



SOCIAL DETERMINANTS OF HEALTHY LIFE EXPECTANCY: A GLOBAL PERSPECTIVE

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Washington DC, November 6, 2019

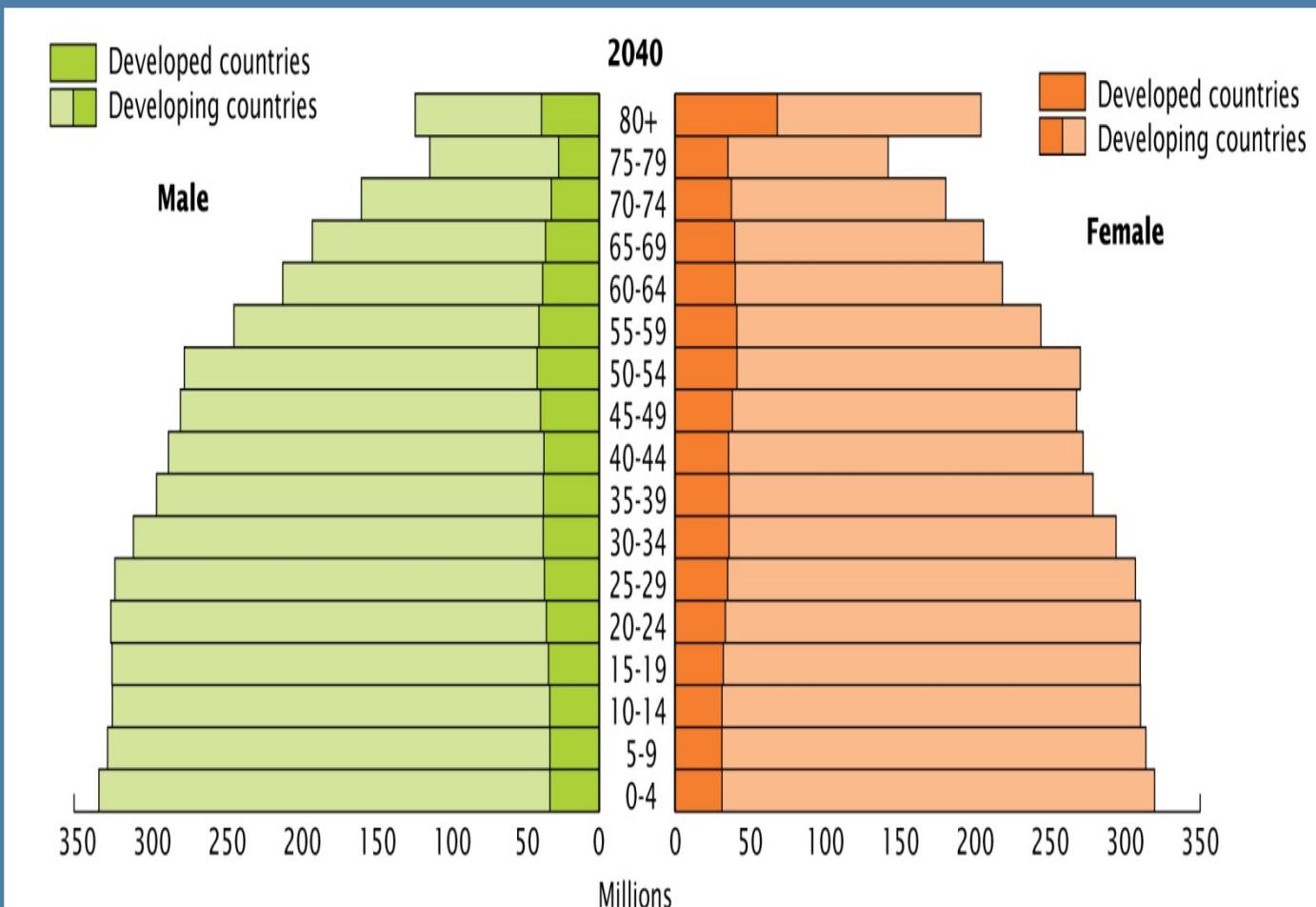






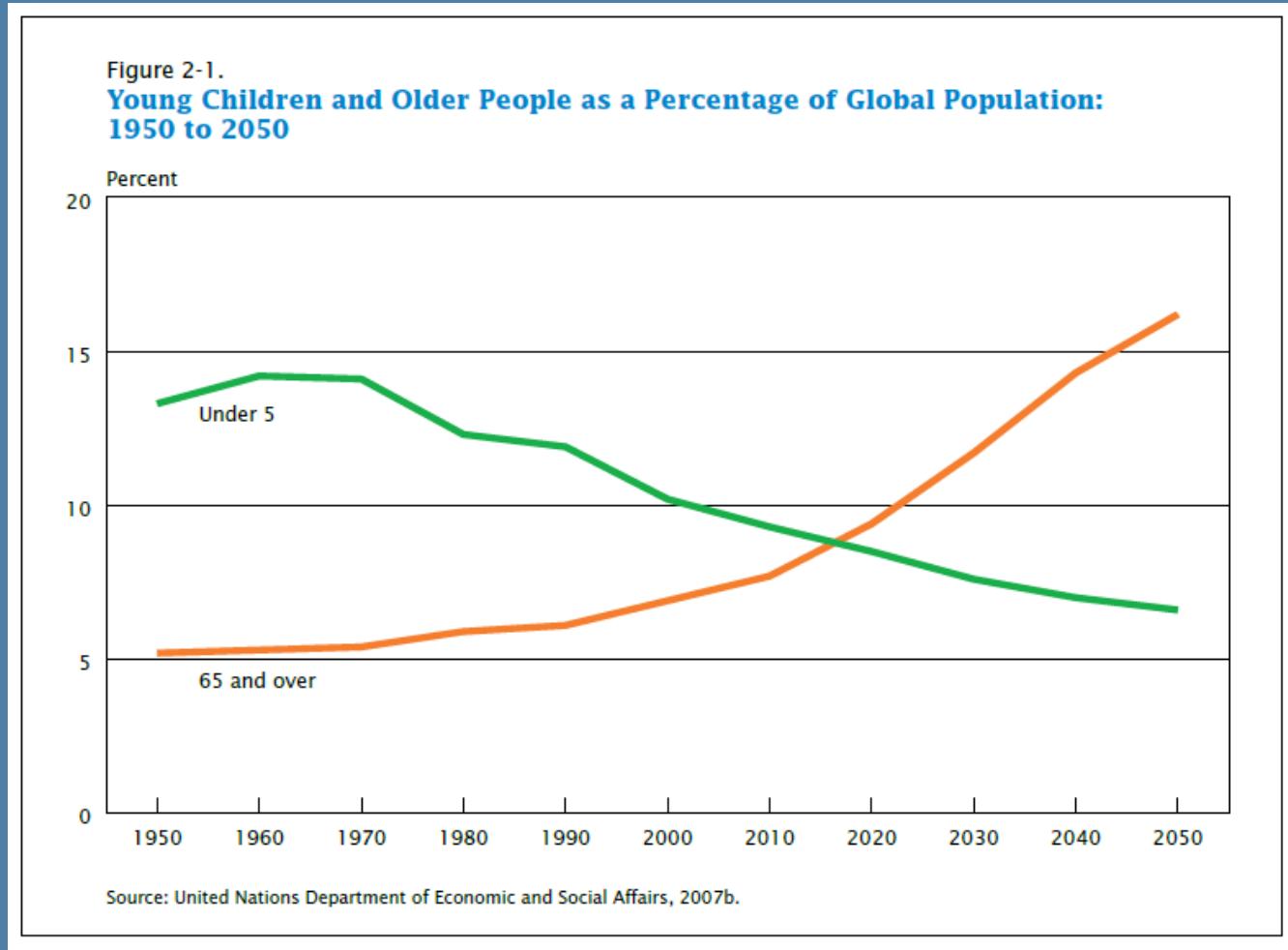


POPULATION IN DEVELOPED VS. DEVELOPING COUNTRIES BY AGE AND SEX (1960, 2000, 2040)



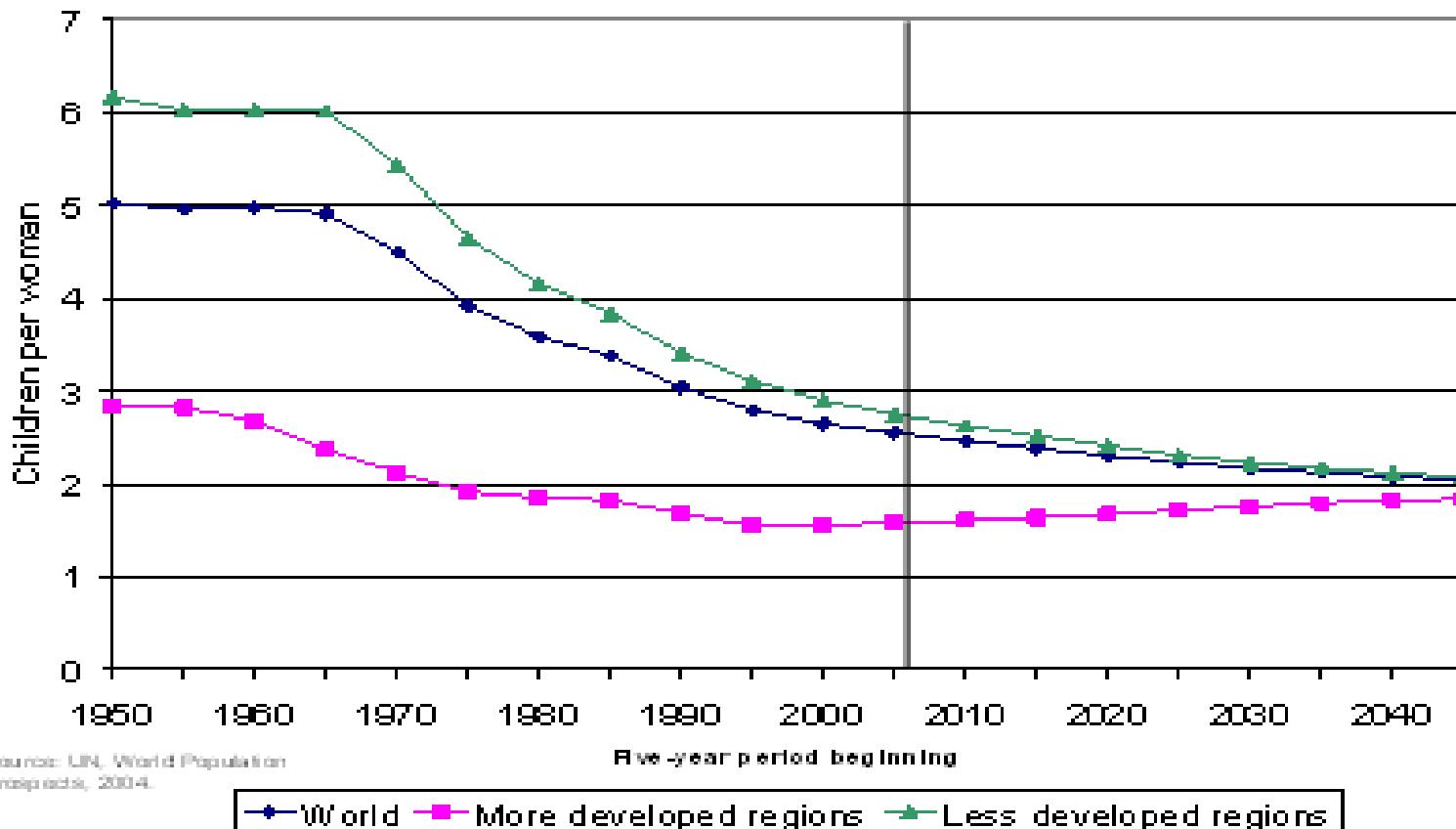
Sources: United Nations Department of Economic and Social Affairs, 2007b; and U.S. Census Bureau, International Data Base, accessed on December 28, 2007.

YOUNG CHILDREN AND OLDER PEOPLE AS PERCENTAGE OF GLOBAL POPULATION (1950 TO 2050)



GLOBAL DECLINES IN FERTILITY

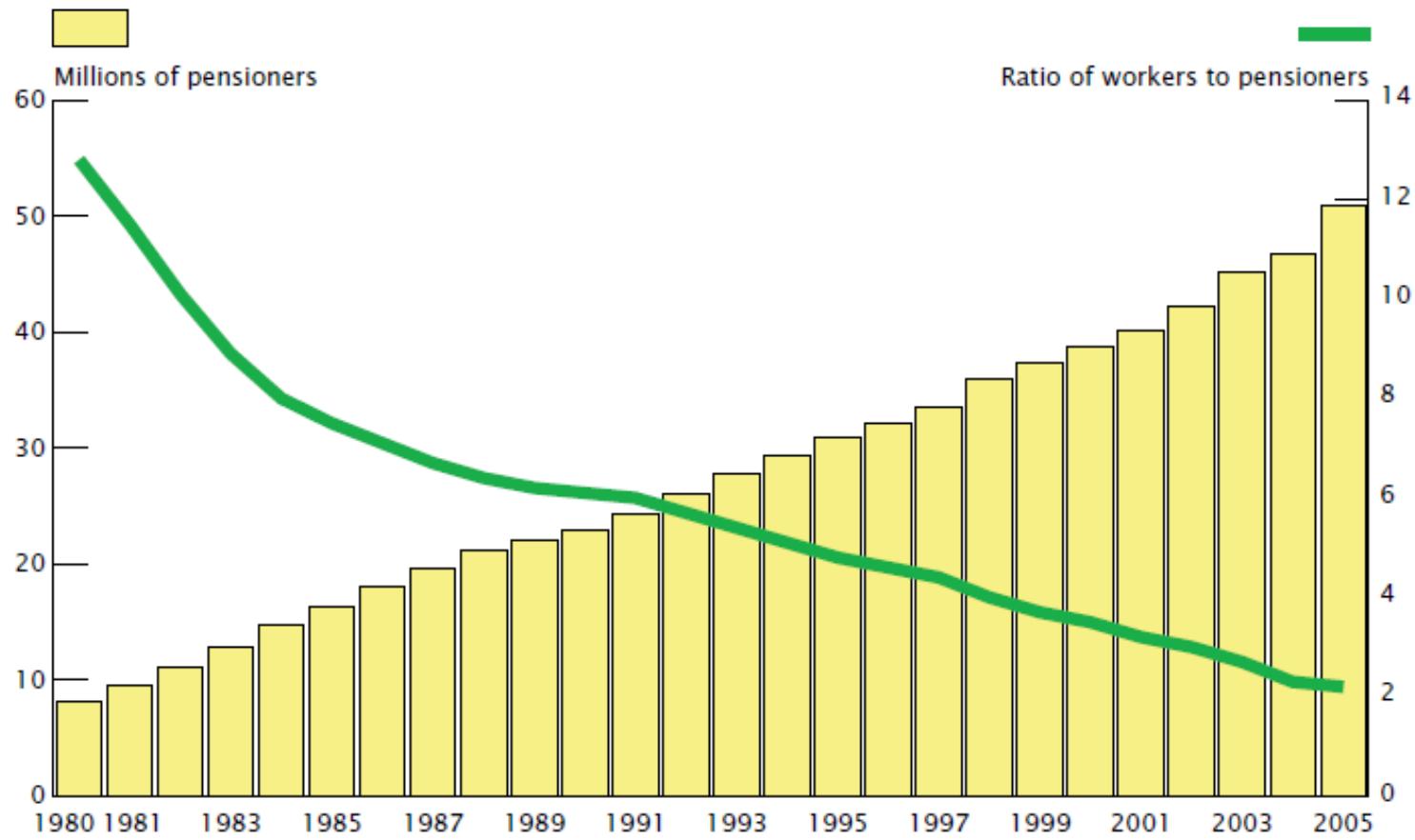
Trends in Total Fertility Rates



CHINA'S DECLINING RATIO OF COVERED WORKERS TO PENSIONERS (1980 TO 2005)

Figure 10-9.

China's Declining Ratio of Covered Workers to Pensioners: 1980 to 2005

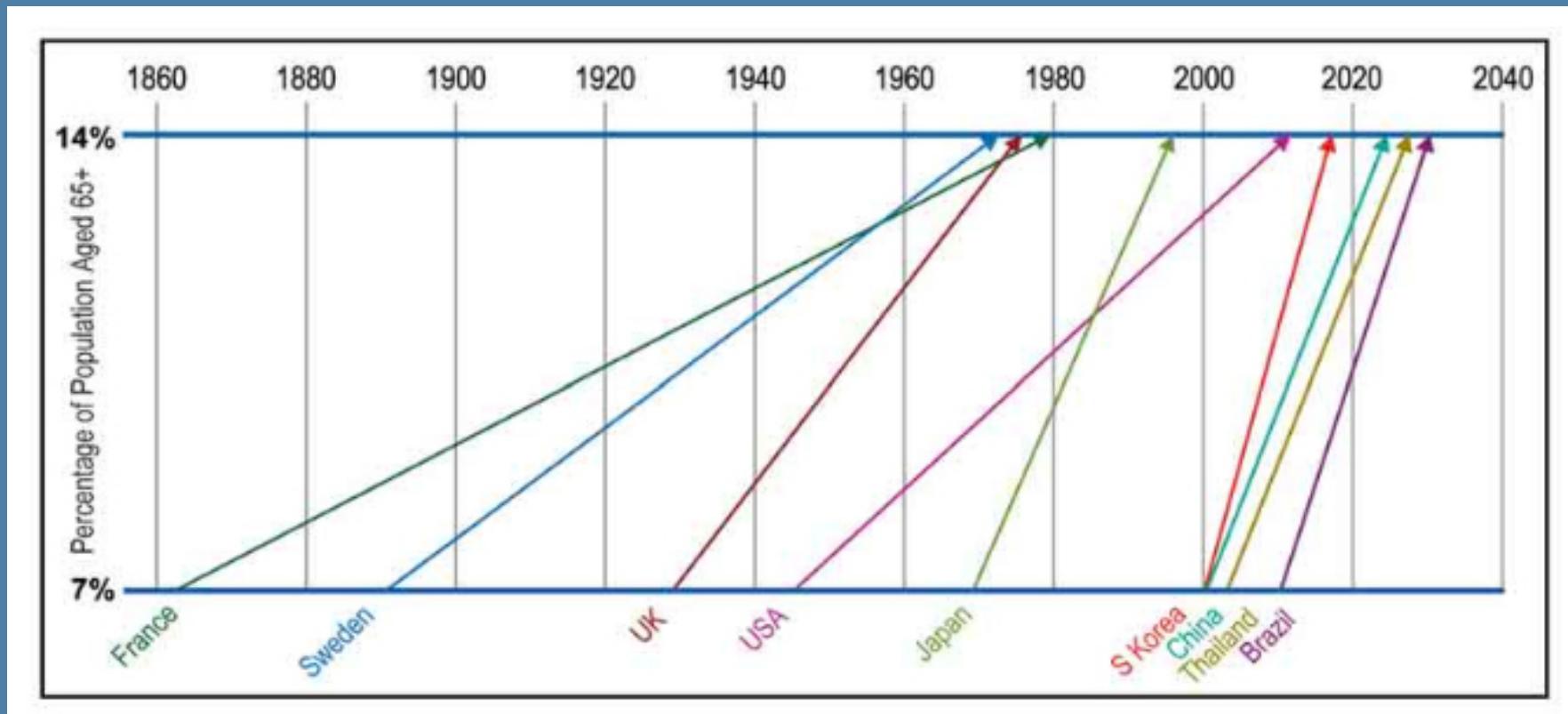


Sources: *China Labour Statistical Yearbook*, various years; and *China Statistical Abstract*, 2006.

AGING SOCIETIES

The Speed of Population Aging

Time required or expected for percentage of population aged 65 and over to rise from 7 percent to 14 percent



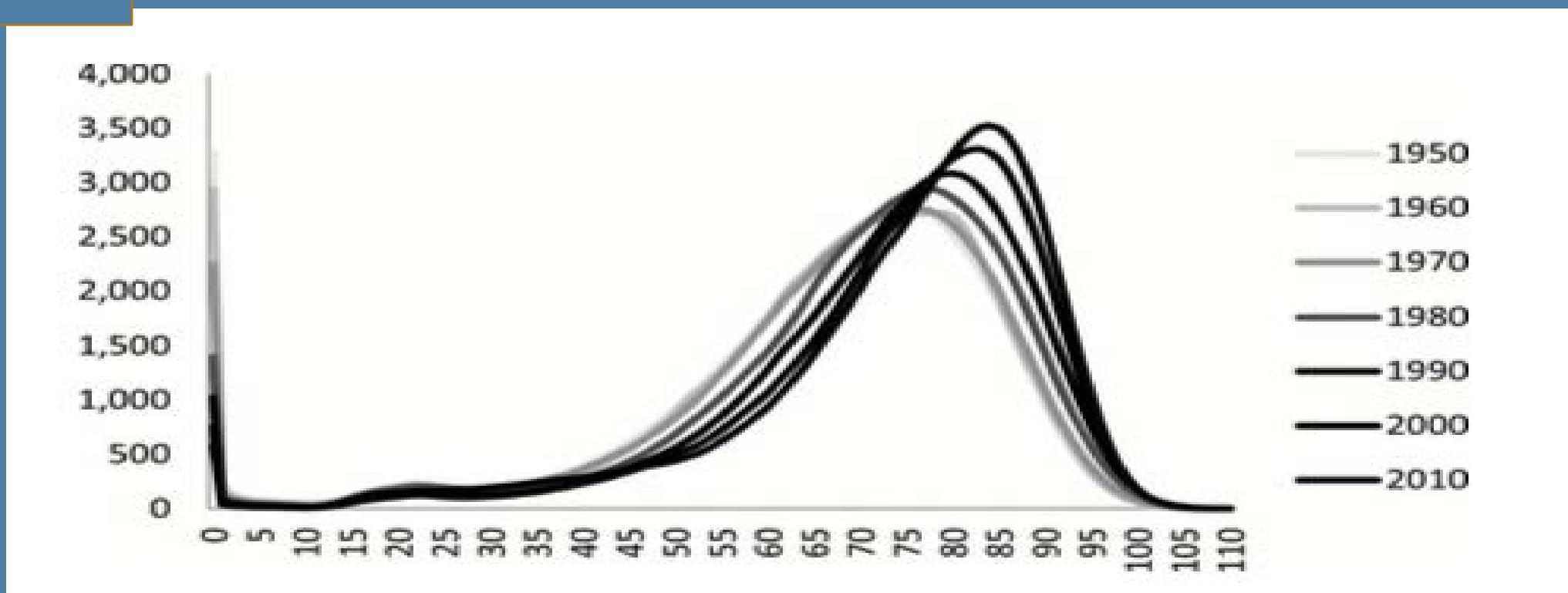
Source: Kinsella K, He W. *An Aging World*: 2008.

Washington, DC: National Institute on Aging and U.S. Census Bureau, 2009.

**HEALTHY LIFE EXPECTANCY:
MORTALITY PLUS MORBIDITY PLUS????**

LIFE TABLE DEATHS BY AGE AND YEAR: US LIFE TABLES

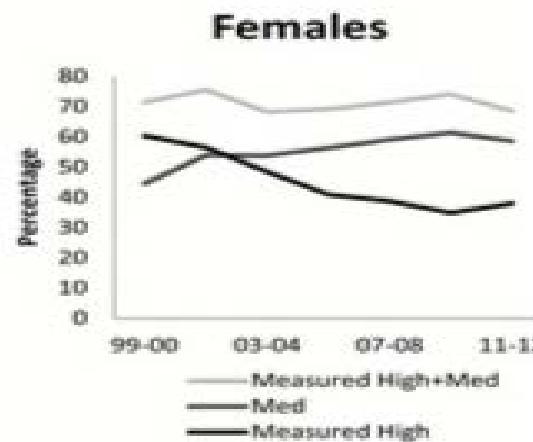
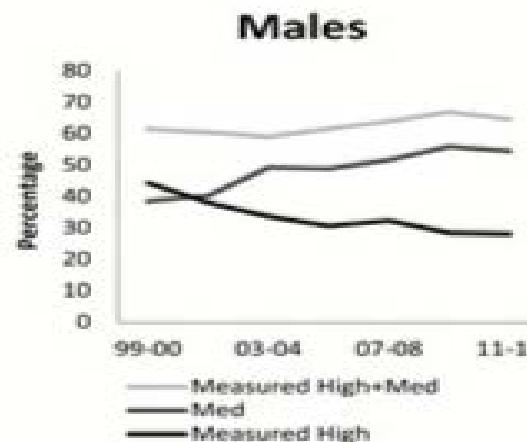
Gerontologist. 2015 Dec; 55(6): 901–911.



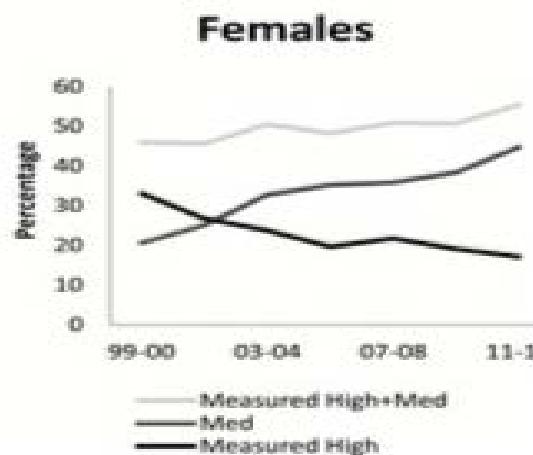
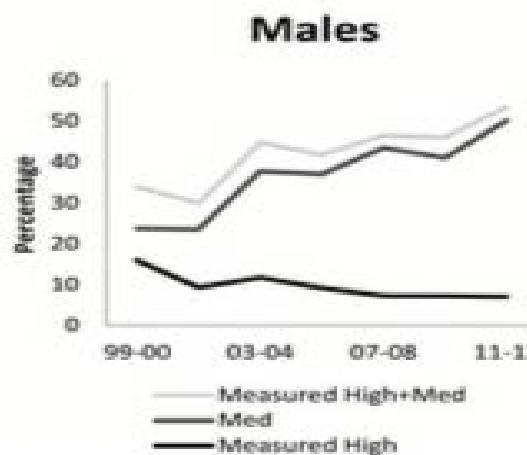
Number of male life table deaths by age. Source of data: [Bell & Miller \(2005\)](#).

HIGH BLOOD PRESSURE AND CHOLESTEROL: MEASURED AND ON MEDICATIONS. NHANES. CRIMMINS 2015

a. Blood Pressure



b. Total Cholesterol



High blood pressure and high cholesterol (measured + medication), measured high blood pressure and high cholesterol, antihypertensive and cholesterol lowering medication use for older adults aged 65 and older. (A) Blood pressure, (B) total cholesterol.

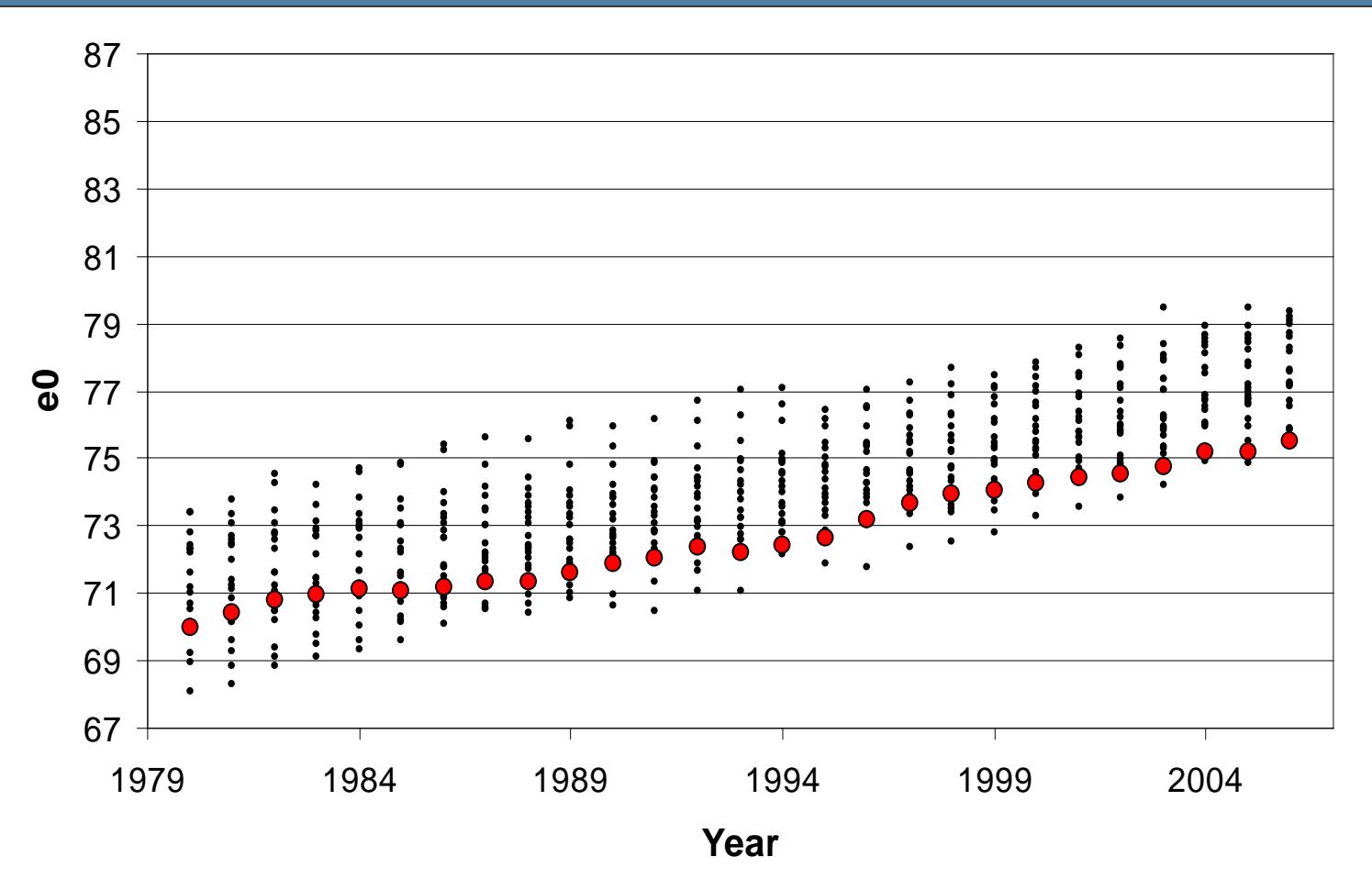
Source: NHANES.

SOCIAL DETERMINANTS OF HEALTHY LE/AGING:
SOCIOECONOMIC CONDITIONS, SOCIAL ISOLATION AND EXCLUSION AND
RELATED POLICIES

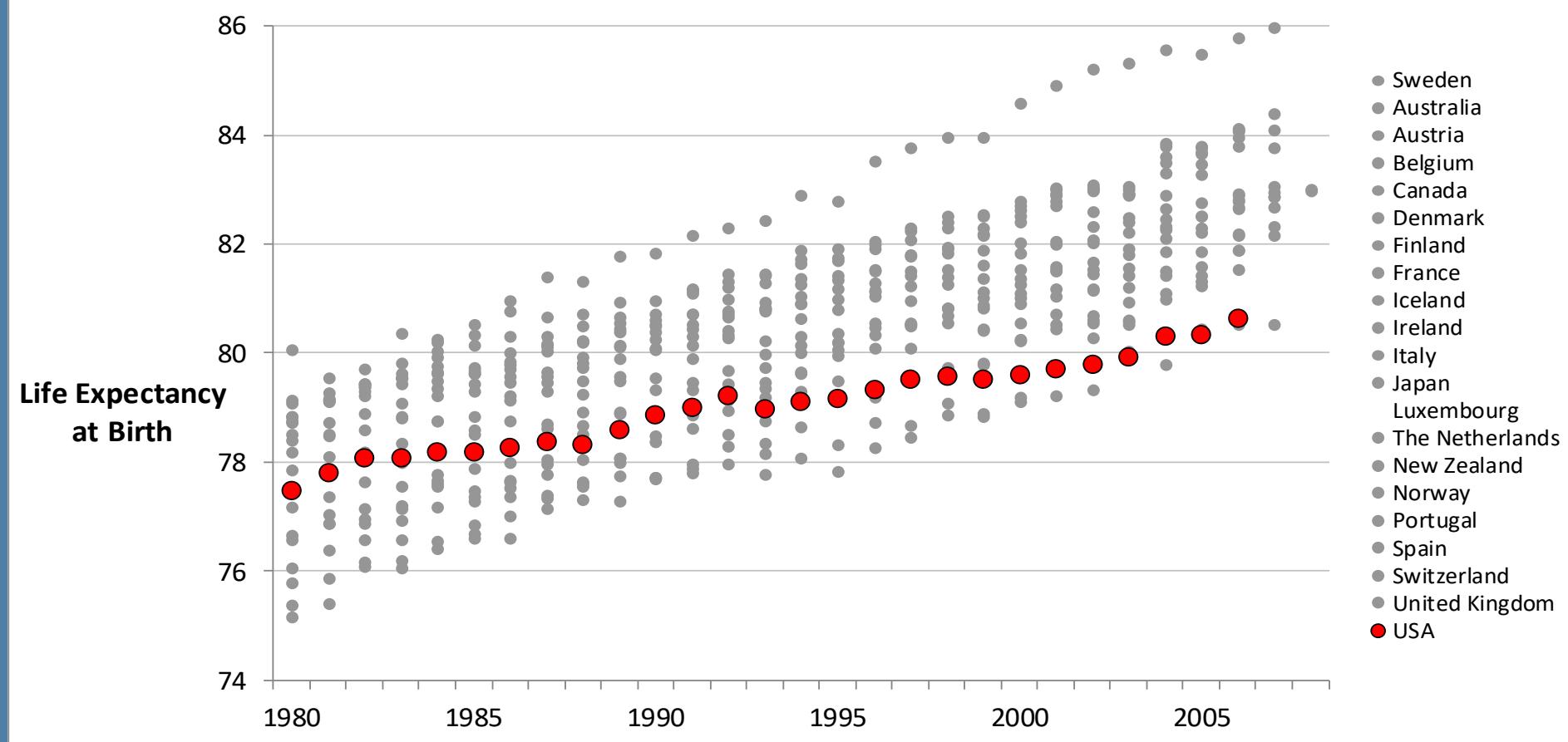
EXPOSURES IN EARLY AND MIDLIFE WILL DETERMINE PATTERNS OF HEALTHY
LIFE EXPECTANCY AND HEALTHY AGING.

LIFE EXPECTANCY AT BIRTH IN 22 OECD COUNTRIES; 1980 – 2008; MALES

National Research Council (US) Panel on Understanding Divergent Trends in
Longevity in High-Income Countries;
Editors: Crimmins, Preston, Cohen. 2011

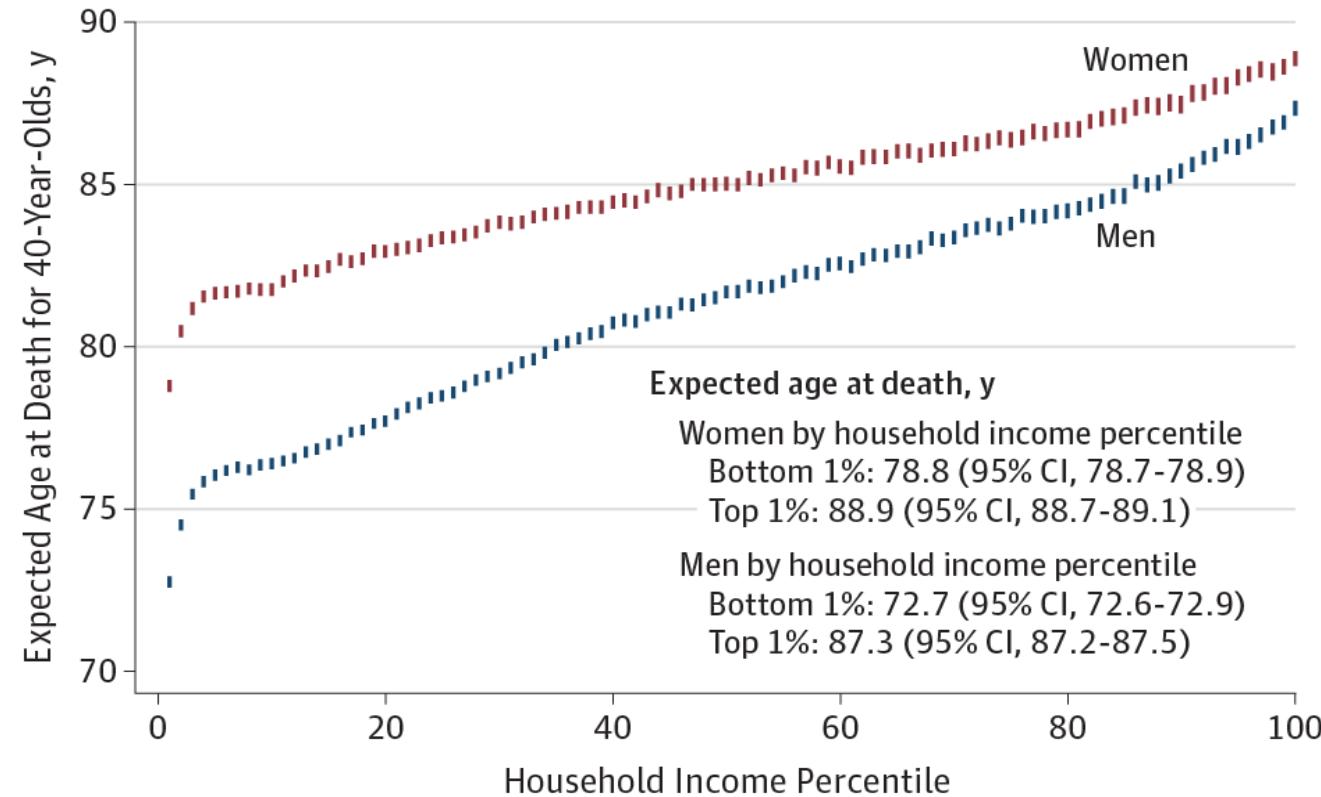


LIFE EXPECTANCY AT BIRTH IN 22 OECD COUNTRIES; 1980 – 2008; FEMALES



Crimmins, Preston, Cohen: Explaining divergent levels of longevity in high income countries. NRS 2011

RACE- AND ETHNICITY-ADJUSTED LIFE EXPECTANCY FOR 40-YEAR-OLDS BY HOUSEHOLD INCOME PERCENTILE, 2001–2014

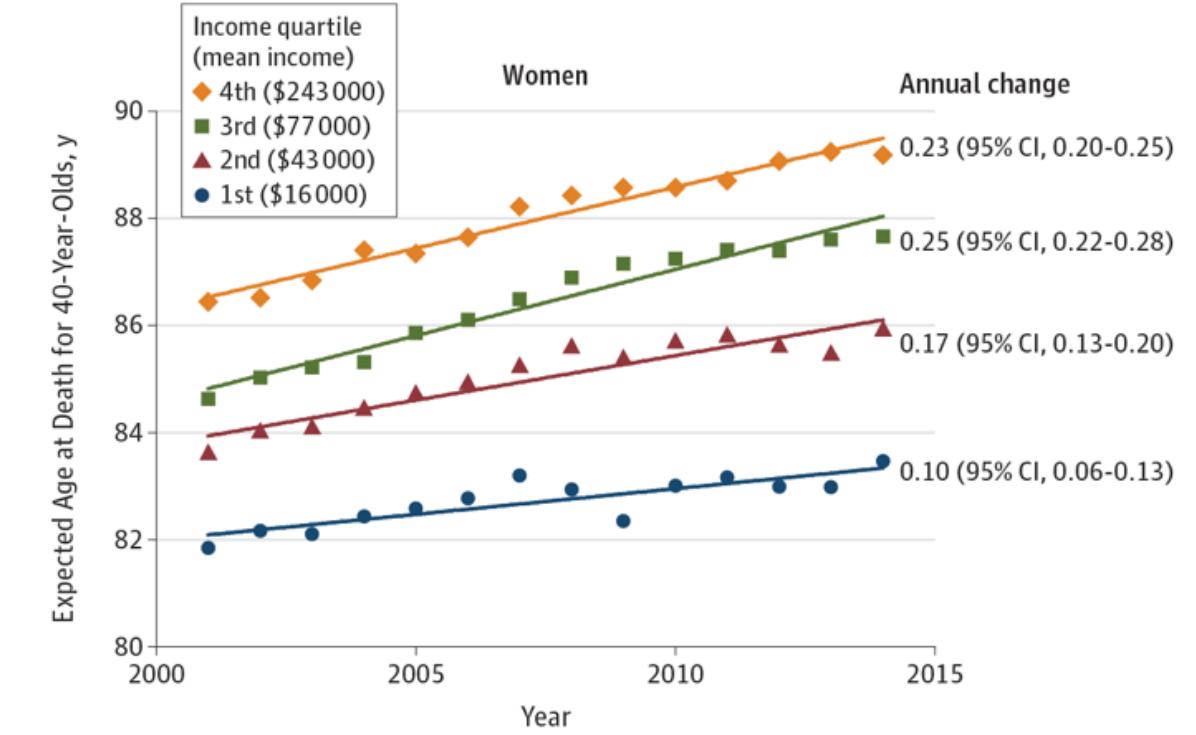
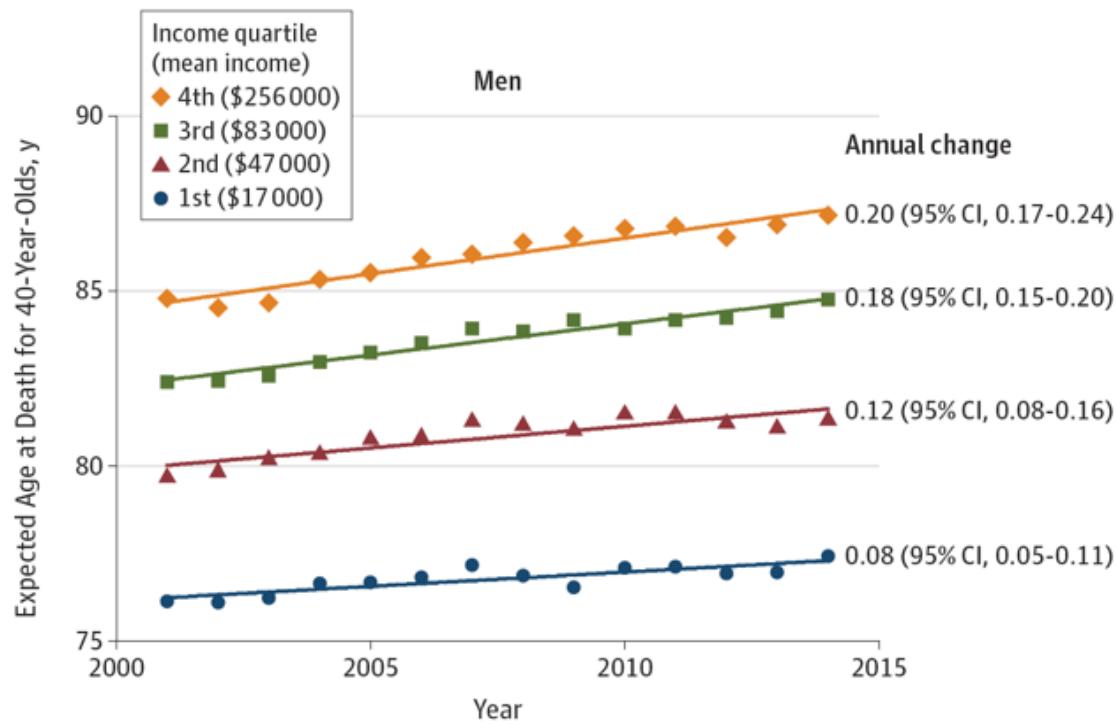


Mean household income
in thousands, \$^a

	24	45	71	112	1.9 million
Women					
Men	26	50	77	119	2.0 million

INEQUALITIES ARE WIDENING

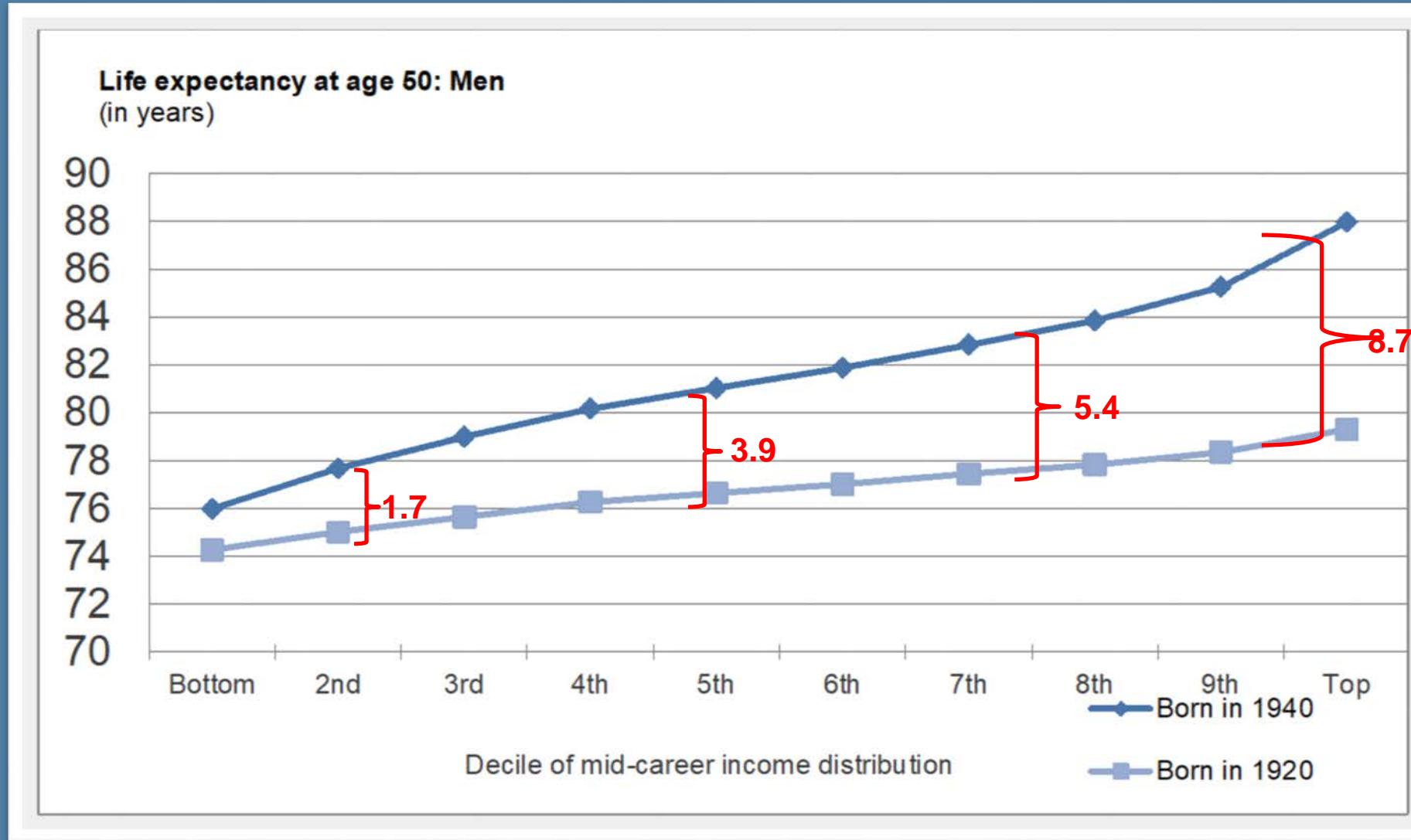
A Life expectancy by income quartile by year



Chetty et al JAMA 2016, The Association between income and life expectancy in the United States 2001 - 2014

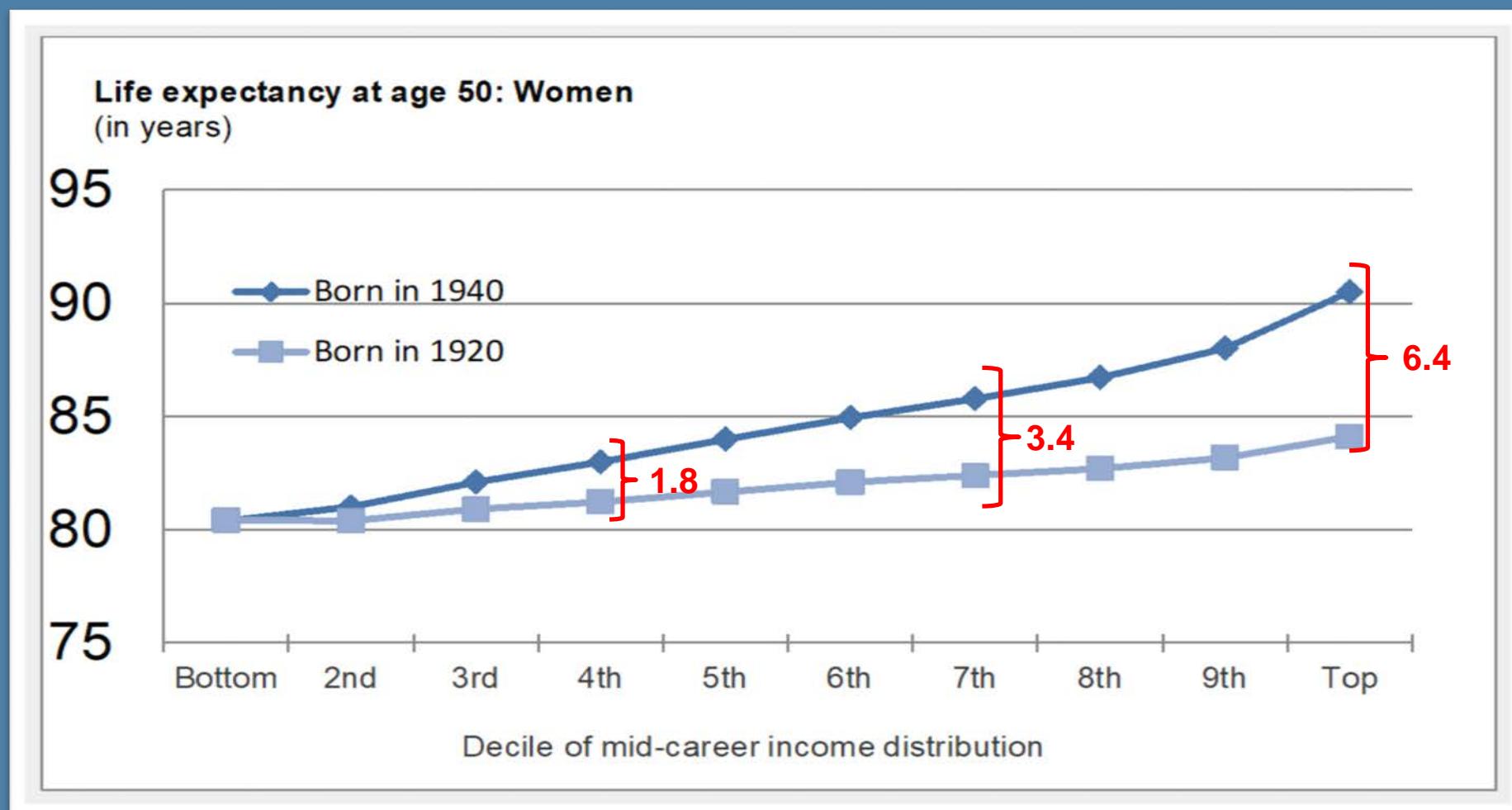
PREDICTED LIFE EXPECTANCY FOR MEN BORN IN 1920 – 1940 AND CHANGE IN LE BETWEEN THE TWO BIRTH

Cohorts, By Rank In Mid-career Income Distribution (Bosworth,Burtless, Zhang, Brookings)

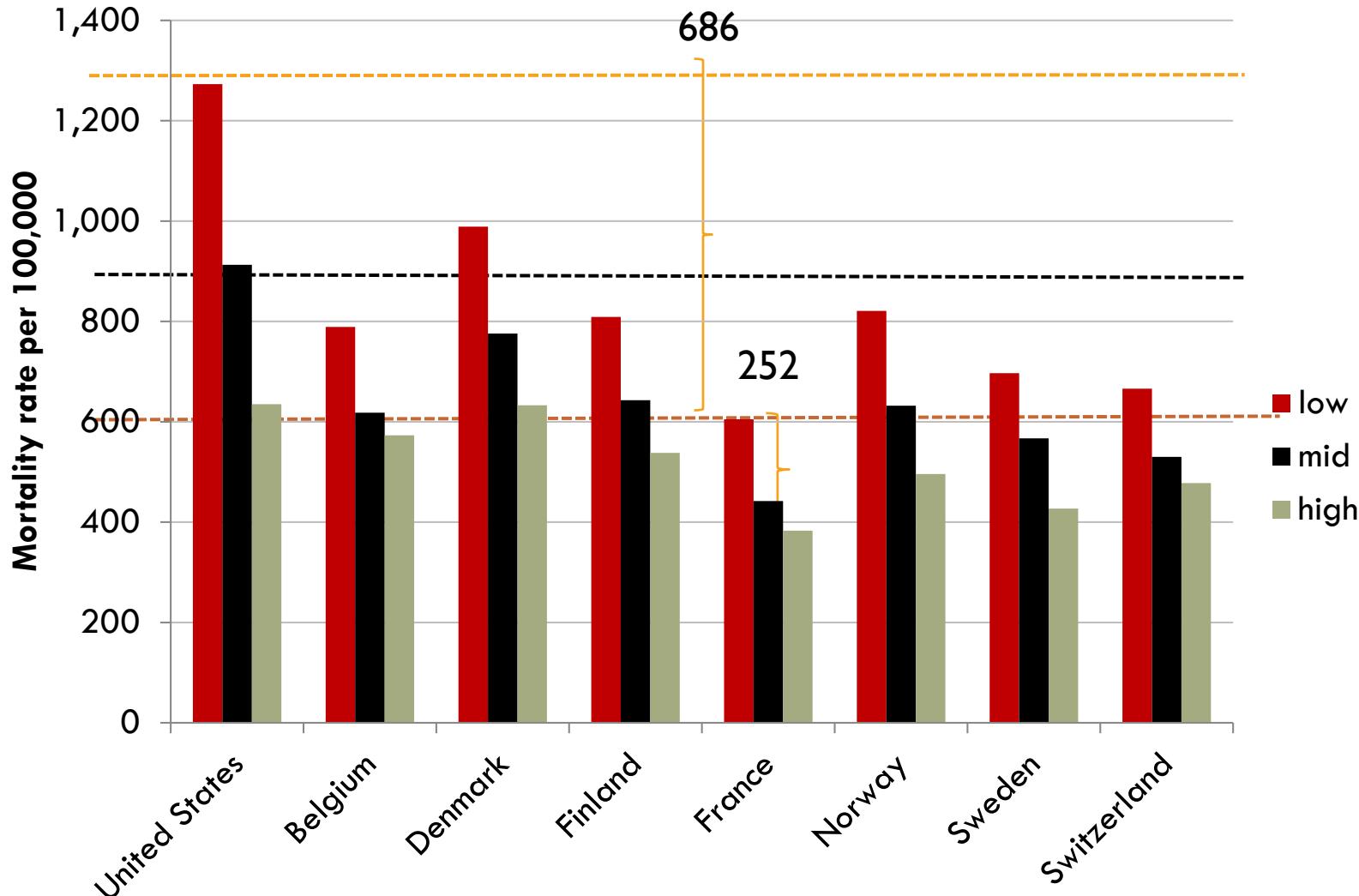


LIFE EXPECTANCY AT AGE 50 FOR WOMEN BORN IN 1920 - 1940 AND CHANGE IN LIFE EXPECTANCY BETWEEN THE TWO BIRTH COHORTS

(Bosworth, Burtless, Zhang, 2016)



MORTALITY RATE PER 100,000 BY EDUCATION, WOMEN 30-74

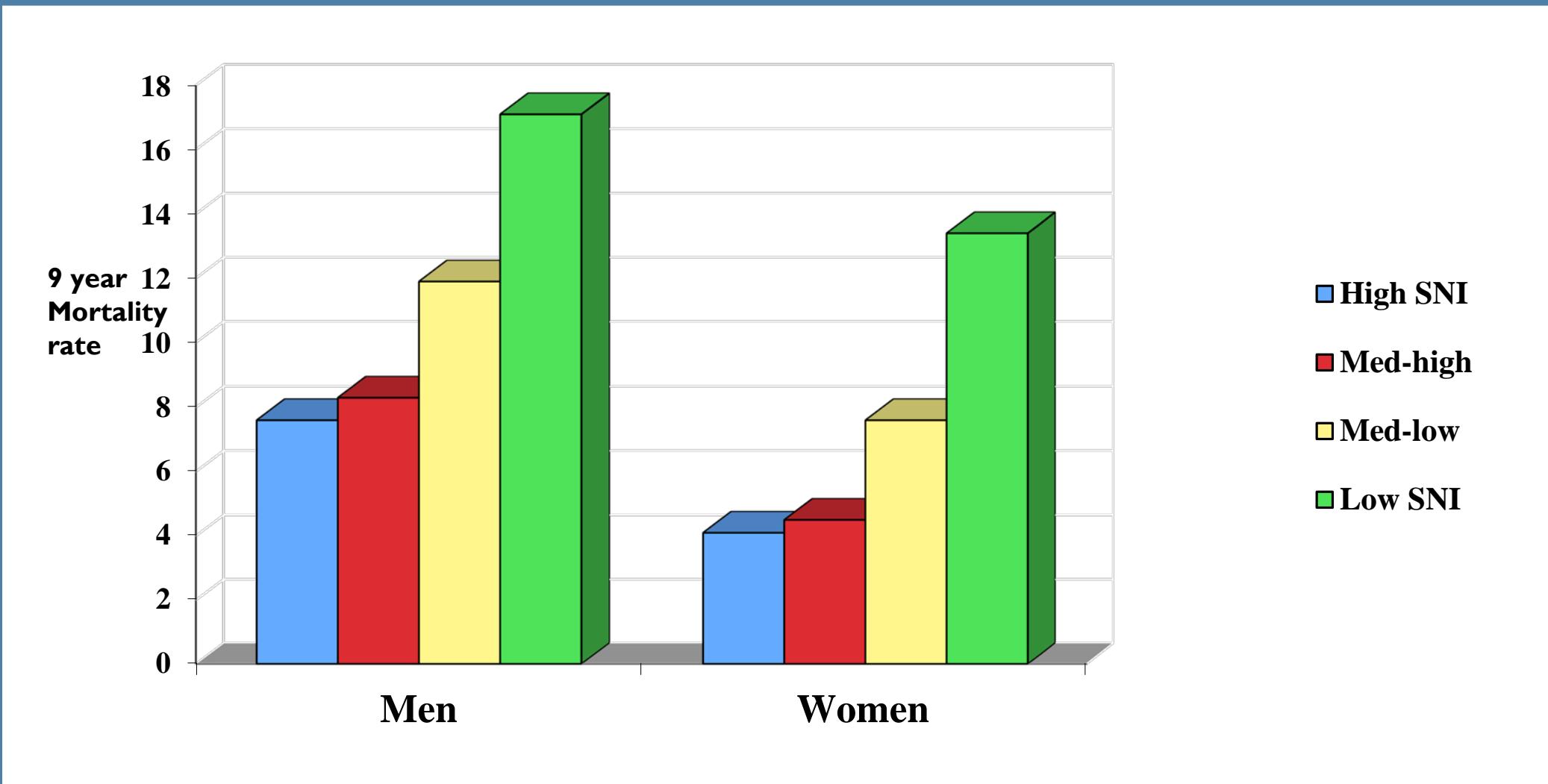


SOCIAL INTEGRATION, ISOLATION AND EXCLUSION

Durkheim argues that individuals are bonded to society by two forms of integration:

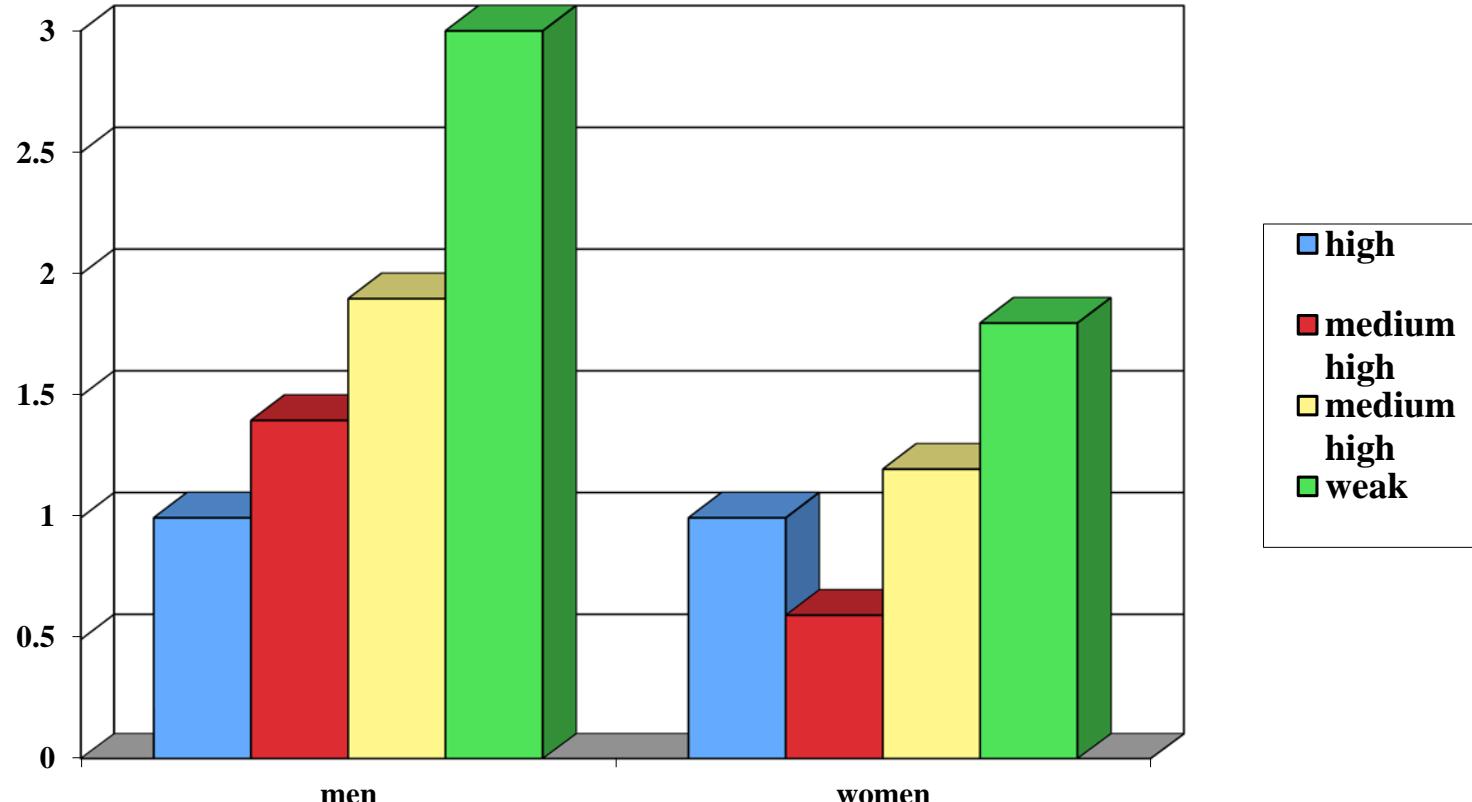
- Attachment (maintains ties to others)
- Regulation (held in fabric of society by norms, values, beliefs)

SOCIAL INTEGRATION AND ALL CAUSE MORTALITY: ALAMEDA COUNTY 1965-74 (BERKMAN AND SYME AJE, 1979)



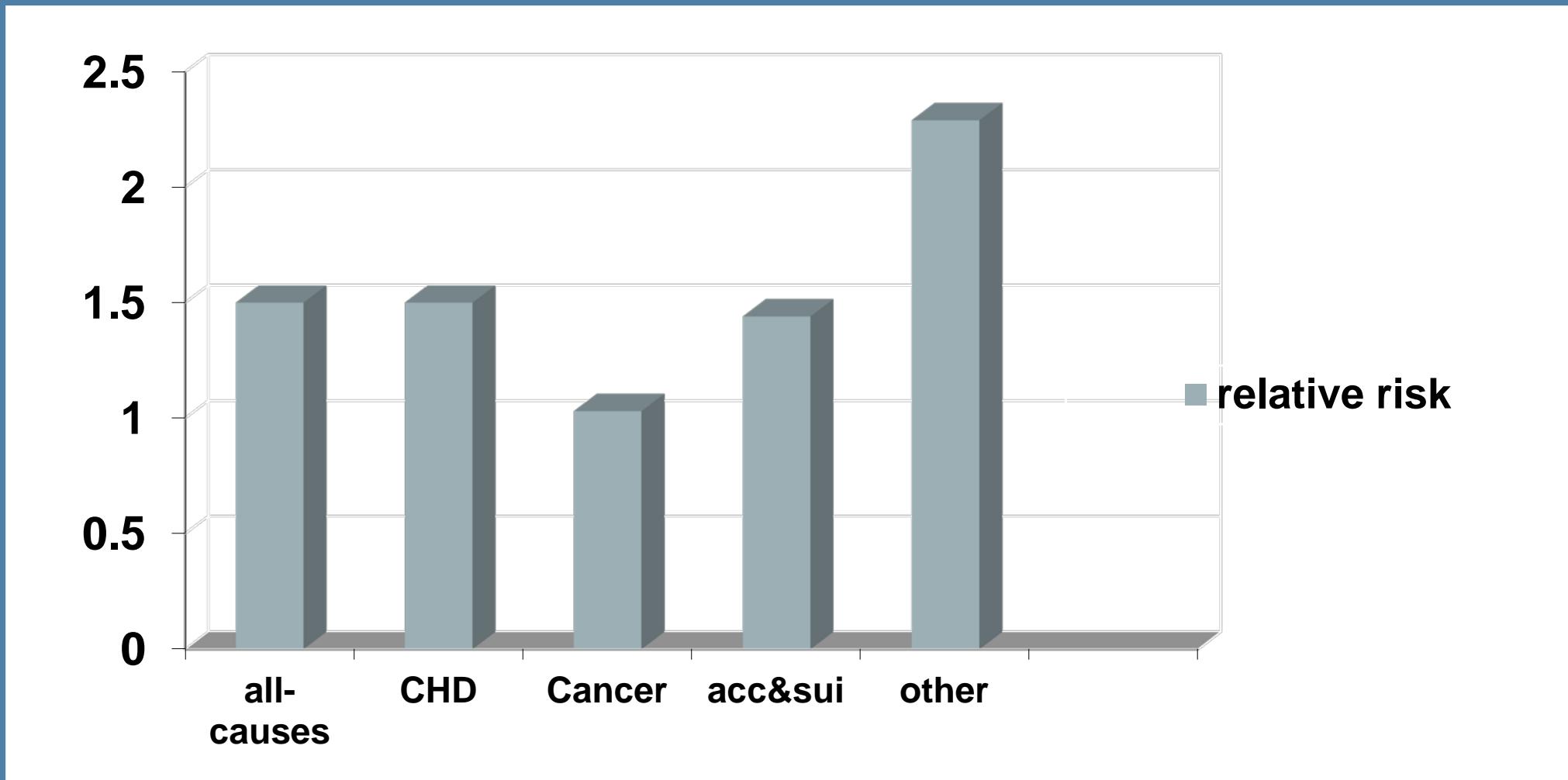
SOCIAL INTEGRATION AND MORTALITY FROM ALL CAUSES IN FRENCH GAZEL

(BERKMAN, MELCHIOR, CHASTANG, NIEDHAMMER, LECLERC, GOLDBERG AJE 2004)



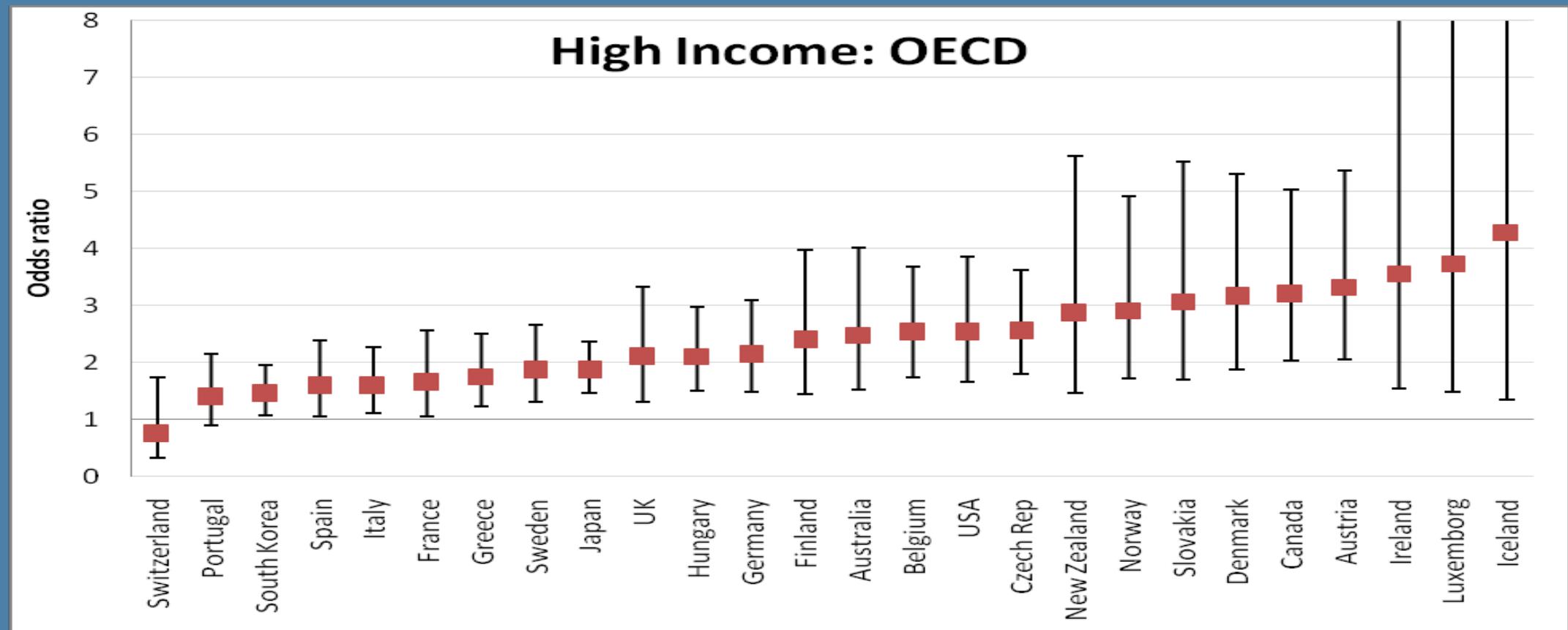
RR adjusted for age, tobacco and alcohol consumption, depressive and self perceived health

SOCIAL TIES AND CAUSE-SPECIFIC MORTALITY IN US MALE HEALTH PROFESSIONALS (ENG ET AL AJE,2002)

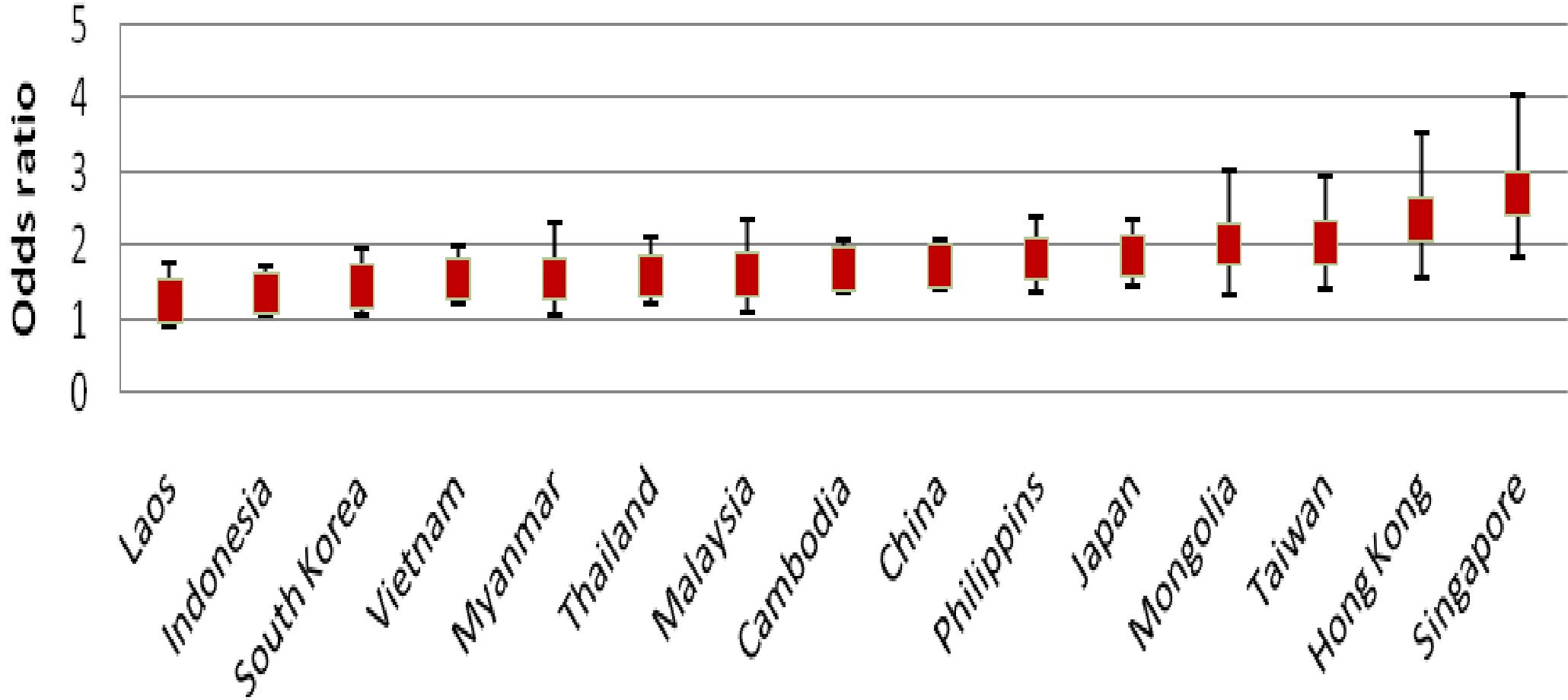


GALLUP WORLD POLL STUDY: SOCIAL SUPPORT, VOLUNTEERING AND HEALTH AROUND THE WORLD

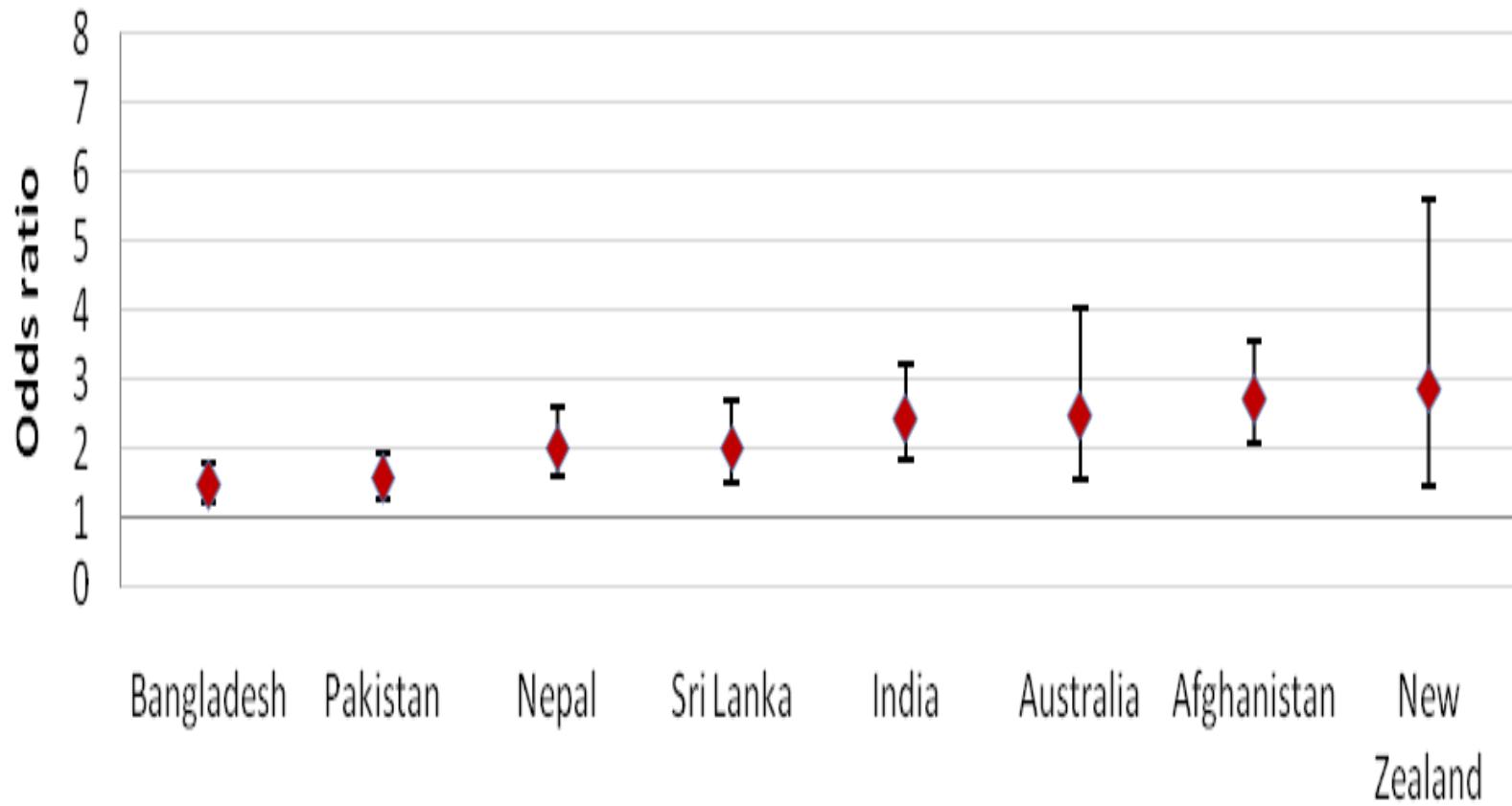
KUMAR, CALVO, AVENDANO, SIVARAMAKRISHNAM, BERKMAN ET AL :SOC SCI AND MED 2012



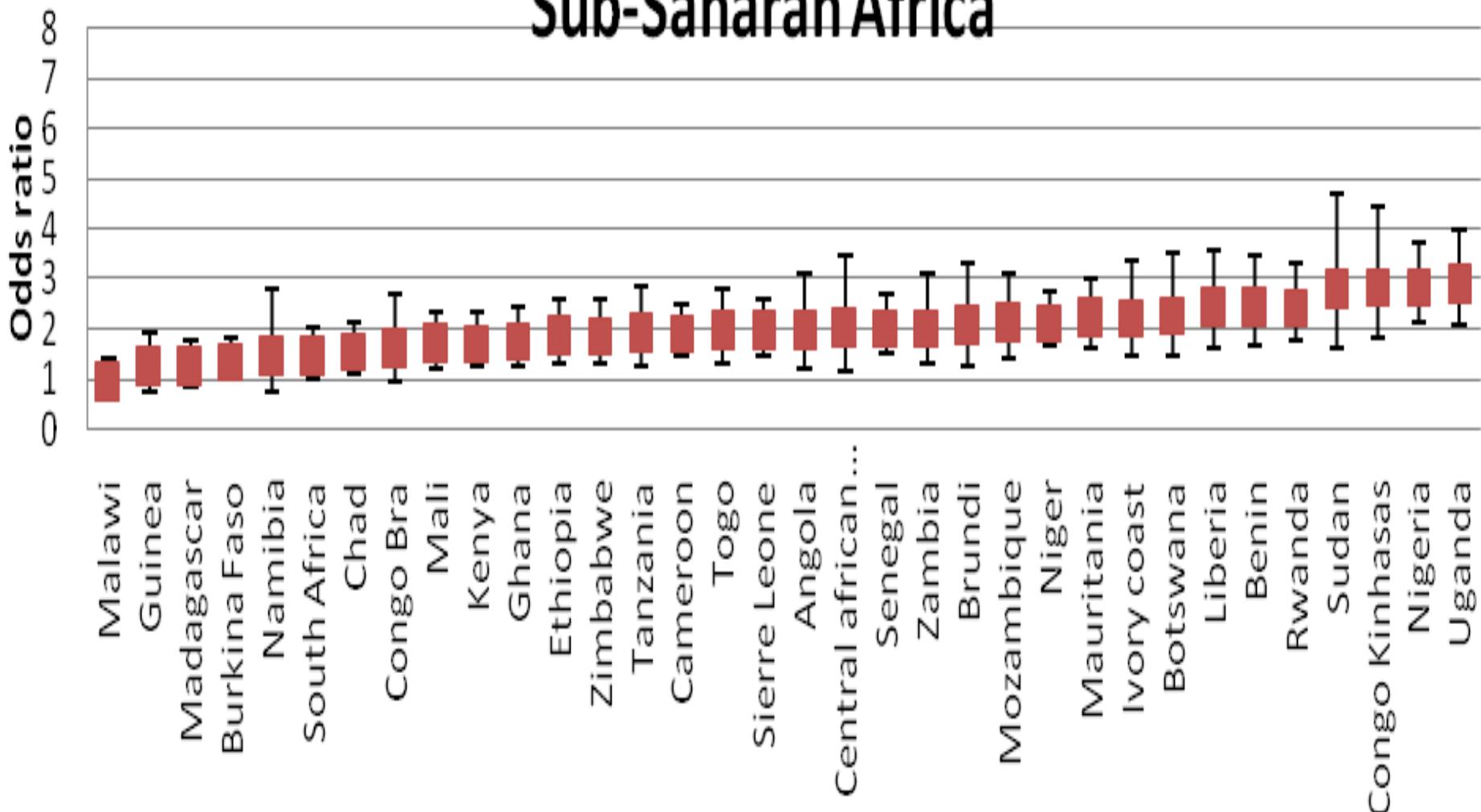
East Asia and Pacific



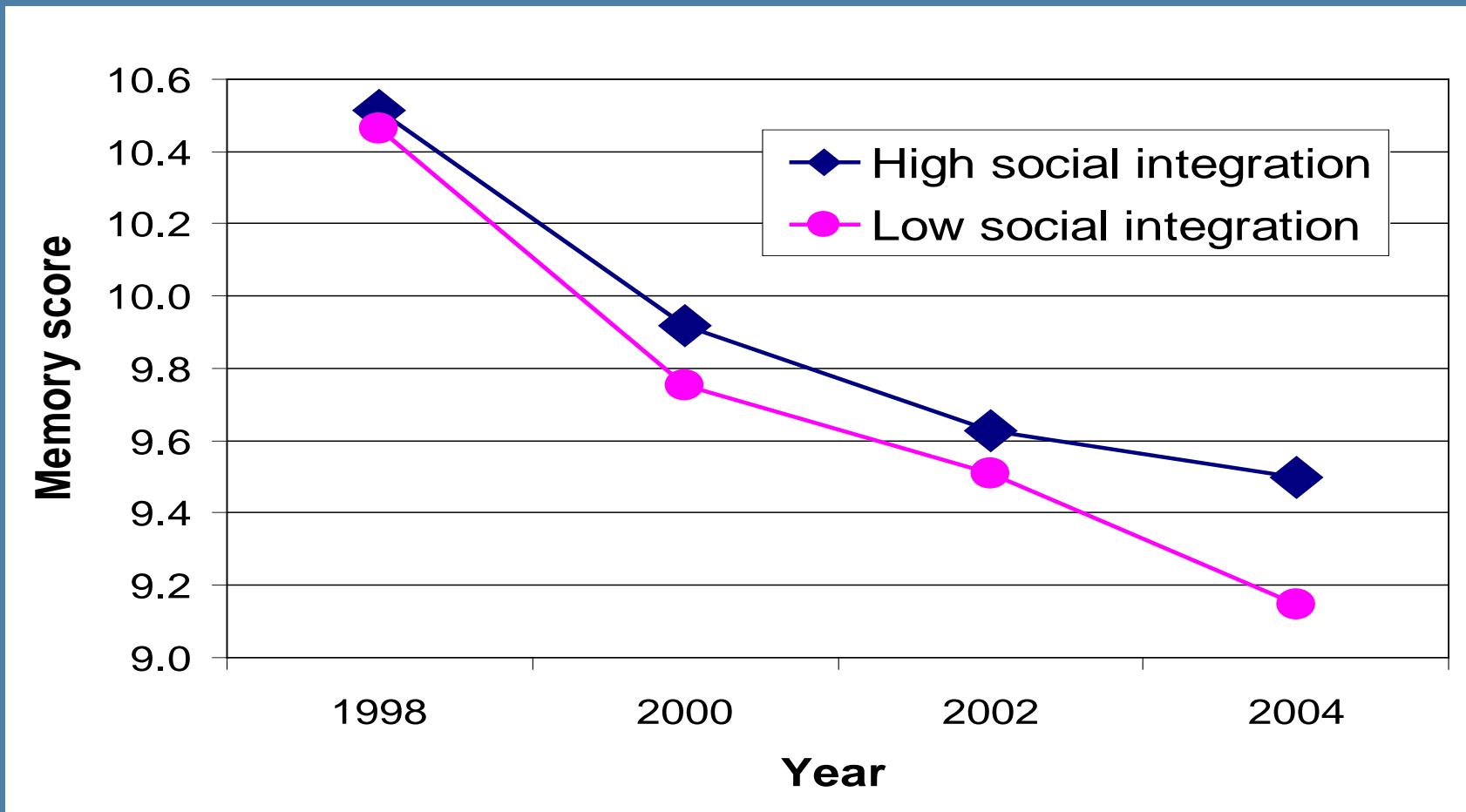
South Asia and Oceania



Sub-Saharan Africa



SOCIAL INTEGRATION PREDICTS THE PRESERVATION OF MEMORY IN US ELDERLY: FINDINGS FROM THE HEALTH AND RETIREMENT STUDY



Ertel, Glymour, and Berkman. Effects of Social Integration on Preserving Memory; American Journal of Public Health: July 2008, Vol. 98, No. 7

POLICIES IN MIDLIFE PROMOTE WORKING LONGER: THE LONG-ISH ARM OF EARLY & MIDLIFE EXPERIENCES

- Family leave, sickness absence, schedule control
- EITC, unemployment protection during recessions
- Employer-Provided Vocational Training and Education Benefits
- Attention to lower and middle wage earners
- Long run benefits are not accounted for in cost-benefit equations

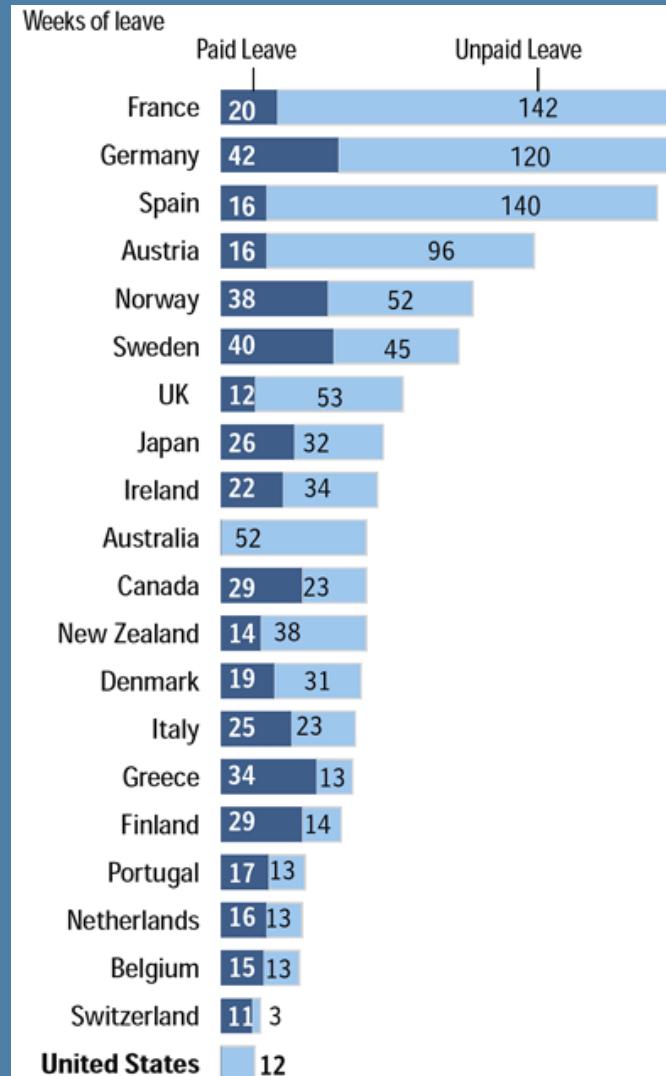
REASONS FOR TIME AWAY FROM WORK AND COGNITION: HRS, SHARE, ELSA

ADJUSTED ORS FOR COGNITIVE IMPAIRMENT BY ECONOMIC INACTIVITY SPELLS

Leist, Glymour, Mackenbach, Van Lethe, Avendano. Ann Of Epid, 2013

Time away	#1 OR	95% CI	#2 OR CI	95%	#3 OR	95% CI
unemployment	1.2	1.0-1.3	1.2	1.0-1.4	1.2	1.0-1.4
sickness	2.3	2.0-2.7	1.8	1.5-2.1	1.1	1.0-1.4
homemaker	1.6	1.4-1.8	1.2 1.4	1.0-	1.1	1.0-1.3
training	.5	.3-.6	.7 1.0	.5-	.8	.6-.9
maternity	.6	.5-.7	.7	.5-.8	.7	.6-.9

FORMAL SOCIAL PROTECTION POLICIES LACKING IN US



Weeks of paid and unpaid
maternity leave, by country

THE LONG-RUN EFFECT OF MATERNITY LEAVE BENEFITS ON WOMEN'S MENTAL HEALTH AT OLDER AGES

Avendano M, Berkman LF, Brugiavini A, Pasini G. Social Science & Medicine (2015) doi:10.1016/j.socscimed.2015.02.037

This work was supported by NIA.

DATA: SHARE

- Multidisciplinary, cross-country panel survey representative of 50+ population across Europe
- 30,000 men and women over 13 European countries
- Wave 3 (SHARELIFE 2008) collected detailed retrospective data on life histories:
 - Complete **working history**
 - Complete **fertility history**
- Mental Health in wave 1 (2004) and wave 2 (2006): Euro-D Scale
- Extensive measures of physical health, demographics, labour market behaviour, pensions

FULL WAGE WEEKS

- The database contains the following variables:
 - ML_WKS: total number of weeks of maternity leave
 - ML_PAY: cash benefits paid during maternity leave (as a percent of female wages in manufacturing)
- We use **FWW=ML_WKS X ML_PAY**, the number of full wage weeks (Ruhm, 1998, 2000, 2011; Tanaka 2005)

POLICY DATA

- Anne Gauthier (2011): comprehensive “Family Policy Database” on:
 - Maternity, parental, and childcare leave policies
 - Cash benefits
- The database covers the period 1960-2010 and all SHARE countries
- **Maternity leave:** leave granted (only) to mothers in connection with childbirth, and which usually includes a period of leave prior and after childbirth
- Policies influence a wide range of labor market outcomes, maternal and child health

WOMEN'S DEPRESSION SCORE AT OLDER AGES BY FULL WAGE WEEKS OF MATERNITY LEAVE

	Full-wage week of maternity leave benefits		Difference high-low	% change
	Low	High		
working	2,64	2,51	-0,13	
not working	2,52	2,82	0,30	
		DiD	-0,43	-16,17%

Interpretation: 16.2% difference in depression score between low vs. high country-specific cut-offs for full-wage weeks, with respect to mean value among European women working at childbirth

IMPLICATIONS

Depression in old age is linked to maternity leave policies during the critical period of the birth of a first child:

- Moving from a maternity leave with limited coverage to one with comprehensive coverage at the birth of a first child reduces depression scores by 16% in older ages

Depression is costly:

- Older people with depression use more health services, homecare and assisted living than older people without depression
- Mean direct health care costs in old age per patient were €5241 per year for depressed individuals, as compared to €3648 per year for non-depressed individuals, corresponding to a 30% difference
- Cost-benefit analyses should take into account the potential loss in women's welfare in old age resulting from diminishing the comprehensiveness of maternity leave benefits

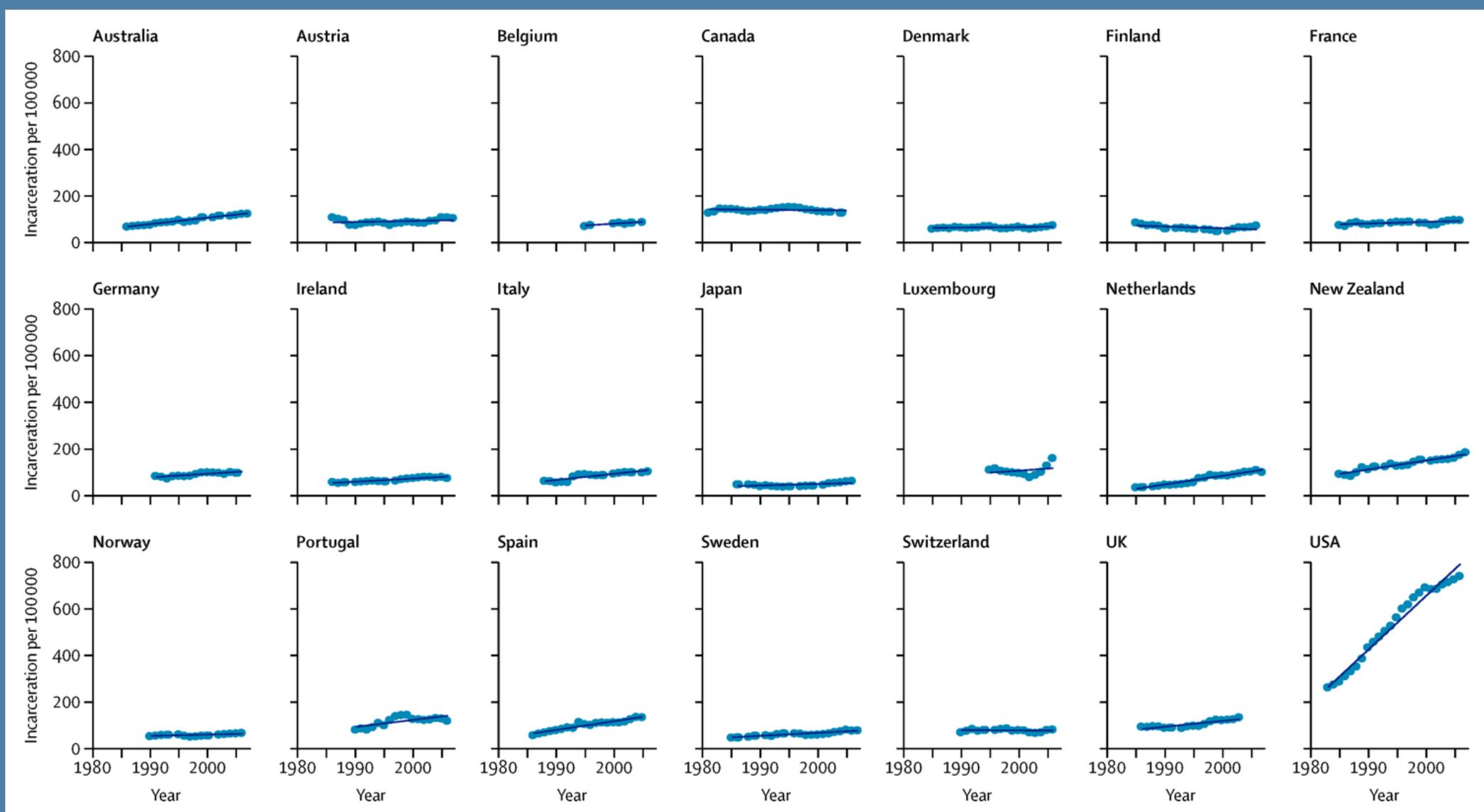
STRUCTURAL RACISM

Incarceration

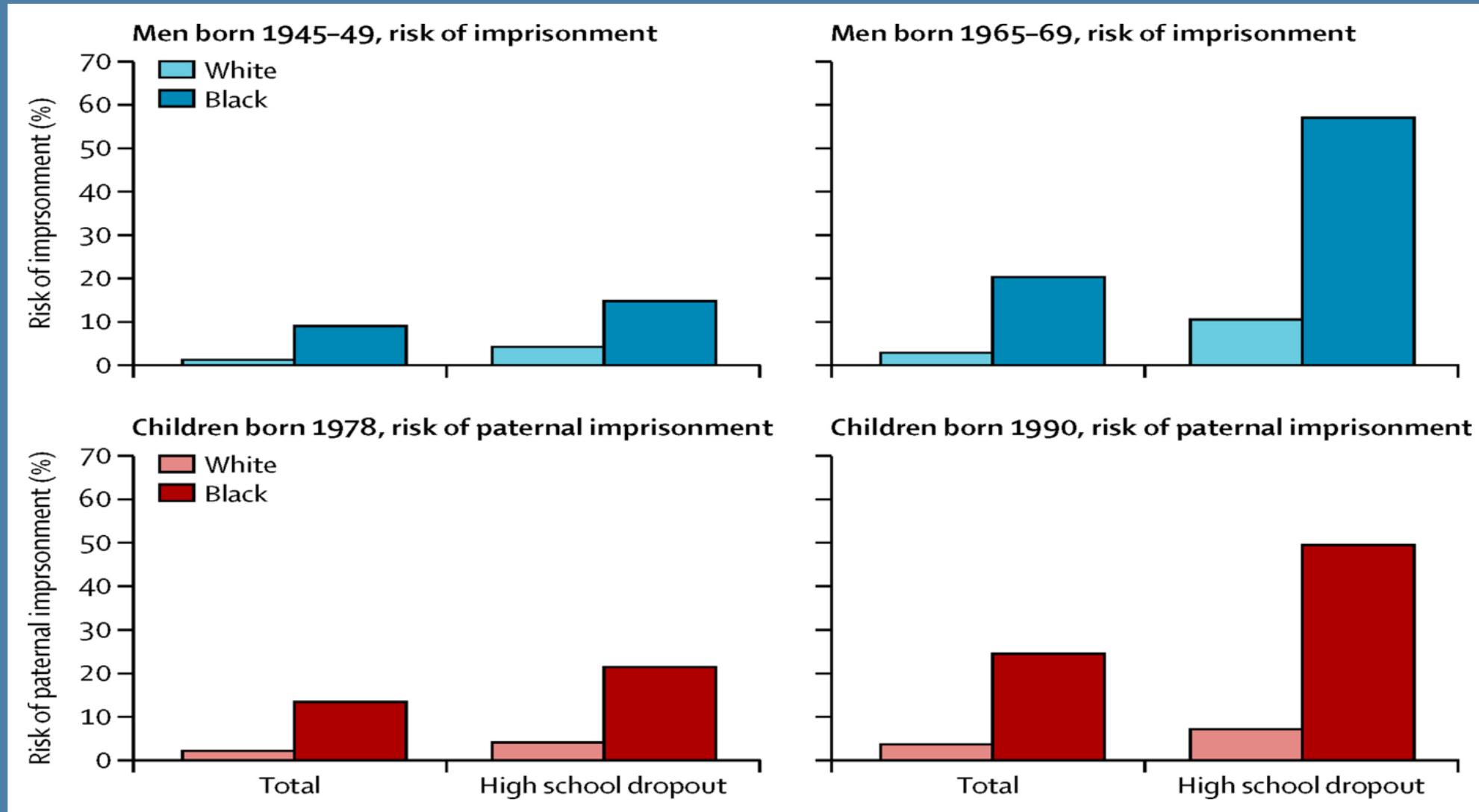
Job discrimination
Housing “the Color of the Law”

MASS INCARCERATION, PUBLIC HEALTH AND WIDENING INEQUALITY IN USA

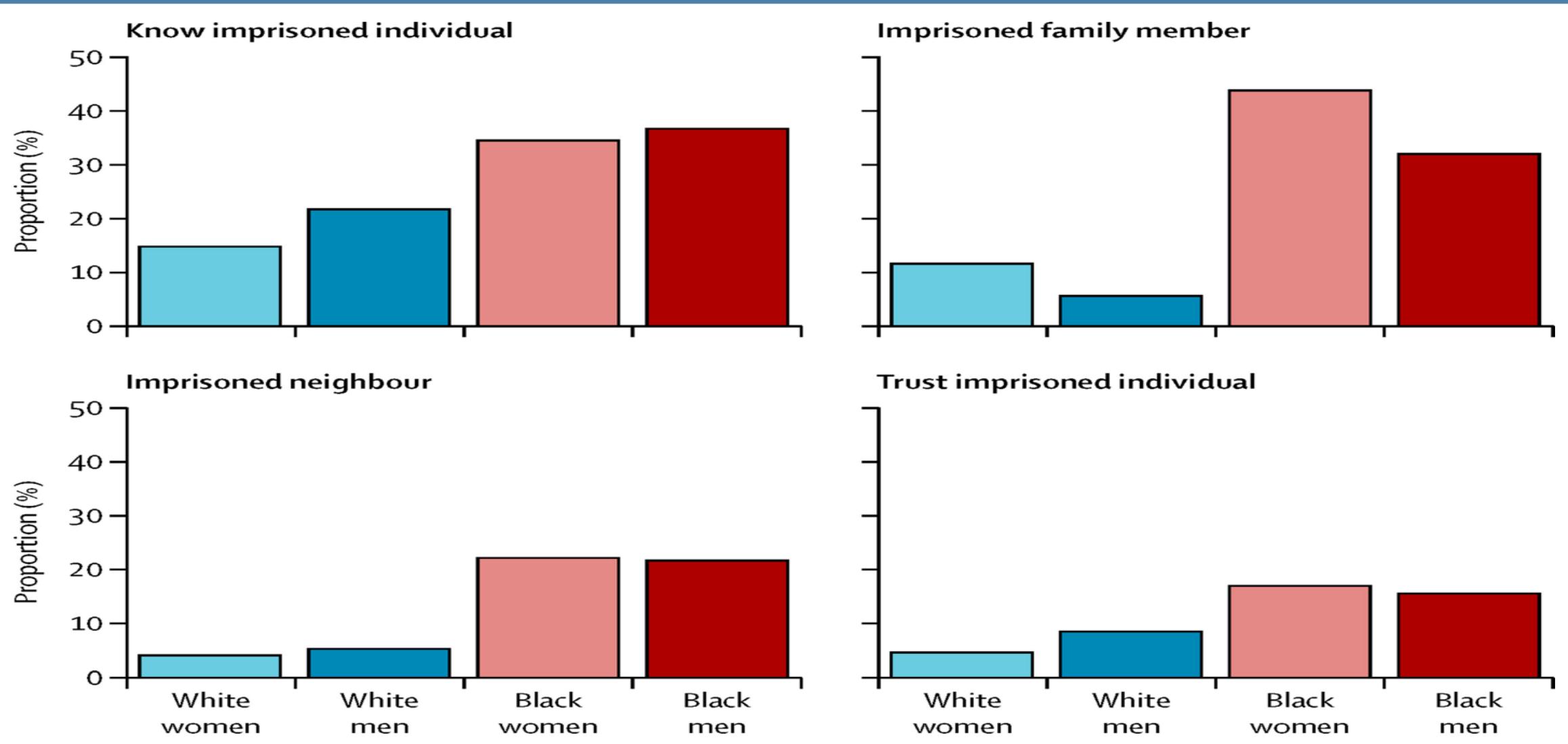
WILDEMAN AND WANG, LANCET 389, 2017



MASS INCARCERATION, PUBLIC HEALTH AND INEQUALITY WILDEMAN CONT



MASS INCARCERATION, PUBLIC HEALTH AND WIDENING INEQUALITY WILDEMAN CONT



METRICS AND EVALUATION IN ALL POLICIES

- *Environmental impact assessment model has been done for health impact, could be extended to healthy life expectancy and aging population productivity.*

**DEMOGRAPHY IS NOT DESTINY-IT IS OUR RESPONSE TO IT
THAT WILL DETERMINE OUR SOCIETAL RESILIENCE**



HARVARD T.H. CHAN
SCHOOL OF PUBLIC HEALTH