Race and Economic Well-Being in the United States

Jean-Felix Brouillette, Chad Jones, and Pete Klenow

February 8, 2021

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: Case and Deaton (2015) and Chetty et al. (2016)

Studied separately, but likely correlated

- How large is the racial gap in overall living standards?
- Has it changed over time?
- What are the sources of the racial welfare gap?

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, rose to 67% by 2019
  - Progress from rising relative consumption and life expectancy
- Black welfare equal to 30% of White welfare in 1940 (limited data)
  - Increased by a factor of 30 between 1940 and 2019
- Welfare growth has slowed markedly over time
- COVID-19 mortality has temporarily reversed a decade's worth of progress

Expected utility framework

Expected utility for individual of race i:

$$U_i = \mathbb{E} \sum_{a=0}^{100} S_{ia} \cdot u\left(c_{ia}, \ell_{ia}\right)$$

where S_{ia} = survival rate, c_{ia} = consumption and ℓ_{ia} = leisure

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

$$U_i\left(\lambda\right) = \mathbb{E} \sum_{a=0}^{100} S_{ia} \cdot u\left(\lambda c_{ia}, \ell_{ia}\right)$$

Consumption-equivalent welfare

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 as White Americans?

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

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

Main Datasets

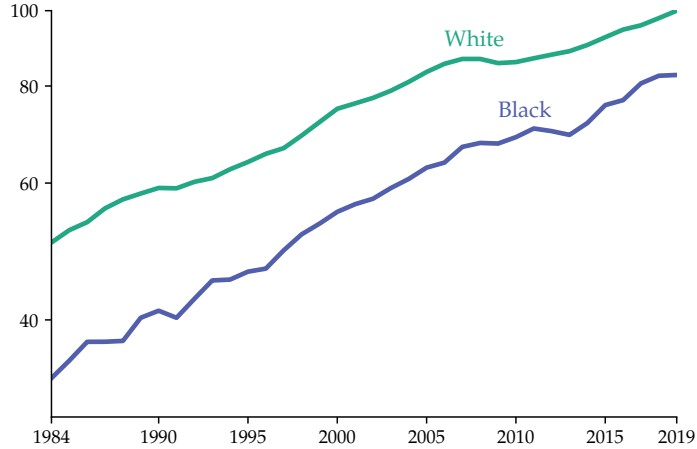
Welfare calculation requires data on mortality, consumption and leisure

- Period: 1984 to 2019
- Groups: Black and White Americans
- Mortality: Centers for Disease Control and Prevention (CDC)
- Consumption: Consumer Expenditure Survey (CEX)
- Leisure: Current Population Survey (CPS)

Consumer Expenditure Survey (CEX)

- Rotating panel of about 20,000 households
- Use nondurable expenditures (excludes durables)
- Divide consumption equally among all household members
- Scale up to NIPA real nondurable consumption per capita in each year

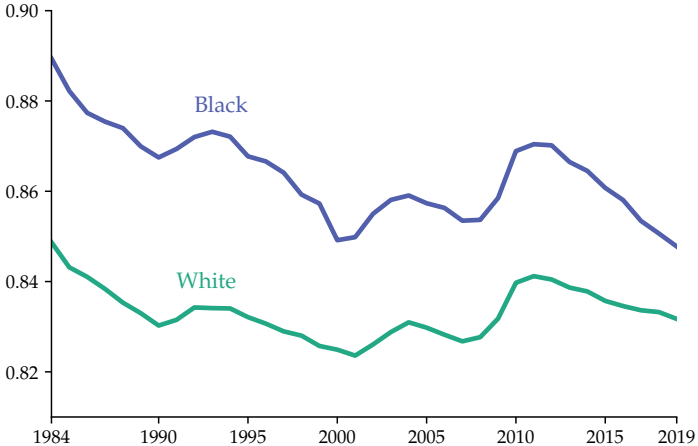
Per capita consumption by race



Current Population Survey (CPS)

- Rotating panel of about 60,000 households
- Leisure = (5,840 – hours worked in the year)/5,840
  - 5,840 = 16 hours per day · 365 days
- 40 hours a week for 48 weeks $\rightarrow$ 67% leisure
- Divide leisure equally among all 25 to 64 year olds in the household

Leisure by race

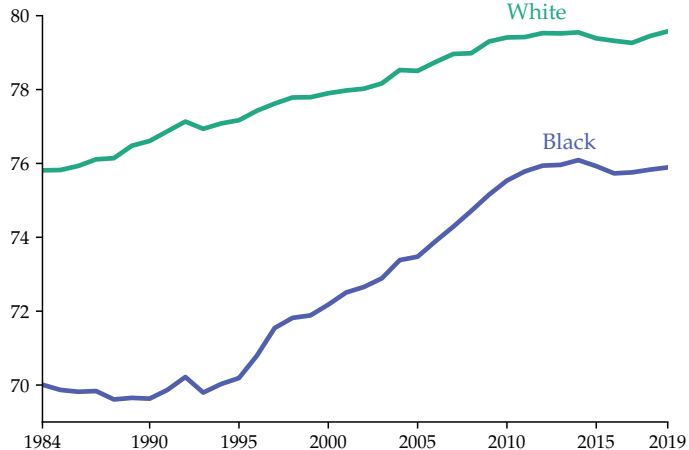


Centers for Disease Control and Prevention (CDC)

- Life Tables for each age in each year
- Death records (D) and population-at-risk estimates (P)
- Probability of surviving up to age a:

$$S_a = \prod_{age=0}^{a} \left(1 - M_{age}\right) \quad \text{where} \quad M_{age} = D_{age}/P_{age}$$

Life expectancy by race



Flow utility

$$u(c, \ell) = \overline{u} + \log(c) + v(\ell)$$

$$\text{where} \quad v(\ell) = -\frac{\theta\epsilon}{1+\epsilon} \cdot (1-\ell)^{\frac{1+\epsilon}{\epsilon}}$$

- Death is normalized to zero
- ϵ is the constant Frisch elasticity of labor supply

Calibration

Parameter	Symbol	Value	Source
Frisch elasticity	ϵ	1.0	Hall (2009) and Chetty et al. (2012)
Leisure utility weight	θ	14.2	Jones and Klenow (2016)
Flow utility intercept	$\overline{u}$	6.23	VSL of \$7.4M in 2006 (EPA)

- Intercept: one year of life is worth 6.23 years of consumption in 2019

Definitions

Survival rates normalized by White life expectancy:

$$s_{Ba} \equiv \frac{S_{Ba}}{\sum_a S_{Wa}} \quad \text{and} \quad \Delta s_{Ba} \equiv \frac{S_{Ba} - S_{Wa}}{\sum_a S_{Wa}}$$

Average lifetime utility from consumption and leisure:

$$\mathbb{E}\log(c_i) \equiv \sum_a s_{Wa}\mathbb{E}[\log(c_{ia})] \quad \text{and} \quad \mathbb{E}v(\ell_i) \equiv \sum_a s_{Wa}\mathbb{E}[v(\ell_{ia})]$$

Average lifetime consumption and leisure:

$$\bar{c}_i \equiv \sum_a s_{Wa}\mathbb{E}[c_{ia}] \quad \text{and} \quad \bar{\ell}_i \equiv \sum_a s_{Wa}\mathbb{E}[\ell_{ia}]$$

Decomposition

$$\log(\lambda_{CV}) = \sum_a \Delta s_{aB} \mathbb{E}[u(c_{aB}, \ell_{aB})]$$ Life expectancy

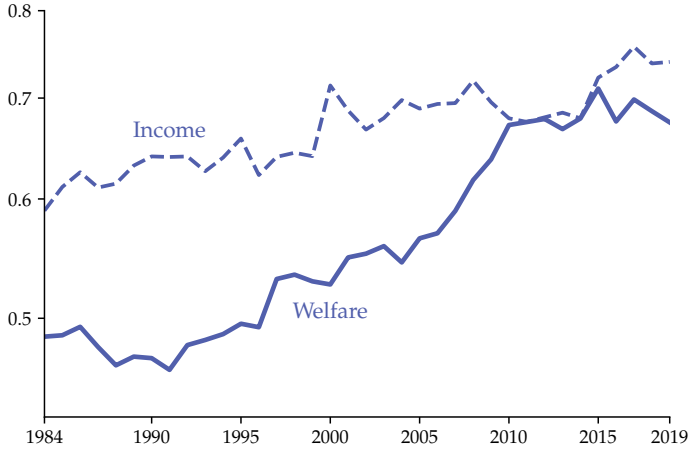
$$+ \log(\bar{c}_B) - \log(\bar{c}_W)$$ Consumption

$$+ v(\bar{\ell}_B) - v(\bar{\ell}_W)$$ Leisure

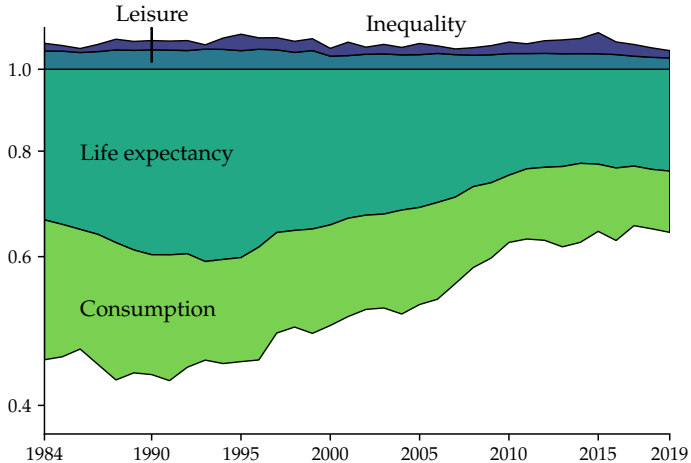
$$+ \mathbb{E}\log(c_B) - \log(\bar{c}_B) - [\mathbb{E}\log(c_W) - \log(\bar{c}_W)]$$ Consumption inequality

$$+ \mathbb{E}v(\ell_B) - v(\bar{\ell}_B) - \left[\mathbb{E}v(\ell_W) - v(\bar{\ell}_W)\right]$$ Leisure inequality

Black relative to White welfare and income



Relative welfare decomposition



Welfare growth between 1984 and 2019 (in % per year)

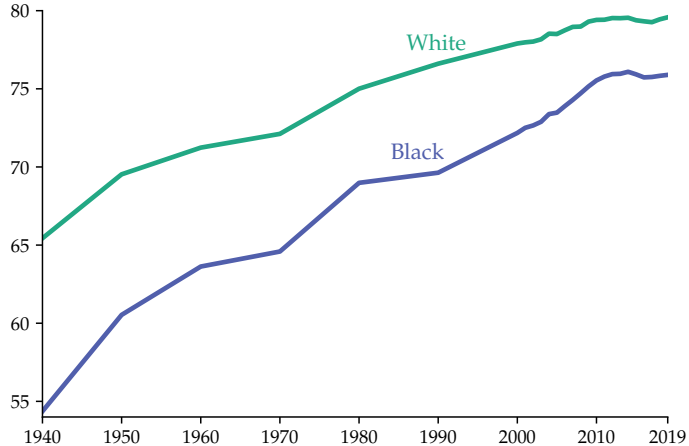
	Welfare	Income	LE	c	$\sigma(c)$	ℓ	$\sigma(\ell)$
Black	3.44	2.29	1.25	2.51	-0.03	-0.17	-0.13
White	2.42	1.63	0.79	1.91	-0.10	-0.12	-0.06
Gap	1.02	0.66	0.46	0.61	0.07	-0.05	-0.07

A longer view with more limited data

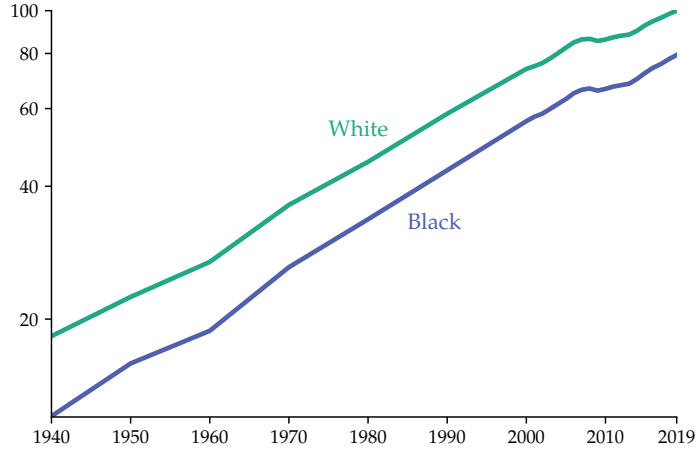
U.S. Census goes back further in time:

- Decadal: 1940 to 2000
- Annual American Community Survey (ACS): 2005 to 2019
- Impute consumption from income in the Census data
- Coefficients from consumption on income in the CEX 1984–2019
- Use hours worked bins to infer leisure
- Focus on means by group; omit the inequality terms

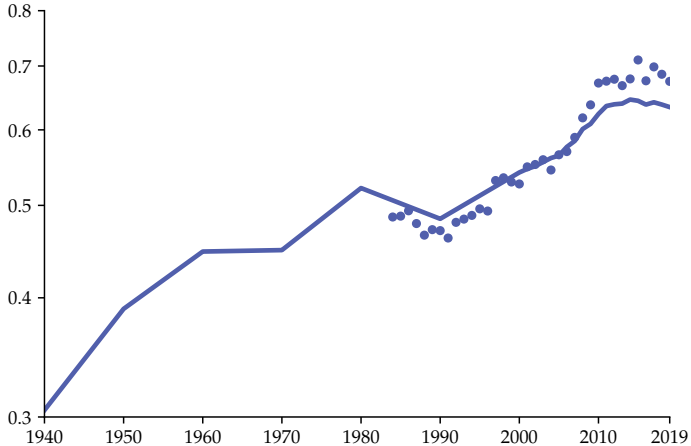
Life expectancy



Imputed consumption per capita



Black relative to White welfare



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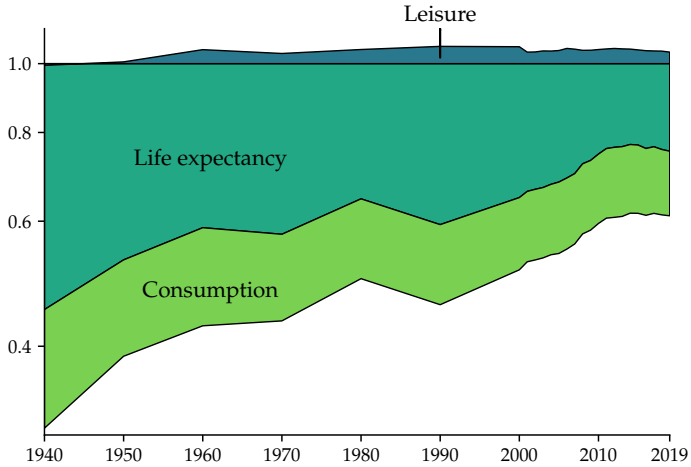
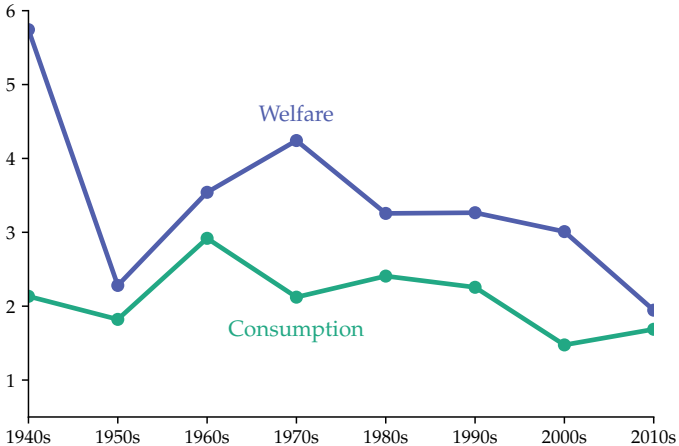
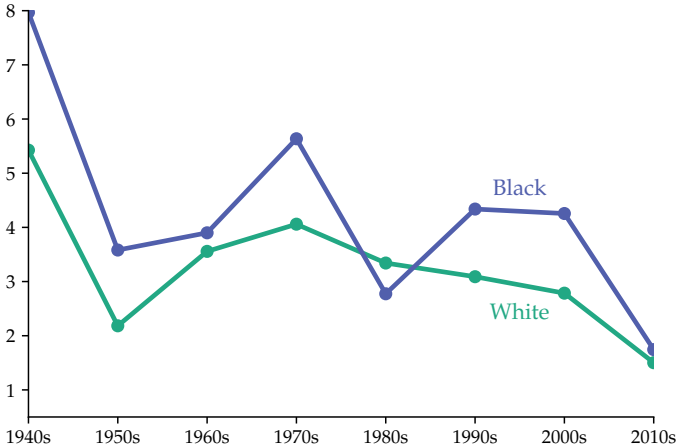


Welfare vs. consumption growth (all races)



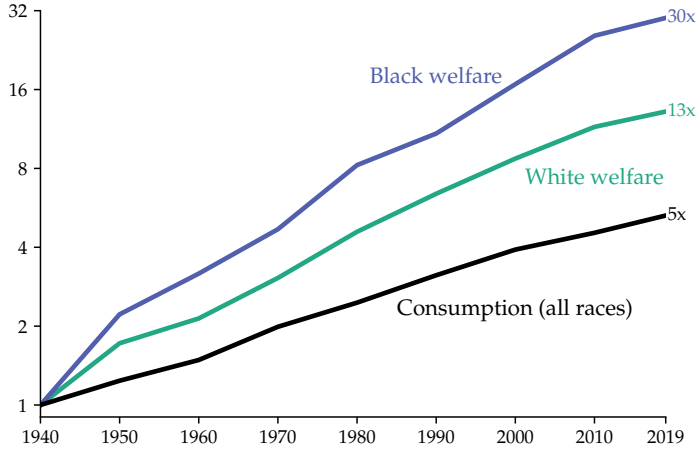
Welfare growth by race



Welfare growth between 1940 and 2019

	1940–1980				1940–2019			
	λ	LE	c	ℓ	λ	LE	c	ℓ
Black	5.37	2.79	2.55	0.03	4.48	2.21	2.32	-0.04
White	3.84	1.69	2.25	-0.10	3.34	1.33	2.10	-0.10
Gap	1.53	1.11	0.30	0.13	1.14	0.87	0.21	0.06

Cumulative welfare growth

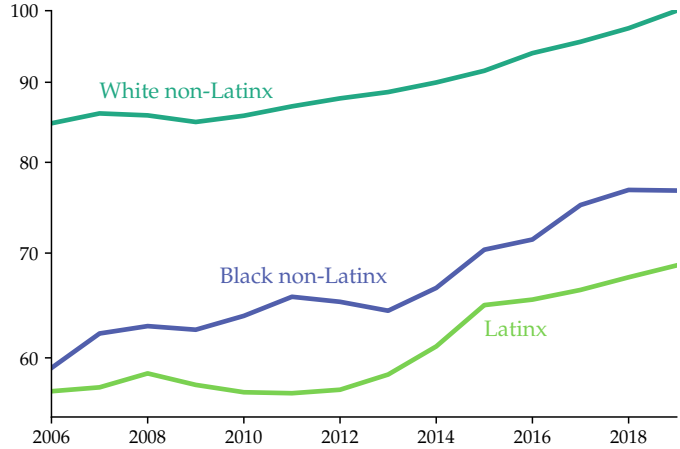


COVID-19 and welfare

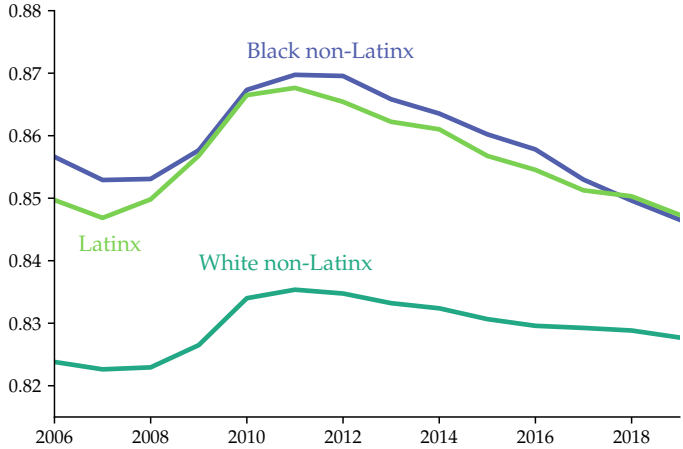
	Deaths per thousand	Age of victims	Years of life lost per victim	Group welfare loss (%)
Black non-Latinx	1.51	71.6	15.5	14.2
White non-Latinx	1.31	79.8	10.9	7.7
Latinx	1.24	69.2	19.9	21.1

Note: As of January 30, 2021, the CDC reports a total of 421,378 COVID-19 deaths.

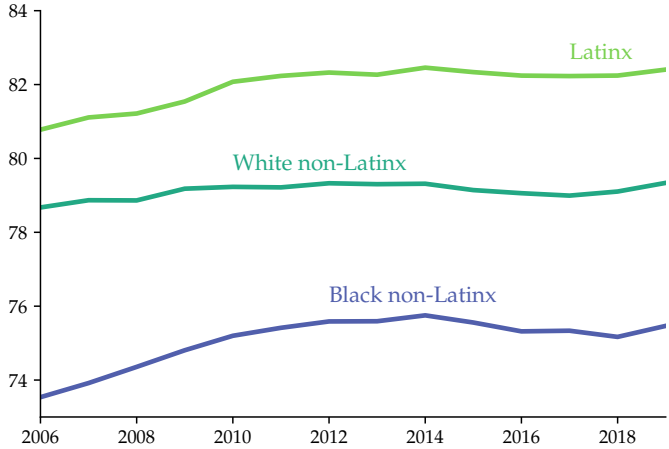
Per capita consumption by race



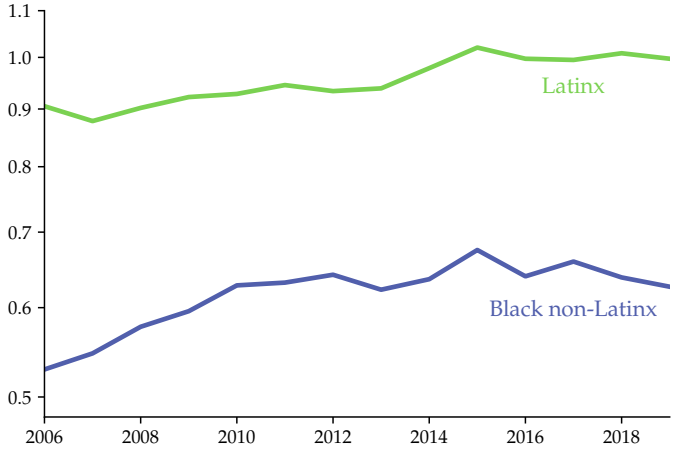
Leisure by race



Life expectancy by race



Black and Latinx welfare relative to White welfare



Summary

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Work in progress ...

- Incarceration
- Unemployment
- Morbidity
- Results by race and education