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Implications of Growing Differences in Life Expectancy Across Socioeconomic Groups for CBO's Analyses of Social Security Policy Options

Presentation to the Committee on the Long-Run Macro-Economic Effects of the Aging U.S. Population, National Academy of Sciences

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This presentation builds on information contained in *The 2013 Long-Term Budget Outlook* (September 2013), <http://www.cbo.gov/publication/44521>; and *The 2013 Long-Term Projections for Social Security: Additional Information* (December 2013),

<http://www.cbo.gov/publication/44972>.

Michael Simpson developed the simulations.

Questions for Today

1. How might growing differences in life expectancy across socioeconomic groups influence our analysis of various Social Security policy options?
 - In particular, what happens to our assessment of raising the eligibility age or ages?

2. What tools does CBO use to look at implications of growing differences in life expectancy in the future?
 - CBO's long-term model (CBOLT) projects individual earnings over time and creates measures of Social Security benefits and taxes based on those individual earnings as well as household status.
 - The gap in life expectancies across socioeconomic groups going forward can be altered within the model to show the implications of increasing differences in the future.

How CBO Measures Differential Mortality

“Differences in life expectancy across socioeconomic groups” is commonly known as *differential mortality*.

- CBO’s long-term model captures some increase in differential mortality over time.
- CBO looks at differential mortality by quintiles of household lifetime earnings.
 - The lowest quintile has lower, and less rapidly growing, life expectancy than the highest quintile.

Framework for CBO's Long-Term Projections

Budget projections over the next 10 years are based on detailed program projections underlying CBO's baseline.

Beyond 10 years, CBO relies on its long-term model (CBOLT):

- A microsimulation model set within an actuarial framework
- Governed by an overarching macroeconomic model

Social Security payroll taxes and benefits are based on an individual's lifetime earnings and household status.

Spending on the major federal health care programs is projected separately in an actuarial framework.

Projecting Population and GDP

CBO projects the U.S. population using estimates of births, deaths, and net immigration.

- CBO uses a cell-based approach to estimate the population annually by single year of age (0-119) and sex.
- Projections of fertility come from the actuaries at the Social Security Administration.
- CBO projects rates of mortality and net immigration.
 - Life expectancy at birth in 2060
 - 2011 Technical Panel on Assumptions and Methods 85.8
 - **2013 Long-Term Budget Outlook, CBO** **84.9**
 - 2013 Social Security Trustees' Report 83.6
 - Net immigration based on historical relationship
 - 3.2 immigrants per year per 1,000 people in the U.S. population

CBO projects GDP using a macroeconomic growth model.

Earnings Inequality in CBOLT

CBOLT projects earnings based on age, sex, education, marital status, number of children under age 6, Social Security benefit status, and cohort.

- See the CBO working paper (June 2013) by Schwabish and Topoleski.

The historical pattern of rising earnings inequality continues for the next two decades, but earnings inequality generally ceases to rise by the mid-2030s.

- At that time, taxable earnings remains approximately constant as a share of total earnings.

Differential Mortality in CBOLT

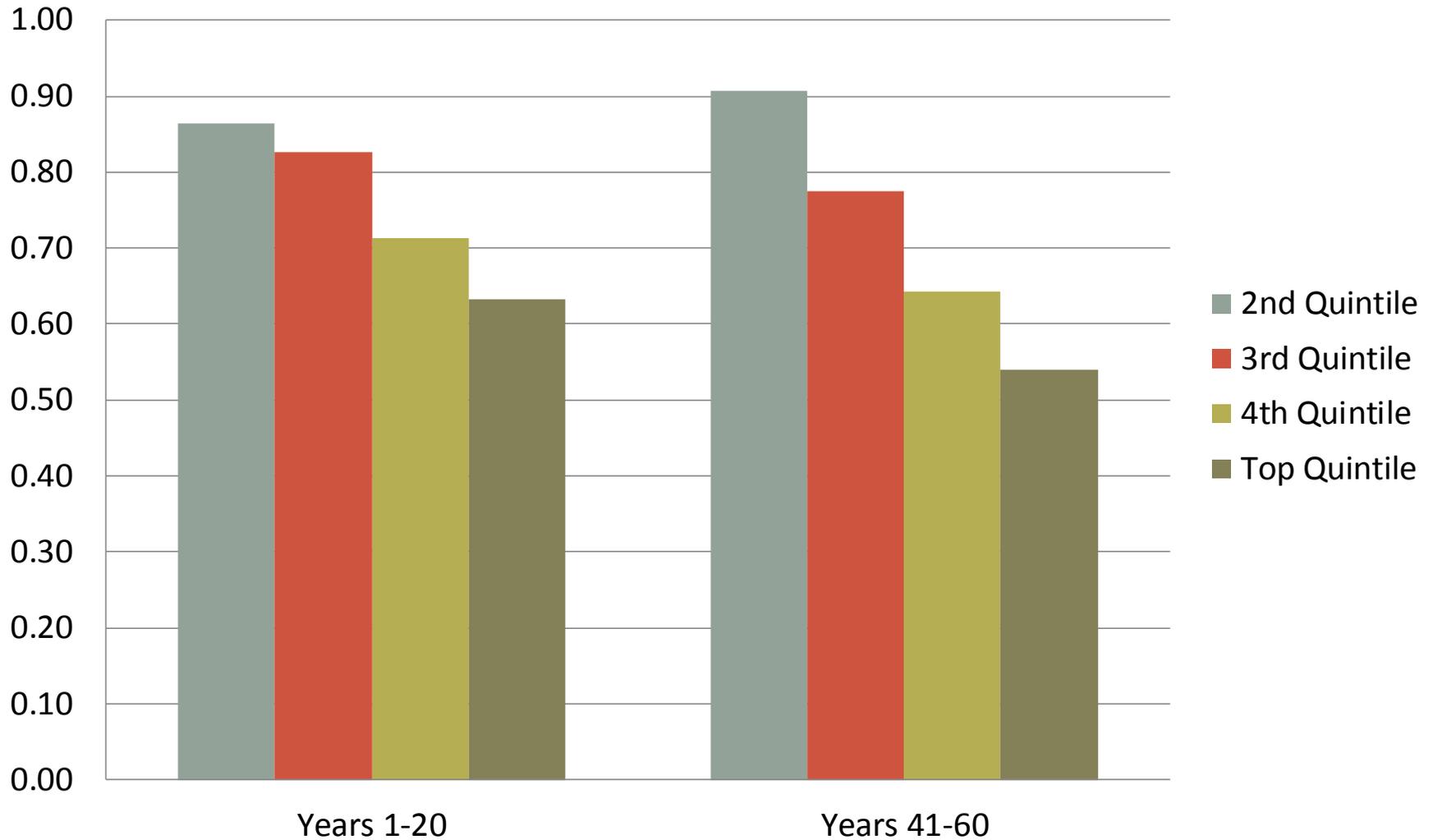
CBOLT models mortality based on age, sex, cohort, education, marital status, health status, and household “lifetime” earnings.

- See the CBO working paper (2007) by Julian Cristia.
- The baseline gives equal weight to “equal average mortality” and “differential average mortality” and matches observed mortality by lifetime earnings quintile as of the mid-2000s.

Some increase in differential mortality is evident in the baseline.

- For men ages 65 to 99 during the next 20 years, the average mortality rate in the highest quintile of household lifetime earners is 63 percent that of the lowest quintile.
- Over the period spanning 41 to 60 years in the future, the ratio is 54 percent.

Baseline Mortality Rate for Males Ages 65 to 99, Relative to That of the Lowest Quintile of Household Lifetime Earnings



Definitions

“Equal average mortality” is equivalent to random mortality, which means that average mortality rates are similar across different quintiles of household lifetime earnings for a given cohort.

“Differential average mortality” imposes higher mortality rates, on average, on people in lower quintiles of household lifetime earnings and lower mortality rates, on average, on people in higher quintiles of household lifetime earnings.

Note: Overall mortality for a cohort is insensitive to the amount of differential mortality.

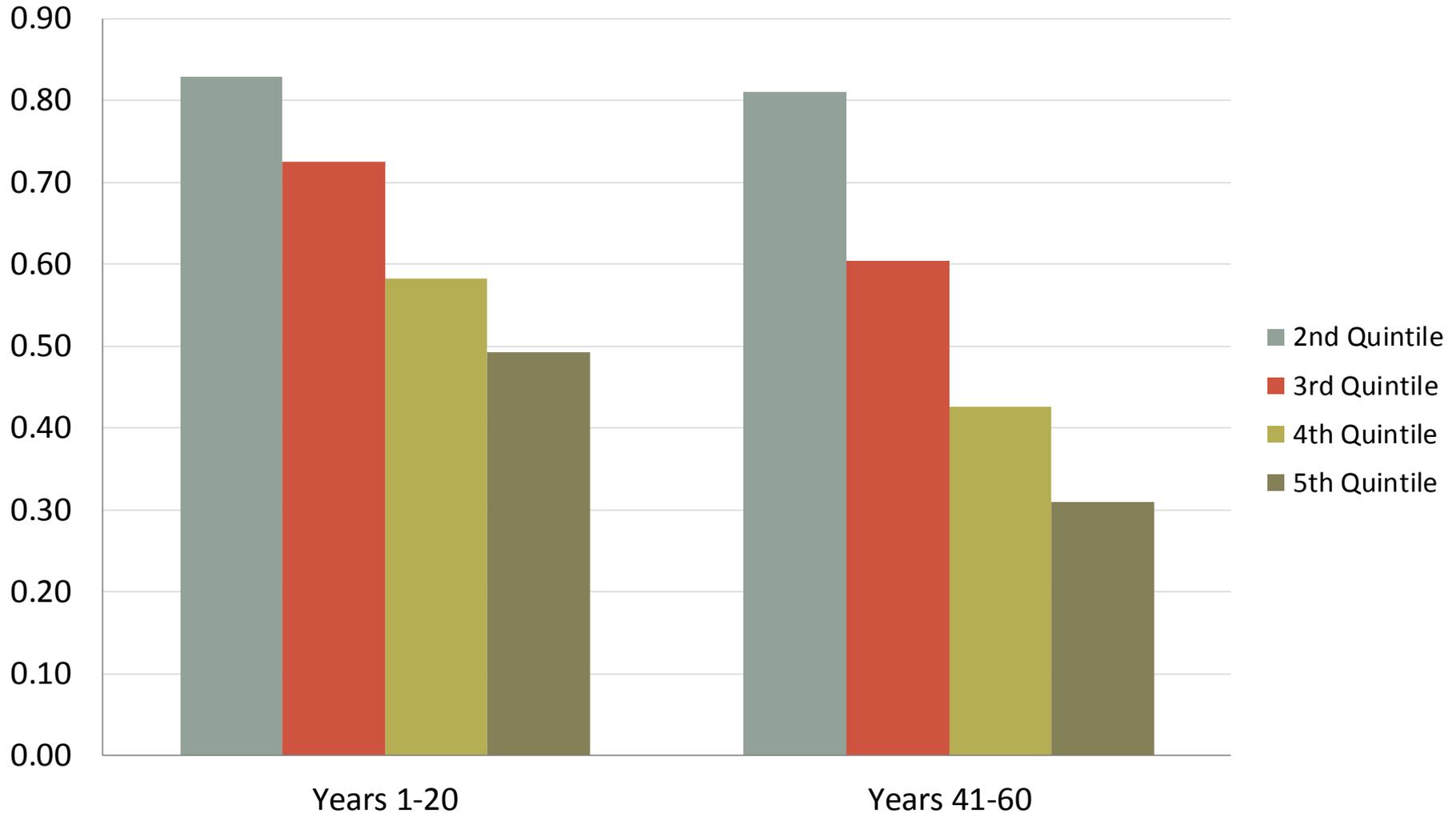
Increasing Differential Mortality in Projections

We can change the weights on equal average mortality and differential average mortality to increase differential mortality in the future.

Weighting differential average mortality more heavily (0.67) leads to the following:

- Over the next 20 years, people ages 65 to 99 in the highest quintile of household lifetime earnings would have a mortality rate, on average, that is 49 percent of that of the lowest quintile (vs. 63 percent in the baseline).
- Over the period spanning 41 to 60 years in the future, the ratio would be 31 percent (vs. 54 percent in the baseline).

Mortality Rate with More Differential Mortality for Males Ages 65 to 99, Relative to That of the Lowest Quintile of Household Lifetime Earnings



Social Security System Finance Measures as a Percentage of Taxable Payroll

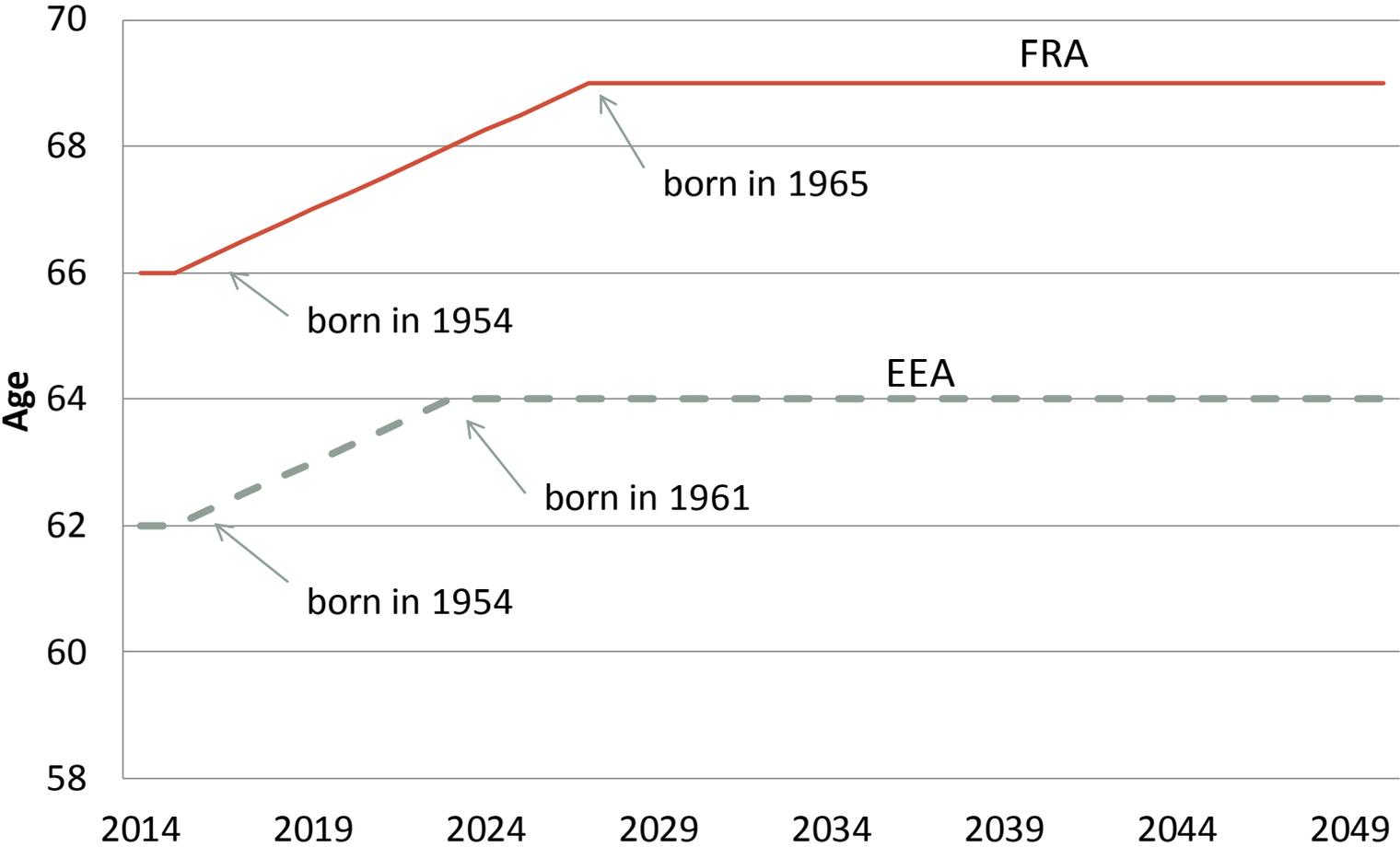
	75-year Cost Rate	75-year Income Rate	75-year Actuarial Balance
2013 Trustees' Report	16.60	13.88	-2.72
CBO Equal Average Mortality	17.15	13.98	-3.17
Change from CBO Baseline	-0.20	-0.02	-0.19
CBO Baseline	17.36	14.00	-3.36
CBO More Differential Mortality	17.52	14.00	-3.51
Change from CBO Baseline	0.17	0.00	-0.15
CBO All Differential Mortality	17.96	14.03	-3.94
Change from CBO Baseline	0.61	0.03	-0.58

How Would Increasing Differential Mortality Affect Our Analysis of Social Security Policy Options?

To illustrate, consider two options that raise eligibility ages.

1. Increase the full retirement age (FRA) for those age 62 starting in 2016 by 3 months per year until FRA reaches 69 in 2027.
2. Increase the full retirement age (FRA) and the earliest eligibility age (EEA) for those age 62 starting in 2016 by 3 months per year until EEA reaches 64 in 2023 and FRA reaches 69 in 2027.

Raise EEA and FRA 3 Months Per Year Beginning in 2016 until 64 in 2023, 69 in 2027



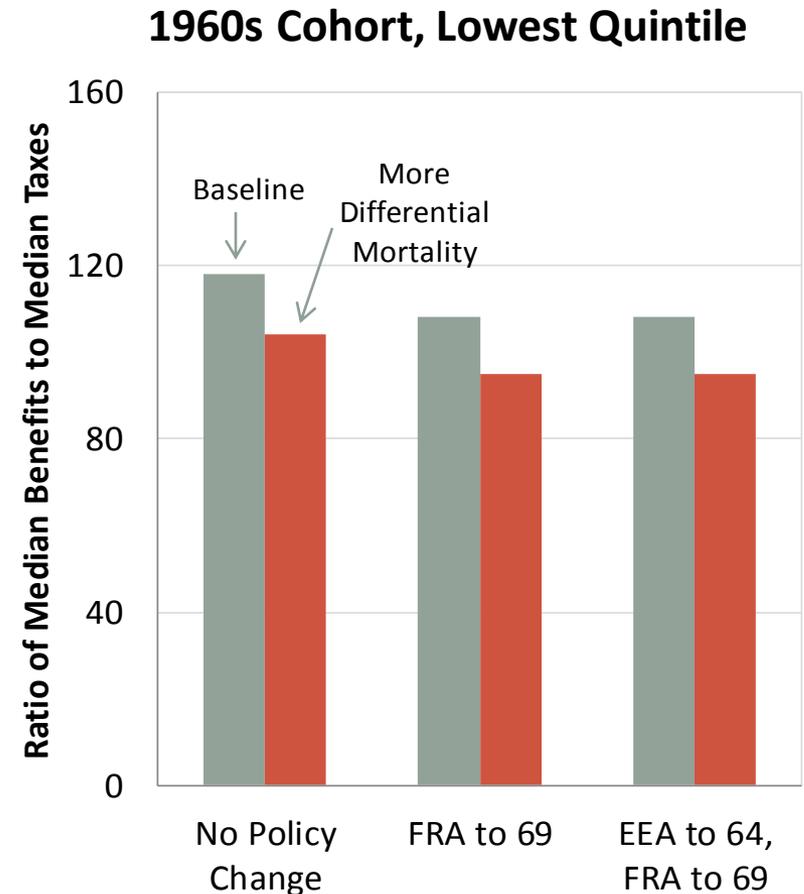
Useful Distributional Measures for Policy Options

CBO looks at three distributional measures for the Social Security program by quintile of household lifetime earnings and by 10-year birth cohort.

- Present value of lifetime benefits, net of income taxes on benefits
- Present value of lifetime payroll taxes
- Ratio of median lifetime benefits to median lifetime payroll taxes within each quintile of household lifetime earnings

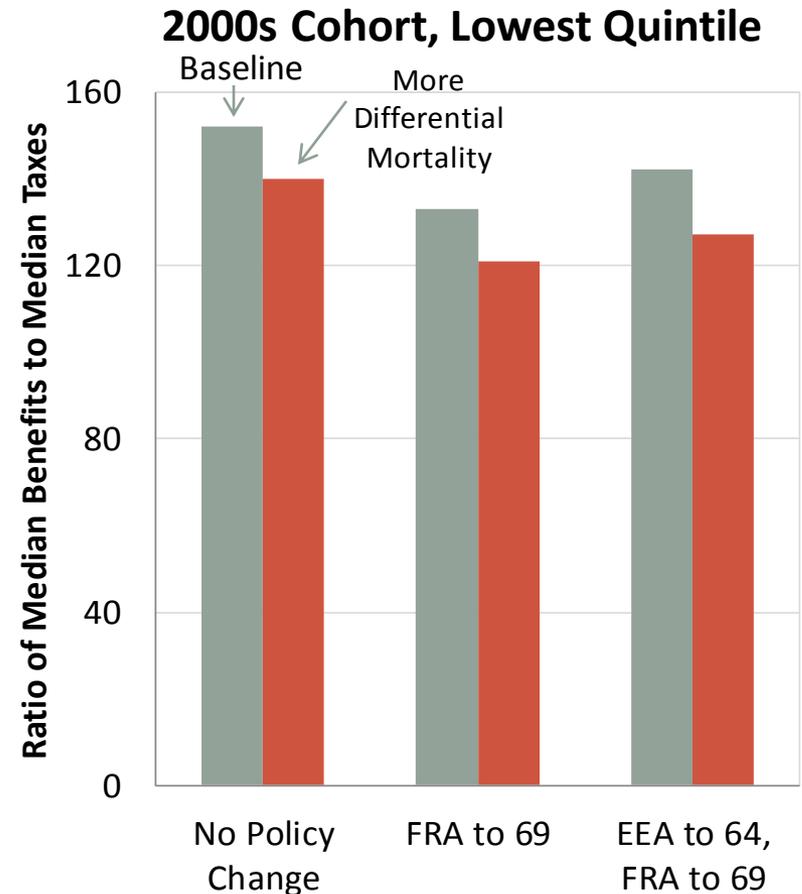
Ratio of Median Benefits to Median Taxes, Baseline vs. More Differential Mortality for Three Policy Scenarios; 1960s Cohort, Lowest Quintile

- With more differential mortality, more low earners would be projected to die sooner. The benefit-tax ratio for them would *fall* under all three policy scenarios.
- Raising the FRA to 69 would be a benefit cut for everyone under either mortality assumption.
- Increasing the EEA on top of raising the FRA would have offsetting effects under both mortality assumptions: annual benefits would be higher for people who would have claimed at age 62 or 63, but some people would receive benefits for fewer years.



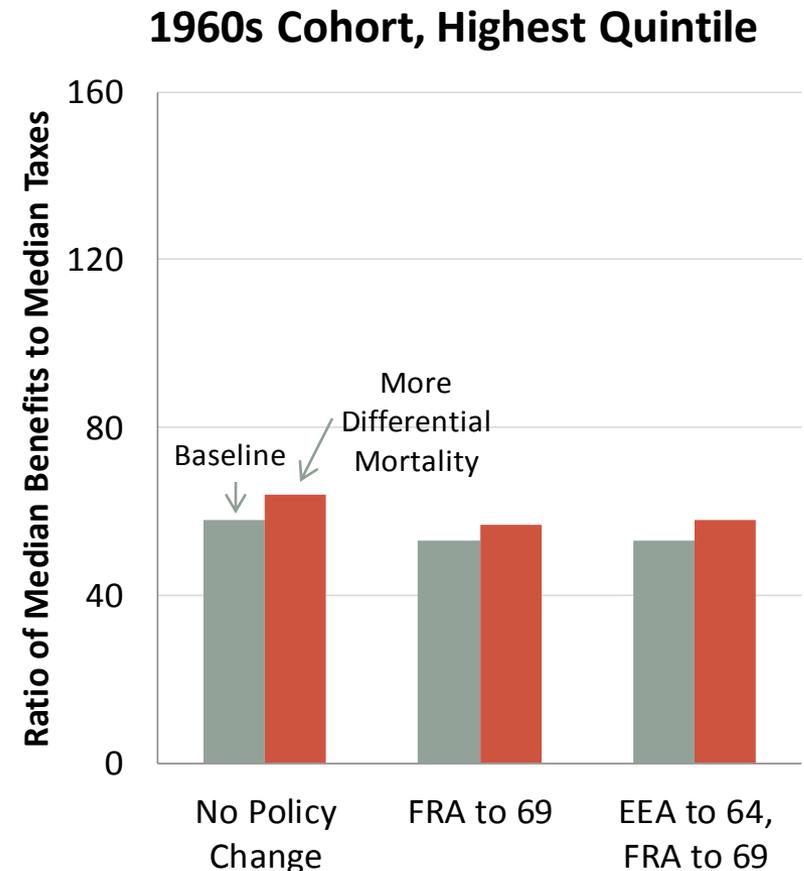
Ratio of Median Benefits to Median Taxes, Baseline vs. More Differential Mortality for Three Policy Scenarios; 2000s Cohort, Lowest Quintile

For these people, when increasing the EEA on top of raising the FRA, the effect of raising annual benefits for people who would have claimed at age 62 or 63 would more than offset fewer years of benefits for some people under both mortality scenarios.



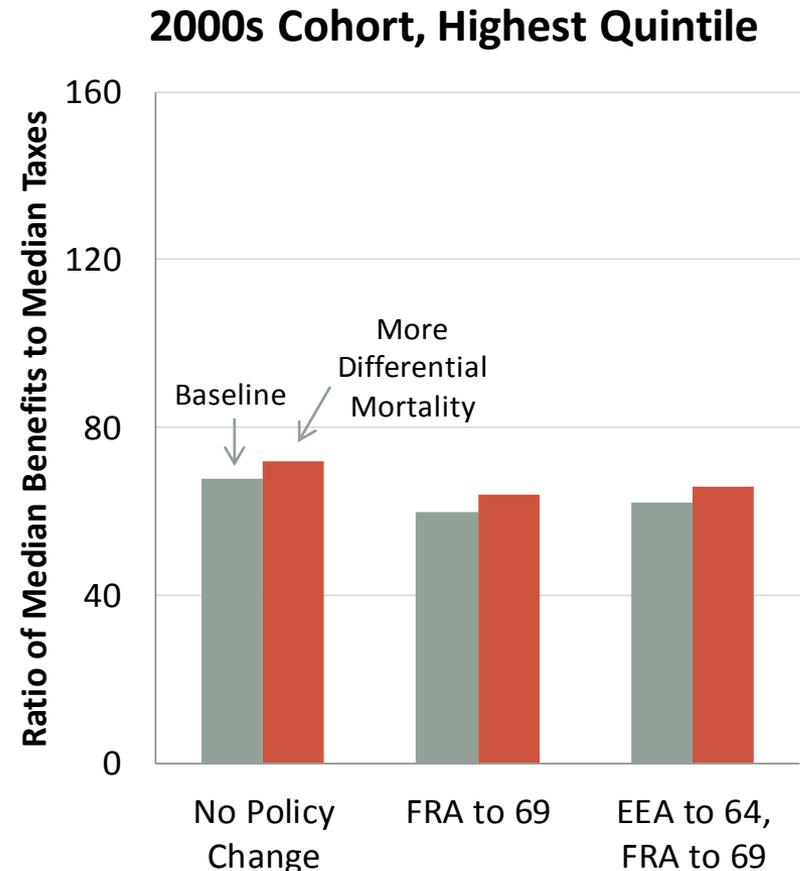
Ratio of Median Benefits to Median Taxes, Baseline vs. More Differential Mortality for Three Policy Scenarios; 1960s Cohort, Highest Quintile

- For high earners, moving from baseline mortality to more differential mortality would cause us to project that more of them would live longer. The benefit-tax ratio would *rise* for the highest quintile.
- Increasing the EEA on top of raising the FRA would have two roughly offsetting effects under either mortality scenario: some people would receive benefits for fewer years but some people would receive higher annual benefits because no one could claim at age 62 or 63.



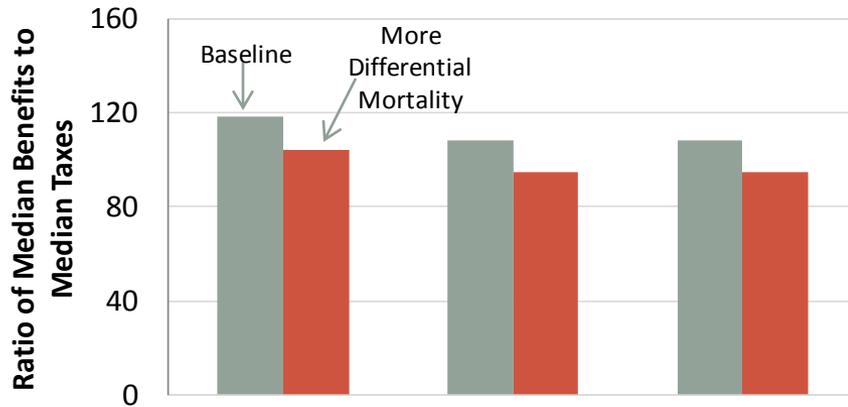
Ratio of Median Benefits to Median Taxes, Baseline vs. More Differential Mortality for Three Policy Scenarios 2000s Cohort, Highest Quintile

Increasing the EEA on top of raising the FRA would have two effects under either mortality assumption: the effect of higher annual benefits from raising the EEA for people who would have claimed at age 62 or 63 would now be slightly bigger than the effect of fewer years of benefits for some people.

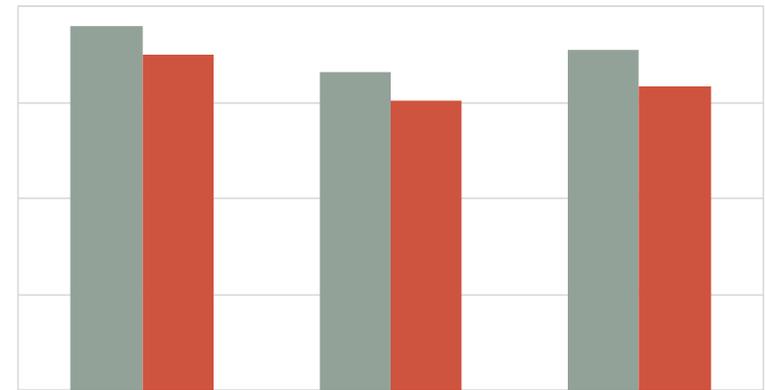


Ratio of Median Benefits to Median Taxes, Baseline vs. More Differential Mortality, Three Policy Scenarios

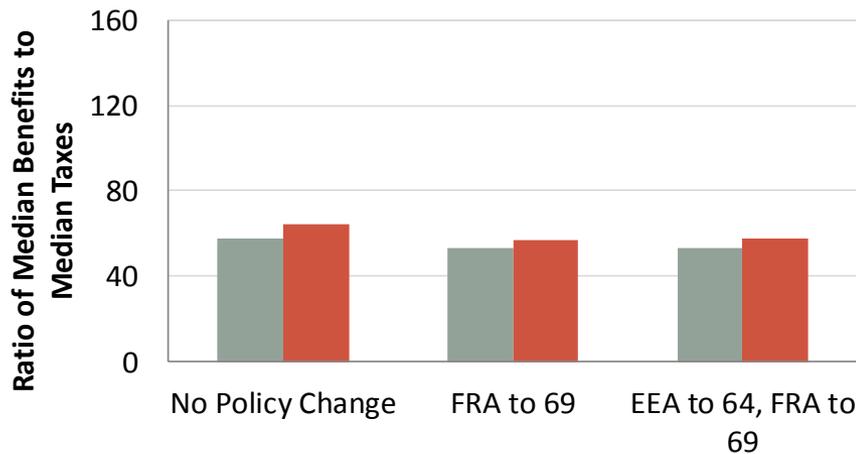
1960s Cohort, Lowest Quintile



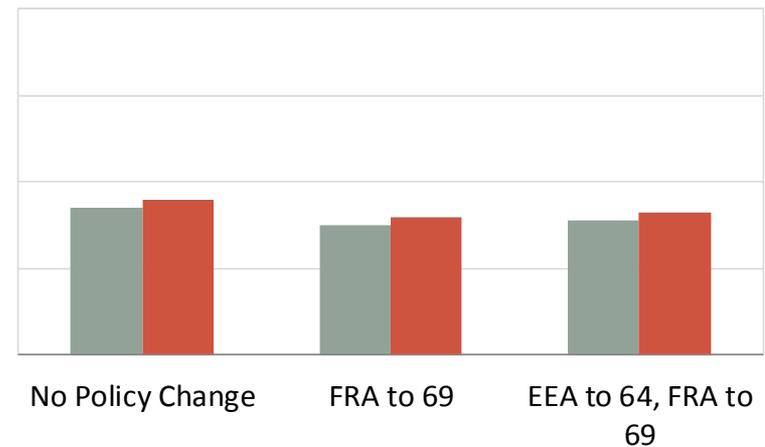
2000s Cohort, Lowest Quintile



1960s Cohort, Highest Quintile



2000s Cohort, Highest Quintile



System Finances: Baseline vs. More Differential Mortality

Relative to baseline mortality, the **75-year cost rate** would rise if the FRA increased to 69 or if the EEA increased to 64 and the FRA increased to 69 if differential mortality was greater.

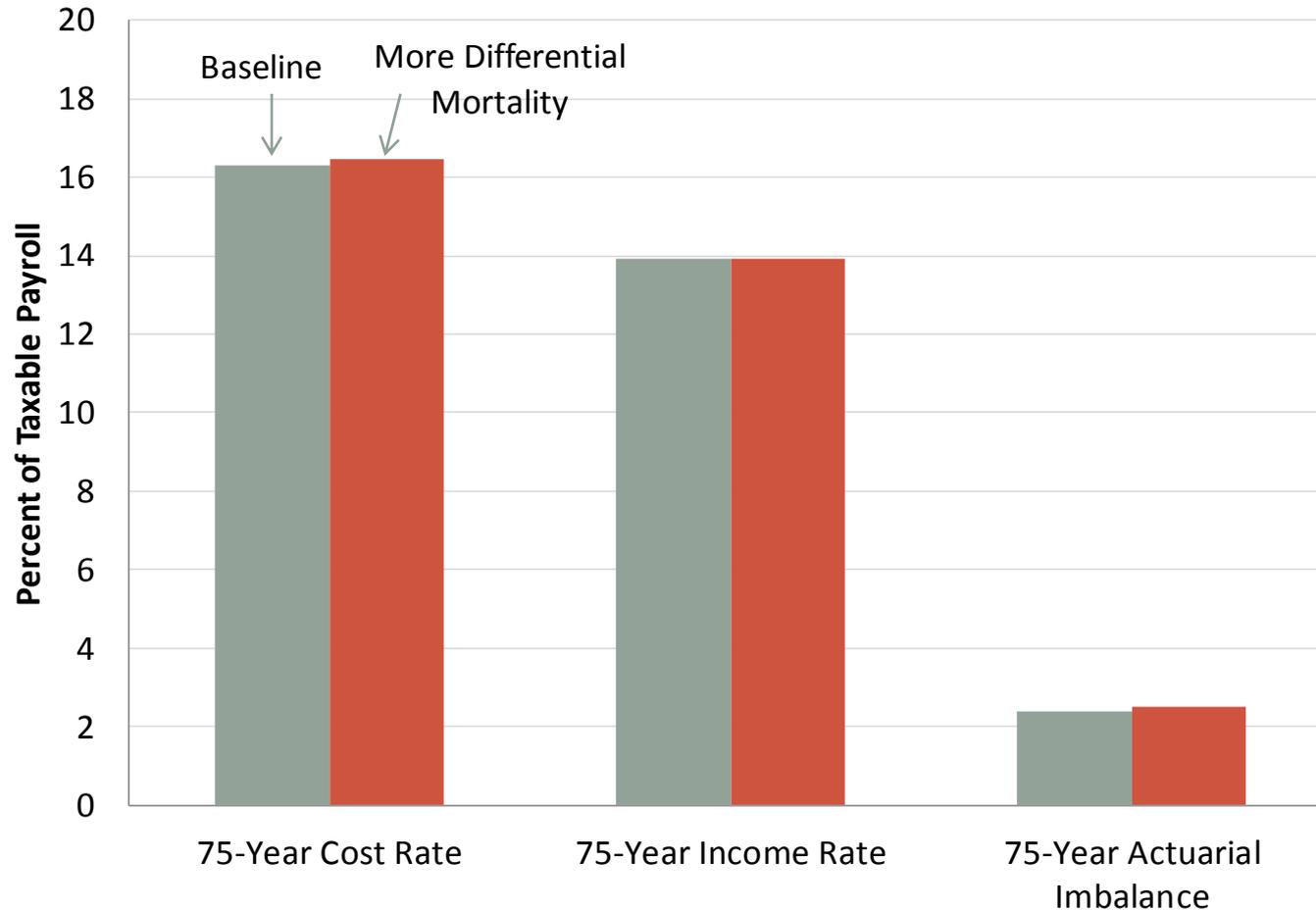
- Benefits as a share of taxable earnings would increase as high earners would collect benefits for more years.

The **75-year income rate** would be similar under FRA at 69 or under EEA at 64 and FRA at 69 if differential mortality was greater.

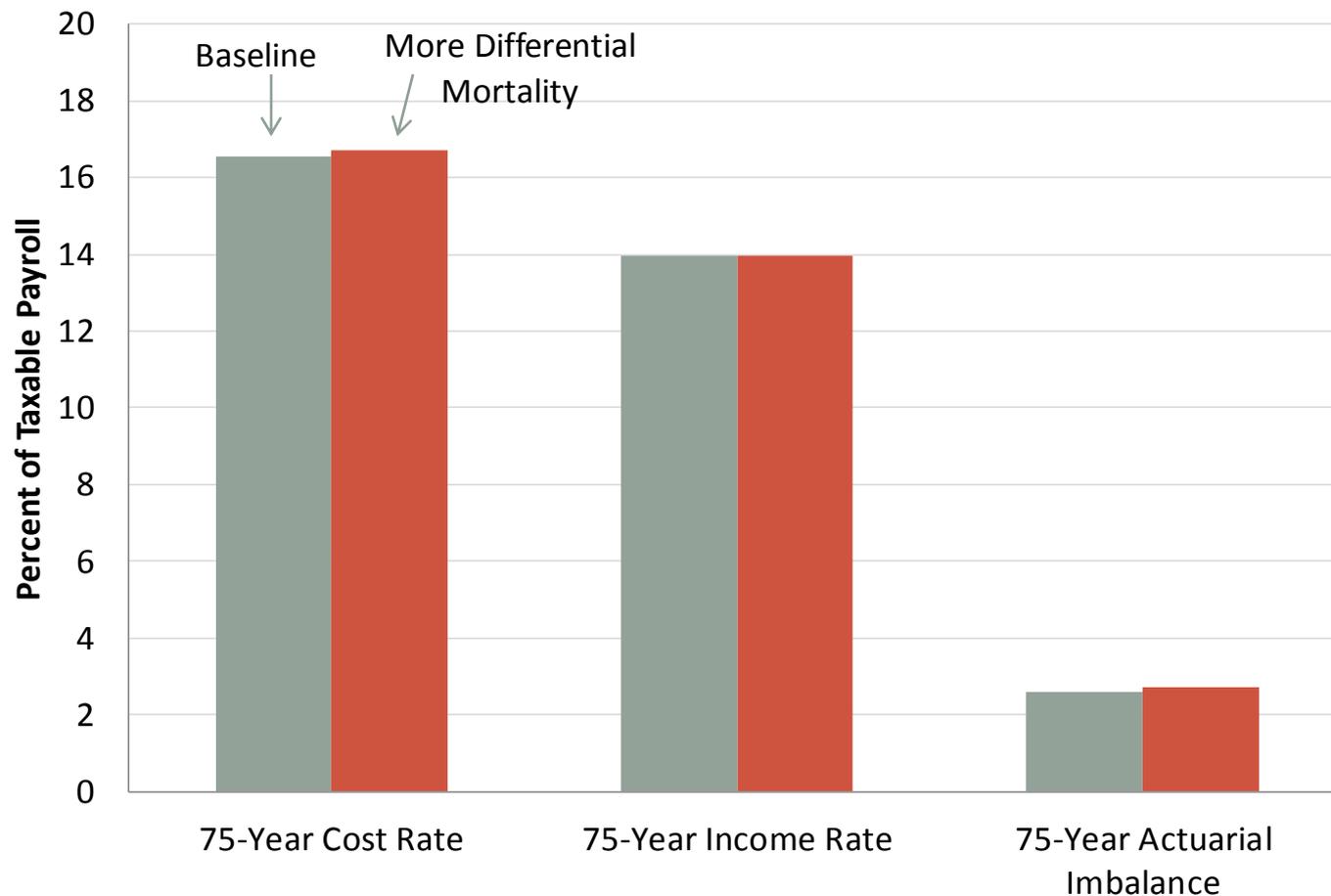
- Payroll taxes as a share of taxable payroll would not change much in aggregate because mortality would not change much at all during the working years.

The **actuarial imbalance** under FRA at 69 or under EEA at 64 and FRA at 69 would be larger if differential mortality was greater.

System Finance Effects, Baseline vs. More Differential Mortality, Raise FRA to 69



System Finance Effects, Baseline vs. More Differential Mortality, Raise EEA to 64 and FRA to 69



What Have We Learned?

Higher or lower differential mortality would have consequences for distributional outcomes and system finances:

- Moving from the current EEA and FRA schedule to EEA at 64 and FRA at 69 would have similar distributional effects across quintiles under either the baseline or with more differential mortality.
- But moving from baseline mortality to more differential mortality AND raising the eligibility ages would result in larger declines in the ratio of lifetime benefits to lifetime taxes for people in the lowest quintile of household lifetime earnings.
- Raising the FRA or raising the EEA as well as the FRA would do less to shore up financial solvency if differential mortality is greater.

Thank you

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