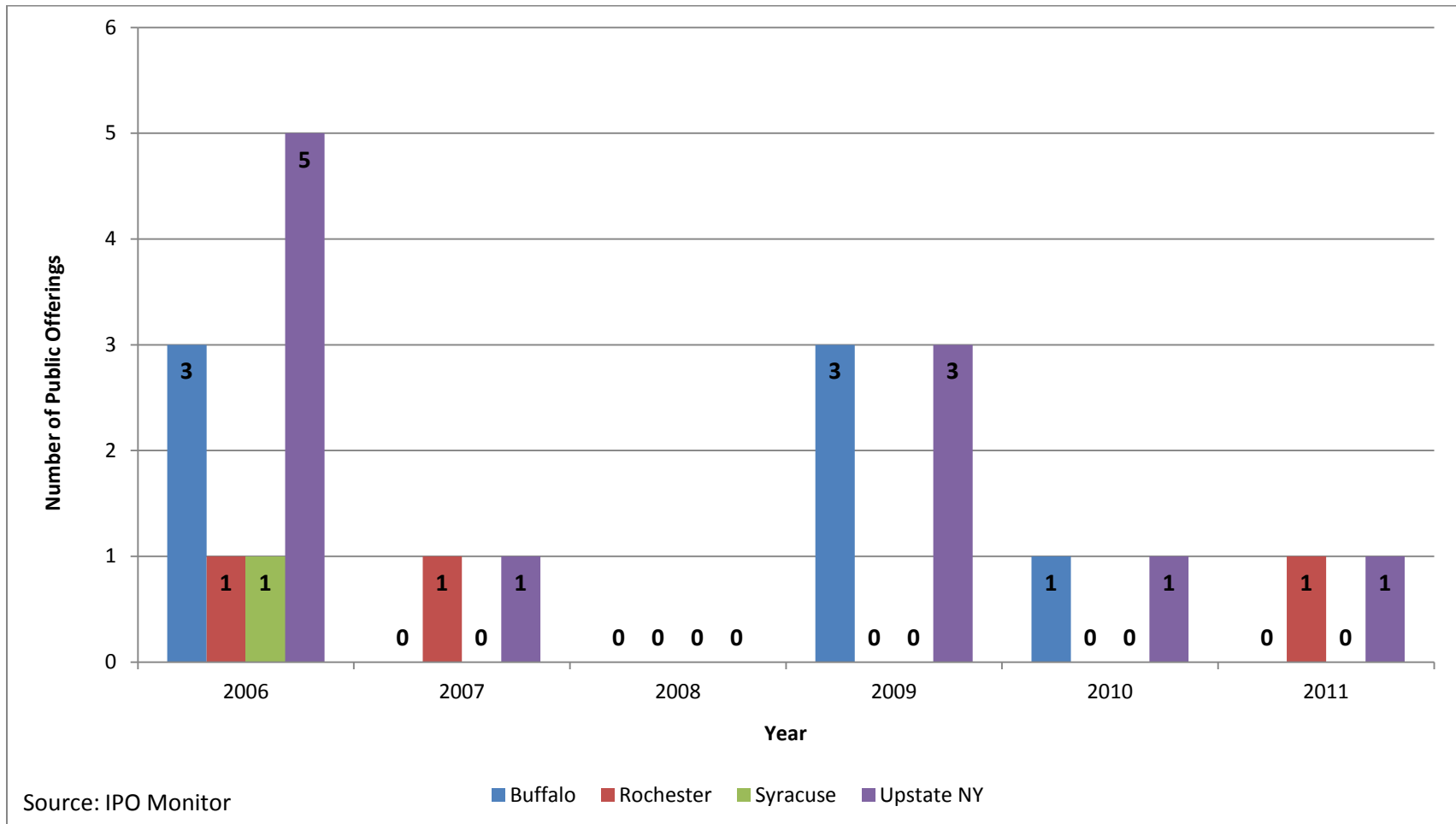
1. Raymond von Dran Innovative and Disruptive Entrepreneurship Accelerator (IDEA)
 - Assists Central New York college and university students in starting for-profit and non-profit ventures that will grow the Central New York economy
 - IDEA is a collaboration between Syracuse University and the Syracuse Technology Garden
 - It is open to all college and university students in the area
2. South Side Innovation Center
 - Small Business Resource center located on Syracuse’s South Side
 - Provides technical assistance, mentoring and training programs
 - Entrepreneurs must be committed to business development on the South Side of Syracuse
3. The Clean Tech Center
 - Develops renewable and clean tech ventures in New York State
 - Focused on the following areas: Renewable Energy, Alternative Fuels, System Integration and Smart Grid Technologies, Transportation, and Building and Construction Technologies
4. The Central New York Biotechnology Research Center
 - Slated to open in Spring 2012
 - Assist for-profit biotech and biomedical firms successfully commercialize their products
 - Joint project between Upstate Medical University and SUNY- College Environmental Science and Forestry (SUNY-ESF)
 - 40,000 square foot facility that includes 18 labs that will be able to house over 100 scientists
5. The Center for Advanced Systems and Engineering (CASE) Incubator Facility

- Sponsored by Syracuse University
 - Office space for start-ups and young technology companies
 - Access to faculty, students, and research centers
6. The Tech Garden
- Incubation space for technology start-up companies
 - Resources available to entrepreneurs include:
 - Develop tailored business development plans
 - Connect with experienced mentors
 - Access angel investments and venture capital
 - Meet potential clients and strategic partners
7. Stardust Entrepreneurial Institute
- Five incubator spaces
 - Institute also provides programs, services, and activities to support entrepreneurship and small businesses

ENTREPRENEURSHIP TRENDS

PUBLIC OFFERINGS

Figure 24. Public Offerings in Upstate New York, January 2006 – March 2011



- 11 Companies had public offerings⁹⁰ in Upstate New York between January 2006 and March 2011. There was no public offering in Upstate New York in 2008 (Figure 24).
- The Buffalo region accounted for 64% (7 public offerings) of all public offerings in Figure 24; while there was 3 offerings in the Rochester region and 1 in the Syracuse region.
- In 2007, the Buffalo and Syracuse regions had no public offerings while in 2009 and 2010 the Rochester and Syracuse regions had no public offerings.
- For the first quarter of 2011 the Buffalo and Syracuse regions had no public offerings, while the Rochester region had 1 public offering.
- For a complete listing of public offerings in Upstate New York see Appendix A.6.

⁹⁰ Public offerings are the sale of shares of a company on a public market (i.e. NASDAQ). An Initial public offering (IPO) is the first time sale of stock for a private company going public. A secondary offering is the offering of new stock from an existing public company.

BIRTH / DEATH RATIO AND BUSINESS CHURNING

Definitions:

- A single unit employer is defined as an establishment with only one worksite, while a multi-unit employer is a business with more than one worksite.
- The ratio of single unit births to single unit deaths represents the vitality of an economy. If a larger number of establishments opened than those that closed over a given period, it can be an indication of a growing economy.
- Business churning evaluates the ratio of total births and total deaths divided by all establishments (single unit & multi-unit) which is used to measure the underlying dynamics of the business environment.

Table 44. Birth / Death Ratio and Business Churning for Upstate New York (19-Counties) and its sub-regions, the state of New York, and the United States, 2007

Region	Birth / Death	Business Churning
Buffalo Region (Western New York Region)	1.06	0.19
Rochester Region (Finger Lakes Region)	1.07	0.19
Syracuse Region (Central New York Region)	1.05	0.18
Upstate New York (19-County Region)	1.06	0.19
New York State	1.10	0.21
United States	1.13	0.20

Note: Birth / Death Ratio = Single Unit Births/Single Unit Deaths;
 Business Churning = (Total Births + Total Deaths)/Total Establishments
 Source: U.S. Census Bureau, Longitudinal Establishment and Enterprise Microdata

- The Upstate New York region had a lower openings/closing ratio (1.06) than the state of New York (1.10) and the United States (1.13) in 2007 (Table 44).
- In the Buffalo (1.06), Rochester (1.07), and Syracuse (1.05) regions slightly more businesses opened than closed in 2007.
- In regards to business churning, the Upstate New York region (0.19) was slightly lower than the state of New York (0.21) and the United States (0.20).
- The Upstate New York region and its sub-regions (Buffalo, 0.19; Rochester, 0.19; Syracuse, 0.18) all lagged behind New York State (0.21) and the United States (0.20) in business churning.
- Of the 136 MSAs with populations between 300,000 and 3.5 million, the top three performers in 2007 in birth/death were New Orleans (2.12); Provo, UT (1.69); and Ogden, UT (1.51). Among these 136 MSAs, Upstate New York would be ranked 93rd in birth/death ratio.
- Of these 136 MSAs, the top three performers in 2007 in business churning were Provo, UT (0.29); Las Vegas, NV (0.29); and Cape Coral, FL (0.28). Among these 136 MSAs Upstate New York would be ranked 121st in business churning. **This reflects the static nature of the Upstate New York business environment.**

CAPITAL MARKETS

Table 45. Number of Companies Receiving Venture Capital, Venture Capital Investment Dollars (\$Mil) for Upstate New York (19-Counties) and its sub-regions, and the United States, 2007-2009

Region	2007		2008		2009	
	# of Companies Receiving VC	VC Investment (\$Mil)	# of Companies Receiving VC	VC Investment (\$Mil)	# of Companies Receiving VC	VC Investment (\$Mil)
Buffalo Region (Western New York Region)	3	\$2.37	4	\$52.20	5	\$4.89
Rochester Region (Finger Lakes Region)	12	\$54.31	7	\$10.33	4	\$74.17
Syracuse Region (Central New York Region)	2	\$1.18	1	\$4.58	0	\$0.00
Upstate New York (19 – County Region)	17	\$57.86	12	\$67.12	9	\$79.05
United States	6,141	\$81,663.64	5,869	\$80,934.35	4,213	\$52,302.91

Note: Venture capital investment adjusted for inflation to 2009 Dollars

Source: Thompson Reuters Financial

- Overall, the number of companies receiving venture capital investments decreased sharply between 2007 and 2009 in Upstate New York and its sub-regions. This trend was consistent with the United States and reflects the effect of the recession (Table 45).
- Even though the number of companies receiving venture capital from 2007 to 2009 in the Upstate New York region (19-county region) decreased from 17 to 9, the dollar amount received increased over this period from \$57.86 million in 2007 to \$79.05 million in 2009. This is noteworthy since the national trend for venture capital investments was downward.
- The largest recipient of venture capital funding has been the Rochester region by attracting \$138.81 million over this 3- year period, much higher than the Buffalo (\$59.46 million) and Syracuse (\$5.76 million) regions.

PROFESSIONAL CAPITAL FIRMS

Table 46. Professional Capital Investment Firms in Upstate New York, 2011

Organization	City	Region	Website	Service	Fund Size	Geographic Investment	Investment Specialization
High Peaks Venture Partners	Troy	Upstate NY	http://www.hpvp.com/	Seed and Early Stage Venture	\$100k - \$1M	New York State	Technology Companies
Cayuga Venture Fund	Ithaca	Upstate NY	http://www.cvf.biz	seed, early, expansion	\$250k - \$3M	Upstate New York	Technology Companies
Western New York Business Development Fund	Buffalo	Buffalo	http://www.insyte-consulting.com/Funding/BDF	Seed capital to technology entrepreneurs and start-up companies	Up to \$200 k in two phases	Western New York	Early Entrepreneurial Efforts
Buffalo Angel Network	Buffalo	Buffalo	http://angelsft.net/angel-group/buffalo-angel-network	Angel	\$100K-\$300k	Western New York	-
Excell Partners Inc.	Rochester	Rochester	http://www.excellny.com	Seed Fund	\$100K	Upstate New York	-
Rochester Angel Network	W. Henrietta	Rochester	http://www.rochesterangels.com/	Angel	\$250K - \$2M	Greater Rochester Region	Seed and Early Stage Startup Companies
Grants for Growth	Syracuse	Syracuse	http://www.creativecoreny.com/	Matching Seed Program	Up to \$75,000	Central Upstate New York	Applied Research Projects Between Universities and Industry
Rand Capital Corporation	Buffalo	Buffalo	http://www.randcapital.com/	Venture	\$500k - \$1.5M	Western New York	-
Soft Bank Capital	Buffalo	Buffalo	http://www.softbank.com/pages/home.shtml	Venture	-	-	Early stage tech based businesses
Trillium Group - The Monroe Fund	Pittsford	Rochester	http://www.trillium-group.com/monroe-fund-venture-capital.htm	Venture	\$10 million	-	-
Trillium Group - The University Technology Seed Fund	Pittsford	Rochester	http://www.trillium-group.com/university-venture-capital.htm	Venture	\$6.5million	-	Early Stage Fund
Seed Capital Fund of CNY	Syracuse	Syracuse	http://www.scfcny.com/index.htm	Venture	-	Central Upstate New York	Angel Fund
Strategic Investments and Holdings, Inc.	Buffalo	Buffalo	www.sihi.net	Equity Capital	-	Western New York, Western Pennsylvania and Southern Ontario	-

Source: Pratt's Guide to Private Equity and Venture Capital Sources; Individual Firm Websites

Table 46. Professional Capital Investment Firms in Upstate New York, 2011 (Continued)

Organization	City	Region	Website	Service	Fund Size	Geographic Investment	Investment Specialization
Summer Street Capital Partners	Buffalo	Buffalo	http://www.summerstreetcapital.com/	Growth Financing	-	-	Education, Health Care, Environmental Services
DeltaPoint Capital Management LLC	Rochester	Rochester	http://www.deltapointcapital.com	Private Equity Investor/Venture Capital	-	-	-
Cephas Capital	Pittsford	Rochester	http://www.cephascapital.com	Small Business Investment Company	\$500k - \$3M	Upstate New York	
Minority and Women Owned Business Development and Lending Program	State Wide	State Wide	http://www.esd.ny.gov/MWBE.html	Revolving Loan Trust Fund	Up to \$50k	New York State	Minority and Women-Owned Businesses
Minority and Women Owned Business Development and Lending Program	State Wide	State Wide	http://www.esd.ny.gov/MWBE.html	Micro Enterprise Loan Fund:	Up to \$7k	New York State	Minority and Women-Owned Businesses
PathStone Enterprise Center	Rochester	Rochester	http://www.PathStoneEnterprise.org	Loans to Micro Businesses	\$20k-\$50k	Upstate New York and Puerto Rico	

Source: Pratt's Guide to Private Equity and Venture Capital Sources; Individual Firm Websites

- **Nineteen (19)** professional capital investment firms were identified in the Upstate New York region (Table 46).

INNOVATION TRENDS

UNIVERSITY RESEARCH AND DEVELOPMENT

UNIVERSITY R&D BY YEAR

Table 47. Research and Development at Universities and Colleges in Upstate New York, 2005-2009

Institution	FY 2005 (\$Mil)	FY 2006 (\$Mil)	FY 2007 (\$Mil)	FY 2008 (\$Mil)	FY 2009 (\$Mil)
Buffalo Region (Western New York Region) *	\$305.43	\$336.85	\$333.80	\$345.03	\$346.26
Canisius College	\$0.43	\$0.48	\$0.17	\$0.19	\$0.19
Daemen C.	N/A	N/A	\$0.55	\$0.38	\$0.35
Niagara U.	N/A	N/A	N/A	N/A	\$0.47
SUNY Buffalo all campuses	\$293.59	\$327.24	\$325.76	\$337.09	\$338.28
SUNY C. Buffalo	\$2.17	\$1.87	\$1.34	\$1.62	\$2.33
SUNY Fredonia	\$0.19	\$0.29	\$0.33	\$0.30	\$0.25
St. Bonaventure U.	N/A	N/A	N/A	N/A	\$0.45
Alfred University	\$9.05	\$6.97	\$5.66	\$5.46	\$3.95
Rochester Region (Finger Lakes Region) *	\$404.25	\$429.11	\$411.45	\$402.08	\$428.33
Hobart and William Smith Colleges	\$0.00	\$0.00	\$0.71	\$1.44	\$1.46
Rochester Institute of Technology	\$23.14	\$24.28	\$21.69	\$23.93	\$28.96
SUNY C. Brockport	\$0.72	\$0.92	\$1.06	\$0.70	\$0.65
SUNY C. Geneseo	\$1.05	\$1.14	\$1.80	\$2.13	\$1.91
University of Rochester	\$379.34	\$402.76	\$386.19	\$373.88	\$395.36
Syracuse Region (Central New York Region) *	\$122.90	\$103.90	\$107.34	\$104.74	\$98.52
Colgate U.	\$1.44	\$2.02	\$2.29	\$2.55	\$2.57
SUNY C. Cortland	\$0.62	\$0.54	\$0.50	\$0.35	\$0.34
SUNY C. of Environmental Science and Forestry	\$13.24	\$19.72	\$24.68	\$26.27	\$20.51
SUNY C. Oswego	\$1.11	\$1.13	\$1.13	\$1.02	\$1.02
SUNY Upstate Medical U.	\$38.37	\$40.84	\$41.08	\$36.23	\$33.19
Syracuse U. all campuses	\$68.13	\$39.66	\$37.66	\$38.32	\$40.89
Upstate New York (19 Colleges and Univ.)	\$832.59	\$869.85	\$852.59	\$851.85	\$873.12

Note: * Data at the regional level is not available. The regional total is calculated by summing county level data only for counties with available data. Counties for which data is not available are designated with N/A; Expenditures adjusted for inflation to 2009 dollars.

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges

- University R&D funding in the Upstate New York region grew from \$832.59 million in 2005 to \$873.12 million in 2009, an increase of 4.9% (Table 47).
- In 2009, the Rochester region accounted for 49% of all university R&D in Upstate New York, while the Buffalo region accounted for 40% of university R&D expenditures in Upstate New York.
- The Buffalo region's R&D funding grew by 13% between 2005 and 2009 (increasing from \$305.43 million to \$345.35 million).
- The Rochester region R&D increased from \$404.25 million in 2005 to \$428.33 million in 2009, a 6% increase.
- The Syracuse region was the only region that experienced a decline in university R&D expenditures. The region's funding shrank by 20% between 2005 and 2009.
- The decrease in funding in the Syracuse region is due to the reduction of R&D funding at Syracuse University which dropped from \$68.13 million in 2005 to \$40.89 million in 2009 (-40%).

UNIVERSITY R&D BY SCIENCE FIELD

Table 48. Research and Development Expenditures at Universities and Colleges (\$Mil) in Upstate New York by Science Field, 2009

Regions and Colleges	All R&D expenditures (\$Mil)	Environmental Sciences (\$Mil)	Life Sciences (\$Mil)	Math and Computer Sciences (\$Mil)	Physical Sciences (\$Mil)	Psychology (\$Mil)	Social Sciences (\$Mil)	Sciences (\$Mil)	Engineering (\$Mil)
Buffalo Region (Western New York Region)	\$346.26	\$3.13	\$234.45	\$13.02	\$16.68	\$9.06	\$8.37	\$1.76	\$59.79
Canisius College	\$0.19	\$0.00	\$0.10	\$0.07	\$0.02	\$0.00	\$0.00	\$0.00	\$0.00
Daemen C.	\$0.35	\$0.00	\$0.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Niagara U.	\$0.47	\$0.00	\$0.18	\$0.01	\$0.15	\$0.07	\$0.07	\$0.00	\$0.00
SUNY Buffalo all campuses	\$338.28	\$2.57	\$233.55	\$12.76	\$16.02	\$8.53	\$6.94	\$1.70	\$56.22
SUNY C. Buffalo	\$2.33	\$0.50	\$0.23	\$0.00	\$0.12	\$0.10	\$1.32	\$0.06	\$0.00
SUNY Fredonia	\$0.25	\$0.03	\$0.05	\$0.00	\$0.13	\$0.00	\$0.04	\$0.00	\$0.00
St. Bonaventure University	\$0.45	\$0.01	\$0.00	\$0.18	\$0.25	\$0.00	\$0.00	\$0.00	\$0.00
Alfred U. all campuses	\$3.95	\$0.02	\$0.00	\$0.00	\$0.00	\$0.36	\$0.00	\$0.00	\$3.57
Rochester Region (Finger Lakes Region)	\$428.33	\$4.81	\$272.77	\$4.74	\$26.13	\$14.97	\$1.51	\$0.27	\$103.14
Hobart and William Smith Colleges	\$1.46	\$1.13	\$0.00	\$0.00	\$0.25	\$0.04	\$0.04	\$0.00	\$0.00
Rochester Institute of Technology	\$28.96	\$2.27	\$0.77	\$1.13	\$10.80	\$0.20	\$1.18	\$0.00	\$12.61
SUNY C. Brockport	\$0.65	\$0.37	\$0.06	\$0.02	\$0.03	\$0.00	\$0.00	\$0.18	\$0.00
SUNY C. Geneseo	\$1.91	\$0.07	\$0.25	\$0.33	\$1.17	\$0.07	\$0.02	\$0.00	\$0.00
U. Rochester	\$395.36	\$0.98	\$271.68	\$3.27	\$13.88	\$14.67	\$0.27	\$0.09	\$90.52
Syracuse Region (Central New York Region)	\$98.52	\$5.98	\$46.57	\$8.54	\$9.32	\$4.57	\$4.21	\$0.23	\$19.11
Colgate U.	\$2.57	\$0.49	\$0.67	\$0.10	\$0.86	\$0.08	\$0.37	\$0.00	\$0.00
SUNY C. Cortland	\$0.34	\$0.00	\$0.01	\$0.00	\$0.02	\$0.06	\$0.02	\$0.23	\$0.00
SUNY C. of Environmental Science and Forestry	\$20.51	\$3.23	\$10.35	\$0.00	\$2.47	\$0.00	\$0.10	\$0.00	\$4.37
SUNY C. Oswego	\$1.02	\$0.09	\$0.15	\$0.02	\$0.27	\$0.45	\$0.04	\$0.00	\$0.00
SUNY Upstate Medical U.	\$33.19	\$0.00	\$33.19	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Syracuse U. all campuses	\$40.89	\$2.16	\$2.19	\$8.42	\$5.70	\$3.98	\$3.69	\$0.00	\$14.74
Upstate New York (19 Colleges and Univ.)	\$873.12	\$13.91	\$553.79	\$26.30	\$52.14	\$28.60	\$14.09	\$2.26	\$182.04
New York	\$4,224.54	\$166.97	\$2,693.47	\$130.91	\$361.44	\$102.67	\$115.68	\$36.51	\$616.88
United States	\$54,935.46	\$2,940.30	\$32,790.69	\$2,145.25	\$4,294.43	\$979.29	\$2,074.84	\$1,059.75	\$8,650.91

Source: National Science Foundation/Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges, FY 2009.

Upstate New York (19-Counties)

- The Upstate New York region had \$873.12 million in total R&D expenditures in 2009, which represents 20.7% of New York State R&D expenditures and 1.6% of the total U.S. university R&D expenditures (Table 48).
- The largest expenditure by science field in Upstate New York was in *Life Sciences* (\$553.79 million), followed by *Engineering* (\$182.04 million), and *Physical Sciences* (\$52.14 million).
- It should be noted that, in the Upstate New York region, 84.0% of university R&D funding comes from just two institutions, the University of Rochester (\$395.36 million) and SUNY Buffalo (\$338.28 million).
- The Rochester region had the highest R&D expenditures in Upstate New York with \$428.33 million, followed by the Buffalo region with \$346.26 million, and the Syracuse region with \$98.52 million.

The Buffalo Region (Western New York Region)

- The Buffalo region accounted for 39.7% of the Upstate New York R&D expenditures. The majority of Buffalo R&D expenditures were in *Life Sciences* (67.9%), followed by *Engineering* (17.3%).
- The SUNY Buffalo campuses accounted for almost all (97.7%) of the R&D expenditures in the Buffalo region.

The Rochester Region (Finger Lakes Region)

- Almost half of all Upstate New York R&D expenditures occurred in the Rochester region (49.1%).
- The science field *Life Sciences* accounted for 63.6% of R&D, followed by *Engineering* (24.1%).
- The vast majority of university R&D funding in the region was produced by the University of Rochester (92.3%).

The Syracuse Region (Central New York Region)

- The Syracuse region's R&D expenditures made up only 11.2% of Upstate New York's total university R&D expenditures; this accounted for \$46.57 million in *Life Science* and \$19.11 million in *Engineering*.
- The largest share of university R&D funding came from Syracuse University with 41.5%, followed by SUNY Upstate Medical University with 33.6%, and SUNY College of Environmental Science and Forestry (20.8%).

PATENTS

UPSTATE NEW YORK (19-COUNTY REGION)

Patents are an alternative measure of regional, innovative activities and are often used as a proxy for innovation. Each patent includes the name of at least one individual inventor (many have multiple inventors). Ownership is assigned to an individual inventor or to a corporation, university, or another research institution (assignee).

Patents were electronically extracted (those already granted and applications) in the state of New York between January 2006 and December 2010. To be included in the data for the Upstate New York region, the patent had to include at least one inventor or an assignee from the Upstate New York region. An inventor or an assignee can be from outside Upstate New York (referred to as “Outside”).

NOTE: The sum of the patents for the three sub-regions (Buffalo, Rochester, and Syracuse) will not equal the total for Upstate New York, because there are multiple inventors and assignees for each individual patent. If a patent had multiple assignees located in the different regions for Upstate New York they were counted in their respective region (i.e. if one patent had two inventors – one from the Buffalo region and one for the Rochester region – it would be counted as one patent in the Upstate New York region, but for the sub-regional analysis it would be counted as one patent in the Buffalo region and one count in the Rochester region).

Patent Counts

- In the Upstate New York region there were a total of 12,000 patents (granted and applied for) between January 2006 and December 2010 (Table 49).
- From 2006 to 2010 there was a significant decrease in the number of patents. In 2006 there were 3,169 patents in Upstate New York, falling to 744 (-77%) by 2009. This is a reflection of the recessionary trends.
- Of the 12,000 patents, 1,590 were from an Upstate New York inventor with an Upstate New York assignee (13%) (Table 50).
- Only 15% of the patents had an assignee from Upstate New York, showing that businesses within Upstate New York are **not** the major drivers of local patents.
- The largest aggregation of patents is inventors of individual patents (Upstate New York Inventor with no Assignee). Individually owned patents accounted for 45% of total patents (5,366).

Table 49. Upstate New York (19-Counties) Patent Frequency Counts, January 2006 – December 2010

Year	Number of Patents	Percent of Total
2006	3,169	26.4%
2007	3,048	25.4%
2008	2,939	24.5%
2009	2100	17.5%
2010	744	6.2%
Total	12,000	100.0%

Source: Delphion.com

Table 50. Patents: Upstate New York (19-Counties), January 2006 – December 2010

Designation	All Patents: Granted and Applications
Upstate New York Inventor without Assignee	5,366
Upstate New York Inventor and Upstate New York Assignee	1,590
Upstate New York Inventor and Outside Assignee	4,789
Outside Inventor and Upstate New York Assignee	255
Total Patent Applications from Upstate New York Inventors and/or Assignees	12,000

Source: Delphion.com

*Patent Counts by Assignee***Table 51. Top 25 Patent Assignee Companies located in Upstate New York (19-Counties), January 2006 – December 2010**

Rank	Assignee Name	Number of Patents	Percentage of Total Patents
1	Eastman Kodak Company	291	15.8%
2	University of Rochester	129	7.0%
3	Greatbatch Inc.	112	6.1%
4	John Mezzalingua Associates Inc.	90	4.9%
5	Hand-Held Products, Inc.	71	3.8%
6	Welch Allyn Inc.	64	3.5%
7	Bausch & Lomb Inc.	63	3.4%
8	Xerox Corporation	48	2.6%
9	Syracuse University	44	2.4%
10	Dresser-Rand Company	34	1.8%
11	Rochester Institute of Technology	33	1.8%
12	Research Foundation of SUNY	32	1.7%
13	Gaymar Industries, Inc.	27	1.5%
14	Carestream Health, Inc.	27	1.5%
15	Umbra LLC	25	1.4%
16	Biophan Technologies, Inc.	25	1.4%
17	Caldwell Manufacturing Company	23	1.2%
18	Pass + Seymour, Inc.	18	1.0%
19	Multisorb Technologies, Inc.	18	1.0%
20	Quality Vision International Inc.	16	0.9%
21	Coopervision, Inc.	16	0.9%
22	Sensis Corporation	15	0.8%
23	Health, Research Inc.	15	0.8%
24	Bluetie, Inc.	13	0.7%
25	Torvec, Inc.	11	0.6%

Note: Out of 1,845 Patents; Rank out of 249

Source: Delphion.com

- The top five companies or organizations (Eastman Kodak Inc.; University of Rochester; Greatbatch, Inc.; John Mezzalingua Associates, Inc.; and Hand-Held Products Inc.) accounted for 38% (693) of assignee company patents that were located in the Upstate New York area (Table 51).
- Of the assignees listed in Table 51, four are the major universities in the Upstate New York region (University of Rochester, #2; Syracuse University, #9; Rochester Institute of Technology, #11; and Research Foundation of SUNY, #12).

Patent Counts by Industry Classification

Table 52. Top 15 International Patent Classifications for Assignees Located in Upstate New York (19-Counties) by Number of Patents, January 2006 – December 2010

International Patent Classifications	Number of Patents	Percentage of Total	Rank
Preparations for medical, dental, or toilet purposes	114	6.2%	1
Recognition of data; Presentation of data; Record carriers; Handling record carriers	108	5.9%	2
Diagnosis; Surgery; Identification	105	5.7%	3
Electric digital data processing	103	5.6%	4
Electrically-conductive connections; Structural associations of a plurality of mutually-insulated electrical connecting elements	66	3.6%	5
Electrotherapy; Magnetotherapy; Radiation therapy; Ultrasound therapy	59	3.2%	6
Semiconductor devices; Electric solid state devices not otherwise provided for	50	2.7%	7
Pictorial Communication	45	2.4%	8
Filters implantable into blood vessels; prostheses; devices providing patency to, or preventing collapsing of, tubular structures of the body, e.g. stents; orthopedic, nursing or contraceptive devices; fomentation; treatment or protection of eyes or ears	37	2.0%	9
Electrography; electrophotography; magnetography	34	1.8%	10
Typewriters; selective printing mechanisms, i.e. mechanisms printing otherwise than from a form; correction of typographical error	31	1.7%	11
Optical elements, systems, or apparatus	31	1.7%	12
Processes for applying liquids or other fluent materials to surfaces, in general	29	1.6%	13
Separation	26	1.4%	14
Layered Products	24	1.3%	15

Note: Out of 1,845 Patents; Rank out of 246

Source: Delphion.com

- Table 52 displays the Top 15 patent counts by the International Patent Classification name (IPC) and shows that the Top 15 account for almost 47% (862) of patents in the Upstate New York region in this category.
- These scientific fields identify the technology strengths in the Upstate New York region.

*Individual Inventors Patent Counts by Industry Classification***Table 53. Top 15 International Patent Classifications by Individual Inventors in Upstate New York (19-Counties) by Number of Patents, January 2006 – December 2010**

International Patent Classifications	Number of Patents	Percentage of Total	Rank
Electric digital data processing	374	7.0%	1
Preparations for medical, dental, or toilet purposes	369	6.9%	2
Recognition of data; Presentation of data; Record carriers; Handling record carriers	227	4.2%	3
Pictorial communication, e.g. television	218	4.1%	4
Diagnosis; Surgery; Identification	185	3.4%	5
Semiconductor devices; Electric solid state devices not otherwise provided for	172	3.2%	6
Typewriters; Selective printing mechanisms; Correction of typographical errors	155	2.9%	7
Electrography; Electrophotography; Magnetography	124	2.3%	8
Processes or means, e.g. batteries, for the direct conversion of chemical energy into electrical energy	108	2.0%	9
Processes for applying liquids or other fluent materials to surfaces, in general	102	1.9%	10
Data processing systems or methods, specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes	100	1.9%	11
Electric digital data processing	374	7.0%	12
Preparations for medical, dental, or toilet purposes	369	6.9%	13
Recognition of data; Presentation of data; Record carriers; Handling record carriers	227	4.2%	14
Pictorial communication, e.g. television	218	4.1%	15

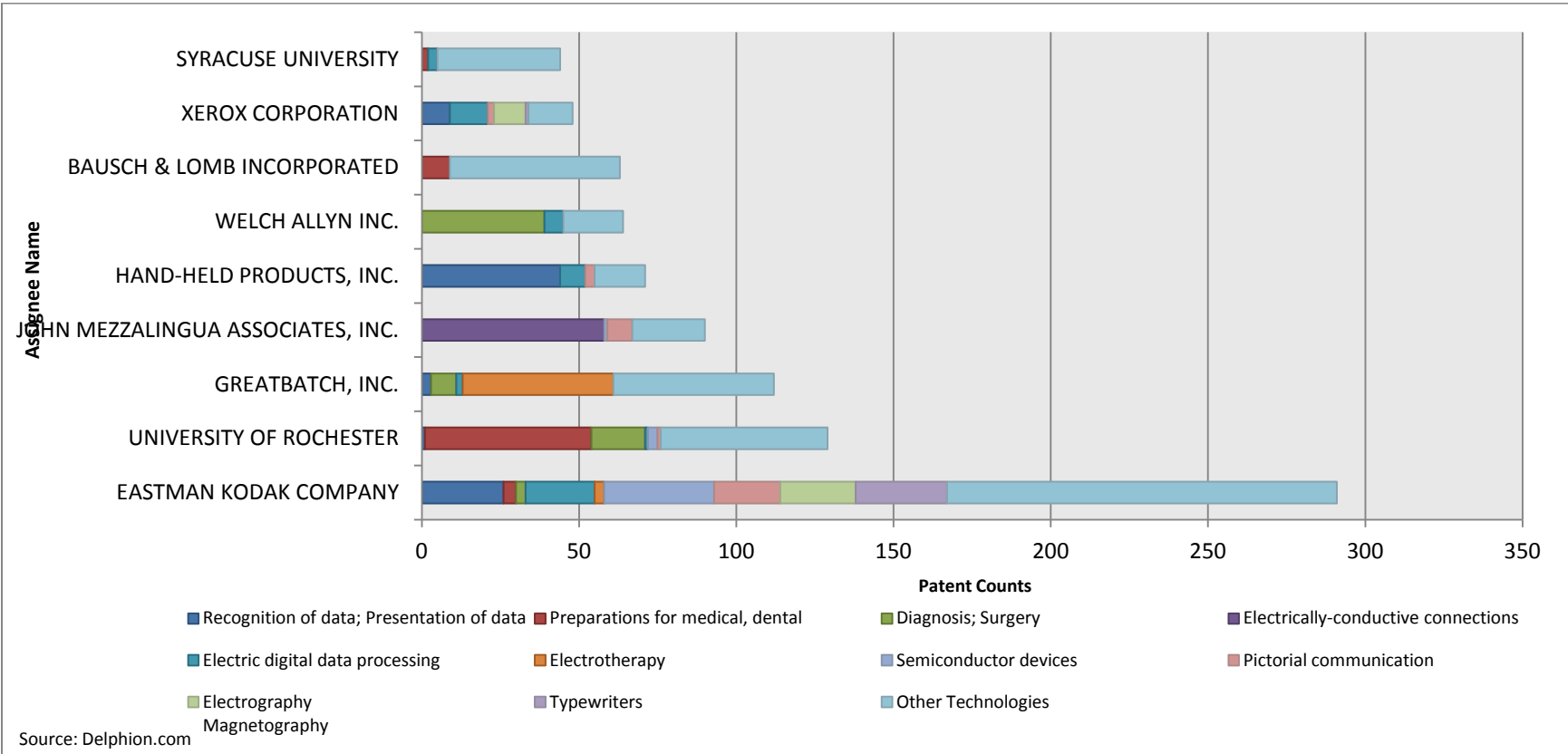
Note: Out of 5,366 Patents; Rank out of 384

Source: Delphion.com

- Table 53 displays the Top 15 patent counts by individual inventors by the International Patent Classification name (IPC) and shows that the Top 15 account for almost 62% (3,322) of individual inventor patents in the Upstate New York region in this category.
- These scientific fields identify the technology strengths in the Upstate New York region.

Patent Assignee by Industry Classification

Figure 25. Upstate New York Patents: Top 9 Assignees by International Patent Classification Code, January 2006 – December 2010



- Figure 25 displays Upstate New York patent counts by assignee and International Patent Classification. The largest number of patents held by an individual company within a single International Patent Classification was John Mezzalingua Associates, Inc, holding 58 patents in the category *Electrically-conductive connections*. John Mezzalingua Associates’ patents accounted for 88% of all patents in this category.

THE BUFFALO REGION (WESTERN NEW YORK REGION)

Patents are an alternative measure of regional innovative activities and are often used as a proxy for innovation. Each patent includes the name of at least one individual inventor (many have multiple inventors). Ownership is assigned to an individual inventor or to a corporation, university, or another research institution (assignee).

Patents were electronically extracted (those already granted and applications) in the state of New York between January 2006 and December 2010. To be included in the data for the Buffalo region, the patent had to include at least one inventor or an assignee from Buffalo region. An inventor or an assignee can be from outside Buffalo (referred to as “Outside”).

Patent Counts

- In the Buffalo region, there were 2,313 patents (granted and applied for) between January 2006 and December 2010 (Table 54).
- From 2006 to 2010 there was a significant decrease in the number of patents. The number of patents declined from 617 patents in 2006 to 236 patents in 2009 (-62%). This follows an overall decline in patents during this period.
- Of the 2,313 patents, 313 were from a Buffalo inventor with a Buffalo assignee (14%) (Table 55).
- Only 18% of patents had an assignee from the Buffalo region; showing that businesses within the Buffalo region are **not** the major drivers of local patents.
- The largest aggregation of patents is inventors of individual patents (Buffalo Inventor with no assignee). Individually owned patents accounted for 55% of total patents (1,266).

Table 54. Buffalo Region Patent Frequency Counts, January 2006 – December 2010

Year	Number of Patents	Percent of Total
2006	617	26.7%
2007	578	25.0%
2008	474	20.5%
2009	408	17.6%
2010	236	10.2%
Total	2,313	100.0%

Source: Delphion.com

Table 55. Patents: Buffalo Region, January 2006 – December 2010

Designation	All Patents: Granted and Applications
Buffalo Inventor without Assignee	1266
Buffalo Inventor and Buffalo Assignee	313
Buffalo Inventor and Outside Assignee	630
Outside Inventor and Buffalo Assignee	104
Total Patent Applications from Buffalo Inventors and/or Assignees	2,313

Source: Delphion.com

*Patent Counts by Assignee***Table 56. Top 25 Patent Assignee Companies located in the Buffalo Region, January 2006 - December 2010**

Rank	Assignee Name	Number of Patents	Percentage of Total Patents
1	Wilson GreatBatch Ltd.	107	25.7%
2	Dresser-Rand Company	34	8.2%
3	Research Foundation of SUNY	31	7.4%
4	Gaymar Industries, Inc.	27	6.5%
5	Umbra LLC	25	6.0%
6	Multisorb Technologies, Inc.	18	4.3%
7	Health Research, Incorporated	15	3.6%
8	Rich Products Corporation	10	2.4%
9	Bush Industries, Inc.	9	2.2%
10	Nanod Ynamics, Inc.	9	2.2%
11	Unifrax Corporation	9	2.2%
12	Greatbatch, Inc.	6	1.4%
13	Osmose, Inc.	6	1.4%
14	Confer Plastics, Inc.	5	1.2%
15	Fireline 520, LLC	5	1.2%
16	Jiffy-Tite Company, Inc.	5	1.2%
17	Dynabrade Inc.	4	1.0%
18	Ivoclar Vivadent, Inc.	4	1.0%
19	McGard, LLC	4	1.0%
20	Reichert, Inc.	4	1.0%
21	Alfred University	3	0.7%
22	Calspan Corporation	3	0.7%
23	Enidine Incorporated	3	0.7%
24	Fibercel Packaging, LLC	3	0.7%
25	Kinex Pharmaceuticals, LLC	3	0.7%

Note: Out of 417 Patents; Rank out of 72

Source: Delphion.com

- The top five companies (Wilson Greatbatch Ltd; Dresser-Rand Company; Research Foundation of SUNY; Gaymar Industries, Inc. and Umbra LLC) accounted for 54% (224) patent assignee companies located in the Buffalo region (Table 56).

Patent Counts by Industry Classification

Table 57. Top 15 International Patent Classifications for Assignees located in the Buffalo Region by Number of Patents, January 2006 – December 2010

International Patent Classifications	Number of Patents	Percentage of Total	Rank
Electrotherapy; Magnetotherapy; Radiation therapy; Ultrasound therapy	48	11.5%	1
Preparations for medical, dental, or toilet purposes	28	6.7%	2
Filters implantable into blood vessels; Prostheses; Devices providing patency to, or preventing collapsing of, tubular structures of the body	16	3.8%	3
Processes or means, e.g. batteries, for the direct conversion of chemical energy into electrical energy	15	3.6%	4
Capacitors; Capacitors, rectifiers, detectors, switching devices, light-sensitive or temperature sensitive devices of the electrolytic type	15	3.6%	5
Physical or chemical processes - Separation	14	3.4%	6
Containers for storage or transport of articles or materials	14	3.4%	7
Chairs, sofas, beds	12	2.9%	8
Tables; desks; office furniture; cabinets; drawers; general details of furniture	12	2.9%	9
Diagnosis; Surgery; Identification	11	2.6%	10
Devices for introducing media into, or onto, the body; Devices for transducing body media or for taking media from the body; Devices for producing or ending sleep or stupor	11	2.6%	11
Electric digital data processing	9	2.2%	12
Apparatus for physical training, gymnastics, swimming, climbing, or fencing; ball games; training equipment	7	1.7%	13
Devices for introducing media into, or onto the body	6	1.4%	14
Chemical or physical processes, e.g. catalysis, colloid chemistry; their relevant apparatus	6	1.4%	15

Note: Out of 417 Patents; Rank out of 119

Source: Delphion.com

- Table 57 displays the Top 15 patent counts for assignees located in the Buffalo region by the International Patent Classification name (IPC) and shows that the Top 15 account for almost 29% (122) of patents in this category.
- These scientific fields identify the technology strengths in the Buffalo region.

Individual Inventors Patent Counts by Industry Classification

Table 58. Top 15 International Patent Classifications by Individual Inventors in the Buffalo Region by Number of Patents, January 2006 – December 2010

International Patent Classifications	Number of Patents	Percentage of Total	Rank
Preparations for medical, dental, or toilet purposes	82	6.5%	1
Physical or Chemical Processes– Separation	71	5.6%	2
Diagnosis; Surgery; Identification	39	3.1%	3
Liquefaction, solidification, or separation of gases or gaseous mixtures by pressure and cold treatment	33	2.6%	4
Electric digital data processing	31	2.4%	5
Details of heat-exchange or heat-transfer apparatus, of general application	26	2.1%	6
Devices for introducing media into, or onto, the body	25	2.0%	7
Filters implantable into blood vessels; Prostheses; Devices providing patency to, or preventing collapsing of, tubular structures of the body	24	1.9%	8
Devices for introducing media into, or onto, the body; Devices for transducing body media or for taking media from the body; Devices for producing or ending sleep or stupor	22	1.7%	9
Containers for storage or transport of articles or materials	22	1.7%	10
Processes for applying liquids or other fluent materials to surfaces, in general	22	1.7%	11
Heat-exchange apparatus, not provided for in another subclass, in which the heat-exchange media do not come into direct contact	21	1.7%	12
Acyclic, carbocyclic, or heterocyclic compounds containing elements other than carbon, hydrogen, halogen, oxygen, nitrogen, sulfur, selenium, or tellurium	18	1.4%	13
Processes or means, e.g. batteries, for the direct conversion of chemical energy into electrical energy	17	1.3%	14
Printed circuits; casings or constructional details of electrical apparatus; manufacture or assemblages of electrical components	16	1.3%	15

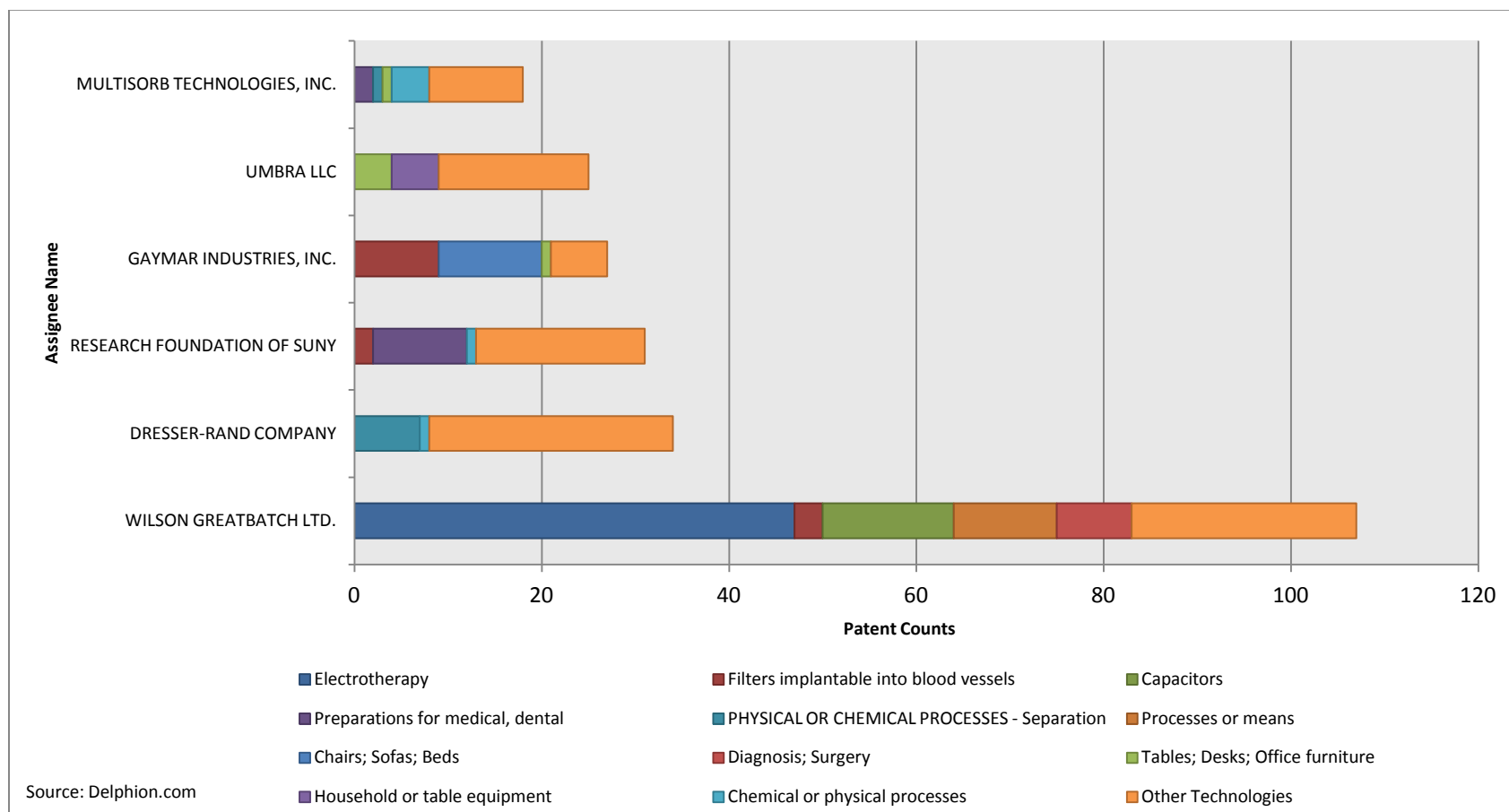
Note: Out of 1,266 Patents; Rank out of 272

Source: Delphion.com

- Table 58 displays the Top 15 patent counts by individual inventors by the International Patent Classification name (IPC) and shows that the Top 15 account for almost 20% (256) of individual inventor patents.
- These scientific fields identify the technology strengths in the Buffalo region.

Patent Assignee by Industry Classification

Figure 26. Buffalo Region Patents: Top Assignees by International Patent Classification Code, January 2006 – December 2010



- Figure 26 displays patent counts in the Buffalo region by assignee and International Patent Classification. The largest number of patents held by an individual company within a single International Patent Classification was Wilson Greatbatch Ltd, holding 47 patents in the category *Electrotherapy*. Wilson Greatbatch Ltd’s patents accounted for 98% of all patents in this category.

THE ROCHESTER REGION (FINGER LAKES REGION)

Patents are an alternative measure of regional innovative activities and are often used as a proxy for innovation. Each patent includes the name of at least one individual inventor (many have multiple inventors). Ownership is assigned to an individual inventor or to a corporation, university, or another research institution (assignee).

Patents were electronically extracted (those already granted and applications) in the state of New York between January 2006 and December 2010. To be included in the data for the Rochester region, the patent had to include at least one inventor or an assignee from Rochester region. An inventor or an assignee can be from outside Rochester (referred to as “Outside”).

Patent Counts

- In the Rochester region there were a total of 8,523 patents (granted and applied for) between January 2006 and December 2010; they represent 69% of all patents (granted and applied for) in the Upstate New York region (Table 59).
- From 2006 to 2010 there was a significant decrease in the number of patents from 2,230 in 2006 to only 407 patents in 2009 (-82%). This is an indication of the recessionary trends in patent data.
- Of the 8,523 patents, 907 were from a Rochester inventor with a Rochester assignee (11%) (Table 60).
- Twelve percent (12%) of patents had an assignee from the Rochester region, showing that businesses within the Rochester region are **not** the major drivers of local patents.
- The largest aggregation of patents was inventors located within the Rochester region with an assignee located outside of the region (Rochester Inventor and Outside Assignee). This category accounted for 45% of total patents (3,850).

Table 59. Rochester Region Patent Frequency Counts, January 2006 – December 2010

Year	Number of Patents	Percent of Total
2006	2,230	26.2%
2007	2,175	25.5%
2008	2,229	26.2%
2009	1,482	17.4%
2010	407	4.8%
Total	8,523	100.0%

Source: Delphion.com

Table 60. Patents: Rochester Region, January 2006 – December 2010

Designation	All Patents: Granted and Applications
Rochester Inventor without Assignee	3,362
Rochester Inventor and Rochester Assignee	907
Rochester Inventor and Outside Assignee	3,850
Outside Inventor and Rochester Assignee	104
Total Patent Applications from Rochester Inventors and/or Assignees	8,523

Source: Delphion.com

*Patent Counts by Assignee***Table 61. Top 25 Patent Assignee Companies located in the Rochester Region, January 2006 - December 2010**

Rank	Assignee Name	Number of Patents	Percentage of Total Patents
1	Eastman Kodak Company	291	28.8%
2	University of Rochester	129	12.8%
3	Bausch & Lomb Incorporated	63	6.2%
4	Xerox Corporation	48	4.7%
5	Rochester Institute of Technology	33	3.3%
6	Carestream Health, Inc.	27	2.7%
7	Biophan Technologies, Inc.	25	2.5%
8	Caldwell Manufacturing Company	23	2.3%
9	Quality Vision International, Inc.	16	1.6%
10	Coopervision, Inc.	16	1.6%
11	Bluetie, Inc.	13	1.3%
12	Torvec, Inc.	11	1.1%
13	Document Security Systems, Inc.	11	1.1%
14	Ameritherm, Inc.	11	1.1%
15	Ortho Clinical Diagnostics, Inc.	10	1.0%
16	Lasermax Incorporated	10	1.0%
17	Gleason Works	10	1.0%
18	Pharos Systems International, Inc.	9	0.9%
19	Vaccinex, Inc.	8	0.8%
20	Misonix, Inc.	8	0.8%
21	Litron Laboratories Limited	8	0.8%
22	Garlock Sealing Technologies LLC	7	0.7%
23	Naturalnano Research, Inc.	6	0.6%
24	Mag-Life LLC	6	0.6%
25	Key Systems, Inc.	6	0.6%

Note: Out of 1,011 Patents; Rank out of 133

Source: Delphion.com

- The top five companies (Eastman Kodak Company; University of Rochester; Bausch & Lomb Inc.; Xerox Corporation, Rochester Institute of Technology) accounted for 56% (564) of assignee company patents in the Rochester region (Table 61).

Patent Counts by Industry Classification

Table 62. Top 15 International Patent Classifications for Assignees located in the Rochester Region by Number of Patents, January 2006 – December 2010

International Patent Classifications	Number of Patents	Percentage of Total	Rank
Preparations for medical, dental, or toilet purposes	84	8.3%	1
Electric digital data processing	72	7.1%	2
Recognition of data; Presentation of data; Record carriers; Handling record carriers	55	5.4%	3
Diagnosis; Surgery; Identification	55	5.4%	4
Semiconductor devices; Electric solid state devices not otherwise provided for	45	4.5%	5
Electrography; Electrophotography; Magnetography	34	3.4%	6
Typewriters; Selective printing mechanisms; Correction of typographical errors	31	3.1%	7
Pictorial communication	29	2.9%	8
Optical elements, systems, or apparatus	26	2.6%	9
Arrangements or circuits for control of indicating devices using static means to present variable information	23	2.3%	10
Processes for applying liquids or other fluent materials to surfaces, in general	19	1.9%	11
Filters implantable into blood vessels; prostheses; devices providing patency to, or preventing collapsing of, tubular structures of the body, e.g. stents; orthopedic, nursing or contraceptive devices; fomentation; treatment or protection of eyes or ears	19	1.9%	12
Apparatus or arrangements for taking photographs or for projecting or viewing them; apparatus or arrangements employing analogous techniques using waves other than optical waves; accessories therefor	18	1.8%	13
Data processing systems or methods, specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes; Systems or methods specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes, not otherwise provided for	14	1.4%	14
Hinges or other suspension devices for doors, windows, or wings	14	1.4%	15

Note: Out of 1,011 Patents; Rank out of 119

Source: Delphion.com

- Table 62 displays the Top 15 patent counts for assignees located in the Rochester region by the International Patent Classification name (IPC) and shows that the Top 15 account for almost 53% (538) of patents in this category.
- These scientific fields identify the technology strengths in the Rochester region.

*Individual Inventors Patent Counts by Industry Classification***Table 63. Top 15 International Patent Classifications by Individual Inventors in the Rochester Region by Number of Patents, January 2006 – December 2010**

International Patent Classifications	Number of Patents	Percentage of Total	Rank
Electric digital data processing	705	18.3%	1
Electrography; Electrophotography; Magnetography	700	18.2%	2
Recognition of data; Presentation of data; Record carriers; Handling record carriers	228	5.9%	3
Pictorial communication	176	4.6%	4
Typewriters; Selective printing mechanisms; Correction of typographical errors	168	4.4%	5
Processes or means, e.g. batteries, for the direct conversion of chemical energy into electrical energy	153	4.0%	6
Preparations for medical, dental, or toilet purposes	136	3.5%	7
Handling thin or filamentary material, e.g. sheets, webs, cables	112	2.9%	8
Data processing systems or methods, specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes; Systems or methods specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes, not otherwise provided for	101	2.6%	9
Transmission of Digital Information	68	1.8%	10
Transmission	67	1.7%	11
Processes for applying liquids or other fluent materials to surfaces, in general	66	1.7%	12
Layered products, i.e. products built-up of strata of flat or non-flat	66	1.7%	13
Photosensitive materials for photographic purposes	34	0.9%	14
Diagnosis; Surgery; Identification	32	0.8%	15

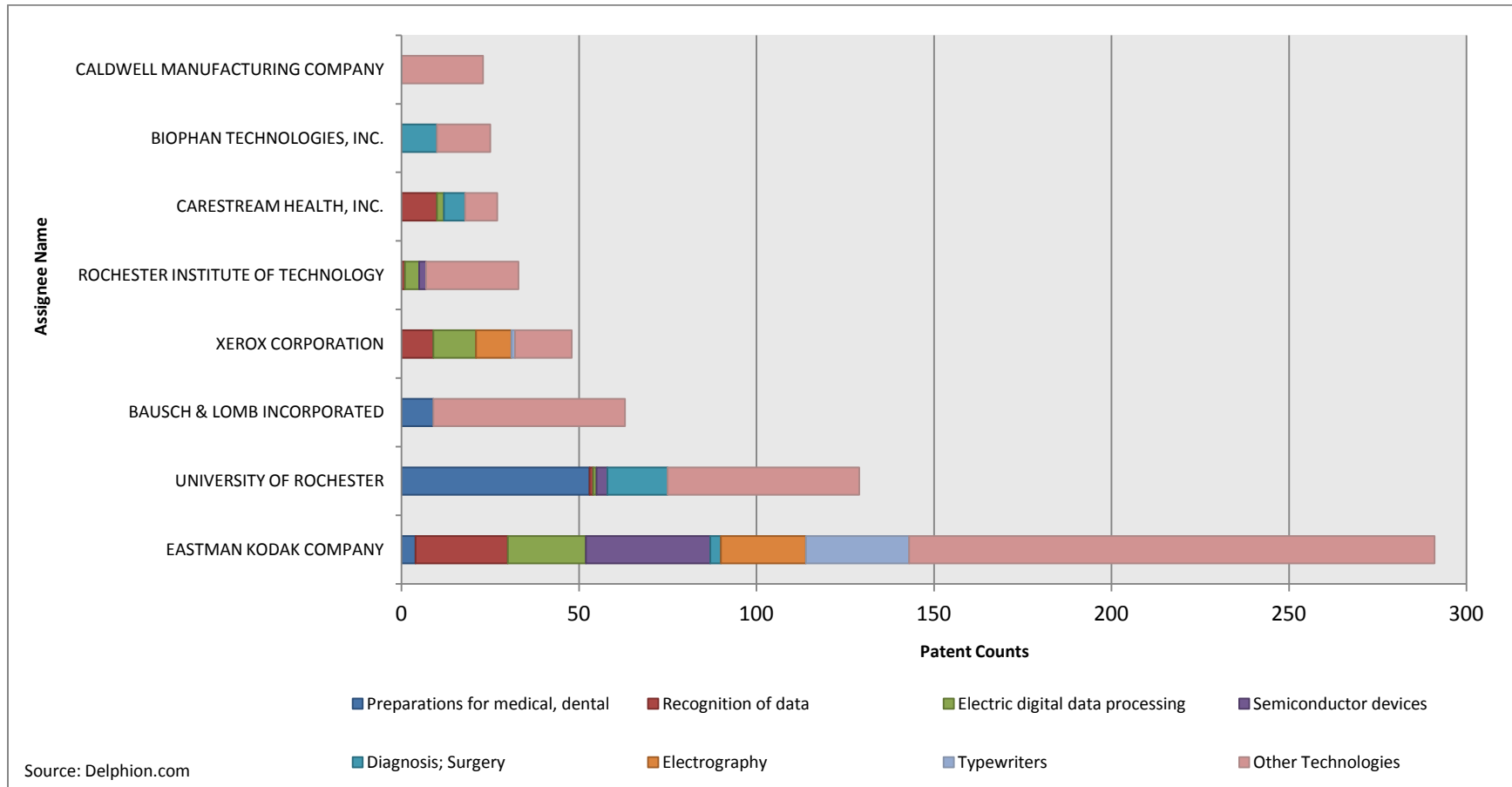
Note: Out of 3,850 Patents; Rank out of 234

Source: Delphion.com

- Table 63 displays the Top 15 patent counts by individual inventors by the International Patent Classification name (IPC) and shows that the Top 15 account for 73% (2,812) of individual inventor patents in the Rochester region.
- These scientific fields identify the technology strengths in the Rochester region.

Patent Assignee by Industry Classification

Figure 27. Rochester Region Patents: Top Assignees by International Patent Classification Code, January 2006 – December 2010



- Figure 27 displays patent counts in the Rochester region by assignee and International Patent Classification. The largest number of patents held by an individual company within a single International Patent Classification was the University of Rochester, holding 53 patents in the category *Preparations for medical, dental*. The University of Rochester’s patents accounted for 63% of all patents in this category.

THE SYRACUSE REGION (CENTRAL NEW YORK REGION)

Patents are an alternative measure of regional innovative activities and are often used as a proxy for innovation. Each patent includes the name of at least one individual inventor (many have multiple inventors). Ownership is assigned to an individual inventor or to a corporation, university, or another research institution (assignee).

Patents were electronically extracted (those already granted and applications) in the state of New York between January 2006 and December 2010. To be included in the data for the Syracuse region, the patent had to include at least one inventor or an assignee from Syracuse region. An inventor or an assignee can be from outside Syracuse (referred to as “Outside”).

Patent Counts

- In the Syracuse region there were a total of 1,595 patents (granted and applied for) between January 2006 and December 2010, which represents 13% of all patents (granted and applied for) in the Syracuse region (Table 64).
- Like the other regions, there was a significant decrease in the number of patents in the Syracuse region from 2006 to 2010. The number of patents in Syracuse declined from 453 in 2006 to 136 in 2009 (-70%).
- Of the 1,595 patents, 361 were from a Syracuse inventor with a Syracuse assignee (23%) (Table 65).
- Twenty-six percent (26%) of patents had an assignee from the Syracuse region; showing that businesses within the Syracuse region are a **partial driver** of local patents.
- The largest aggregation of patents is inventors of individual patents (Syracuse Inventor with no Assignee). Individually owned patents accounted for 39% of total patents (630).

Table 64. Syracuse Region Patent Frequency Counts, January 2006 – December 2010

Year	Number of Patents	Percent of Total
2006	453	28.4%
2007	402	25.2%
2008	316	19.8%
2009	288	18.1%
2010	136	8.5%
Total	1,595	100.0%

Source: Delphion.com

Table 65. Patents: Syracuse Region, January 2006 – December 2010

Designation	All Patents: Granted and Applications
Syracuse Inventor without Assignee	630
Syracuse Inventor and Syracuse Assignee	361
Syracuse Inventor and Outside Assignee	545
Outside Inventor and Syracuse Assignee	59
Total Patent Applications from Syracuse Inventors and/or Assignees	1,595

Source: Delphion.com

Patent Counts by Assignee**Table 66. Top 25 Patent Assignee Companies located in the Syracuse Region, January 2006 - December 2010**

Rank	Assignee Name	Number of Patents	Percentage of Total Patents
1	John Mezzalingua Associates, Inc.	90	21.4%
2	Hand-Held Products, Inc.	71	16.9%
3	Welch Allyn Inc.	64	15.2%
4	Syracuse University	45	10.7%
5	Pass+ Seymour, Inc.	18	4.3%
6	Sensis Corporation	15	3.6%
7	Anaren, Inc.	10	2.4%
8	J.R. Clancy, Inc.	10	2.4%
9	Carlisle Intangible Company	9	2.1%
10	DL Manufacturing	8	1.9%
11	Panavision Imaging, LLC	7	1.7%
12	Leonardi Manufacturing Co.	6	1.4%
13	Infimed, Inc.	5	1.2%
14	O'Brien & Gere Engineers, Inc.	5	1.2%
15	Oneida Indian Nation	5	1.2%
16	Defenshield, Inc.	4	1.0%
17	Jadak Technologies, Inc.	4	1.0%
18	Inficon Inc.	3	0.7%
19	Syracuse Research Corporation	3	0.7%
20	Tangidyne Corporation	3	0.7%
21	Carrier Corporation	2	0.5%
22	Cryomech Inc.	2	0.5%
23	Arcom Digital, LLC	2	0.5%
24	Fanasys, LLC	2	0.5%
25	Fralo Plastech Mfg., LLC	2	0.5%

Note: Out of 420 Patents; Rank out of 46
Source: Delphion.com

- The top five companies (John Mezzalingua Associates Inc; Hand-Held Products Inc.; Welch Allyn Inc; Syracuse University; and Pass + Seymour Inc.) accounted for 69% (288) of assignee company patents in the Syracuse region (Table 66).

Patent Counts by Industry Classification

Table 67. Top 15 International Patent Classifications for Assignees located in the Syracuse Region by Number of Patents, January 2006 – December 2010

International Patent Classifications	Number of Patents	Percentage of Total	Rank
Electrically-conductive connections; Structural associations of a plurality of mutually-insulated electrical connecting elements	65	15.5%	1
Recognition of data; Presentation of data; Record carriers; Handling record carriers	48	11.4%	2
Diagnosis; Surgery; Identification	39	9.3%	3
Electric digital data processing	22	5.2%	4
Pictorial communication	16	3.8%	5
Waveguides; Resonators, lines or other devices of the waveguide type	11	2.6%	6
Measurement of intensity, velocity, spectral content, polarization, haze or pulse characteristics of infra-red, visible or ultra-violet light; Colorimetry; Radiation pyrometry	9	2.1%	7
Radio direction-finding; radio navigation; determining distance or velocity by use of radio waves; locating or presence-detecting by use of the reflection or re-radiation of radio waves; analogous arrangement using other waves	8	1.9%	8
Measuring electric variables; measuring magnetic variables	7	1.7%	9
Transmission- transmission systems for measured values, control or similar signals; speech analysis or synthesis; coding, decoding or code conversion, secret communication, transmission of digital information, wireless communication networks	6	1.4%	10
Separation - separating solids from solids by wet methods, by pneumatic jigs or tables, by other dry methods, magnetic or electrostatic separation of solid materials from solid materials or fluids, separation by high-voltage electric fields, centrifuges, vortex apparatus, presses for squeezing out liquid from liquid containing material	6	1.4%	11
Capstans; winches, tackles e.g. pulley block; hoists - winding or unwinding ropes or cables for feeding or storage purposes; rope or cable-winding or unwinding mechanisms for lifts; hoisting devices specially adapted for suspended scaffolds	6	1.4%	12
Measuring temperature; measuring quantity of heat; thermally-sensitive elements not otherwise provided for	6	1.4%	13
Impedance networks, resonant circuits, resonators - measuring testing, arrangements for producing a reverberation or echo sound; impedance networks or resonators consisting of distributed impedances, e.g. of the waveguide type, control of amplification, e.g. bandwidth control of amplifiers, tuning resonant circuits, e.g. tuning coupled resonant circuits, networks for modifying the frequency characteristics of communication systems	5	1.2%	14
Signaling or calling systems; order telegraphs, alarm systems - signaling arrangements on vehicles; railway signaling systems or devices; on cycles; safes or strong-rooms with alarm devices; signaling or alarm devices in mines; sensitive measuring elements, see the appropriate subclasses of; traffic control systems; visual indicating means; sound-producing devices; radio or near-field calling systems; loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers	5	1.2%	15

Note: Out of 420 Patents; Rank out of 102

Source: Delphion.com

- Table 67 displays the Top 15 patent counts for an assignee located in the Syracuse region by the International Patent Classification name (IPC) and shows that the Top 15 account for almost 62% (259) of patents in this category.
- These scientific fields identify the technology strengths in the Syracuse region.

Individual Inventors Patent Counts by Industry Classification

Table 68. Top 15 International Patent Classifications by Individual Inventors in the Syracuse Region by Number of Patents, January 2006 – December 2010

International Patent Classifications	Number of Patents	Percentage of Total	Rank
Refrigeration machines, plants, or systems; Combined heating and refrigeration systems; Heat pump systems	48	7.6%	1
Electric digital data processing	40	6.3%	2
Electrically-conductive connections; Structural associations of a plurality of mutually-insulated electrical connecting elements	37	5.9%	3
Recognition of data; Presentation of data; Record carriers; Handling record carriers	35	5.6%	4
Diagnosis; Surgery; Identification	28	4.4%	5
Preparations for medical, dental, or toilet purposes	15	2.4%	6
Investigating or analyzing materials by determining their chemical or physical properties	15	2.4%	7
Separation	13	2.1%	8
Pictorial Communication	12	1.9%	9
Apparatus for physical training, gymnastics, swimming, climbing, or fencing; ball games; training equipment	11	1.7%	10
Other working of metal; combined operations; universal machine tools	11	1.7%	11
Couplings for transmitting rotation	11	1.7%	12
Containers for storage or transport of articles or materials, e.g. bags, barrels, bottles, boxes, cans, cartons, crates, drums, jars, tanks, hoppers, forwarding containers; accessories, closures, or fittings therefor; packaging elements; packages	10	1.6%	13
Chairs	9	1.4%	14
Arrangement or mounting of propulsion units or of the transmissions in arrangement or mounting of plural diverse prime-movers; auxiliary drives, instrumentation or dashboards for vehicles; arrangements in connection with cooling, air take, gas exhaust, or fuel supply, or propulsion units, in vehicles	9	1.4%	15

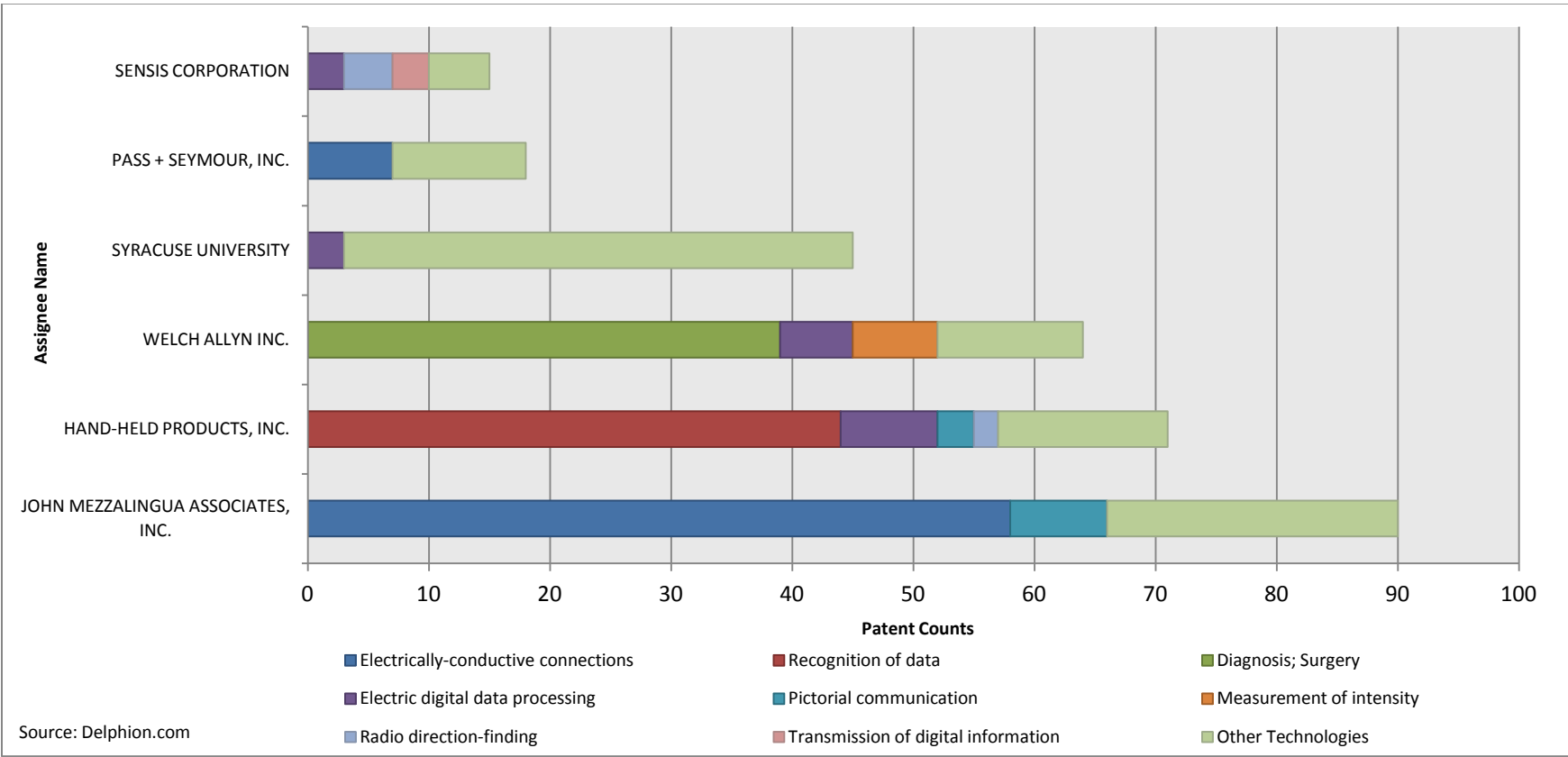
Note: Out of 630 Patents; Rank out of 186

Source: Delphion.com

- Table 68 displays the Top 15 patent counts by individual inventors by the International Patent Classification name (IPC) and shows that the Top 15 account for almost 48% (304) of patents by individual inventors in the Syracuse region.
- These scientific fields identify the technology strengths in the Syracuse region.

Patent Assignee by Industry Classification

Figure 28. Syracuse Region Patents: Top Assignees by International Patent Classification Code, January 2006 – December 2010



- Figure 28 displays the Syracuse region patent counts by assignee and International Patent Classification. The largest number of patents held by an individual company within a single International Patent Classification was John Mezzalingua Associates, Inc., holding 58 patents in the category *Electrically-conductive connections*. John Mezzalingua Associates’ patents accounted for 89% of all patents in this category.

SBIR/STTR AWARDS

Table 69. Number of SBIR/STTR Awards by Year and Award Total (\$) in Upstate New York (19-Counties), 2005 – 2010

Year	Number of Awards	Award Total (\$)
2005	97	\$37,266,509
2006	85	\$26,150,313
2007	66	\$21,291,995
2008	83	\$22,784,994
2009	88	\$35,379,994
2010*	88	\$32,416,588
Total	507	\$175,290,394

Note: Awards are adjusted for inflation to 2010 dollars;

*Complete data for the year has not yet been released;

SBIR/STTR Awards totaled from the following government agencies: DHS, DOC, DOD, DOE, DOI, DOT, ED, EPA, HHS, HUD, NASA, NIH, NIST, NRC, NSF, and USDA

Source: Small Business Administration Tech-Net; National Institute of Health

- 507 SBIR/STTR awards were distributed between 2005 and 2010 in the Upstate New York region to 117 different firms (Table 69).
- Over the past 5 years, the number of SBIR/STTR awards allocated in the Upstate New York region has declined, while the dollar amount of awards has declined too. The awards value declined significantly in the period from 2006 to 2008 and then increased. However, by 2010, the value of total SBIR/STTR awards was still below the 2005 level.
- The year 2007 had the fewest number of awards (66) and smallest amount of dollars allocated (\$21.3 million) in the Upstate New York region.
- For a complete list of firms and awards see Appendix A.7.

Table 70. Number of SBIR/STTR Awards by Year and Award Total (\$) in the Buffalo, Rochester, and Syracuse Regions, 2005 – 2010

Year	Buffalo Region		Rochester Region		Syracuse Region	
	Number of Awards	Award Total (\$)	Number of Awards	Award Total (\$)	Number of Awards	Award Total (\$)
2005	31	\$10,284,515	53	\$20,962,484	13	\$6,019,510
2006	32	\$11,225,604	43	\$12,911,764	10	\$2,012,945
2007	21	\$8,067,808	39	\$11,271,326	6	\$1,952,862
2008	24	\$5,124,188	53	\$14,056,191	6	\$3,604,616
2009	31	\$7,386,215	51	\$26,736,551	6	\$1,257,228
2010*	21	\$7,379,995	62	\$22,105,759	5	\$2,930,834
Total	160	\$49,468,325	301	\$108,044,075	46	\$17,777,994

Note: Awards are adjusted for inflation to 2010 dollars

*Complete data for the year has not yet been released;

SBIR/STTR Awards totaled from the following government agencies: DHS, DOC, DOD, DOE, DOI, DOT, ED, EPA, HHS, HUD, NASA, NIH, NIST, NRC, NSF, and USDA

Source: Small Business Administration Tech-Net; National Institute of Health

- Over the 6 years from 2005 to 2010, the Rochester region acquired, by far, the largest number of awards (301) as well as the most dollars allocated (\$108 million). Firms in the Rochester region received over 59% of the number of SBIR/STTR awards and almost 62% of total dollars awarded in Upstate New York (Table 70).
- The Syracuse region had the least number of awards (46) and dollars allocated (\$17.8 million). This represents 9% of all awards and 10% of the total award dollars in the Upstate New York region.
- Monroe County in the Rochester region had the largest number of total awards (276) and dollars allocated (\$99.9 million). The total awards represent 54% of all awards in Upstate New York while the total dollars equate to 57% of all dollars allocated.
- For a complete list of firms and awards see Appendix A.7.

Table 71. Top Ten SBIR/STTR Awards for the Upstate New York Region by Award Total (\$), 2005 – 2010

Rank	Firm Name	County	Region	Number of Awards	Award Total (\$)
1	Impact Technologies, LLC	Monroe	Rochester	142	\$44,881,683
2	Koning Corporation	Monroe	Rochester	5	\$9,444,119
3	Lucid, Inc.	Monroe	Rochester	10	\$6,942,256
4	Janya, Inc.	Erie	Buffalo	15	\$6,334,240
5	Litron Laboratories, Ltd.	Monroe	Rochester	15	\$5,523,374
6	Orthosystems, Inc.	Onondaga	Syracuse	8	\$4,557,139
7	VI Manufacturing, Inc. DBA Optipro System	Wayne	Rochester	8	\$4,345,470
8	Therex, LLC	Erie	Buffalo	8	\$4,293,764
9	Thermal Gradient, Inc.	Monroe	Rochester	4	\$4,151,771
10	Tactus Technologies, Inc.	Erie	Buffalo	11	\$4,069,792
	Total	-	-	226	\$94,543,608

Note: SBIR/STTR Awards totaled from the following government agencies: DHS, DOC, DOD, DOE, DOI, DOT, ED, EPA, HHS, HUD, NASA, NIH, NIST, NRC, NSF, and USDA

Source: Small Business Administration Tech-Net; National Institute of Health

- Table 71 displays the top ten firms aggregated by total SBIR/STTR award dollars in Upstate New York. Together, these firms were awarded over \$94 million in awards, representing 54% of all dollars allocated in the Upstate New York region.
- Impact Technologies, Inc. had the most dollars awarded with \$44.9 million, and the most total awards (142). These awards represented nearly 63% of all awards in Table 71 and 28% of all awards in Upstate New York.
- Koning Corporation had the largest average dollar amount per award at \$1.9 million, more than double all other firms in the top ten except for Thermal Gradient Inc. (\$1.04 million).

APPENDIX A: A.1. – A.7.

A. 1. Fortune 1,000 Companies in Upstate New York Region, 2009

Rank	Company	Fortune 1000 Rank	Revenues (\$Mil)	City	County	Region	Stock Exchange	Ticker Symbol
1	Eastman Kodak Co	284	\$9,416.00	Rochester	Monroe	Rochester	NYSE	EK
2	M&T Bank Corp.	535	\$4,216.60	Buffalo	Erie	Buffalo	NYSE	MTB
3	Constellation Brands Inc.	578	\$3,773.00	Fairport	Monroe	Rochester	NYSE	STZ
4	National Fuel Gas Co	803	\$2,400.40	Williamsville	Erie	Buffalo	NYSE	MOG
5	Paychex Inc.	885	\$2,066.30	Rochester	Monroe	Rochester	NASDAQ	PAYX
6	Moog Inc.	921	\$1,902.70	East Aurora	Erie	Buffalo	NYSE	MOG

Note: Rank out of 1,000;

Source: <http://money.cnn.com/>

A. 2. Top Private Employers in the Buffalo Region, 2011

Rank	Company Name	Type of Business	Employee Count
1	Kaleida Health	Health care system	10,000
2	Catholic Health System	Health care system	6,230
3	Employer Services Corp	Employment-related services	6,089
4	Tops Markets LLC	Supermarket retailer	5,103
5	HSBC Bank USA N.A.	Commercial Bank	5,000
6	M&T Bank	Commercial Bank	4,611
7	Seneca Gaming Corp.	Entertainment	3,505
8	Catholic Diocese of Buffalo	Parishes, schools, and institutions	3,500
9	Wegmans Food Markets Inc.	Supermarket retailer	3,011
10	Roswell Park Cancer Institute	Hospital	2,875
11	Moog Inc.	Manufacturer of precision-control components and defense systems	2,651
12	Elderwood Senior Care	Skilled nursing facility	2,364
13	Dresser-Rand Co.	Manufacturers of compressors, engines and steam turbines	2,300
14	Wilson Farms Inc.	Convenience store	2,284
15	People Inc.	Services to people with developmental disabilities	2,070
16	United Parcel Service	Package delivery services	2,048
17	Bank of America	Commercial Bank	2,000
18	The Resource Center	Services to people with developmental disabilities	1,748
19	Delaware North Cos.	Hospitality and food service	1,734
20	Geico Direct	Insurance Services	1,700
21	Verizon	Telecommunications	1,600
22	GM Components Holdings	Manufacturer of radiators and heat exchangers	1,350
23	Aspire of WNY Inc.	Services to people with developmental disabilities	1,300
24	Cummins Engine Company, Inc.	Manufacturer of diesel engines and engine components	1,300
25	Rich Products Corp.	Food manufacturer	1,300
26	Blue Cross Blue Shield of Western NY	Health Insurance services	1,277
27	Time Warner Cable	Telecommunications	1,240
28	National Fuel Gas Co.	Supplier of gas and oil	1,219
29	The Alcott Group	HR service provider	1,200
30	First Niagara Bank	Commercial Bank	1,200

Source: Buffalo Niagara Partnership <http://www.buffaloniagara.org/files/content/Research/DataPoints/TopBusinesses.pdf>

A. 2. Top Private Employers in the Buffalo Region, 2011 (Continued)

Rank	Company Name	Type of Business	Employee Count
31	Ingram Micro Inc.	Distributor of microcomputer products	1,200
32	Goodyear Dunlop Tires North Am Ltd.	Tire manufacturer	1,150
33	WCA Healthcare System	Healthcare system	1,118
34	West-Herr Automotive Group	Automobile Dealership	1,113
35	Pioneer Credit Recovery Inc.	Collection Services	1,100
36	Praxair Inc.	Production and distribution of industrial gases	1,100
37	Baker Victory Services	Youth Services	1,079
38	Olean General Hospital	Hospital	971
39	Heritage Centers	Services to people with developmental disabilities	950
40	Independent Health	Health Insurance services	950
41	Key Bank	Commercial Bank	950
42	Capital Management Services	Consumer Debt Collections Services	910
43	National Grid	Public Utility	900
44	Niagara Falls Memorial Medical Center	Hospital	894
45	Saint-Gobain Corp.	Manufacturer of abrasives, ceramics, plastics, building materials and reinforcements	884
46	General Motors Powertrain-Tonawanda Engine	Manufacturer of car and boat engines	841
47	Upstate Niagara Coop Inc.	Food manufacturer	776
48	Canisius College	Postsecondary Education	764
49	FedEx Trade Networks	Package delivery services	761
50	Ford Motor Co.	Manufacturer of subassemblies for cars and trucks	743
51	Cutco Corp.	Cutlery manufacturing	725
52	Greatbatch Inc.	Manufacturer of power sources and precision engineered components	700
53	SKF Aeroengine North America	Manufacturer of precision ball and roller bearings for specialized aerospace applications	700
54	The Carriage House Co.	Manufacturer of shelf-stable wet products	675
55	Luvata Buffalo Inc.	Brass and copper manufacturing	655
56	The Buffalo News	Newspaper publishing	604
57	Buffalo Medical Group	Physicians	596
58	John W. Danforth Co.	Mechanical Contractor	585
59	Northtown Automotive Cos. Inc.	Automobile Dealership	550
60	Alfred University	Postsecondary Education	528
61	Catholic Charities of Buffalo	Social Services	505
62	Creditors Interchange	Third-Party Accounts Receivable Services	494

Source: Buffalo Niagara Partnership <http://www.buffaloniagara.org/files/content/Research/DataPoints/TopBusinesses.pdf>

A. 3. Top Private Employers in the Rochester Region, 2009

Rank	Company Name	Type of Business	Employee Count
1	University of Rochester/Strong Health	Higher education, health care	19,441
2	Wegmans Food Markets	Distribution, retail, real estate developer	13,381
3	Eastman Kodak	Manufacturer, world headquarters, exporter, R&D	8,500
4	Rochester General Health System	Health care	7,210
5	Xerox	Manufacturer, exporter	6,935
6	Rochester City School District	Education	6,327
7	Unity Health System	Health care	5,280
8	Monroe County	Local government	4,880
9	Lifetime Healthcare Cos.	Health care	3,542
10	City of Rochester	Local government	3,500
11	Paychex	Payroll, human resource and benefits services	3,331
12	Rochester Institute of Technology	Higher education	3,138
13	ITT Industries	Manufacturer, division headquarters	2,845
14	Greece Central School District	Education	2,607
15	Harris Corp. RF Communications	Manufacturer	2,300
16	Sutherland Global Services	Business processing outsourcing	2,094
17	Time Warner Cable	Media, telecommunications	1,906
18	JP Morgan Chase	Financial services	1,765
19	Finger Lakes Health	Health care	1,760
20	Bausch & Lomb	Manufacturer, world headquarters, R&D	1,625
21	Monroe #1 BOCES	Education	1,555
22	Hillside Family of Agencies	Non-profit services	1,554
23	Monroe Community College	Higher education	1,501
24	Webster Central School District	Education	1,488
25	Carestream Health	Manufacturer	1,412
26	SUNY College at Geneseo	Higher education	1,401
27	Verizon Wireless	Telecommunications services	1,400
28	Thompson Health	Health care	1,357
29	Delphi	Manufacturer	1,350
30	SUNY College at Brockport	Higher education	1,348

Source: Greater Rochester Enterprise <http://www.rochesterbiz.com/Business/Information/Lists.aspx>

A. 3. Top Private Employers in the Rochester Region, 2009 (Continued)

Rank	Company Name	Type of Business	Employee Count
31	Frontier Communications	Telecommunications services	1,292
32	CooperVision	Manufacturer, distribution	1,203
33	Rush Henrietta Central School District	Education	1,203
34	Fairport Central School District	Education	1,201
35	Pittsford Central School District	Education	1,163
36	Wayne County	Local government	1,120
37	St. Ann's of Greater Rochester	Senior services	1,097
38	Ortho-Clinical Diagnostics	Manufacturer, exporter	1,081
39	Ontario County	Local government	1,020
40	Livingston County	Local government	1,002
41	St. John's Home	Senior services	987
42	Rochester Gas & Electric	Energy services	950
43	Penfield Central School District	Education	922
44	Nalge Nunc International	Manufacturer, exporter	900
45	Pactiv	Manufacturer	870
46	Gates Chili Central School District	Education	868
47	Clifton Springs Hospital & Clinic	Health care	866
48	Genesee County	Local government	850
49	Parker Hannifin	Manufacturer	847
50	Paetec Holding	Telecommunication services	833

Source: Greater Rochester Enterprise <http://www.rochesterbiz.com/Business/Information/Lists.aspx>

A. 4. Top Private Employers in the Syracuse Region, 2011

Rank	Company Name	Type of Business	Employee Count
1	SUNY Upstate Medical University	Academic Health Science Center	6,400
2	Syracuse University	higher education	5,925
3	Wegmans Food Markets, Inc.	food & pharmacy stores (10 locations)	3,760
4	St. Joseph's Hospital Health Center	medical and health care facility	3,150
5	Magna Drivetrain - New Process Gear Inc.	automotive and truck transfer cases, transmissions, transaxles	2,600
6	Crouse Hospital	medical and health care facility	2,400
7	Lockheed-Martin MS2	premier systems integrator of network-centric naval combat systems	2,350
8	P & C Food Markets Division of Penn Traffic	food retailer, wholesaler and franchiser for 64 corporate stores, 68 Big M Markets and over 103 wholesale accounts	2,220
9	National Grid	electric/gas utility	1,860
10	Loretto	A comprehensive continuing care system specializing in older adults	1,825
11	Empire Expo Center Home of the Greater NYS Fair	amusements, convention centers, exhibit display	1,575
12	Carrier Corporation	air conditioning, heating and refrigeration equipment; transportation refrigeration - R & D	1,500
13	L. & J. G. Stickley, Inc.	collector quality furniture manufacturer	1,445
14	United Parcel Service	delivery service	1,230
15	Roman Catholic Diocese of Syracuse, NY	diocesan administration	1,200
16	The Hartford Financial Services Group	investments/insurance	1,200
17	Syracuse VA Medical Center	medical and health care facility	1,150
18	Welch Allyn, Inc.	diagnostic medical instruments; automotive material handling devices; inspection systems devices, specialty lamps and fiber optics	1,100
19	Verizon	utility providing network services; telecommunications	1,100
20	AXA Equitable Life Ins. Co.	life insurance and financial services	1,000
21	Excellus Blue Cross and Blue Shield, Central New York Region	insurance, health care	985
22	Community-General Hospital	medical and health care facility	970
23	Anheuser-Busch Inc.	brewery	940
24	Bank of New York	back office financial operations	850
25	Bristol-Myers Squibb Company	antibiotic manufacturer; research and development of new prescription pharmaceuticals	820
26	McLane Northeast	distribution center	800
27	Eagle Comtronics	components, security devices for cable television	800

Source: Greater Syracuse Economic Growth Council http://www.syracusecentral.com/market_data/major_employers.htm

A. 4. Top Private Employers in the Syracuse Region, 2011 (Continued)

Rank	Company Name	Type of Business	Employee Count
28	O'Brien & Gere Companies, Inc.	environmental services	800
29	Syracuse Research Corp.	information technology	750
30	St. Camillus Health & Rehabilitation Center	health care, rehabilitation services	725
31	Crouse-Hinds	electrical construction materials products	700
32	Rite Aid	pharmacies/regional headquarters	670
33	Crucible Materials Corp.	specialty metals	650
34	Central New York Regional Transportation Authority	transportation	645
35	YMCA of Greater Syracuse, Inc.	social service organization	620
36	A T & T	telecommunications	600
37	Le Moyne College	higher education	600
38	Sensis Corporation	surveillance equipment	600
39	The Post Standard	newspaper	600
40	Time Warner Cable	cable TV companies	575
41	James Square Health and Rehabilitation Center	long term health care facility	550
42	HHP Inc.	image-based data collection solutions for mobile, wireless and transaction processing applications to end users	530
43	The Sutherland Group, Ltd.	customer management services	500
44	Onondaga Community College	Higher Education	500
45	Catholic Charities of Onondaga County	human services organization	490
46	Arc of Onondaga	human services organization	475
47	Sysco Food Service of Syracuse	restaurant & institutional food distributor	475
48	Longley-Jones Associates, Inc.	commercial real estate	470
49	M & T Bank	finance	450
50	SUNY College of Environmental Science and Forestry	educational facility	435
51	Empire Medicare Services	insurance, claims/service-inbound	425
52	PEACE, Inc.	nonprofit organization	420
53	Laboratory Alliance of CNY. LLC	medical laboratories	415
54	Driver's Village	automobile dealers	400
55	Syracuse China Corporation	commercial china, ovenware and dinnerware services	395
56	Anaran Microwave, Inc.	electronic combat warning and targeting receiver systems for military aircraft, ships, submarines and combat vehicle systems	380

Source: Greater Syracuse Economic Growth Council http://www.syracusecentral.com/market_data/major_employers.htm

A. 4. Top Private Employers in the Syracuse Region, 2011 (Continued)

Rank	Company Name	Type of Business	Employee Count
57	Sam Dell Car & Truck Services Stores	automobile dealers	375
58	Syracuse Community Health Center	health care services	355
59	JC Penney Co., Inc.	department store (2 locations)	350
60	Salvation Army Syracuse Area Services	social services organization	350
61	HSBC	finance	325
62	Liberty Resources, Inc.	nonprofit organization	315
63	PPC	cable connectors, fiber optic connectors, trap/fillers for cable television	300
64	Aetna Insurance	insurance-inbound	300
65	Blasland Bouck & Lee	environmental consultants	300
66	Cxtec (Cable Express)	computer networks	300
67	ITT Hartford Insurance	insurance	300
68	Menorah Park	senior care	290
69	POMCO	employee benefits	270
70	Rural Metro Medical Services	public access defibrillation, ambulance services, safety training	265
71	Nationwide Insurance	insurance	260
72	Rescue Mission Alliance	social service organization	260
73	Bond, Schoeneck & King	legal services	250
74	J P Morgan Chase	financial services	250
75	RMSCO	employee benefits, claims administration, insurance-health care, risk management, self insurance	250
76	USA Relay (Sprint)	Hearing Impaired relay center-inbound	250
77	Solvay Paperboard, LLC	high performance paperboard	240
78	Landis Plastics	plastic packaging supplies	225
79	Vivian Teal Howard RHCF	adult care facility	225
80	Haylor, Freyer & Coon, Inc.	insurance	220
81	Gypsum Express, Ltd.	trucking/transportation	215
82	Fiserv, Inc.	integrated data processing and information management systems for banking industry	200
83	Coca-Cola Bottling Company of Syracuse	beverage distributor	200
84	Fleet Building Maintenance, Inc.	construction cleaning services	200
85	Green Hills	grocers	200
86	Syracuse Home Association	adult care facility	200
87	Syracuse Merit Electric, Inc.	electrical contractor, communications, electronics testing equipment	200

Source: Greater Syracuse Economic Growth Council http://www.syracusecentral.com/market_data/major_employers.htm

A. 5. Business Incubators and Research Parks in Upstate New York, May 2011

Organization	Address	City	State	Zip	Phone	Website
Buffalo Niagara Medical Campus Innovation Center	640 Ellicott Street	Buffalo	NY	14203	(716)218-7151	http://www.bnmc.org/innovation/index.aspx?s=7&id=39
UB Technology Incubator	1576 Sweet Home Road	Amherst	NY	14228	(716) 645-5500	http://www.research.buffalo.edu/stor/incubator/
Lennox Tech Enterprise Center	150 Lucius Gordon Drive	West Henrietta	NY	14586	(585)214-0592	http://www.htr.org/incubator.asp
RIT's Venture Creations Incubator	125 Tech Park Drive	Rochester	NY	14625	(585)239-6000	http://www.rit.edu/research/vc/
Rochester BioVenture Center	77 Ridgeland Road	Rochester	NY	14623	(585) 413-9061	http://www.rochesterbioventure.org
The Technology Farm	500 Technology Farm Dr	Geneva	NY	14456	(315) 781-0070	http://www.thetechnologyfarm.com/
Raymond von Dran Innovative and Disruptive Entrepreneurship Accelerator (IDEA)						http://accelerate.syr.edu/about.aspx
South Side Innovation Center	2610 South Salina St	Syracuse	NY	13205	(315) 443-8600	http://whitman.syr.edu/eee/ssic/index.asp
The Clean Tech Center	235 Harrison Street	Syracuse	NY	13202	(315) 579-8369	http://www.thecleantechcenter.com/
The Central New York Biotechnology Research Center					315-464-4398	http://www.upstate.edu/biocenter/
CASE Incubator Facility					(315)443-1060	http://case.syr.edu/incubators/incubator.php
The Tech Garden	235 Harrison Street	Syracuse	NY	13202	(315) 474-0910	http://www.thetechgarden.com
Stardust Entrepreneurial Institute	2 State Street	Auburn	NY	13021	(315) 252-3511	http://www.stardustinstitute.org/

Source: Individual Business Incubator Website

A. 6. Public Offerings in Upstate New York, January 2006 – May 2011

Company Name	Public Offering	Date	Symbol	Exchange	Sector	Industry
Dresser-Rand Group Inc.	Secondary	4/28/2006	DRC	NYSE	Cattaraugus	Industrial Goods
Minrad International Inc.	Secondary	5/24/2006	BUF	NYSE/Amex	Erie	Drug Manufacturers
GateHouse Media Inc.	IPO	10/25/2006	GHS	NYSE	Monroe	Media
Dresser-Rand Group Inc.	Secondary	11/10/2006	DRC	NYSE	Cattaraugus	Industrial Goods
Carrols Restaurant Group Inc. (Carrols Holdings)	IPO	12/15/2006	TAST	Nasdaq NM	Onondaga	Services
GateHouse Media Inc.	Secondary	7/18/2007	GHS	NYSE	Monroe	Media
First Niagara Financial Group Inc.	Secondary	4/15/2009	FNFG	Nasdaq NM	Niagara	Financial
Sovran Self Storage Inc.	Secondary	9/30/2009	SSS	NYSE	Erie	Financial
Moog Inc.	Secondary	9/30/2009	MOG.A	NYSE	Erie	Industrial Goods
Evans Bancorp Inc.	Secondary	5/11/2010	EVBN	Nasdaq NM	Erie	Financial
Financial Institutions Inc.	Secondary	3/10/2011	FISI	Nasdaq NM	Wyoming	Financial

Source: IPO Monitor; Yahoo Finance

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 - 2010

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
ACORDA THERAPEUTICS, INC.	Madison	Syracuse	NIH	2005	\$153,151	Chimeric proteins for the treatment of spinal cord injury
ACORDA THERAPEUTICS, INC.	Madison	Syracuse	NIH	2005	\$156,491	Effects of Chondroitinase and Training in Acute SCI
ACORDA THERAPEUTICS, INC.	Madison	Syracuse	NIH	2005	\$184,388	Molecular Evolution of Chondroitinase ABCI for SCI
ADARZA BIOSYSTEMS, INC.	Monroe	Rochester	HHS	2007	\$192,036.00	A rapid label-free sensor for immune markers of environmental exposure for applic
ADARZA BIOSYSTEMS, INC.	Monroe	Rochester	HHS	2009	\$1,759,767.00	A rapid label-free sensor for immune markers of environmental exposure for applic
ADARZA BIOSYSTEMS, INC.	Monroe	Rochester	NIH	2009	\$885,086	A rapid label-free sensor for immune markers of environmental exposure for applic
Advanced Resonance Technologies, Inc	Onondaga	Syracuse	HHS	2005	\$753,149.00	Electronic Sensor Precision Feature Extraction Pre-processor
ADVANCED RESONANCE TECHNOLOGIES, INC	Onondaga	Syracuse	NIH	2005	\$394,906	Improved NMR Sample Tubes
ADVANCED RESONANCE TECHNOLOGIES, INC	Onondaga	Syracuse	NIH	2006	\$358,243	Improved NMR Sample Tubes
ALPHA SCENTS, INC.	Onondaga	Syracuse	USDA	2009	\$80,000.00	Simple DNA/RNA Probes for Protein Targets
AMBP Tech Corp	Erie	Buffalo	NASA	2006	\$70,000.00	ZnO HEMTs on Flexible Substrates for Large Area Monolithic Antenna Applications
AMBP TECH CORP.	Erie	Buffalo	DOD	2005	\$70,000.00	Dielectric Materials Enhancement via Excimer Laser Processing
AMBP TECH CORP.	Erie	Buffalo	DOD	2006	\$100,000.00	CIGS solar cell manufacturing improvements via Excimer Laser Processing
AMBP TECH CORP.	Erie	Buffalo	DOD	2005	\$1,148,190.00	Pulsed Arc Molecular Beam Deposition (PAMBD) Tool for High Quality Films and Coatings
AMBP TECH CORP.	Erie	Buffalo	DOD	2006	\$730,000.00	Dielectric Materials Enhancement via Excimer Laser Processing
AMBP Tech Corporation	Erie	Buffalo	DOE	2006	\$100,000.00	Nano-Engineered High Current Density YBCO Superconducting Wires
AMPAC IN-SPACE PROPULSION	Niagara	Buffalo	DOD	2006	\$99,723.00	Manufacturing Processes for Propulsion Technology
ANDROBIOSYS, INC.	Erie	Buffalo	DOD	2008	\$96,765.00	Circulating Prostate Cancer Progenitor Cell Assay Development
ANDROBIOSYS, INC.	Erie	Buffalo	HHS	2008	\$149,994.00	Platelet-based Nanoparticle Therapy for Prostate Cancer
ANDROBIOSYS, INC.	Erie	Buffalo	HHS	2009	\$139,945.00	Primary Xenografts of Human Tissue as Surrogates of Cancer In Situ
ANDROBIOSYS, INC.	Erie	Buffalo	HHS	2009	\$128,052.00	Vascular Targeting for Imaging and Treatment of Benign Prostatic Hyperplasia
ANDROBIOSYS, INC.	Erie	Buffalo	HHS	2010	\$999,642.00	Platelet-based Nanoparticle Therapy for Prostate Cancer
ANDROBIOSYS, INC.	Erie	Buffalo	NIH	2009	\$128,052	Vascular Targeting for Imaging and Treatment of Benign Prostatic Hyperplasia
ANDROBIOSYS, INC.	Erie	Buffalo	NIH	2009	\$139,945	Primary Xenografts of Human Tissue as Surrogates of Cancer In Situ
Ansysa Enterprise Solutions	Monroe	Rochester	ED	2006	\$99,990.00	Education Data Management System
Antek	Onondaga	Syracuse	DOD	2010	\$99,990.00	Efficient Broadband Electrically Small Antenna Arrays

SBIR/STTR Awards totaled from the following government agencies: DHS, DOC, DOD, DOE, DOI, DOT, ED, EPA, HHS, HUD, NASA, NIH, NIST, NRC, NSF, and USDA

Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
Antek Inc.	Onondaga	Syracuse	USDA	2006	\$80,000.00	Enhanced Decision Support Through Information Exchange
ASE OPTICS	Monroe	Rochester	DOD	2006	\$69,873.00	Transmitted Wavefront Metrology of Multiple-Layer Dome Optics Using a Scanning Low-
ASE OPTICS	Monroe	Rochester	DOD	2008	\$149,395.00	Metrology of Corrective Optics for Conformal Windows and Domes Using Scanning Low-
ASE Optics	Monroe	Rochester	DOD	2010	\$98,779.00	Multi-Object Spectrometer for Space Object Identification
ASE Optics	Monroe	Rochester	DOD	2010	\$69,559.00	Reducing missile dome cost using Segmented-APerture Hybrid Image Reconstruction (SAPHIR)
ASE OPTICS	Monroe	Rochester	DOD	2009	\$732,311.00	Metrology of Corrective Optics for Conformal Windows and Domes Using Scanning Low-
Biophan Technologies, Inc.	Monroe	Rochester	DHS	2006	\$100,000.00	Robust Autonomous Power Generation for UGS Employing High Efficiency Thermoelectrics
Biophan Technologies, Inc.	Monroe	Rochester	DOE	2007	\$100,000.00	High Efficiency Thermoelectric Power Source for Long Life Medical Implants
BUFFALO BIOLABS, LLC	Erie	Buffalo	HHS	2009	\$104,608.00	Safety/Efficacy of Liposomal Reversan, a novel MRP1 modulator for Cancer Therapy
BUFFALO BIOLABS, LLC	Erie	Buffalo	HHS	2009	\$130,694.00	Targeting MLL As Anticancer Therapy for Infant Acute Lymphoblastic Leukemia
BUFFALO BIOLABS, LLC	Erie	Buffalo	HHS	2009	\$109,719.00	Generation of a Monoclonal Antibody Agonist to Toll-Like Receptor 5
BUFFALO BIOLABS, LLC	Erie	Buffalo	NIH	2009	\$109,719	Generation of a Monoclonal Antibody Agonist to Toll-Like Receptor 5
BUFFALO BIOLABS, LLC	Erie	Buffalo	NIH	2009	\$130,694	Targeting MLL As Anticancer Therapy for Infant Acute Lymphoblastic Leukemia
BUFFALO BIOLABS, LLC	Erie	Buffalo	NIH	2009	\$104,608	Safety/Efficacy of Liposomal Reversan, a novel MRP1 modulator for Cancer Therapy
BUFFALO MOLECULAR TARGET LABORATORY	Erie	Buffalo	HHS	2006	\$124,669.00	Recombinant Ab markers for stem cell differentiation
BUFFALO MOLECULAR TARGET LABORATORY	Erie	Buffalo	HHS	2008	\$132,000.00	Ultra-HTP Multiplex Approach to Small Molecule Screens
BUFFALO MOLECULAR TARGET LABORATORY	Erie	Buffalo	NIH	2006	\$124,669	Recombinant Ab markers for stem cell differentiation
BUFFALO MOLECULAR TARGET LABORATORY	Erie	Buffalo	NIH	2008	\$132,000	Ultra-HTP Multiplex Approach to Small Molecule Screens
Calspan Corporation	Erie	Buffalo	DOT	2008	\$98,860.00	Pedestrian Exposure Measurement Technology Development
Calspan Corporation	Erie	Buffalo	DOD	2009	\$149,791.00	Unmanned Operation of Fly-by-wire Testbed Aircraft
Calspan Corporation	Erie	Buffalo	DOD	2010	\$93,941.00	Technology for Dynamic Characterization of Micro-scale Aerial Vehicles
Calspan Corporation	Erie	Buffalo	DOD	2010	\$749,984.00	Unmanned Operation of Fly-by-wire Testbed Aircraft
CellTraffix Inc.	Monroe	Rochester	DOD	2010	\$69,689.00	In Vivo Stem Cell Extraction Device
CERAMIC & MATERIAL PROCESSING, INC.	Erie	Buffalo	DOD	2006	\$599,899.00	High Velocity Combustion Processes in the Solid State
CLEAR SCIENCE CORP.	Cortland	Syracuse	DOD	2007	\$100,000.00	Network Electronic Warfare Training System (NEWTS)
CLEAR SCIENCE CORP.	Cortland	Syracuse	DOD	2007	\$100,000.00	Universal Signal Matching for RF Threat Classification

SBIR/STTR Awards totaled from the following government agencies: DHS, DOC, DOD, DOE, DOI, DOT, ED, EPA, HHS, HUD, NASA, NIH, NIST, NRC, NSF, and USDA

Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
CLEAR SCIENCE CORP.	Cortland	Syracuse	DOD	2008	\$99,999.00	Interactive Language Trainer
Clear Science Corp.	Cortland	Syracuse	DOD	2005	\$750,000.00	Computational Methods for Feedback Flow Controllers in Aerodynamic Applications
Clear Science Corp.	Cortland	Syracuse	NASA	2005	\$499,996.58	Computational Models for Nonlinear Aeroelastic Systems
CLEAR SCIENCE CORP.	Cortland	Syracuse	DOD	2008	\$750,000.00	Network Electronic Warfare Training System (NEWTS)
CLEAR SCIENCE CORP.	Cortland	Syracuse	DOD	2009	\$599,999.00	Microarray Chips for Rapid Detection of High Affinity Nucleic Acid Sequences.
CLEVELAND BIOLABS, INC.	Erie	Buffalo	HHS	2007	\$313,471.00	RADIOPROTECTORS TARGETING P53
CLEVELAND BIOLABS, INC.	Erie	Buffalo	NIH	2006	\$353,306	N-myc Targeted Therapeutics for Childhood Neuroblastoma
CLEVELAND BIOLABS, INC.	Erie	Buffalo	NIH	2007	\$396,999	N-myc Targeted Therapeutics for Childhood Neuroblastoma
CODEVAX, INC.	Monroe	Rochester	HHS	2010	\$326,193.00	Anti-Autolysin Passive Immunity for MRSA Osteomyelitis
CompSys Technologies, Inc.	Erie	Buffalo	NASA	2005	\$69,942.69	Securing Data for Space Communications
Comtech Communication	Monroe	Rochester	DOD	2010	\$75,000.00	Compact Bidirectional Acoustic Airflow Meter for Aviation Applications (CBAAM)
CRYOMECH, INC.	Onondaga	Syracuse	DOD	2009	\$69,369.00	Low Maintenance and Low Cost Cryocooler
D3 ENGINEERING	Monroe	Rochester	DOD	2006	\$76,952.00	Digital Voice Technology Development
DIFFINITY GENOMICS, INC.	Monroe	Rochester	HHS	2008	\$105,504.00	Rapid and Efficient PCR Cleanup Filters
DIFFINITY GENOMICS, INC.	Monroe	Rochester	HHS	2009	\$717,229.00	Rapid and Efficient PCR Cleanup Filters
DIFFINITY GENOMICS, INC.	Monroe	Rochester	NIH	2009	\$717,229	Rapid and Efficient PCR Cleanup Filters
Dimension Technologies	Monroe	Rochester	HHS	2005	\$100,000.00	A Volumetric Projection Display for Medical Applications
DIMENSION TECHNOLOGIES	Monroe	Rochester	NIH	2005	\$100,000	A Volumetric Projection Display for Medical Applications
DIMENSION TECHNOLOGIES INC	Monroe	Rochester	NSF	2007	\$99,987.00	SBIR Phase I: Ultra High Definition Head Mounted Display
Dimension Technologies, Inc.	Monroe	Rochester	NASA	2005	\$70,000.00	Birefringent Microlens Array for Ultra High Resolution HMDs
DIMENSION TECHNOLOGIES, INC.	Monroe	Rochester	DOD	2009	\$69,998.00	Ultra High Resolution Dynamic Foveal Vision Display
Dimension Technologies, Inc.	Monroe	Rochester	DOE	2009	\$100,000.00	Large Autostereoscopic Multi-view 2D/3D Switchable Desktop Display
DRAGONFLY INNOVATION, LLC	Madison	Syracuse	HHS	2007	\$106,932.00	Adaptive Control of Digital Channelized Receivers
DYNAMIC EYE, INC.	Erie	Buffalo	DOD	2005	\$92,278.00	Segmented Thermal Flash Blindness Protection
DYNAMIC EYE, INC.	Erie	Buffalo	DOD	2006	\$749,671.00	Segmented Thermal Flash Blindness Protection
Elecsi Corporation	Monroe	Rochester	NSF	2007	\$99,913.00	SBIR Phase I: Embedded Electron Charge for Macro Scale Devices

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Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
ENRG, INC.	Erie	Buffalo	DOD	2007	\$98,713.00	Energy Storage Systems for Very High Altitude Very Long Endurance Solar Aircraft
ENRG, INC.	Erie	Buffalo	DOD	2009	\$749,942.00	Energy Storage Systems for Very High Altitude Very Long Endurance Solar Aircraft
Enslein Research, Inc.	Monroe	Rochester	HHS	2005	\$411,379.00	QSAR Models: Human CYP450 Drug Metabolism and Kinetics
ENSLEIN RESEARCH, INC.	Chautauqua	Buffalo	NIH	2005	\$255,964	QSAR Models: Human CYP450 Drug Metabolism and Kinetics
ENSLEIN RESEARCH, INC.	Chautauqua	Buffalo	NIH	2006	\$155,415	QSAR Models: Human CYP450 Drug Metabolism and Kinetics
Eensors Inc.	Erie	Buffalo	NSF	2008	\$97,186.00	SBIR Phase II: High Resolution Tunable Receiver For Remote THz Sensing
Eensors Inc.	Erie	Buffalo	NIST	2009	\$89,978.00	Time Synchronization of Wireless Sensor Networks
Eensors Inc.	Erie	Buffalo	DOD	2010	\$99,715.00	Adaptive Quantum-Dot Photodetectors with Bias-Tunable Barriers
Eensors Inc.	Erie	Buffalo	NSF	2009	\$419,645.00	SBIR Phase II: High Resolution Tunable Receiver For Remote THz Sensing
Eensors Inc.	Erie	Buffalo	DOD	2010	\$748,546.00	Adaptive Quantum-Dot Photodetectors with Bias-Tunable Barriers
ESENSORS, INC.	Erie	Buffalo	DOD	2007	\$99,846.00	Multi-channel Smart Strain Sensor System
ESENSORS, INC.	Erie	Buffalo	DOD	2009	\$99,429.00	Multi-channel Thermocouple Data Acquisition System
EVA PHARMACEUTICAL, LLC.	Monroe	Rochester	HHS	2005	\$107,000.00	ESA, a Novel Anti-inflammation Agent
EVA PHARMACEUTICAL, LLC.	Monroe	Rochester	HHS	2008	\$816,789.00	ESA, a Novel Anti-inflammation Agent
EVA PHARMACEUTICAL, LLC.	Monroe	Rochester	NIH	2005	\$107,000	ESA, a Novel Anti-inflammation Agent
EVA PHARMACEUTICAL, LLC.	Monroe	Rochester	NIH	2009	\$370,147	ESA, a Novel Anti-inflammation Agent
First Wave Technologies, Inc.	Erie	Buffalo	NSF	2007	\$99,980.00	SBIR Phase I: Metabolic Engineering of Isoflavonoid Biosynthesis in Eschericia coli
FIRST WAVE TECHNOLOGIES, INC.	Erie	Buffalo	HHS	2008	\$185,989.00	Use of GtFB as a Diagnostic for Caries Activity
FIRST WAVE TECHNOLOGIES, INC.	Erie	Buffalo	HHS	2009	\$175,824.00	Coupled Gene Delivery and Protein Transduction for the Reduction of Atheroscleros
FIRST WAVE TECHNOLOGIES, INC.	Erie	Buffalo	NIH	2008	\$185,989	Use of GtFB as a Diagnostic for Caries Activity
FIRST WAVE TECHNOLOGIES, INC.	Erie	Buffalo	NIH	2009	\$175,824	Coupled Gene Delivery and Protein Transduction for the Reduction of Atheroscleros
FULL CIRCLE STUDIOS, LLC	Erie	Buffalo	HHS	2009	\$96,158.00	Family Education for Confirmed Newborn Screen
FULL CIRCLE STUDIOS, LLC	Erie	Buffalo	NIH	2009	\$96,158	Family Education for Confirmed Newborn Screen
G3 Technology Innovations, LLC	Monroe	Rochester	NSF	2008	\$99,796.00	SBIR Phase I: Environmental Impact Mitigation of Herbicide Runoff via Sequester and Controlled
G3 TECHNOLOGY INNOVATIONS, LLC	Monroe	Rochester	HHS	2008	\$153,718.00	Novel Acrylic Bone Cement Using Surface Functionalized Nanoparticles
G3 Technology Innovations, LLC	Monroe	Rochester	NSF	2009	\$99,715.00	SBIR Phase I: Eliminating the use of Fluorochemicals in Textile Applications: Superhydrophobic

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Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
G3 TECHNOLOGY INNOVATIONS, LLC	Monroe	Rochester	NIH	2008	\$153,718	Novel Acrylic Bone Cement Using Surface Functionalized Nanoparticles
Gentcorp Limited	Erie	Buffalo	HHS	2005	\$213,435.00	Improving Battery Performance for Cardiac Pacing
GENTCORP LIMITED	Erie	Buffalo	NIH	2005	\$213,435	Improving Battery Performance for Cardiac Pacing
George, Gabel & Connors Imaging System	Monroe	Rochester	DOD	2005	\$746,489.00	Imaging Infrared System with Extended Depth of Field Focusing
Geospatial Systems, Inc.	Monroe	Rochester	DHS	2006	\$99,499.00	Incident Surveillance Management System (ISMS)
GRADIENT LENS CORP.	Monroe	Rochester	DOD	2005	\$70,000.00	80-Degree Night Vision Goggle
Graphene Devices Ltd.	Erie	Buffalo	DOD	2010	\$79,961.00	Highly Conductive and Transparent Graphene Filled Acrylic
HARVEST PRECISION COMPONENTS, INC	Erie	Buffalo	HHS	2006	\$84,209.00	New ceramic surgical knife improves surgical outcome
HARVEST PRECISION COMPONENTS, INC	Erie	Buffalo	NIH	2006	\$84,209	New ceramic surgical knife improves surgical outcome
Helios-nrg, Llc	Erie	Buffalo	DOE	2010	\$98,866.00	Advanced Membrane Technology for Helium Recover
HOOD-IMPACT SYSTEMS	Monroe	Rochester	DOD	2007	\$149,834.00	Multi-Source Analysis of Vibration in Turbo-Machinery
HOOD-IMPACT SYSTEMS	Monroe	Rochester	DOD	2008	\$749,682.00	Multi-Source Analysis of Vibration in Turbo-Machinery
HYBRID TECHNOLOGIES	Erie	Buffalo	DOD	2005	\$99,994.00	Fabrication of Polymeric Photonic Crystals for Photonics Applications.
IMAGINATION SOFTWARE CORPORATION	Erie	Buffalo	HHS	2009	\$99,706.00	Clinical System for Measurement of Oral Crest Height Change in Dental Radiographs
IMAGINATION SOFTWARE CORPORATION	Erie	Buffalo	HHS	2010	\$100,000.00	Generation of 3D root canals from two or more oral radiographs
IMAGINATION SOFTWARE CORPORATION	Erie	Buffalo	NIH	2009	\$99,706	Clinical System for Measurement of Oral Crest Height Change in Dental Radiographs
IMMCO DIAGNOSTICS	Erie	Buffalo	HHS	2007	\$99,983.00	CTL2 ELISA: A Diagnostic Test for Autoimmune Hearing Loss
IMMCO DIAGNOSTICS	Erie	Buffalo	NIH	2007	\$99,983	CTL2 ELISA: A Diagnostic Test for Autoimmune Hearing Loss
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$99,889.00	Workscope Optimization for Engine Repair and Overhaul
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$99,490.00	A Bayesian-Based Graphical Modeling Tool for Probabilistic Reliability Analysis
Impact Technologies, LLC	Monroe	Rochester	DOD	2005	\$99,982.00	A Life Meter for Enabling Condition Based Maintenance of Mission Critical Machinery
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$119,599.00	Stochastic Pursuit-Evasion Differential Games for Autonomous Vehicles
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$69,996.00	Integrated Rocket Motor Life Prediction System
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$149,794.00	Integrated Diagnostics & Prognostics for Prediction of Aircraft Electronic System Failures &
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$79,459.00	Shaft-Coupling PHM using Accelerometers with GearModT-Shaft Processing
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$79,471.00	FAST PHMT - An Integrated Process and False Alarm Mitigation Design Tool for PHM

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Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$69,964.00	Integrated Shipboard and Shore-Based Maintenance Management Decision Tool
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$69,678.00	A Plug-and-Play Module for Assessing Real-Time Mission Readiness Using Subsystem Health and
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$79,738.00	Prognostics and Health Management (PHM) for Digital Electronics Using Existing Parameters and
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$79,655.00	Model-based CAHM Software for Dynamic Self-Test of Propulsion Control System Actuators
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$79,854.00	Dynamic Decision Support (D2S) for Real-Time Assessment of System Health and Fault
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$79,474.00	Fleet-Wide Variability for an Integrated Flight and Propulsion System
Impact Technologies, LLC	Monroe	Rochester	DOD	2005	\$69,792.00	Autonomous Monitoring and Assessment of Sensor Data in Support of Calibration and CBM
Impact Technologies, LLC	Monroe	Rochester	DOD	2006	\$149,512.00	Enhanced Oil Quality Monitor for USAF Aircraft Applications
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$79,725.00	JSF Fleet Manager: an Automated Reasoner for Aircraft Operational Availability Decision
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$69,800.00	Collaborative Engagement with Unmanned Systems
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$69,823.00	Continuous Power Assurance for Rotorcraft
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$69,810.00	Fault Diagnostics, Prognostics and Self Healing Control of Navy Electric Machinery
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$69,817.00	A Charge Prediction Tool for HSU-based Suspension Systems
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$99,567.00	Automated, Intelligent Life-Cycle Cost Modeling
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$99,952.00	Corrosion Modeling and Life Prediction Supporting Structural Prognostic Health Management
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$99,854.00	Develop, test and evaluate for proof-of-concept a
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$99,852.00	Very High Frequency Vibration Monitoring System for Accessory Health Management
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$99,560.00	Automated Health Management for Gas Turbine Engine Accessory Components
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$99,893.00	Application of Silicon Carbide Photodiode Flame Temperature Sensors in an Active Combustion
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$98,577.00	Self-Aware Processing for Adaptive Resource Optimization of Advanced Computing Systems
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$69,326.00	A Comprehensive, Embedded Vibration Management System for In-Situ Missile Evaluation
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$69,956.00	Automated 3-D Terrain Mission Profile Generation for CBM & Durability Analysis
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$69,757.00	Advanced System Level Durability Analysis, Prediction, and Optimization
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$69,789.00	Generating Correlated Corrosion Life Predictions from Affordable Accelerated Test Data
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$69,831.00	Automated ENCON Assessment & Optimization Decision Support Tool
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$69,805.00	Prognostics and Health Management (PHM) for Afloat Information Technology (IT) and Network

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Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$69,563.00	Operational and Process Management Improvement through Implementation of In-process
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$79,788.00	A Lightweight, In-Situ Corrosion Sensing Module (CorrSeM)
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$69,699.00	Prognostics and Health Management for Aircraft Batteries
Impact Technologies, LLC	Monroe	Rochester	DHS	2007	\$99,901.01	Responder Wireless Physiological Monitoring
Impact Technologies, LLC	Monroe	Rochester	NASA	2007	\$99,994.00	Real-Time Fault Contingency Management for Integrated Vehicle Health Management
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$99,552.00	High-Temperature Wireless Data Transmission Technology for Turbine Bearings & ISHM
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$99,853.00	A Portable, Vibro-Acoustic Based NDI System for Composite Structures
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$99,552.00	Wireless Brake and Tire Monitoring System
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$99,961.00	Health Management Tools for Rocket Engine Turbomachinery
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$99,694.00	Design Environment to Improve Fatigue Resistance Through Engineered Residual Stresses
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$99,621.00	Remote Intelligent Diagnostics for Electronic Systems (RIDES)
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$69,895.00	Sensor Validation for Turboshift Engine Torque Sensors
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$69,567.00	Lubricant Condition and Wear Metal Analysis Sensor System (LUCAS)
Impact Technologies, LLC	Monroe	Rochester	DOD	2008	\$69,801.00	Integrated Air & Missile Defense Systems Prognostics & Health Management
Impact Technologies, LLC	Monroe	Rochester	DOD	2008	\$69,875.00	Drinking Water Quality Sensor System (Dr. Watsen)
Impact Technologies, LLC	Monroe	Rochester	DOD	2008	\$79,938.00	Strain Gage Calibration Using Response to Dynamic Input (STURDI)
Impact Technologies, LLC	Monroe	Rochester	DOD	2008	\$79,603.00	Automated Knowledge Discovery and Reliability Analysis for the F414 Engine
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$69,999.00	Automated Contingency Management and Self-Repair for Navy Ship Systems
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$69,431.00	Innovative Wide Bandgap Accelerated Life Test and Reliability Prediction
Impact Technologies, LLC	Monroe	Rochester	DOD	2008	\$69,855.00	System for Automated Test and Integrity Verification (SAT-IV)
Impact Technologies, LLC	Monroe	Rochester	NASA	2008	\$99,610.00	Integrating Prognostics in Automated Contingency Management Strategies for Advanced
Impact Technologies, LLC	Monroe	Rochester	NASA	2008	\$99,795.00	HyDE Enhancements for ISHM Deployment
Impact Technologies, LLC	Monroe	Rochester	NASA	2008	\$99,834.20	Digital System e-Prognostics for Critical Aircraft Computer Systems
Impact Technologies, LLC	Monroe	Rochester	DOD	2009	\$99,822.00	A Biologically Inspired Micro Aerial Vehicle Design and Development
Impact Technologies, LLC	Monroe	Rochester	DOD	2009	\$99,752.00	Chemical Weapons Sensing System (CheSS)
Impact Technologies, LLC	Monroe	Rochester	NASA	2009	\$99,498.00	Prognostic and Fault Tolerant Reconfiguration Strategies for Aerospace Power Electronic

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Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
Impact Technologies, LLC	Monroe	Rochester	NASA	2009	\$99,964.00	A Unified Nonlinear Adaptive Approach for Detection and Isolation of Engine Sensor, Actuator
Impact Technologies, LLC	Monroe	Rochester	NASA	2009	\$99,877.00	System-Level Development of Fault-Tolerant Distributed Aero-Engine Control Architecture
Impact Technologies, LLC	Monroe	Rochester	NASA	2009	\$99,895.00	Adaptive Flight Envelope Estimation and Protection
Impact Technologies, LLC	Monroe	Rochester	DOD	2009	\$119,800.00	Embedded Structural Platform Analysis Network (eSPAN)TM
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$69,317.00	Electronic Blast Level Alert Sensing Technique (eBLAST)
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$79,880.00	Mission Impact and Readiness Assessment Tool for Critical Transmission Assemblies
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$69,985.00	An Evolutionary Learning and Adaptive Underwater Object Recognition System
Impact Technologies, LLC	Monroe	Rochester	DOD	2009	\$69,850.00	Mobile-Agent-Based Autonomous Data Fusion for Distributed Sensors
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$79,686.00	Fiber Optic Connector Inspection Test System
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$99,335.00	Distributed Full Authority Digital Engine Control (FADEC) Workload Reduction Through
Impact Technologies, LLC	Monroe	Rochester	DOD	2009	\$99,980.00	Very High Frequency (VHF) Monitoring System for Engine Accessories Health Management
Impact Technologies, LLC	Monroe	Rochester	DOD	2009	\$99,560.00	A Framework for Work Package Optimization
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$69,797.00	Dynamic PHM Modeling
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$69,627.00	An Advanced Undersea Lithium Ion Management System (U-LIMS)
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$69,798.00	Advanced Software Tools for Lithium Ion Battery Risk Assessment (LIBRA)
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$69,953.00	Magnetostrictive Vibration Energy Harvester (MAVEN)
Impact Technologies, LLC	Monroe	Rochester	NASA	2010	\$99,726.00	Fusion of Built in Test (BIT) Technologies with Embeddable Fault Tolerant Techniques for Power
Impact Technologies, LLC	Monroe	Rochester	NASA	2010	\$99,408.00	A Light Weight, Mini Inertial Measurement System for Position and Attitude Estimation on
Impact Technologies, LLC	Monroe	Rochester	NASA	2010	\$99,703.00	An Approach to Health Management and Sustainability for Critical Aircraft Systems
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$99,960.00	Automated Fiber Optic Interconnect Cleaning System
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$99,800.00	A Hybrid Approach to EMA Prognostics (EMAP) for Engine and Aerospace Applications
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$99,723.00	A Meta-modeling Approach to Failure Prognosis Using Existing Data
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$99,436.00	Adaptable, Automated Troubleshooting Expert
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$69,793.00	Composite Armor Structural Monitoring (CASM)
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$69,676.00	An Advanced Battery Management System for Lithium Ion Vehicle Batteries
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$69,795.00	Fusing Macro and Micro Material Characteristics to Enhance Fatigue Life Prediction Accuracy for

SBIR/STTR Awards totaled from the following government agencies: DHS, DOC, DOD, DOE, DOI, DOT, ED, EPA, HHS, HUD, NASA, NIH, NIST, NRC, NSF, and USDA

Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$148,866.00	Prognostic Integrated Multi-Sensor MEMS Module (PRISM)
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$99,332.00	A Propulsion-Enabled Control System for Precise Submarine Maneuvering
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$149,541.00	Life Usage and Health Assessment of Drivetrain Splines in Support of Condition Based
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$149,933.00	Thrust Estimation System for Military Engine Test Cell Applications
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$79,696.00	Total Rotorcraft Utility Winch (TRUW) Gearbox PHM
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$69,972.00	Wireless Distributed Strain Sensing for Structural Health Monitoring (WISDOM)
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$599,258.00	A Dynamic Failure Mode Simulation Environment (FMECA++) for EHM Design and Analysis
Impact Technologies, LLC	Monroe	Rochester	DOD	2005	\$500,000.00	Self-Diagnosis of Damage Criticality of Fibrous Composites Based on Multifunctional
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$749,769.00	Intelligent Damage Identification and Prognosis for Composite Structures
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$746,324.00	Automated Contingency and Life Management for Integrated Propulsion and Power Systems
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$749,932.00	An Affordable Health and Usage Monitoring System (HUMS) for UAVs
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$749,780.00	Self-Evolving Maintenance and Operations Reasoning
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$749,871.00	Integrated Incipient Fault Detection System for High-Performance Conventional and Ceramic
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$748,770.00	Advanced Techniques for Verification and Validation of Prognostic and Health Management
Impact Technologies, LLC	Monroe	Rochester	NASA	2005	\$599,815.00	Automated Contingency Management for Advanced Propulsion Systems
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2005	\$729,809.00	Stochastic Pursuit-Evasion Differential Games for Autonomous Vehicles
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$1,223,641.00	Workscope Optimization for Engine Repair and Overhaul
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$729,710.00	Integrated Rocket Motor Life Prediction System
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$747,861.00	Integrated Diagnostics & Prognostics for Prediction of Aircraft Electronic System Failures &
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$749,793.00	Shaft-Coupling PHM using Accelerometers with GearModT-Shaft Processing
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$400,000.00	FAST PHMT - An Integrated Process and False Alarm Mitigation Design Tool for PHM
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2006	\$299,726.00	A Plug-and-Play Module for Assessing Real-Time Mission Readiness Using Subsystem Health and
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$599,536.00	Integrated Shipboard and Shore-Based Maintenance Management Decision Tool
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$759,834.00	Prognostics and Health Management (PHM) for Digital Electronics Using Existing Parameters and
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$1,199,809.00	Fleet-Wide Variability for an Integrated Flight and Propulsion System
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$449,999.00	JSF Fleet Manager: an Automated Reasoner for Aircraft Operational Availability Decision

SBIR/STTR Awards totaled from the following government agencies: DHS, DOC, DOD, DOE, DOI, DOT, ED, EPA, HHS, HUD, NASA, NIH, NIST, NRC, NSF, and USDA

Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2007	\$729,843.00	Continuous Power Assurance for Rotorcraft
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$499,975.00	Fault Diagnostics, Prognostics and Self Healing Control of Navy Electric Machinery
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$426,597.00	A Charge Prediction Tool for HSU-based Suspension Systems
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$849,446.00	Develop, test and evaluate for proof-of-concept a
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2008	\$729,360.00	Advanced System Level Durability Analysis, Prediction, and Optimization
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$1,192,477.00	Dynamic Load Estimation and Life Usage Modeling for Nozzle Actuation Systems
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$1,429,212.00	Integrated Diagnostics & Prognostics for Prediction of Aircraft Electronic System Power Supply
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$749,309.00	Self-Aware Processing for Adaptive Resource Optimization of Advanced Computing Systems
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$449,626.00	Operational and Process Management Improvement through Implementation of In-process
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$749,444.00	Wireless Brake and Tire Monitoring System
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$749,788.00	Design Environment to Improve Fatigue Resistance Through Engineered Residual Stresses
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$729,666.00	Sensor Validation for Turboshaft Engine Torque Sensors
IMPACT TECHNOLOGIES, LLC	Monroe	Rochester	DOD	2009	\$729,136.00	Lubricant Condition and Wear Metal Analysis Sensor System (LUCAS)
Impact Technologies, LLC	Monroe	Rochester	NASA	2009	\$599,895.00	Integrating Prognostics in Automated Contingency Management Strategies for Advanced
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$93,696.00	A Life Meter for Enabling Condition Based Maintenance of Mission Critical Machinery
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$299,027.00	Autonomous Monitoring and Assessment of Sensor Data in Support of Calibration and CBM
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$1,645,492.00	Enhanced Oil Quality Monitor for USAF Aircraft Applications
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$729,475.00	Integrated Air & Missile Defense Systems Prognostics & Health Management
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$362,715.00	Drinking Water Quality Sensor System (Dr. Watsen)
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$445,062.00	Strain Gage Calibration Using Response to Dynamic Input (STURDI)
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$749,548.00	Automated Knowledge Discovery and Reliability Analysis for the F414 Engine
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$595,575.00	System for Automated Test and Integrity Verification (SAT-IV)
Impact Technologies, LLC	Monroe	Rochester	NASA	2010	\$586,516.00	HyDE Enhancements for ISHM Deployment
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$749,354.00	A Biologically Inspired Micro Aerial Vehicle Design and Development
Impact Technologies, LLC	Monroe	Rochester	NASA	2010	\$599,644.00	Prognostic and Fault Tolerant Reconfiguration Strategies for Aerospace Power Electronic
Impact Technologies, LLC	Monroe	Rochester	NASA	2010	\$599,479.00	A Unified Nonlinear Adaptive Approach for Detection and Isolation of Engine Sensor, Actuator

SBIR/STTR Awards totaled from the following government agencies: DHS, DOC, DOD, DOE, DOI, DOT, ED, EPA, HHS, HUD, NASA, NIH, NIST, NRC, NSF, and USDA

Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$729,916.00	Embedded Structural Platform Analysis Network (eSPAN)™
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$494,956.00	Mobile-Agent-Based Autonomous Data Fusion for Distributed Sensors
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$749,904.00	Very High Frequency (VHF) Monitoring System for Engine Accessories Health Management
Impact Technologies, LLC	Monroe	Rochester	DOD	2010	\$742,017.00	A Framework for Work Package Optimization
INNOVATIVE BIOTECHNOLOGIES	Erie	Buffalo	HHS	2008	\$99,975.00	Simple and Rapid On-site molecular detection of Mycobacterium tuberculosis
INNOVATIVE BIOTECHNOLOGIES	Erie	Buffalo	NIH	2005	\$200,271	Use of nanotechnology to rapidly detect human pathogens
Innovative Biotechnologies International, Inc.	Erie	Buffalo	EPA	2006	\$69,983.90	Improved Rapid Detection of Biabable Waterborne Pathogens
Innovative Biotechnologies International, Inc.	Erie	Buffalo	EPA	2007	\$344,976.67	Improved Rapid Detection of Biabable Waterborne Pathogens
INSTITUTE/MATCHING PERSON &	Monroe	Rochester	HHS	2006	\$99,919.00	Improving Match of Person/Assistive Cognitive Technology
INSTITUTE/MATCHING PERSON AND	Monroe	Rochester	HHS	2007	\$99,422.00	Matching Assistive Technology and Child (MATCH)
INT	Monroe	Rochester	NSF	2005	\$499,715.00	SBIR Phase II: Electronic DNA Biosensor
INTEGRATED NNO-TECHNOLOGIES LLC	Monroe	Rochester	USDA	2009	\$79,998.00	Rapid, In-Field Method for Genomic-Based Identification of BVDV
INTEGUMENT TECHNOLOGIES, INC.	Erie	Buffalo	DOD	2005	\$99,869.00	Automated Delivery of Pigmentation for Camouflaging Patterns for Composite Shelters
Integument Technologies, Inc.	Erie	Buffalo	DOD	2010	\$69,653.00	Rapidly Deployable Thin Film Camouflage
Integument Technologies, Inc.	Erie	Buffalo	DOD	2010	\$99,886.00	Pressure Sensitive Adhesive (PSA) Development
Integument Technologies, Inc.	Erie	Buffalo	DOD	2010	\$99,445.00	Visual Signature Reduction Technology
Integument Technologies, Inc.	Erie	Buffalo	DOD	2005	\$515,352.00	Innovative Vehicle Camouflage
INTEGUMENT TECHNOLOGIES, INC.	Erie	Buffalo	DOD	2007	\$386,644.00	Automated Delivery of Pigmentation for Camouflaging Patterns for Composite Shelters
Integument Technologies, Inc.	Erie	Buffalo	DOD	2010	\$300,000.00	Pressure Sensitive Adhesive (PSA) Development
ISOFLUX, INC	Monroe	Rochester	NSF	2008	\$149,989.00	STTR PHASE I: Alpha phase crystalline aluminum oxide coated at temperatures below 500 C
Janya Inc.	Erie	Buffalo	DOD	2009	\$99,975.00	Exploiting Essential Elements of Information from Significant Activity Reports (SIGACTS) for
Janya Inc.	Erie	Buffalo	DOD	2010	\$748,228.00	Exploiting Essential Elements of Information from Significant Activity Reports (SIGACTS) for
JANYA, INC.	Erie	Buffalo	DOD	2005	\$99,999.00	Fusion of Entity Information from Textual Data Sources (e.g. HUMINT)
JANYA, INC.	Erie	Buffalo	DOD	2005	\$99,913.00	Enabling Visualization of Event Information from Unstructured Text
JANYA, INC.	Erie	Buffalo	DOD	2006	\$99,967.00	Adapting Information Extraction Technology to Computer-Mediated, Dynamic Text Data
JANYA, INC.	Erie	Buffalo	DOD	2007	\$99,948.00	Advanced Time-Stamping of Events from Unstructured Text for Battlespace Awareness

SBIR/STTR Awards totaled from the following government agencies: DHS, DOC, DOD, DOE, DOI, DOT, ED, EPA, HHS, HUD, NASA, NIH, NIST, NRC, NSF, and USDA

Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
JANYA, INC.	Erie	Buffalo	DOD	2007	\$99,985.00	Customizable Text Extraction for Warfighters
JANYA, INC.	Erie	Buffalo	DOD	2008	\$99,518.00	Consolidating Entity Information from Heterogeneous Text Sources for Multi-INT Fusion
JANYA, INC.	Erie	Buffalo	DOD	2009	\$69,961.00	Approaches and Techniques for Specialized Character
JANYA, INC.	Erie	Buffalo	DOD	2006	\$743,017.00	Fusion of Entity Information from Textual Data Sources (e.g. HUMINT)
JANYA, INC.	Erie	Buffalo	DOD	2006	\$744,061.00	Enabling Visualization of Event Information from Unstructured Text
JANYA, INC.	Erie	Buffalo	DOD	2007	\$743,006.00	Adapting Information Extraction Technology to Computer-Mediated, Dynamic Text Data
JANYA, INC.	Erie	Buffalo	DOD	2008	\$749,974.00	Advanced Time-Stamping of Events from Unstructured Text for Battlespace Awareness
JANYA, INC.	Erie	Buffalo	DOD	2008	\$749,955.00	Customizable Text Extraction for Warfighters
JANYA, INC.	Erie	Buffalo	DOD	2009	\$847,937.00	Consolidating Entity Information from Heterogeneous Text Sources for Multi-INT Fusion
KBN Optics	Monroe	Rochester	DOD	2010	\$98,399.00	Nonlinear Properties of Adaptive Polymer Lens Materials
KINEX PHARMACEUTICALS, LLC	Erie	Buffalo	HHS	2006	\$107,000.00	Commercial development of Src kinase inhibitors for oncology
KINEX PHARMACEUTICALS, LLC	Erie	Buffalo	HHS	2009	\$955,063.00	Commercial development of Src kinase inhibitors for oncology
KINEX PHARMACEUTICALS, LLC	Erie	Buffalo	NIH	2006	\$107,000	Commercial development of Src kinase inhibitors for oncology
KINEX PHARMACEUTICALS, LLC	Erie	Buffalo	NIH	2009	\$628,719	Commercial development of Src kinase inhibitors for oncology
Knowledge Athletes	Monroe	Rochester	ED	2008	\$74,681.00	Knowledge Athletes Platform Capitalizing on Online Communication to Increase Participation
Knowledge Athletes, Inc.	Monroe	Rochester	ED	2008	\$99,979.00	Literacy Engagement and Achievement Passport
Knowledge Athletes, Inc.	Monroe	Rochester	ED	2009	\$749,979.00	Literacy Engagement and Achievement Passport
KONING CORPORATION	Monroe	Rochester	HHS	2009	\$5,549,283.00	Koning Cone Beam Breast CT
KONING CORPORATION	Monroe	Rochester	NIH	2005	\$1,081,292	Cone Beam Volume CT Breast Imaging Scanner
KONING CORPORATION	Monroe	Rochester	NIH	2006	\$737,496	Cone Beam Volume CT Breast Imaging Scanner
KONING CORPORATION	Monroe	Rochester	NIH	2007	\$744,041	Cone Beam Volume CT Breast Imaging Scanner
KONING CORPORATION	Monroe	Rochester	NIH	2009	\$999,861	Koning Cone Beam Breast CT
L.K. Industries, Inc.	Erie	Buffalo	DOD	2008	\$99,191.00	Modeling & Simulation for Optimization of Heavy-Fuel Micro Rotary Engines
L.K. Industries, Inc.	Erie	Buffalo	DOD	2010	\$749,694.00	Modeling & Simulation for Optimization of Heavy-Fuel Micro Rotary Engines
LAGET, INC.	Monroe	Rochester	HHS	2009	\$258,952.00	Laser-guided gene therapy for cartilage defects
LAGET, INC.	Monroe	Rochester	NIH	2009	\$258,952	Laser-guided gene therapy for cartilage defects

SBIR/STTR Awards totaled from the following government agencies: DHS, DOC, DOD, DOE, DOI, DOT, ED, EPA, HHS, HUD, NASA, NIH, NIST, NRC, NSF, and USDA

Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
LAM DESIGN MANAGEMENT, LLC	Erie	Buffalo	HHS	2005	\$100,000.00	A 3-D Robot Design to Overcome Arm Dysfunction in Stroke
LAM DESIGN MANAGEMENT, LLC	Erie	Buffalo	HHS	2007	\$747,023.00	A 3-D Robot Design to Overcome Arm Dysfunction in Stroke
Lithographic Technology Corp. dba Amphib	Monroe	Rochester	DOD	2009	\$98,660.00	Template-based Lithography for Advanced Low-Volume Electronics
Lithographic Technology Corp. dba Amphib	Monroe	Rochester	DOD	2010	\$749,579.00	Template-based Lithography for Advanced Low-Volume Electronics
LITRON LABORATORIES, LTD.	Monroe	Rochester	HHS	2006	\$133,336.00	Rapid Screen for Genotoxicants, Chemoprotectors, and Radioprotectors
LITRON LABORATORIES, LTD.	Monroe	Rochester	HHS	2007	\$126,058.00	High Throughput Radiation Biodosimetry
LITRON LABORATORIES, LTD.	Monroe	Rochester	HHS	2007	\$123,701.00	Versatile Mutation Assay Based on the Pig-A Locus
LITRON LABORATORIES, LTD.	Monroe	Rochester	HHS	2010	\$600,000.00	Rapid Radiation Dose Estimation
LITRON LABORATORIES, LTD.	Monroe	Rochester	HHS	2010	\$348,293.00	Validation of a Rodent Mutagenicity Assay
LITRON LABORATORIES, LTD.	Monroe	Rochester	HHS	2007	\$919,965.00	Rapid Screen for Genotoxicants, Chemoprotectors, and Radioprotectors
LITRON LABORATORIES, LTD.	Monroe	Rochester	HHS	2008	\$767,944.00	Versatile Mutation Assay Based on the Pig-A Locus
LITRON LABORATORIES, LTD.	Monroe	Rochester	NIH	2006	\$133,336	Rapid Screen for Genotoxicants, Chemoprotectors, and Radioprotectors
LITRON LABORATORIES, LTD.	Monroe	Rochester	NIH	2007	\$123,701	Versatile Mutation Assay Platform
LITRON LABORATORIES, LTD.	Monroe	Rochester	NIH	2007	\$126,058	High Throughput Radiation Biodosimetry
LITRON LABORATORIES, LTD.	Monroe	Rochester	NIH	2007	\$577,635	Rapid Screen for Genotoxicants, Chemoprotectors, and Radioprotectors
LITRON LABORATORIES, LTD.	Monroe	Rochester	NIH	2008	\$382,225	Versatile Mutation Assay Based on the Pig-A Locus
LITRON LABORATORIES, LTD.	Monroe	Rochester	NIH	2008	\$392,293	Rapid Screen for Genotoxicants, Chemoprotectors, and Radioprotectors
LITRON LABORATORIES, LTD.	Monroe	Rochester	NIH	2010	\$348,293	Validation of a Rodent Mutagenicity Assay
LITRON LABORATORIES, LTD.	Monroe	Rochester	NIH	2010	\$275,831	Rapid Radiation Dose Estimation
LPA SYSTEMS, INC.	Monroe	Rochester	DOD	2005	\$99,871.00	Hardened or Deeply-Buried Target (HDBT) Optimization Techniques for Detecting Obscure
LPA SYSTEMS, INC.	Monroe	Rochester	DOD	2006	\$749,922.00	Hardened or Deeply-Buried Target (HDBT) Optimization Techniques for Detecting Obscure
LUCID, INC.	Monroe	Rochester	HHS	2007	\$99,014.00	Confocal Reflectance Microscope with Dual-Wedge Scanner
Lucid, Inc.	Monroe	Rochester	HHS	2005	\$1,711,323.00	In vivo Clinical Coherence Confocal Microscope
LUCID, INC.	Monroe	Rochester	NIH	2005	\$786,943	Hand-held confocal line-scanner for intrasurgical use
LUCID, INC.	Monroe	Rochester	NIH	2005	\$436,541	In vivo Clinical Coherence Confocal Microscope
LUCID, INC.	Monroe	Rochester	NIH	2006	\$628,048	Accuracy of In-vivo Confocal Imaging for Pigmented Lesion Diagnosis

SBIR/STTR Awards totaled from the following government agencies: DHS, DOC, DOD, DOE, DOI, DOT, ED, EPA, HHS, HUD, NASA, NIH, NIST, NRC, NSF, and USDA

Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
LUCID, INC.	Monroe	Rochester	NIH	2006	\$703,121	In vivo Clinical Coherence Confocal Microscope
LUCID, INC.	Monroe	Rochester	NIH	2007	\$793,143	Accuracy of In-vivo Confocal Imaging for Pigmented Lesion Diagnosis
LUCID, INC.	Monroe	Rochester	NIH	2007	\$99,014	Confocal Reflectance Microscope with Dual-Wedge Scanner
LUCID, INC.	Monroe	Rochester	NIH	2007	\$571,661	In vivo Clinical Coherence Confocal Microscope
LUCID, INC.	Monroe	Rochester	NIH	2008	\$574,526	Accuracy of In-vivo Confocal Imaging for Pigmented Lesion Diagnosis
Lumetrics, Inc	Monroe	Rochester	NSF	2008	\$99,932.00	SBIR Phase II: Fiber-optic System for Fast Non-contact Measurements of Optical Structure of
Lumetrics, Inc	Monroe	Rochester	NSF	2009	\$489,179.00	SBIR Phase II: Fiber-optic System for Fast Non-contact Measurements of Optical Structure of
LUMETRICS, INC.	Monroe	Rochester	HHS	2010	\$99,963.00	Compact, cost-effective, and operator-friendly fundus camera for early detection
LUMETRICS, INC.	Monroe	Rochester	NIH	2010	\$99,963	Compact, cost-effective, and operator-friendly fundus camera for early detection
Med Graphs, Inc.	Monroe	Rochester	ED	2005	\$74,600.00	Diabetes Communications for the Disabled
Med Graphs, Inc.	Monroe	Rochester	ED	2006	\$499,951.00	Diabetes Communications for the Disabled
MedGraph, Inc.	Monroe	Rochester	ED	2008	\$74,980.00	Diabetes Monitoring for Cognitively Impaired Adults
MEDICAL CONSERVATION DEVICES, LLC	Gennese	Rochester	HHS	2009	\$168,716.00	Pandemic or Mass Casualty Aseptic Shared Ventilation
MEDICAL CONSERVATION DEVICES, LLC	Gennese	Rochester	HHS	2010	\$704,805.00	Pandemic or Mass Casualty Aseptic Shared Ventilation
MEDICAL CONSERVATION DEVICES, LLC	Erie	Buffalo	NIH	2009	\$168,716	Pandemic or Mass Casualty Aseptic Shared Ventilation
MEDICAL CONSERVATION DEVICES, LLC	Erie	Buffalo	NIH	2010	\$446,758	Pandemic or Mass Casualty Aseptic Shared Ventilation
MEHRDAD SOUMEKH CONSULTANT	Erie	Buffalo	DOD	2009	\$100,000.00	Synthetic Aperture Radar Ground Moving Target Indicator (SAR/GMTI) for Detection, ID, and
NanoDynamics (NDI)	Erie	Buffalo	NSF	2007	\$149,988.00	STTR Phase I: Novel Consolidation Method for Nanostructured Metals
NANODYNAMICS ENERGY, INC.	Erie	Buffalo	DOD	2008	\$99,333.00	Advanced Hybrid Thermoelectric-Solid Oxide Fuel Cell Energy Conversion for High Efficiency
NANODYNAMICS, INC.	Erie	Buffalo	DOD	2005	\$119,527.00	Low-Cost Carbon Nanotubes for Infrared Obscurants
NANODYNAMICS, INC.	Erie	Buffalo	DOD	2008	\$69,998.00	Development and Fabrication of Highly Conductive High Aspect Ratio Nanoflakes for Infrared
NANODYNAMICS, INC.	Erie	Buffalo	DOD	2005	\$671,114.00	High Performance Nanostructured Tantalum for Warhead Applications
NANODYNAMICS, INC.	Erie	Buffalo	DOD	2006	\$729,205.00	Low-Cost Carbon Nanotubes for Infrared Obscurants
NANODYNAMICS, INC.	Erie	Buffalo	DOD	2008	\$364,967.00	Development and Fabrication of Highly Conductive High Aspect Ratio Nanoflakes for Infrared
NBN TECHNOLOGIES	Monroe	Rochester	DOD	2009	\$68,619.00	Develop High Operating Temperature Infrared Detect
New Scale Technologies, Inc.	Ontario	Rochester	DOD	2010	\$69,698.00	Non-Inductive Actuation Mechanisms to Reduce Interference with Magnetometer-Based

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Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
OHRN ENTERPRISES, INC.	Onondaga	Syracuse	DOD	2006	\$79,997.00	Portal Workstation Development: Multi-Sensor Network-Centric, Open Systems Portal
OHRN ENTERPRISES, INC.	Onondaga	Syracuse	DOD	2008	\$80,000.00	Automated Blood Component Separator
OHRN ENTERPRISES, INC.	Onondaga	Syracuse	DOD	2009	\$80,000.00	Target Identification in Complex Sensor Environments
OHRN ENTERPRISES, INC.	Onondaga	Syracuse	DOD	2007	\$699,999.00	Portal Workstation Development: Multi-Sensor Network-Centric, Open Systems Portal
Optimax Systems, Inc	Wayne	Rochester	DOD	2010	\$69,949.00	Optically Precise Conformal Sensor Window
OPTIMAX SYSTEMS, INC.	Wayne	Rochester	DOD	2008	\$69,973.00	Aerodynamic Infrared Dome
OPTIMAX SYSTEMS, INC.	Wayne	Rochester	DOD	2008	\$79,632.00	Fabrication of Corrective Optics for Conformal Windows and Domes
Optimax Systems, Inc.	Wayne	Rochester	NASA	2010	\$99,991.00	Removing Mid-Spatial Frequency Errors with VIBE
OPTIMAX SYSTEMS, INC.	Wayne	Rochester	DOD	2009	\$599,046.00	Aerodynamic Infrared Dome
OptiPro Systems LLC	Wayne	Rochester	DOD	2010	\$69,899.00	Optically Precise Conformal Sensor Window
ORTHO SYSTEMS, INC.	Onondaga	Syracuse	HHS	2006	\$112,494.00	Performance Improvement of a Receiver on a Chip (ROC)
ORTHO SYSTEMS, INC.	Onondaga	Syracuse	HHS	2008	\$194,084.00	A Bio-based Fuel Cell System for Rural Energy Generation
ORTHO SYSTEMS, INC.	Onondaga	Syracuse	HHS	2010	\$195,561.00	Microarray Chips for Rapid Detection of High Affinity Nucleic Acid Sequences.
ORTHO SYSTEMS, INC.	Onondaga	Syracuse	HHS	2008	\$973,455.00	Interactive Language Trainer
ORTHO SYSTEMS, INC.	Onondaga	Syracuse	HHS	2010	\$1,587,554.00	Simple DNA/RNA Probes for Protein Targets
ORTHO SYSTEMS, INC.	Onondaga	Syracuse	NIH	2005	\$357,353	OrthoSwiTh Probes for High Throughput Screening
ORTHO SYSTEMS, INC.	Onondaga	Syracuse	NIH	2006	\$112,494	Microarray chips for rapid detection of high affinity nucleic acid sequences
ORTHO SYSTEMS, INC.	Onondaga	Syracuse	NIH	2009	\$327,591	Microarray Chips for Rapid Detection of High Affinity Nucleic Acid Sequences.
ORTHO SYSTEMS, INC.	Onondaga	Syracuse	NIH	2010	\$949,182	Simple DNA/RNA Probes for Protein Targets
PATHOLOGICS, LLC	Monroe	Rochester	HHS	2007	\$127,110.00	LABEL-FREE ANTIBODY ARRAYS FOR CANCER DIAGNOSTICS
PATHOLOGICS, LLC	Monroe	Rochester	DOD	2005	\$83,820.00	Immunotoxicity Monitoring Method for Unknown Noxious Exposures (IMMUNE)
PATHOLOGICS, LLC	Monroe	Rochester	NIH	2007	\$192,036	A Rapid Label-free Sensor for Immune Markers of Environmental Exposure
PATHOLOGICS, LLC	Monroe	Rochester	NIH	2008	\$170,232	A Rapid Label-free Sensor for Immune Markers of Environmental Exposure
Pictometry International	Monroe	Rochester	DHS	2006	\$100,000.00	Achieving Near Real Time Image Data for Emergency Management
Pictometry International	Monroe	Rochester	DHS	2008	\$750,000.00	Achieving Near Real Time Image Data for Emergency Management
POLICY RESEARCH ASSOCIATES, INC.	Chautauqua	Buffalo	NIH	2005	\$296,204	Develop Educ Model to Foster Collaboration Between Mental Health and Criminal Justice Staff

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Source: Small Business Administration Tech-Net; National Institute of Health

A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
POLICY RESEARCH ASSOCIATES, INC.	Chautauqua	Buffalo	NIH	2005	\$97,489	Suicide Prevention Materials and Training for Criminal and Civil Court System
PROCESS TECHNOLOGY OPTIMIZATION, INC.	Erie	Buffalo	DOD	2005	\$70,000.00	Self-Contained Ration Heater
PROCESS TECHNOLOGY OPTIMIZATION, INC.	Erie	Buffalo	DOD	2008	\$364,980.00	Self-Contained Ration Heater
PROGRESSIVE EXPERT CONSULTING, INC.	Onondaga	Syracuse	DOD	2006	\$99,734.00	Attract and Kill Technology to Control Citrus Leafminer in Citrus Nurseries and Orchards
PROGRESSIVE EXPERT CONSULTING, INC.	Onondaga	Syracuse	DOD	2008	\$1,461,561.00	Target Identification in Complex Sensor Environments
QED	Monroe	Rochester	NSF	2006	\$337,214.00	SBIR Phase II: Non-Traditional Material Removal
QED TECHNOLOGIES, INC.	Monroe	Rochester	DOD	2005	\$99,687.00	Fluid developments for Magnetorheological Finishing of Silicon Carbide
Qed Technologies, Inc.	Monroe	Rochester	DOD	2005	\$99,935.00	Low Cost Fabrication, Inspection and Test Methods for Hardened Satellite Optics
QED Technologies, Inc.	Monroe	Rochester	NASA	2005	\$69,822.16	Subaperture Stitching Interferometry for Large Convex Aspheric Surfaces
QED TECHNOLOGIES, INC.	Monroe	Rochester	DOD	2005	\$747,814.00	Dual-Band Electro-Optic (EO)/Infrared (IR) Multifunctional Pod Windows
QED TECHNOLOGIES, INC.	Monroe	Rochester	DOD	2005	\$904,458.00	Hypersonic Infrared Dome
QED Technologies, Inc.	Monroe	Rochester	NASA	2005	\$594,318.00	Improved Large Segmented Optics Fabrication Using Magnetorheological Finishing
QED Technologies, Inc.	Monroe	Rochester	NASA	2006	\$556,110.00	Subaperture Stitching Interferometry for Large Convex Aspheric Surfaces
RADIANT AVIATION SERVICES, INC.	Niagara	Buffalo	DOD	2006	\$98,303.00	Nonfluid Transportable Aircraft Deicing System
RADIANT AVIATION SERVICES, INC.	Niagara	Buffalo	DOD	2007	\$750,000.00	Nonfluid Transportable Aircraft Deicing System
RESEARCH ASSOC. OF SYRACUSE	Onondaga	Syracuse	DOD	2005	\$99,982.00	Data Authentication and Dissemination using Watermarking for Net-Centric Operations
RESEARCH ASSOC. OF SYRACUSE	Onondaga	Syracuse	DOD	2005	\$99,955.00	Feedback Flow Control for a Three-Dimensional Turret
RESEARCH ASSOC. OF SYRACUSE	Onondaga	Syracuse	DOD	2006	\$68,559.00	Aeroelastic Model Updating
RESEARCH ASSOC. OF SYRACUSE	Onondaga	Syracuse	DOD	2006	\$99,990.00	Improved Sample Delivery Devices for NMR
RESEARCH ASSOC. OF SYRACUSE	Onondaga	Syracuse	DOD	2009	\$79,980.00	Aptamer probes for Epigenetic Peptide Targets
RESEARCH ASSOC. OF SYRACUSE	Onondaga	Syracuse	DOD	2005	\$592,773.00	Feedback Flow Control for a Three-Dimensional Turret
RESEARCH ASSOC. OF SYRACUSE	Onondaga	Syracuse	DOD	2006	\$749,993.00	Multi-Band Air Defense/Air Search Radar
RESEARCH ASSOC. OF SYRACUSE	Onondaga	Syracuse	DOD	2007	\$749,989.00	Improved NMR Sample Tubes
Research Associates of Syracuse	Onondaga	Syracuse	DOD	2010	\$98,547.00	Design and Optimization of Radar Systems to Assist Rotorcraft Piloting in Adverse Environments
Rochester Precision Optics, LLC	Monroe	Rochester	DOD	2010	\$69,232.00	Advanced Molded Glass Lenses
RT Solutions, LLC	Livingston	Rochester	USDA	2005	\$75,500.00	Large-Scale Production and Marketing of Vermicomposted Dairy Manure

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A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
RT SOLUTIONS, LLC	Livingston	Rochester	USDA	2008	\$80,000.00	Commercial Plant Production and Protection Products from Vermicomposted Dairy Manure
RT Solutions, LLC	Livingston	Rochester	USDA	2006	\$286,350.00	Large-Scale Production and Marketing of Vermicomposted Dairy Manure
RT SOLUTIONS, LLC	Livingston	Rochester	USDA	2009	\$350,000.00	Commercial Plant Production and Protection Products from Vermicomposted Dairy Manure
Santanoni Glass and Ceramics, Inc.	Allegany	Buffalo	NSF	2005	\$98,029.00	STTR Phase I: Nano-Porous Glass-Coated Amorphous Metal Wires for Integrated Solid-Phase
SCIENCE TAKE-OUT, LLC	Monroe	Rochester	HHS	2009	\$122,678.00	Biology Take-Out: Hands-On Science Activity Kits
Semrock	Monroe	Rochester	NSF	2006	\$97,529.00	SBIR Phase I: High Performance UVB-UVC Optical Filters (230-320 nm)
SENSIS CORP.	Onondaga	Syracuse	DOD	2005	\$599,836.00	Aeroelastic Model Updating
SENSORCON, INC.	Erie	Buffalo	DOD	2009	\$100,000.00	High Power Carbon Ultracapacitor
SIMPORE, INC.	Monroe	Rochester	HHS	2010	\$153,245.00	Nanoporous silicon membranes for protein purification
SOCRATECH, LLC	Monroe	Rochester	HHS	2006	\$101,289.00	SRF/MYOCD: new targets in Alzheimer's neurovasculature
SOCRATECH, LLC	Monroe	Rochester	HHS	2008	\$120,636.00	Recombinant LRP fragments production for Alzheimer's disease treatment
SOCRATECH, LLC	Monroe	Rochester	HHS	2010	\$100,000.00	Enhance Production of Functional Recombinant Human Protein C Variant In Mammalian
SOCRATECH, LLC	Monroe	Rochester	HHS	2008	\$1,084,494.00	SRF/MYOCD: new targets in Alzheimer's neurovasculature
SOCRATECH, LLC	Monroe	Rochester	NIH	2006	\$101,289	SRF/MYOCD: new targets in Alzheimer's neurovasculature
SOCRATECH, LLC	Monroe	Rochester	NIH	2008	\$120,636	Recombinant LRP fragments production for Alzheimer's disease treatment
SOCRATECH, LLC	Monroe	Rochester	NIH	2008	\$498,129	SRF/MYOCD: new targets in Alzheimer's neurovasculature
SOCRATECH, LLC	Monroe	Rochester	NIH	2009	\$586,365	SRF/MYOCD: new targets in Alzheimer's neurovasculature
SOCRATECH, LLC	Monroe	Rochester	NIH	2010	\$100,000	Enhance Production of Functional Recombinant Human Protein C Variant In Mammalian
SPECTRACOM CORP.	Monroe	Rochester	DOD	2007	\$99,037.00	Scalable Mobile Wireless Mesh Networks
SpectralSight Inc.	Ontario	Rochester	NSF	2006	\$99,973.00	SBIR Phase II: Development of a Tunable Filter for Mini Hyperspectral Imager
SpectralSight Inc.	Ontario	Rochester	NSF	2007	\$499,421.00	SBIR Phase II: Development of a Tunable Filter for Mini Hyperspectral Imager
SPRUNG-BRETT RDI, INC.	Erie	Buffalo	DOD	2008	\$99,528.00	High Temperature Permanent Magnet Actuator Motor
SPRUNG-BRETT RDI, INC.	Erie	Buffalo	DOD	2009	\$748,775.00	High Temperature Permanent Magnet Actuator Motor
STITechnologies, Inc.	Monroe	Rochester	NASA	2005	\$99,996.84	Energy Based Acoustic Measurement Sensors
STITechnologies, Inc.	Monroe	Rochester	NASA	2006	\$599,328.05	Energy Based Acoustic Measurement Sensors
Tactus	Erie	Buffalo	NSF	2005	\$99,815.00	SBIR Phase II: Development of ModelGlove - A Virtual Clay Modeling System Using

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A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
Tactus	Erie	Buffalo	NSF	2006	\$500,000.00	SBIR Phase II: Development of ModelGlove - A Virtual Clay Modeling System Using
Tactus Technologies	Erie	Buffalo	ED	2006	\$100,000.00	Tactus Immersive Learning Environment
Tactus Technologies	Erie	Buffalo	ED	2005	\$500,000.00	V-Frog: Applying virtual surgery principles to dissection simulation
Tactus Technologies	Erie	Buffalo	ED	2007	\$750,000.00	Tactus Immersive Learning Environment
TACTUS TECHNOLOGIES, INC.	Erie	Buffalo	HHS	2005	\$100,000.00	A PC Based Virtual Reality Simulation for Forklift Safety Training, Phase II
Tactus Technologies, Inc.	Erie	Buffalo	ED	2006	\$100,000.00	TILE: The Tactus Immersive Learning Environment.
TACTUS TECHNOLOGIES, INC.	Erie	Buffalo	HHS	2007	\$100,000.00	The Virtual Cadaver Lab: An Innovative Platform to Supplement Medical Education
TACTUS TECHNOLOGIES, INC.	Erie	Buffalo	HHS	2007	\$750,000.00	A PC Based Virtual Reality Simulation for Forklift Safety Training, Phase II
TACTUS TECHNOLOGIES, INC.	Erie	Buffalo	HHS	2010	\$743,387.00	The Virtual Cadaver Lab: An Innovative Platform to Supplement Medical Education
TACTUS TECHNOLOGIES, INC.	Erie	Buffalo	NIH	2007	\$100,000	The Virtual Cadaver Lab: An Innovative Platform to Supplement Medical Education
TARTIS, INC.	Erie	Buffalo	HHS	2010	\$107,428.00	New type of androgen receptor inhibitors for prostate cancer treatment
TARTIS, INC.	Erie	Buffalo	HHS	2010	\$112,885.00	Novel Hematopoietic Conditioning Agents for Treatment of Hematological Diseases
TARTIS, INC.	Erie	Buffalo	NIH	2010	\$112,885	Novel Hematopoietic Conditioning Agents for Treatment of Hematological Diseases
TERRENEW, LLC	Ontario	Rochester	USDA	2007	\$79,716.00	MANURE-BASED PRODUCTS FOR REMEDIATION OF OIL AND OTHER SPILLS AND FOR
TERRENEW, LLC	Ontario	Rochester	USDA	2008	\$349,200.00	MANURE-BASED PRODUCTS FOR REMEDIATION OF OIL AND OTHER SPILLS AND FOR
THERAPYX, INC.	Erie	Buffalo	HHS	2006	\$144,961.00	Treatment of Type 2 Diabetes with Oral Administration of Nanoencapsulated GLP-1
THERAPYX, INC.	Erie	Buffalo	HHS	2008	\$292,501.00	Co-encapsulation of IroN and IL-12 as an Extra-intestinal E. coli Vaccine.
THERAPYX, INC.	Erie	Buffalo	HHS	2008	\$172,500.00	Delivery of Nanoencapsulated TGFbeta and ATRA for the Treatment of IBD
THERAPYX, INC.	Erie	Buffalo	NIH	2005	\$636,960	Tumor Immunotherapy with Biodegradable Microspheres
THERAPYX, INC.	Erie	Buffalo	NIH	2006	\$144,961	Treatment of Type 2 Diabetes with Oral Administration of Nanoencapsulated GLP-1
THERAPYX, INC.	Erie	Buffalo	NIH	2006	\$629,093	TUMOR IMMUNOTHERAPY WITH BIODEGRADABLE MICROSPHERES
THERAPYX, INC.	Erie	Buffalo	NIH	2008	\$172,500	Delivery of Nanoencapsulated TGFbeta and ATRA for the Treatment of IBD
THERAPYX, INC.	Erie	Buffalo	NIH	2008	\$292,501	Co-encapsulation of IroN and IL-12 as an Extra-intestinal E. coli Vaccine.
THEREX, LLC.	Erie	Buffalo	HHS	2008	\$126,639.00	Improved tissue regenerative device for the oral cavity
Therex, LLC.	Erie	Buffalo	HHS	2005	\$927,108.00	New Salicylanilides to Treat Oral Diseases
THEREX, LLC.	Erie	Buffalo	HHS	2006	\$923,226.00	5-Naphthoysalicylanilides as improved anti-acne agents

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A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
THEREX, LLC.	Erie	Buffalo	NIH	2005	\$454,525	New Salicylanilides to Treat Oral Diseases
THEREX, LLC.	Erie	Buffalo	NIH	2006	\$460,811	5-Naphthoysalicylanilides as improved anti-acne agents
THEREX, LLC.	Erie	Buffalo	NIH	2006	\$472,583	New Salicylanilides to Treat Oral Diseases
THEREX, LLC.	Erie	Buffalo	NIH	2007	\$462,415	5-Naphthoysalicylanilides as improved anti-acne agents
THEREX, LLC.	Erie	Buffalo	NIH	2008	\$126,639	Improved tissue regenerative device for the oral cavity
THERMAL GRADIENT, INC.	Monroe	Rochester	HHS	2008	\$120,411.00	Rapid Portable HIV Detection and Monitoring System for Low Resource Settings
THERMAL GRADIENT, INC.	Monroe	Rochester	HHS	2010	\$2,907,868.00	Rapid Portable HIV Detection and Monitoring System for Low Resource Settings
THERMAL GRADIENT, INC.	Monroe	Rochester	NIH	2008	\$120,411	Fast and Simple Real Time PCR for Quantitative Molecular Diagnostic Testing
THERMAL GRADIENT, INC.	Monroe	Rochester	NIH	2010	\$1,000,001	Rapid Portable HIV Detection and Monitoring System for Low Resource Settings
TPF Enterprises LLC	Niagara	Buffalo	DOD	2010	\$99,490.00	Lead-free Solder Alternative Interconnect Material
ULTRA-SCAN CORP.	Erie	Buffalo	DOD	2005	\$69,214.00	Soldier-Borne Biometric Authentication System
ULTRA-SCAN CORP.	Erie	Buffalo	DOD	2006	\$99,415.00	Tactical Biometric Registration and Recognition Suite
Ultra-Scan Corp.	Erie	Buffalo	DOD	2005	\$747,553.00	High Confidence Multimodal Biometric System
ULTRA-SCAN CORP.	Erie	Buffalo	DOD	2006	\$728,657.00	Soldier-Borne Biometric Authentication System
ULTRA-SCAN CORP.	Erie	Buffalo	DOD	2007	\$978,436.00	Tactical Biometric Registration and Recognition Suite
Ultra-Scan Corporation	Erie	Buffalo	DOD	2009	\$69,673.00	Developing an Interoperable Contextual Fusion Platform
Ultra-Scan Corporation	Erie	Buffalo	DOD	2010	\$719,601.00	Developing an Interoperable Contextual Fusion Platform
UPSTATE APPLIED RESEARCH	Onondaga	Syracuse	DOD	2006	\$99,453.00	Uncertainty, Sensitivity Analysis, and Design of Experiments in Flutter Testing
VACCINEX, INC.	Monroe	Rochester	NIH	2005	\$234,188	Functional Identification of Cancer Regulators
VACCINEX, INC.	Monroe	Rochester	NIH	2005	\$295,926	New Target Antigens for Prostate Cancer Immunotherapy
VACCINEX, INC.	Monroe	Rochester	NIH	2005	\$717,652	Human Monoclonal Antibodies for Bioterrorism Defense
VERITAY TECHNOLOGY, INC.	Erie	Buffalo	DOD	2005	\$69,998.00	Next Generation Controlled Impulse Ejection System
VERITAY TECHNOLOGY, INC.	Erie	Buffalo	DOD	2005	\$599,667.00	Kinetic Energy Penetrator Payload for EX 172 Cargo Round
VI MANUFACTURING, INC.	Wayne	Rochester	DOD	2005	\$99,636.00	Single-Point Turning Point of Polycrystalline Alumina Missile Domes
VI MANUFACTURING, INC.	Wayne	Rochester	DOD	2008	\$69,988.00	Conformal Sensor Window
VI MANUFACTURING, INC.	Wayne	Rochester	DOD	2008	\$149,945.00	Fabrication of Corrective Optics for Conformal Windows and Domes

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A. 7. SBIR/STTR Awards in the Upstate New York Region, 2005 – 2010 (Continued)

Firm Name	County	Region	Agency	Year	Award Amount (\$)	Purpose
VI MANUFACTURING, INC.	Wayne	Rochester	DOD	2008	\$1,199,044.00	Single-Point Turning Point of Polycrystalline Alumina Missile Domes
VI MANUFACTURING, INC.	Wayne	Rochester	DOD	2009	\$599,867.00	Conformal Sensor Window
VI MANUFACTURING, INC.	Wayne	Rochester	DOD	2009	\$749,990.00	Fabrication of Corrective Optics for Conformal Windows and Domes
VI Manufacturing, Inc. dba OptiPro Syste	Wayne	Rochester	DOD	2006	\$69,938.00	Metrology for Ogive Infrared Dome
VI Manufacturing, Inc. dba OptiPro Syste	Wayne	Rochester	DOD	2010	\$1,349,447.00	Metrology for Ogive Infrared Dome
VIRMATICS, LLC	Erie	Buffalo	NIH	2005	\$375,000	Development of Bioinformatic Tools for Virtual Cloning
VIRTUALSCOPICS, INC.	Monroe	Rochester	HHS	2009	\$224,131.00	Electronic Image Trial Management System
VIRTUALSCOPICS, INC.	Monroe	Rochester	NIH	2009	\$134,563	Electronic Image Trial Management System
Vuzix Corporation	Monroe	Rochester	DOD	2010	\$96,172.00	Holographic Waveguide Visor Display (HWVD)
WAKONDA TECHNOLOGIES, INC.	Monroe	Rochester	DOD	2006	\$98,950.00	Robust, High Efficiency Flexible Photovoltaic Modules
Wakonda Technologies, Inc.	Monroe	Rochester	DOE	2006	\$99,552.00	Alternative Thin Film Semiconductor Materials
WETSTONE TECHNOLOGIES, INC.	Cortland	Syracuse	DOD	2007	\$99,988.00	Dynamic Broadband RF Spectrometer
WETSTONE TECHNOLOGIES, INC.	Cortland	Syracuse	DOD	2005	\$749,112.00	Biometric Liveness Authentication Development Environment (BLADE) - Live Check

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