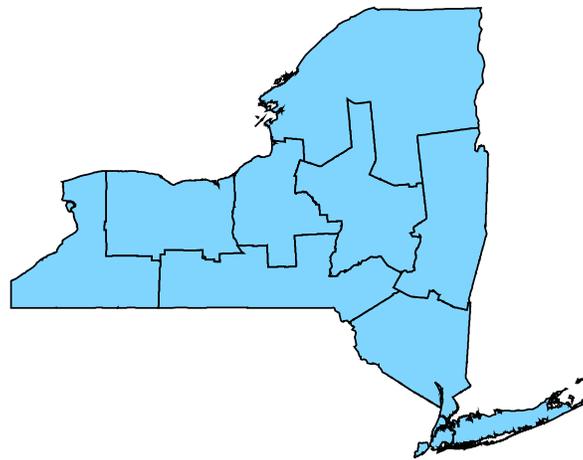


Industry Clusters in New York's Economy: A Statewide and Regional Analysis



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**New York State Department of Labor
Division of Research and Statistics
Bureau of Labor Market Information**

Colleen C. Gardner, Commissioner

Andrew M. Cuomo, Governor

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Introduction

Industry clusters are an important analytical tool for understanding the characteristics of the statewide and regional economies in New York. They are particularly useful in a variety of workforce and economic development applications. The clusters framework is increasingly used by the State of New York to study important industry linkages in the state and regional economies.

According to one definition from the University of Minnesota, industry clusters are *“geographic concentrations of competing, complementary, or interdependent firms and industries that do business with each other and/or have common needs for talent, technology, and infrastructure.”*

Another definition from Harvard University's Institute for Strategy and Competitiveness states that *“Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field that are present in a nation or region. Clusters arise because they increase the productivity with which companies can compete...Cluster development initiatives are an important new direction in economic policy...”*

The key aspect of cluster industries is that they are export oriented. Thus, industry clusters sell their services and products to customers outside their home market. These exports, in turn, generate income and employment in the local economy.

The Empire State Development Corporation (ESDC) has identified and defined 16 industry clusters in the state. Most clusters are further divided into sub-clusters. The 16 main clusters and their sub-clusters are listed in the table on the next page.

Some of ESDC's industry clusters contain more than 100 industries (at the 6-digit NAICS level). In some clusters, data for certain industries are pro-rated because not all jobs in that industry are associated with that cluster. For example, only 10% of jobs in motion picture theaters is counted as part of the travel and tourism cluster.

Background on Clusters

This report looks at 2009 statewide and regional data highlights for the 16 ESDC industry clusters. Data are from the Quarterly Census of Employment and Wages (QCEW) program. For the state as a whole and its 10 labor market regions, clusters are ranked using four different criteria:

- **Total employment**
- **Total wages**
- **Average annual wage**
- **Location quotient**

New York State Clusters and Sub-Clusters

Back Office & Outsourcing

No Sub-Clusters

Biomedical

Drug & Chemical Manufacturing
Laboratories & Research
Medical Equipment & Supplies

Communications, Software & Media Services

Broadcasting & Telecommunications
Motion Picture & Sound Recording Industries
Printing
Publishing

Distribution

Air Freight
Logistics Management
Multimodal Freight
Trucking
Warehousing
Water and Rail Freight
Wholesale (Non-Industry Specific)
Wholesale Durables
Wholesale Non-Durables

Electronics & Imaging

Electronics
Imaging

Fashion, Apparel & Textiles

Apparel Manufacturing
Apparel Wholesale
Jewelry & Miscellaneous Manufacturing
Leather Goods & Footwear Manufacturing
Textile Mills

Financial Services

Bank Holding Companies
Banking & Credit
Funds & Trusts
Insurance
Securities, Commodities & Investments

Food Processing

Beverage Manufacturing
Crop Production & Dairy
Food Manufacturing

Forest Products

Forest Product Manufacturing
Forestry & Logging
Furniture Manufacturing
Paper Manufacturing

Front Office & Producer Services

Business Services
Environmental Services
Headquarters
Organizations

Industrial Machinery & Services

Electrical Equipment Manufacturing
Fabricated Metal
Instruments
Machinery Manufacturing

Information Technology Services

No Sub-Clusters

Materials Processing

Chemicals
Petroleum Products
Plastics & Rubber
Primary Metals
Stone, Clay, Glass and Concrete

Miscellaneous Manufacturing

No Sub-Clusters

Transportation Equipment

Aerospace
Motor Vehicles
Railroads & Other

Travel & Tourism

Accommodations
Culture, Recreation and Amusements
Food Service
Passenger Transportation
Travel Retail

Source: Empire State Development Corporation

While the first three economic criteria listed above are well understood, location quotients (LQs) are more technical in nature. LQs are measures of employment concentration in a regional economy. More specifically, they compare the concentration of industry employment in the local economy, relative to some base area— usually the U.S. as a whole.

The formula for calculating a location quotient for local industry X is as follows:

$$\text{LQ} = \frac{\text{Industry X's \% Share of Jobs in the Local Economy}}{\text{Industry X's \% Share of Jobs in the U.S. Economy}}$$

The table below provides interpretations for different LQ values. Industries with an LQ greater (less) than 1.0 produce more (less) than the local market needs. If an industry has an LQ greater (less) than 1.0, it is export (import) oriented.

Value of Location Quotient	Interpretation
LQ>1.00	Industry is producing more than is consumed locally (i.e., exporting).
LQ=1.00	Local production meets local demand.
LQ<1.00	Industry is producing less than is consumed locally (i.e., importing).

Here are two examples of LQs for industries in Manhattan (New York County) using 2009 data:

- The securities and brokerage industry accounted for 8.81% of jobs (private sector) in Manhattan and 0.76% of jobs (private sector) in the U.S.
 - The LQ for this industry is 8.81%/0.76%, or 11.59.
 - Since the LQ for this industry is much greater than 1.00, this industry is an export industry in Manhattan.

- The chemical manufacturing industry accounted for 0.04% of jobs (private sector) in Manhattan and 0.75% of jobs (private sector) in the U.S.
 - The LQ for this industry is 0.04%/0.75%, or 0.05.
 - Since the LQ for this industry is much less than 1.00, this industry is an import industry in Manhattan.

It is often difficult to clearly identify an industry cluster in a regional economy, except when it is obvious. Some “obvious” examples from around the nation include: automobiles in Detroit, information technology in Silicon Valley, travel and tourism in Orlando, commercial aircraft production in Seattle, and the wine industry in California.

Some regional clusters in the Empire State are well known and long established. Examples of such regional clusters include: financial services in New York City; electronics manufacturing in the Southern Tier; transportation equipment in Western New York; and forest products in the North Country.

The idea behind clusters traces back to Michael Porter's 1990 book, *The Competitive Advantage of Nations*. According to Porter, the following factors are critical in conferring a competitive advantage to a regional cluster:

- **Factor conditions.** *Factors of production, such as skilled labor or infrastructure, necessary for a region to compete in a given industry.*
- **Demand conditions.** *The nature of local market demand for the industry's product or service.*
- **Related and supporting industries.** *The presence or absence in the region of supplier industries and other related industries.*
- **Firm strategy, structure, and rivalry.** *The conditions in the region governing how companies are created, organized, and managed, as well as the nature of domestic rivalry.*

Analysis

In 2009, statewide cluster industry employment (based on ESDC's criteria) totaled more than 2.7 million, representing about one in three jobs in New York State. Total cluster wages topped \$236 billion, or just under one-half of all wages paid in the state in 2009.

Another key aspect of cluster industries is that they tend to pay well above-average wages. Cluster industries in New York State paid an average salary of \$87,000 in 2009. This was 50% higher than the state's overall average wage of \$57,800 that year.

With almost 575,000 jobs, front office and producer services had the most cluster employment in New York State in 2009. Employment in this cluster is concentrated in two sub-clusters: business services and headquarters. The cluster also sports an above-average wage level (\$95,100) because of the relatively high wages paid in the headquarters sub-cluster.

The cluster with the second highest job count in 2009 was financial services (558,800), reflecting New York City's prominence as a global financial center. The securities, commodities, and investments and the banking and credit sub-clusters account for most jobs in the financial services cluster. This cluster is also notable because it had, by far, the highest average wage, \$156,700, of any cluster in New York. This was due largely to the high wages and bonuses paid in the securities and brokerage industry.

Travel and tourism ranked third in total employment (351,100) among New York State's 16 clusters. Unlike front office and producer services and financial services, average wage levels in this cluster are relatively low (\$36,800), ranking it in last place among the state's 16 clusters. This reflects the part-time and seasonal nature of many jobs in the travel and tourism cluster.

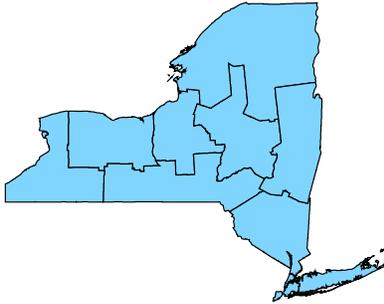
For Further Information

More detailed statewide and regional employment and wage data regarding the clusters discussed above are available at: <http://www.labor.ny.gov/stats/nysindclusters.asp>.

Questions regarding this report should be directed to Kevin Jack, Statewide Labor Market Analyst. He can be reached via email at Kevin.Jack@labor.ny.gov or by phone at (518) 457-2919.

2009 REGIONAL ECONOMIC CLUSTERS

New York State



❖ **New York State's 16 clusters included 254,500 establishments with total employment of 2,714,000 and total wages of \$236.1 billion in 2009. Annual cluster wages averaged \$87,000.**

Top 5 Clusters Ranked by Employment

- 1) Front Office & Producer Services (574,800)
- 2) Financial Services (558,800)
- 3) Travel & Tourism (351,100)
- 4) Communications, Software & Media Services (253,100)
- 5) Distribution (235,600)

Top 5 Clusters Ranked by Total Wages (millions of dollars)

- 1) Financial Services (\$87,555.1)
- 2) Front Office & Producer Services (\$54,682.5)
- 3) Communications, Software & Media Services (\$20,897.4)
- 4) Distribution (\$13,692.7)
- 5) Travel & Tourism (\$12,927.1)

Top 5 Clusters Ranked by Annual Average Wage

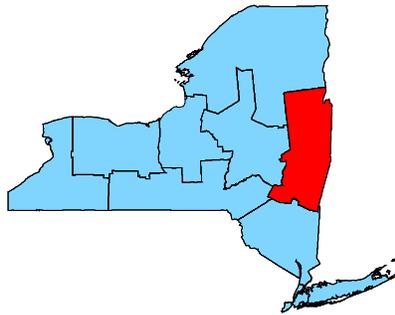
- 1) Financial Services (\$156,700)
- 2) Information Technology Services (\$98,300)
- 3) Front Office & Producer Services (\$95,100)
- 4) Electronics & Imaging (\$84,700)
- 5) Communications, Software & Media Services (\$82,600)

Top 5 Clusters Ranked by Location Quotient (private sector jobs only)

- 1) Fashion, Apparel & Textiles (1.77)
- 2) Financial Services (1.52)
- 3) Communications, Software & Media Services (1.44)
- 4) Front Office & Producer Services (1.26)
- 5) Electronics & Imaging (1.18)

2009 REGIONAL ECONOMIC CLUSTERS

Capital District Labor Market Region



❖ **The Capital District's 16 clusters included 12,400 establishments with total employment of 139,500 and total wages of \$7.4 billion in 2009. Annual cluster wages averaged \$52,800.**

Top 5 Clusters Ranked by Employment

- 1) Front Office & Producer Services (28,800)
- 2) Financial Services (21,800)
- 3) Travel & Tourism (21,100)
- 4) Distribution (14,100)
- 5) Communications, Software & Media Services (10,200)

Top 5 Clusters Ranked by Total Wages (millions of dollars)

- 1) Front Office & Producer Services (\$1,887.1)
- 2) Financial Services (\$1,295.4)
- 3) Distribution (\$708.9)
- 4) Industrial Machinery & Services (\$553.4)
- 5) Communications, Software & Media Services (\$537.9)

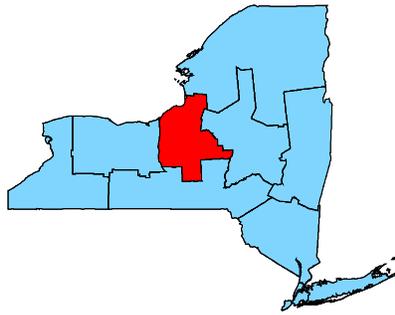
Top 5 Clusters Ranked by Annual Average Wage

- 1) Information Technology Services (\$72,900)
- 2) Industrial Machinery & Services (\$71,000)
- 3) Transportation Equipment (\$69,300)
- 4) Materials Processing (\$66,200)
- 5) Front Office & Producer Services (\$65,600)

Top 5 Clusters Ranked by Location Quotient (private sector jobs only)

- 1) Biomedical (2.07)
- 2) Miscellaneous Manufacturing (1.23)
- 3) Front Office & Producer Services (1.20)
- 4) Forest Products (1.10)
- 5) Financial Services (1.08)

2009 REGIONAL ECONOMIC CLUSTERS Central New York Labor Market Region



❖ **Central New York's 16 clusters included 8,300 establishments with total employment of 105,900 and total wages of \$5.2 billion in 2009. Annual cluster wages averaged \$49,200.**

Top 5 Clusters Ranked by Employment

- 1) Front Office & Producer Services (15,900)
- 2) Financial Services (14,300)
- 3) Distribution (14,200)
- 4) Travel & Tourism (12,600)
- 5) Industrial Machinery & Services (12,400)

Top 5 Clusters Ranked by Total Wages (millions of dollars)

- 1) Front Office & Producer Services (\$986.0)
- 2) Industrial Machinery & Services (\$781.2)
- 3) Financial Services (\$761.7)
- 4) Distribution (\$669.7)
- 5) Materials Processing (\$292.8)

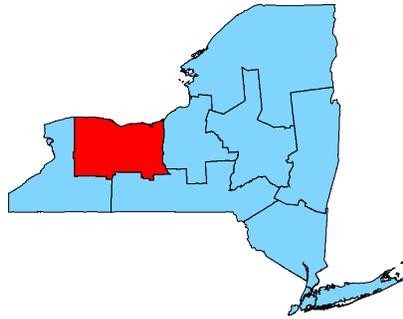
Top 5 Clusters Ranked by Annual Average Wage

- 1) Biomedical (\$68,900)
- 2) Information Technology Services (\$64,200)
- 3) Transportation Equipment (\$63,500)
- 4) Industrial Machinery & Services (\$62,800)
- 5) Front Office & Producer Services (\$62,000)

Top 5 Clusters Ranked by Location Quotient (private sector jobs only)

- 1) Industrial Machinery & Services (1.61)
- 2) Biomedical (1.48)
- 3) Forest Products (1.26)
- 4) Materials Processing (1.12)
- 5) Electronics & Imaging (1.09)

2009 REGIONAL ECONOMIC CLUSTERS Finger Lakes Labor Market Region



❖ **The Finger Lakes' 16 clusters included 12,300 establishments with total employment of 175,600 and total wages of \$9.0 billion in 2009. Annual cluster wages averaged \$51,400.**

Top 5 Clusters Ranked by Employment

- 1) Front Office & Producer Services (28,700)
- 2) Electronics & Imaging (20,300)
- 3) Industrial Machinery & Services (18,600)
- 4) Travel & Tourism (17,400)
- 5) Financial Services (16,000)

Top 5 Clusters Ranked by Total Wages (millions of dollars)

- 1) Front Office & Producer Services (\$1,871.1)
- 2) Electronics & Imaging (\$1,518.1)
- 3) Industrial Machinery & Services (\$967.7)
- 4) Financial Services (\$874.2)
- 5) Distribution (\$692.9)

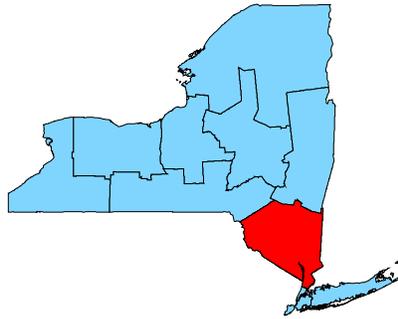
Top 5 Clusters Ranked by Annual Average Wage

- 1) Electronics & Imaging (\$74,900)
- 2) Information Technology Services (\$72,000)
- 3) Biomedical (\$68,800)
- 4) Front Office & Producer Services (\$65,200)
- 5) Financial Services (\$54,600)

Top 5 Clusters Ranked by Location Quotient (private sector jobs only)

- 1) Electronics & Imaging (6.63)
- 2) Industrial Machinery & Services (1.50)
- 3) Food Processing (1.46)
- 4) Communications, Software & Media Services (1.04)
- 5) Biomedical (1.02)
Materials Processing (1.02)

2009 REGIONAL ECONOMIC CLUSTERS Hudson Valley Labor Market Region



❖ **The Hudson Valley's 16 clusters included 29,100 establishments with total employment of 217,500 and total wages of \$16.0 billion in 2009. Annual cluster wages averaged \$73,400.**

Top 5 Clusters Ranked by Employment

- 1) Front Office & Producer Services (42,500)
- 2) Travel & Tourism (32,700)
- 3) Financial Services (31,600)
- 4) Distribution (22,200)
- 5) Communications, Software & Media Services (18,000)

Top 5 Clusters Ranked by Total Wages (millions of dollars)

- 1) Front Office & Producer Services (\$4,186.1)
- 2) Financial Services (\$2,885.2)
- 3) Electronics & Imaging (\$1,760.8)
- 4) Distribution (\$1,405.3)
- 5) Communications, Software & Media Services (\$1,192.3)

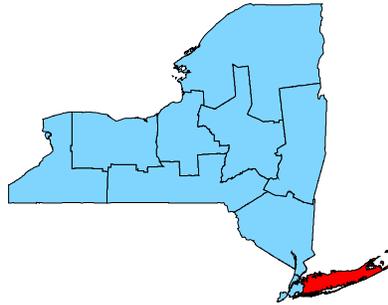
Top 5 Clusters Ranked by Annual Average Wage

- 1) Electronics & Imaging (\$135,300)
- 2) Front Office & Producer Services (\$98,600)
- 3) Information Technology Services (\$95,000)
- 4) Biomedical (\$92,300)
- 5) Financial Services (\$91,400)

Top 5 Clusters Ranked by Location Quotient (private sector jobs only)

- 1) Electronics & Imaging (2.69)
- 2) Biomedical (1.47)
- 3) Communications, Software & Media Services (0.98)
- 4) Front Office & Producer Services (0.93)
- 5) Miscellaneous Manufacturing (0.87)

2009 REGIONAL ECONOMIC CLUSTERS Long Island Labor Market Region



❖ Long Island's 16 clusters included 41,100 establishments with total employment of 326,000 and total wages of \$21.3 billion in 2009. Annual cluster wages averaged \$65,400.

Top 5 Clusters Ranked by Employment

- 1) Front Office & Producer Services (68,900)
- 2) Financial Services (48,900)
- 3) Distribution (40,700)
- 4) Travel & Tourism (36,400)
- 5) Communications, Software & Media Services (30,400)

Top 5 Clusters Ranked by Total Wages (millions of dollars)

- 1) Financial Services (\$4,819.3)
- 2) Front Office & Producer Services (\$4,775.8)
- 3) Distribution (\$2,568.5)
- 4) Communications, Software & Media Services (\$2,006.3)
- 5) Industrial Machinery & Services (\$1,276.8)

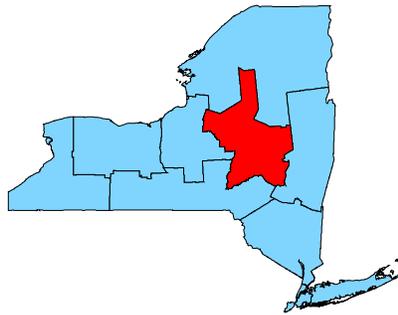
Top 5 Clusters Ranked by Annual Average Wage

- 1) Financial Services (\$98,500)
- 2) Information Technology Services (\$83,700)
- 3) Transportation Equipment (\$78,100)
- 4) Electronics & Imaging (\$74,600)
- 5) Front Office & Producer Services (\$69,300)

Top 5 Clusters Ranked by Location Quotient (private sector jobs only)

- 1) Biomedical (1.71)
- 2) Electronics & Imaging (1.37)
- 3) Miscellaneous Manufacturing (1.20)
- 4) Front Office & Producer Services (1.06)
- 5) Communications, Software & Media Services (1.04)**

2009 REGIONAL ECONOMIC CLUSTERS Mohawk Valley Labor Market Region



❖ **The Mohawk Valley's 16 clusters included 4,500 establishments with total employment of 56,000 and total wages of \$2.1 billion in 2009. Annual cluster wages averaged \$38,300.**

Top 5 Clusters Ranked by Employment

- 1) Travel & Tourism (10,500)
- 2) Financial Services (8,200)
- 3) Distribution (8,000)
- 4) Front Office & Producer Services (5,100)
- 5) Industrial Machinery & Services (4,400)

Top 5 Clusters Ranked by Total Wages (millions of dollars)

- 1) Financial Services (\$384.7)
- 2) Distribution (\$312.6)
- 3) Travel & Tourism (\$233.1)
- 4) Front Office & Producer Services (\$231.9)
- 5) Industrial Machinery & Services (\$188.4)

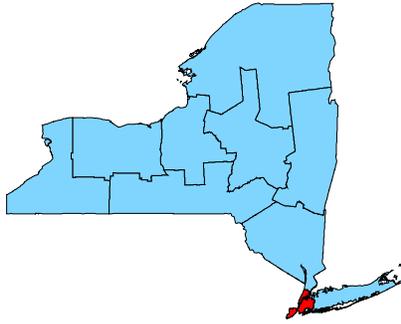
Top 5 Clusters Ranked by Annual Average Wage

- 1) Information Technology Services (\$51,100)
- 2) Financial Services (\$47,100)
- 3) Front Office & Producer Services (\$45,900)
- 4) Materials Processing (\$44,500)
- 5) Transportation Equipment (\$43,500)

Top 5 Clusters Ranked by Location Quotient (private sector jobs only)

- 1) Fashion, Apparel & Textiles (2.15)
- 2) Materials Processing (1.26)
- 3) Biomedical (1.15)
- 4) Forest Products (1.14)
- 5) Distribution (1.13)

2009 REGIONAL ECONOMIC CLUSTERS New York City Labor Market Region



❖ **New York City's 16 clusters included 108,500 establishments with total employment of 1,311,600 and total wages of \$154.2 billion in 2009. Annual cluster wages averaged \$117,600.**

Top 5 Clusters Ranked by Employment

- 1) Financial Services (372,800)
- 2) Front Office & Producer Services (327,200)
- 3) Travel & Tourism (176,900)
- 4) Communications, Software & Media Services (142,900)
- 5) Distribution (82,700)

Top 5 Clusters Ranked by Total Wages (millions of dollars)

- 1) Financial Services (\$73,637.4)
- 2) Front Office & Producer Services (\$37,079.9)
- 3) Communications, Software & Media Services (\$14,380.0)
- 4) Travel & Tourism (\$8,498.8)
- 5) Information Technology Services (\$6,051.0)

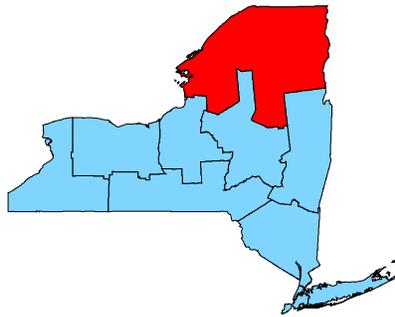
Top 5 Clusters Ranked by Annual Average Wage

- 1) Financial Services (\$197,500)
- 2) Information Technology Services (\$113,900)
- 3) Front Office & Producer Services (\$113,300)
- 4) Communications, Software & Media Services (\$100,600)
- 5) Biomedical (\$79,500)

Top 5 Clusters Ranked by Location Quotient (private sector jobs only)

- 1) Fashion, Apparel & Textiles (3.12)
- 2) Financial Services (2.31)
- 3) Communications, Software & Media Services (1.92)
- 4) Front Office & Producer Services (1.62)
- 5) Travel & Tourism (1.01)

2009 REGIONAL ECONOMIC CLUSTERS North Country Labor Market Region



❖ **The North Country's 16 clusters included 4,100 establishments with total employment of 34,000 and total wages of \$1.3 billion in 2009. Annual cluster wages averaged \$38,100.**

Top 5 Clusters Ranked by Employment

- 1) Travel & Tourism (7,300)
- 2) Distribution (3,400)
Front Office & Producer Services (3,400)
- 4) Forest Products (2,900)
Materials Processing (2,900)

Top 5 Clusters Ranked by Total Wages (millions of dollars)

- 1) Materials Processing (\$157.7)
- 2) Front Office & Producer Services (\$153.5)
- 3) Travel & Tourism (\$147.3)
- 4) Forest Products (\$138.0)
- 5) Distribution (\$131.0)

Top 5 Clusters Ranked by Annual Average Wage

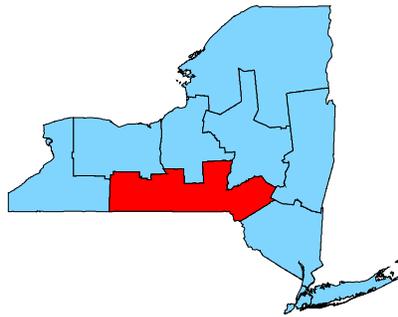
- 1) Biomedical (\$77,600)
- 2) Materials Processing (\$54,100)
- 3) Transportation Equipment (\$53,000)
- 4) Information Technology Services (\$51,200)
- 5) Forest Products (\$46,800)

Top 5 Clusters Ranked by Location Quotient (private sector jobs only)

- 1) Forest Products (2.81)
- 2) Biomedical (1.71)
- 3) Materials Processing (1.48)
- 4) Food Processing (1.39)
- 5) Travel & Tourism (1.08)

2009 REGIONAL ECONOMIC CLUSTERS

Southern Tier Labor Market Region



❖ **The Southern Tier's 16 clusters included 6,000 establishments with total employment of 77,400 and total wages of \$3.9 billion in 2009. Annual cluster wages averaged \$49,900.**

Top 5 Clusters Ranked by Employment

- 1) Industrial Machinery & Services (13,600)
- 2) Travel & Tourism (8,700)
- 3) Financial Services (7,900)
- 4) Front Office & Producer Services (7,600)
- 5) Electronics & Imaging (6,600)

Top 5 Clusters Ranked by Total Wages (millions of dollars)

- 1) Industrial Machinery & Services (\$885.0)
- 2) Front Office & Producer Services (\$510.4)
- 3) Electronics & Imaging (\$411.6)
- 4) Financial Services (\$404.1)
- 5) Transportation Equipment (\$249.2)

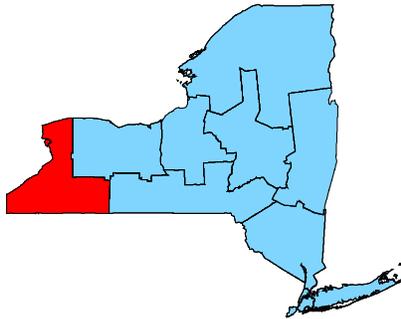
Top 5 Clusters Ranked by Annual Average Wage

- 1) Front Office & Producer Services (\$67,100)
- 2) Industrial Machinery & Services (\$65,100)
- 3) Electronics & Imaging (\$62,800)
- 4) Information Technology Services (\$60,100)
- 5) Biomedical (\$59,300)

Top 5 Clusters Ranked by Location Quotient (private sector jobs only)

- 1) Electronics & Imaging (4.52)
- 2) Industrial Machinery & Services (2.31)
- 3) Biomedical (2.05)
- 4) Transportation Equipment (1.75)
- 5) Forest Products (1.06)

2009 REGIONAL ECONOMIC CLUSTERS Western New York Labor Market Region



❖ **Western New York's 16 clusters included 14,200 establishments with total employment of 198,400 and total wages of \$9.4 billion in 2009. Annual cluster wages averaged \$47,400.**

Top 5 Clusters Ranked by Employment

- 1) Front Office & Producer Services (30,700)
- 2) Financial Services (26,200)
- 3) Travel & Tourism (24,700)
- 4) Industrial Machinery & Services (23,200)
- 5) Distribution (19,800)

Top 5 Clusters Ranked by Total Wages (millions of dollars)

- 1) Front Office & Producer Services (\$1,764.9)
- 2) Financial Services (\$1,375.1)
- 3) Industrial Machinery & Services (\$1,244.4)
- 4) Distribution (\$908.5)
- 5) Materials Processing (\$781.3)

Top 5 Clusters Ranked by Annual Average Wage

- 1) Transportation Equipment (\$78,700)
- 2) Information Technology Services (\$62,700)
- 3) Materials Processing (\$58,800)
- 4) Front Office & Producer Services (\$57,500)
- 5) Electronics & Imaging (\$54,700)

Top 5 Clusters Ranked by Location Quotient (private sector jobs only)

- 1) Industrial Machinery & Services (1.66)
- 2) Materials Processing (1.43)
- 3) Biomedical (1.34)
- 4) Miscellaneous Manufacturing (1.18)
- 5) Food Processing (1.15)