Metro Monitor 2020

Metro Monitor tracks the economic performance of the nation's metropolitan areas along three dimensions critical to successful economic development: **growth**, **prosperity** and **inclusion**. 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). As in past years, Metro Monitor 2020 includes indicators within each of these categories that track a metropolitan area's progress toward inclusive economic growth. The Monitor measures changes in these indicators over two periods—one year (2017 to 2018) and 10 years (2008 to 2018)—to capture short- and long-term progress.

This year, for the first time, Metro Monitor measured and ranked the performance of 192 metropolitan areas on each indicator within its population size class: **53 very large** metro areas (populations of at least 1 million in 2018); **56 large** metro areas (populations of 500,000 to 999,999 in 2018); and **83 midsized** metro areas (populations of 250,000 to 499,999 in 2018).

Measuring growth

Growth indicators measure change in the size of a metropolitan area economy and the economy's level of entrepreneurial activity. Growth creates new opportunities for individuals and can help a metropolitan economy become more efficient. Entrepreneurship plays a critical role in growth, creating new jobs and new output; entrepreneurial activity can also indicate investors' confidence in future growth and prosperity. The economic dynamism associated with entrepreneurship contributes to productivity and wage growth. Metro Monitor measures growth in gross metropolitan product (GMP), number of jobs, and number of jobs at young firms.

- **Change in gross metropolitan product (GMP).** Like gross domestic product, GMP measures the total value of goods and services produced in a metropolitan area, including wages and profits.
- **Change in the number of jobs.** Jobs measure the total number of occupied full- and part-time wage and salaried employment positions in a metropolitan economy.
- **Change in the number of jobs at young firms.** The change in the total number of full- and part-time wage and salaried jobs at private sector firms active for five years or less measures the employment impact of entrepreneurship in a metropolitan area.

Changes in these indicators are measured as the percent change in values from the initial to final year of analysis. Change in GMP is measured in inflation-adjusted terms. Data on GMP and jobs are from Emsi, and data on jobs at young firms are from the U.S. Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) program.

Measuring prosperity

Prosperity captures changes in the average wealth and income produced by an economy. When a metropolitan area grows by increasing the productivity of its workers—through innovation or by upgrading workers' skills, for example—the value of the workers' labor rises. As the value of labor rises, so can wages. Increases in productivity and wages ultimately improve living standards for workers and families and the competitiveness of metropolitan economies.

- **Change in the average wage.** Aggregate annual wages paid to workers divided by the total number of jobs yields the average annual wage per job in a metropolitan economy.
- **Change in productivity.** GMP divided by the total number of jobs yields average GMP per job, a crude measure of a metropolitan economy's productivity.
- **Change in the standard of living.** GMP divided by total metropolitan population yields GMP per capita, which reflects a metropolitan economy's average standard of living.

Changes in these indicators are measured as the percent change in inflation-adjusted values from the initial to final year of analysis. Data on GMP, jobs, and aggregate wages are from Emsi, and data on population are from the U.S. Census Bureau's Population Estimates Program.

Measuring inclusion

Inclusion indicators measure how the benefits of growth and prosperity in a metropolitan economy—specifically, changes in employment and income—are distributed among individuals. Inclusive growth enables more people to invest in their skills and purchase more goods and services. Thus, inclusive growth can increase human capital and raise aggregate demand, boosting 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.

- **Change in the employment rate.** The employment rate, or employment-to-population ratio, measures the share of individuals age 18 to 64 who are currently employed.
- **Change in median earnings.** Median earnings measures annual wages and salaries earned by a worker in the middle of a metropolitan area's earnings distribution (among workers at least 16 years old).
- **Change in the relative poverty rate.** Commonly used to measure poverty in other countries, relative poverty measures the share of workers earning less than half of median earnings for the metropolitan area (among workers at least 16 years old).

Change in median earnings is measured as the percent change in inflation-adjusted values from the initial to final year of analysis. Changes in relative poverty and employment rates are measured as the percentage point change in those rates from the initial to final year of analysis. Data for inclusion indicators are from the Census Bureau's Public Use Microdata Samples (PUMS) for the 2008 through 2018 American Community Survey (ACS) 1-year estimates.

Racial inclusion

Metro Monitor uses these same inclusion indicators, data sources, and methods to measure differences in inclusion outcomes by race and ethnicity. Racial inclusion indicators measure the change over time in the gap between the non-Latino or Hispanic white population and people of color (i.e., all other individuals) on indicators of inclusion: employment rate, median earnings, and relative poverty rate. While people of color and white populations are not economically homogeneous, the two categories provide a consistent, available yardstick across metro areas for examining first-order indications of racial and ethnic disparities.

Geographic inclusion

For the first time, Metro Monitor 2020 also uses comparable inclusion indicators to examine differences in inclusion outcomes by geographic location. Geographic inclusion indicators measure the change in the gap between the top 20% and bottom 20% of a metropolitan area's census tracts, identified separately for each indicator of inclusion: employment rate, median household income, and relative earnings poverty rate. Data for the geographic inclusion indicators come from the American Community Survey 5-Year Data Profiles. Thus, the data for these indicators are reported only for the long-run period, and represent changes between two five-year periods: 2009 to 2013 and 2014 to 2018.

- **Change in the employment rate gap:** Change in the gap between the aggregate employment rate (as defined above) for the 20% of tracts with the highest employment rate in each year and the 20% of tracts with the lowest employment rate in each year.
- **Change in the median household income.** Change in the gap between median income for all households in the 20% of tracts with the highest median household income in each year and the 20% of tracts with the lowest median household income in each year.
- **Change in the relative earnings poverty rate.** Change in the gap between the aggregate relative poverty rate (as defined above) for the 20% of tracts with the highest relative poverty rate in each year and the 20% of tracts with the lowest relative poverty rate in each year.

Because this approach identifies the top 20% and bottom 20% of tracts for each indicator and in each year, geographic inclusion indicators reflect the experiences of different neighborhoods within metropolitan areas across indicators and time.

Generating composite ranks for growth, prosperity, and inclusion

Metropolitan areas are assigned composite ranks in each of the index's five categories: growth, prosperity, inclusion, racial inclusion, and geographic inclusion. A metropolitan area's composite rank in a category is determined by the sum of its standard scores for each indicator in that category. A standard score measures how a metropolitan area's value on a particular indicator varies from the values of all metropolitan areas within its size class (very large, large, or midsized). The rank of a metropolitan area's summed standard scores in a category is its

composite rank for the category. Composite ranks for each category are provided for two periods of time: one year (2017 to 2018) and 10 years (2008 to 2018). Geographic inclusion ranks are only provided for the 10-year period, representing changes between 2009 to 2013 and 2014 to 2018.

The data

Metro Monitor 2020 draws on data from Emsi and the U.S. Census Bureau. Emsi provides proprietary estimates of jobs, wages, and gross domestic product by industry that are based on official statistics published by the U.S. Bureau of Labor Statistics and the U.S. Bureau of Economic Analysis. Metro Monitor also uses data from two U.S. Census Bureau programs: the Longitudinal Employer-Household Dynamics (LEHD) program, and the American Community Survey (ACS).

Census LEHD

Metro Monitor uses Quarterly Workforce Indicators (QWI) data from the Census Bureau's LEHD program to examine the number of jobs at firms by the firms' age by county. The authors aggregate county-level QWI data into metropolitan areas. Though illuminating, using LEHD's QWI data requires some care. First, states' participation in LEHD is optional. As a result, time coverage varies across states. Notably, data for Massachusetts first appear in the QWI series in the first quarter of 2010, and reliable firm-age data from Wyoming, Alaska, and South Dakota are not available after the last quarter of 2016. The second challenge is that these data are seasonally unadjusted. Finally, more recently, the LEHD program experienced a several-quarter lag between data release and adjustment of the firm-age series. To account for these facets of the data, the authors use the end-of-quarter employment data for the period from the fourth quarter of 2007 to the fourth quarter of 2017 to examine 10-year differences in hiring by young firms, and the period from the fourth quarter of 2016 to the fourth quarter of 2017 to examine one-year differences. Because there are only eight years of complete data for Massachusetts, the 10-year indicator for four metropolitan areas with portions inside Massachusetts (Boston, Springfield, Providence, and Worcester) is not reported. In addition, because complete data for Alaska and South Dakota do not exist after 2016, no indicator is reported for either the one-year or 10-year periods for the two metropolitan areas in these states (Sioux Falls, S.D. and Anchorage, Alaska). Finally, data for the Nashville, Tenn. metro area are not reported due to data quality concerns.

Census ACS

Metro Monitor uses data from the Census Bureau's American Community Survey to examine inclusion outcomes in metropolitan areas, including by race and geography. For inclusion and racial inclusion, the authors use microdata from the 2008 to 2018 ACS, which come from the Census Bureau's PUMS files. The Census Bureau collects data for ACS one-year estimates throughout the course of the year in question, but reported data refer to survey respondents' employment status and wages during the last 12 months.

The authors used several techniques for analyzing the microdata that merit description:

- Each observation in the microdata from the 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 people 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. 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 2018 metropolitan area definitions. The Census Bureau permits changes to PUMA definitions every few years. For each year of data, the authors assigned PUMAs to metropolitan areas using the Office of Management and Budget's 2018 metropolitan area definitions.

- To protect the anonymity of survey respondents, the Census Bureau masks wages of some individuals in the published microdata. This masking creates certain inconsistencies. To address this, the authors calculated median earnings from the microdata by interpolating between author-defined earnings bins immediately less than and greater than the 50th percentile in earnings for each metro area. This interpolation method is analogous to one used by the Bureau of Labor Statistics to calculate quarterly median wages from the Current Population Survey. Within each metro area, resident earnings are adjusted to 2018 dollars using the Bureau of Economic Analysis's Personal Consumption Expenditures (PCE) index and grouped into $500 bins. The proportion of metro area residents whose incomes fall into each income bin and those below it is summed to find the cumulative frequency associated with each bin. Using linear interpolation, the authors find the midpoint between the maximum income in the greatest income bin whose cumulative frequency is less than 50%, and the maximum income in the least income bin whose cumulative frequency is greater than 50%.

The above measure of median earnings is used to calculate the relative income poverty rate, which is defined as the share of working residents with incomes less than half of a metro area's median income among all workers.

For geographic inclusion indicators, which rely on analysis at the census tract scale, authors employed American Community Survey 5-year Data Profiles. Rather than gaps in median earnings, Metro Monitor reports gaps in median household income between the top and bottom census tracts in each metropolitan area. Those medians are estimated by pooling categorical household income data for the 20% of tracts with the highest median household income and lowest median household income, respectively, and then using linear interpolation to arrive at the median value.

As a survey of a sample of the U.S. population, the ACS is subject to sampling error. Small changes in inclusion indicators across time may very well reflect sampling error rather than true changes in the condition of underlying residents/neighborhoods, and should be interpreted with caution.

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