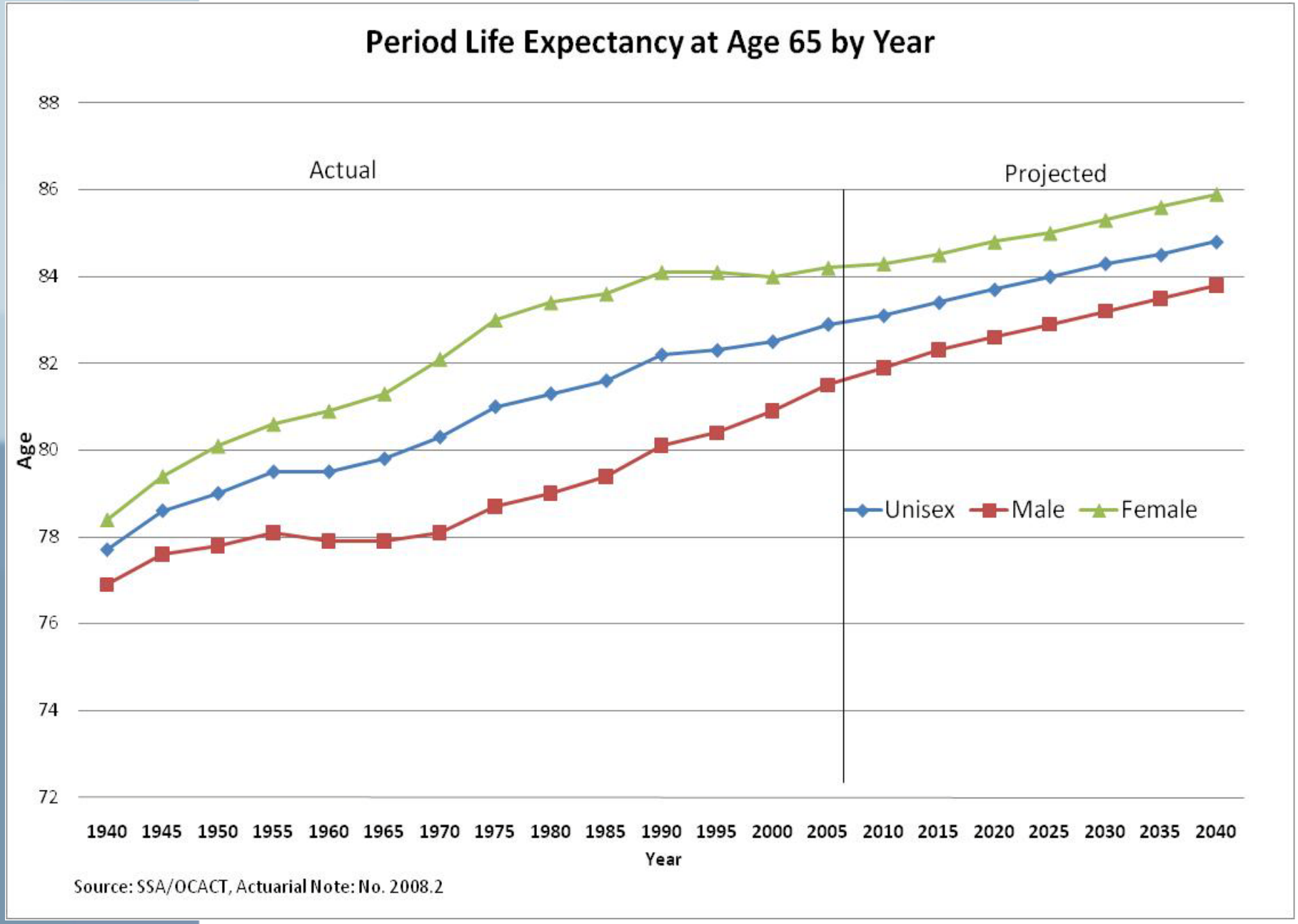
Implications of Increases in Life Expectancy for Policy

By Hilary Waldron, Social Security Administration

Adapted from Waldron (2007), “Trends in Mortality Differentials and Life Expectancy for Male Social Security-Covered Workers, by Socioeconomic Status,” Social Security Bulletin, Vol. 67, No. 3. Waldron (2004), Heterogeneity in Health and Retirement Risk Among Early Retiree Men, ORES Working Paper, No. 105.

http://www.ssa.gov/policy/authors/WaldronHilary.html


Period Life Expectancy at Age 65 by Year
88
86
84
82
80
78
76
74
72
Age
Actual
Projected
Unisex
Male
Female
1940 1945 1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025 2030 2035 2040
Year
Source: SSA/OCACT, Actuarial Note: No. 2008.2

- Analysts frequently make policy prescriptions based on measures of improvement in *average* health and longevity over time.

- (Legislation passed in 1982 is increasing Social Security's NRA to age 67; the early retirement age remains at age 62.)

  - Proposals to link Social Security's full retirement age to increases in average longevity

    (Reform Model 3-President's Comm. to Strengthen Social Security (2001); National Commission on Retirement Policy (1999), Advisory Council on Social Security (1997), Option II).

  - Proposals to raise Social Security's early retirement age higher than age 62 to adjust for improvements in average health and longevity

    (S.825,H.R.3758,S.321,H.R.2782,H.R.3082, H.R.251, H.R.1793).

- But can policy makers rely on measures of average longevity when making decisions?

- To determine I look at:

  - Trends in male life expectancy by socioeconomic status

  - Differences in health and longevity by the age at which men claim Social Security retired worker benefits.

Previous Literature

- First half of the 20th century: mortality differentials by socioeconomic status narrowed sometime between 1900 and the 1930s or 1940s (Antonovsky(1967), Kitagawa and Hauser(1973), Pamuk (1985)).

- 2nd half of the 20th century: mortality differentials by socioeconomic status widened from around the 1950s or 1960s through the 1990s (Feldman(1989), Pappas(1993), Preston and Elo (1995), Singh and Siahpush (2002), Waldron (2004)).

My Sample

- Birth cohorts 1912-1941
- Deaths at ages 60-89 (in years 1972-2001)
- Men in SSA's active Continuous Work History 1% Sample (longitudinal earnings data) matched to SSA death data
  - I measure the average of each man's non-zero earnings from ages 45 through 55.
    - About 15% of sample dropped because they had no earnings from ages 45-55. *This means my sample is expected to be selectively healthier than the general population.*
  - Divided men into two groups for analysis: top and bottom half of lifetime earnings distributions for each man's birth cohort.
- Compared odds of death by age and year of birth for the bottom half of the earnings distribution vs the top half (discrete-time logistic regressions).

Table 1.

Odds Ratios (confidence intervals) for the bottom half of the earnings distribution vs the top half

	Deaths occuring at ages:					
	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85 to 89
Years of birth						
1912-1915	1.27 (1.19--1.35)*	1.24 (1.17-1.31)*	1.20 (1.13--1.26)*	1.13 (1.07--1.19)*	1.09 (1.03--1.15)*	0.94 (0.88--1.00)**
1916-1919	1.51 (1.42--1.62)*	1.36 (1.29--1.44)*	1.34 (1.27--1.41)*	1.20 (1.14--1.27)*	1.05 (0.99-1.11)	n.a
1920-1923	1.50 (1.40--1.60)*	1.40 (1.32--1.48)*	1.34 (1.27--1.41)*	1.31 (1.24--1.38)*	n.a.	n.a
1924-1927	1.51 (1.41--1.62)*	1.53 (1.44--1.63)*	1.48 (1.41--1.57)*	n.a.	n.a	n.a
1928-1931	1.71 (1.59--1.84)*	1.61 (1.51--1.71)*	n.a.	n.a	n.a	n.a
1932-1935	1.75 (1.62--1.89)*	1.73 (1.59--1.88)*	n.a	n.a	n.a	n.a
1936-1938	1.84 (1.68--2.03)*	n.a	n.a	n.a	n.a	n.a

Source: Author's calculations on a matched 2001 CWHS.

Cohort life expectancy projections

- To estimate cohort life expectancies, mortality differentials by socioeconomic status must be projected into the future.
- The younger the birth cohort, the more years of life must be projected.
- Projection assumes the mortality patterns observed for the last third of the twentieth century continue for the next thirty years.
  - Projects the widening of mortality risk by birth cohort and the narrowing of mortality risk by age observed empirically into the future
- The discrete-time logistic regression equation follows the following form: dead (coded as 1 or 0) = intercept + B1(age) + B2(year of birth) + B3(age*year of birth) + B4(earnings dummy) + B5(age*earnings dummy) + B6(year of birth*earnings dummy) + B7(age*year of birth*earnings dummy) + error term.

Chart 3. Cohort life expectancy at age 65 (and 95 percent confidence intervals) for male Social Security covered workers, by selected birth years and earnings group

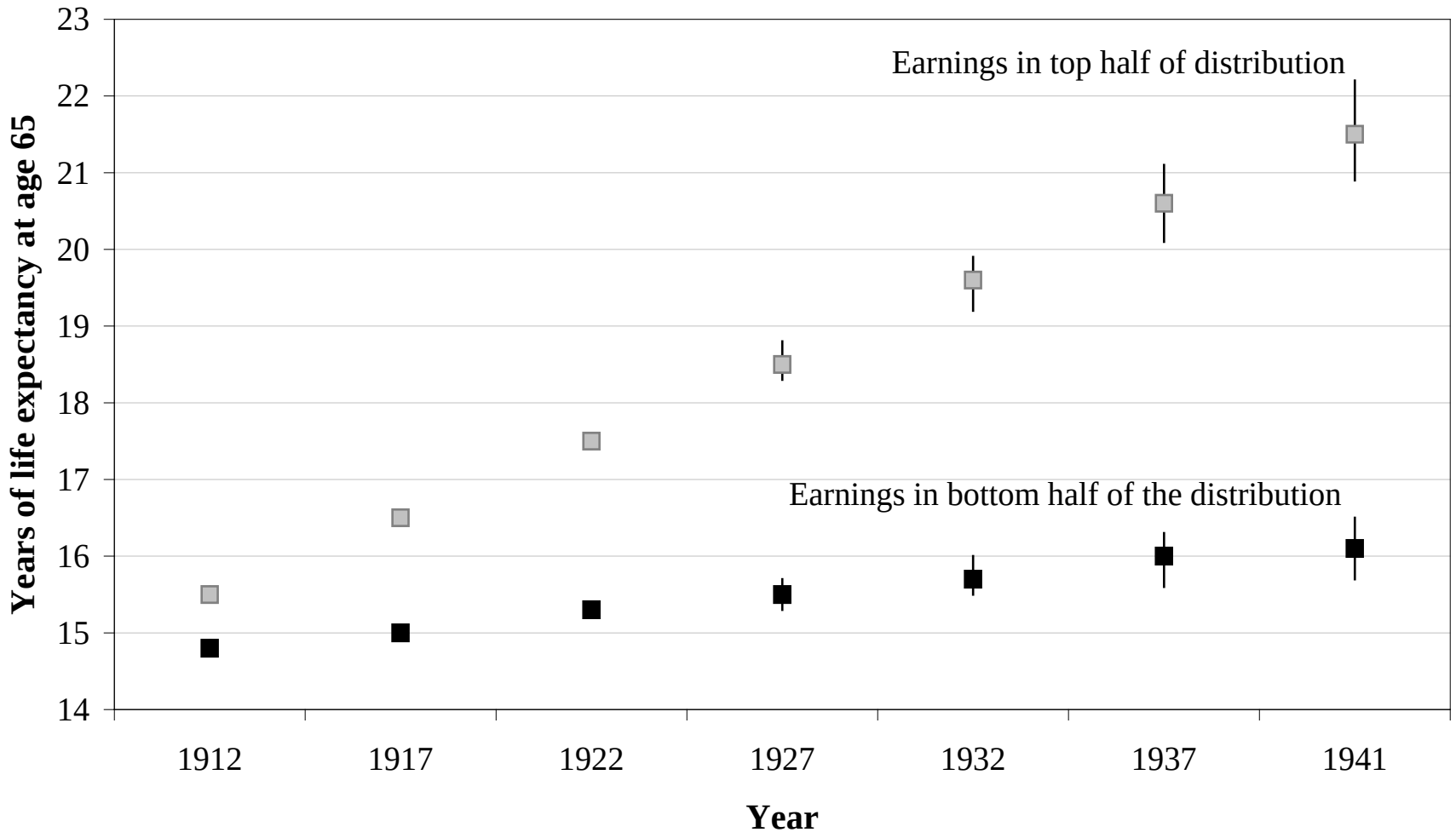


Table 9.

Male period life expectancy in 2000 in years by country and age

Males at age 60		Males at age 65		Males at age 80	
Iceland	22.2	Iceland	18.1	Mexico	8.7
Japan	21.4	Japan	17.5	Iceland	8.4
U.S. 4th Q	21.3	**U.S. 4th Q**	17.0	Japan	8.0
Switzerland	20.9	Australia	16.9	Canada	7.8
Australia	20.8	Canada	16.9	Australia	7.6
Canada	20.7	Switzerland	16.9	France	7.6
Sweden	20.7	Mexico	16.8	United States (OECD)	7.6
U.S. 3rd Q	20.5	France	16.7	New Zealand	7.4
France	20.4	Sweden	16.7	Switzerland	7.4
Italy	20.4	Italy	16.5	Italy	7.3
New Zealand	20.3	New Zealand	16.5	Spain	7.3
Spain	20.3	Spain	16.5	**U.S. 1st Q**	7.2
Mexico	20.2	**U.S. 3rd Q**	16.5	United States (OCACT)	7.2
Norway	20.0	United States (OECD)	16.3	Sweden	7.1
United States (OECD)	19.9	Austria	16.0	Austria	7.0
Austria	19.7	Norway	16.0	Germany	7.0
United States (OCACT)	19.4	United States (OCACT)	15.8	**U.S. 3rd Q**	7.0
Germany	19.4	Germany	15.7	United Kingdom	6.9
United Kingdom	19.4	United Kingdom	15.7	Denmark	6.8
Belgium	19.3	Belgium	15.5	**U.S. 4th Q**	6.8
Finland	19.2	Finland	15.5	Belgium	6.7
Luxembourg	19.2	Luxembourg	15.5	Norway	6.7
Netherlands	19.1	Netherlands	15.3	Finland	6.6
Portugal	19.0	Portugal	15.3	**U.S. 2nd Q**	6.6
Denmark	18.9	Denmark	15.2	Luxembourg	6.5
U.S. 2nd Q	18.7	**U.S. 2nd Q**	15.0	Poland	6.5
Ireland	18.4	**U.S. 1st Q**	14.7	Netherlands	6.4
U.S. 1st Q	18.0	Ireland	14.6	Portugal	6.4
Czech Republic	17.0	Czech Republic	13.7	Czech Republic	6.1
Poland	16.7	Poland	13.6	Ireland	6.1
Slovak Republic	15.9	Slovak Republic	12.9	Slovak Republic	6.1
Turkey	15.9	Hungary	12.7	Hungary	6.0
Hungary	15.5	Turkey	12.6	Turkey	5.3

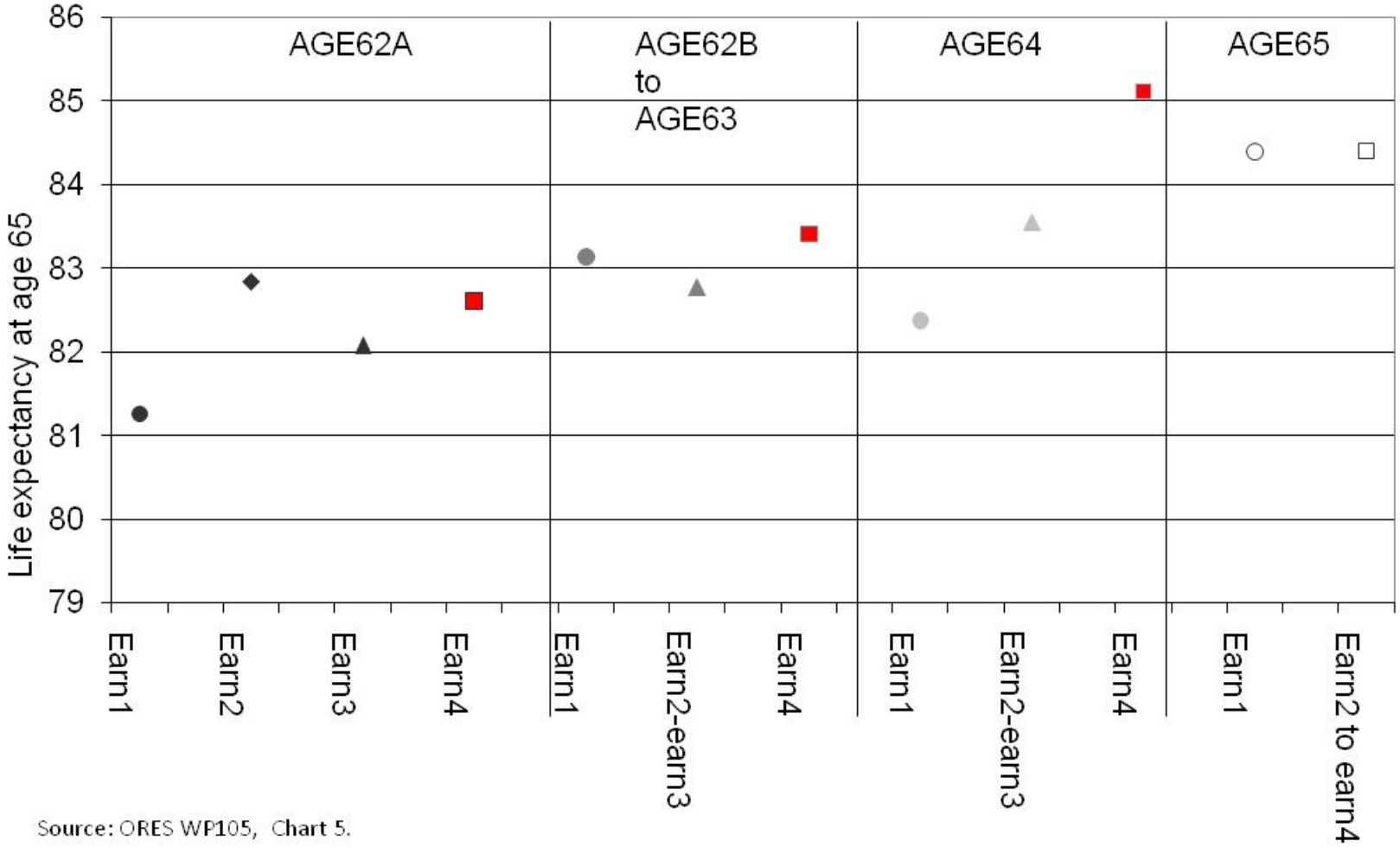
Source: Copyright OECD HEALTH DATA 2004, 1st edition.
United States estimates for male Social Security covered worker earnings quartiles and SSA's OACT estimates, based on the intermediate assumptions of the 2004 Trustees Report, added by the author.

Male birth cohorts 1908-1931, surviving to age 65, years of death 1973-1997

- Social Security data matched to Census data shows that who retire early are in poorer health and die sooner than men who retire at the Full Retirement Age.
- Mortality risk by age of retirement is a gradient, even after controlling for earnings, education, and race (i.e. variables correlated with economic/non-health reasons for early retirement).

Odds of dying, relative to AGE65 retirement								
Before economic/demog. controls			After economic/demog. controls			Econ/demog controls		
AGE62A	1.43*		AGE62A	1.33*		Earn1	1.19*	vs. top 25th%
AGE62B	1.29*		AGE62B	1.20*		Earn2	1.07	vs. top 25th%
AGE63	1.23*		AGE63	1.16*		Earn3	1.11*	vs. top 25th%
AGE64	1.15*		AGE64	1.10**		< H.S.	1.35*	vs. college grad.
						H.S. grad	1.15*	vs. college grad.
						African-American	1.19*	vs. all other races
Source: ORES WP 105, Tables 14, 16.								

Life expectancy at age 65 by retirement age and earnings subgroups (for married, white, college educated males born in 1930)



Source: ORES WP105, Chart 5.

Conclusions

- This research suggests there may be too much heterogeneity in the U.S. population to use average health and longevity as a meaningful policy variable. Policy proposals based on average longevity assumptions could have unexpected results.

- Low earners have a higher risk of poor health and death than high earners and are more likely to claim benefits early; however high earners who claim benefits early also have higher mortality risk than low earners claiming benefits at age 65.
  - Claiming behavior may be rational—claimers could be acting in their own best interest in terms of longevity expectations.

- Unlike the conventional wisdom held by some proponents of raising the EEA, I do not observe a bimodal distribution (a small group in poor health and a homogenous majority in good health). Instead I observe gradients in health and mortality.

- Gradients suggest proposals to make policy changes based on average longevity gains and then target a severely disadvantaged group to ease the policy change could be based on an inaccurate reading of the spread of health and mortality outcomes within the U.S. population.