

City Human Capital Index 2017 Update

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In 2012, Anderson Forecast developed a simple index named City Human Capital Index (CHCI)¹ to calculate the weighted average of education attainment of adult residents by various geographic domain, such as state, metro (MSA), county, or zip code. The goal is to provide a simple barometer to measure and compare human capital across region and over time in the U.S. The simple interpretation of the index is that one tenth of the index value is about the average schooling years of local residents.

In addition to the revelation of human capital, we found that CHCI is correlated with many other important social economic variables, such as median household income, poverty rate, housing prices, etc. This report will present the CHCI in 2017 based on the latest data from one-year American Community Survey.

Human Capital by Metro

Figure 1 displays the CHCI in 2011 (in yellow color) and the progress made (in blue color) between 2011 and 2017 for the 30 largest metros (MSAs). The combined bar will the CHCI in 2017. The top 3 metros with highest CHCI are Washing-

ton DC (164), Boston (161), and San Francisco (160), with New York in the middle (151), and Los Angeles (143), San Antonio (142), Las Vegas (139), and Riverside (134) at the bottom. The good news is that we can see across-the-board increase of CHCI from 2011 to 2017 due to possible reasons including more education investment, higher graduation rate, or higher human capital of net migration.

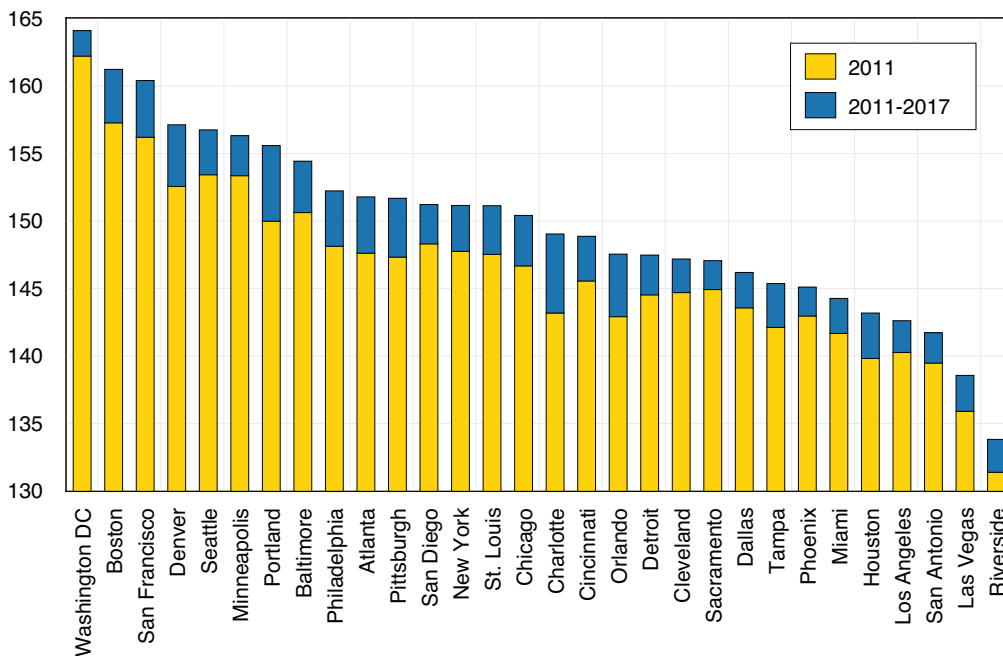
By looking at the blue bar, we can see how much improvement of human capital. The top 3 metros with highest increase of CHCI are Charlotte (+5.8), Portland (+5.6), and Orlando (+4.6) while the bottom 3 metros with the lowest increase of CHCI are Sacramento (+2.1), Phoenix (+2.1) and Washington DC (+1.9).

Figure 2 shows the same CHCI information in 2011 and 2017 for the 31st to 60th largest metros. The top 3 metros with highest CHCI are San Jose (162), Bridgeport/Stamford, CT (161), and Raleigh (159), with Salt Lake City in the middle (151), and Memphis (144), New Orleans (144), and Tulsa (143) at the bottom. Figure 3 ranks the CHCI changes from 2011 and 2017 for these 60 largest metros. Richmond and Charlotte are top two metros with highest CHCI improvements.

1. See "The First 5 LA/UCLA Anderson Forecast City Human Capital Index", William Yu, October 2012. https://www.anderson.ucla.edu/documents/areas/ctr/forecast/chci/CHCI_ReportOct2012.pdf. And "Human Capital: The Key to Los Angeles Long-Term Prosperity," William Yu, March 2013. https://www.anderson.ucla.edu/documents/areas/ctr/forecast/chci/UCLAForecast_March2013_WYu.pdf. "The Evolution of City Human Capital Index Across the Country and Public School Performance in California: Evidence from 2005 to 2013," William Yu, June 2015. https://www.anderson.ucla.edu/documents/areas/ctr/forecast/chci/CHCI_ReportApril2015.pdf

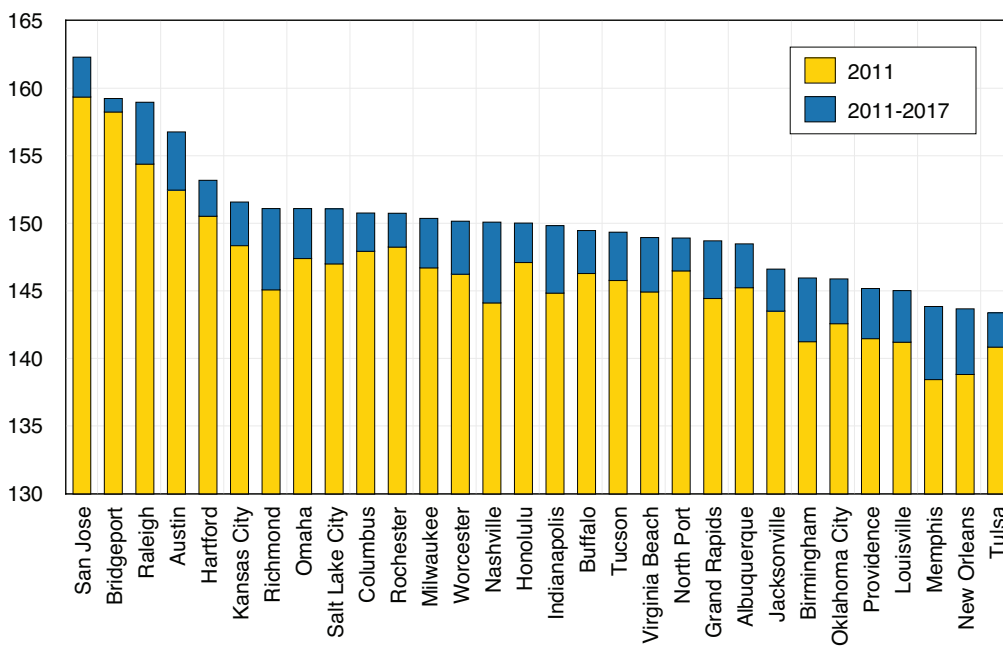
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Figure 1. City Human Capital Index in 2011 and 2017 for the 30 Largest Metros



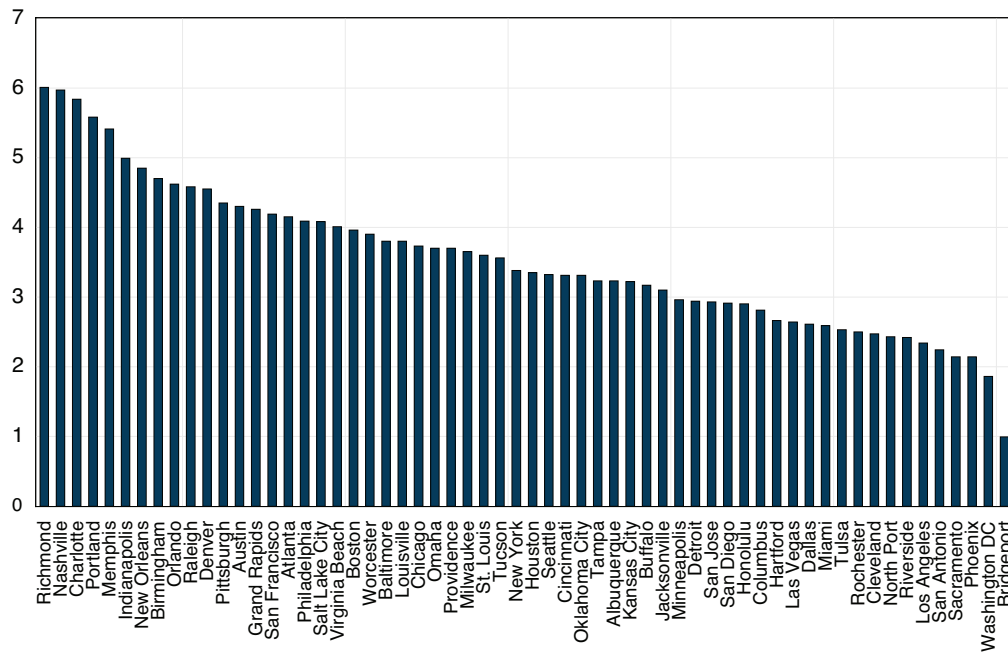
Source: American Community Survey

Figure 2. City Human Capital Index in 2011 and 2017 for the 31st to 60th Largest Metros



Source: American Community Survey

Figure 3 City Human Capital Index Change from 2011 to 2017 for 60 Largest Metros



Source: American Community Survey

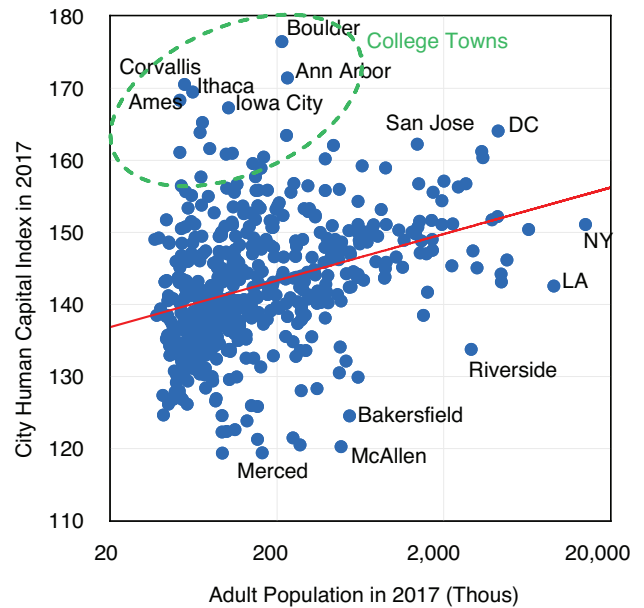
Is there a relationship between the human capital and the population size of a metro? Figure 4 presents the correlation between the CHCI and the logarithm of adult population for 511 metros in 2017. The red line (regression fit line) seems to suggest there is a positive correlation. We run a linear regression and its estimations are as follows:

$$\text{CHCI} = 109 + 2.8 * \log(\text{Population})$$

T-stats: (26) (8.2) Adj. R-Squared: 0.115, N = 511

The significant t-statistics indeed suggests there is a correlation. The evidence might echo the trend we have suspected in the past several decades: urbanization continues to attract young and more educated and productive workforce into bigger cities while small towns teeter with old and less educated populace and fading manufacturing industries. The only exception seems to be those college towns located in the upper left corner of the Figure 4. For example, Boulder (CHCI: 177) which is with the highest human capital among 511 metros has University of Colorado Boulder, Ann Arbor (171) with University of Michigan, Iowa City (167) with University of Iowa, Ithaca (170) with Cornell University, Corvallis (171) with Oregon State University, and Ames (168) with Iowa State University.

Figure 4 The Correlation Between City Human Capital Index and Adult Population for 511 Metros in 2017



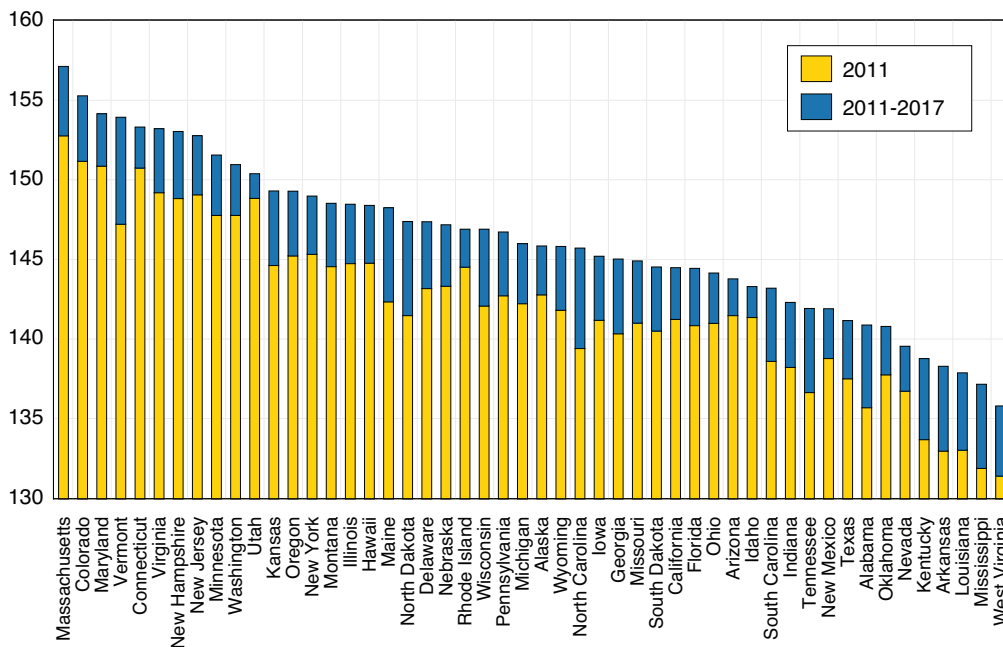
Source: American Community Survey

Human Capital by State

Figure 5 exhibits the same CHCI information in 2011 and 2017 for 50 states. The top 3 states with highest human capital are Massachusetts (CHCI: 157), Colorado (155), and Maryland (154), New York (149) ranked 14th, California (144) ranked 33rd, Florida (144) ranked 34th, Texas (141) ranked 44th, and Louisiana (138), Mississippi (137), and West Virginia (136) are at the bottom.

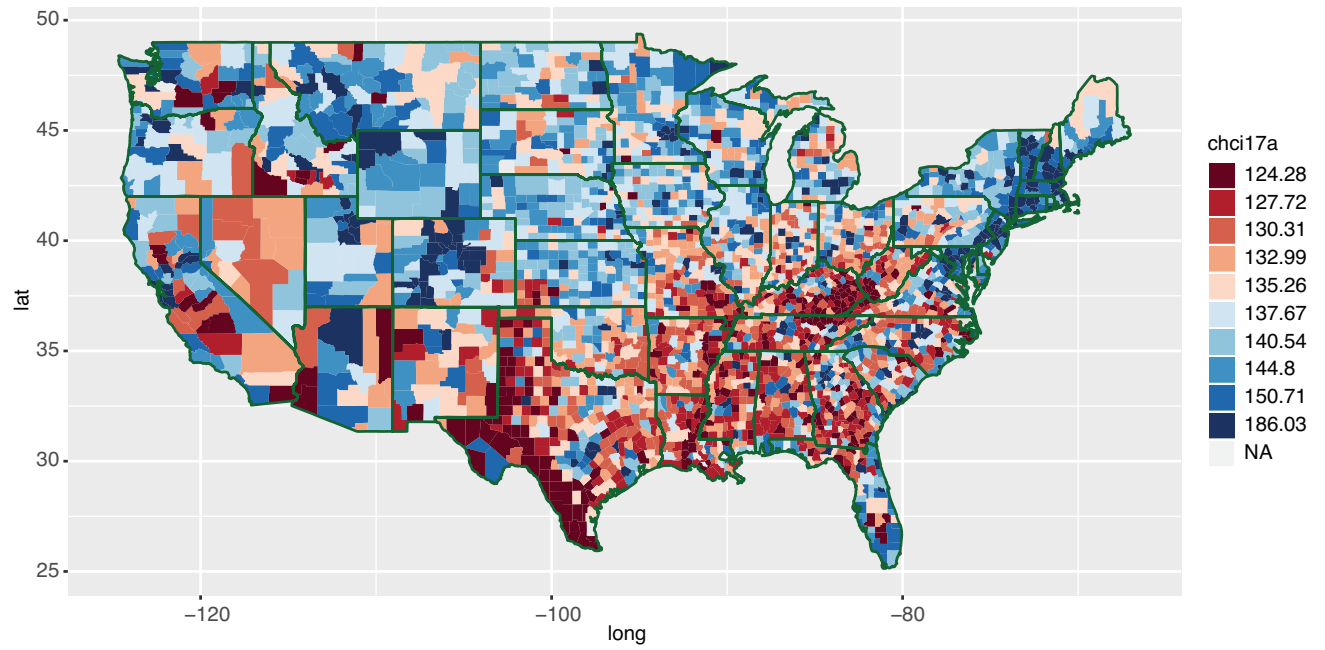
Figure 6 presents the CHCI for all the counties in 2017 by color, in which blue means higher human capital while red means lower human capital. The darker the color, the more extreme it is for human capital. Similar to Figure 4, we see more counties with darker blue (high human capital) in New England and Colorado. In contrast, we see more with darker red in the South, Texas, West Virginia, and Central Valley in California. The dichotomy of human capital across the country is directly related to inequality of income across the country.

Figure 5 City Human Capital Index in 2011 and 2017 for 50 States



Source: American Community Survey

Figure 6 City Human Capital Index in 2017 for Counties



Source: American Community Survey

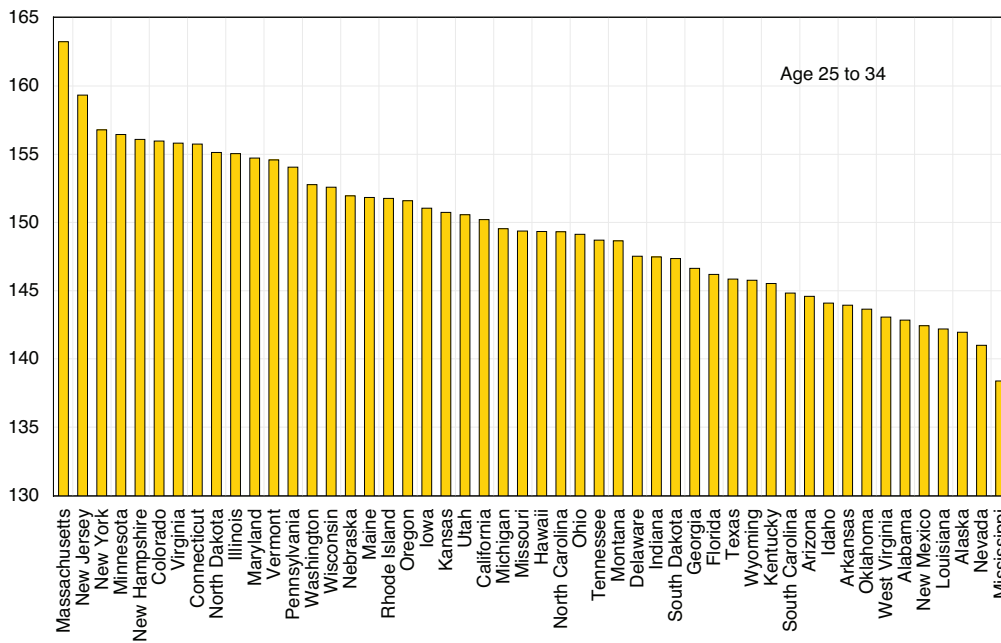
Human Capital by Age

Figures 7-9 display the CHCIs in 2017 for 50 states by three age groups. Figure 7 shows the CHCI for age 25 to 34 for 50 states. The top 3 states with highest human capital for this youngest adult group is Massachusetts (CHCI: 163), New Jersey (159), and New York (157). Note that in this age cohort, California’s ranking improves significantly from #33 to #23 (150). In Figure 8 for age 35 to 44, California ranking declines to #34 (147). In Figure 9 for age 45 to 64, California ranking declines further to #37 (143). It is not

surprising to see younger Americans have more education attainment than older ones.

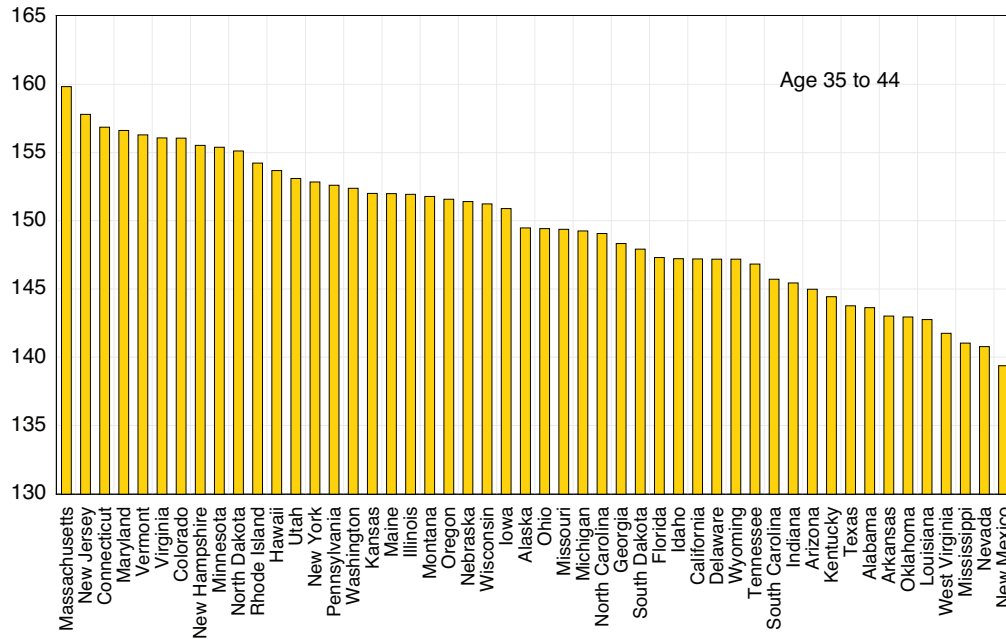
Figure 10 lists the CHCI change by state for the age group of 25 to 34. It is interesting to see California is the number one with highest human capital gain (+6.2) over the past several years, followed by Oregon (+6.2), and Washington (+5.7), all of which are located in the West Coast. We suggest it is due to the tech boom from Seattle to Bay Area and L.A. that attracts high-skilled and high-educated young workforce from the rest of the country and the world to the West Coast.

Figure 7 City Human Capital Index in 2017 by State for Resident Age 25 to 34



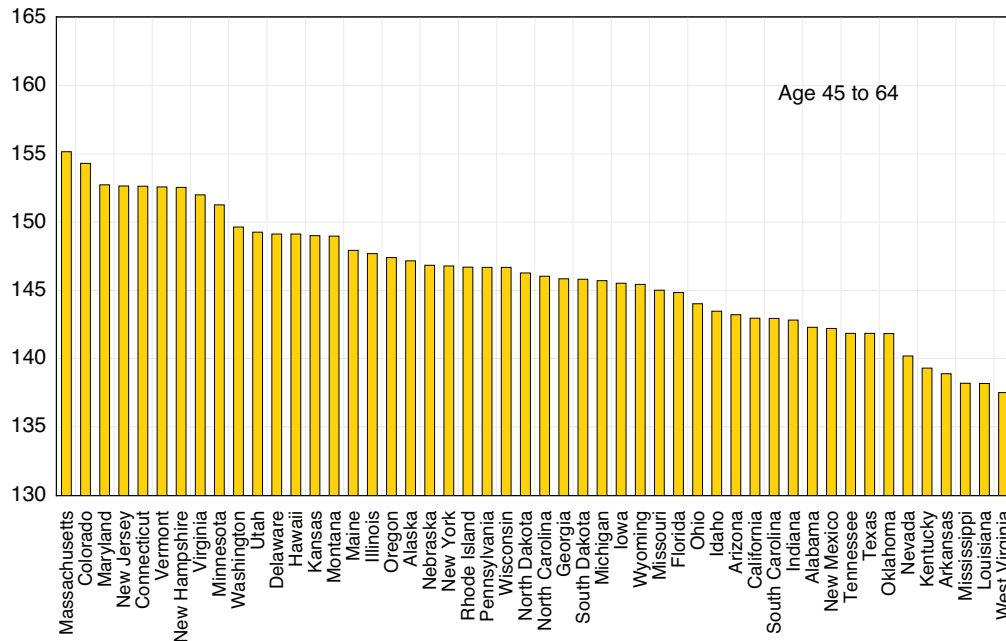
Source: American Community Survey

Figure 8 City Human Capital Index in 2017 by State for Resident Age 35 to 44



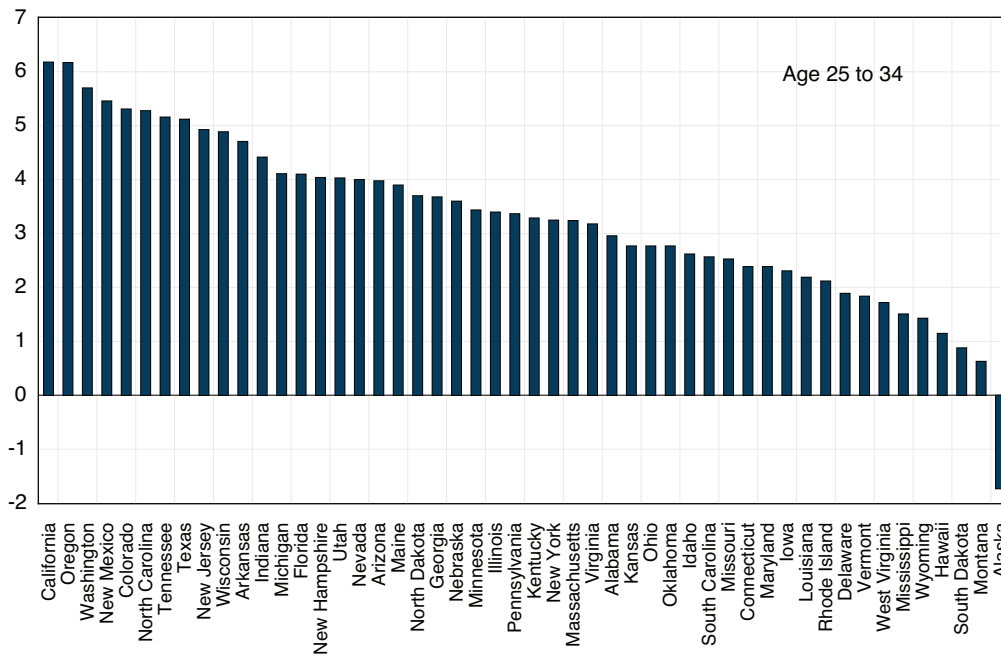
Source: American Community Survey

Figure 9 City Human Capital Index in 2017 by State for Resident Age 45 to 64



Source: American Community Survey

Figure 10 City Human Capital Index Change from 2011 to 2017 by State for Resident Age 25 to 34



Source: American Community Survey

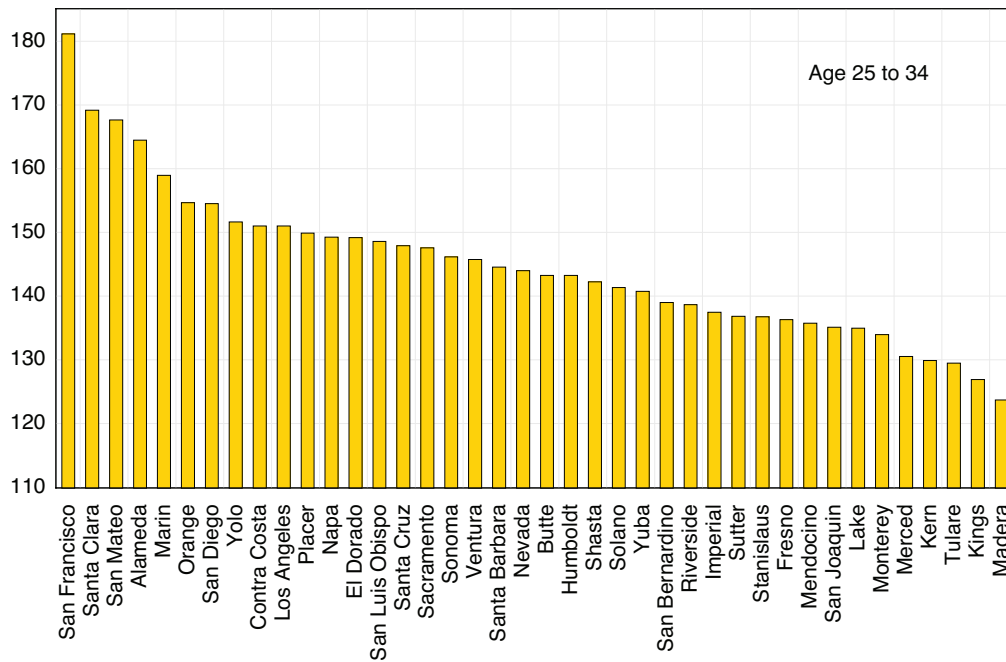
Human Capital by County in California

Figures 11 to 14 present the CHCI for 40 major counties in California by four age groups. It is similar to the nation. The younger cohort has higher human capital than older one. San Francisco County has the highest CHCI (181) followed by Santa Clara (169) for the age group of 25 to 34. L.A. County ranks #10 (151). In the age group of 35 to 44 (Figure 12), San Francisco is still #1 (175), followed by Marin (170) and San Mateo (167). However, L.A. ranking declined to #20 (145). In the age group of 45 to 64, Marin is #1 (173), followed by San Mateo (160), Santa Clara (157) and San Francisco (156). In the age group of 65 and above, Marin is #1 (164), L.A. is #28 (136), and Imperial County is at the bottom with CHCI of 111.

Conclusion

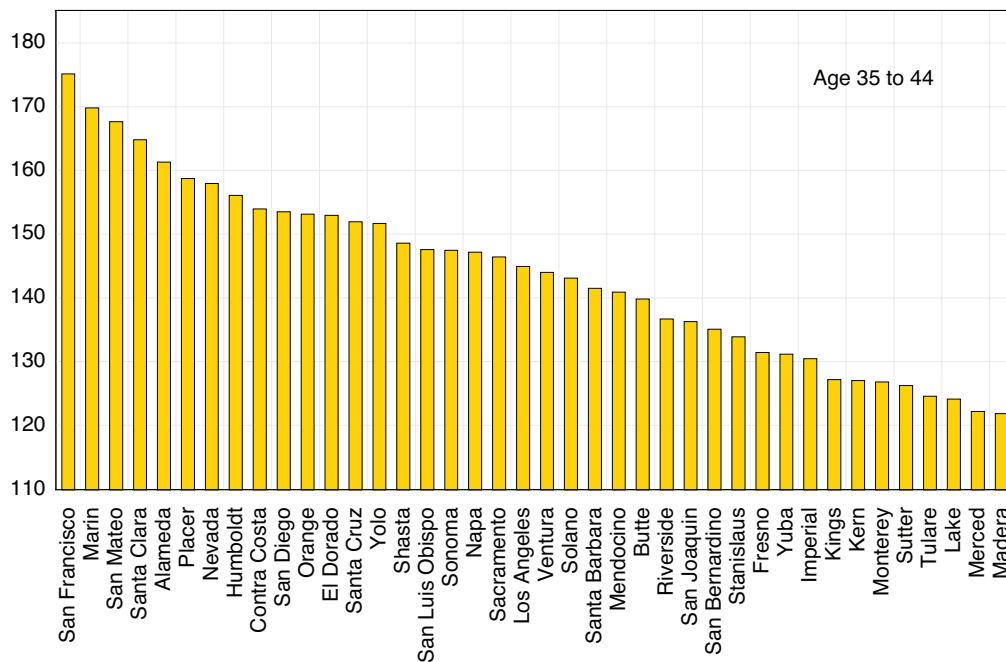
- Human capital level has been steadily improving over the past several years for the most metros. The distribution of human capital is far from equal across the country.
- For the youngest adult age group (age 25 to 34), California has the highest human capital gain from 2011 to 2017 among 50 states, possibly due to the tech boom that attracted high-educated workforce during the same period.
- By and large, larger metros tend to have higher level of human capital. Urbanization with conglomeration effect in the 21st century help bolster the size and human capital of a bigger city at the cost of shrinking and fading small towns. The only exception is college towns where university/higher education is the major industry locally which attracts students/employees with high human capital (potential) from the rest of the country and the world.

Figure 11 CHCI in 2017 of Major Counties in California for Resident Age 25 to 34



Source: American Community Survey

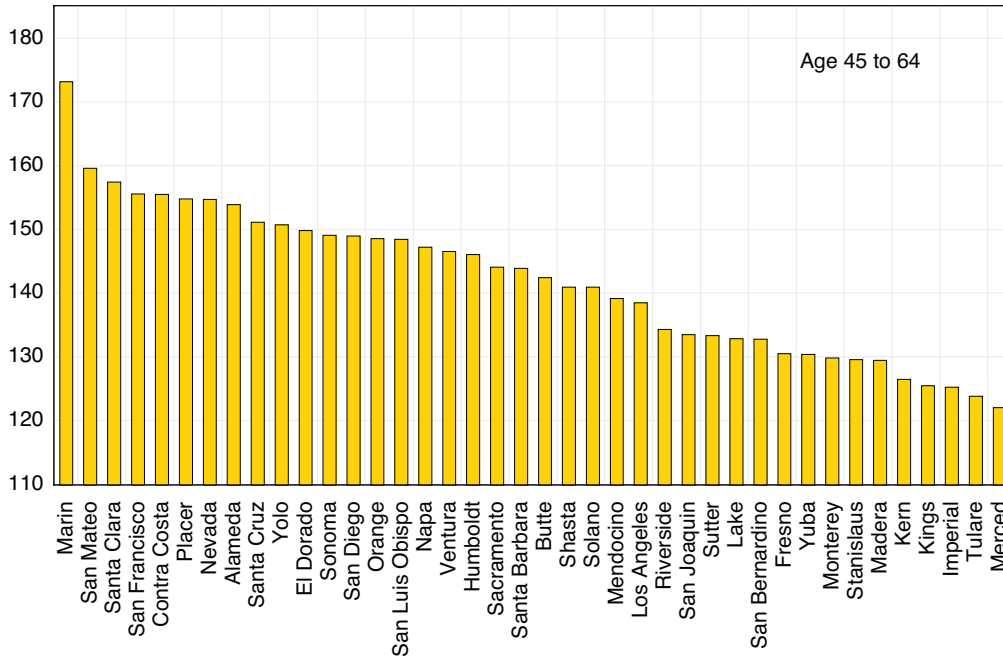
Figure 12 CHCI in 2017 of Major Counties in California for Resident Age 35 to 44



Source: American Community Survey

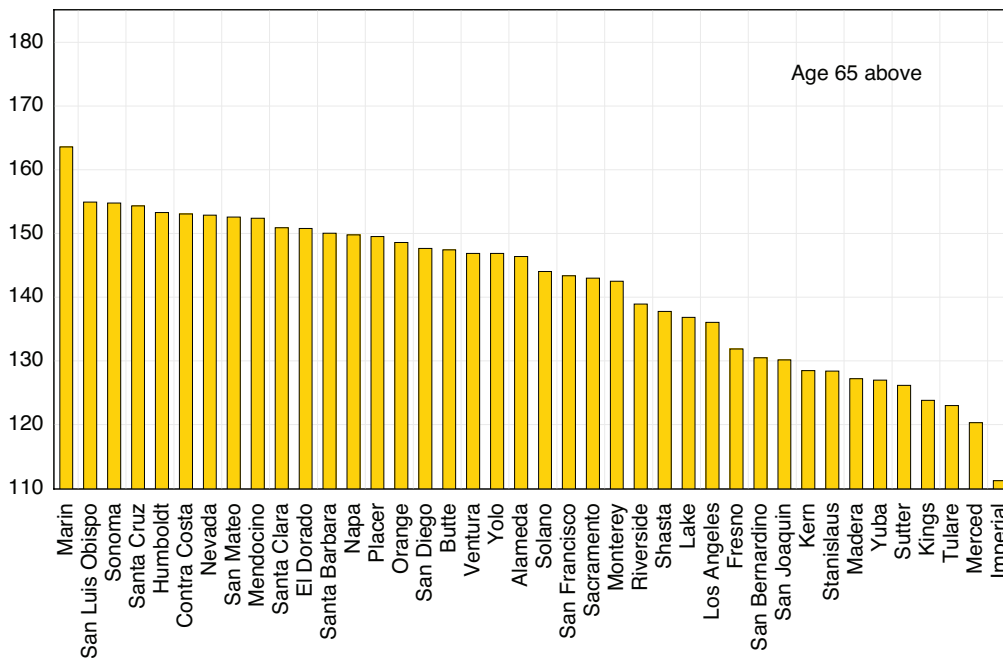
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Figure 13 CHCI in 2017 of Major Counties in California for Resident Age 45 to 64



Source: American Community Survey

Figure 14 CHCI in 2017 of Major Counties in California for Resident Age 65 Above



Source: American Community Survey