



The Size of U.S. Metropolitan Areas

by: Jordan Rappaport and McKenzie Humann

May 24, 2021

We delineate U.S. metropolitan areas that more closely match common perceptions of their boundaries.

RWP21-02, May 2021; updated July 2023

Metropolitan areas are a fundamental unit of economic analysis, but official U.S. delineations stray egregiously from the conception of them as unions of built-up locations within which people regularly travel among places of residence, employment, and consumption. We develop an algorithm that uses commuting flows among census tracts to match varied interpretations of this conception. The resulting family of metropolitan delineations exhibits four characteristics: Population probability distributions decline over their entire domain. They are also too bunched at the top relative to the bottom to be consistent with a Pareto benchmark. Land probability distributions peak at an intermediate size. And land area increases less than proportionately with population, with an implicit elasticity that declines further below 1 with size. The land-population relationship suggests that centripetal forces, such as centralized employment and centralized amenities, constrain metropolitan expansion.

JEL Classification: R12, R23, R41

Article Citations

- Humann, McKenzie, and Jordan Rappaport. 2021. "The Size of U.S. Metropolitan Areas." Federal Reserve Bank of Kansas City, Research Working Paper no. 21-02, May. Available at <https://doi.org/10.18651/RWP2021-02>

Related Research

- Eeckhout, Jan. 2004. "Gibrat's Law for (All) Cities." *American Economic Review*, vol. 94, no. 5, pp. 1429-1451. Available at <https://doi.org/10.1257/0002828043052303>
 - Rozenfeld, Hernan D., Diego Rybski, Xavier Gabaix, and Hernan A. Makse. 2011. "The Area and Population of Cities: New Insights from a Different Perspective on Cities." *American Economic Review*, vol. 101, no. 5, pp. 2205-2225. Available at <https://doi.org/10.1257/aer.101.5.2205>
-

Author



Jordan Rappaport Senior Economist

Jordan Rappaport is a senior economist at the Federal Reserve Bank of Kansas City. He joined the Bank in 1999 following completing his Ph.D. in economics at Harvard University. Jordan also holds a bachelors' degree from Brown University, from which he graduated in 1990. Jordan's research focuses on issues related to local growth. His articles for the Bank's *Economic Review* primarily focus on U.S. metropolitan area growth and on housing. His empirical research published in peer-reviewed journals has documented the persistence and causes of long run local population growth. His published theoretical research shows that even small costs associated with moving are sufficient to cause high persistence in net population flows and that small productivity and amenity differences can cause very large differences in local population density. Jordan is an associate editor of *Regional Science and Urban Economics* and the *Journal of Regional Science*.
