Race and Economic Well-Being in the United States

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Race and economic well-being

Large and persistent racial differences in economic outcomes in the U.S.:

- Earnings: Chetty, Hendren, Jones and Porter (2020)
- Mortality and morbidity: Case and Deaton (2015) and Chetty et al. (2016)

Studied separately, but likely correlated:

- How large is the racial gap in overall living standards?
- How has it changed over time?

Methodology

Build on the expected utility framework of Jones and Klenow (2016)

Construct a consumption-equivalent welfare statistic:

- Life expectancy
- Consumption
- Consumption inequality
- Leisure
- Leisure inequality

Preview

- Black welfare started at 49% of White welfare in 1984 and rose to 69% by 2018
  - Progress coming evenly from rising relative consumption and life expectancy
- COVID-19 mortality has reversed a decade's worth of progress

Theory

Expected utility for individual of race i:

$$U_i = \mathbb{E} \sum_{a=0}^{100} S_{ai} u\left(C_{ai}, L_{ai}\right)$$

where S_{ai} = survival rate, C_{ai} = consumption and L_{ai} = leisure.

Expected utility if consumption is multiplied by factor λ at each age:

$$U_i\left(\lambda\right) = \mathbb{E} \sum_{a=0}^{100} S_{ai} u\left(\lambda C_{ai}, L_{ai}\right).$$

Theory

How to adjust consumption of White Americans for them to be indifferent between living their lives in the conditions faced by Black Americans and their own?

$$U_W(\lambda_{EV}) = U_B(1)$$

Analogously, how to adjust consumption of Black Americans for them to reach the same indifference point?

$$U_W(1) = U_B(1/\lambda_{CV})$$

Our consumption-equivalent welfare statistic averages λ_{EV} and λ_{CV}

Data

Welfare calculation requires data on mortality, consumption and leisure:

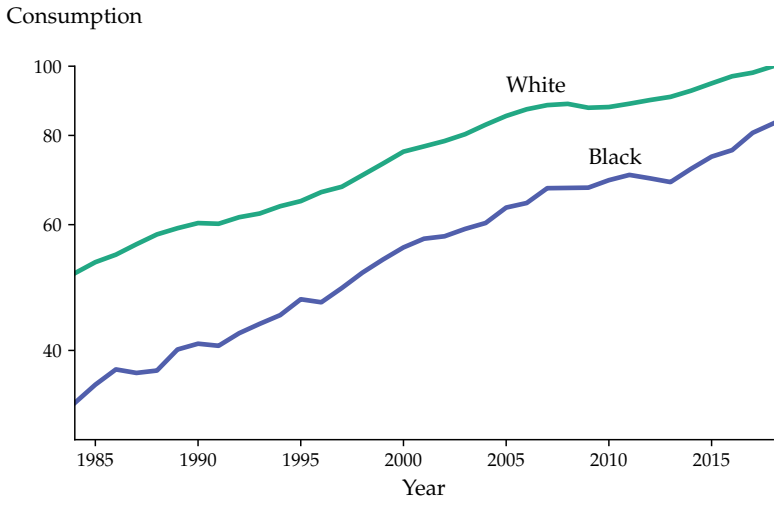
- Period: 1984 to 2018
- Groups: Black and White Americans
- Mortality: Centers for Disease Control and Prevention (CDC)
- Consumption: Consumer Expenditure Survey (CEX)
- Leisure: Current Population Survey (CPS)

CDC and CPS data go back as far as 1970, but annual CEX only starts in 1984

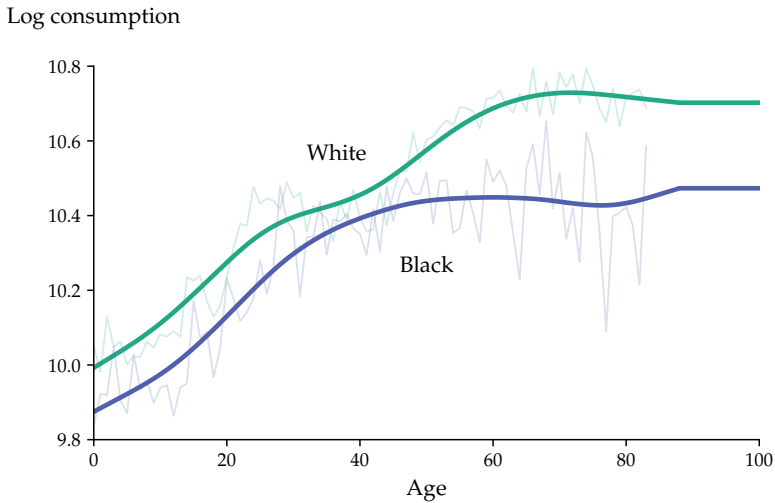
Consumer Expenditure Survey

- Rotating panel of 20,000 households, interviewed for up to four quarters
- We aggregate expenditures on hundreds of items
- Exclude health expenditures (double counting)
- Approximate the flow services of durable goods when possible
- Divide consumption evenly within households
- Re-scale to reflect real non-health NIPA consumption per capita each year

Per capita consumption by race



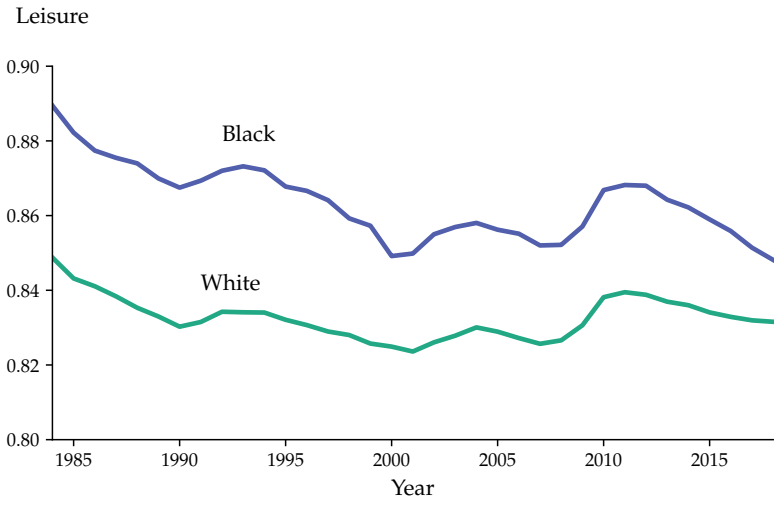
Consumption age profile in 2018



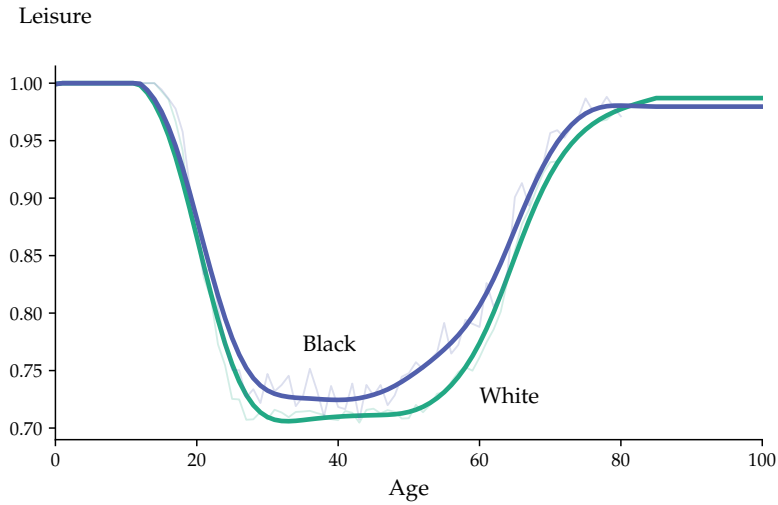
Current Population Survey

- Over 60,000 households interviewed for up to 8 months
- Detailed information on employment, occupation and income
- Leisure $=$ (5,840 – hours worked in the year)/5,840
  - 5,840 $=$ 16 hours per day $\times$ 365 days
- Divide hours worked equally among 25 to 64 year olds within households
  - Consistent with leisure gender gap found by Aguiar and Hurst (2007)

Leisure by race



Leisure age profile in 2018

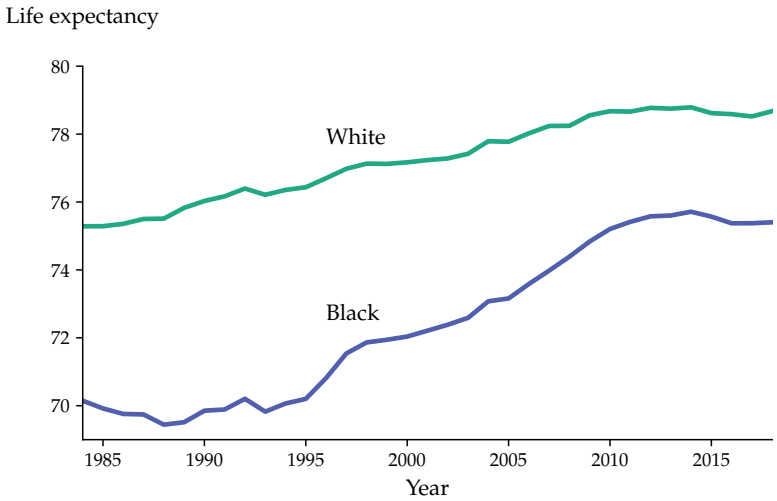


Centers for Disease Control and Prevention (CDC)

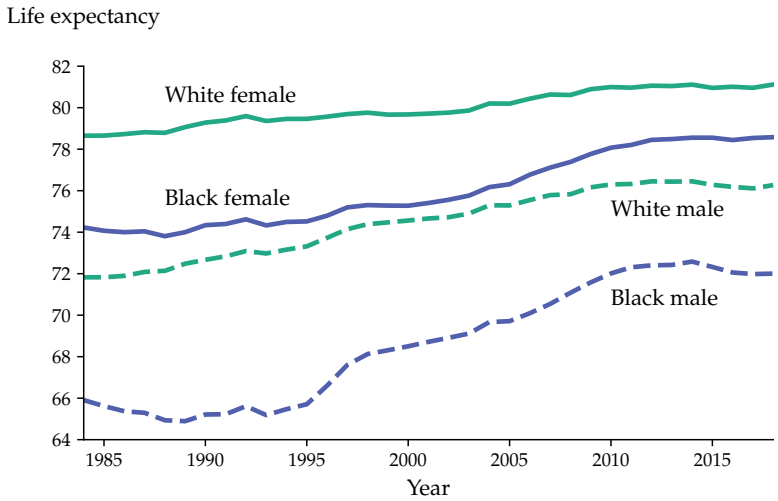
- Universe of individual death records
- Detailed information on the deceased
- Population at risk: U.S. Census Bureau's intercensal population estimates
- Probability of surviving up to age a:

$$S_a = \prod_{s=0}^{a} (1 - M_s) \quad \text{where} \quad M_s = D_s / P_s$$

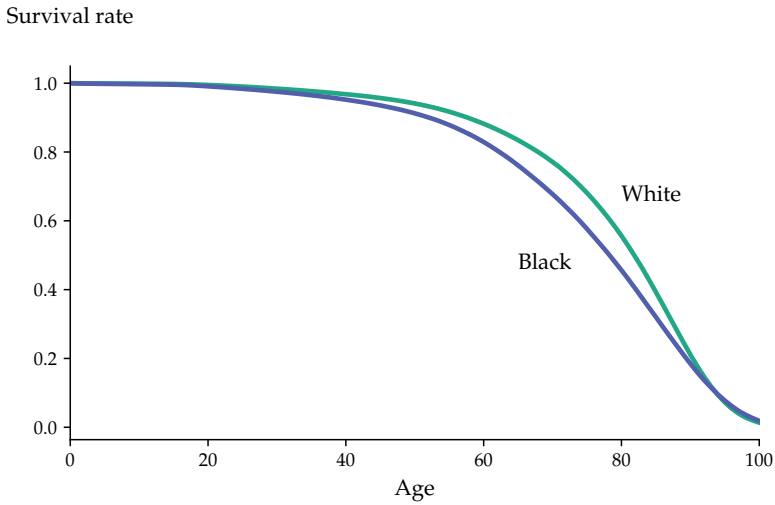
Life expectancy by race



Life expectancy by race and gender



Survival age profile in 2018



Assumptions and definitions

Assume additively separable flow utility:

$$u(C,L) = \overline{u} + \log(C) + v(L) \quad \text{where} \quad v(L) = -\frac{\theta\epsilon}{1+\epsilon} \times (1-L)^{\frac{1+\epsilon}{\epsilon}}$$

Define average sub-utility from consumption and leisure as:

$$\text{AUC}_i \equiv \sum_a S_{aW} \mathbb{E}\left[\log(C_{ai})\right] / \text{LE}_W \quad \text{and} \quad \text{AUL}_i \equiv \sum_a S_{aW} \mathbb{E}\left[v(L_{ai})\right] / \text{LE}_W$$

Define sub-utility from average consumption and leisure as:

$$\text{UAC}_i \equiv \log\left(\sum_a S_{aW} \mathbb{E}\left[C_{ai}\right] / \text{LE}_W\right) \quad \text{and} \quad \text{UAL}_i \equiv v\left(\sum_a S_{aW} \mathbb{E}\left[L_{ai}\right] / \text{LE}_W\right)$$

Decomposition

$$\log(\lambda_{CV}) = \sum_a (S_{aB} - S_{aW})\,\mathbb{E}\left[u\left(C_{aB}, L_{aB}\right)\right] / \mathrm{LE}_W \qquad \text{Life expectancy}$$

$$+ \mathrm{UAC}_B - \mathrm{UAC}_W \qquad \text{Consumption}$$

$$+ \mathrm{UAL}_B - \mathrm{UAL}_W \qquad \text{Leisure}$$

$$+ (\mathrm{AUC}_B - \mathrm{UAC}_B) - (\mathrm{AUC}_W - \mathrm{UAC}_W) \qquad \text{Consumption inequality}$$

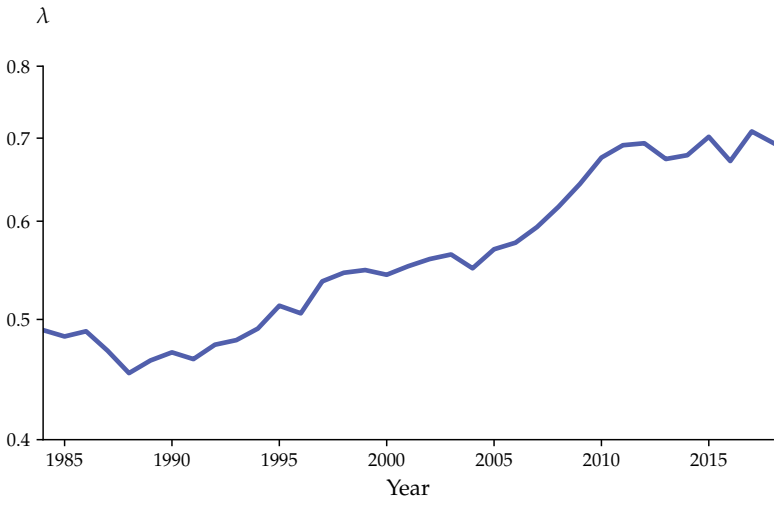
$$+ (\mathrm{AUL}_B - \mathrm{UAL}_B) - (\mathrm{AUL}_W - \mathrm{UAL}_W) \qquad \text{Leisure inequality}$$

Calibration

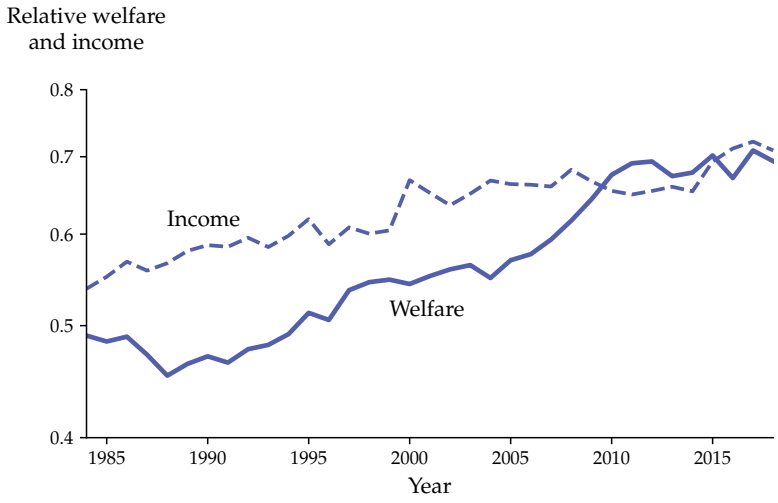
Parameter	Symbol	Value	Source
Frisch elasticity	ϵ	1.00	Hall (2009) and Chetty et al. (2012)
Leisure utility weight	θ	14.2	Static first-order condition
Flow utility intercept	$\overline{u}$	8.01	VSL of \$7.4M in 2006 (EPA)

- Intercept: one year of life is worth 8 years of consumption in 2018

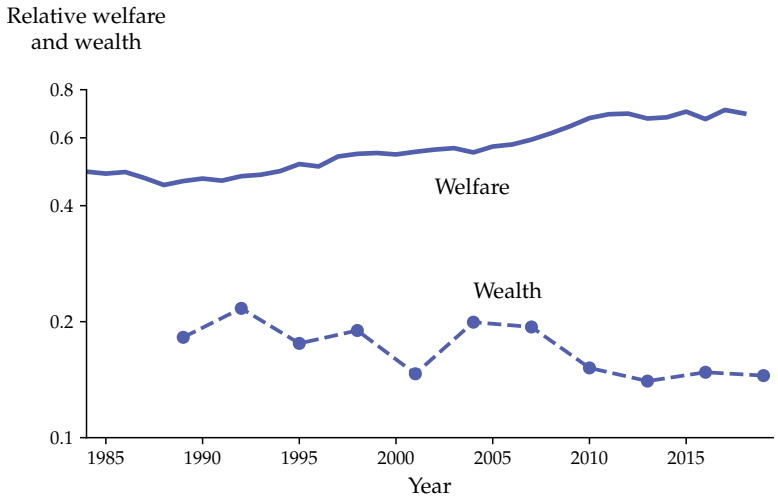
Black relative to White welfare



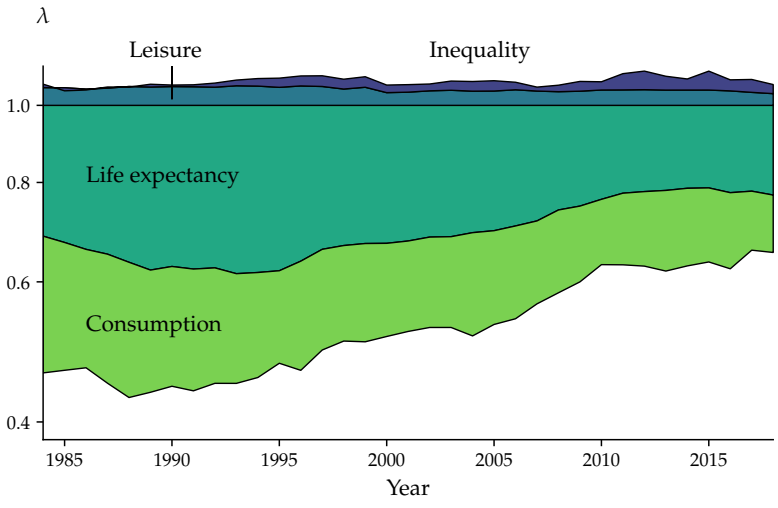
Welfare and income gap



Welfare and wealth gap



Welfare gap decomposition



Welfare gap decomposition

	$\log(\lambda)$	LE	C	$\sigma(C)$	L	$\sigma(L)$
2018	-0.37	-0.26	-0.17	0.02	0.03	0.00
2000	-0.61	-0.40	-0.27	0.01	0.04	0.01
1984	-0.71	-0.38	-0.40	-0.01	0.05	0.02

Welfare growth between 1984 and 2018

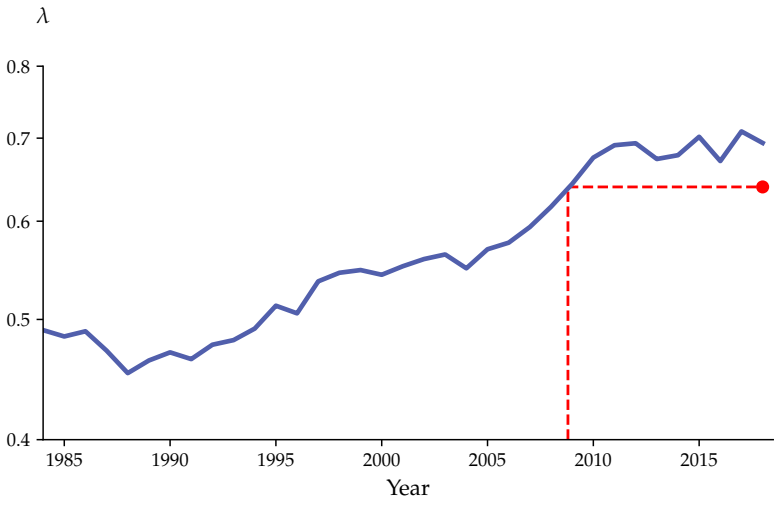
	Welfare	Income	LE	C	$\sigma(C)$	L	$\sigma(L)$
Black	3.35	2.40	1.17	2.48	-0.04	-0.15	-0.12
White	2.28	1.59	0.76	1.84	-0.12	-0.11	-0.08
Gap	1.06	0.80	0.41	0.65	0.08	-0.04	-0.04

COVID-19 welfare statistics

	Deaths per thousand	Age of victims	Years of life lost per victim	Group welfare loss (%)
Black	1.04	71.7	15.0	11.1
White	0.57	80.1	10.2	3.7

Note: As of October 24, 2020, the CDC reports a total of 212,328 COVID-19 deaths.

Welfare gap with COVID-19 mortality



Summary

- Black welfare started at 49% of White welfare in 1984 and rose to 69% by 2018
  - Progress coming evenly from rising relative life expectancy and consumption
- COVID-19 mortality has reversed a decade's worth of progress

Work in progress...

- Morbidity
- Unemployment
- Incarceration
- Gender
- Education
- Go back farther in time