OPPORTUNITY INSIGHTS

The Association Between Income and Life Expectancy in the United States, 2001-2014

RAJ CHETTY, MICHAEL STEPNER, SARAH ABRAHAM, SHELBY LIN, BENJAMIN SCUDERI, NICHOLAS TURNER, AUGUSTIN BERGERON, AND DAVID CUTLER

How can we reduce socioeconomic disparities in health outcomes? Although it is well known that there are significant differences in health and longevity between income groups, debate remains about the magnitudes and determinants of these differences.

We use new data from 1.4 billion anonymous earnings and mortality records to construct more precise estimates of the relationship between income and life expectancy at the national level than was feasible in prior work. We then construct new local area (county and metro area) estimates of life expectancy by income group and identify factors that are associated with higher levels of life expectancy for low-income individuals. Our study yields four sets of results.

KEY FINDINGS

- There are large gaps in life expectancy between high- and low-income Americans.

- Gaps in life expectancy are growing over time

- Life expectancies for the poor vary significantly across areas.

- The poor live longest in affluent, educated cities with healthy behaviors

There are large gaps in life expectancy between high- and low-income Americans.

Higher income is associated with greater longevity throughout the income distribution (Figure 1). The richest American men live 15 years longer than the poorest men, while the richest American women live 10 years longer than the poorest women. The poorest men in the U.S. have life expectancies comparable to men in Sudan and Pakistan; the richest men in the U.S. live longer than the average man in any country.

Importantly, these findings do not necessarily imply that income has a causal effect on life expectancy: that is, giving someone more money may not increase their lifespan. The association between income and life expectancy may be driven by unmeasured factors correlated with both health and income, such as differences in education or health behaviors.

FIGURE 1: Life Expectancy vs. Income in the United States

Women, Bottom 1%: 78.8
Women, Top 1%: 88.9

Men, Bottom 1%: 72.7
Men, Top 1%: 87.3
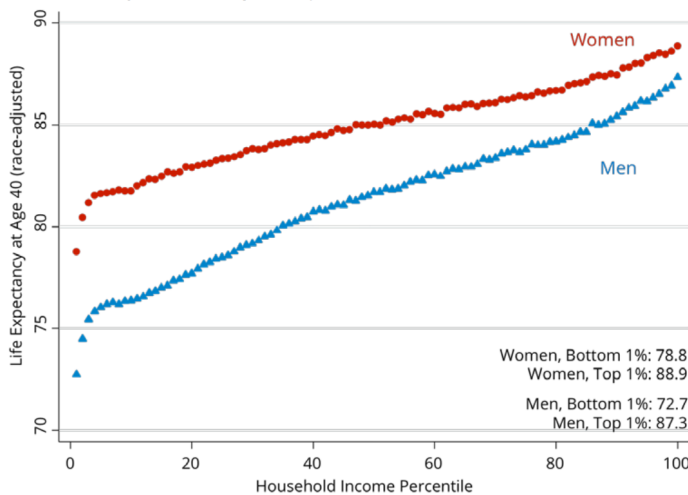
FIGURE 2: Local Life Expectancies by Income
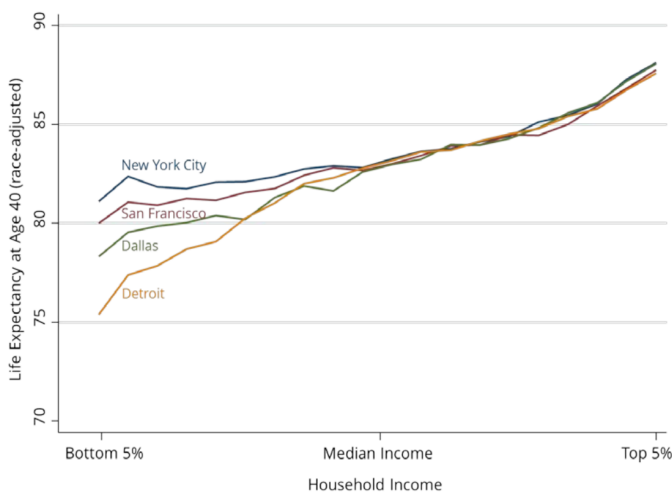
Gaps in life expectancy are growing over time.

Inequality in life expectancy has increased in recent years at the national level. Between 2001 and 2014, individuals in the top 5% of income distribution gained around 3 years of life expectancy. In contrast, the lifespans of Americans in the bottom 5% of the income distribution did not increase between to 2001 and 2014.

Our first two findings – regarding gaps in life expectancy at the national level – are broadly consistent with the qualitative conclusions of prior studies that used smaller samples, although the magnitudes of the gaps are larger than suggested by prior work. Our next two findings reveal that studying health inequality at the national level yields an incomplete picture because there are substantial local area differences in health outcomes across income groups.

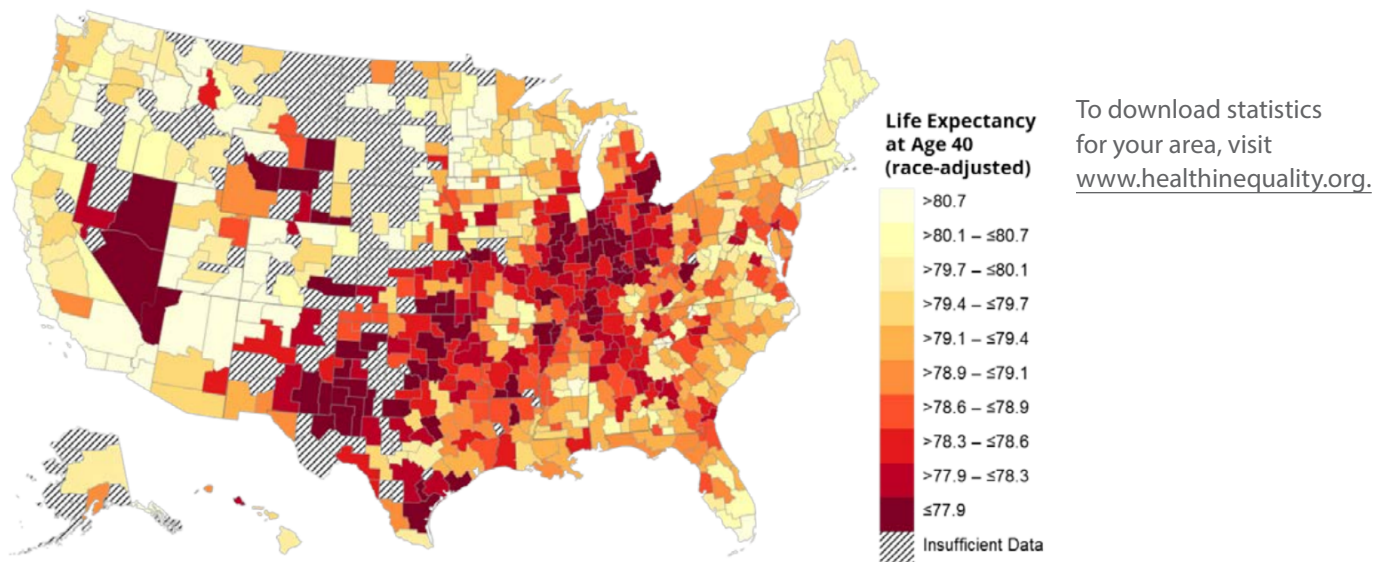Life expectancies for the poor vary significantly across areas

We analyze differences in life expectancy across commuting zones (CZs), which are geographical aggregations of counties that are similar to metro areas but which also cover rural areas. We estimate life expectancy by income level in each CZ, adjusting for differences in racial and ethnic composition. Life expectancy for low income people varies by about 5 years from the best to worst cities (Figure 2). Longevity varies much less across areas for higher-income individuals, who have high life expectancies regardless of where they live.

To put these area-level differences in perspective, the Centers for Disease Control and Prevention estimates that eliminating all cancer deaths would increase life expectancy by approximately 3 years. Hence, it is as if low-income men in New York and San Francisco – which have the highest levels of life expectancy – are immune from cancer, while men in Detroit or Indianapolis – which have low levels of life expectancy for the poor – are not.

For low-income people, life expectancy is highest in California, New York, and Vermont (Figure 3). It is lowest in Nevada. The next 8 states with the lowest life expectancies form a belt connecting Michigan, Ohio, Indiana, Kentucky, Tennessee, Arkansas, Oklahoma, and Kansas.

Trends in life expectancy during the 2000s varied substantially across areas as well, ranging from gains of more than 4 years between 2001 and 2014, in areas like Birmingham, AL, to losses of more than 2 years in others, like Tampa, FL.

Life Expectancy
at Age 40
(race-adjusted)

>80.7
>80.1 – ≤80.7
>79.7 – ≤80.1
>79.4 – ≤79.7
>79.1 – ≤79.4
>78.9 – ≤79.1
>78.6 – ≤78.9
>78.3 – ≤78.6
>77.9 – ≤78.3
≤77.9
Insufficient Data

To download statistics for your area, visit www.healthinequality.org.

FINDING 4

The poor live longest in affluent, educated cities with healthy behaviors

Finally, we use the local area variation to gain insight into the factors that lead to better health outcomes for the poor. Differences in life expectancy across areas are highly correlated with health behaviors like rates of smoking, obesity, and exercise. In contrast, life expectancy for low income individuals is not significantly correlated with measures of the quantity and quality of medical care, such as the fraction insured and measures of preventive care. Additionally, life expectancy for low-income individuals is not strongly associated with measures of local income inequality, residential segregation, and labor market conditions.

Low-income individuals tend to live the longest (and have the most healthful behaviors) in affluent cities with highly educated populations and high levels of government expenditures, such as New York and San Francisco. Cities with such characteristics also experienced the largest gains in life expectancy among the poor during the 2000s.

We caution that this correlational analysis does not uncover causal mechanisms. For example, the lack of a strong correlation between measures of health care access and life expectancy does not imply that health care has no role to play in improving longevity. The variation in medical care across areas at any given point in time may be small relative to other factors that affect longevity, such as smoking and obesity. Moreover, health care utilization may be higher in areas with sicker populations (reverse causality), in which case we may see no differences in longevity in areas with more health care use even if health care matters for longevity.

IMPLICATIONS FOR POLICY AND PRACTICE

Our findings show that disparities in life expectancy are not inevitable. There are cities throughout America — from New York to San Francisco to Birmingham, AL — where gaps in life expectancy are relatively small or are narrowing over time. Replicating these successes more broadly will require targeted local efforts, focusing on improving health behaviors among the poor in cities such as Las Vegas and Detroit. Our findings also imply that federal programs such as Social Security and Medicare are less redistributive than they might appear because low-income individuals obtain these benefits for significantly fewer years than high-income individuals, especially in cities like Detroit.

Going forward, the challenge is to understand the mechanisms that lead to better health and longevity for low-income individuals in some parts of the U.S. To facilitate future research and monitor local progress, we have posted annual statistics on life expectancy by income group and geographic area (state, CZ, and county) at The Health Inequality Project website. Using these data, researchers will be able to study why certain places have high or improving levels of life expectancy and ultimately apply these lessons to reduce health disparities in other parts of the country.