



METROMONITOR 20

TRACKING GROWTH, PROSPERITY, AND INCLUSION
IN THE 100 LARGEST U.S. METROPOLITAN AREAS

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TRACKING **GROWTH, PROSPERITY, AND INCLUSION**
IN THE 100 LARGEST U.S. METROPOLITAN AREAS

BY RICHARD SHEARER, JOHN NG, ALAN BERUBE, AND ALEC FRIEDHOFF

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SUMMARY

The slow and uneven recovery from the Great Recession of 2007 to 2009 has prompted leaders in the nation's metropolitan areas to reexamine their economic development goals in the face of fresh challenges. Successful economic development should put a metropolitan economy on a higher trajectory of long-run growth by improving the productivity of individuals and firms in order to raise local standards of living for all people. This means that, at least over the long term, metropolitan areas should seek to achieve **growth** that also increases **prosperity** and **inclusion**. This report launches a new Metro Monitor that examines indicators within each of these three categories for the 100 largest U.S. metropolitan areas, primarily from 2009 to 2014 during the economic recovery from the Great Recession. The Metro Monitor aims to advance new ways of measuring economic success in metropolitan America, and provides criteria and data to help local and regional leaders understand whether economic development is yielding better outcomes. It finds that:

- 1. Economic growth was widespread but uneven among metropolitan areas during the economic recovery.** From 2009 to 2014, 95 of the 100 largest metropolitan areas saw increases in gross metropolitan product, jobs, and aggregate wages, and every large metropolitan area saw gains on at least one of these three measures of economic growth. However, some places boomed while others grew barely at all. Metropolitan areas that specialize in information technology, professional services, energy, and manufacturing saw especially strong growth. Growth was weaker over the course of the recovery for metropolitan areas in the Sun Belt hit especially hard by the housing crisis and for most metropolitan areas in the Northeast.
- 2. Increases in prosperity were not as widespread across metropolitan areas as increases in economic growth.** From 2009 to 2014, 63 of the nation's 100 largest metropolitan areas saw gains in productivity, the average annual wage, and the standard of living. Metropolitan areas with fast-growing technology sectors and those that specialize in professional services saw especially large gains in these measures of prosperity. Metropolitan areas in Central and Southern California, the Intermountain West, and Florida, ranked among the weakest performers on prosperity during the economic recovery.



3. Compared to outcomes in growth and prosperity, improvements in inclusion proved more elusive during the economic recovery. Only eight of the nation's 100 largest metropolitan areas registered increases in their median wage and employment rate, and decreases in their relative income poverty rate, from 2009 to 2014. The median wage declined in 80 of the nation's 100 largest metropolitan areas during this period. Even in metropolitan areas where outcomes for middle- and low-wage workers improved, disparities between whites and people of color often widened.

4. During the economic recovery thus far, few metropolitan areas have achieved gains across growth, prosperity, and inclusion. From 2009 to 2014, only nine large metropolitan areas performed better than the large-metropolitan area average on growth, prosperity, overall inclusion, and inclusion by race. This suggests that places have followed different economic trajectories during the recovery. Some metropolitan economies grew larger by adding workers and jobs while others grew more

prosperous by increasing productivity and average wages. Few saw notable gains in both jobs and prosperity. And in most metropolitan areas, improvements in growth and prosperity did not coincide with better outcomes for middle- and low-wage workers. Where they did, whites usually fared better than people of color.

This edition of the Metro Monitor advances new ways of defining and tracking economic success in metropolitan America. It finds that most metropolitan areas achieved robust growth during the economic recovery. However, economic growth alone, even growth that produces rising living standards, was not enough to assure better outcomes for all groups in a metropolitan area during this period. If metropolitan leaders wish to sustain growth and further improve living standards, their growth strategies must incorporate deliberate efforts to ensure more people are able to share in the benefits of economic growth and prosperity.

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INTRODUCTION

As 2016 begins, the state of the U.S. economy is strong in many respects. Output is expanding at a solid, though not spectacular, pace. Employers have added an average of more than 200,000 jobs per month over the past five years—the longest stretch of private-sector job growth in the nation’s history. As a result, the unemployment rate has fallen to 5 percent. And home prices are up 25 percent from their nadir in late 2011, a significant rebound from one of the Great Recession’s most adverse shocks.

Yet the work to rebuild the economy in the wake of the global financial crisis and Great Recession is far from complete. Jobs remain short of pre-recession levels, after accounting for population growth. The share of adults in work is at a 30-year low. Poverty remains high, wages have stagnated, and earnings for blacks and Latinos are lower than before the recession.

Metropolitan areas—the engines of the U.S. economy—have navigated this slow and uneven recovery amid broader headwinds of globalization, technological change, demographic change, and an increasingly constrained federal government.

The events of the past several years have prompted leaders in the nation’s metropolitan areas to ask tough questions about how best to grow their regional economies. Faced with persistent economic and social challenges in their communities, leaders are reexamining the objectives of their economic development efforts.¹ They know that in order to generate growth, their firms and industries must have the ability to compete in a global economy. But ultimately, that growth must deliver tangible results for workers, families, and communities. And so leaders are searching for new strategies that harness the unique industrial and social structures of their local economies to promote prosperity and inclusion, in addition to growth.

To help inform these leaders’ efforts to shape an advanced economy that works for all, the Brookings Metropolitan Policy Program is launching a new series that examines metropolitan areas’ progress toward these goals.² Since 2009, the Metropolitan Policy

Program has charted the geographically uneven nature of the recession and recovery through its quarterly Metro Monitor, which has illuminated quarterly trends in output, jobs, unemployment, and home prices in the nation’s largest metropolitan areas. This newly expanded edition of the Metro Monitor charts the performance of metropolitan areas across indicators in three broad categories: growth, prosperity, and inclusion. And because progress toward many of these outcomes happens over years rather than months, we examine these trends in metropolitan areas over the long, medium, and short terms of 10 years, five years, and one year.

What follows is an initial exploration of the trends in these three categories within and among the nation’s 100 largest metropolitan areas, a broad analysis that we intend to update annually. Throughout the year, the Metro Monitor series will feature more in-depth analyses of the trends revealed here, including how industry and demographic dynamics shape outcomes on these and other areas of metropolitan areas’ economic performance. Maps, charts, and data from the Metro Monitor are available through a web interactive that allows users to explore these trends across metropolitan areas and over time.



CATEGORIES AND INDICATORS

The Metro Monitor measures the performance of the nation's major metropolitan economies in three critical areas for economic development: growth, prosperity, and inclusion.³ Successful economic development should put a metropolitan economy on a higher trajectory of long-run growth (**growth**) by improving the productivity of individuals and firms in order to raise local standards of living (**prosperity**) for all people (**inclusion**).⁴ This Metro Monitor examines indicators within each of these categories that help assess metropolitan areas' progress toward shaping an advanced economy that works for all. While leaders can use the Metro Monitor as a guide to understanding the success of economic development efforts, it does not attempt to address all relevant dimensions of economic well-being (e.g., public health outcomes or within-metro disparities by place) nor does it track critical inputs to that well-being (e.g., educational attainment or access to capital) that often appear in regional indicators.

This Metro Monitor, like its predecessor series, focuses on measuring the rate of change in these indicators over time in metropolitan areas, rather than their initial or final levels. Metropolitan areas differ greatly in their overall economic size, the standards of living their residents enjoy, and the disparities they exhibit by race and income. Economic development seeks to effect change in these levels over time; hence

we measure that progress here. Thus, the largest, wealthiest, or most inclusive metropolitan economies may not top the Metro Monitor rankings if they are not improving their performance in those categories relative to their peers over the periods examined here: 10 years, five years, and one year. These time periods are meant to capture progress over the long, medium, and short terms.⁵

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GROWTH

Growth indicators capture net change in the total size of a metropolitan area's economy. As a metropolitan economy grows, it creates new opportunities for individuals and can become more efficient as it grows larger. The Metro Monitor measures growth in gross product, number of jobs, and aggregate wages paid to workers.

- **Change in gross metropolitan product (GMP)**—Similar to the national measure of gross domestic product, GMP measures the total value of goods and services produced in a metropolitan economy in constant dollars, including aggregate wages paid to workers and the profits of firms.
- **Change in aggregate wages**—Aggregate wages measures the total value of wages, salaries, and benefits paid to all workers in a metropolitan economy in constant dollars.
- **Change in the number of jobs**—Jobs measure the total number of occupied full- and part-time employment positions in a metropolitan economy.

Changes in these indicators are measured as the percent change in values from the initial to final year of analysis. Change in dollar-denominated indicators is measured in real terms. Data on GMP, jobs, and aggregate wages come from Moody's Analytics.

PROSPERITY

Here, prosperity refers to the wealth and income produced by an economy on a per-capita or per-worker basis. When a metropolitan area grows by increasing the productivity of its workers, through innovation or by upgrading workers' skills, for example, the value of those workers' labor rises. As the value of labor rises, so can workers' wages. Increases in productivity and wages are ultimately what improve the economic well-being of workers and families. In these ways, prosperity indicators together capture the quality of a metropolitan area's economic growth from the standpoint of its workers and residents.

- **Change in productivity**—GMP, from above, divided by the total number of jobs, from above, gives average GMP per job, which is a crude measure of a metropolitan economy's productivity.
- **Change in the average annual wage**—Aggregate wages, from above, divided by the total number of jobs, from above, gives the average annual wage per job in a metropolitan economy.
- **Change in the standard of living**—GMP, from above, divided by total population gives GMP per capita, which reflects a metropolitan economy's average standard of living.

Changes in these indicators are measured as the percent change in values from the initial to final year of analysis. Change in dollar-denominated indicators is measured in real terms. Data on GMP, jobs, and aggregate income come from Moody's Analytics. Data on population come from the U.S. Census Bureau's Population Estimates Program.

INCLUSION

Inclusion indicators measure how the benefits of growth and prosperity in a metropolitan economy—specifically, employment and income—are distributed among people. Inclusive growth enables more people to invest in their skills and to purchase more goods and services.⁶ Thus, inclusive growth can increase human capital and raise the amount of demand, boosting both prosperity and growth. Ensuring that all people can contribute to and benefit from growth and prosperity also helps sustain widespread support for the policies on which growth and prosperity depend.⁷

- **Change in the median wage**—Median wage measures the annual wage earned by the person in the very middle of a metropolitan area's income distribution (among people at least 16 years old who have earned income in the last year).
- **Change in the relative income poverty rate**—Commonly used to measure poverty in other countries, relative income poverty measures the share of people in a metropolitan economy who

earned less than half of the local median wage (among people at least 16 years old who have earned income in the last year).

- **Change in the employment rate**—The employment-to-population ratio measures the share of individuals aged 18 to 65 who are currently employed.⁸

Change in median wage is measured as the percent change, in real terms, in values from the initial to final year of analysis. Changes in relative income poverty and employment rates are measured as the percent change in the rates from the initial to final year of analysis. Data for inclusion indicators come from the Census Public-Use Microdata Series (PUMS) for the 2000 Decennial Census and the 2006 to 2014 American Community Survey (ACS) 1-year estimates. Estimates derived from survey data come with estimates of survey error, which are reported on the Metro Monitor website.

INCLUSION BY RACE/ ETHNICITY

These same inclusion indicators are also used to assess differences in outcomes by race and ethnicity. The values of each of the three inclusion indicators were estimated separately for non-Hispanic whites and for people of color, a group that includes Hispanics, non-Hispanic blacks, non-Hispanic Asians, and people of other races or two or more races. The inclusion by race/ethnicity indicators measure the absolute difference between the estimates for each group on each inclusion indicator (median wage, relative income poverty rate, and employment rate), and metropolitan areas are ranked according to the percent change in those differences. For example, racial disparity in the median wage equals the absolute difference between the median wage among whites and the median wage among people of color. The Metro Monitor thus measures and ranks the percent change in this absolute difference across metropolitan areas over time. This method does not capture differences in inclusion outcomes among individual racial and ethnic groups, because survey data are insufficient for many metropolitan areas. However, estimates for

each of the inclusion indicators are provided on the Metro Monitor website for each race and ethnicity noted above.

COMPOSITE RANKS

Metropolitan areas are assigned composite ranks for each category: growth, prosperity, inclusion, and inclusion by race. Composite ranks are determined by converting the change for each indicator in a category into a standard score. Standard scores measure how a given value varies from the average of a sample. A metropolitan area's scores on each indicator in a category are summed, and the rank of the sum becomes the composite rank for the category. Change for each indicator is measured over three periods of time to produce three composite ranks for each category: one year (2013-2014), five years (2009-2014), and 10 years (2004-2014). Because of data availability, inclusion and inclusion by race are ranked on 15 years of change from 1999 and 2014 rather than 10, as explained in the appendix. The sections below focus primarily on medium-term change in metropolitan areas, the five-year period roughly corresponding to the economic recovery, while offering some analysis of how metropolitan performance in these areas varies across the three periods.

“Successful economic development should put a metropolitan economy on a higher trajectory of long-run growth (growth) by improving the productivity of individuals and firms in order to raise local standards of living (prosperity) for all people (inclusion).”

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GROWTH

Economic growth was widespread but uneven among metropolitan areas during the recovery from the Great Recession. Over the five years from 2009 to 2014, 95 of the 100 largest metropolitan areas saw growth in GMP, jobs, and aggregate wages. And every large metropolitan area saw growth on at least one of these indicators. However, some places boomed while others grew barely at all. Twenty metropolitan areas saw double-digit job growth rates from 2009 to 2014. In Austin, jobs grew by nearly 19 percent. But 10 metropolitan areas saw job growth of less than 2 percent. Two of these, Wichita and Albuquerque, actually saw jobs decline. Trends in GMP and aggregate wage growth were similar.

The unevenness of the recovery shows some notable geographic and industry patterns. Metropolitan areas that specialize in information technology, professional services, energy, or certain types of manufacturing, like automotive or other high value-added durable goods, ranked highly across growth measures from 2009 to 2014 (Figure 1). In the West, coastal metropolitan areas like Seattle, Portland, San Francisco, and San Jose, and Intermountain West metropolitan areas like Provo and Denver, were among the nation's strongest performers on measures of growth during the recovery. These, along with other strong performers in the West, such as Salt Lake City, Ogden, and Boise, have large information technology sectors, broadly defined. Energy- and information technology-focused metropolitan areas in Texas also performed well on growth measures. Several other strong-performing metropolitan areas contain large education or health care sectors, such as Columbus, Louisville, Madison, and Nashville; others boast large manufacturing sectors, like Grand Rapids, Indianapolis, and Detroit. To what extent these industrial specializations or other factors ultimately drove above-average growth in these metropolitan areas deserves further study.

Growth was weaker over the course of the recovery for many metropolitan areas in the Sun Belt and most of those in the Northeast. In Florida, Lakeland, Palm Bay, and Orlando—which were hit hard by the housing bust—continued to struggle through the recovery. A similar pattern affected Albuquerque, Las Vegas, and

Tucson. In the central United States, the trade and distribution-oriented economies of Jackson, Memphis, and St. Louis were some of the recovery's weakest-performing metropolitan areas on growth measures. The manufacturing economies of the eastern Great Lakes, like those in Northeast Ohio or Upstate New York, also saw weak recoveries. In most cases, the slower growth of places in the Northeast reflects the region's longer-run growth trends rather than specific post-recession dynamics.

For the most part, these geographic trends in growth hold for each of the three time periods examined here: 10 years, five years, and one year. Only in Florida and California has the relative performance of metropolitan growth varied markedly from one period to another. Metropolitan areas in California's Central Valley and throughout Florida saw weak net growth over the 10 years from 2004 to 2014 but strong growth in more recent years during the recovery.

The highest-ranking metropolitan areas on overall growth performance typically perform well on each of the three growth indicators: GMP, aggregate wages, and jobs. Places with strong job growth tend to see strong wage growth, and places with strong wage growth tend to see strong GMP growth. Metropolitan areas that fit this pattern include those mentioned above with specializations in information technology, energy, or professional services. This reflects in part how growth indicators are mechanically related to one

Figure 1. Composite growth rankings among the largest 100 U.S. metropolitan areas, 2009-2014

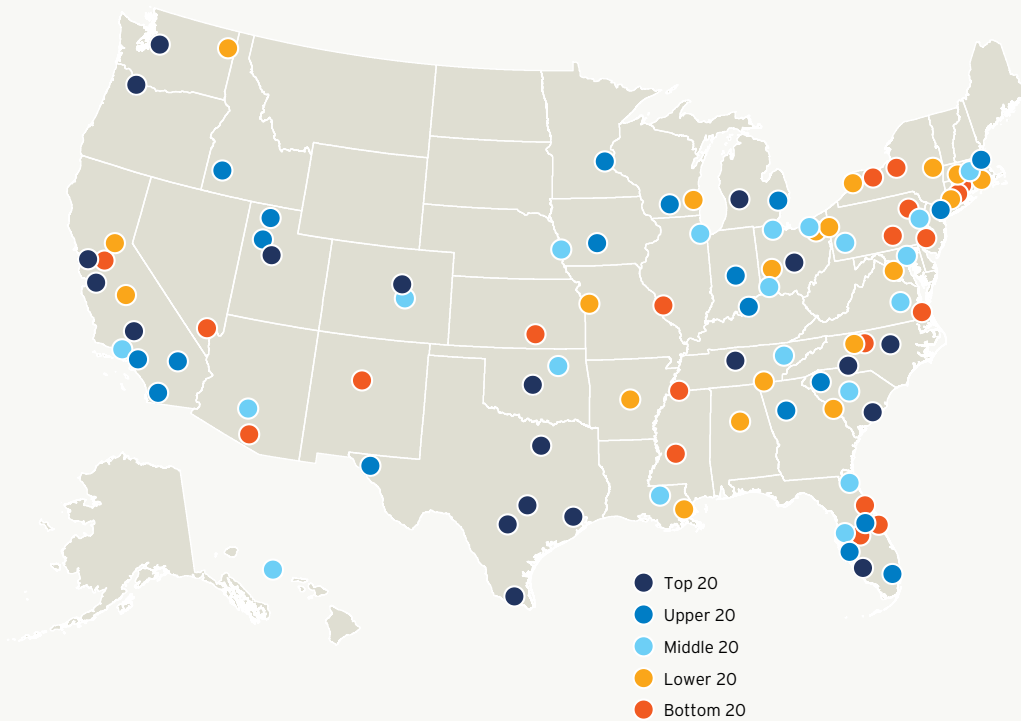
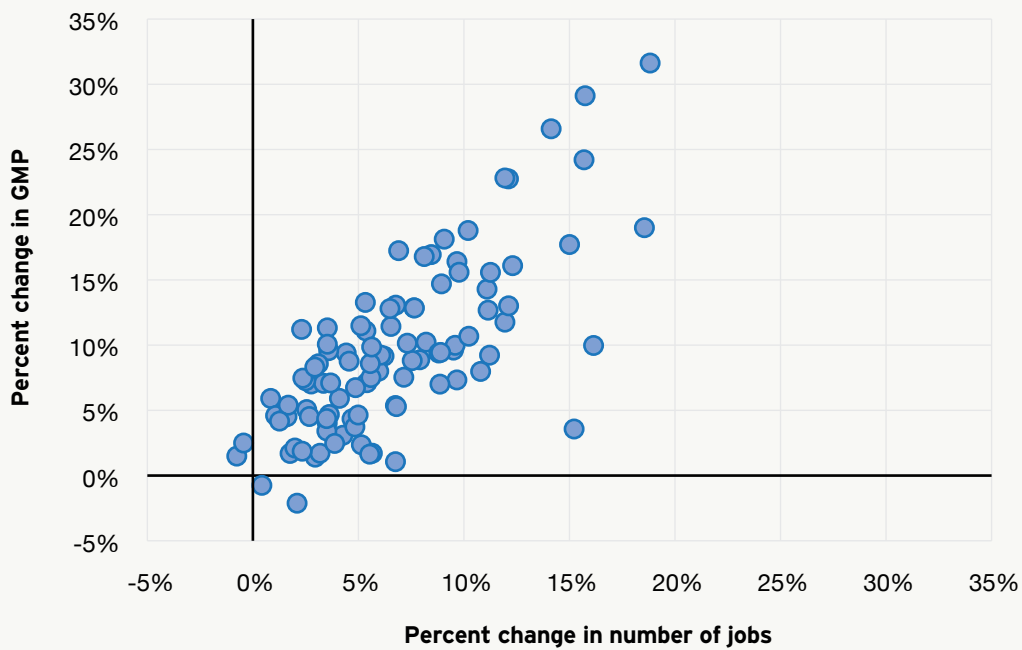


Figure 2. Change in jobs and GMP across the 100 largest U.S. metropolitan areas, 2009-2014



Source: Brookings analysis of Moody's Analytics estimates

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Table 1. Best- and worst-performing metropolitan areas by change in growth, 2009-2014

Rank	MSA	Change in:			Rank	MSA	Change in:		
		GMP	Agg. Wages	Number of jobs			GMP	Agg. Wages	Number of jobs
<i>Top 20</i>					<i>Bottom 20</i>				
1	San Jose, CA	29.1%	38.5%	15.7%	81	Jackson, MS	3.4%	4.7%	3.5%
2	Austin, TX	31.6%	24.5%	18.8%	82	Philadelphia, PA-NJ-DE	4.5%	4.8%	2.7%
3	Houston, TX	26.6%	23.7%	14.1%	83	New Haven, CT	4.7%	2.8%	3.6%
4	Provo, UT	19.0%	21.1%	18.6%	84	Stockton, CA	2.4%	2.8%	5.1%
5	Nashville, TN	24.2%	18.8%	15.7%	85	Rochester, NY	4.0%	3.5%	3.5%
6	Grand Rapids, MI	17.7%	18.7%	15.0%	86	Las Vegas, NV	1.1%	1.4%	6.8%
7	Dallas, TX	22.8%	16.8%	11.9%	87	Deltona, FL	2.5%	4.2%	3.9%
8	San Antonio, TX	22.7%	16.4%	12.1%	88	Harrisburg, PA	4.2%	6.4%	1.3%
9	San Francisco, CA	14.3%	22.4%	11.1%	89	Hartford, CT	1.7%	5.9%	3.2%
10	Charlotte, NC-SC	15.6%	18.1%	11.3%	90	St. Louis, MO-IL	5.4%	4.0%	1.7%
11	Charleston, SC	16.1%	14.6%	12.3%	91	Scranton, PA	4.5%	4.1%	1.6%
12	Cape Coral, FL	10.0%	13.7%	16.1%	92	Greensboro, NC	1.9%	5.3%	2.3%
13	Raleigh, NC	11.8%	18.2%	11.9%	93	Memphis, TN-MS-AR	2.1%	4.0%	2.0%
14	Denver, CO	13.0%	15.9%	12.1%	94	Tucson, AZ	5.9%	0.3%	0.8%
15	Portland, OR-WA	16.4%	15.5%	9.7%	95	Syracuse, NY	4.6%	1.1%	1.1%
16	Seattle, WA	14.7%	17.9%	8.9%	96	Lakeland, FL	-2.1%	4.0%	2.1%
17	Oklahoma City, OK	16.9%	16.3%	8.5%	97	Virginia Beach, VA-NC	1.7%	-0.5%	1.8%
18	McAllen, TX	18.8%	11.4%	10.2%	98	Wichita, KS	1.5%	1.5%	-0.8%
19	Bakersfield, CA	3.6%	18.8%	15.2%	99	Albuquerque, NM	2.5%	-2.3%	-0.4%
20	Columbus, OH	15.6%	13.9%	9.8%	100	Palm Bay, FL	-0.7%	-4.4%	0.4%

Source: Brookings analysis of Moody's Analytics estimates

another: More jobs mean more wages paid to workers; and wages are a chief contributor to GMP. However, as Figure 2 shows, there are exceptions.

Metropolitan areas that ranked low on the composite growth rankings did not necessarily perform poorly on each indicator. Metropolitan areas in California's Central Valley saw average growth in jobs and aggregate wages from 2009 and 2014 but weak growth in GMP. Bakersfield, for instance, ranked sixth on job growth and seventh on aggregate wage growth among the 100 largest metropolitan areas during

this period, but ranked 84th on GMP growth. Orlando, North Port, and Miami registered similar growth patterns. Meanwhile, Pittsburgh and Akron experienced the opposite: weak job growth but relatively strong growth in GMP and aggregate wages. These differences in performance on alternative measures of growth demonstrate that metropolitan areas experience different paths to growth. Prosperity indicators explored below reveal that some metropolitan areas, like Pittsburgh, grew their GMP by becoming more productive. Other metropolitan areas increased GMP and aggregate wages by increasing the average wage.

PROSPERITY

While every large metropolitan area experienced at least some modest growth in GMP, aggregate wages, or jobs, increases in prosperity were not as widespread. From 2009 to 2014, 63 of the nation's 100 largest metropolitan areas saw gains in productivity, the average annual wage, and the standard of living. Seven large metropolitan areas, by contrast, saw declines on all three indicators. Productivity increased almost 12 percent in San Jose. In Pittsburgh and Akron, where output grew fast but jobs grew slowly during the recovery, productivity rose about 6 percent. Meanwhile, in Las Vegas, both productivity and the average wage fell by more than 5 percent. Bakersfield's productivity fell by more than 10 percent.

As with growth, metropolitan performance on prosperity exhibits strong regional and industry patterns (Figure 3). Fast-growing technology strongholds such as San Francisco, San Jose, Seattle, and Portland ranked similarly high on prosperity. Pittsburgh and Boston saw large gains on each prosperity indicator as well. These places also tend to specialize in professional services, a sector that grew during the recession and recovery and pays relatively well. Metropolitan areas in Texas and Oklahoma also saw strong gains in prosperity, indicating that gains from the energy boom—particularly in the high value-added service sectors supporting that boom—may have helped fuel rising productivity and standards of living. While few of the traditional manufacturing strongholds of the Great Lakes region ranked highly on measures of growth during the economic recovery, many did post relatively strong gains in prosperity. A similar pattern prevailed in mid-sized Northeastern metropolitan areas such as Albany, Providence, Springfield, and Worcester.

Metropolitan areas in the Sun Belt, especially Central and Southern California, the Intermountain West, and Florida, ranked among the weakest performers on prosperity during the economic recovery, reflecting their difficulties in shifting from consumption- and housing-oriented economies toward higher-value growth. Other places in the Southeast such as Atlanta, Charleston, and Raleigh that performed well on growth experienced more lackluster productivity

and wage gains. Further north, Virginia Beach and Washington, D.C. saw declines on all three prosperity indicators during the recovery, which may reflect the effects of recent pullbacks in government spending in those metro areas.

Whereas metropolitan areas' performance on growth was fairly consistent across the three periods (10 years, five years, and one year), their performance on prosperity indicators often differed. Metropolitan areas in Texas and Oklahoma, along with Seattle, Portland, San Jose, San Francisco, Boston, and Pittsburgh consistently ranked among the strongest prosperity performers in each window. Stockton, Las Vegas, Augusta, Palm Bay, Lakeland, and Cape Coral consistently ranked among the weakest. However, outside of those places, metropolitan areas' relative performance on prosperity shifted from one period to another. Continuous, comprehensive improvements in prosperity were uncommon. Only 37 of the nation's 100 largest metropolitan areas posted improvements in all three prosperity indicators across all three time periods.

A metropolitan area's improvement on one measure of prosperity was often accompanied by an improvement on another, at least over the medium to long run. From 2009 to 2014, productivity increased in 75 large metropolitan areas. Of these, 72 also saw increases in the local standard of living—an indication that rising productivity is linked to rising standards of



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Figure 3. Composite prosperity rankings among the largest 100 U.S. metropolitan areas, 2009-2014

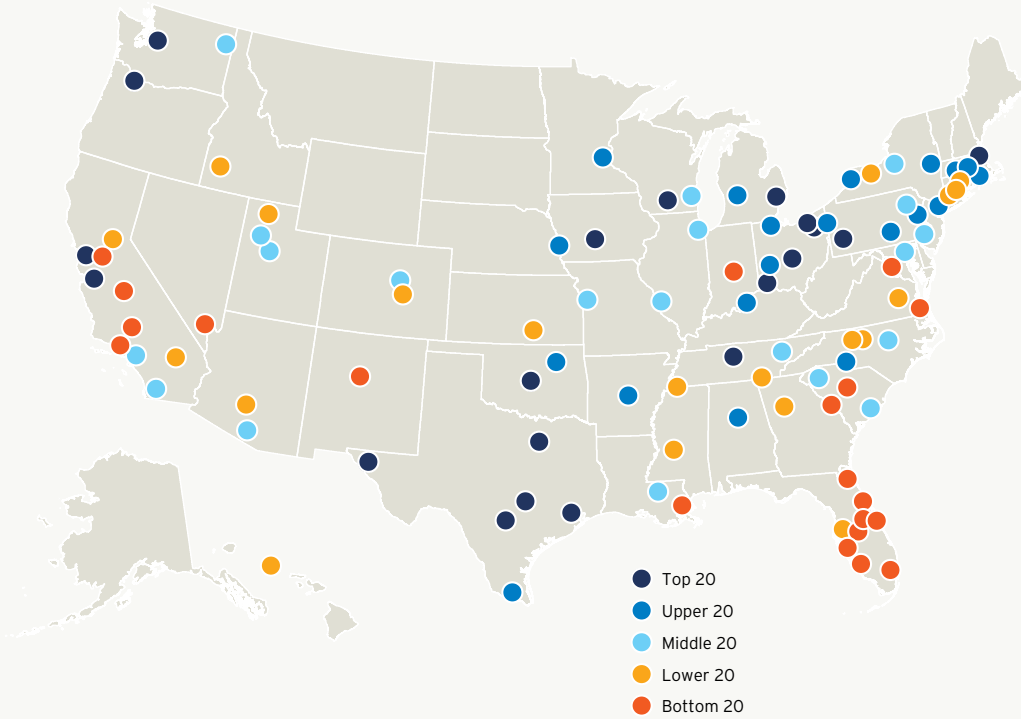
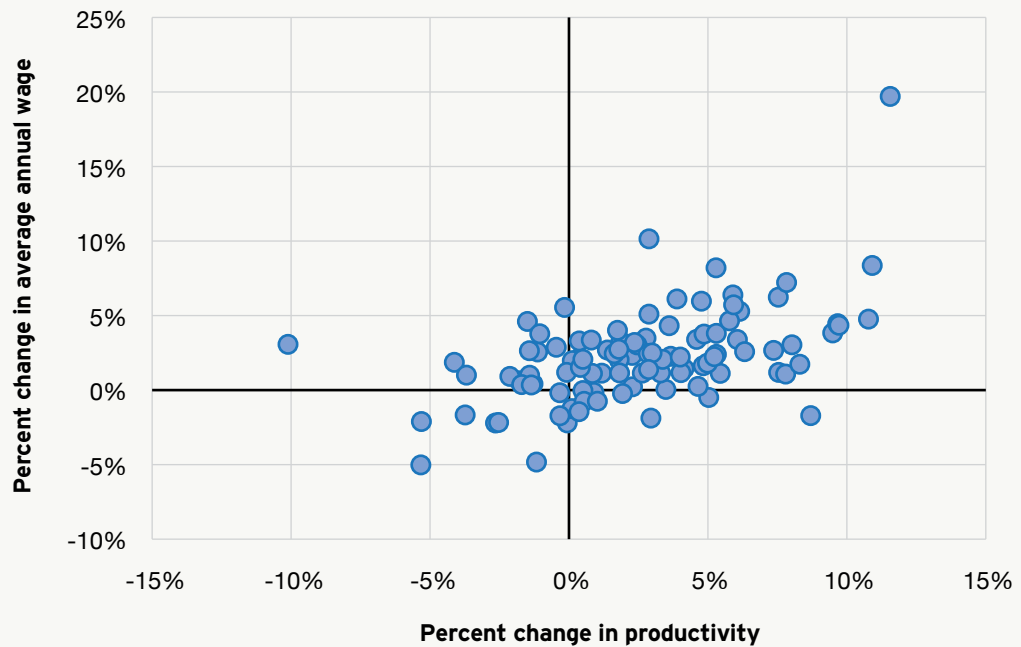


Figure 4. Change in productivity and average wage across the 100 largest U.S. metropolitan areas, 2009-2014



Source: Brookings analysis of Moody's Analytics estimates

Table 2. Best- and worst-performing metropolitan areas by change in prosperity, 2009-2014

Rank	MSA	Change in:			Rank	MSA	Change in:		
		Pro-ductivity	Avg. annual wage	Standard of living			Pro-ductivity	Avg. annual wage	Standard of living
<i>Top 20</i>					<i>Bottom 20</i>				
1	San Jose, CA	11.6%	19.7%	20.3%	81	Oxnard, CA	-1.3%	0.4%	1.5%
2	Houston, TX	10.9%	8.4%	13.6%	82	Columbia, SC	0.4%	-1.4%	2.0%
3	Austin, TX	10.8%	4.8%	14.0%	83	Albuquerque, NM	2.9%	-1.9%	-0.7%
4	Detroit, MI	8.3%	1.7%	18.5%	84	Indianapolis, IN	-1.7%	0.4%	1.7%
5	Dallas, TX	9.7%	4.4%	12.0%	85	Jacksonville, FL	-1.4%	1.0%	-1.0%
6	Pittsburgh, PA	7.5%	6.2%	11.3%	86	Miami, FL	-2.1%	0.9%	-0.4%
7	El Paso, TX	9.7%	4.5%	10.7%	87	Orlando, FL	-1.8%	0.6%	-0.6%
8	Oklahoma City, OK	7.8%	7.2%	8.3%	88	Deltona, FL	-1.4%	0.3%	-1.0%
9	San Antonio, TX	9.5%	3.8%	11.0%	89	Augusta, GA-SC	-0.3%	-1.7%	0.1%
10	Nashville, TN	7.4%	2.7%	14.6%	90	Virginia Beach, VA-NC	-0.1%	-2.2%	-0.9%
11	San Francisco, CA	2.9%	10.1%	7.0%	91	Washington, DC-VA-MD	-0.3%	-0.2%	-3.9%
12	Seattle, WA	5.3%	8.2%	6.7%	92	North Port, FL	-2.5%	-2.2%	0.7%
13	Portland, OR-WA	6.1%	5.3%	9.4%	93	Fresno, CA	-3.7%	1.0%	-3.0%
14	Cleveland, OH	5.8%	4.6%	10.5%	94	Bakersfield, CA	-10.1%	3.1%	-1.7%
15	Madison, WI	5.9%	6.4%	7.3%	95	Lakeland, FL	-4.1%	1.9%	-7.7%
16	Boston, MA-NH	5.9%	5.7%	7.9%	96	Stockton, CA	-2.6%	-2.2%	-3.1%
17	Des Moines, IA	8.0%	3.0%	7.4%	97	Cape Coral, FL	-5.3%	-2.1%	-0.9%
18	Cincinnati, OH-KY-IN	6.1%	3.4%	9.3%	98	New Orleans, LA	-3.7%	-1.7%	-5.1%
19	Columbus, OH	5.3%	3.8%	9.4%	99	Palm Bay, FL	-1.2%	-4.8%	-3.4%
20	Akron, OH	6.3%	2.6%	10.0%	100	Las Vegas, NV	-5.3%	-5.0%	-5.3%

Source: Brookings analysis of Moody's Analytics estimates

living. Only six metropolitan areas saw the standard of living increase without an increase in productivity. Average wage gains tended to accompany larger increases in productivity. Of the 75 places that saw productivity increase during the recovery, 65 also saw the average wage increase (the upper right-hand quadrant of Figure 4). At the same time, the average wage rose in 16 of the 25 places that saw productivity fall, suggesting that, at least over the recovery, improvements in pay were possible without improvements in productivity.

“Whereas metropolitan areas’ performance on growth was fairly consistent across the three periods , their performance on prosperity indicators often differed.”

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INCLUSION

Compared to growth and prosperity, sustained improvements in inclusion proved more elusive during the economic recovery. In fact, only eight of the nation's 100 largest metropolitan areas saw across-the-board improvements in the median wage, relative income poverty rate, and employment rate from 2009 to 2014: Charleston, Chicago, Dayton, Denver, Provo, Salt Lake City, San Jose, and Tulsa.⁹ And only Baton Rouge, Honolulu, New Orleans, and Tulsa achieved similar improvements over the full period from 1999 to 2014.¹⁰

Compared to their performance on growth and prosperity, metropolitan areas' performance on inclusion appears more idiosyncratic, and possibly driven by demographics as much as industry dynamics (Figure 5). During the recovery, for instance, metropolitan areas in the Great Lakes region that saw notable improvements in prosperity also performed well on inclusion. They registered some of the largest increases in the employment rate and the largest decreases in the relative poverty rate among large metropolitan

areas.¹¹ However, this may reflect more of a bounce-back from the devastating effects of the downturn than a surging ahead. Their longer-run performance on inclusion (1999 to 2014) was relatively weak.

On inclusion, a high ranking does not necessarily indicate that a metropolitan area is becoming more inclusive; indeed, it may simply not have fallen as far or as fast as its peers. From 2009 to 2014, the median wage declined in 80 of the nation's 100 largest metropolitan

Figure 5. Composite inclusion rankings among the largest 100 U.S. metropolitan areas, 2009-2014

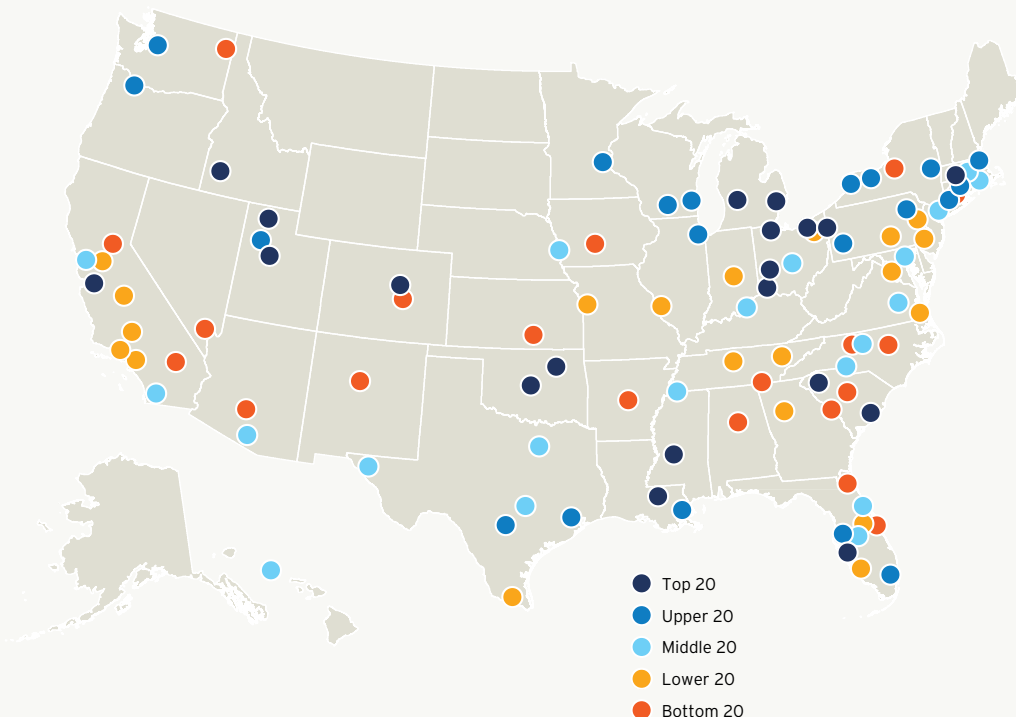
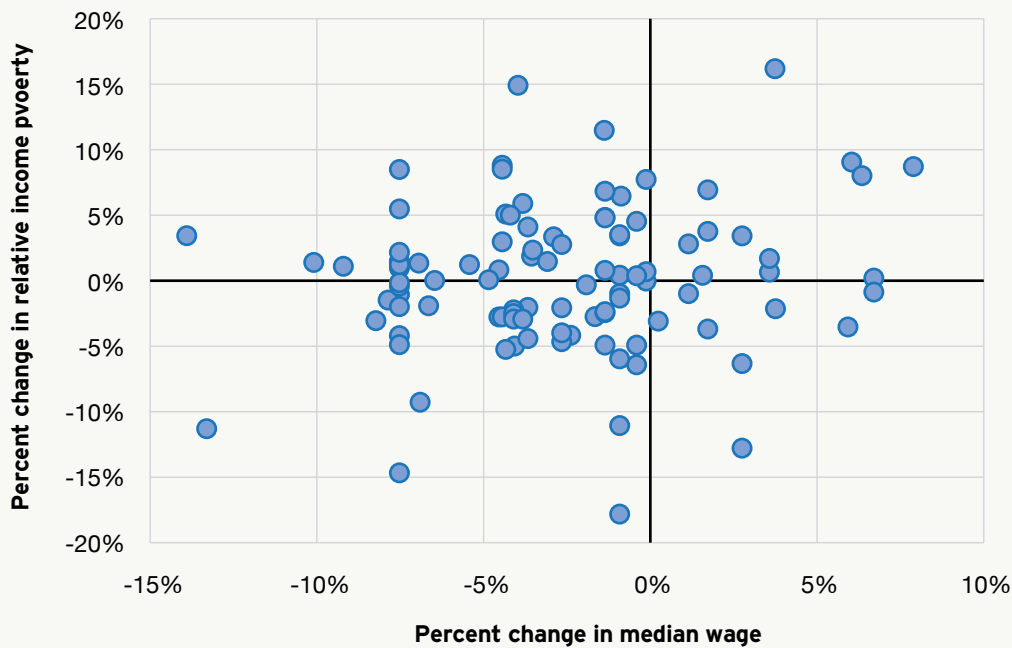


Figure 6. Change in median wage and relative income poverty across the 100 largest U.S. metropolitan areas, 2009-2014



Source: Brookings analysis of American Community Survey microdata

Note: A handful of metropolitan areas share a median wage change of -7.5 percent. This clustering occurs because the American Community Survey reports wages in rounded income categories. Median wages calculated from this data also fall into these discrete categories. In some cases metropolitan areas that experienced only a small change in wage levels will have median wages that fall within the same income category in multiple years—essentially registering no change in median wages in nominal dollar terms. Once adjusted for inflation, this apparent lack of change shows up as a decline of -7.5 percent over the five-year period 2009-2014.

areas. The rate of relative income poverty increased in 53.¹² And although 69 large metropolitan areas saw the employment rate increase from 2009 to 2014, only 23 saw it increase from 1999 to 2014.¹³ Some 17 metropolitan areas saw outcomes worsen on all three indicators from 2009 to 2014, and the same was true in fully 57 metropolitan areas from 1999 to 2014.¹⁴

With even high-ranking metros struggling with inclusivity, the outcomes in metropolitan areas that ranked among the lowest were especially troubling. The median wage declined, the relative poverty rate increased, and the employment rate fell between 2009 and 2014 in eight large Southern metropolitan areas: Augusta, Birmingham, Chattanooga, Greensboro, Jacksonville, Knoxville, Little Rock, and Winston-Salem.¹⁵ Kansas City also saw across-the-board declines on inclusion indicators during the recovery. Performance was not much better in neighboring metropolitan areas in the Great Plains

region such as Des Moines, St. Louis, and Wichita.¹⁶ In California, several places performed well on inclusion overall from 1999 to 2014 but lost ground from 2009 to 2014. Meanwhile, in the Southwest, Las Vegas, Phoenix, Tucson, Albuquerque, and Colorado Springs consistently ranked among the bottom half of metropolitan areas on inclusion outcomes.¹⁷

Trends in each of the three inclusion indicators at the metropolitan level typically bear little relationship to trends in the other indicators. An increase in the median wage, which should indicate rising middle-class wages, seems to have little association with changes in the share of workers in relative income poverty, who by definition earn less than half the median wage (Figure 6). The relative income poverty rate fell in only 8 of the 20 large metropolitan areas that saw the median wage increase from 2009 to 2014.¹⁸ Among the other 80 large metropolitan areas that saw the median wage decline, 39 saw relative

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Table 3. Best- and worst-performing metropolitan areas by change in inclusion, 2009-2014

Rank	MSA	Change in:			Rank	MSA	Change in:		
		Median Wage	Relative Income Poverty	Emp. Rate			Median Wage	Relative Income Poverty	Emp. Rate
<i>Top 20</i>					<i>Bottom 20</i>				
1	Tulsa, OK	2.8%	-12.8%*	6.0%*	81	Chattanooga, TN-GA	-0.4%	4.5%	-2.5%
2	Springfield, MA	-0.9%	-17.8%*	5.4%*	82	New Haven, CT	-7.5%*	-4.9%	-2.7%*
3	San Jose, CA	3.8%	-2.1%	5.4%*	83	Raleigh, NC	-9.2%*	1.1%	0.9%
4	Grand Rapids, MI	-0.4%	-6.4%*	5.5%*	84	Sacramento, CA	-6.9%*	1.3%	-0.7%
5	Detroit, MI	-1.4%	-2.4%	7.7%*	85	Winston, NC	-7.5%*	1.5%	-0.3%
6	Charleston, SC	6.7%	-0.9%	3.5%*	86	Syracuse, NY	-4.3%	5.1%	-0.8%
7	Denver, CO	5.9%*	-3.5%	2.4%*	87	Phoenix, AZ	-4.4%*	8.8%*	0.9%
8	Jackson, MS	-0.9%	-11.1%*	2.9%	88	Little Rock, AR	-0.9%	3.5%	-3.7%*
9	Toledo, OH	-0.1%	-0.0%	7.4%*	89	Spokane, WA	-4.1%	-2.2%	-4.5%*
10	North Port, FL	-0.4%	-4.9%	5.0%*	90	Riverside, CA	-7.9%*	-1.5%	-2.1%*
11	Provo, UT	1.7%	-3.7%	3.9%*	91	Palm Bay, FL	-3.6%	1.9%	-3.4%
12	Greenville, SC	-0.1%	0.7%	6.5%*	92	Des Moines, IA	3.7%	16.2%*	-1.3%
13	Baton Rouge, LA	-0.9%	-6.0%	2.6%	93	Colorado Springs, CO	-7.5%*	1.2%	-2.3%
14	Dayton, OH	2.8%	-6.3%*	0.1%	94	Wichita, KS	-7.5%*	-1.0%	-3.9%*
15	Boise City, ID	3.6%	1.7%	3.0%	95	Jacksonville, FL	-7.5%*	1.0%	-3.8%*
16	Cleveland, OH	-2.7%	-4.7%	3.7%*	96	Birmingham, AL	-7.5%*	5.5%	-2.5%*
17	Ogden, UT	-4.3%	-5.2%	3.8%	97	Las Vegas, NV	-7.5%*	8.5%*	-1.1%
18	Oklahoma City, OK	6.7%*	0.2%	-0.6%	98	Columbia, SC	-13.9%*	3.4%	0.0%
19	Cincinnati, OH-KY-IN	-1.4%	-2.4%	3.0%*	99	Augusta, GA-SC	-4.0%	14.9%*	-3.1%
20	Youngstown, OH-PA	-4.1%	-5.0%	3.2%	100	Albuquerque, NM	-10.1%*	1.4%	-6.6%*

* Denotes change that is statistically significant at the 90 percent confidence level.

Source: Brookings analysis of Moody's Analytics estimates

income poverty rates fall.¹⁹ Likewise, in only a little more than half (37 of 69) of metropolitan areas where the employment rate rose during the recovery did the relative income poverty rate fall.²⁰

Demographic factors as well as economic factors can affect a metropolitan area's performance on inclusion indicators. For example, a metropolitan area that sees rising employment rates could also see a falling median wage and a rising relative income poverty rate, if its rising employment is driven by younger,

less-experienced people earning relatively low wages at entry level jobs. This could explain outcomes in some Sun Belt metropolitan areas that are becoming younger and more diverse. On the other hand, metropolitan areas where a rising portion of the workforce is well-educated may see a rising median wage and a falling rate of relative income poverty. This may help explain the stronger performance of metropolitan areas such as Boise, Denver, Ogden, Provo, and Salt Lake City on inclusion indicators.

INCLUSION BY RACE/ETHNICITY



Race is an important dimension of inclusion outcomes. Gaps in the median wage, relative poverty rate, and the employment rate among different racial and ethnic groups can indicate whether access to opportunity is broadly shared throughout a metropolitan area.

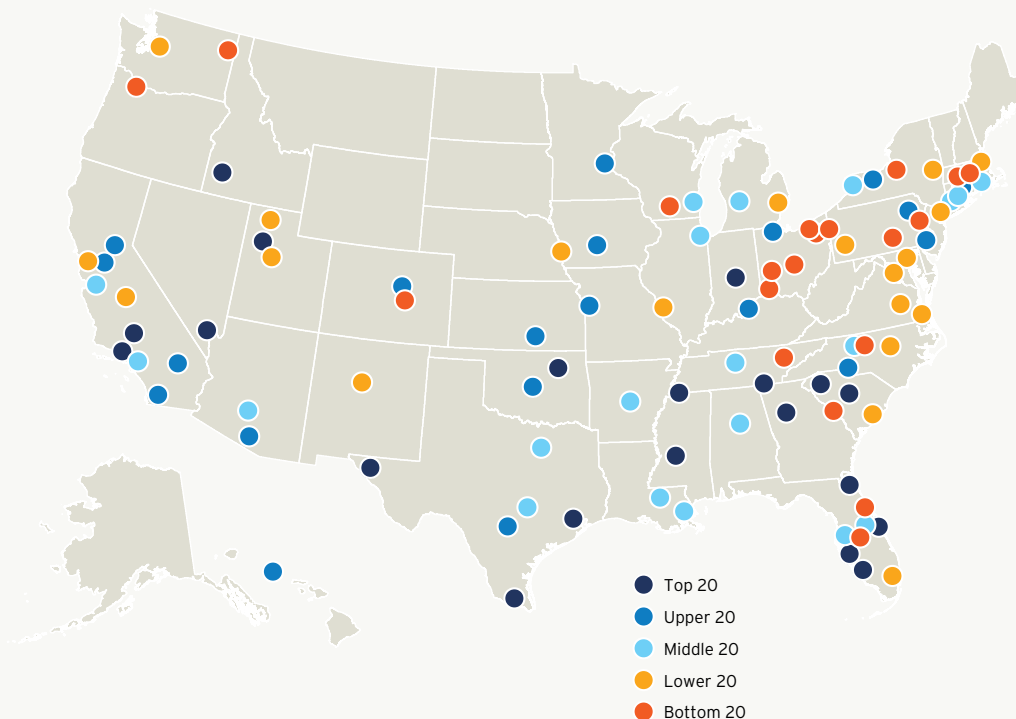
Disparities between whites and other groups widened in most metropolitan areas during the recovery. The median wage gap between whites and people of color grew in 58 of the nation's 100 largest metropolitan areas from 2009 to 2014.²¹ Similarly, the relative income poverty rate gap between whites and people of color grew in 69 large metropolitan areas.²² The gap between the share of working-age whites versus working-age people of color who are employed grew in 33 large metropolitan areas.²³

As these trends suggest, relatively few large metropolitan areas (21 overall) saw disparities between whites and other groups narrow by a significant

margin on all three indicators.²⁴ On the other hand, just 19 metropolitan areas experienced widening gaps between whites and people of color across all three indicators.²⁵ Most metropolitan areas saw a combination of growing and shrinking gaps on racial and ethnic inclusion.

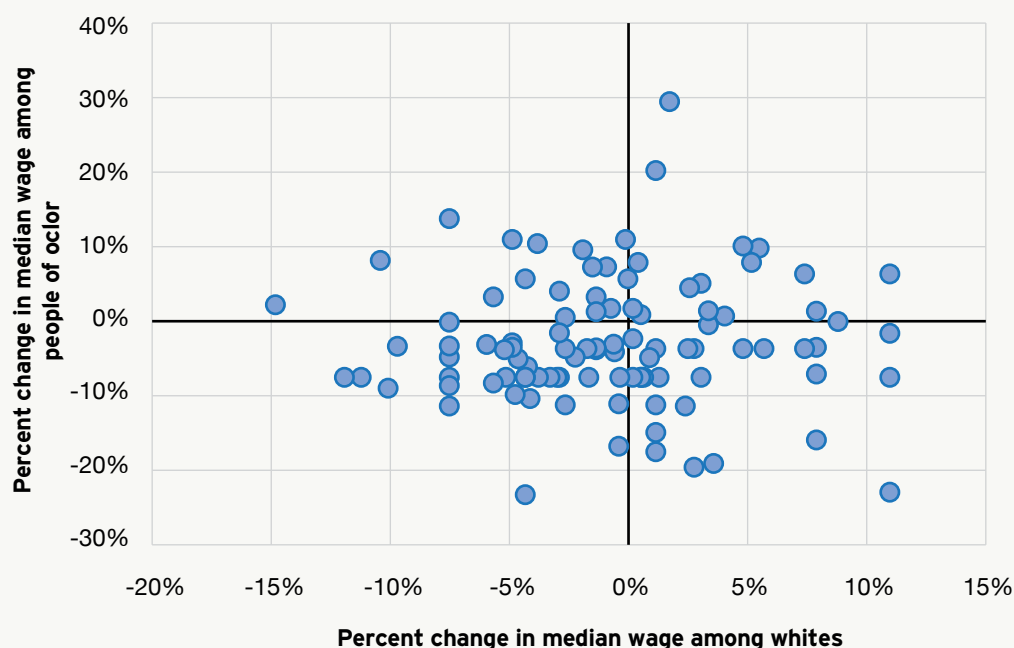
Trends in the three racial inclusion indicators varied greatly across metropolitan areas. From 2009 to 2014, the gap between the median wage among whites versus people of color shrank by one-third in Salt Lake City, from \$10,800 to \$7,300. Meanwhile, in Madison, that gap more than doubled, from \$6,500 to \$16,100. On rates of relative income poverty, the gap between

Figure 7. Composite racial inclusion rankings among the largest 100 U.S. metropolitan areas, 2009-2014



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Figure 8. Change in median wages among whites and people of color across the 100 largest U.S. metropolitan areas, 2009-2014



Source: Brookings analysis of Moody's Analytics estimates

whites and people of color shrank by more than half in Chattanooga, from 14 to 6 percentage points. But in San Diego, the same gap increased by nearly two-thirds, from 5 to 9 percentage points. Ogden and Bakersfield had nearly closed the gap in employment rates among races by 2014 after decreasing the disparity from 10 and 6 percentage points, respectively, to 1 percentage point each. In Washington, D.C., by contrast, that employment rate gap increased by more than one-third, from 4 to 6 percentage points.²⁶

Surprisingly, many of the metropolitan areas that achieved the best outcomes in overall inclusion from 2009 to 2014 posted the worst outcomes in racial and ethnic inclusion. This suggests that in metropolitan areas where inclusion outcomes were relatively stable or improving, whites often benefited most. For example, metropolitan areas in the Great Lakes region that performed relatively well on overall inclusion saw stable or increasing median wage and employment rates for whites, but a falling median wage and a falling employment rate for people of color. The divergent outcomes between whites and people

of color are most evident in median wage growth (Figure 8). In Cleveland, the white median wage rose 8 percent between 2009 and 2014, but fell 7 percent among people of color.²⁷ Other metropolitan areas that saw headline improvements in overall inclusion, like Detroit and Columbus, also saw similar wage splits between whites and people of color.²⁸

Meanwhile, gaps between whites and people of color often shrank in metropolitan areas where overall inclusion outcomes deteriorated especially fast. This usually indicated that economic outcomes for whites worsened more than those for people of color. Metropolitan areas like Bakersfield, Las Vegas, McAllen, Oxnard, and Riverside-San Bernardino performed poorly on overall inclusion during the recovery, yet posted strong showings on racial inclusion in each time period. In Bakersfield and McAllen, the median wage among people of color rose even as the median wage for whites remained flat.²⁹ In Oxnard, the median wage fell 12 percent among whites and 8 percent among people of color, narrowing the considerable gap from \$19,600 in 2009 to \$14,100 in 2014.³⁰

Table 4. Best- and worst-performing metropolitan areas by change in racial inclusion, 2009-2014

Rank	MSA	Change in:			Rank	MSA	Change in:		
		Median Wage	Relative Income Poverty	Emp. Rate			Median Wage	Relative Income Poverty	Emp. Rate
<i>Top 20</i>					<i>Bottom 20</i>				
1	Cape Coral, FL	-22.8%	-96.3%*	-88.2%	81	Cincinnati, OH-KY-IN	45.3%*	99.6%	-17.5%
2	Las Vegas, NV	-7.5%	-50.2%*	-76.6%*	82	Cleveland, OH	42.8%*	27.4%	-2.1%
3	Bakersfield, CA	-7.5%	-9.7%	-78.4%*	83	Springfield, MA	20.2%	117.2%	32.7%
4	Chattanooga, TN-GA	-19.6%	-54.9%*	-53.5%*	84	Colorado Springs, CO	29.5%	171.2%	18.3%
5	Salt Lake City, UT	-32.7%*	-20.4%	-31.6%	85	Syracuse, NY	10.0%	-3.0%	65.2%
6	Boise City, ID	-15.9%	-26.4%	-46.6%	86	Columbus, OH	58.5%*	114.1%*	-12.7%
7	Jackson, MS	-26.0%*	-26.1%	-30.0%	87	Portland, OR-WA	-0.3%	2.7%	96.3%
8	North Port, FL	-19.1%	-49.0%	-38.4%	88	Worcester, MA-CT	29.5%	17.8%	67.4%
9	McAllen, TX	-28.1%	-55.6%	-22.5%	89	Knoxville, TN	54.1%	120.0%	22.5%
10	Oxnard, CA	-18.4%	-31.7%	-36.8%	90	Youngstown, OH-PA	78.6%	85.9%	-9.4%
11	Indianapolis, IN	-19.6%*	-36.8%*	-34.4%*	91	Dayton, OH	85.0%	8.4%	-9.8%
12	El Paso, TX	-31.9%	36.4%	-20.9%	92	Greensboro, NC	3.9%	34.2%	119.7%
13	Atlanta, GA	-19.9%*	-32.4%*	-31.3%*	93	Harrisburg, PA	45.3%	138.3%	78.3%
14	Greenville, SC	2.8%	14.7%	-69.4%*	94	Akron, OH	66.8%*	149.4%	45.8%
15	Memphis, TN-MS-AR	-14.6%	4.6%	-37.6%*	95	Madison, WI	146.6%*	210.4%	-58.4%*
16	Columbia, SC	-20.0%	-0.6%	-17.8%	96	Allentown, PA-NJ	67.8%*	1371.7%	22.3%
17	Houston, TX	1.7%	16.0%	-52.0%*	97	Spokane, WA	131.2%	121.4%	46.9%
18	Jacksonville, FL	4.0%	9.0%	-51.9%*	98	Deltona, FL	42.3%	237.5%	214.3%
19	Palm Bay, FL	4.8%	214.4%	-68.9%	99	Augusta, GA-SC	73.4%*	200.7%	249.3%
20	Tulsa, OK	-7.5%	-46.8%	-27.0%	100	Lakeland, FL	26.1%	5202.8%	-32.0%

* Denotes change that is statistically significant at the 90 percent confidence level.
 Source: Brookings analysis of Moody's Analytics estimates

As with the overall inclusion indicators, relationships among the three racial inclusion indicators appear weak. As noted above, fewer than half of the nation's 100 largest metropolitan areas saw across-the-board increases or decreases in indicators of racial inclusion. Many metropolitan areas exhibit strong performance on one indicator of racial inclusion and weak performance on another. Tampa ranked eighth on reducing the gap in the employment rate between whites and people of color from 2009 to 2014, but its sizable increase in the median wage gap ranked it 85th on that indicator. Dallas saw no significant change in racial disparities in the median wage or employment

rate but saw the gap in the relative poverty rate grow between whites and people of color. Different factors appear to influence outcomes for different racial and ethnic groups across the three economic inclusion indicators in each metropolitan area.

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CAN METRO AREAS ACHIEVE SUSTAINABLE GROWTH, PROSPERITY, AND INCLUSION?

Recent trends suggest that metropolitan areas can make progress toward growth, prosperity and inclusion at the same time. However, strong performance on all three outcomes at once is exceptional. From 2009 to 2014, only nine large metropolitan areas performed above the average of all large metropolitan areas taken together on growth, prosperity, overall inclusion, and inclusion by race.³¹ Four were in Texas and Oklahoma: Dallas, Houston, Oklahoma City, and San Antonio. Two were on the West Coast: San Jose and Seattle. And three were located in the Midwest: Grand Rapids, Minneapolis St. Paul, and Louisville.

Metropolitan areas that sustained above-average performance on all these outcomes over the short, medium, and long terms were more exceptional still. Over the one year from 2013 to 2014, nine metropolitan areas performed above average on all four dimensions, and 14 did so over the long-term (2004 to 2014 for growth and prosperity, and 1999 to 2014 for inclusion). But only two performed above average over the short term, the medium term, and the long term: Houston and San Jose.

While few metropolitan areas performed consistently above average on growth, prosperity, and inclusion over time, few performed consistently below average as well. Over the year from 2013 to 2014, eight metropolitan areas performed below the large metropolitan average in all four areas: Baltimore, Birmingham, Bridgeport, Colorado Springs, Knoxville, Madison, New Haven, and Washington, D.C. During the recovery from 2009 to 2014, 12 places did. And over the long term, 18 metro areas performed below average in all

Table 5a. Metropolitan areas that performed above the large metro average across every composite category, 2009-2014

MSA	Rankings			
	Growth	Prosperity	Inclusion	Inclusion by Race
Dallas, TX	7	5	44	58
Grand Rapids, MI	6	22	4	42
Houston, TX	3	2	35	17
Louisville, KY-IN	33	30	45	28
Minneapolis, MN-WI	29	26	24	30
Oklahoma City, OK	17	8	18	35
San Antonio, TX	8	9	22	24
San Jose, CA	1	1	3	60
Seattle, WA	16	12	30	62

Source: Brookings analysis of Moody's Analytics, Census population, and American Community Survey data

Table 5b. Metropolitan areas that performed below the large metro average across every composite category, 2009-2014

MSA	Rankings			
	Growth	Prosperity	Inclusion	Inclusion by Race
Albuquerque, NM	99	83	100	74
Augusta, GA-SC	73	89	99	99
Baltimore, MD	51	52	55	73
Colorado Springs, CO	58	75	93	84
Greensboro, NC	92	77	50	92
Knoxville, TN	55	54	69	89
Lakeland, FL	96	95	54	100
Richmond, VA	59	66	51	72
Spokane, WA	76	55	89	97
Syracuse, NY	95	57	86	85
Virginia Beach, VA-NC	97	90	78	69
Washington, DC-VA-MD	71	91	72	77

Source: Brookings analysis of Moody's Analytics, Census population, and American Community Survey data

four categories. Yet only two large metropolitan areas performed below-average in all four categories over the short-, medium-, and long-term periods: Colorado Springs and Knoxville.

These trends suggest that metropolitan areas typically saw mixed degrees of success on these different outcomes. From 2009 to 2014, 21 of the nation's 100

largest metropolitan areas saw either above-average or below-average performance in all four categories. The other 79 metropolitan areas performed above average in at least one category but below average in at least one other. And metropolitan areas' performance tended to be similarly mixed over the short- and longer-term periods.

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Moreover, the statistical relationships between metropolitan areas' performance across categories were relatively weak. A metropolitan area that saw strong gains on growth, relative to its peers, did not necessarily see similarly strong gains on prosperity. Similarly, metropolitan performance on prosperity did not tend to be associated with its performance on inclusion.

For example, 41 of the nation's largest 100 metropolitan areas performed above the average of their peers on growth during the recovery period. While most of these 41 also performed above-average on inclusion by race, only a little more than half out-performed metropolitan averages on prosperity and overall inclusion. Likewise, 48 of the nation's 100 largest metropolitan areas performed above average on prosperity but only about half of these also performed above average on growth at the same time. About two-thirds of those metropolitan areas performed better-than-average on overall inclusion, but their performance on growth and inclusion by race was more mixed.

That metropolitan areas exhibited mixed degrees of success on these different outcomes suggests that they followed different paths toward their growth, prosperity, and inclusion outcomes. Some, like Bakersfield, added workers. However, Bakersfield's impressive job growth wasn't accompanied by notable

increases in productivity or the average wage. So although more people became employed from 2009 and 2014 in Bakersfield, residents did not become much more prosperous, on average. Other metropolitan areas achieved notable gains in prosperity despite not adding many jobs. Pittsburgh ranked 73rd on job growth among the 100 largest metropolitan areas from 2009 to 2014 but 30th on output growth, driven by rising average wages. Meanwhile, Akron's above-average output growth was driven by increases in both productivity and the average wage.³²

Regardless of whether a metropolitan economy grew by adding workers and jobs or by becoming more productive, the gains from these outcomes in terms of new employment and income often failed to boost inclusion, the hardest outcome to achieve and sustain. The modest increases in prosperity, specifically in the average annual wage, that most metropolitan areas posted during the economic recovery seem to have disproportionately benefited higher earners rather than middle-or low-wage workers. Of the 81 metropolitan areas that saw an increase in the average wage during the recovery, only one-fourth (20) saw the median wage rise as well, and fewer than half (38) achieved decreases in the relative poverty rate. Even in places where outcomes in overall inclusion improved, gaps between races often widened.

"From 2009 to 2014, only nine large metropolitan areas performed above the average of all large metropolitan areas taken together on growth, prosperity, overall inclusion, and inclusion by race."



CONCLUSION

Economic growth that improves standards of living for all people is possible, but not as common as one might hope. This new Metro Monitor finds that metropolitan economies can simultaneously achieve a higher trajectory of long-run growth, improve the productivity of individuals and firms, raise local standards of living for all people and close gaps by race and income. However, only two of the nation's 100 largest metropolitan areas consistently met that standard over time, although several other metropolitan areas made progress on different timelines.

These results suggest that economic growth alone, even growth that produces rising living standards, does not reliably assure better outcomes for all groups in a metropolitan area. At the same time, some metropolitan areas have managed progress on prosperity and inclusion outcomes in the absence of robust growth, a path that merits deeper scrutiny, especially for slower-growing areas of the country.

Above all, this Metro Monitor aims to advance new ways of measuring economic success in metropolitan America, and its interactive website offers new tools for helping leaders chart their progress. This analysis provides metropolitan leaders with ways of benchmarking the economic progress of their place against peers over three time periods. However, this is not the only lens that matters. Metropolitan leaders can also

use the Metro Monitor data platform to measure their current progress against past trends to better understand if they are succeeding at putting their metropolitan economies on a “higher trajectory of growth.”

Over the next several months, the Brookings Metropolitan Policy Program will publish additional analyses as part of the Metro Monitor series to help metropolitan leaders explore whether they are improving the trajectory of their local economy. These analyses will seek to help these leaders understand in greater depth the factors and trends that contribute to or hinder progress toward continuously increasing growth, prosperity, and inclusion in metropolitan America, and how new models of economic development can help deliver an advanced economy that works for all. ■

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APPENDIX

This study uses Census Bureau microdata to examine inclusion outcomes in metropolitan areas, including by race. It uses microdata from the 2000 Decennial Census from the University of Minnesota's Integrated Public Use Microdata Series (IPUMS).³³ Data from the 2000 Decennial Census were collected in 1999 and all estimates refer to that year. It also uses microdata from the 2006 to 2014 American Community Survey (ACS), which come from the Census Bureau's ACS Public Use Microdata Sample (PUMS) files.³⁴ Data from the ACS 1-year estimates were collected throughout the course of the year in question but refer to the survey respondent's employment status and wages during the last 12 months.

GEOGRAPHIES

Each observation in the microdata from the Decennial Census and ACS is assigned to a unit of geography called a Public Use Microdata Area (PUMA). PUMAs represent the smallest, most detailed level of geography available in the public use files, with each PUMA covering an area of at least 100,000 residents to preserve survey respondents' anonymity. PUMAs do not overlap; they fully partition each state into contiguous areas. Depending on the population in a region, PUMAs can encompass entire counties and groups of counties or cover part of a county.³⁵ As such, PUMAs can be grouped into near (but not always perfect) approximations of metropolitan areas. This can be achieved by assigning PUMAs to counties, and counties to metro areas. PUMAs were assigned to metropolitan areas for this study using the Office of Management and Budget's 2013 metropolitan area definitions. The Census Bureau changes its PUMA definitions ever few years. For each year of data, we assigned PUMAs to metropolitan areas using the Office of Management and Budget's 2013 metropolitan area definitions.

SAMPLING ERRORS

As a survey of a sample of the U.S. population, the ACS is subject to sampling error. Moreover, to avoid disclosing the identities of survey respondents, the Census Bureau releases a subset of the full ACS sample for public use. This means that the PUMS-based estimates are doubly subject to sampling error. Measures of this error were computed as part of this study to assess statistical significance of estimates.

Population and wage variables required different methods of calculating standard errors. For the employment-to-population ratio and relative income poverty rate, standard errors were calculated using Census-provided replicate weights. Standard errors for the median wage were calculated using the Census Bureau's design factors methodology.

Each observation in the ACS microdata stand in for a variable number of people, depending on demographic characteristics of the individuals sampled. Weights are assigned to each respondent that represent the number of people for whom he or she stands

in. The ACS microdata files come with 80 sets of these weights, each of which is an alternative weight. These replicate weight estimates often differ from estimates computed using the main weights. To calculate standard errors, we computed estimates for each replicate weight, in addition to the reported estimate calculated using the main set of weights. We then find the variability between the reported estimate and the 80 replicate estimates to compute a standard error for the metric.³⁶

Replicate weights generally provide approximations of standard errors that are more accurate than weights derived using the design factors methodology. However, replicate weight standard errors for the median wage can sometimes take on a value of zero due to rounding in the wage levels reported in the ACS. To circumvent this, we use the design factors methodology to calculate standard errors for the median wage. The design factors method for the median wage is a multiple-step procedure that begins with computing an initial estimate of the standard error and confidence interval based on inputs such as the number of people in a demographic group and a “design factor” constant that is specific to geography and year. Income levels and their corresponding distributional percentiles matching the upper and lower bounds of the confidence interval are then used to arrive at the final standard error.³⁷ We then transform standard errors for median wage levels to compute the appropriate standard errors for the percent change and mean absolute difference in the median wage.³⁸

ENDNOTES

1. Brookings' Metro Solutions website contains stories, lessons, and resources from metropolitan areas that are advancing the things that matter: making investments, building networks, and launching and stewarding initiatives that create an advanced economy that fuels economic growth, income, and opportunity. It is available at <http://www.brookings.edu/research/reports2/2016/01/metropolitan-solutions-map>.
2. For more information about the need to build an advanced economy that works for all, see "Achieving an Advanced Economy that Works for All: The Brookings Metropolitan Policy Program in 2016 and Beyond," available at <http://www.brookings.edu/research/papers/2016/01/06-advanced-economy-for-all-metropolitan-policy-program-berube>.
3. The Metro Monitor uses the U.S. Office of Management and Budget's 2013 Metropolitan Statistical Area definitions for the entire period of analysis and identifies the 100 largest U.S. metropolitan areas based on their population in 2010 as reported in the 2010 Decennial Census.
4. This definition of "successful economic development" is adapted from arguments put forward in a 2014 report to the U.S. Economic Development Administration authored by Maryann Feldman and others titled, "Economic Development: A Definition and Model for Investment." It is also influenced by Michael Spence's discussion of the economic and political dynamics of growth and development in his 2012 book, "The Next Convergence: the Future of Economic Growth in a Multispeed World." The definition used here, however, is our own.
5. As with any analysis of change over time, this Metro Monitor analysis is sensitive to the choice of the start and end dates. Our choice of 2014 as the end year for the analysis reflects availability of the most recent, complete data for most of the indicators used here. Our choice of start years was influenced by a desire to assess progress not from one month or one quarter to the next, but over the longer periods of time that capture broader economic transformation. However, using fixed 10-, five-, and one-year increments does not allow us to capture the different timing and impact of business cycles upon metropolitan economies' performance. For instance, metropolitan areas that reached their economic low point in 2009 may look stronger over the 2009 to 2014 period relative to metropolitan areas that bottomed out either before or after 2009. Similarly, the 2004 to 2014 period begins at some metropolitan areas' pre-recession high point, like Detroit and New Orleans, which may make their 10-year growth look more modest relative to metropolitan areas that reached their peaks later on. The Metro Monitor series website contains a more detailed look at metropolitan areas' economic progress within and across these time periods.
6. Most economists reason that some inequality is necessary to provide incentives and rewards for the innovation and entrepreneurship that propel growth. However, many recent studies suggest that inequality can impair growth if incomes among a large enough segment of society become so low that individuals cannot make the necessary investments in themselves to stay healthy and productive. If an individual does not have access to the education required to be productive in a well-paying job, he or she will have to accept a lower-paying job or no job at all. If many people lack this access, the economy as a whole might face imbalances in the supply of skills and flow of incomes. In their book, "The Race between Education and Technology," economists Claudia Goldin and Lawrence Katz find that a slowdown in the growth of educational attainment after 1980 limited growth in the supply of skills in the United States, leading to a surplus of low-skilled workers, a dearth of higher-skilled ones, and a rise in wage polarization. Goldin and Katz blame this slowdown on limited financial access to increasingly expensive post-secondary education required by so many jobs in today's economy, among other factors. Without access to education or well-paying jobs, peoples' health can suffer. In a 2015 study, economists Anne Case and Angus Deaton argue that the shrinking employment opportunities and low incomes that are part and parcel of the nation's increasing inequality have led to the rising morbidity and mortality rates observed among lower-educated middle-aged non-Hispanic whites. The authors show that these deteriorating health outcomes have contributed to declining employment rates and costly public fiscal transfers. Some economists have also suggested that inequality can decrease consumption or, worse, lead to unsustainable borrowing that threatens financial stability. Economists at the Federal Reserve Bank of St. Louis and Washington University in St. Louis argue in a 2014 study, "Inequality, the Great Recession, and slow recovery," that slow income growth and rising inequality prompted excessive borrowing by many Americans in the years leading up to the Great Recession, and that this borrowing was a contributing cause of the recession and slow recovery.
7. Economic inclusion may be important to sustain both political and fiscal support for growth-oriented policies. International Monetary Fund economists Andrew Berg and Jonathan Ostry, in a paper entitled, "Inequality and unsustainable growth: Two sides of the same coin?" find a positive relationship between a country's level of income inequality and the likelihood that its economic expansion will end, and point to several political channels that could mediate that relationship. A 2014 report by the credit rating agency Standard and Poor's titled, "How increasing income inequality is dampening U.S. economic growth, and possible ways to change the tide," found that increasing income inequality in the United States poses a risk to some states' finances. The Case and Deaton study mentioned in the prior note also shows that the deteriorating health of less-educated middle-aged Americans—which the authors attribute to rising inequality—can contribute to rising government expenditures on Medicare, Medicaid, and Social Security Disability Insurance.
8. We refer to this indicator—the employment-to-population ratio—as the "employment rate" in the text, for narrative ease. In labor market economics, the term "employment rate" is used to indicate the share of the labor force in work, and is thus different from the employment-to-population ratio.
9. Due to sample size limitations in the American Community Survey data, margins of error for inclusion and inclusion by race/ethnicity measures can be large for some metropolitan areas. In such cases, changes over time are not statistically significant and so cannot be stated with certainty. Of the eight metropolitan areas that experienced improvements in all three inclusion indicators, none experienced statistically significant improvements across the board at the 90 percent confidence level.
10. Of the four metropolitan areas that saw improvements across the three inclusion measures, improvements were statistically significant only in Tulsa and Honolulu.
11. Out of the 16 metropolitan areas in the Great Lakes region, 15 experienced improvements in their employment rates between 2009 and 2014. These improvements were statistically significant in eight cases. Similarly, nine metropolitan areas in the Great Lakes region saw decreases in the relative income poverty rate; these decreases were statistically significant in two cases.
12. Of the 80 metropolitan areas that saw a decline in the median wage, the decline was statistically significant in 28 cases. Of the 53 metropolitan areas that saw an increase in the relative income poverty rate, the increase was statistically significant in nine cases.
13. Of the 69 metropolitan areas that saw an increase in the employment rate between 2009 and 2014, the increase was statistically significant in 25 cases. Of the 23 metropolitan areas that saw an increase in the employment rate between 1999 and 2014, the increase was statistically significant in 18 cases.

14. Of the 23 metropolitan areas in which outcomes declined across all three inclusion indicators between 2009 and 2014, none experienced statistically significant deteriorations across all indicators. Of the 57 metropolitan areas that saw outcomes worsen across all indicators between 1999 and 2014, 23 saw statistically significant deteriorations in all three indicators.
15. The decline in median wages was statistically significant in Birmingham, Jacksonville, and Winston-Salem. The Increase in the relative income poverty rate was statistically significant in Augusta. The decline in employment rate was statistically significant in Birmingham, Jacksonville, and Little Rock.
16. Wichita and St. Louis saw statistically significant declines in median wages. Des Moines experienced a statistically significant increase in the relative income poverty rate. Wichita saw a statistically significant decrease in its employment rate.
17. Albuquerque, Colorado Springs, Las Vegas, and Phoenix all saw statistically significant declines in median wages. Las Vegas and Phoenix experienced a statistically significant increase in the relative income poverty rate. Albuquerque saw a statistically significant decline in its employment rate while Tucson saw a statistically significant improvement.
18. Of the 20 metropolitan areas that saw an increase in median wages, three saw a statistically significant increase. In none of the eight metropolitan areas that saw both an increase in median wages and a decline in relative income poverty were the changes statistically significant on both counts.
19. Of the 80 metropolitan areas that saw median wages decline, the decline was statistically significant in 28 of them. Of the 39 metropolitan areas that experienced both declining median wages and relative income poverty rates, two experienced statistically significant declines in both indicators.
20. Of the 69 metropolitan areas that saw employment rates increase, 25 experienced a statistically significant increase. Of the 37 metropolitan areas that experienced both increasing employment rates and declining relative income poverty rates, three experienced statistically significant changes in both indicators.
21. Nine of these 58 metropolitan areas showed a statistically significant increase in racial disparities in median wage.
22. Seven of these 69 metropolitan areas showed a statistically significant increase in racial disparities in relative income poverty.
23. One of these 33 metropolitan areas showed a statistically significant increase in racial disparity in the employment rate.
24. Only two of these 21 metropolitan areas saw statistically significant decreases across all three racial inclusion measures.
25. None of these 19 metropolitan areas saw a statistically significant increase across all three racial inclusion measures.
26. All instances of changes in this paragraph were statistically significant.
27. The increase in the median wage for whites was statistically significant; the decrease for people of color was not statistically significant.
28. The increase in white median wages was statistically significant in Detroit but not Columbus; the decrease in median wages for people of color was statistically significant in Columbus but not Detroit.
29. Neither changes in median wages for whites nor for people of color were statistically significant in Bakersfield and McAllen.
30. The decrease in white median wages was statistically significant in Oxnard; the decrease in median wages for people of color was not statistically significant in this metropolitan area.
31. In this Metro Monitor, “above-average performance” refers to composite scores that are greater than zero in a given category. As explained in the section on categories and indicators, composite ranks are determined by calculating the standard score on each indicator in a category and then summing the scores. Standard scores measure a value’s variance or “distance” from the average of a sample. In this analysis, a weighted average for all large metropolitan areas is used to calculate standard scores for each indicator. Thus, a standard score of zero for a given indicator would mean that a metropolitan area’s performance was identical to that of all 100 large metropolitan areas taken together. By summing the standard scores across indicators in a category and comparing that sum to zero to determine above- or below-average performance, we are generalizing about performance across indicators. A metropolitan area could have a standard score of less than zero on one indicator in a category but a composite score for the category that is greater than zero.
32. This analysis of how productivity and average wages contributed to GMP growth decomposes nominal changes in productivity and average wages into what they would have been absent job growth, and then assesses the contribution of each subcomponent, including job growth, to nominal changes in GMP.
33. Integrated Public-Use Microdata Series provided by the Minnesota Population Center at the University of Minnesota, available at <https://www.ipums.org/> (accessed October 2015).
34. U.S. Census Bureau American Community Survey Public Use Microdata Sample, available at <https://www.census.gov/programs-surveys/acs/data/pums.html> (accessed October 2015).
35. For more information, see <https://www.census.gov/programs-surveys/acs/technical-documentation/pums/about.html> and https://usa.ipums.org/usa-action/variables/PUMA#description_section
36. For a detailed description of the replicate weights methodology, see pages 12-14 in http://www2.census.gov/programs-surveys/acs/tech_docs/pums/accuracy/2014AccuracyPUMS.pdf
37. For a detailed description of the design factors methodology as applied to estimates of a median, see pages 16-17 in http://www2.census.gov/programs-surveys/acs/tech_docs/pums/accuracy/2014AccuracyPUMS.pdf
38. For instructions on transforming standard errors for derivative measures, see http://www2.census.gov/programs-surveys/acs/tech_docs/statistical_testing/2014StatisticalTestingIear.pdf

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