

Policy Responses to Rising Longevity: A Welfare Based Approach

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CEPR PRN Economics of Longevity and Aging
Bank of Greece, Athens, Greece, June 17-18 2025

Overview

- Longer healthy lifespans are an enormous gain to human welfare
- Modern populations and historical institutions are incompatible: **institutions should change to serve the population**
- Old age dependency – **biological**, social and institutional construct
- Income per capita is not a welfare measure – we need better models of maximizing **welfare** subject to **constraints**



Sustainable social security: Four options

Sagiri Kitao ✉

- Increase Contribution Rates
- Reduce Benefit Rates
- Means Test Benefits
- Increase Retirement Age



Sustaining the Feudal System: the Black Death in England 1348

- 30–50% of the population died
- Labor shortages – serfs running off for better conditions
- Policy response: Ordinance of Labourers 1349, Statute of Labourers 1351
 - Everyone under age 68 compelled to work
 - Bound to serve where working in 1347
 - Wages by occupation not to exceed those paid in 1347

Retirement Financing: An Optimal Reform Approach

Roozbeh Hosseini , Ali Shourideh 

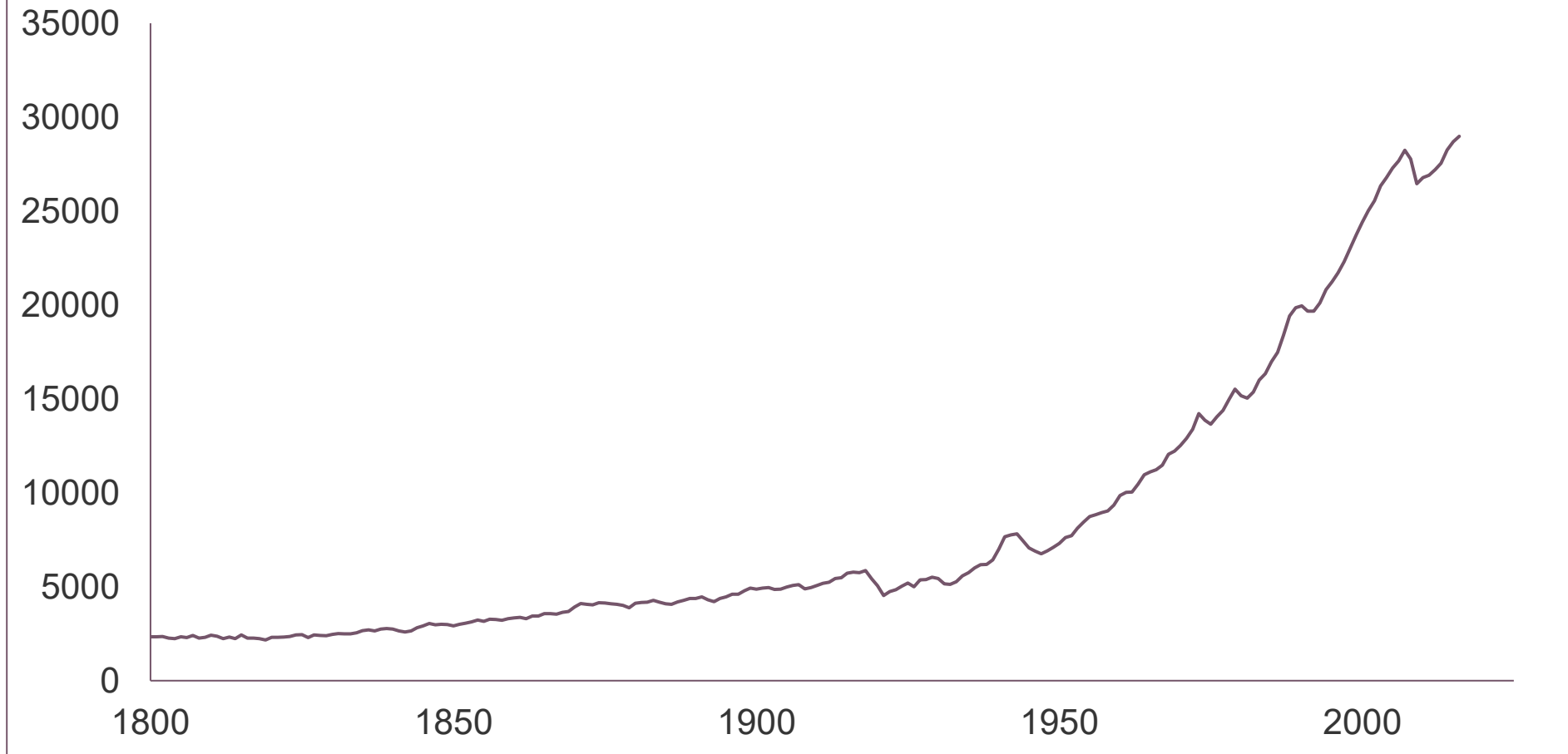
First published: 25 July 2019 | <https://doi.org/10.3982/ECTA15088> | Citations: 29

- Pareto optimal policy reforms
- Wider set of policy options, taxes and subsidies to asset holdings as well as income
- Model: overlapping generations, heterogenous time preference and survival curves, missing markets, **no biology or health, bounded rationality**
- Tax (low rate of return) on those with high wealth, subsidy (high rate of return) on those with low wealth



- What is human welfare?
- What are the **real** constraints on achieving this?

Income per Capita: UK 1800-2025



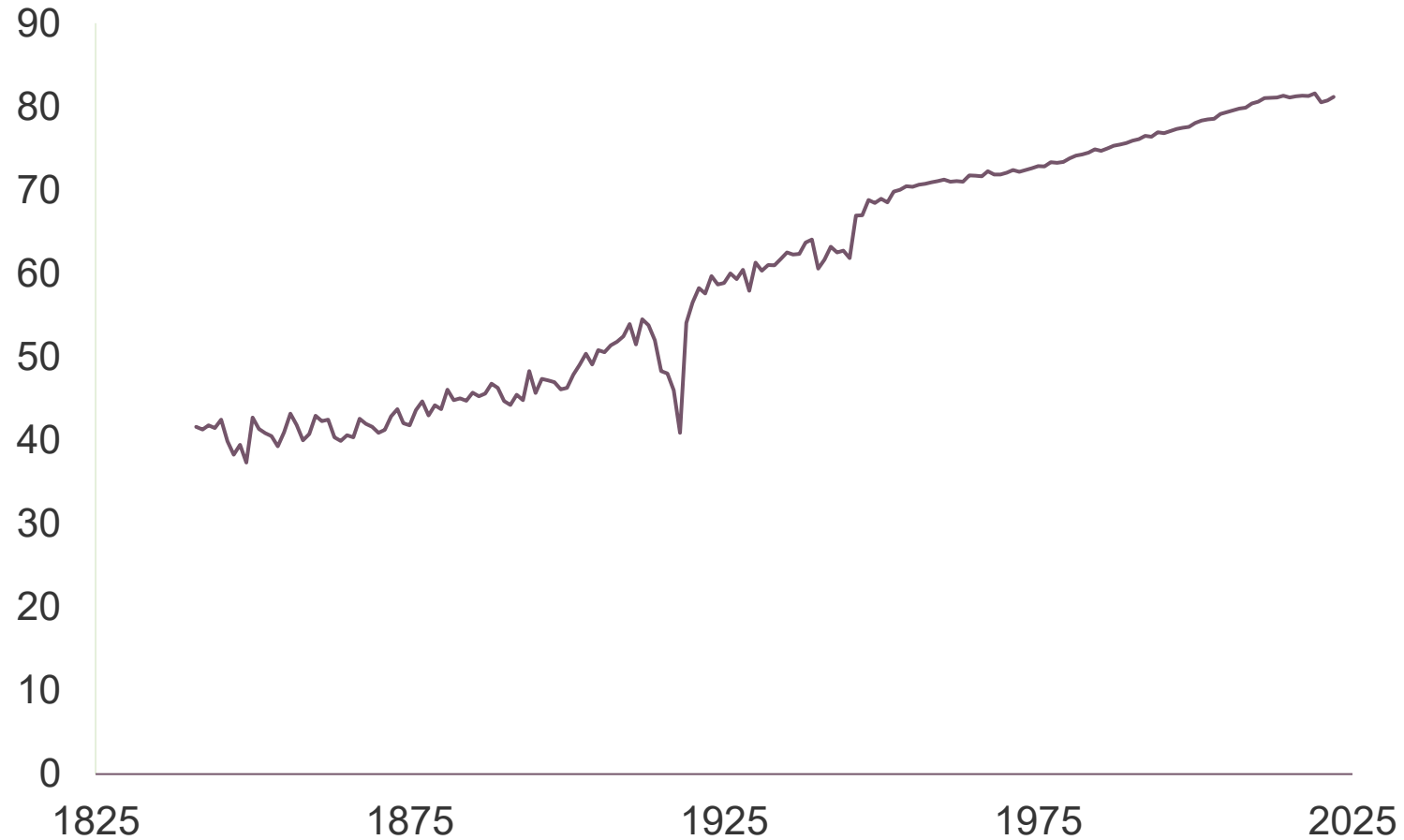
Bank of England: A millennium of macroeconomic data for the UK
2015 prices



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Life Expectancy at Birth: UK 1841-2022



Source Human Mortality Database



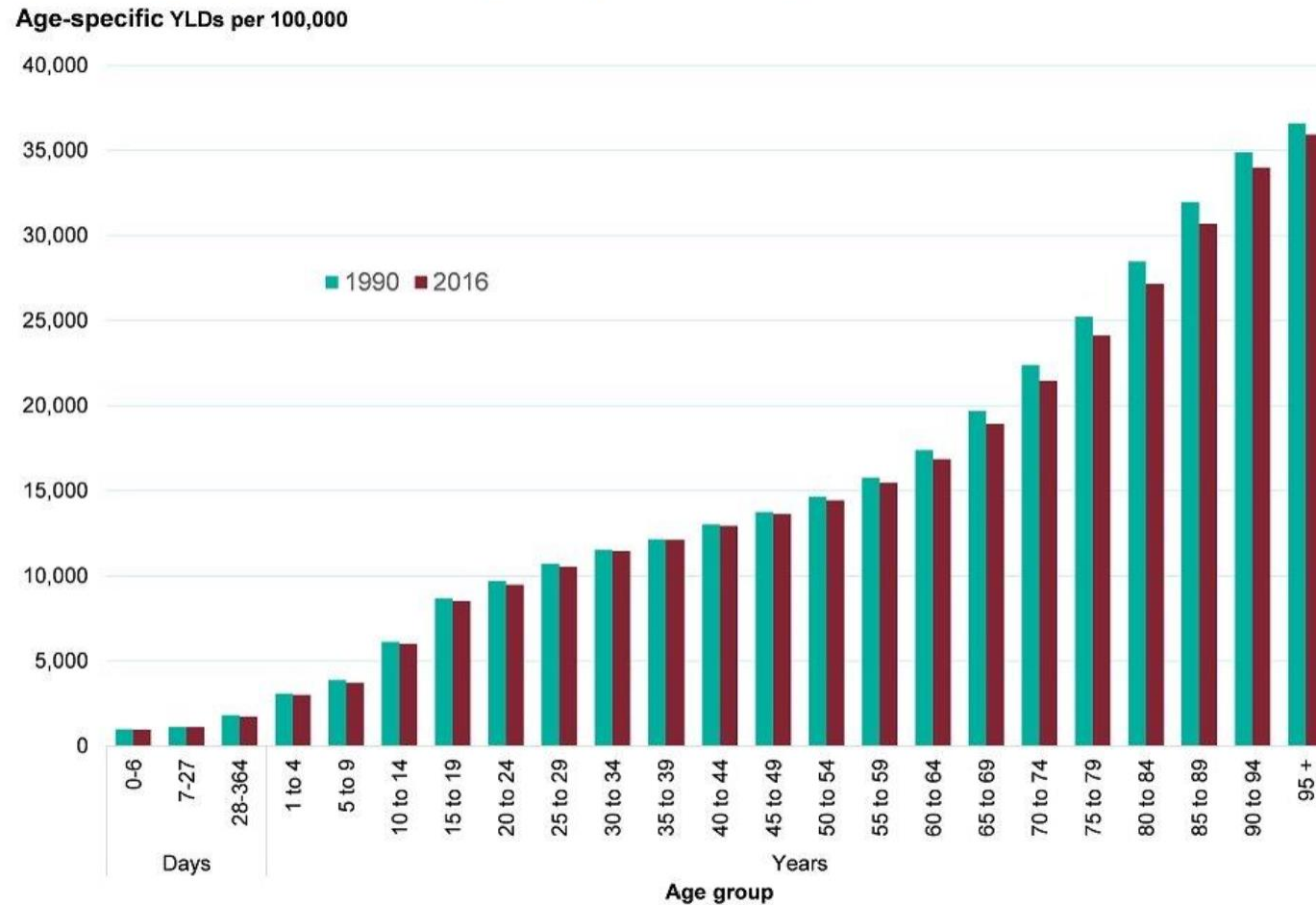
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Compression of Morbidity

- Age of onset of disability increasing over time – compression of period of morbidity at the end of life
- Across countries age onset of disability increases with life expectancy – shorter absolute period of disability with higher life expectancy
- Counterexamples
 - United States – compression 1860 – 2000 but evidence of expansion of morbidity since 2000. Behaviors: obesity, addictions.
 - Some evidence of emergence of expansion recently in UK

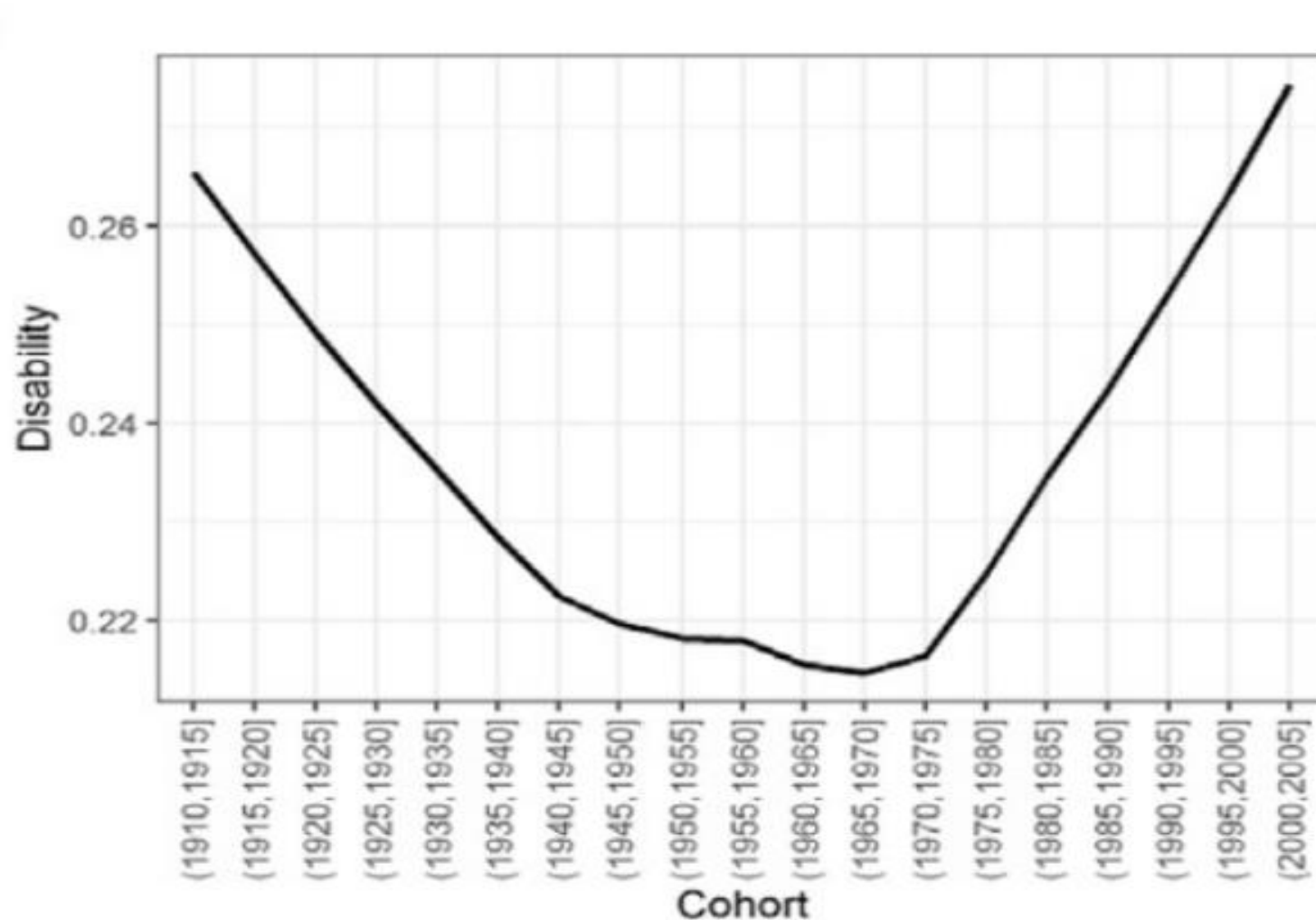
Age-specific morbidity rate, England 1990 and 2016



Source: Global Burden of Disease Study, Institute for Health Metrics and Evaluation (IHME), 2016

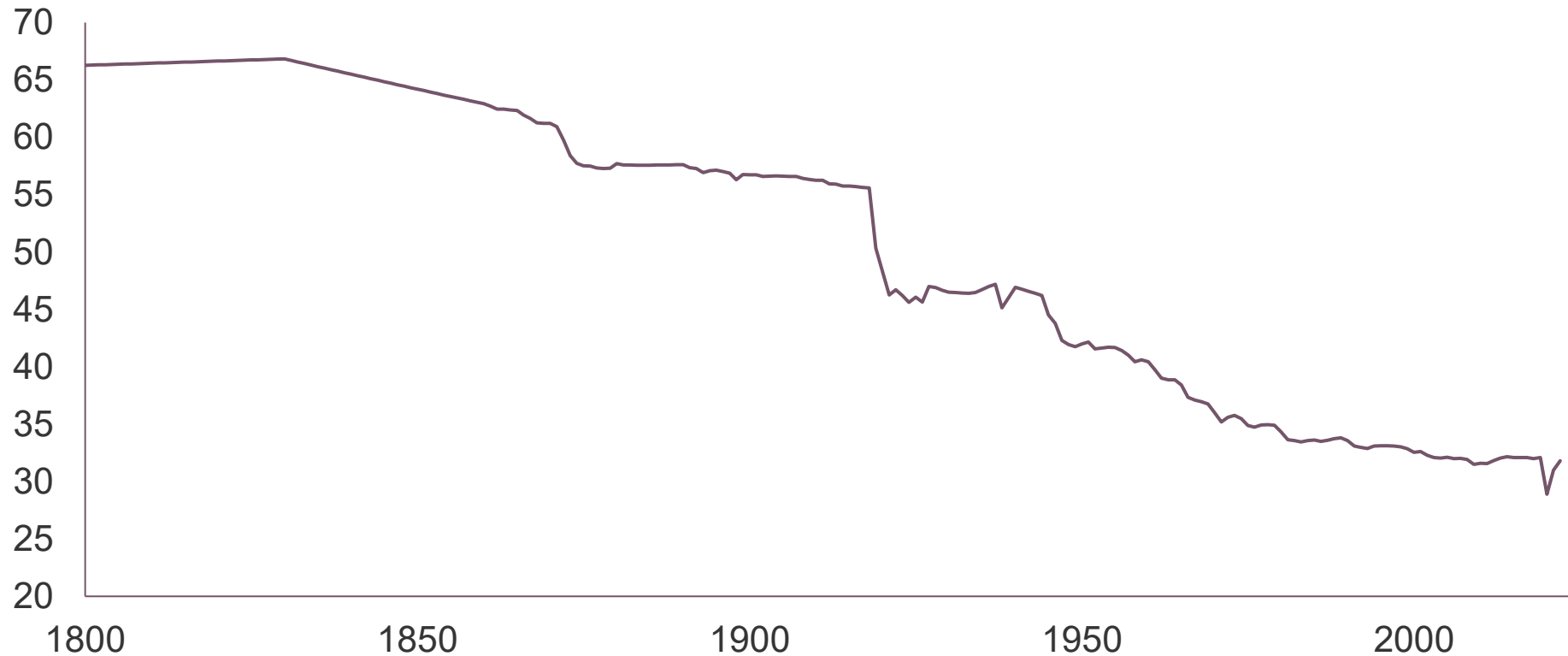


Disability Trends in Europe: Cohort Effects



Beller, Johannes, and Jelena Epping. "Disability trends in Europe by age-period-cohort analysis: Increasing disability in younger cohorts." *Disability and Health Journal* 14.1 (2021): 100948.

Average Hours Worked per Week: UK 1800-2023



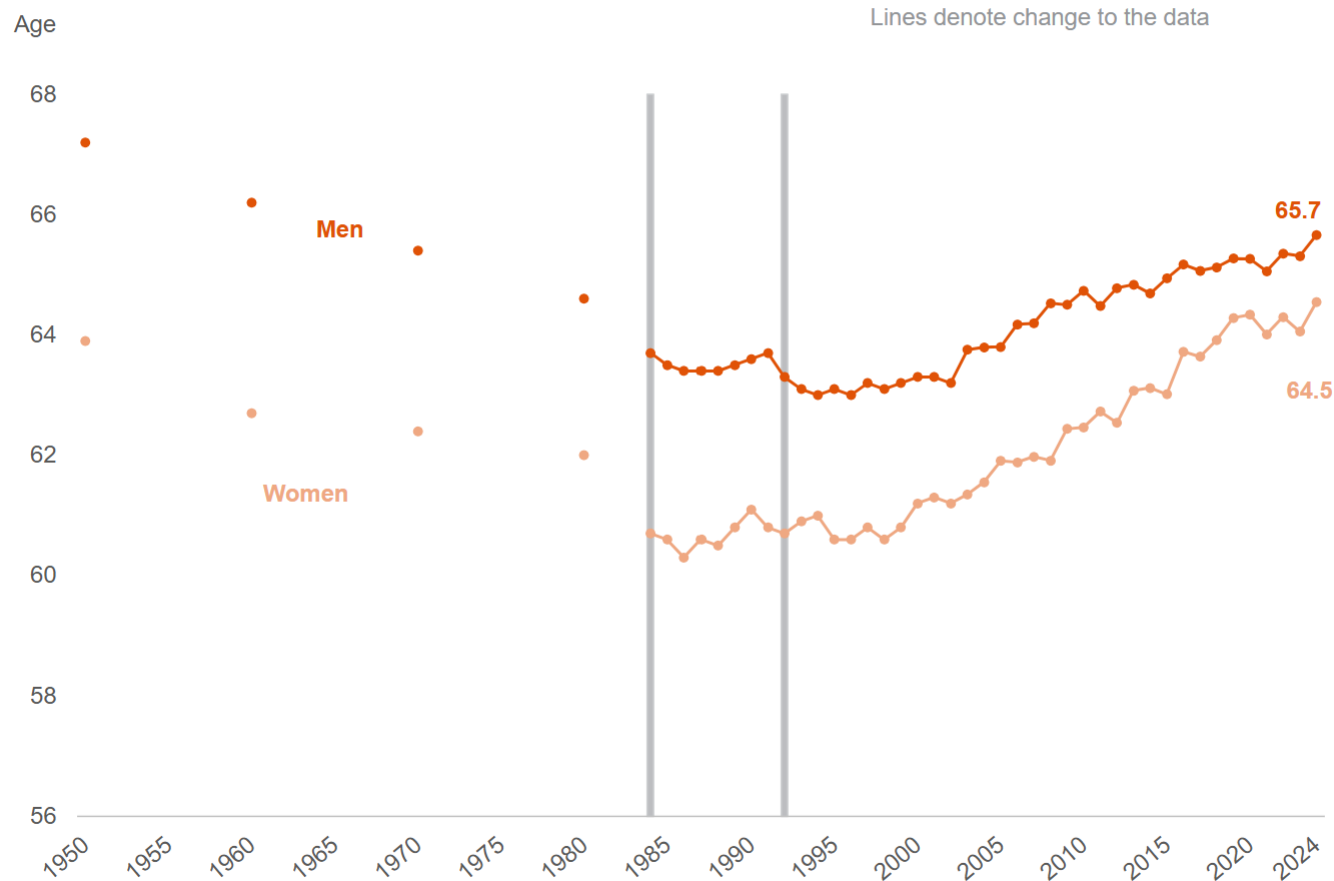
Bank of England: A millennium of macroeconomic data for the UK



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Average age of men and women exiting from the labour market, 1950 to 2024, UK



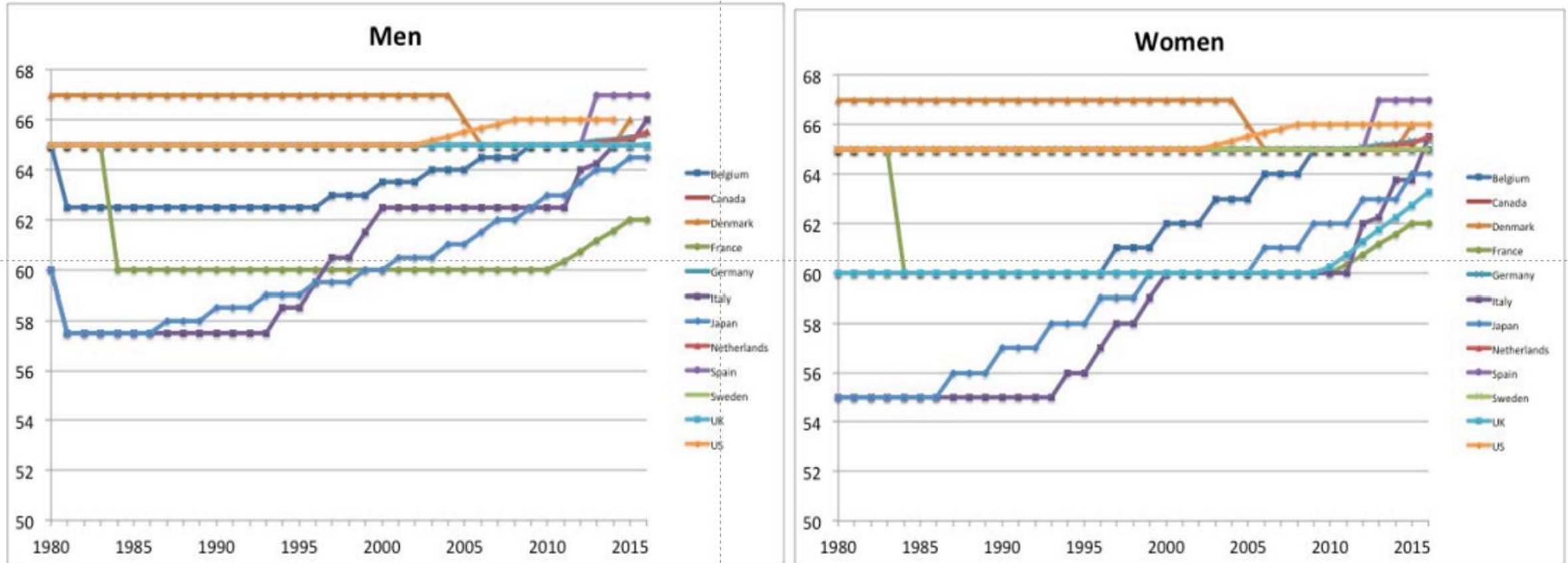
UK Department for Work and Pensions: Economic labour market status of individuals aged 50 and over, trends over time: September 2024



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Social Security Eligibility Age by Sex



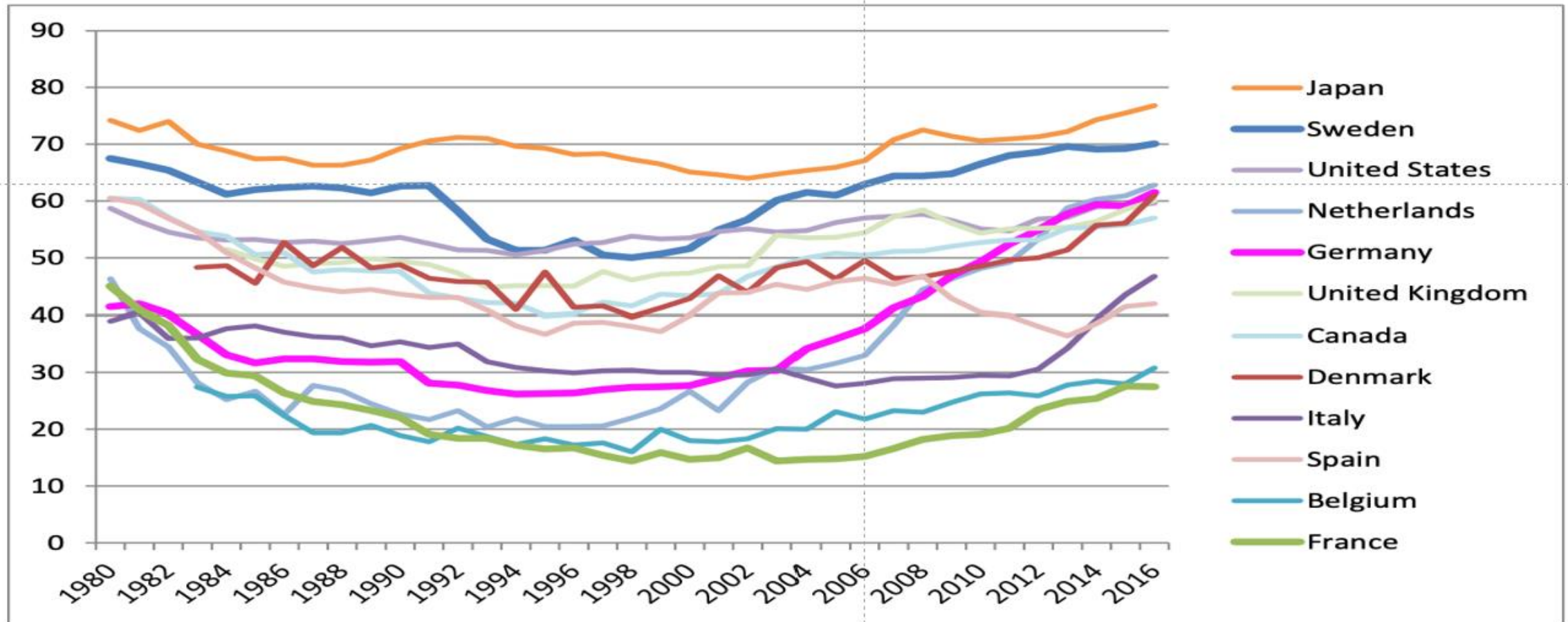
Börsch-Supan, Axel H., and Courtney Coile. *Social security programs and retirement around the world: reforms and retirement incentives—introduction and summary*. No. w25280. National Bureau of Economic Research, 2018.



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Percent Employed, Men aged 60-64



Constraints: Are the Old “Dependents”?

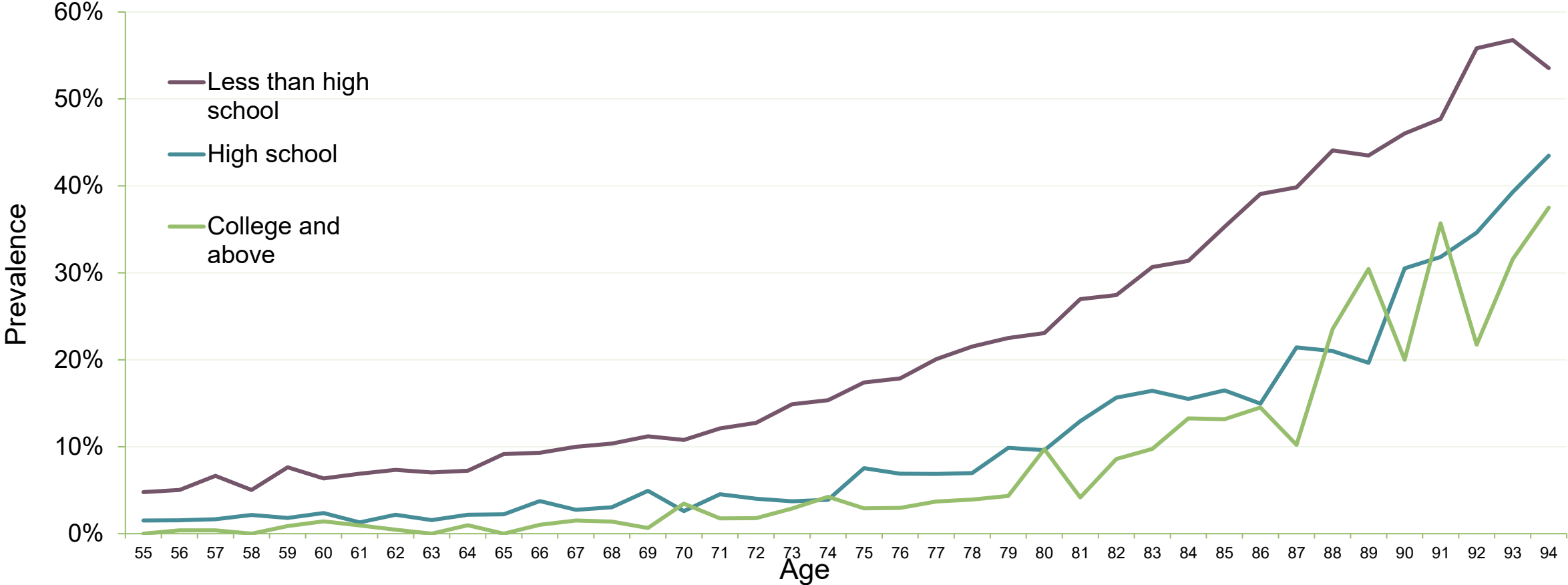
- Healthy life span is a key constraint
- Are the old (over age 65) really dependent?
 - Do mental and physical disabilities make them dependent?
 - Compression of morbidity
 - Can they keep working?
 - Do they save for their old age retirement consumption and health care?
 - Work and saving depend on institutions



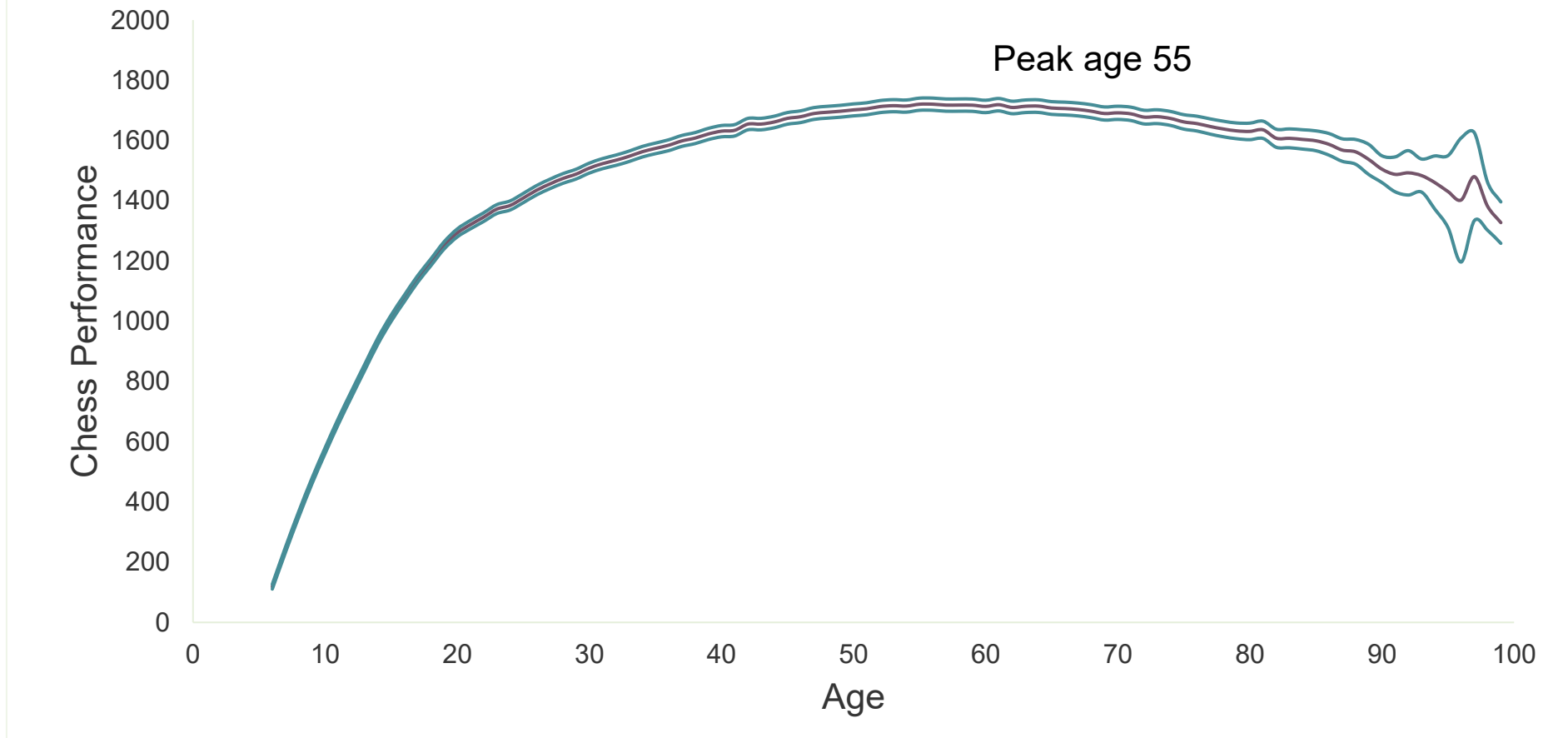
Age and productivity

- Economics:
 - Life span T .
 - Processes age independent – no biology
- Epidemiology:
 - Real age effects due to physical and cognitive development in children and physical and cognitive decline in older adults though biological processes – not captured in economic models.
 - Focus on illness and disability, not healthy aging and labor productivity

Prevalence of Dementia by Age and Education USA, 2018



USCF Chess Performance by Age, 2004-2018



N=352,489

Individual fixed effects

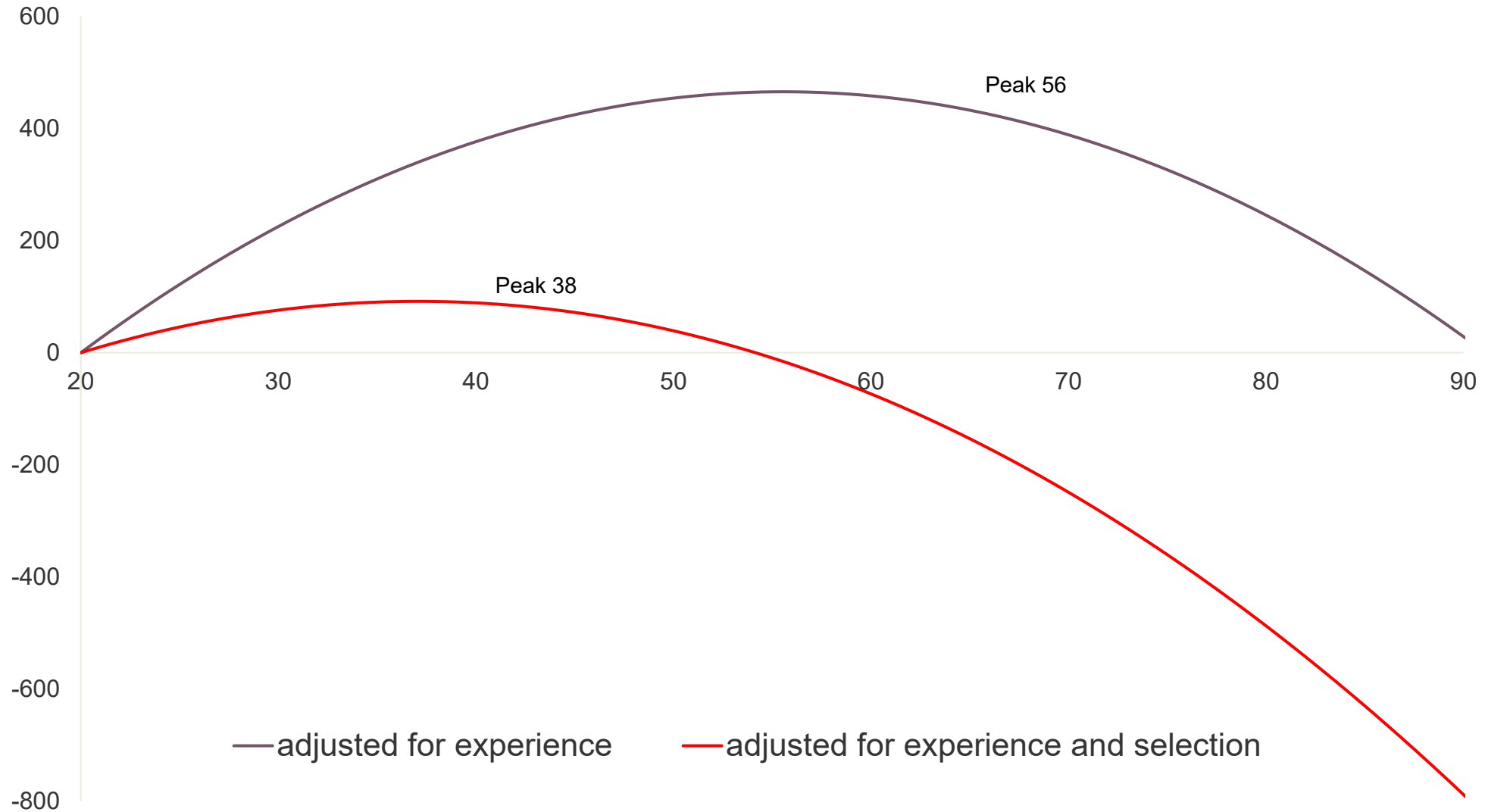
Individual heterogeneity in age gradient



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USCF Chess Performance by Age: Adjusted for experience and selection effects



— adjusted for experience

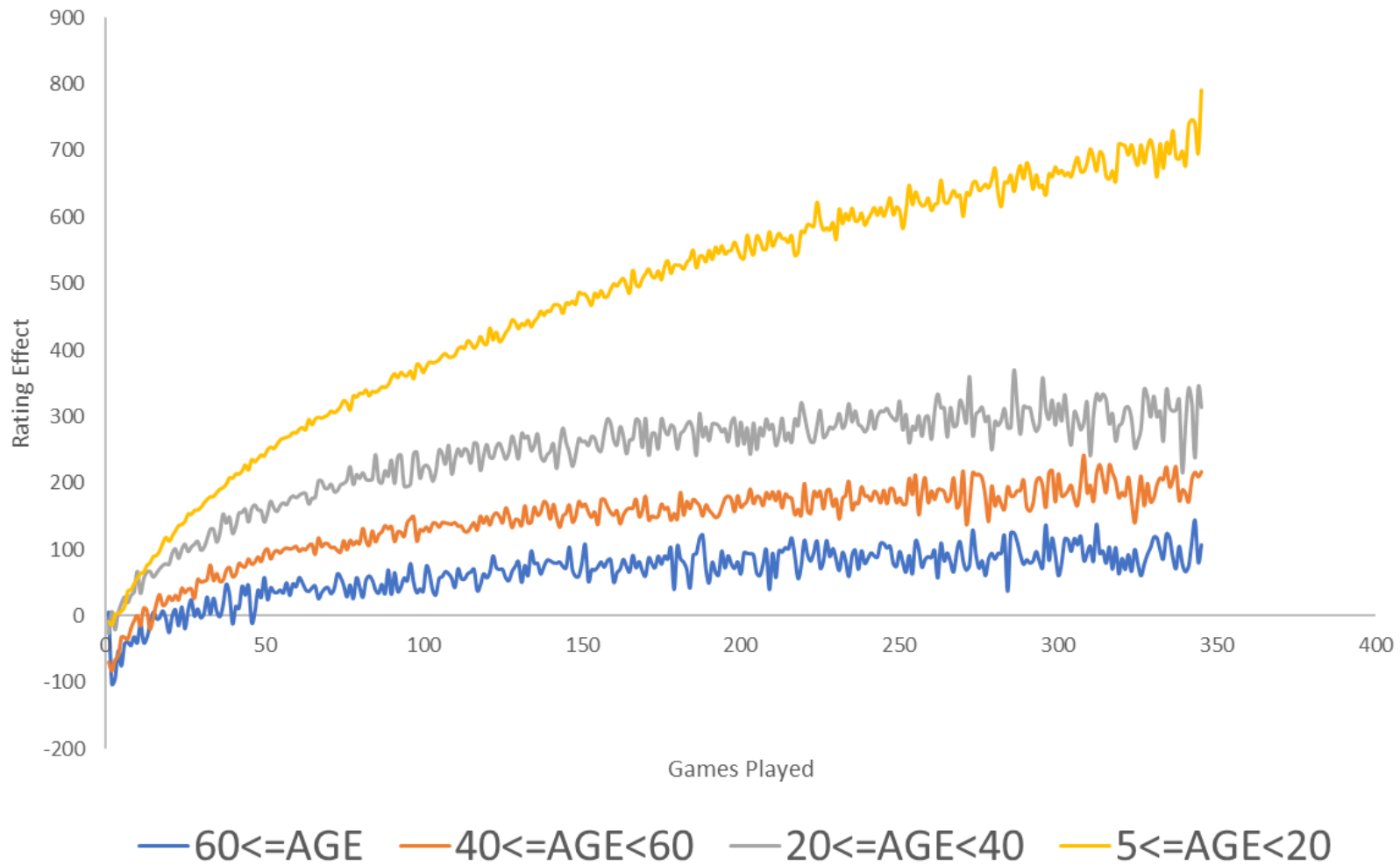
— adjusted for experience and selection



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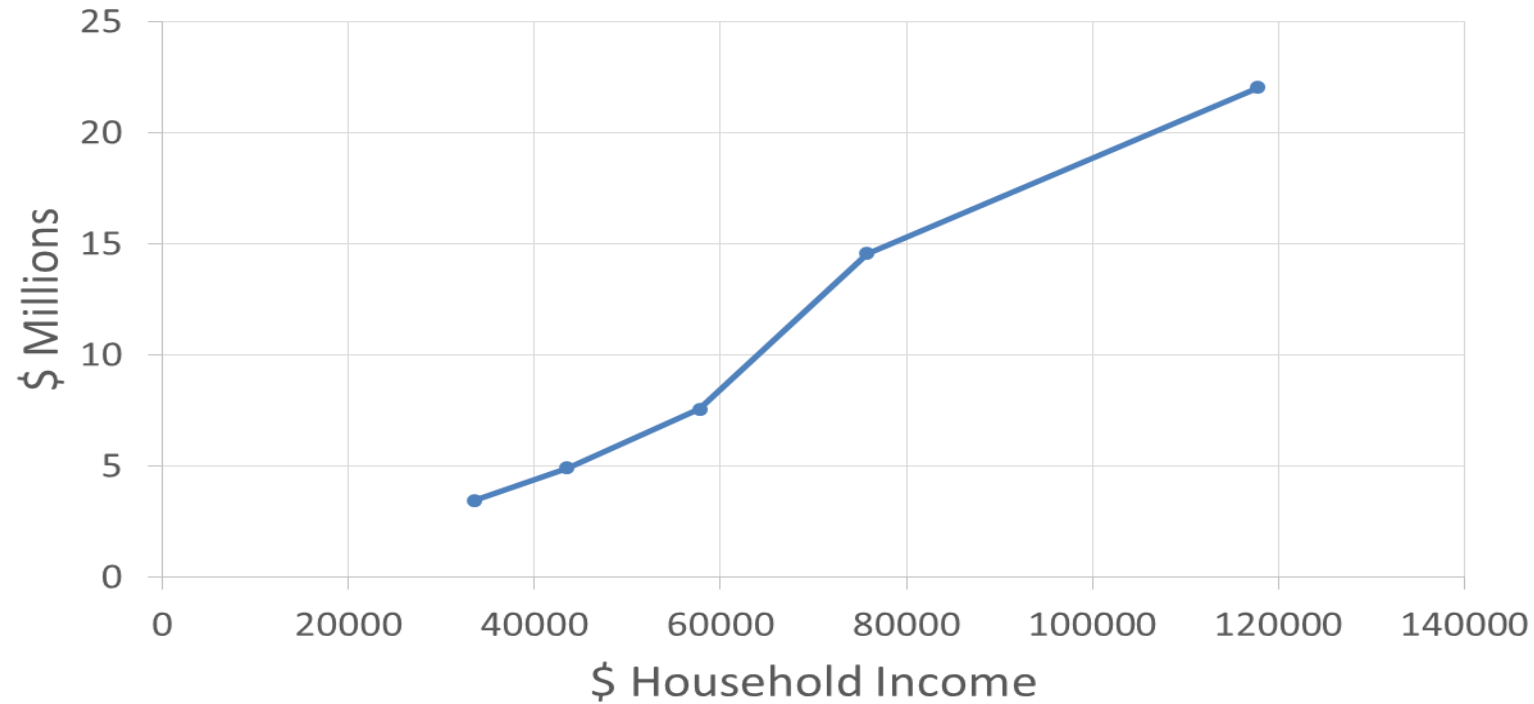
Chess: Experience Effects by Age Group



Better Ways of Measuring Welfare

- Measuring, and maximizing, human welfare, not GDP per capita. Policies can reduce GDP per capita and increase welfare.
- Retirement, health insurance, unemployment insurance
- Alternative measures: Include at least income, health and longevity, leisure.
- Adjusting welfare measures for distribution and risk
- Declining marginal utility of income: money is not a good welfare measure
- Expected utility is linear in probabilities but not in money
 - Survival probability and life expectancy

“Value” of Life by Income Quintile: United States



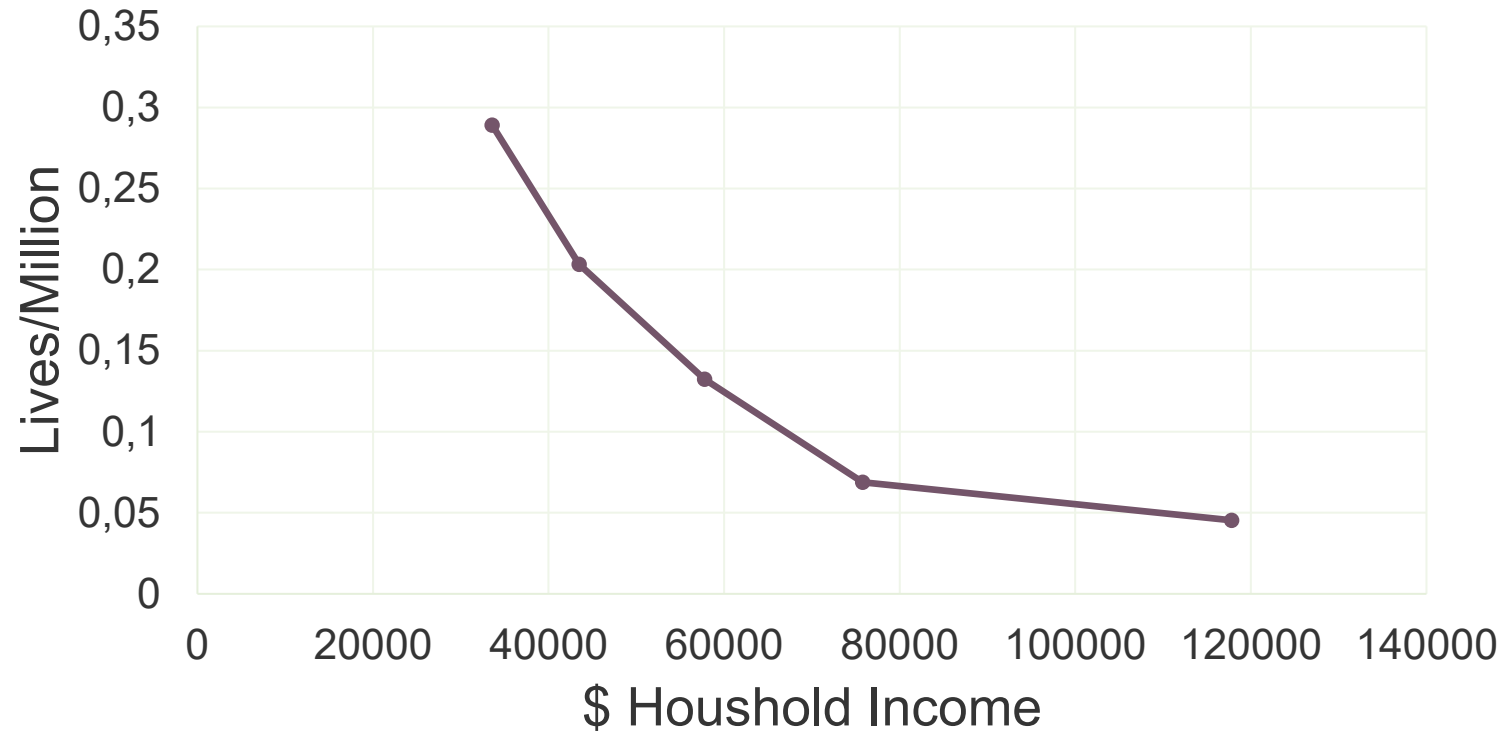
Marginal willingness to pay money to avoid a small probability of death



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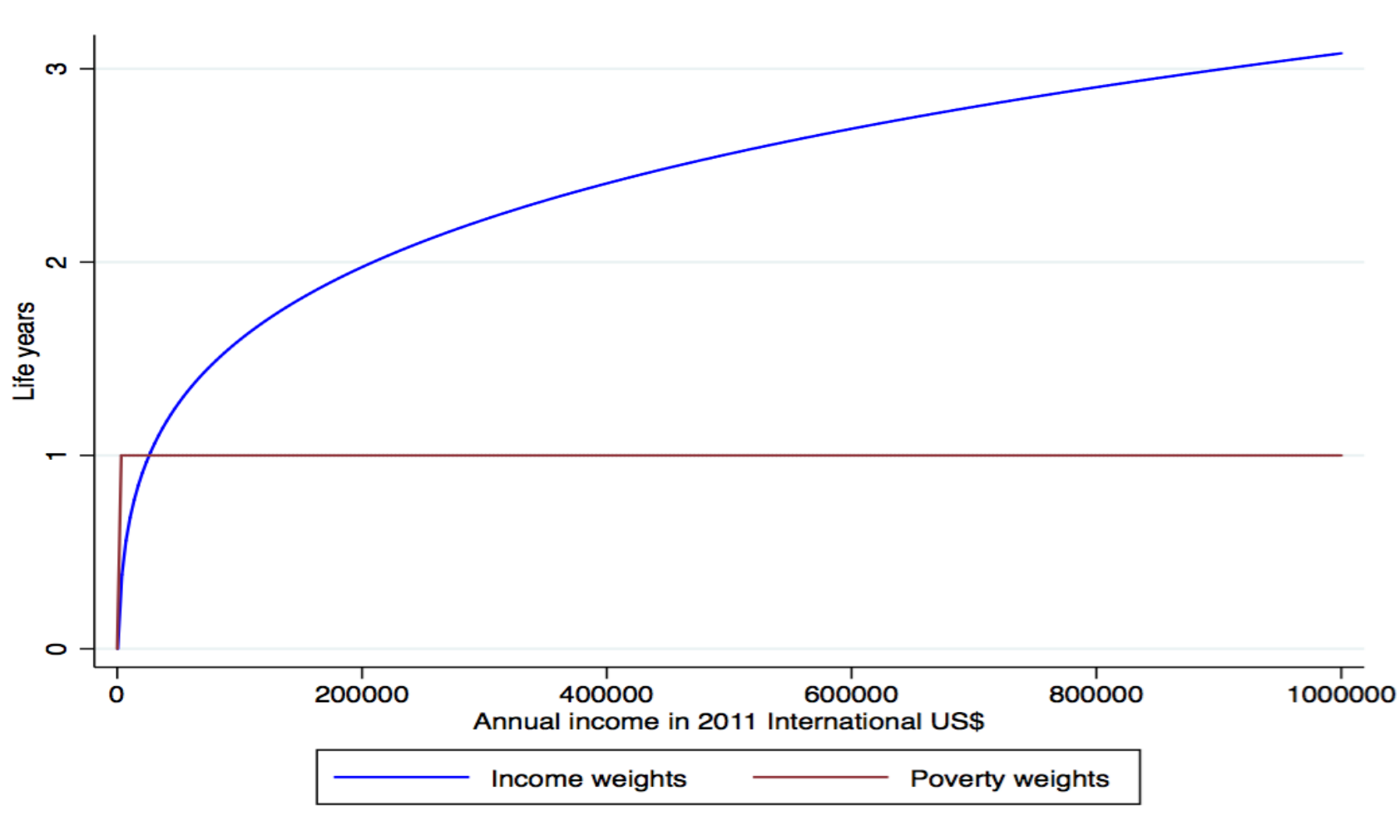
Value of Money by Income Quintile



Marginal willingness to pay a small probability of death to get money



Utility of Money in Life Year Equivalents



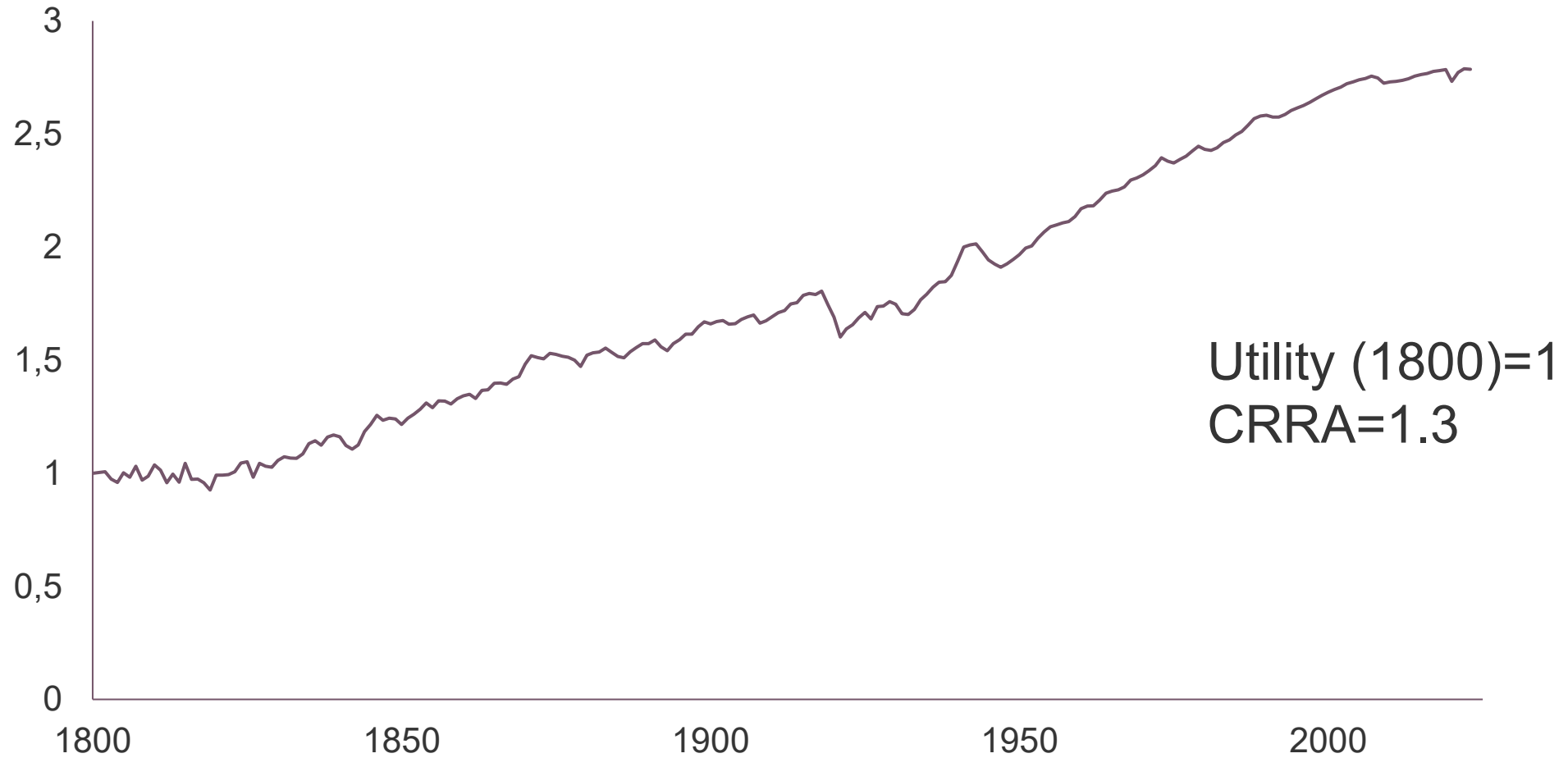
Normalized to US GDP per capita 2011 of \$49782 to one



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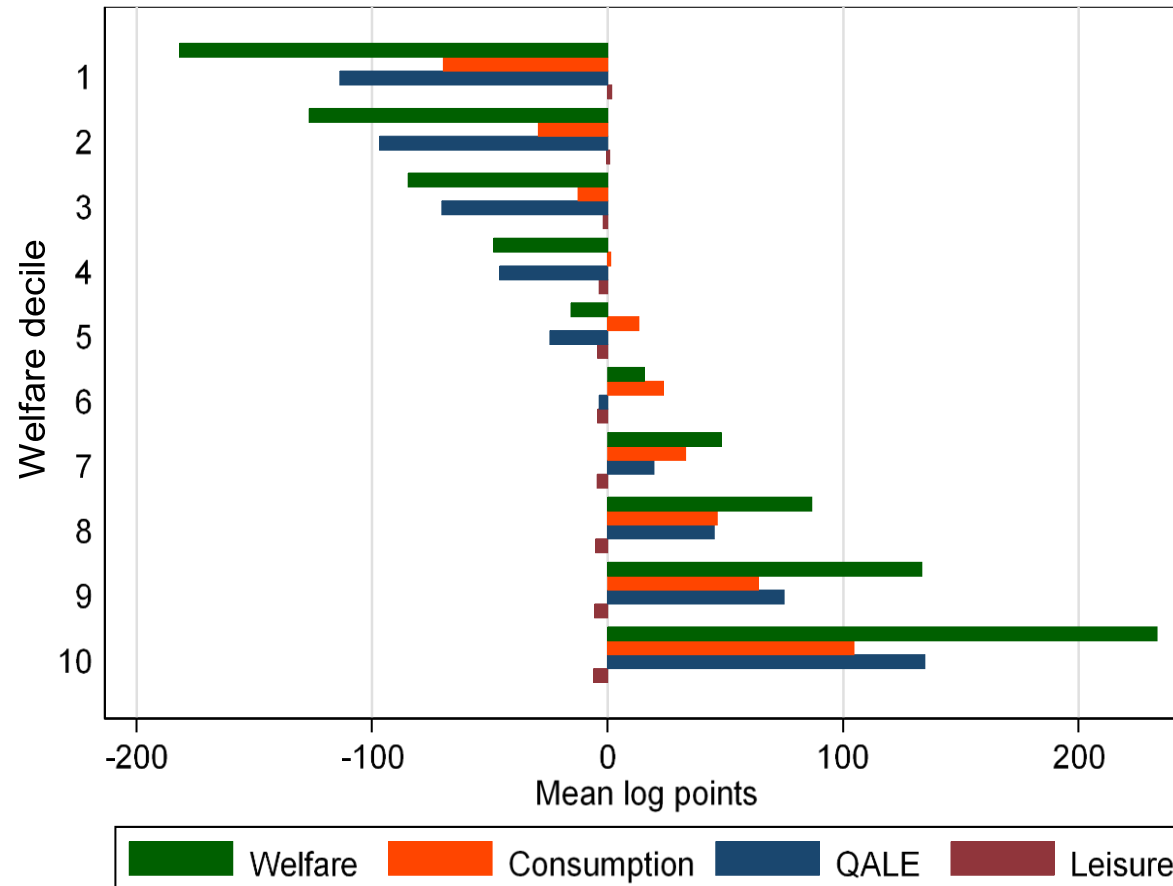
Utility from Income per Capita: UK 1800-2025



A better welfare measure

- Capabilities approach
 - Give people a large choice set and freedom to choose –life, liberty, and the pursuit of happiness
- Lifetime welfare
 - Fully quality adjusted life years
 - Adjust for health, wage rate, interest rate, tax and benefit system
 - Focus on constraints rather than outcomes
 - Expected utility is linear in survival probabilities but not in money

Lifetime Welfare at Age 60 By Decile USA 2016



Inequality is worse than we think

Welfare Ratios at age 60 by welfare deciles

Measure	10/50 ratio	90/50 ratio	90/10 ratio
Lifetime Welfare	0.23	5.22	23.08
Lifetime Consumption	0.35	2.65	7.50
Lifetime Health QALE	0.61	1.22	2.00



Overview

- Longer healthy life spans are an enormous gain in human welfare – a positive development
- Welfare inequality is a concern: much higher than income inequality because income, health, and longevity move together
- Current institutional arrangements in many countries are unsustainable given population aging
- **Aging is not the problem – institutions are the problem.** Institutions should be changed to improve **welfare** we given **real constraints**, we should not change people to sustain existing institutions.
- We should change institutions, economic incentives, **and** social norms

