

Disparities in Social Determinants of Health: What Can We Do?

Jeffrey Brenner MD
CEO, The Jewish Board





CAUTION
SHALLOW
WATER
NO DIVING

Housing + Health
Integrated Care Housing Solution
Phoenix, Arizona



Homeless vs. averages of all members in Maricopa County:

- Use the ER nearly 9x more
- Admitted nearly 6x the average
- Spend over 3x more

A portrait of a middle-aged man with short brown hair and blue eyes, looking directly at the camera with a serious expression. He is wearing a dark blue jacket over a plaid shirt. The jacket has a logo on the left chest that reads "Pile SERVICES" and a small American flag patch on the right sleeve. The background is blurred, showing green foliage and some out-of-focus lights.

Jeff

50, Medicaid Expansion
Phoenix, Arizona

Socio-clinical Complex Needs:

- Chronic kidney disease
- Gastrointestinal issues
- Serious foot injury
- Homeless and unemployed

Pre-intervention:

- **\$20,400** average monthly cost of care
- **1** ER visit
- **10** inpatient admits
- **81** inpatient days

Post-intervention:

- **\$400** average monthly cost of care
- **0** ER visits
- **0** inpatient admits
- **0** inpatient days



A woman with grey hair, wearing a white short-sleeved blouse and a vibrant pink and orange patterned scarf, is seated in a wheelchair. She is holding a black mobile phone in her right hand. The setting appears to be a closet or a small room with white walls. To the left, there are clothes hanging on a rack and a blue bag on the floor. The floor is made of dark wood. A blue text box is overlaid on the bottom left of the image.

Carol

54, Medicaid Expansion
Phoenix, Arizona

Carol's Story

Socio-clinical Complex Needs:

- Rheumatoid arthritis
- Diabetes
- Cellulitis
- Gastrointestinal issues
- Trauma from physical and sexual abuse
- Inconsistent medication management
- Homeless
- Unemployed
- Uses a wheelchair

Pre-intervention:

- **\$7,400** average monthly cost of care
- **35** ER visits
- **8** inpatient admits
- **113** inpatient days

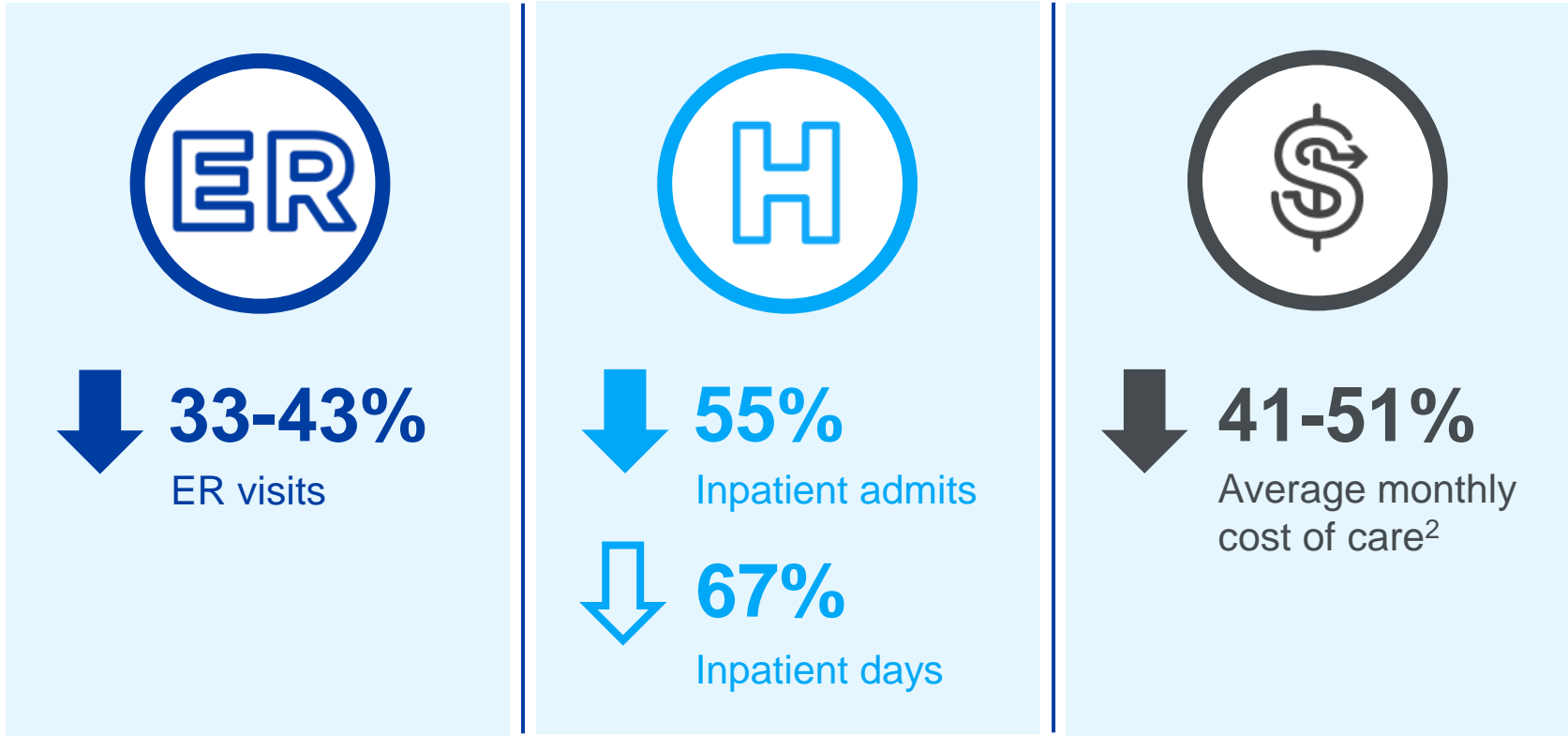


Post-intervention:

- **\$2,000** average monthly cost of care
- **5** ER visits
- **0** inpatient admits
- **0** inpatient days

Housing + Health Results: Improved Outcomes and Health Care Spend

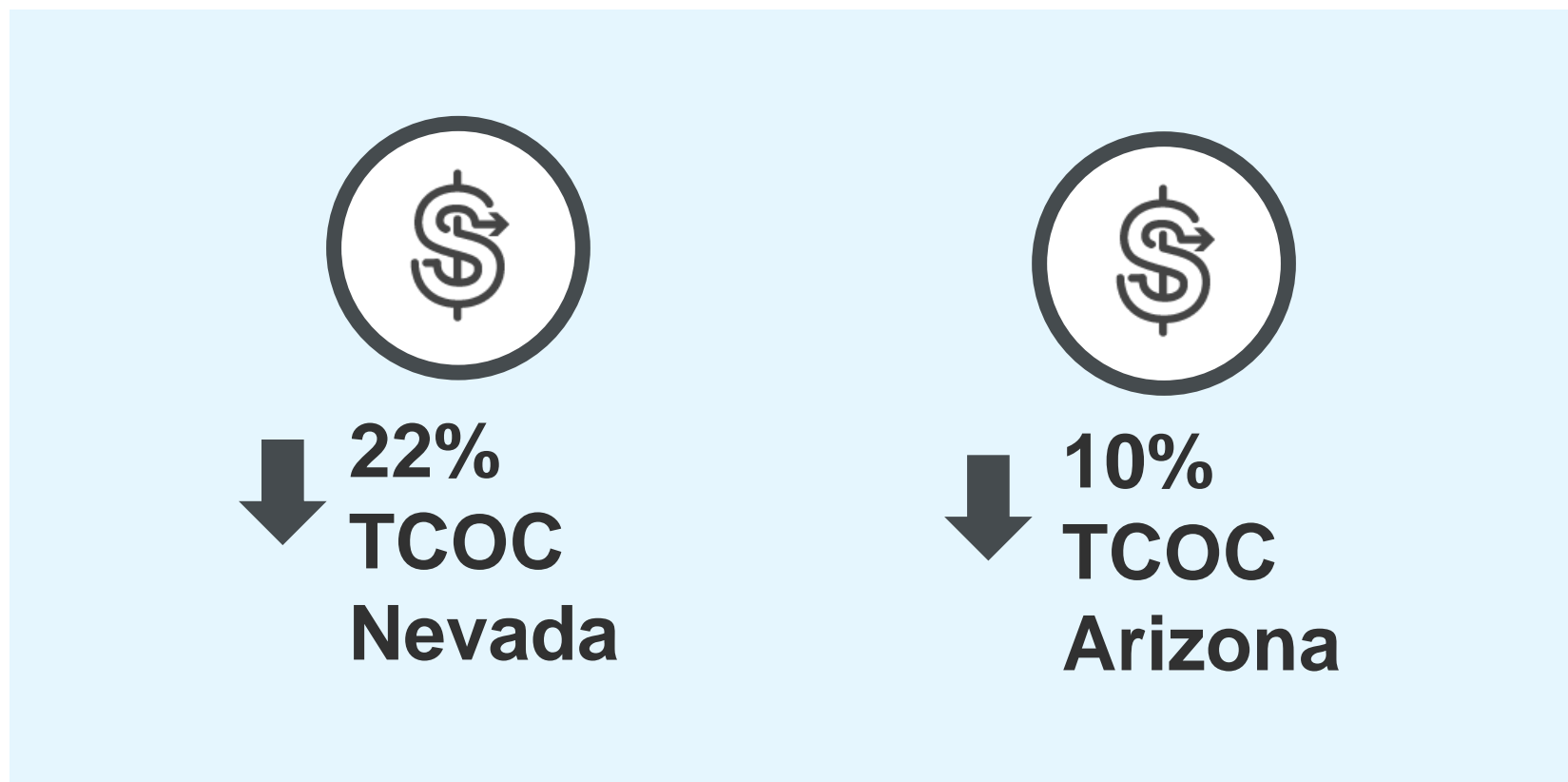
Since October 2017, 248 high-risk, high-cost Medicaid members been housed in Arizona, Nevada and Wisconsin.¹



¹Results are for members who met the eligibility requirements for the analysis. Utilization based on per 1,000 members. Paid claims data is limited and improvements for members may lessen as additional paid claims become available. ²Regression to the mean analysis narrows the reduction of cost of care for members in AZ and NV to 10% and 22% respectively.

Housing + Health Results: Improved Outcomes and Health Care Spend

Since October 2017, 248 high-risk, high-cost Medicaid members been housed in Arizona, Nevada and Wisconsin.¹

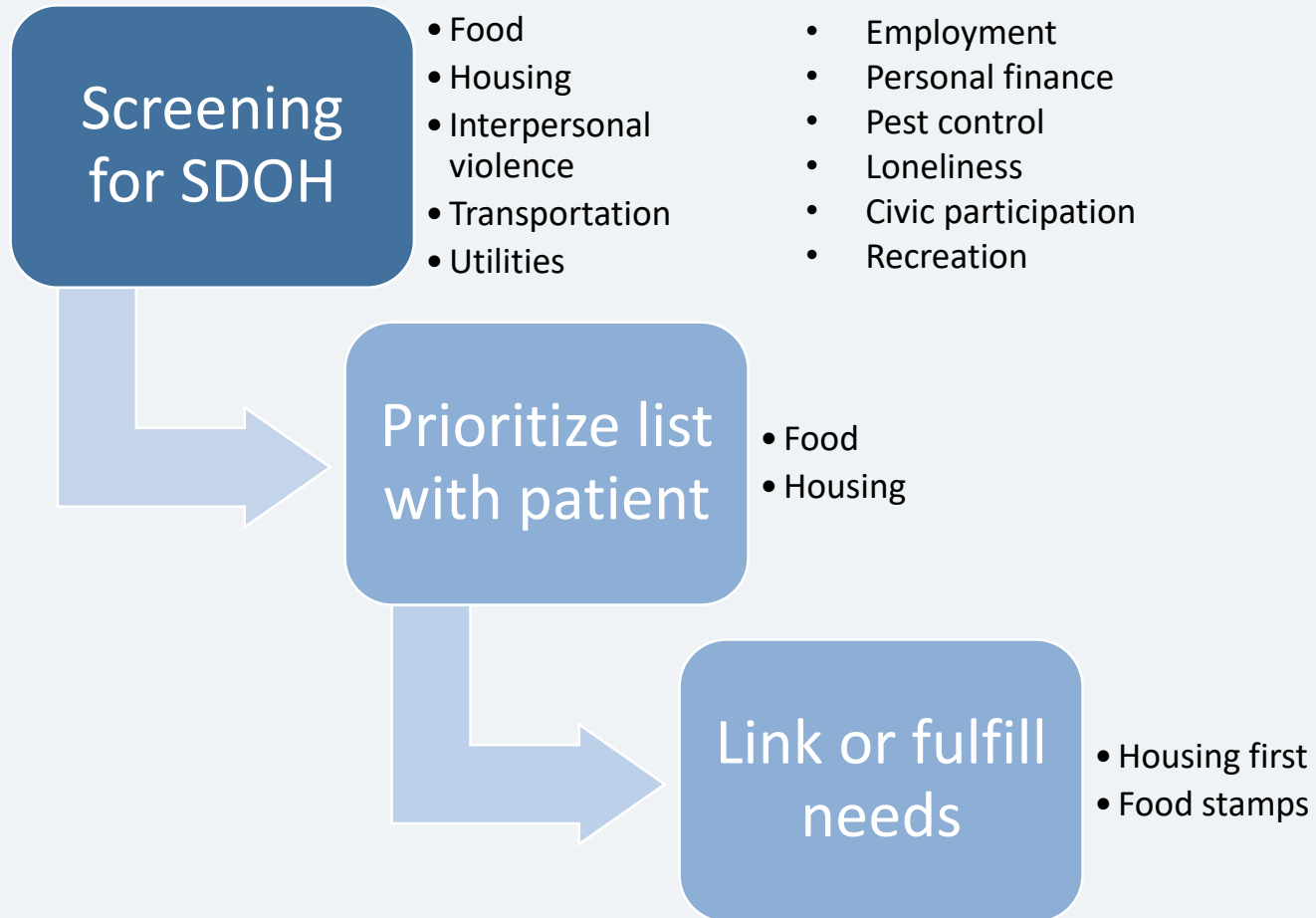


Social determinants of health

WHO definition:

The social determinants of health (SDH) are the non-medical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems.

SDOH- One part of the puzzle



SDOH- One part of the puzzle



Medical

Diabetes
Heart Failure
Kidney Failure
Pain Syndromes



Behavioral

Schizophrenia
Bipolar Disorder
Factitious Disorder
Borderline
Personality Disorder



Social

Homeless
Hungry
Unemployed
Disabled
Criminal Record
No Transportation



Substance Use

Alcohol
Heroin
Cocaine
Prescription
Medication



Age & Frailty

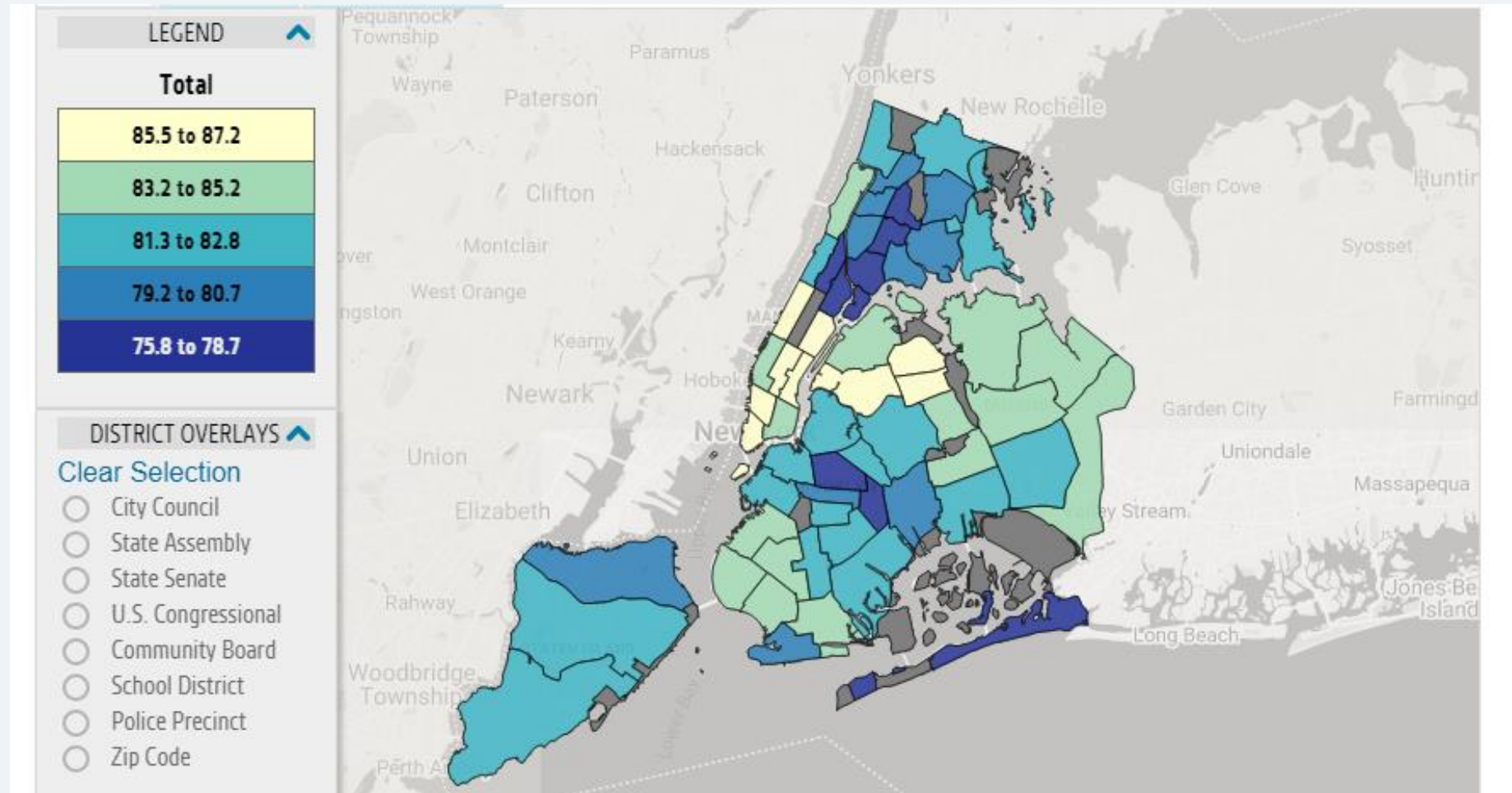
Hospice
Life Expectancy
Palliative Care



Functional Status

Eating
Bathing
Dressing
Personal Hygiene
Toileting
Transferring From
Bed or Chair

Social determinants of health- NYC 2018 Life Expectancy





Cooper Family Medicine
Free Pregnancy Test
Examen De Embarazo Gratis

Hours: Mon-Fri 9am-5pm
Sat 9am-1pm
Sun 12pm-4pm
Tel: 609-963-9026



Cooper
The Cooper Health System
Tel: 609-963-9026

3156

Cooper
The Cooper Health System
Cooper Family Medicine
Jeff Brumby, M.D.
Elaine Miller, M.D., CDE
Family Medicine & Endocrinology
609-963-9026

Social determinants of health

A debate over causality of poor health and unwanted outcomes:

- Individual vs family vs community vs societal
- Innate vs learned
- Social circumstance vs personal responsibility
- 'Good' poor vs 'bad' poor

A debate over directionality:

- Poor health causes poverty or poverty causes poor health
- Broken families cause poverty vs poverty causes broken families
- Mental health issues cause poverty vs poverty causes mental health issues

A debate over solutions:

- Punitive vs rehabilitative or public vs private
- Individual vs family vs community health vs policy/legislative
- Charity vs social change
- Data driven and scientific vs relational and qualitative or targeted vs holistic

Illness: Divine cause vs earthly cause

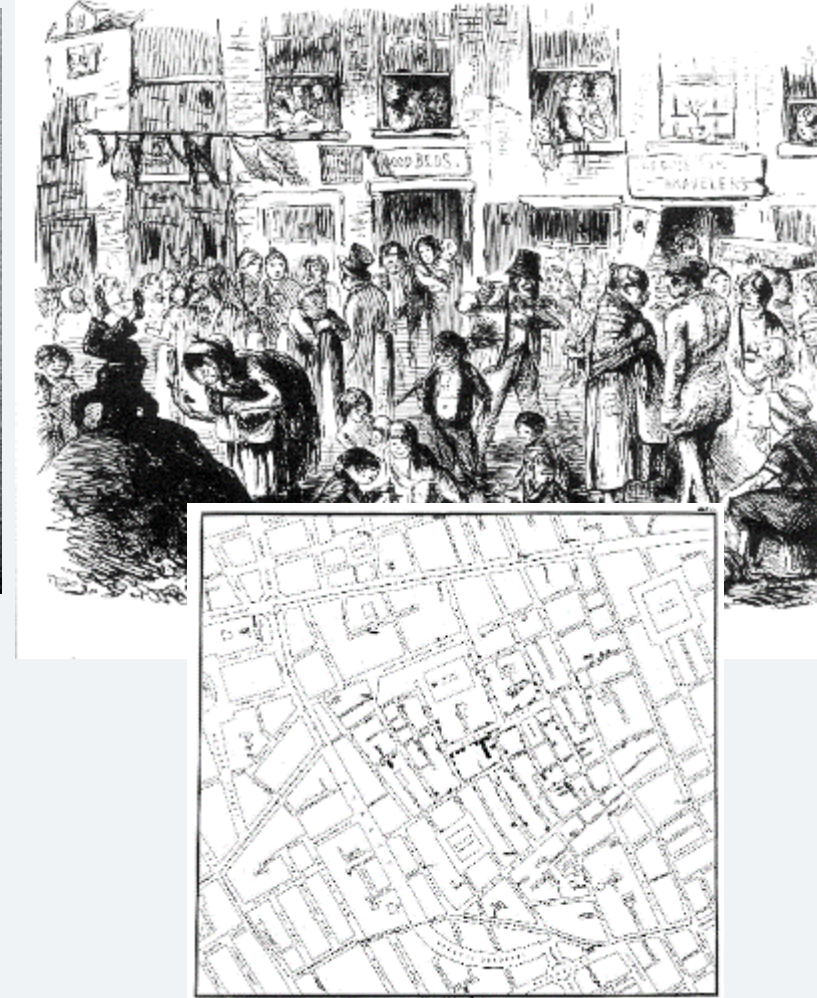
- Greek tradition (Hippocrates, Galen) imagined ill health had an earthly cause which could be impacted

Humor	Organ	Temper	Season	Element
Black bile	Spleen	Melancholy	Cold	Dry earth
Yellow bile	Lungs	Phlegmatic	Cold and wet	Water
Phlegm	The head	Sanguine	Warm and wet	Air
Blood	Gallbladder	Choleric	Warm and dry	Fire



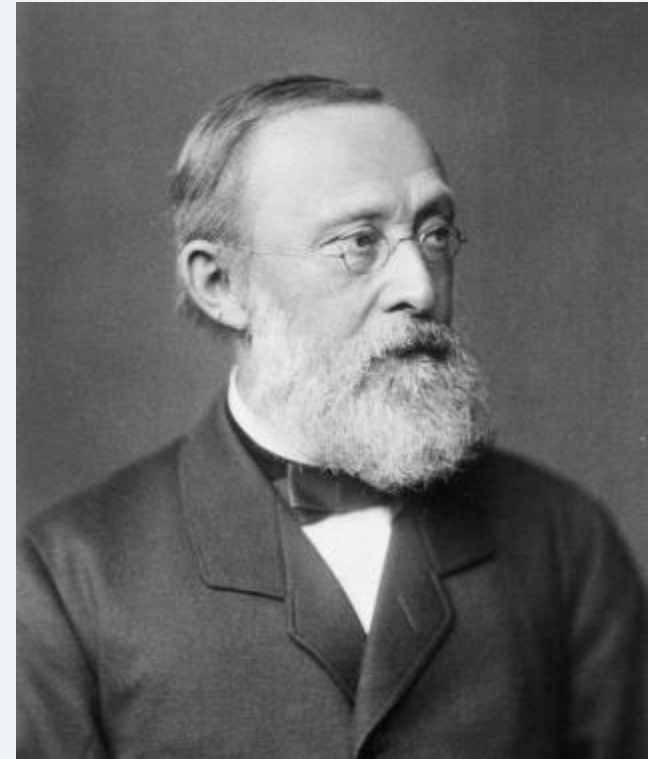
John Snow- Cholera

- English physician, 19th century
- 1854 cholera outbreak in London
- Competing theories for cause: bad air vs germ theory
- Identified cause and stopped the outbreak



Rudolf Virchow

- German physician, 19th century
- “Medicine is a social science, and politics is nothing else but medicine on a large scale.”
- *Report on the Typhus Outbreak of Upper Silesia* he recommended: “full and unlimited democracy” and “education, freedom and prosperity”



Jewish Board History- Social conditions were important

“Were it possible to sum up in a word the keynote of modern effort in the province of public endeavor, that one word would be ‘Prevention’... and were philanthropic efforts to be concentrated in this direction, results would be far reaching and do much to mitigate the extent of human misery.”

— Mortimer Schiff JPAS President, Annual Report 1914



Modern framework for Social Determinants of Health

Upstream

- Political/social/policy
- Social inequities

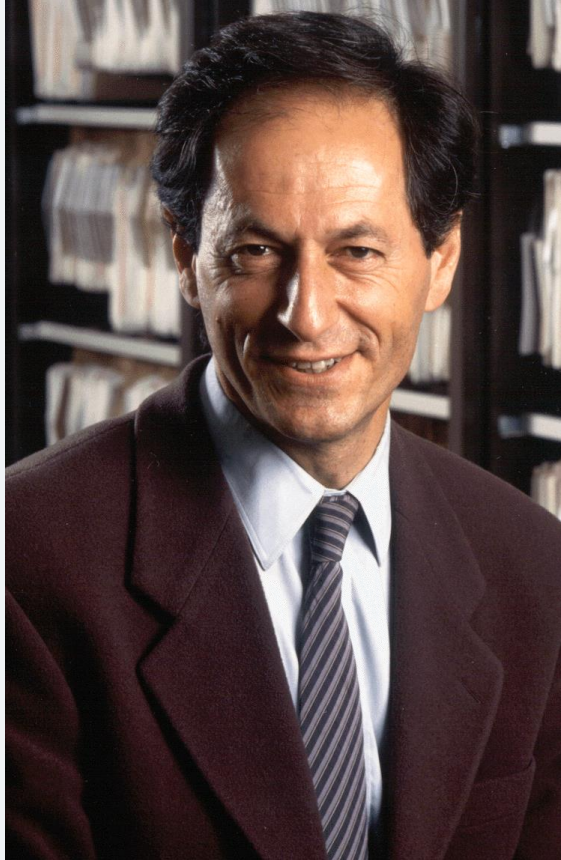
Midstream

- Physical environment
- Individual behaviors

Downstream

- Infectious and chronic disease
- Injuries
- Mortality and life expectancy

Whitehall Study- Income and health

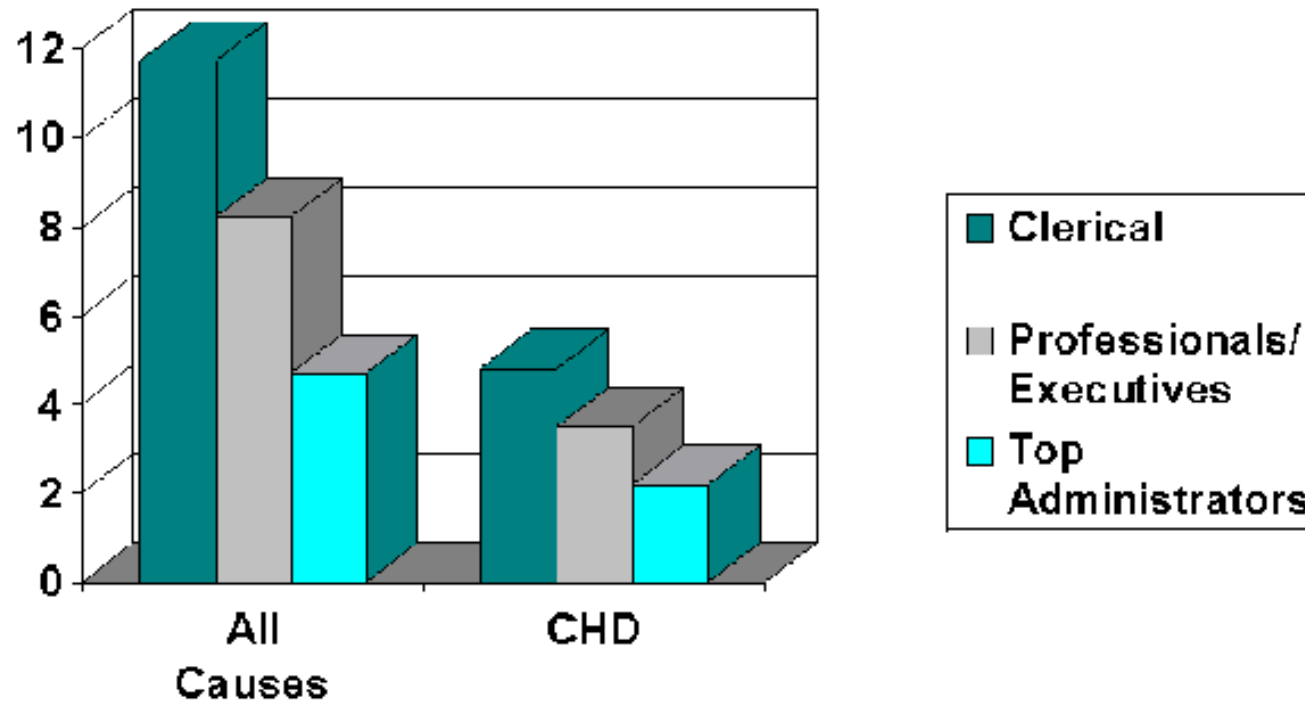


Michael Marmot, PhD

University College London
Dept of Epidemiology and
Public Health
England

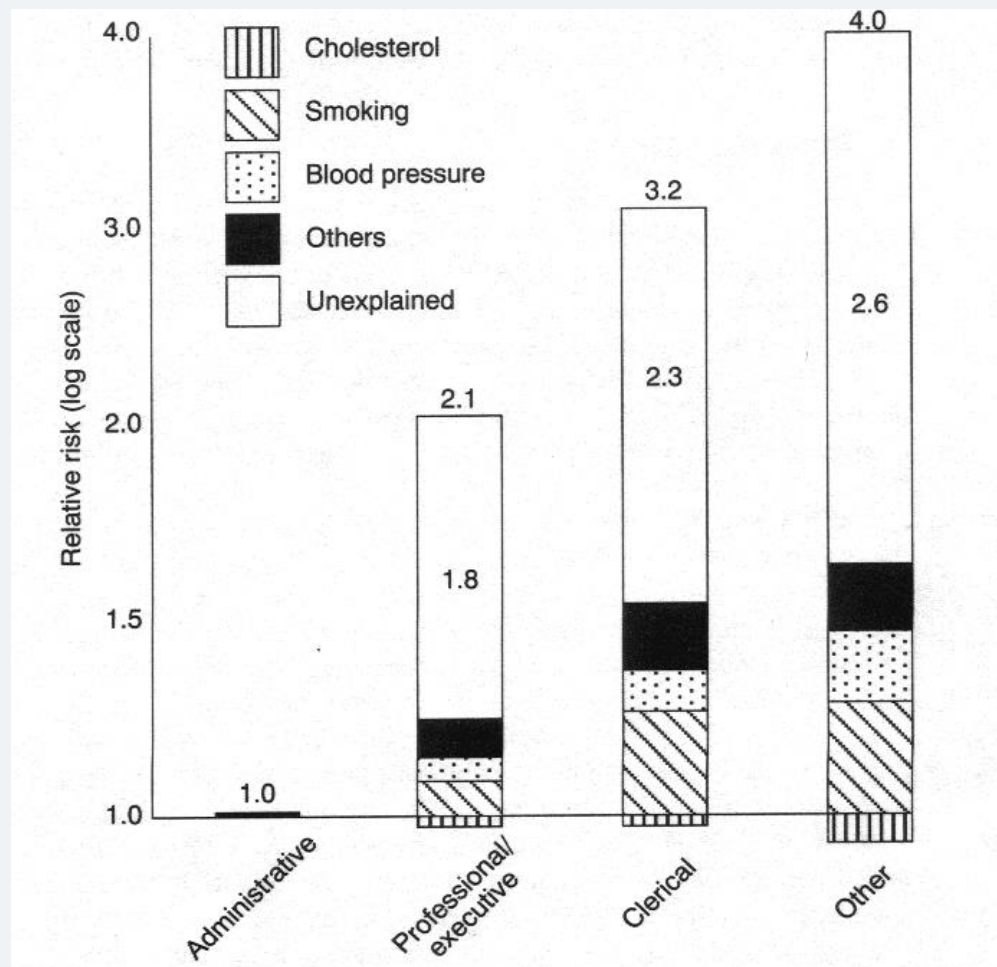
Whitehall Study- Income and health

**10-Year Mortality among British Civil Servants
(age adjusted, 40-64 year old males)**



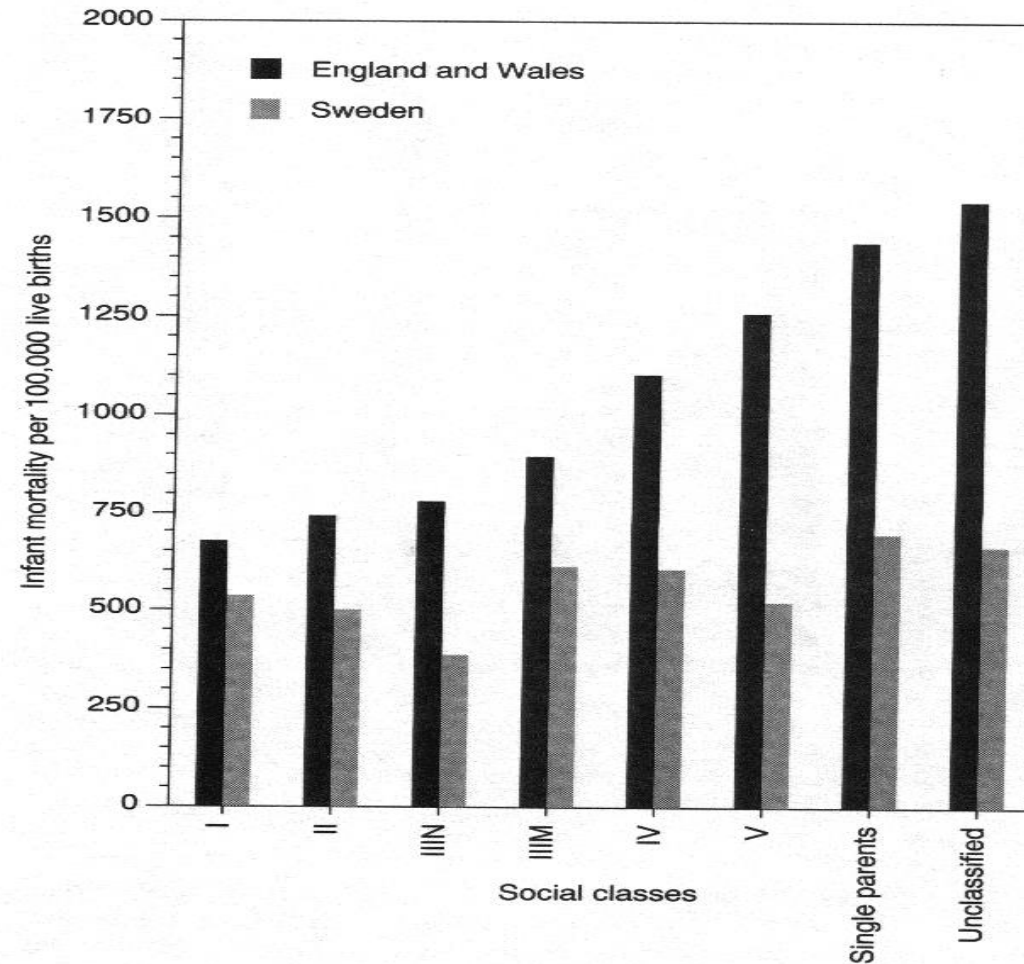
Whitehall Study- Income and health

Data adjusted by
class and known
risk factors



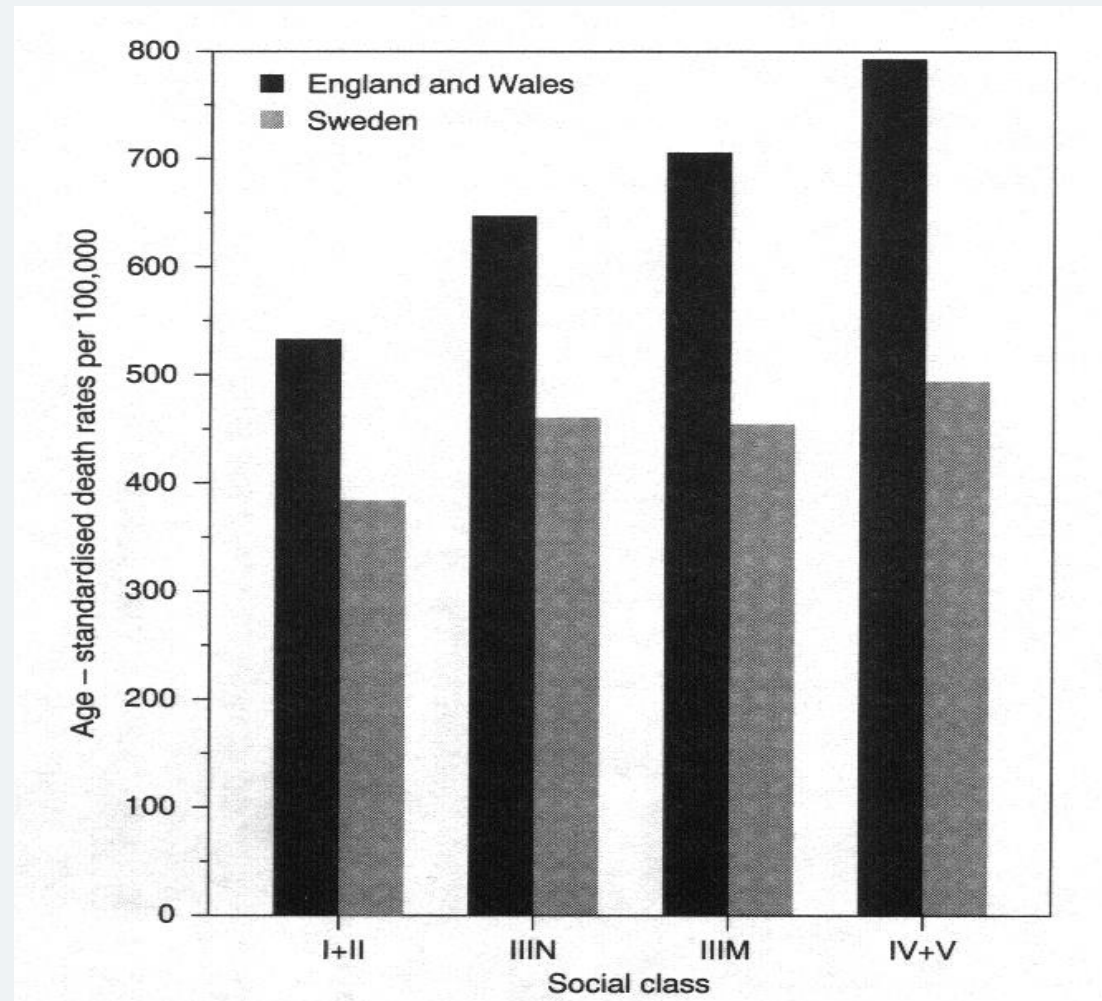
Income and health

Social Class Differences in Infant Mortality in Sweden and England



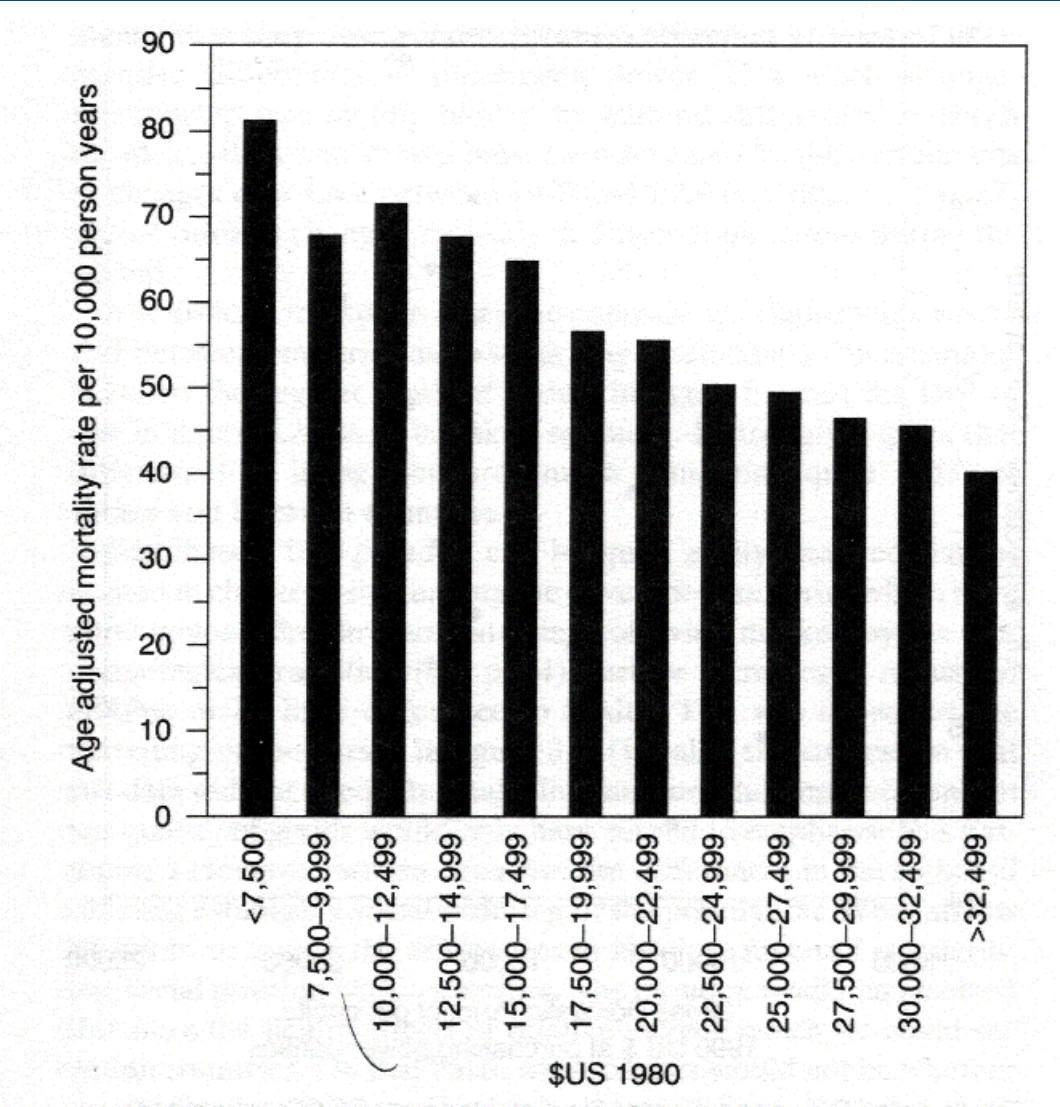
Income and health

Social Class Differences in Mortality of Men 20-64 in Sweden and England



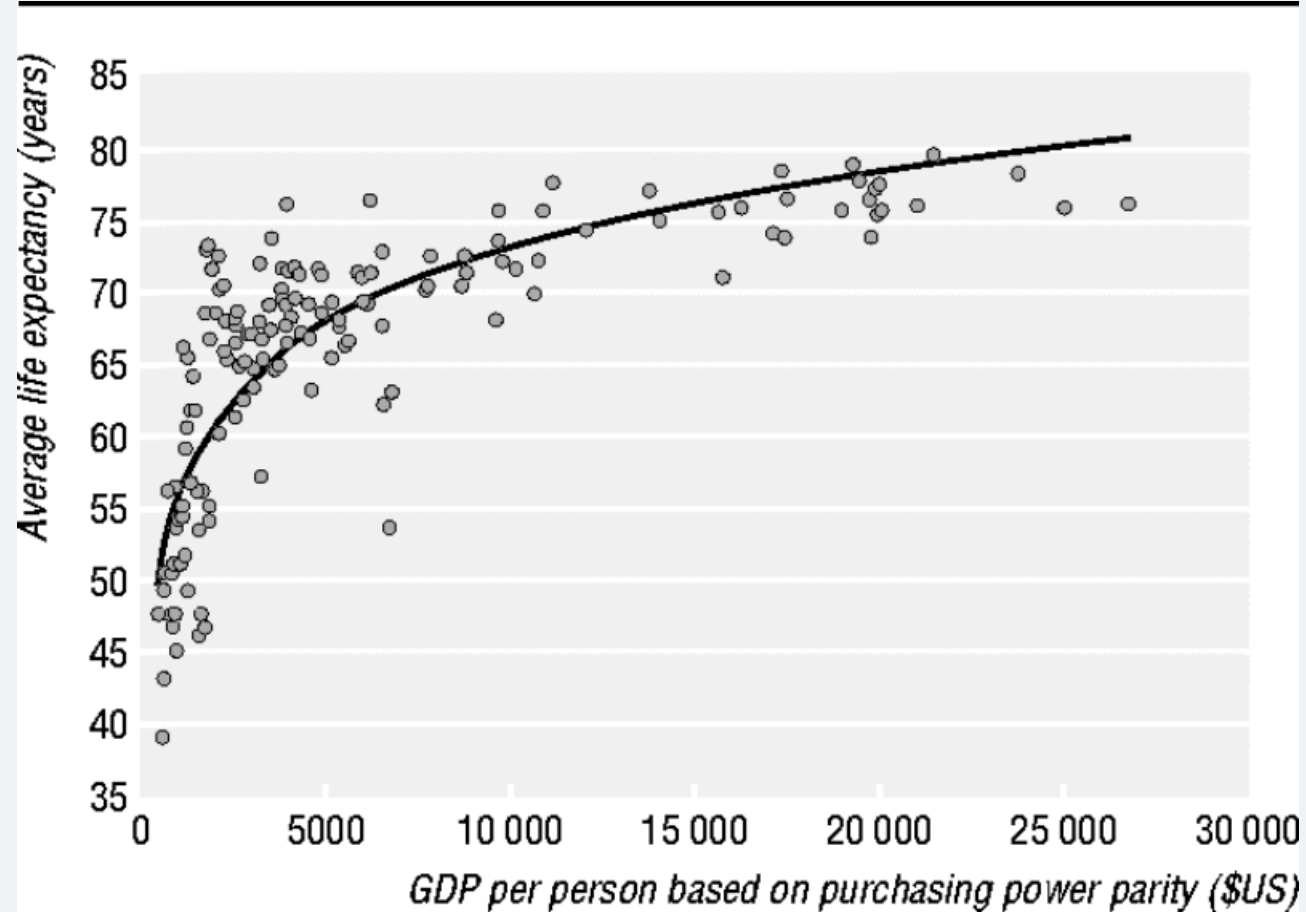
Income and health

Income and Mortality Among White US Men



Income and health

Gross Domestic Product and Life Expectancy in 155 Countries, 1993



From: Lynch: BMJ, Volume 320(7243).April 29, 2000.1200-1204

GDP per Capita in OECD Countries by Life Expectancy

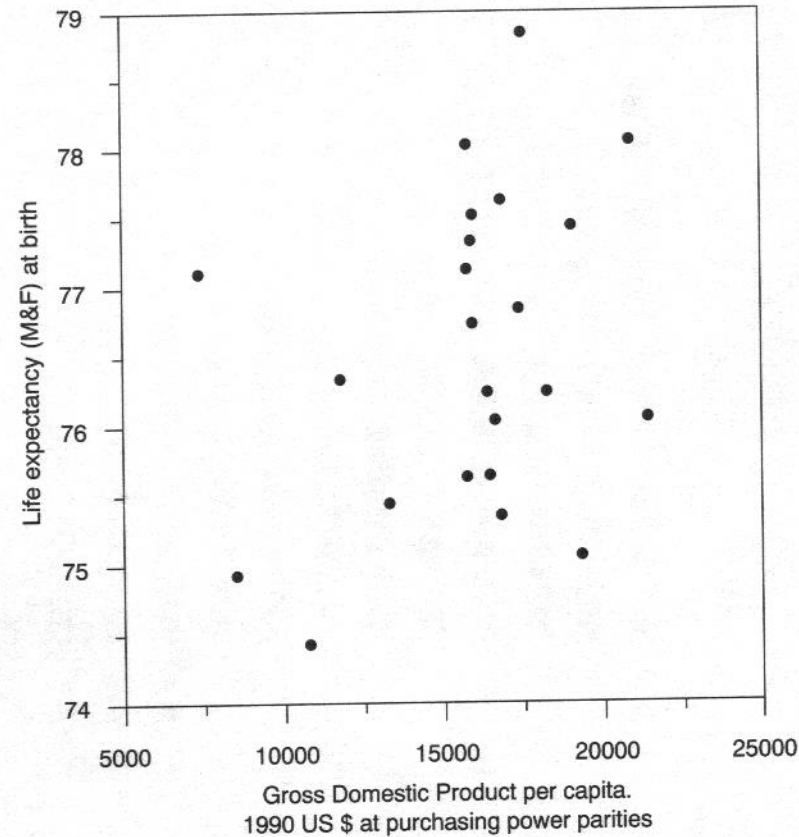
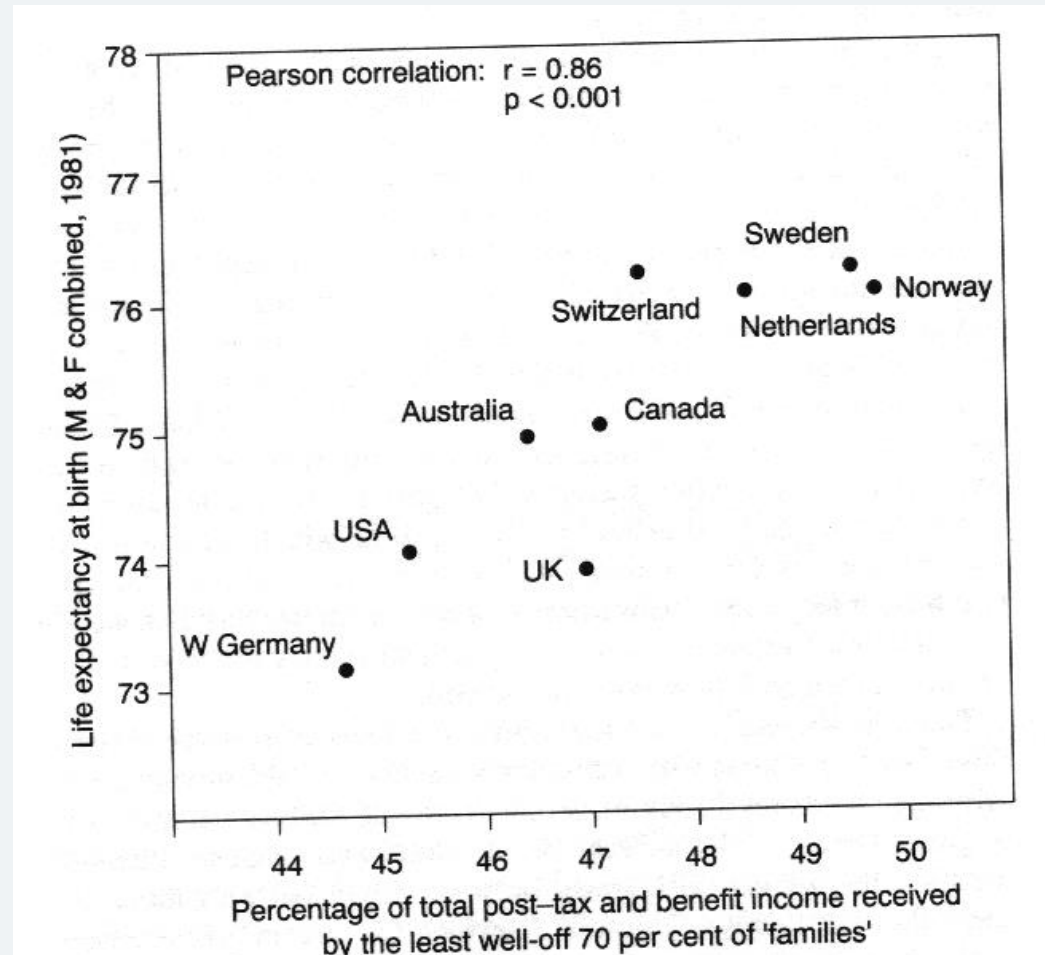


Figure 5.2: GDP per capita and life expectancy in OECD countries in 1990

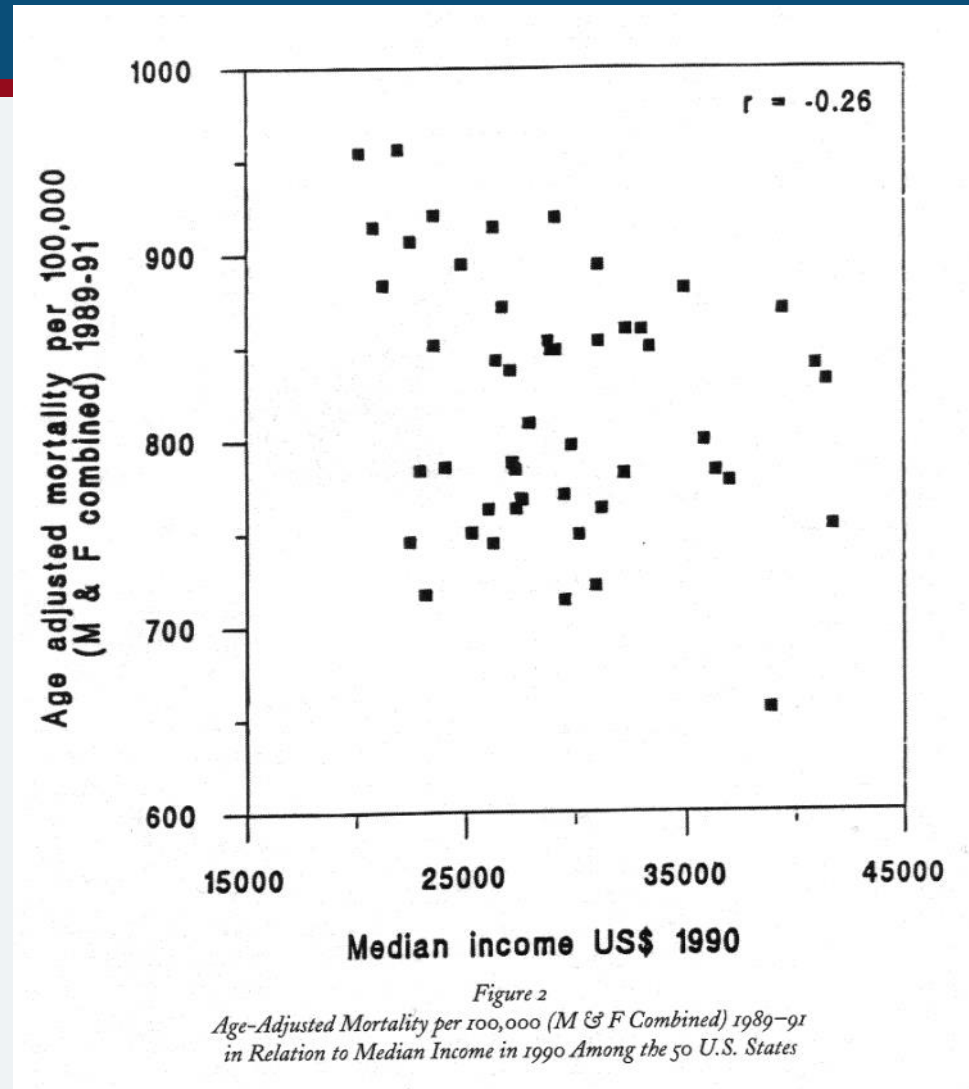
Income and health

Income
Inequality within
Countries
Compared to Life
Expectancy



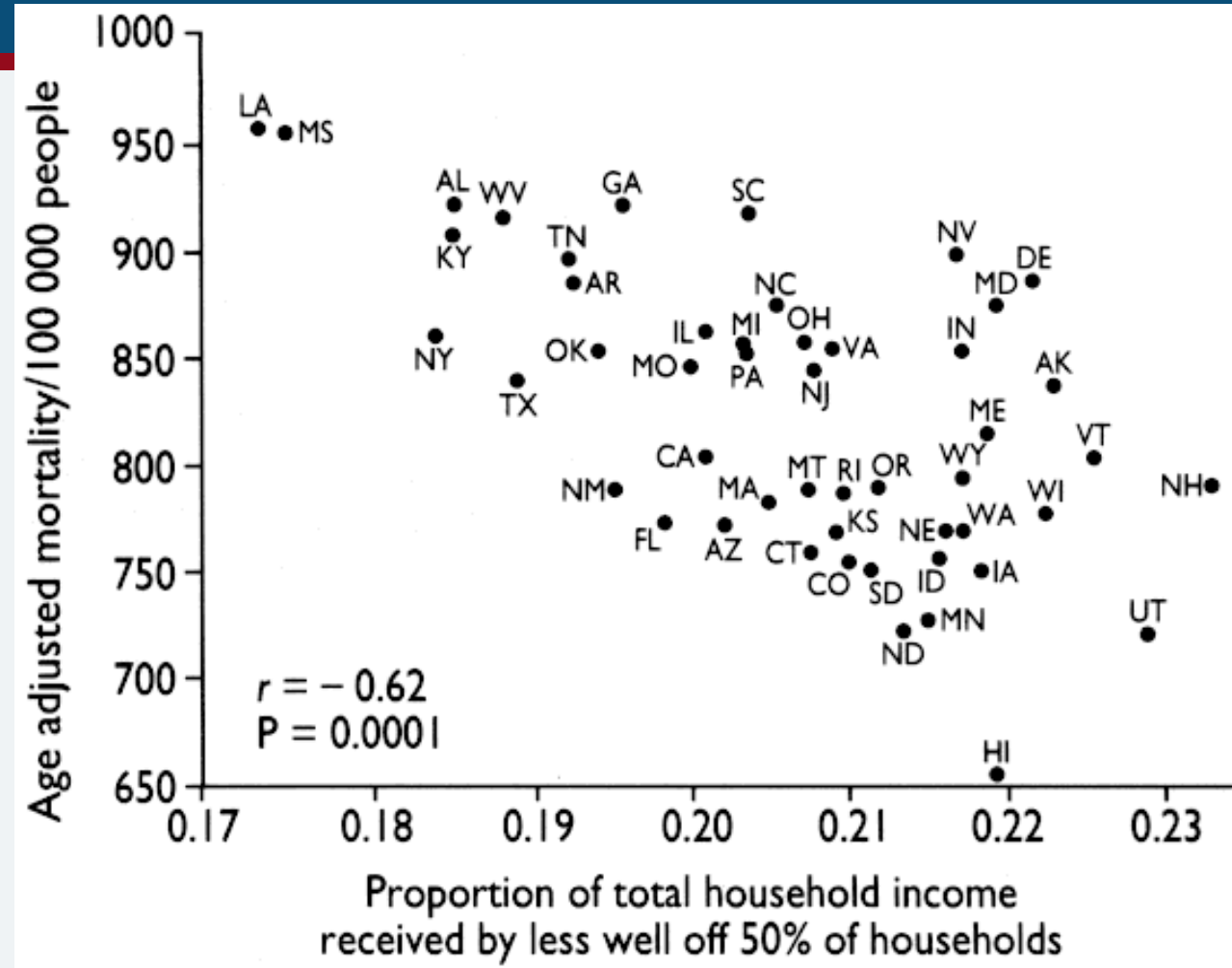
Income and health

The Median
Income by Age
Adjusted Mortality
Across the United
States



Income and health

Inequality in
income and
mortality in
the United
States



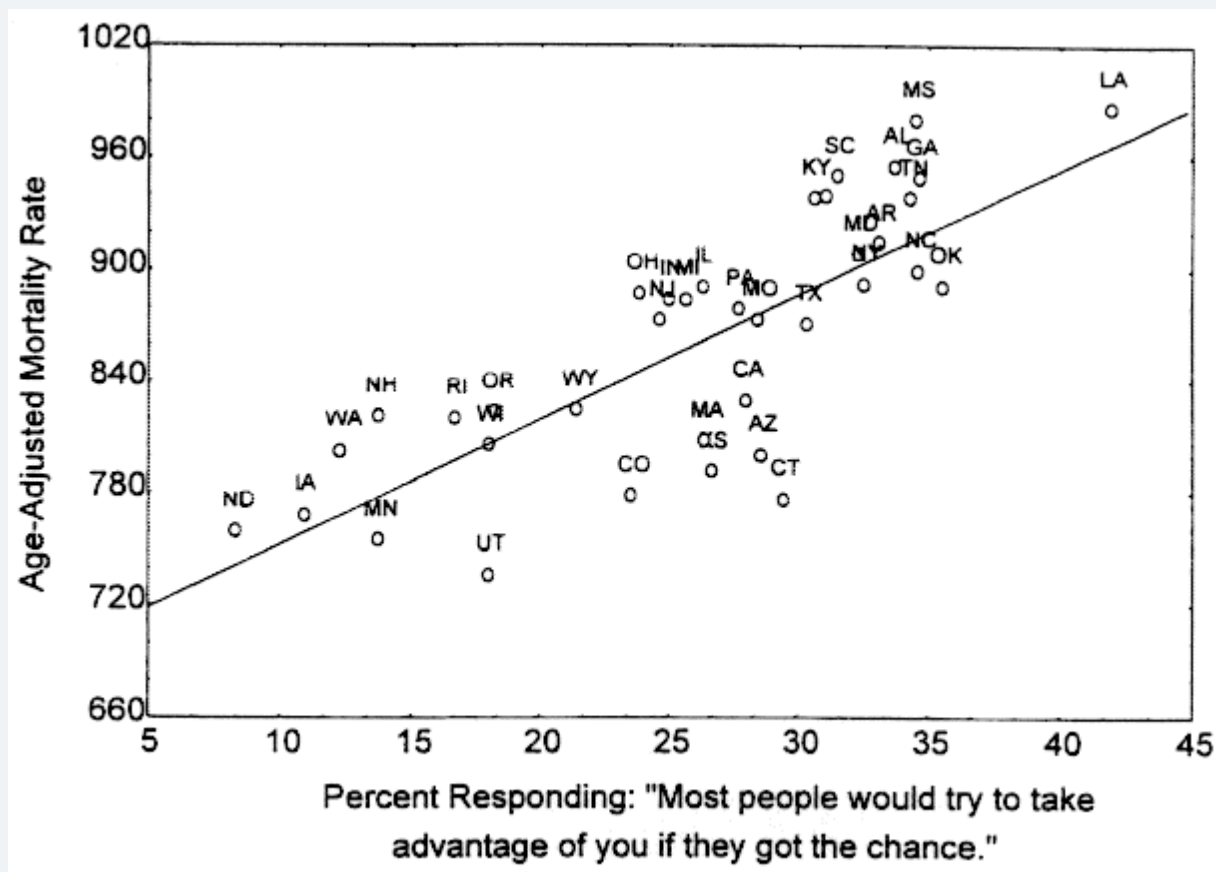
Social trust and health

Are government expenditures responsible for improved health status: Japan vs Sweden?

1st and 2nd in life expectancy in the world

Japan-	spends 15% of GDP on government social programs
Sweden-	spends 40% of GDP on government social programs

Social trust and health



Source: Kawachi: Am J Public Health, Volume 87(9).September 1997.1491-1498

Income and health

Income
Inequality by
Homicide
Rate across
the United
States

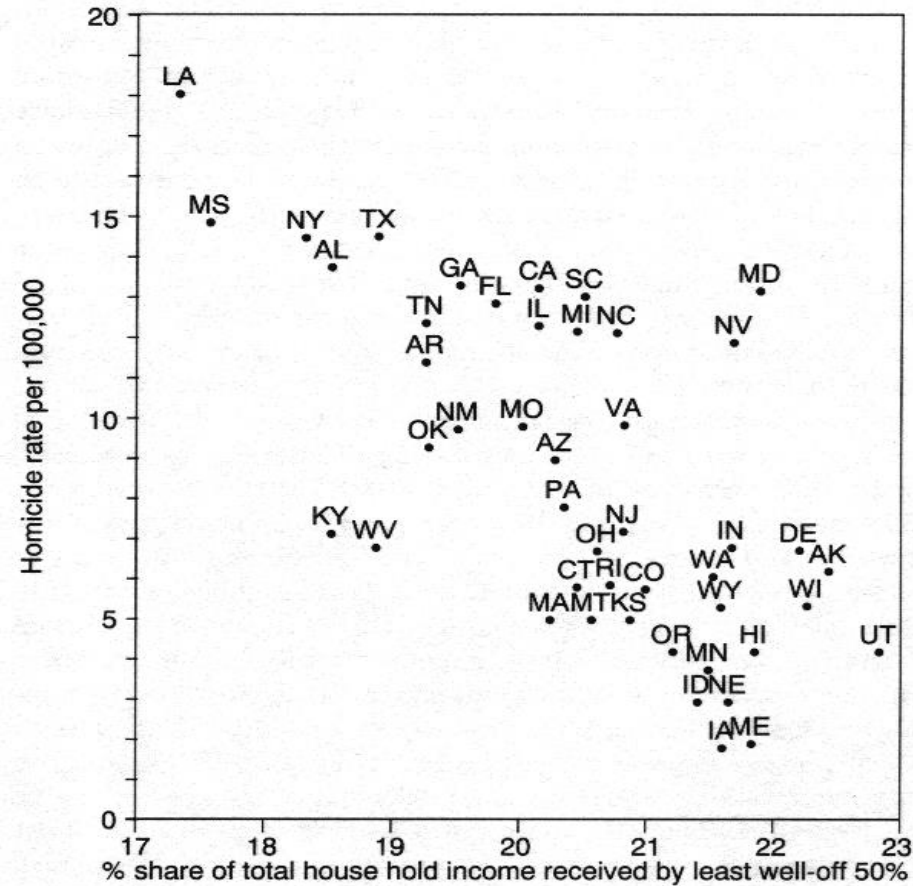


Figure 8.1: The relationship between income distribution and homicide among the states of the USA in 1990

Source: Data calculated from US Census and National Centre for Health Statistics by Kaplan, Pamuk, Lynch, Cohen and Balfour (1996) who kindly provided it for publication here

Social Capital



Robert Putnam, Ph.D.

Harvard

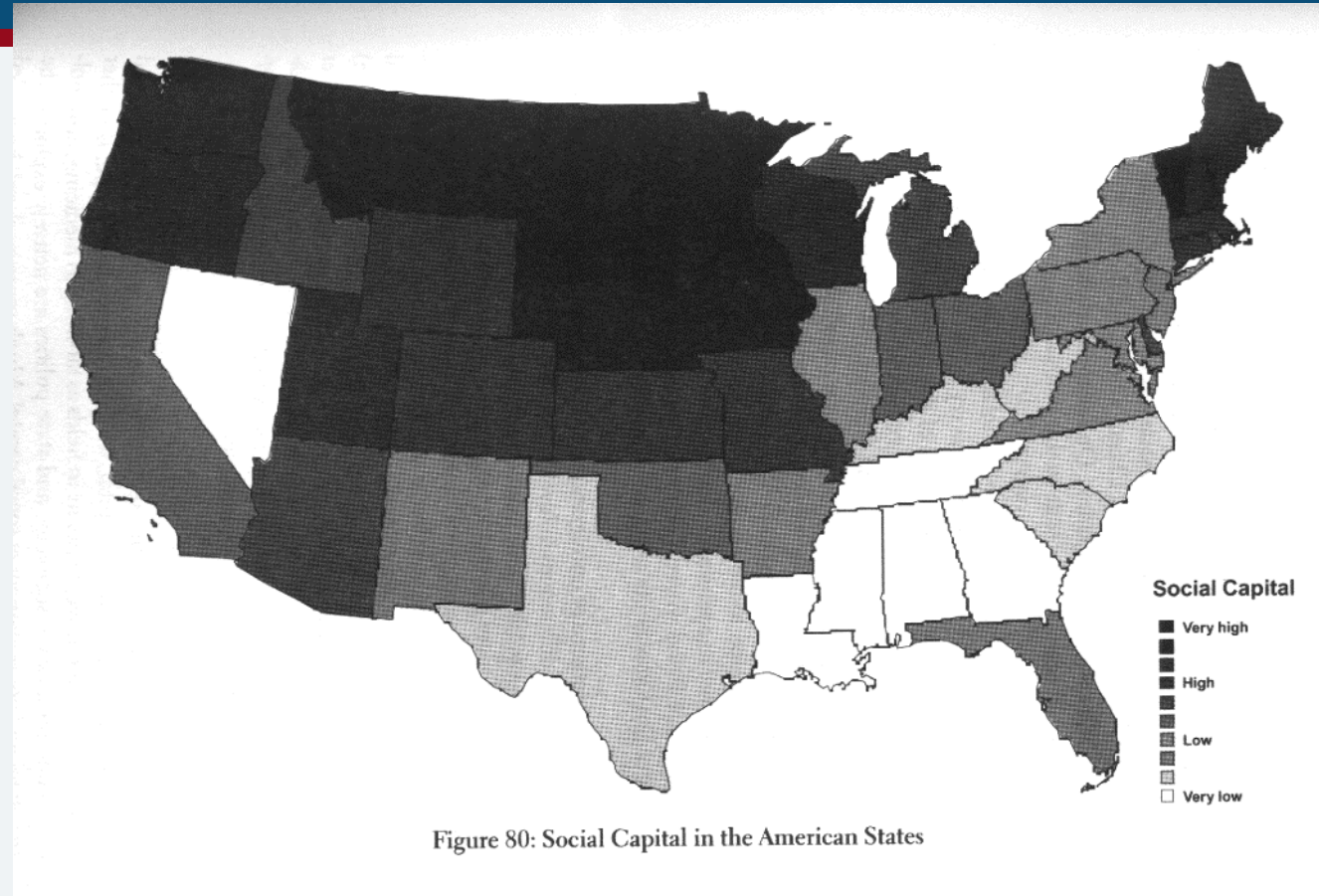
Social Capital

“...social capital refers to connections among individuals-- social networks and the norms of reciprocity and trustworthiness that arise from them.”

Robert Putnam in his book **Bowling Alone**

Social Capital

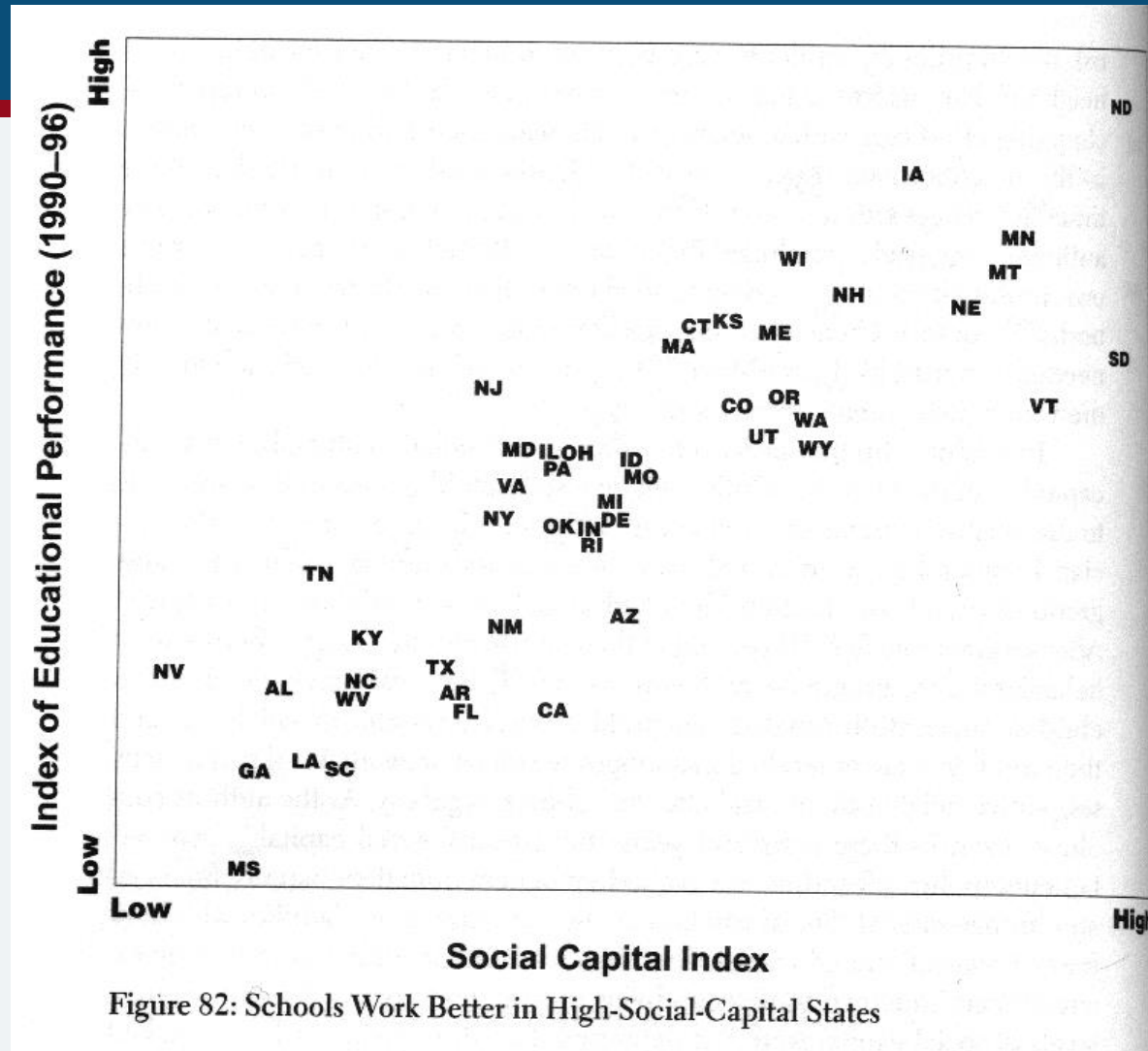
Social Capital Index in the American States



Source: Robert Putnam. *Bowling Alone: the Collapse and Revival of American Community*. Simon & Schuster: New York, 2000.

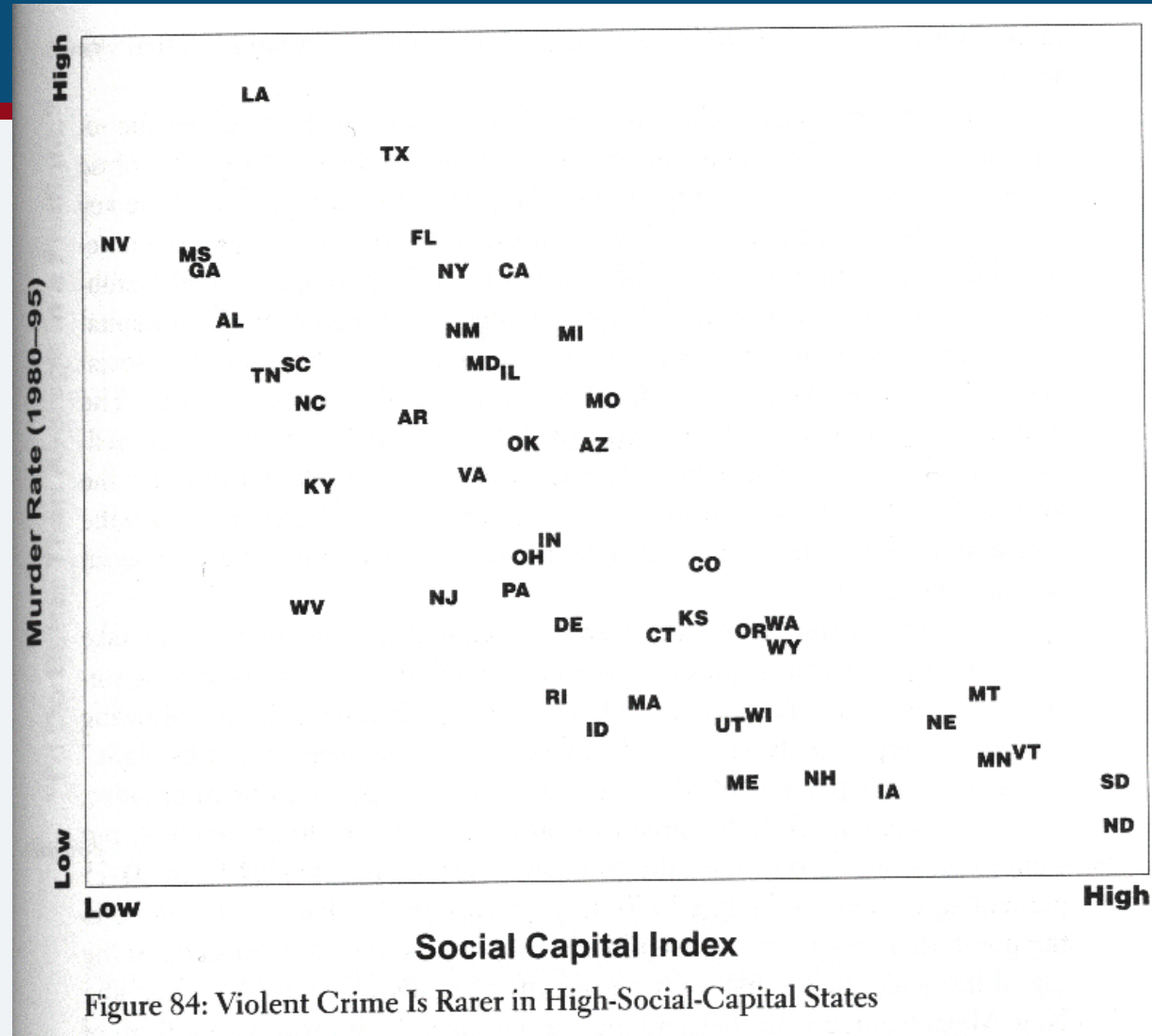
Social Capital

Education
Performance
by Social
Capital Index
Across the
United States



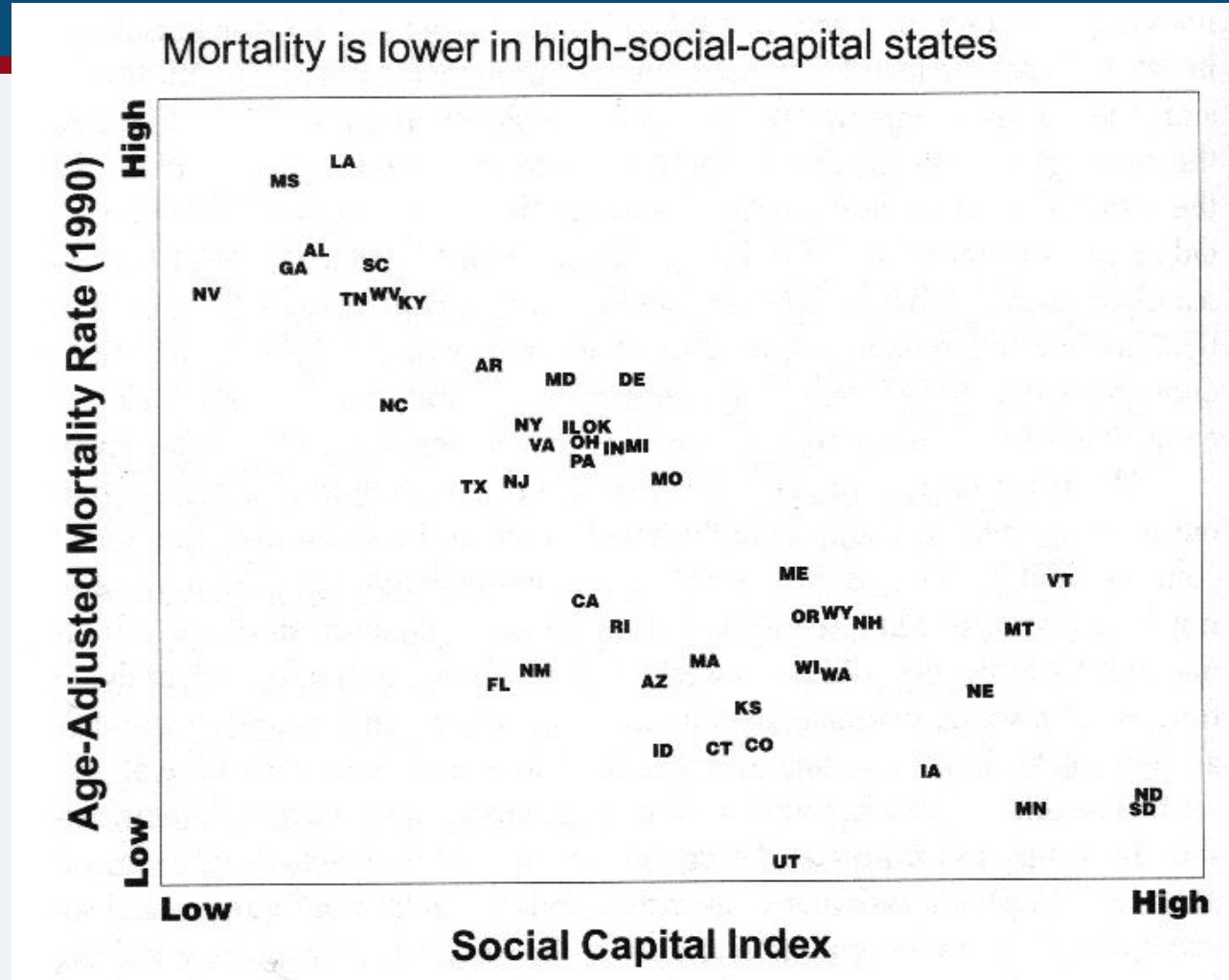
Social Capital

Violent Crime Rates by Social Capital Index Across the United States



Social Capital

Mortality Rates by Social Capital Index Across the United States



Social Capital

Income Inequality
and the Social
Capital Index
across the United
States

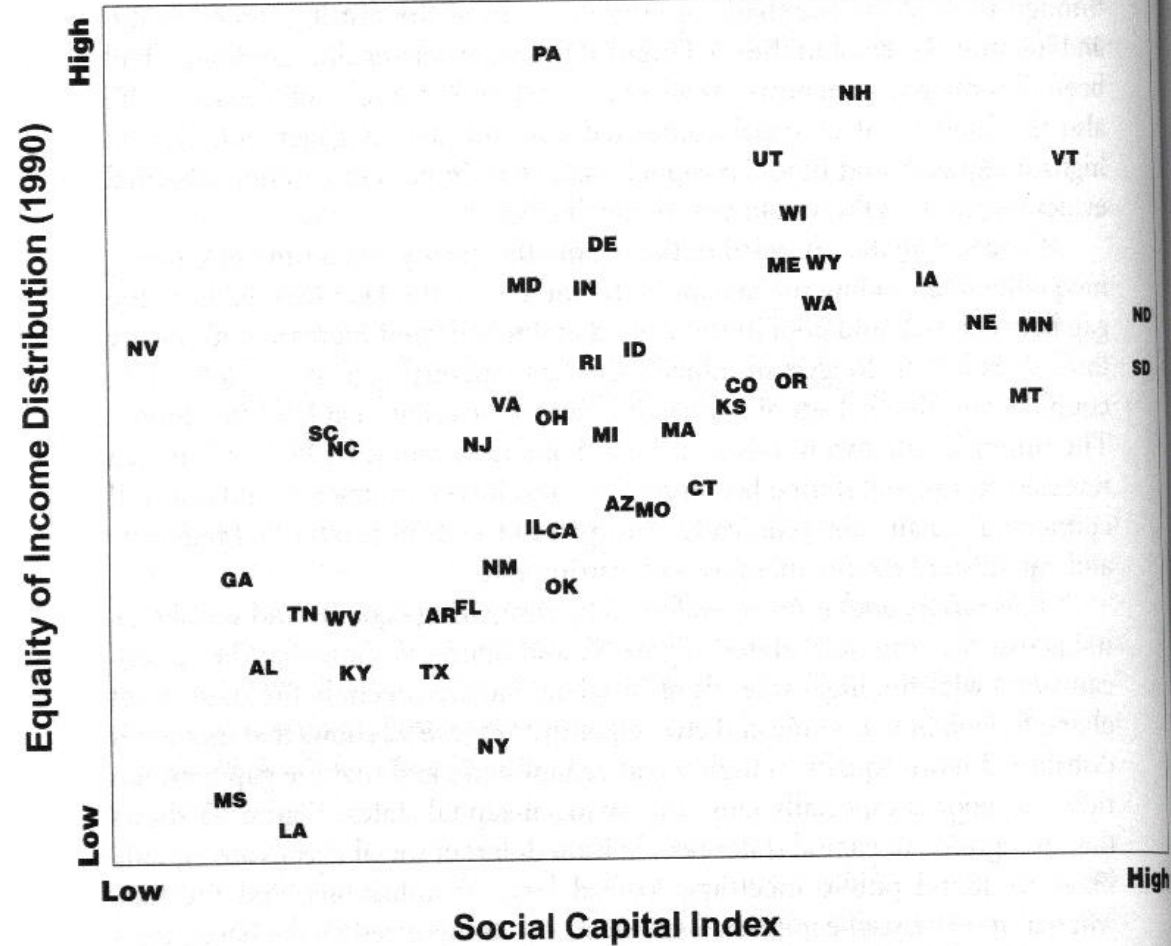


Figure 92: Social Capital and Economic Equality Go Together

Social Capital

Average
Membership
Rate in 32
National
Chapter-Based
Associations,
1900-1997

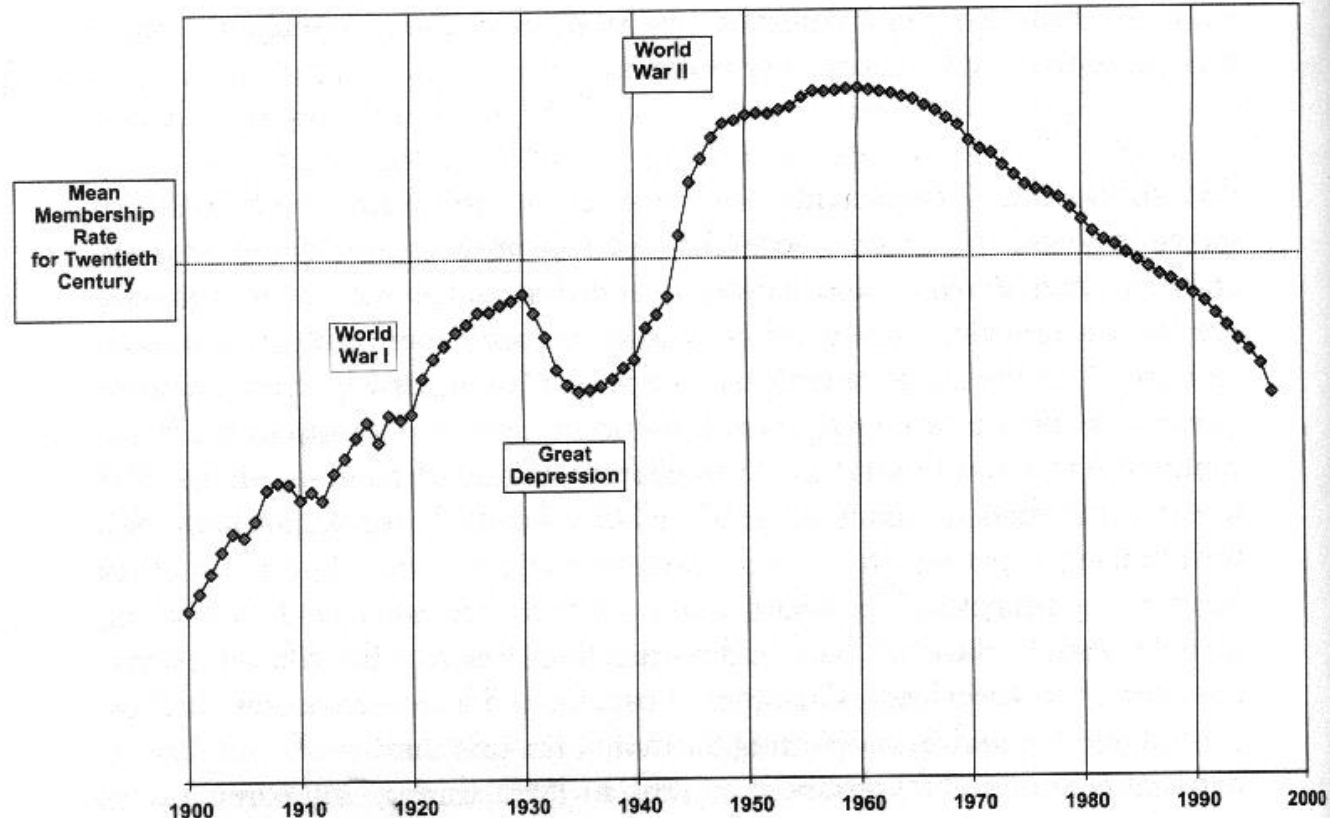


Figure 8: Average Membership Rate in Thirty-two National Chapter-Based Associations, 1900-1997

Social Capital

The Rise and Decline of League Bowling

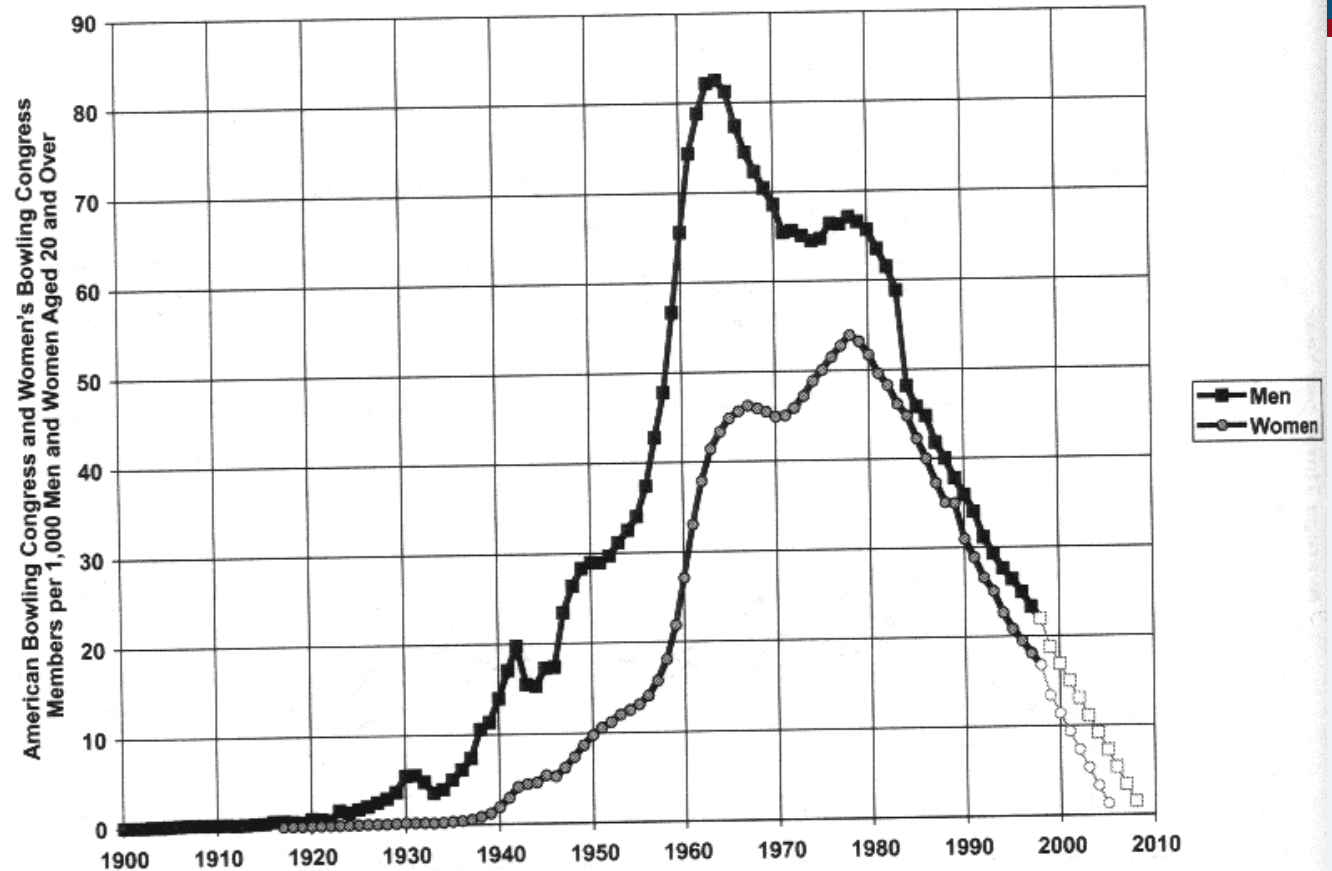


Figure 26: The Rise and Decline of League Bowling

Biology of Stress Response

Rapid:

Release of catecholamines

Slower:

Release of cortisol

Biology of Stress Response

- Lack of control on the job increases the risk of coronary artery disease
- Chronic stress increases the reactivity of the fibrinogen system and platelets
- Chronic stress impairs memory formation and can kill hippocampal neurons
- Chronic stress can impair immune system response
- Stress can affect insulin sensitivity, fat deposition, HDL levels

Biology of Stress Response

Attenuated Cortisol Response to a Standardized Stress Test in Lithuanian vs Swedish Men: The Livcordia Study

- Cardiovascular mortality rates of middle aged men are four times higher in Lithuania than in Sweden
- The difference is not explained by differences in standard risk factors
- Cortisol response varied dramatically between the two groups in response to standardized laboratory stressors

Average change in cortisol levels between cities:

Vilnius, Lithuania-	18.1 nmol/l
Linkoping, Sweden-	88.4 nmol/l

Biology of Stress Response

Research Article

Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults

The Adverse Childhood Experiences (ACE) Study

Vincent J. Felitti, MD, FACP, Robert F. Anda, MD, MS, Dale Nordenberg, MD, David F. Williamson, MS, PhD, Alison M. Spitz, MS, MPH, Valerie Edwards, BA, Mary P. Koss, PhD, James S. Marks, MD, MPH

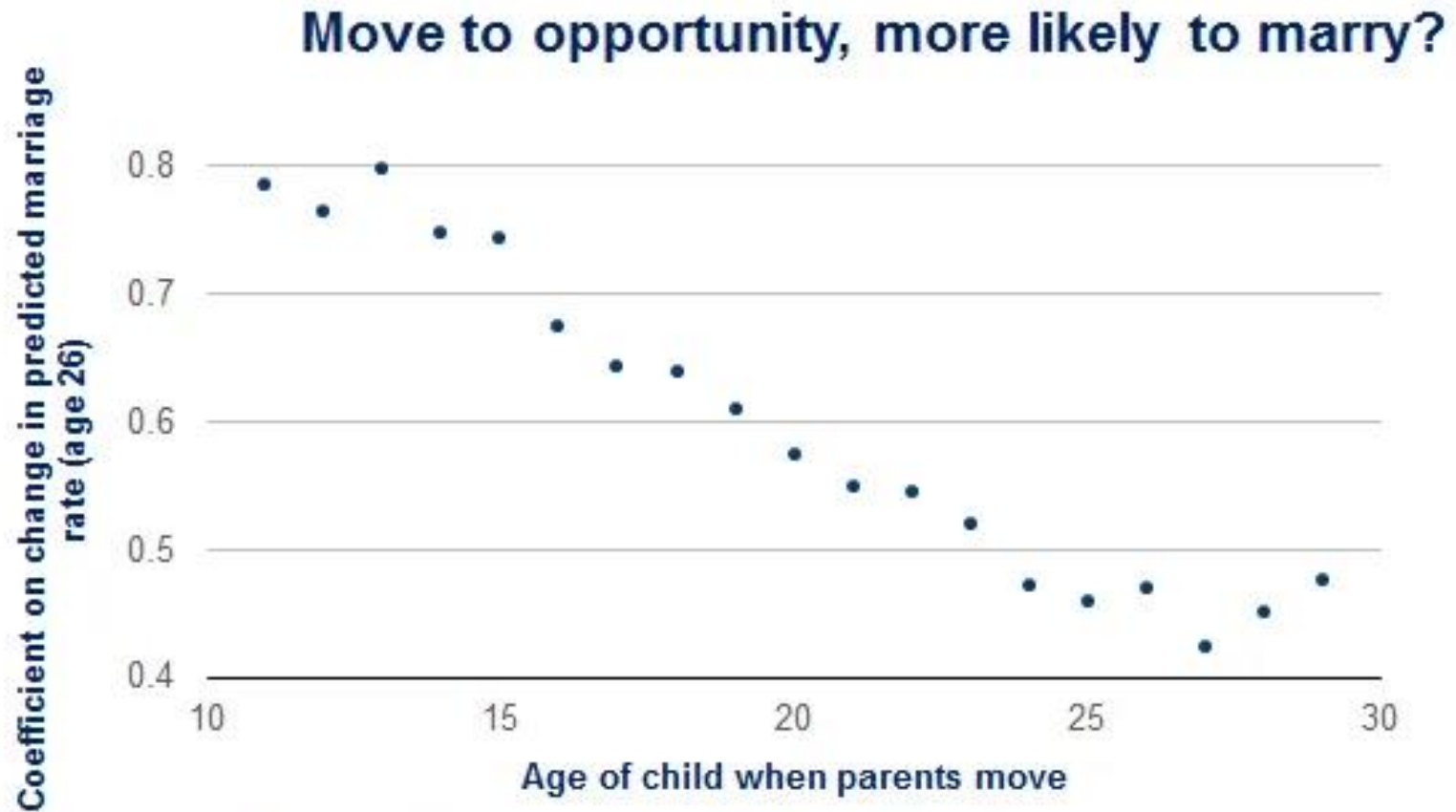
Income and Intergenerational Mobility



Raj Chetty, Ph.D.

Harvard

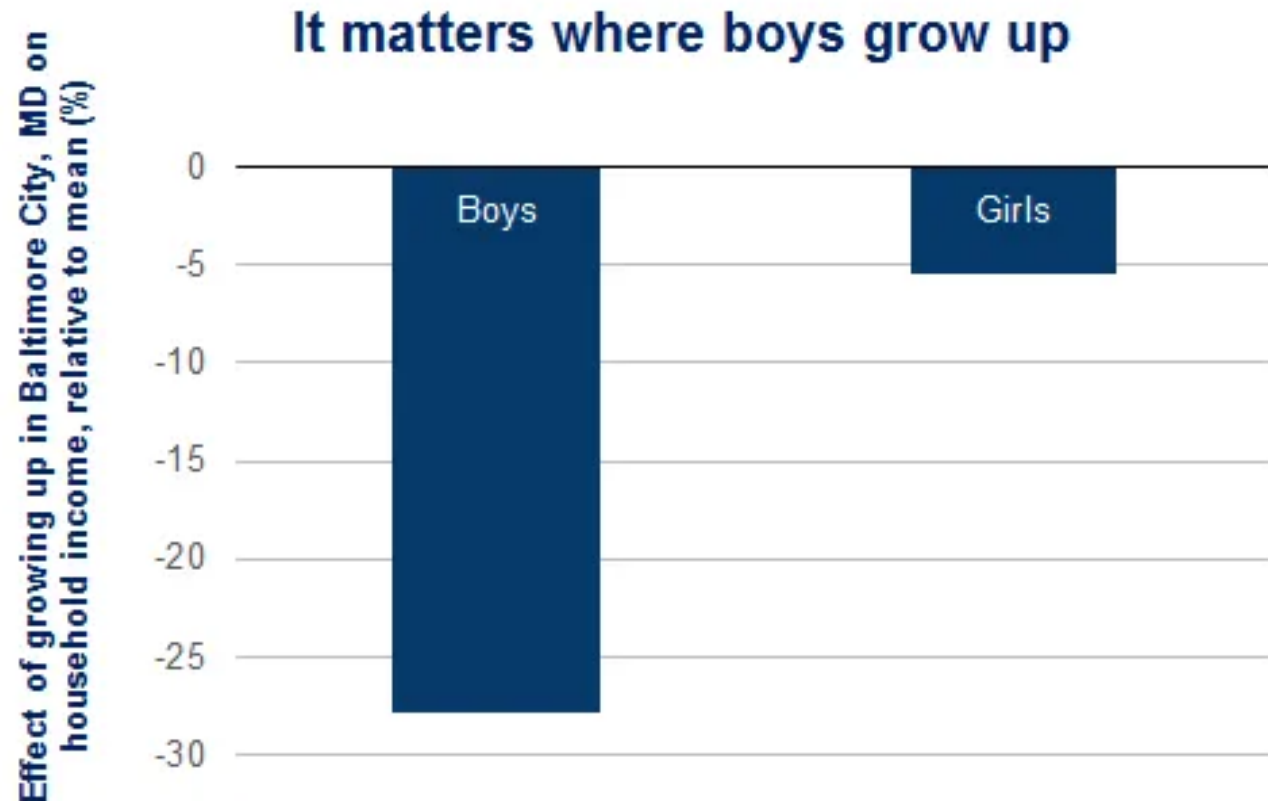
Income and Intergenerational Mobility



Source: Chetty and Hendren, "The impacts of neighborhoods on intergenerational mobility I: Childhood exposure effects," Figure VIIIb

BROOKINGS

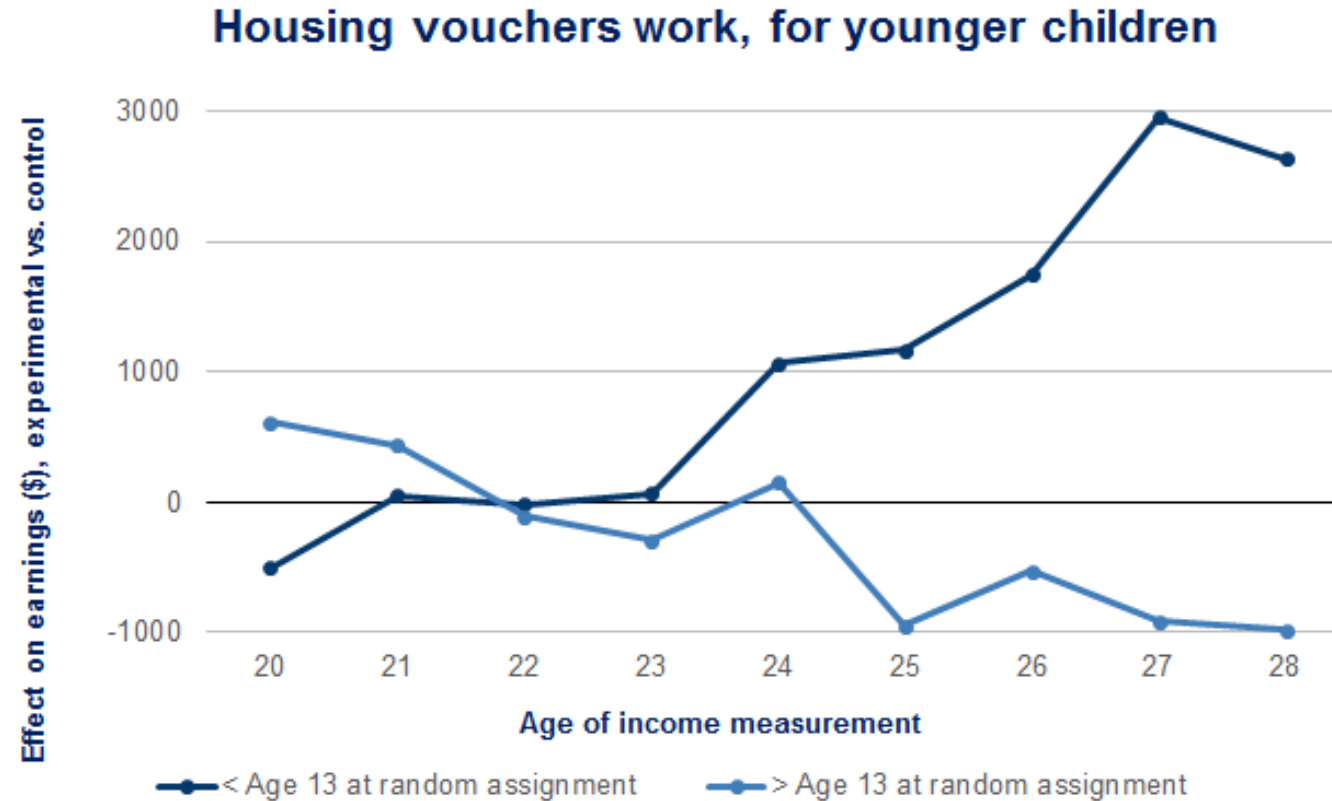
Income and Intergenerational Mobility



Source: Chetty and Hendren, "The impacts of neighborhoods on intergenerational mobility II: County-level estimates," Online appendix table VIII

BROOKINGS

Income and Intergenerational Mobility

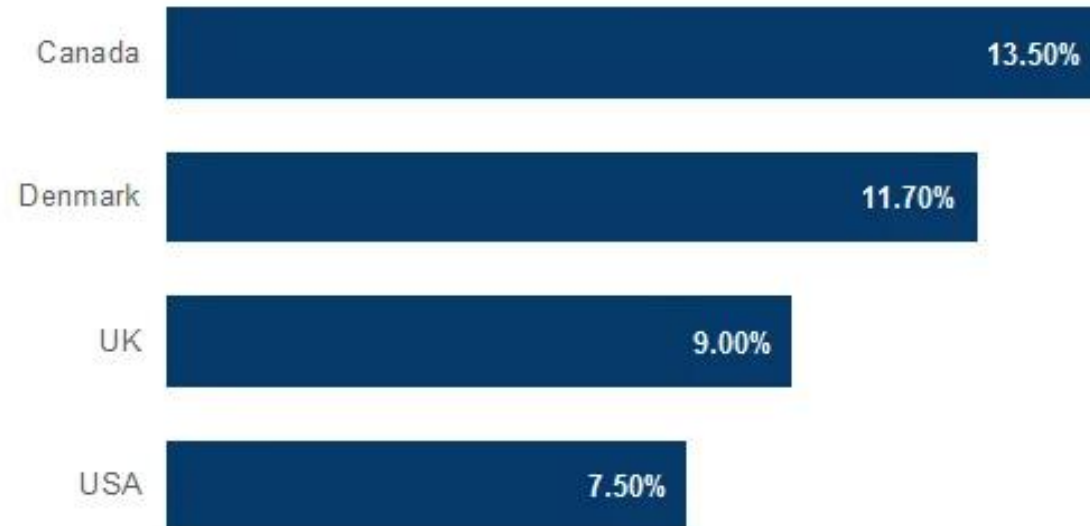


Source: Chetty et al., "The effects of exposure to better neighborhoods on children: New evidence from the Moving to Opportunity experiment," Figure 1: Impacts of experimental voucher by age of earnings measurement

BROOKINGS

Income and Intergenerational Mobility

Relative mobility is almost twice as high in Canada



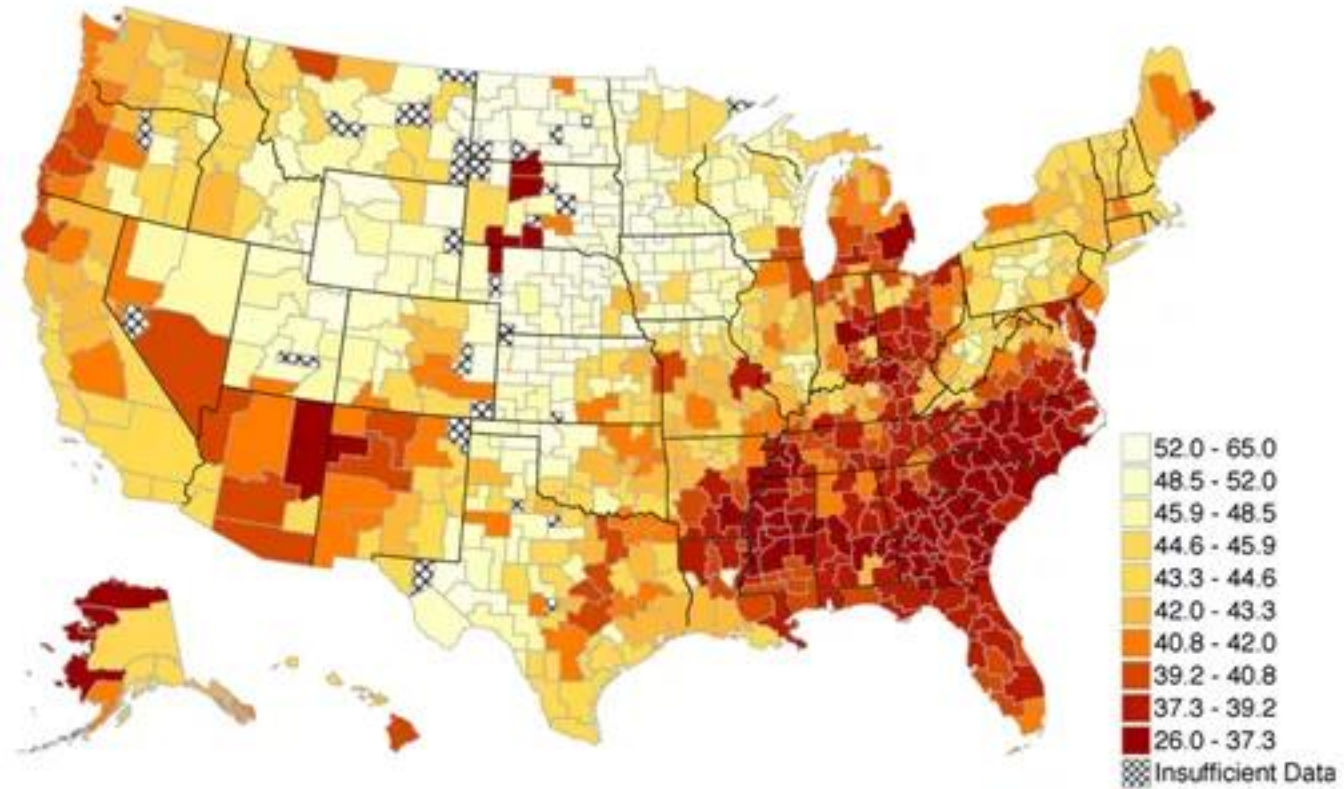
■ Probability that a child born to parents in the bottom fifth of the income distribution reaches the top fifth

Sources: Chetty et al., "Where is the land of opportunity? The geography of intergenerational mobility in the United States" (USA); Blanden and Machin, "Up and down the generational income ladder in Britain: Past changes and future prospects," (UK); Boserup, Kopczuk, and Kreiner, "Intergenerational Wealth Mobility: Evidence from Danish Wealth Records of Three Generations," (Denmark); Corak and Heisz, "The intergenerational earnings and income mobility of Canadian men: Evidence from longitudinal tax data" (Canada)

BROOKINGS

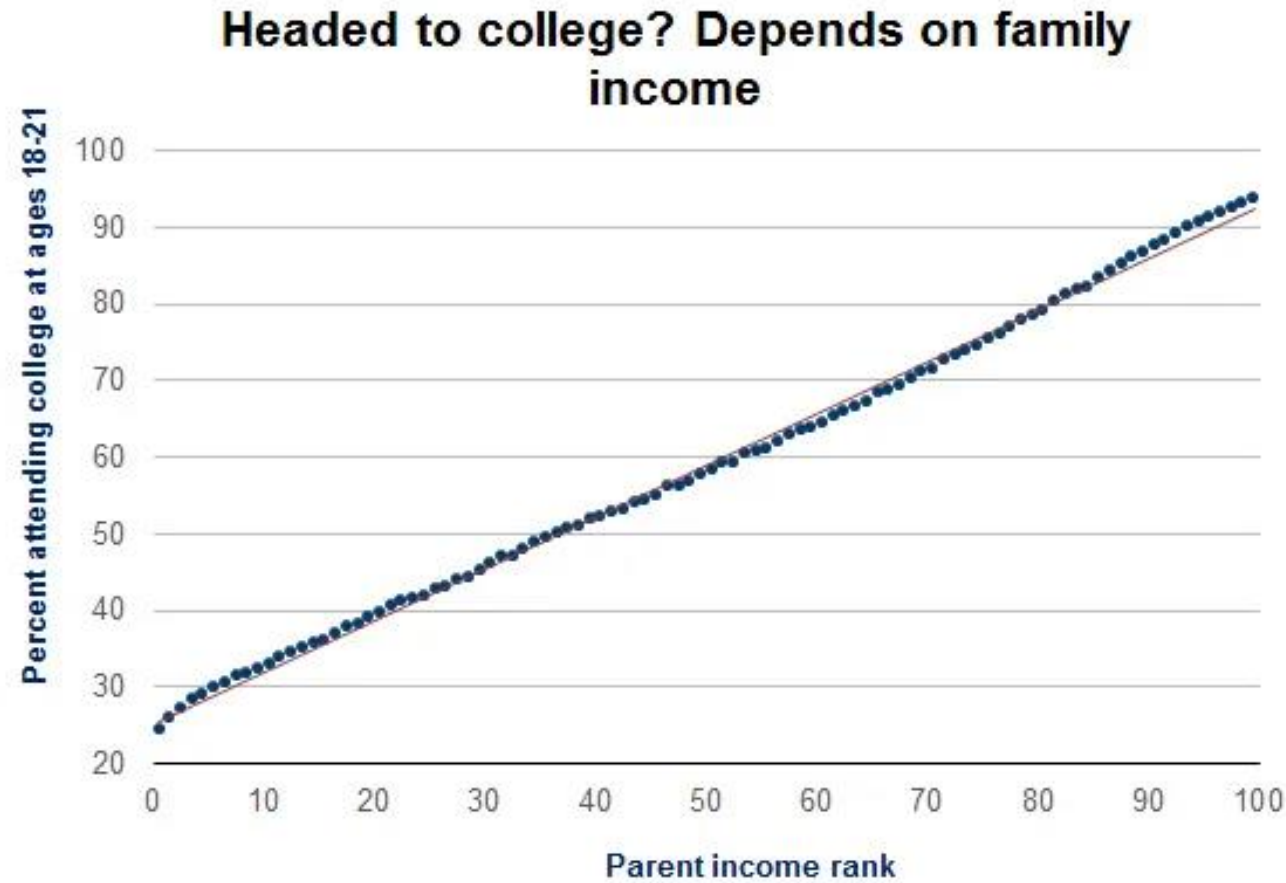
Income and Intergenerational Mobility

The Geography of Upward Mobility in the United States
Mean Child Percentile Rank for Parents at 25th Percentile (Y_{25})



Note: Lighter Color = More Absolute Upward Mobility

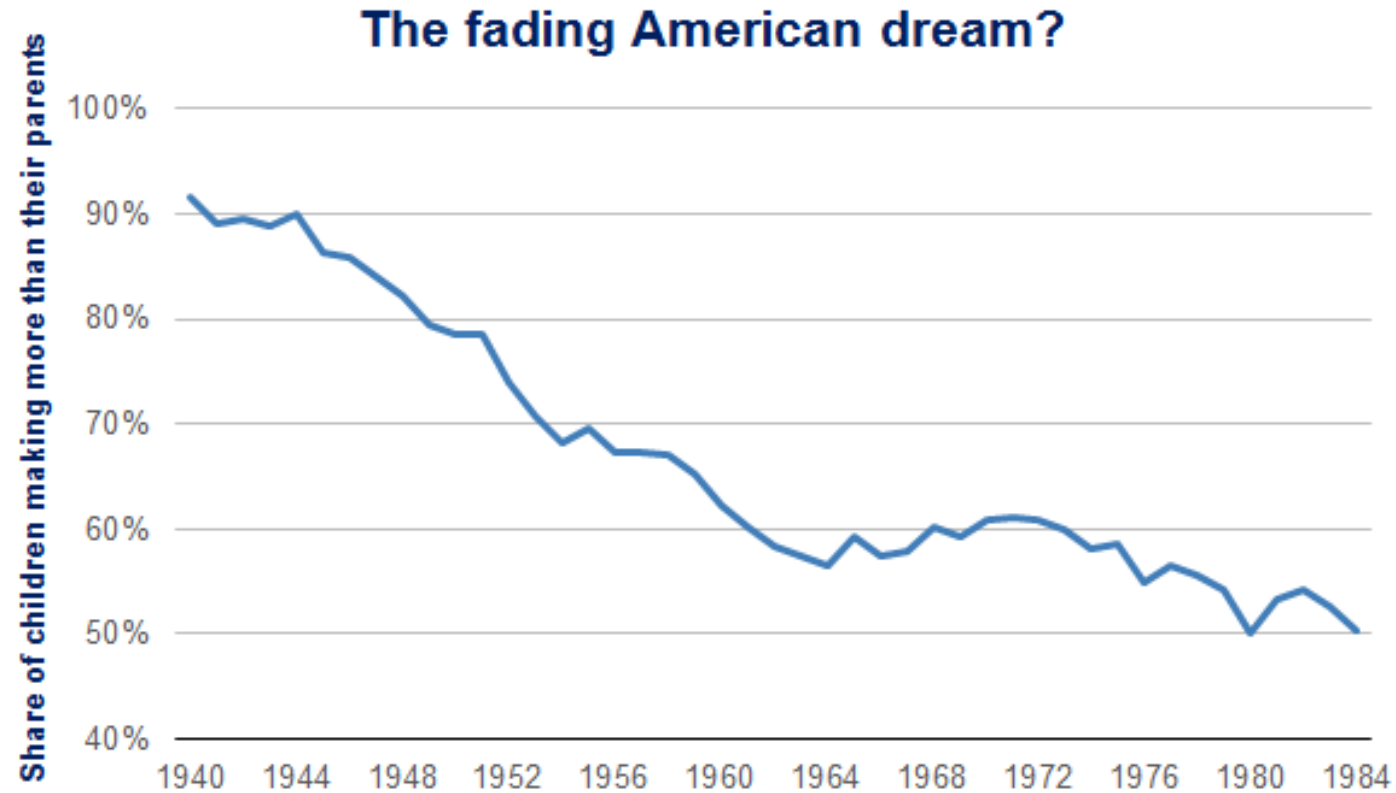
Income and Intergenerational Mobility



Source: Chetty et al., "Where is the land of opportunity? The geography of intergenerational mobility in the U.S."

BROOKINGS

Income and Intergenerational Mobility

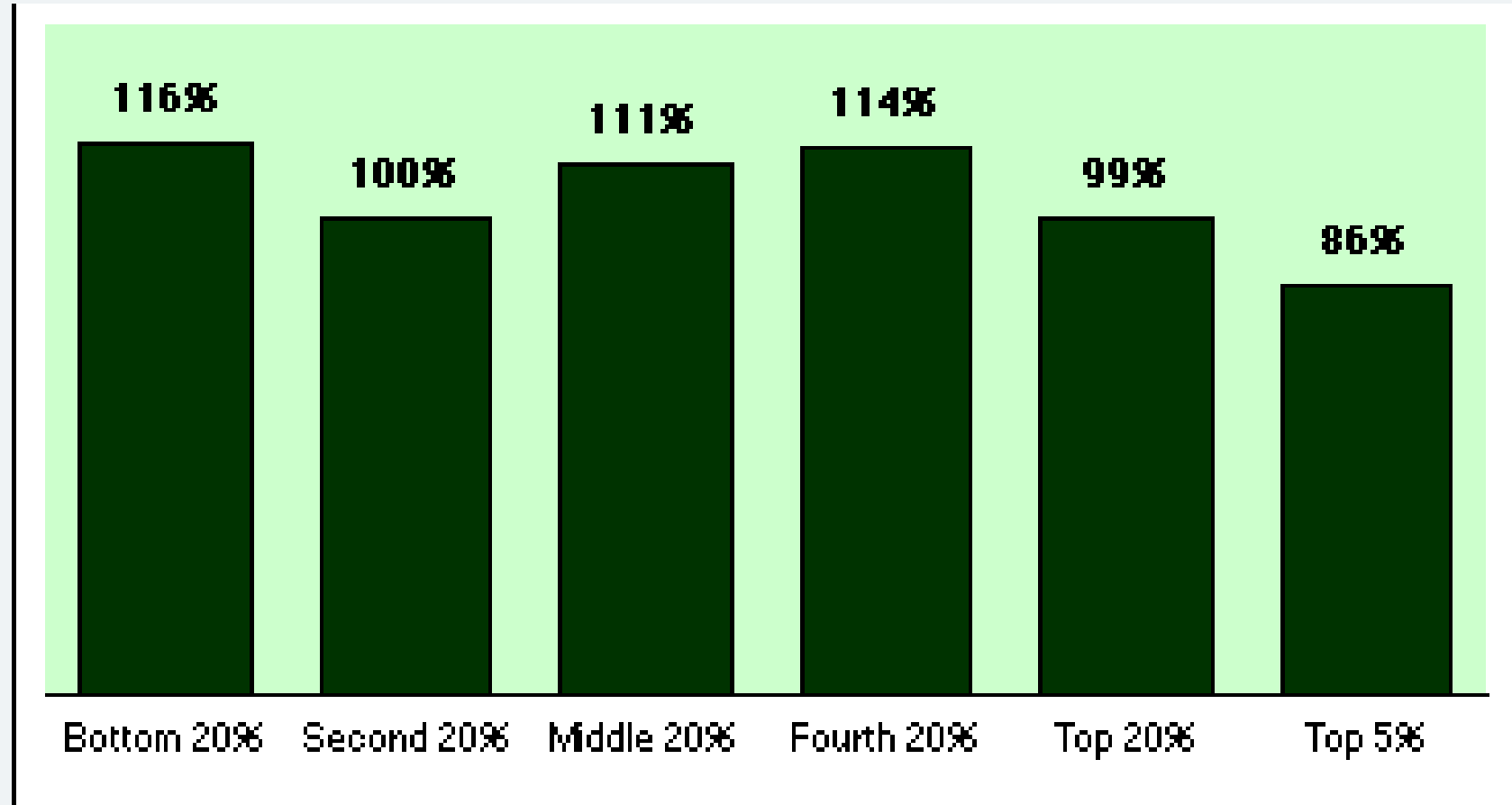


Source: Chetty et al., "The fading American dream: Trends in absolute income mobility since 1940"

BROOKINGS

Income and Intergenerational Mobility

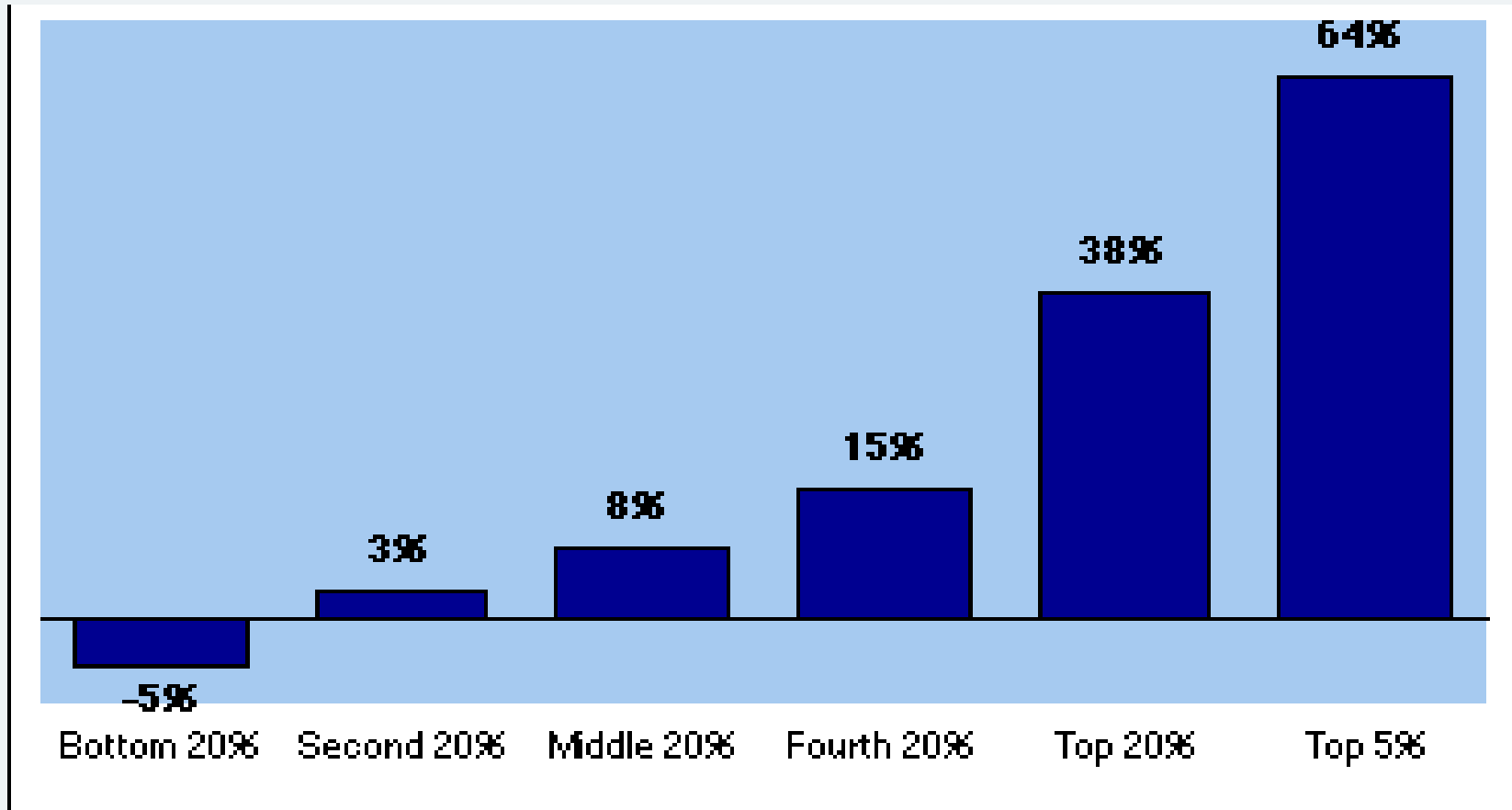
**Rising
Together:
Change in
Family
Income
1947-79**



Sources: 1947-79: Analysis of U.S. Census Bureau data in Economic Policy Institute

Income and Intergenerational Mobility

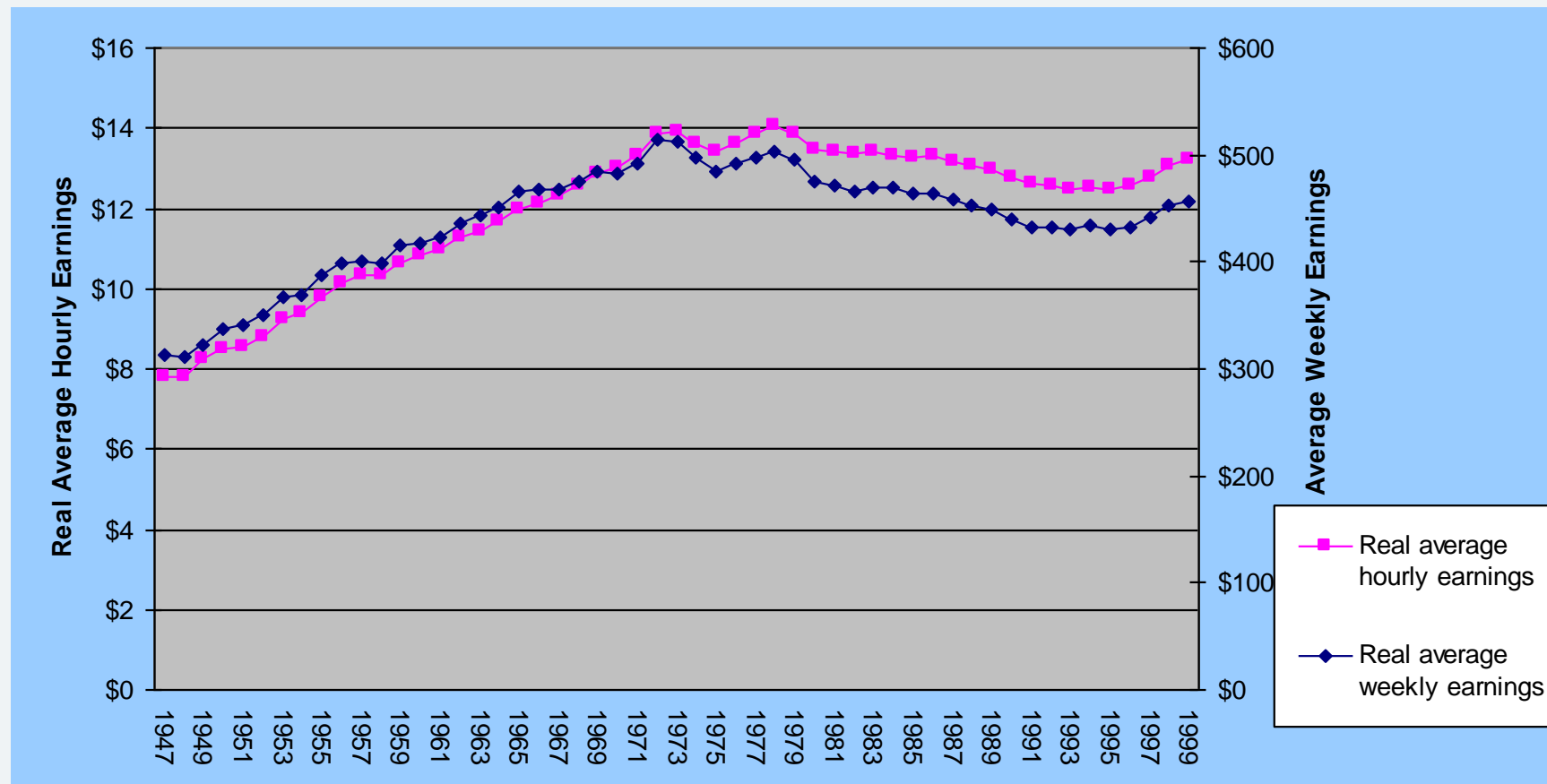
Drifting Apart: Change in Family Income 1979-98



Source: The State of Working America 1994-95, p. 37. 1979-98: U.S. Census Bureau, Historical Income Tables

Income and Intergenerational Mobility

Hourly and Weekly Earnings of Production and Nonsupervisory Workers, 1947-99



What Can You Do?

- You can't improve health without a holistic focus on the individual
- Recommend universal screening in clinical programs for SDOH
- Realize that SDOH risk factors are often accompanied by early and later life trauma
- Don't waste your time focusing on issues that won't improve
- Have the patient set goals, have the clinical team set goals, negotiate to a shared set of goals
- An SDOH plan is not just providing a phone number