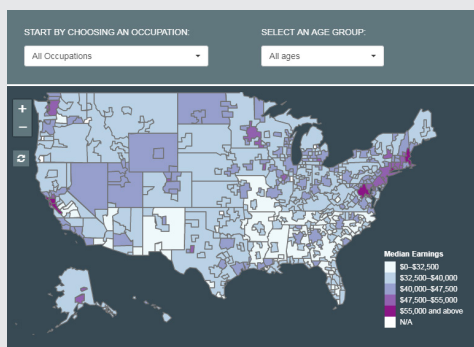


# THE HAMILTON PROJECT

## Where Work Pays Occupations & Earnings across the United States

TECHNICAL APPENDIX B:  
INTERACTIVE WAGE BIN CONSTRUCTION  
JULY 2018



## Where Work Pays Occupations and Earnings across the United States


This [interactive feature](#) allows users to see the distribution of annual earnings across the United States for a given occupation and age group, adjusting for cost of living and taxes. Users can compare wages by metropolitan and nonmetropolitan area, or by state.

THE HAMILTON PROJECT Advancing Opportunity, Prosperity, and Growth

### Where Work Pays

How Does Where You Live Matter for Your Earnings?

Lauren Bauer, Audrey Debbasaw, Ryan Foley, and Jay Strimling  
JULY 2018



INTERACTIVE WAGE BIN CONSTRUCTION

#### Where Work Pays

Occupations and Earnings across the United States

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Educational and occupational choices matter for your earnings, but where you work matters, too. Employment opportunities and wages in some occupations vary substantially from state to state, county to county, and city to city. One location might be a great place to earn a living as a nurse but not as a construction worker (e.g., New Orleans, Louisiana), while a different location might be the opposite (e.g., Utica, New York). In this [economic analysis](#) we look at some of the ways that typical earnings in an occupation—and the value of those earnings after adjusting for taxes and cost of living—vary across the United States. We also examine some of the reasons why places have such different labor markets.

Over the past few years, The Hamilton Project has shared research with leads to help workers—and particularly young adults, from college graduates to recent graduates—make decisions regarding their education and careers. These web tools and research reports also help illustrate workings of the labor market and their implications for educational investments, which in turn are vital for preparing broadly-based economic growth.

In our newest research feature, [Where Work Pays, Occupations and Earnings across the United States](#), users can see how typical earnings in occupations vary across metropolitan (metro) and nonmetropolitan (nonmetro) areas in the United States. They can also see how earnings by occupation change when adjusted for cost of living, state and federal income taxes.

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## Where Work Pays How Does Where You Live Matter for Your Earnings?

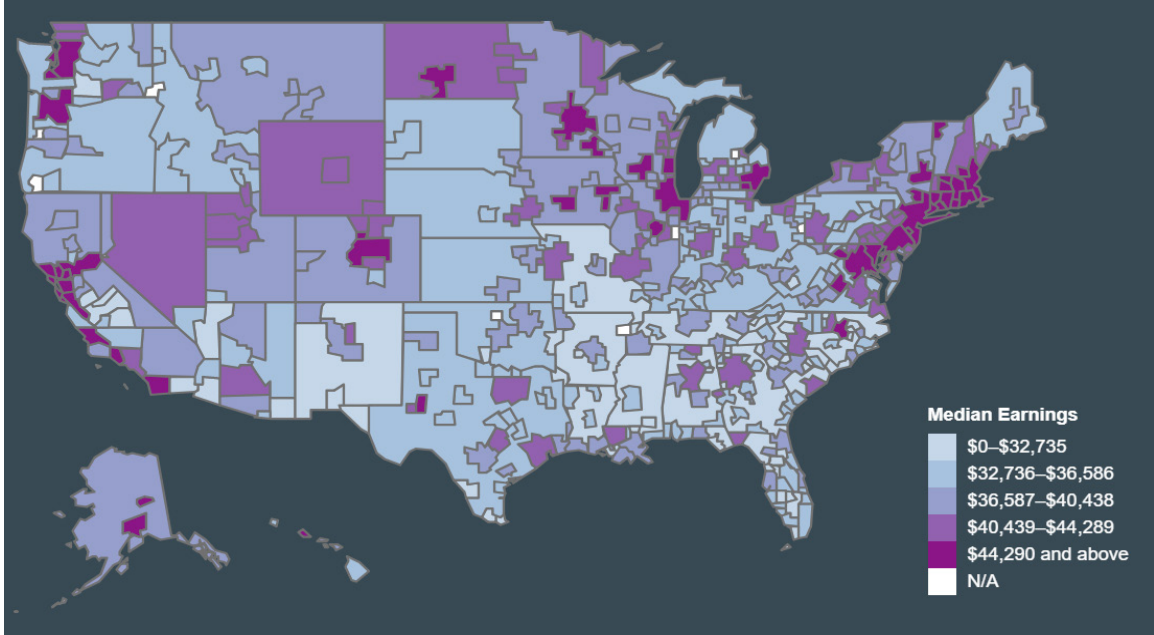
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# Technical Appendix B: Interactive Wage Bin Construction

In the Hamilton Project interactive “Where Work Pays,” the color of a metropolitan or state non-metropolitan area is determined based on ranges of wages. The five wage bins (i.e., the wage ranges) in the interactive are determined based on the distribution of median earnings across locations for the given criteria used in the interactive (i.e., the combination of occupation, age, and tax or cost of living adjustment, if selected). The central bin contains places with median earnings between 5 percent above and 5 percent below the median location in the country. The adjoining two bins contain places with median earnings 5-15 percent above the median and 5-15 percent below the median. The outermost bins are 15 percent or more above or below the median. Note that the median is the earnings of the median place, not the population-weighted national median (which is shown in the bar chart below the map).

When all occupations and all ages are selected, with no adjustments for cost of living or taxation, 10 percent of regions fall in the lowest category, 28 percent fall in the second-lowest bin, 27 percent of the regions fall in the middle category, 26 percent fall in the second-highest category, and 8 percent fall in the highest category, generating the map seen below.

FIGURE 1.  
Median Annual Earnings for All Occupations, by Location

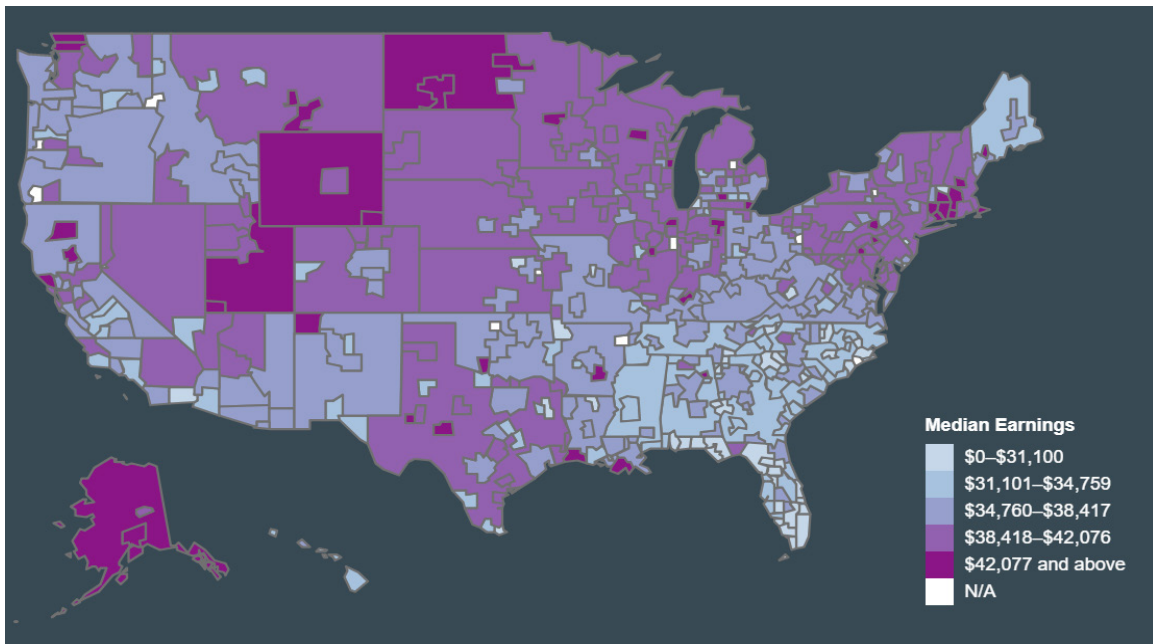


Source: American Community Survey 2012–16; authors’ calculations.  
Note: Data include state nonmetro portions and metro areas. Metro areas with fewer than 30 full-time workers or with no PUMA with more than 50 percent of its population located in that metro area are shown in gray stripes. Values are in 2016 dollars. Data include individuals ages 25–64.

Not all occupations follow the same distribution of wages, and hence fill the bins differently, thereby generating maps with different appearances. For example, truck drivers have more homogenous earnings across regions, giving rise to the more monotone map seen below.

FIGURE 2.

### Median Annual Earnings for Truck, Delivery, and Tractor Drivers, by Location



Source: American Community Survey 2012–16; authors' calculations.

Note: Data include state nonmetro portions and metro areas. Metro areas with fewer than 30 full-time workers or with no PUMA with more than 50 percent of its population located in that metro area are shown in gray stripes. Values are in 2016 dollars. Data include individuals ages 25–64.

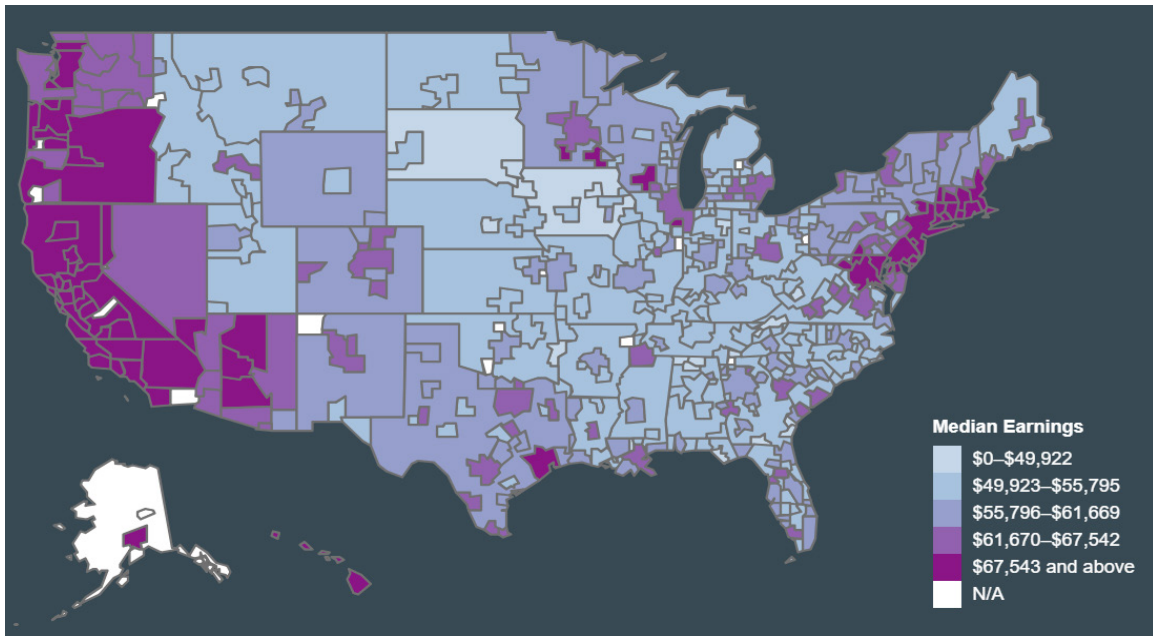


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Conversely, some occupations have earnings that are more varied across the country. For example, registered nurses show more variation. See the [economic analysis](#) accompanying this interactive for more detail.

FIGURE 3.

### Median Annual Earnings for Registered Nurses, by Location



Source: American Community Survey 2012–16; authors' calculations.

Note: Data include state nonmetro portions and metro areas. Metro areas with fewer than 30 full-time workers or with no PUMA with more than 50 percent of its population located in that metro area are shown in gray stripes. Values are in 2016 dollars. Data include individuals ages 25–64.

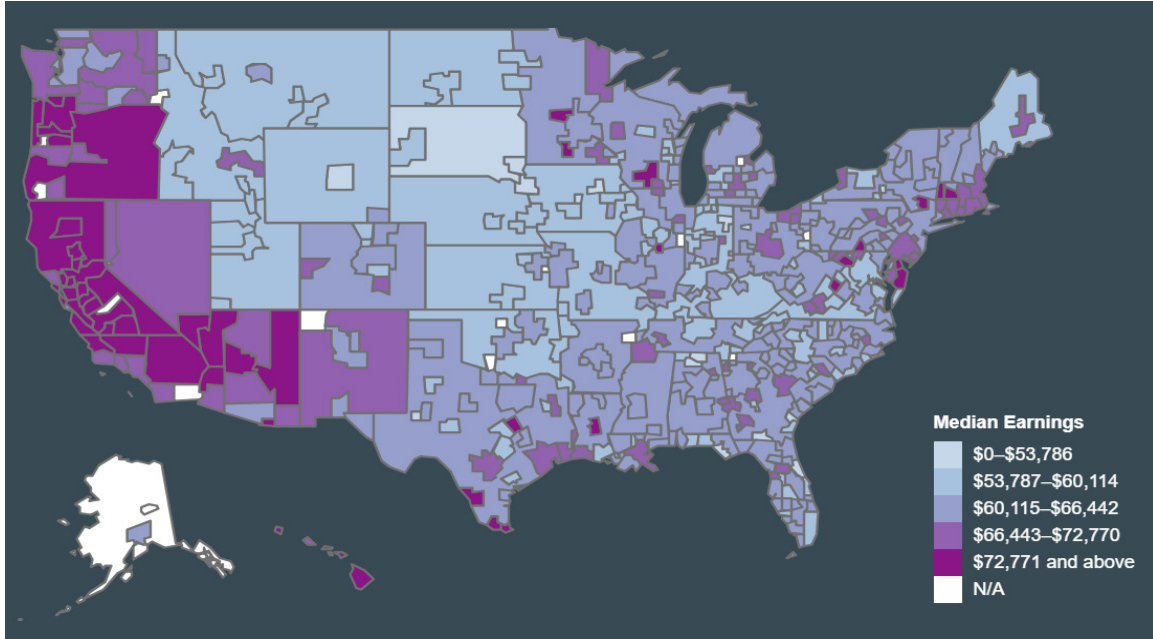


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Adjusting for cost of living does remove some of the earnings variation, placing more regions into the middle category (i.e. closer to the median), but it certainly does not remove all variation. When the bins are reset according to the same structure as above—but in reference to cost-of-living-adjusted earnings rather than unadjusted earnings—the map for nurses now has a somewhat more flat distribution of wages. The [economic analysis](#) accompanying this interactive provides more details.

FIGURE 4.

### Median Annual Cost-of-Living Adjusted Earnings for Registered Nurses, by Location



Source: American Community Survey 2012–16; authors' calculations.

Note: Data include state nonmetro portions and metro areas. Metro areas with fewer than 30 full-time workers or with no PUMA with more than 50 percent of its population located in that metro area are shown in gray stripes. Values are in 2016 dollars. Data include individuals ages 25–64.



The initial version of this interactive had static bins that reset only for larger differences in median national earnings across occupations. An advantage of configuring the interactive in this way was that it allowed visual comparisons of outcomes across similar occupations. However, in some cases important variation was lost when too many locations were swept into the same earnings bin, yielding what appeared to be limited or no variation across the country. As the [economic analysis](#) discusses, adjusting for cost of living does reduce differences in earnings across places, but does not eliminate them. The new bins, based on percentage deviation in earnings relative to the median location, should allow for easier comparison of differences across regions within the same occupation.



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*The Hamilton Project* seeks to advance America’s promise of opportunity, prosperity, and growth. We believe that today’s increasingly competitive global economy demands public policy ideas commensurate with the challenges of the 21st Century. The Project’s economic strategy reflects a judgment that long-term prosperity is best achieved by fostering economic growth and broad participation in that growth, by enhancing individual economic security, and by embracing a role for effective government in making needed public investments.

Our strategy calls for combining public investment, a secure social safety net, and fiscal discipline. In that framework, the Project puts forward innovative proposals from leading economic thinkers — based on credible evidence and experience, not ideology or doctrine — to introduce new and effective policy options into the national debate.

The Project is named after Alexander Hamilton, the nation’s first Treasury Secretary, who laid the foundation for the modern American economy. Hamilton stood for sound fiscal policy, believed that broad-based opportunity for advancement would drive American economic growth, and recognized that “prudent aids and encouragements on the part of government” are necessary to enhance and guide market forces. The guiding principles of the Project remain consistent with these views.

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