

Income Inequality in Metropolitan Areas

In many respects, the American economy has done extraordinarily well since the great recession of 2008. We have seen a long period of growth in employment, while unemployment has dropped to levels not seen in many decades. But this period has also seen a troubling increase in income polarization, which has left typical workers with little real wage growth since 2000. The [Pew Research Institute points out](#) that between 2000 and 2018, “wage gains have gone largely to the highest earners. Since 2000, usual weekly wages have risen 3% (in real terms) among workers in the lowest tenth of the earnings distribution and 4.3% among the lowest quarter. But among people in the top tenth of the distribution, real wages have risen a cumulative 15.7%, to \$2,112 a week – nearly five times the usual weekly earnings of the bottom tenth (\$426).

	90/10 Ratio in 2015		90/10 Ratio in 1980
Top 15			
Fairfield, CT	8.7	Fairfield, CT	5.6
San Jose, CA	7.9	Anchorage, AK	5.4
Trenton, NJ	7.4	Gadsden, AL	5.0
Bakersfield, CA	7.1	Pueblo, Co	5.0
Houston, TX	7.1	Lafayette, LA	4.9
Santa Cruz, CA	7.1	Huntsville, AL	4.8
New York, NY	7.0	Palm Bay, FL	4.8
San Francisco, CA	7.0	Santa Maria-Santa Barbara, CA	4.8
Oxnard-Thousand Oaks-Ventura, CA	6.9	New Orleans, LA	4.7
Tyler, TX	6.9	Santa Cruz, CA	4.7
Odessa, TX	6.9	Orlando, FL	4.6
Los Angeles, CA	6.9	Bakersfield, CA	4.6
Washington, DC	6.6	Baton Rouge, LA	4.6
Ann Arbor, MI	6.6	Jackson, MS	4.5
San Diego, CA	6.5	Champaign-Urbana, IL	4.5

In a recent article, "[Why are Some Places So Much More Unequal than Others?](#)", Jaison Abel and Richard Dietz of the Federal Reserve Bank of New York examine the growth of wage income inequality in the United States and find that while it has grown in nearly every metropolitan area since the 1980's, it has risen more sharply in large urban areas, like New York City. See the table above, reproduced from Abel and Dietz's article:

The authors find that wage inequality is highest in metropolitan areas on the coasts – California, Texas, New York City and Fairfield County Connecticut. Many Midwest and Great Lakes Metropolitan areas had the lowest levels according to the data used by the authors – the 1980 Census and the 2015 American Community Survey. Income inequality was defined by the authors as the ratio of the income at the 90th percentile of wage earners to the at the 10th percentile.

In this post, instead of examining the growth of income inequality, I look at its extent and associated characteristics. My analysis is based on data from the Department of Labor's Bureau of Labor Statistics, [Occupational Employment Statistics](#). In general, my findings are like those found by Abel and Dietz, though with some differences. Income inequality and area average incomes are associated with average educational levels and the size of metropolitan area populations. But, population size is far more important for a set of metropolitan areas with employment greater than 500,000 than for those which are smaller, while education is more closely related to income for the top quarter of metropolitan areas sorted by educational level than for the rest.

Metropolitan Area Incomes and Income Inequality

Metropolitan Area Wage Income Comparison			
By Area Median Income			
Metro Areas	Wage Income		
	Lowest 10%	Median	Highest 10%
Top 10%	\$ 21,719	\$ 59,393	\$ 114,845
Top Quarter	\$ 21,324	\$ 56,674	\$ 107,878
Second Quarter	\$ 20,214	\$ 47,390	\$ 85,995
Third Quarter	\$ 20,795	\$ 46,183	\$ 82,831
Bottom Quarter	\$ 20,650	\$ 43,418	\$ 75,077

When metropolitan areas are divided into quarters by income, the incomes of the lowest 10% of wage earners in the bottom quarter of metropolitan areas sorted by median income differs little from those in the top 10% of metropolitan areas – \$20,649 vs. \$21,719. 64% of wage earners live in the top quarter of metropolitan areas sorted by income. Six percent live in the bottom quarter.

While there is little difference in the incomes of the bottom 10 percent of wage earners in metropolitan areas sorted by income, the top 10% of wage earners by income in the 10% of metropolitan areas with the highest median incomes earn 50% more than those in the bottom 25% – \$114,845 vs. \$75,077. Median income wage income was \$59,393 in the top 10% of metropolitan areas compared with \$43,418 in the bottom quarter – a 37% difference.

The relationship was not linear. Median earners in metropolitan areas in the second quarter sorted by income had incomes only \$4,000 higher than those in the bottom quarter. But earners in the top quarter of metropolitan areas had median incomes what were \$9,300 higher than those in the second quarter. The differences were even larger for those in the top 10% of earners, with a difference of \$22,000 between the first and second quarter, and \$10,900 between the second and bottom quarter.

Because of the relatively large difference in incomes of the top 10% of residents between the top and second quarter of metropolitan areas sorted by income, the difference in income

Metropolitan Area Income Inequality By Area Median Income	
Top 10%	5.29
Top Quarter	5.06
Second Quarter	4.25
Third Quarter	3.98
Bottom Quarter	3.64

inequality between the top and second quarter of metropolitan areas is greater than the gap between the remaining quarters.

Although metropolitan areas with higher median incomes had greater income inequality, the strength of the relationship depended on the number of workers in those areas. Income inequality is more closely related to median income in metropolitan areas with employment that is greater than 500,000 than in areas with less employment. For metropolitan areas with employment of 500,000 or more, 55% of the variation in inequality is associated with differences in median income. For smaller metropolitan areas, the association is 35%.

Metropolitan Area Sizes, Wages and Wage Income Inequality

Data from the Department of Labor, Bureau of Labor Statistics shows that workers in larger metropolitan areas have higher median incomes than those in smaller areas. Those in the top

Metropolitan Area Wage Comparison By Area Employment - 2018			
	Wage Income		
	Lowest 10%	Median	Highest 10%
Top 5%	\$ 22,100	\$ 58,973	\$ 113,442
Top 10%	\$ 21,626	\$ 57,067	\$ 108,873
Top Quarter	\$ 21,332	\$ 55,205	\$ 104,359
Second Quarter	\$ 20,114	\$ 46,990	\$ 84,597
Third Quarter	\$ 19,805	\$ 44,586	\$ 79,098
Bottom Quarter	\$ 19,695	\$ 43,801	\$ 77,332

10% of metropolitan areas sorted by number of wage earners averaged \$55,205 in wage income in 2018, compared with \$43,801 for those in the bottom quarter of metropolitan areas by employment. 61% of wage earners in metropolitan areas live in the top 10% of areas sorted by employment. 3.2% of wage earners live in the smallest quarter.

The top ten percent of wage earners in the highest quarter of

metropolitan areas sorted by number of wage earners averaged \$105,349 annually, compared with \$77,332 for the bottom quarter. Again, the difference in incomes for the top 10% of wage earners in the second, third and bottom quarters of metropolitan areas were comparatively small – only \$7,000 compared with the difference between the top quarter and second quarter of metropolitan areas sorted by size – \$20,000.

Wage differences for the lowest 10% of wage earners sorted by income were much smaller than for higher income workers. In fact, the difference in incomes for low income wage earners in the largest 5% of metropolitan areas compared with those in the bottom quarter was only \$2,500. Because of the larger differences in income for higher income wage earners, income inequality increases as metropolitan area employment increases.

Again, the relationship between employment and median wage income was not linear – the difference in median incomes for the second, third and bottom quarters of metropolitan areas ranked by size was small – only \$3,000. The median work income for the largest quarter of metropolitan areas was \$8,000 higher than that for the second quarter. Differences for the top 5% of earners were even larger \$113,442 vs. \$84,597. The top quarter of metropolitan areas by size had about 58% of all workers in metropolitan areas.

The relationship between metropolitan area population and wage incomes was associated with only about 20% of the variation in the two variables. For example, in the bottom quarter of metropolitan areas sorted by employment, California-Lexington Park, Maryland MSA residents had a median work income of \$71,200 – higher than the median for the top 5% of metropolitan areas sorted by employment, even though the area had only 46,710 workers.

Because there is a greater spread between the incomes of the top 10% and the bottom 10% of residents, areas with high employment levels also have more income inequality than residents of small counties. Like the income level data, inequality levels for the second, third and fourth quarters of counties, sorted by employment numbers are similar – at about 4:1. But, those for the top quarter have inequality ratios of about 5:1.

Wage Income Inequality By Area Employment	
Top 5%	5.1:1
Top 10%	5.0:1
Top Quarter	4.9:1
Second Quarter	4.2:1
Third Quarter	4.0:1
Bottom Quarter	3.9:1

The Relationship between Education and Metropolitan Area Wages and Income Inequality

Metropolitan Areas with Highest Median Incomes - 2018				
	Lowest 10%	Median	Highest 10%	%of Residents w/B. A. or More
San Jose-Sunnyvale-Santa Clara, CA	\$ 25,870	\$ 80,480	\$ 163,260	53%
San Francisco-Oakland-Hayward, CA	\$ 25,820	\$ 72,400	\$ 145,460	51%
California-Lexington Park, MD	\$ 21,210	\$ 71,200	\$ 136,510	35%
Washington-Arlington-Alexandria, DC-VA-MD-WV	\$ 23,030	\$ 70,980	\$ 142,050	52%
Bridgeport-Stamford-Norwalk, CT	\$ 23,480	\$ 68,590	\$ 132,180	48%
Boston-Cambridge-Nashua, MA-NH	\$ 24,960	\$ 67,370	\$ 128,260	49%
Seattle-Tacoma-Bellevue, WA	\$ 26,560	\$ 65,400	\$ 124,250	44%
Boulder, CO	\$ 23,370	\$ 64,690	\$ 127,660	63%
New York-Newark-Jersey City, NY-NJ-PA	\$ 22,780	\$ 64,550	\$ 126,570	41%
Trenton, NJ	\$ 22,000	\$ 63,700	\$ 116,990	42%
Metropolitan Areas with Lowest Median Incomes - 2018				
Morristown, TN	\$ 18,210	\$ 37,620	\$ 62,700	17%
Valdosta, GA	\$ 17,300	\$ 37,420	\$ 67,230	20%
Jacksonville, NC	\$ 17,400	\$ 37,220	\$ 65,620	24%
Daphne-Fairhope-Foley, AL	\$ 17,830	\$ 37,040	\$ 62,520	31%
Myrtle Beach-Conway-North Myrtle Beach, SC-NC	\$ 17,560	\$ 36,950	\$ 65,200	26%
Gadsden, AL	\$ 17,380	\$ 36,760	\$ 61,900	20%
McAllen-Edinburg-Mission, TX	\$ 17,290	\$ 36,700	\$ 66,480	19%
Hot Springs, AR	\$ 18,810	\$ 36,200	\$ 61,930	22%
Sebring, FL	\$ 18,750	\$ 35,940	\$ 61,060	17%
Brownsville-Harlingen, TX	\$ 17,200	\$ 35,230	\$ 65,040	17%

Abel and Deitz point out that the primary cause of the increase in income inequality is “the increasing return to skill...This relationship stems from an increase in demand from for skilled workers in recent decades relative to the supply of skilled workers.” (p. 3). This return is reflected in the relationship between the median wages and the percentage of residents with at least a B. A. degree in metropolitan areas in 2018. 40% of

the variation in the median wage is associated with education. Six of the metropolitan areas with the highest median wage incomes were on the East coast, three were on the West coast, and one in Colorado.

Metropolitan Area Incomes				
Sorted by Educational Attainment				
	% of Residents	Lowest 10%	Median	Top 10%
	With B. A. +	of Earners	Income	of Earners
Top 5%	>46%	\$ 23,607	\$ 67,218	\$ 137,550
Top 10%	>40%	\$ 23,128	\$ 63,824	\$ 123,708
Top 25%	>34%	\$ 21,910	\$ 57,917	\$ 110,474
Second Quarter	>27%	\$ 19,936	\$ 48,416	\$ 88,196
Third Quarter	>22%	\$ 19,273	\$ 44,600	\$ 79,784
Bottom Quarter	<22%	\$ 20,428	\$ 44,625	\$ 80,737

Income variation within the top quarter of metropolitan areas sorted by education is greater than that between metropolitan areas in the second, third and bottom quarters. The median income for the top 5% of metropolitan areas sorted by educational attainment is \$67,218, compared with \$57,917 for the top quarter – a difference of nearly \$10,000. But the differences between the median income for metropolitan areas in the second quarter are only \$3,800 higher than the median income for the bottom quarter. 58% of wage earners live in metropolitan areas in the top quarter, while 7% live in the bottom quarter.

Income differences for the 10% of wage earners with the highest incomes followed the same pattern but were even larger. The difference between the income of the top 10% of earners for the bottom quarter of metropolitan areas and the income for the second quarter was \$7,500, while the difference between the top quarter and the second quarter was \$22,000. The income for the top 5% of metros was \$27,000 higher than the income for the top quarter.

Metropolitan Areas with Greatest Income Inequality - 2018			
	Inequality	Median	% of Residents
	Index	Wage	w/ B. A. or More
California-Lexington Park, MD(0015680)	6.4	\$ 71,200	35%
San Jose-Sunnyvale-Santa Clara, CA	6.3	\$ 80,480	53%
Huntsville, AL	6.3	\$ 54,630	40%
Washington-Arlington-Alexandria, DC-VA-	6.2	\$ 70,980	52%
Durham-Chapel Hill, NC	5.7	\$ 59,940	48%
San Francisco-Oakland-Hayward, CA	5.6	\$ 72,400	51%
Bridgeport-Stamford-Norwalk, CT	5.6	\$ 68,590	48%
New York-Newark-Jersey City, NY-NJ-PA	5.6	\$ 64,550	41%
Boulder, CO	5.5	\$ 64,690	63%
Atlanta-Sandy Springs-Roswell, GA	5.5	\$ 52,750	39%
Metropolitan Areas with Least Income Inequality - 2018			
Jonesboro, AR	3.4	\$ 38,610	25%
Walla Walla, WA	3.4	\$ 48,380	28%
Bellingham, WA	3.4	\$ 49,050	34%
Hot Springs, AR	3.3	\$ 36,200	22%
Prescott, AZ	3.3	\$ 42,860	26%
Wenatchee, WA	3.3	\$ 45,720	26%
Sebring, FL	3.3	\$ 35,940	17%
Lake Havasu City-Kingman, AZ	3.2	\$ 40,470	14%
Grants Pass, OR	3.1	\$ 40,660	16%
Yakima, WA	3.1	\$ 44,960	17%

Because of the greater differences in income between the lowest and highest earners in areas with high percentages of residents with B. A. degrees or greater, they tend to have more income inequality. About 32% of the variation in income inequality is associated with the percentage of residents with B. A. degrees or greater.

Seven metropolitan areas were among the top ten with the highest incomes and income inequality. Three of the metropolitan areas with the highest wage inequality were on the East coast, three on the West coast, three in the South, and one in Colorado. All the areas with high income inequality had relatively high median incomes – \$50,000 or more – compared to the national median wage income of \$38,640.

Median Wage Income and Income Inequality in New York Metropolitan Areas

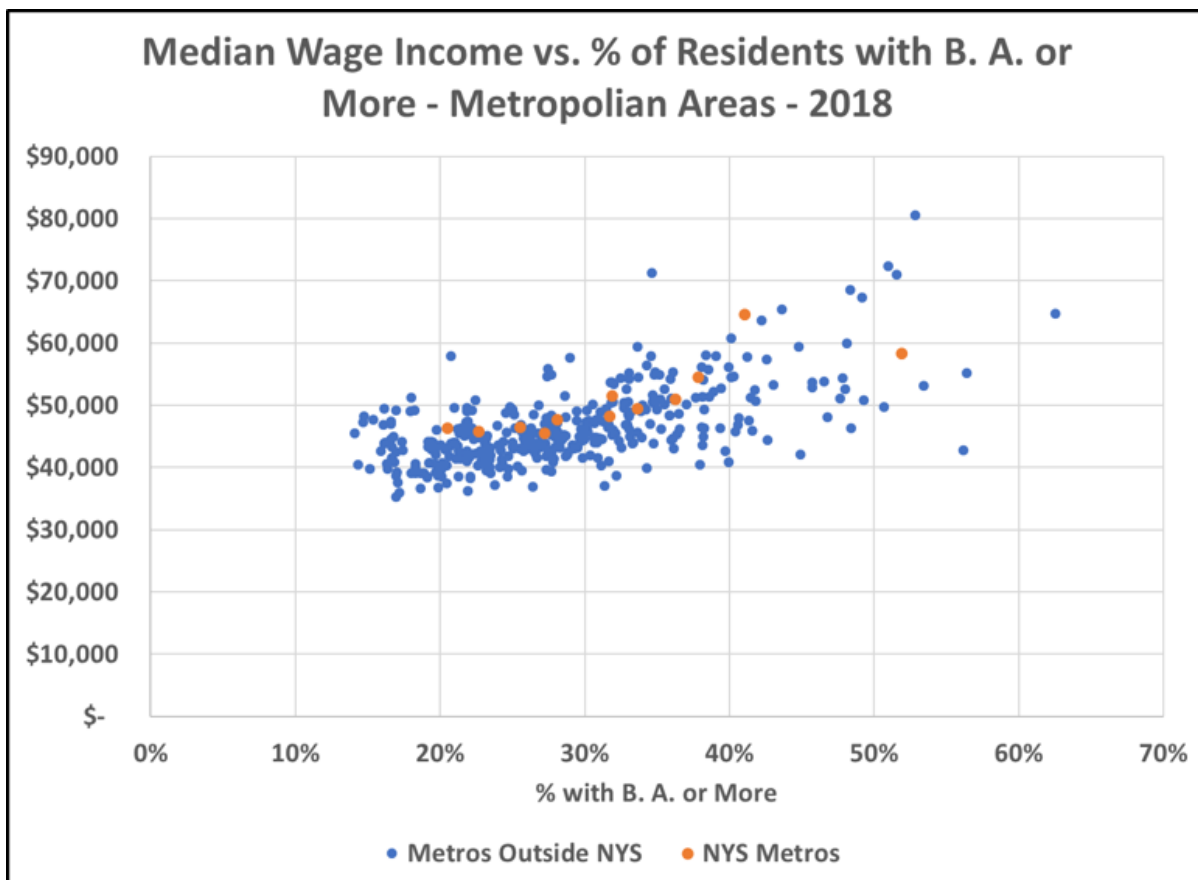
	New York Metropolitan Areas - 2018					
	Wage Income			Income	Education	Employment
	Lowest 10%	Median	Highest 10%	Inequality	% B. A. or More	
Albany-Schenectady-Troy	\$ 23,280	\$ 54,400	\$ 98,340	4.22	38%	451,810
Binghamton	\$ 22,390	\$ 47,610	\$ 87,310	3.90	28%	100,110
Buffalo-Cheektowaga-Niagara Falls	\$ 22,690	\$ 49,420	\$ 89,260	3.93	34%	551,090
Elmira	\$ 22,510	\$ 46,230	\$ 78,730	3.50	21%	35,060
Glens Falls	\$ 22,710	\$ 45,480	\$ 78,930	3.48	27%	52,720
Ithaca	\$ 23,470	\$ 58,180	\$ 108,910	4.64	52%	49,710
Kingston	\$ 22,890	\$ 48,130	\$ 86,040	3.76	32%	60,720
New York-Newark-Jersey City	\$ 22,780	\$ 64,550	\$ 126,570	5.56	41%	9,498,420
Rochester	\$ 22,950	\$ 50,830	\$ 90,810	3.96	36%	514,570
Syracuse	\$ 22,870	\$ 51,400	\$ 92,200	4.03	32%	303,830
Utica-Rome	\$ 22,400	\$ 46,340	\$ 81,280	3.63	26%	124,550
Watertown-Fort Drum	\$ 22,480	\$ 45,750	\$ 80,140	3.56	23%	39,990

In New York's metropolitan areas, as in the nation, the percentage of residents over 25 with at least a bachelor's degree is strongly related to median wage income. Areas with relatively high percentages of workers with Bachelor's degrees or more, like Ithaca and the New York City metropolitan area had relatively high incomes. Ithaca had the highest percentage of residents with bachelor's degrees or more with 52%, and had a median income of \$58,180. The New York Metropolitan area was second, with 41% of residents with Bachelor's degrees or more, with a median income of \$64,550. At the other end of the spectrum, 23% of Watertown-Fort Drum residents had Bachelor's degrees or more and had a median income of \$45,750.

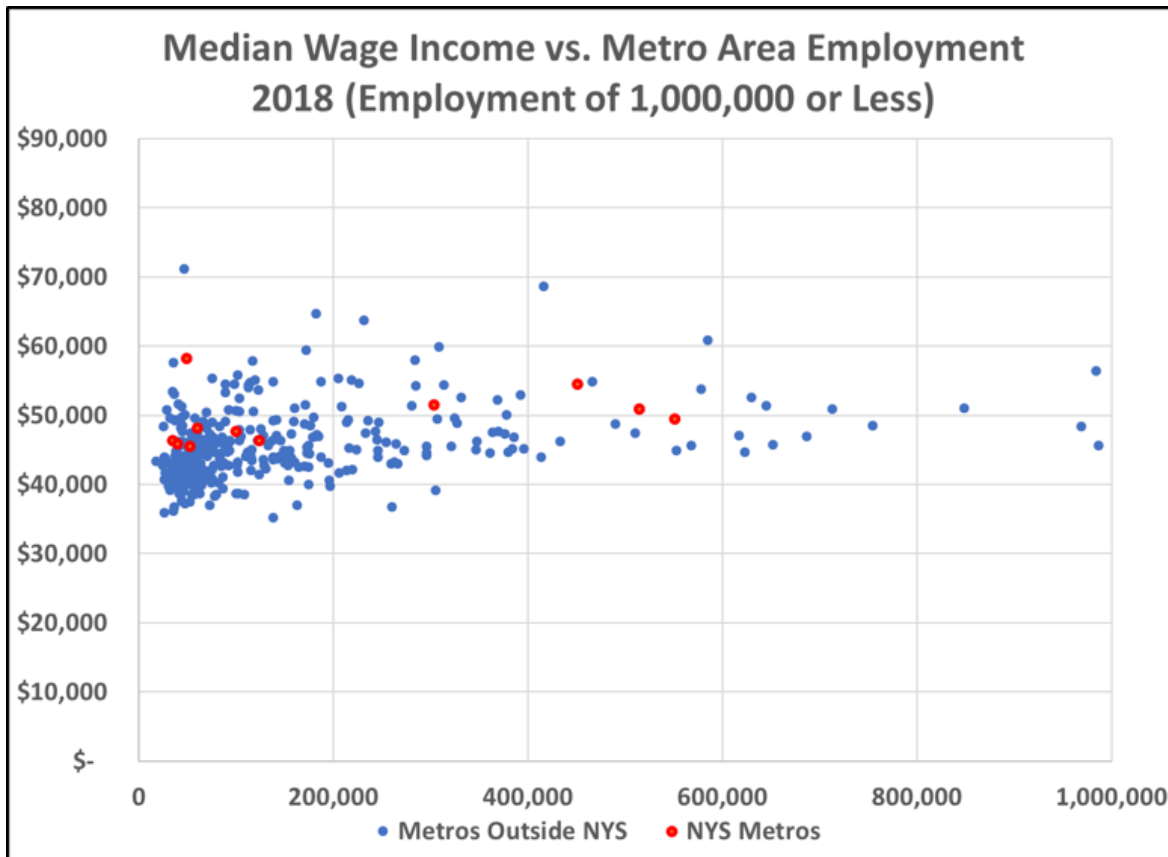
Median wage incomes in New York State ranged from \$45,750 in the Watertown-Fort Drum metropolitan area to \$64,550 in the New York metropolitan area. Among upstate metropolitan areas, Albany-Schenectady-Troy, Ithaca (\$58,180), Rochester and Syracuse had median incomes that were greater than \$50,000. The New York and Ithaca MSA were among the metropolitan areas with the highest median incomes in the nation – ranking ninth and 15th of the 380 areas included in this study. Albany-Schenectady-Troy (\$54,400), Syracuse (\$51,400), Rochester (\$50,830) and Buffalo (\$49,402) were all in the top quarter of metropolitan areas. Kingston (48,130),

Binghamton (\$47,610), Utica (\$46,340), Elmira (\$46,230) and Watertown (\$45,750) were in the second quarter.

Only the New York City Metropolitan area had wage inequality – 5.56:1 – that placed it among the highest in the nation. Ithaca (4.64:1) was in the top quarter of metros. Albany-Schenectady-Troy (4.22:1) was in the second quarter. Syracuse (4.03:1), Rochester (3.96:1), Buffalo (3.93:1) and Binghamton (3.90:1) were in the third quarter, with the remaining areas in the bottom quarter.

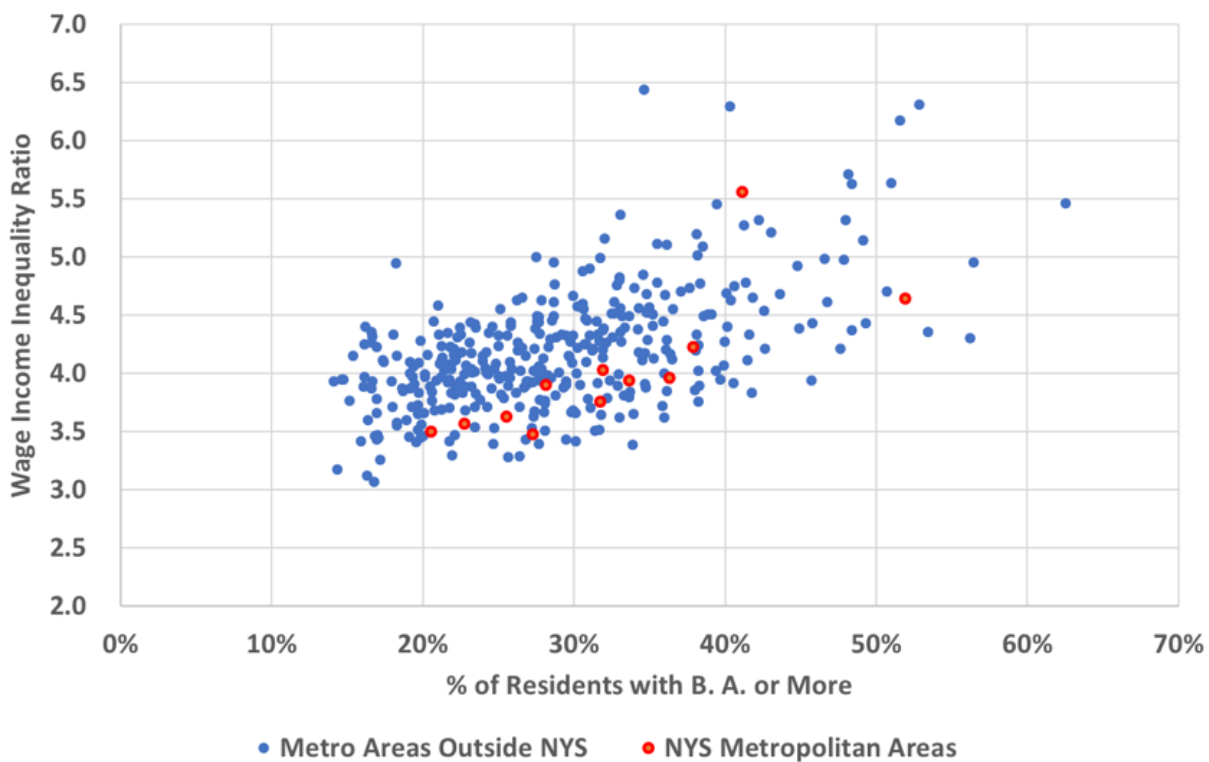


In New York's metropolitan areas, as in the nation, the percent of residents over 25 with at least a bachelor's degree is strongly related to median wage income. The median work income of residents of the New York metropolitan area was slightly above the average for metropolitan areas with similar levels of education in most cases.

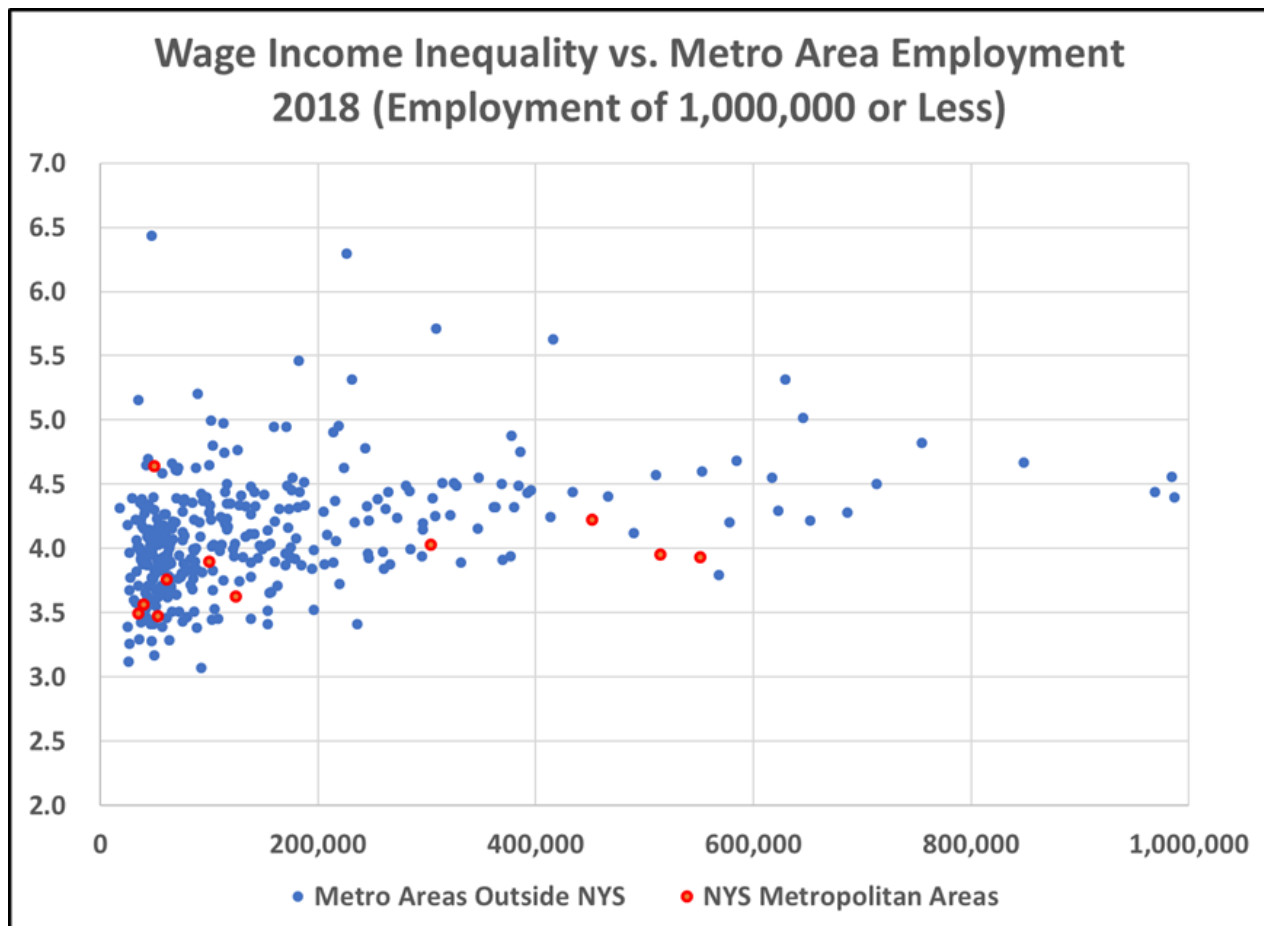


To facilitate analysis, the chart above shows the relationship between metropolitan area employment and median wage income for metropolitan areas with employment of 1,000,000 or less. As the chart shows, there is not a large increase in income with more employment. New York Metropolitan areas in most cases showed slightly higher median wage incomes than other metros of similar size.

Wage Income Inequality vs. % with B. A. or More Metropolitan Areas - 2018



Income inequality was higher in metropolitan areas with higher percentages of residents with at least a bachelor's degree. While this relationship was present in New York metropolitan areas, New York metropolitan areas generally showed less income inequality than the average for metropolitan areas with similar average educational levels. The combination of slightly higher median wage incomes in New York metropolitan areas and slightly less income inequality results from the fact that low wage income workers in New York had incomes that exceeded the averages for high income metropolitan (\$21,719) areas nationally.



The chart above shows the relationship between metropolitan area employment and income inequality for metropolitan areas with employment of 1,000,000 or less. Inequality is slightly higher in larger metropolitan areas than in smaller ones, increasing from an average of slightly over 4:1 for the smallest metropolitan areas to almost 4.5 to one for those with employment near 1,000,000. Again, New York metropolitan areas generally had less wage income inequality than the average for similarly sized metros. Metropolitan areas with more than 1,000,000 workers had income inequality ratios that ranged in most cases from 5:1 to 6:1.

Conclusions

The Bureau of Labor Statistics occupational data used in this study produced results that are generally consistent with those found by Abel and Dietz. Metropolitan areas with high concentrations of residents with bachelor's degrees or more had higher median incomes than those with less educated

populations. While there was relatively little variation in the incomes at the 10th percentile of wage earners with the lowest income levels between metropolitan areas with higher and lower education levels, incomes of the top ten percent of residents in area with more educated populations were substantially (50%) higher.

The BLS data also supported the notion that large metropolitan areas had advantages arising from their size, though the relationship was weaker than that between education and income. Employment was associated with about 20% of the difference in incomes between areas.

When metropolitan areas were grouped into quarters by educational levels and workforce size, there was relatively little difference associated with the median income of the second, third and bottom quarters of those areas in incomes and income inequality. But, the top quarter of areas by these measures showed substantially higher median incomes and income levels for the top tenth of wage earners. The top quarter of metropolitan areas by education and employment had nearly 60% of all metropolitan area workers.

Metropolitan areas in New York followed national patterns. They tended to have slightly higher median wage incomes and less income inequality than comparable metropolitan areas based on employment and education levels.

Abel and Dietz argue the strong demand for highly skilled workers drives the increasing wage differentiation found in our society. And, the authors state that *"At the other end of the spectrum, technological change and globalization have reduced the demand for middle and lower-skilled workers, with this decline quite severe in some parts of the country.⁹ This weak demand has led to sluggish wage growth for such workers in these areas, and in some cases has led to an outright decline in the wages of people in the middle and lower portions of the local wage distribution"*. At the same time, an

equally important problem is the loss of bargaining power held by relatively unskilled workers in the United States.

Employment Change by Occupational Group			
United States - 2000 vs 2019 (Thousands of Employees)			
	2000	2019	Change
Management, business, and financial operations occupations	19,591	26,981	7,390
Professional and Related Occupations	26,710	37,237	10,527
Service occupations	20,777	26,978	6,201
Sales and related occupations	15,721	15,582	(139)
Office and administrative support occupations	20,448	17,789	(2,659)
Farming, fishing, and forestry occupations	1,168	1,156	(12)
Construction and extraction occupations	7,620	8,325	705
Installation, maintenance, and repair occupations	4,818	4,862	44
Production occupations	11,463	8,565	(2,898)
Transportation and material moving occupations	8,574	10,063	1,489

Occupational data from the Bureau of Labor Statistics supports the authors' argument. Between 2000 and 2016, Management, business and financial operations and Professional operations had the greatest employment growth – almost 18,000,000 employees. These occupations predominantly require college educations. But there were substantial declines in non-college fields, such as office and administrative support and production.

Government can do relatively little to alter the economic and technological forces that have created the increase in occupations requiring substantial skills, or the decline of those that have fewer skill requirements. Available policy responses include making skills training more available to low-income and displaced adults, improved educational preparation for youth, income redistribution measures and in-kind services to help low-income individuals and households, increasing the minimum wage and reducing barriers to labor union organizing and membership.