

Discussion with the National Tax Bureau Beijing Division on Social Security Actuarial Models and Estimates

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United States Social Security Administration

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Areas for Discussion

Day one

1. Introduction of US Social Security actuarial statistics/method
 - a. SSA's establishment of institution and responsibility
 - b. SSA's most recent typical case studies
 - c. Summary of adjustment system of social security insurance rate

Day two

2. Introduction of US Social Security actuarial model
 - a. The principle of the actuarial model
 - b. Explanation of leading indicators
 - c. Information operating of actuarial model/introduction of operating system
 - d. Summary of actuarial report

1. Introduction of US social security actuarial statistics/method

a. SSA's establishment of institution and responsibility

What we do at US Social Security Administration:

- Administer Social Security (Old-Age and Survivors Insurance, Disability Insurance) and Supplemental Security Income programs
- Provides income security for virtually all in the US in the event of:
 - Becoming disabled,
 - Dying and leaving behind surviving family members, or
 - Reaching old age (62 for Social Security, 65 for SSI)
- Provides a bridge to health care through Medicare and Medicaid

Role of the Office of the Chief Actuary

- Evaluate financial status of OASDI and SSI
 - Project future population, workforce, employment, tax revenue, benefits, and status of trust funds for OASDI
- Projections for the President's FY Budget and MSR
- Projections for Annual Trustees Report (OASDI)
 - Board of Trustees: Treasury, HHS, DOL, SSA
- Projections for Annual SSI Report (SSI)
- Estimate effects of all changes considered for law and regulations by the Administration and Congress

Role of the Office of the Chief Actuary

- For Social Security, projections under current law are crucial to indicate when and to what degree changes will be needed to maintain “solvency”
- For OASDI and SSI, crucial to know what cost will become in the future, near term dollars, long term share of GDP and taxable earnings
- We compute the COLA and compile W-2s to develop the national average wage index for benefit growth
- We estimate the payroll tax liability that Treasury deposits in the Trust Funds

Social Security Financing

- Basically “pay-as-you-go”
 - Current workers provide for current beneficiaries
 - Social Security *cannot* borrow
 - Trust Fund securities provide a “contingency reserve”
- Current OASDI reserves (excess income) = \$2.85 trillion
 - Available to augment tax income as needed
 - About 3 times the annual cost of the program
- Reserves projected to deplete in 2022 Trustees Report
 - 2034 for OASI, 2035 for OASI and DI on a combined basis
 - ***Expect Congress to act—as it always has***

1. Introduction of US social security actuarial statistics/method

b. SSA's most recent typical case studies

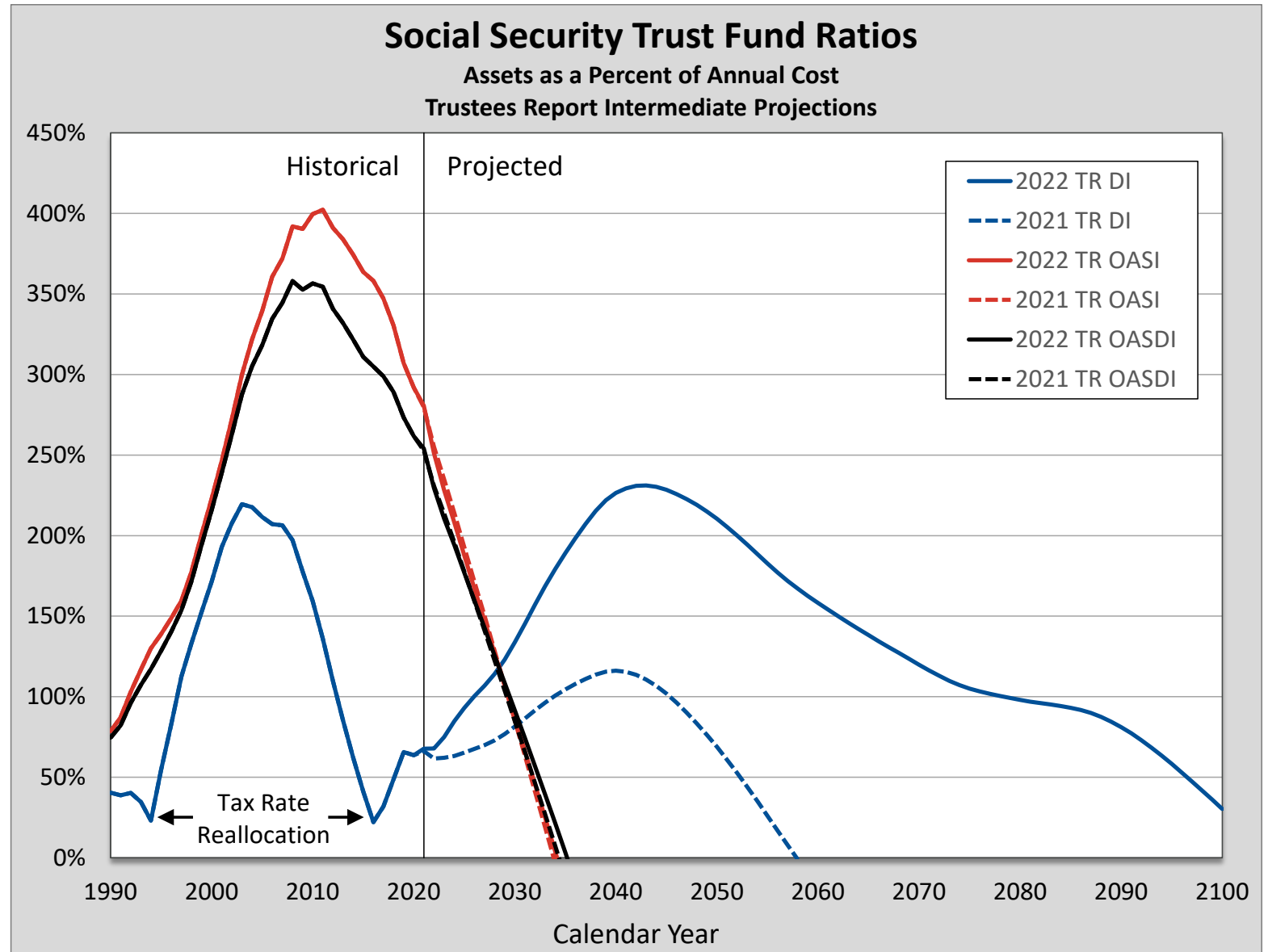
- Historically, the US Congress considers changes that will increase revenue, or reduce scheduled benefits, or both, when future income will be insufficient to fully pay for future scheduled benefits
- So let's start with the actuarial status under current law

Solvency: OASI+DI Trust Fund Reserve Depletion in 2035 (one year later than last year)

Reserve depletion date varied from 2029 to 2042 in reports over the past 30 years (1993-2022).

DI Trust Fund: reserves do not deplete.

Due largely to continued low recent and near-term disability applications and awards, and a lower assumed ultimate disability incidence rate.

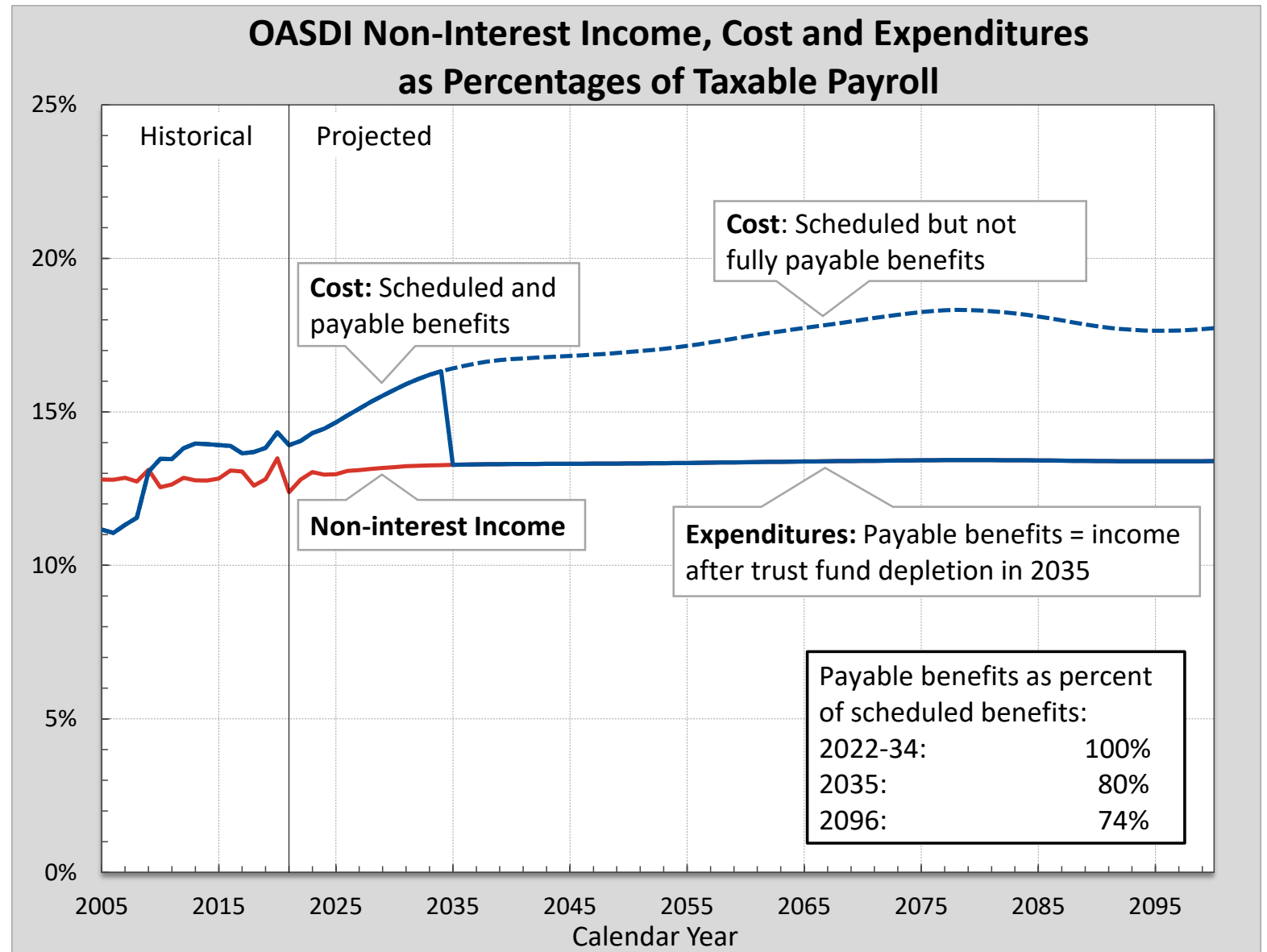


OASDI Annual Cost and Non-Interest Income as Percent of Taxable Payroll

Persistent negative annual cash-flow balance starting in 2010.

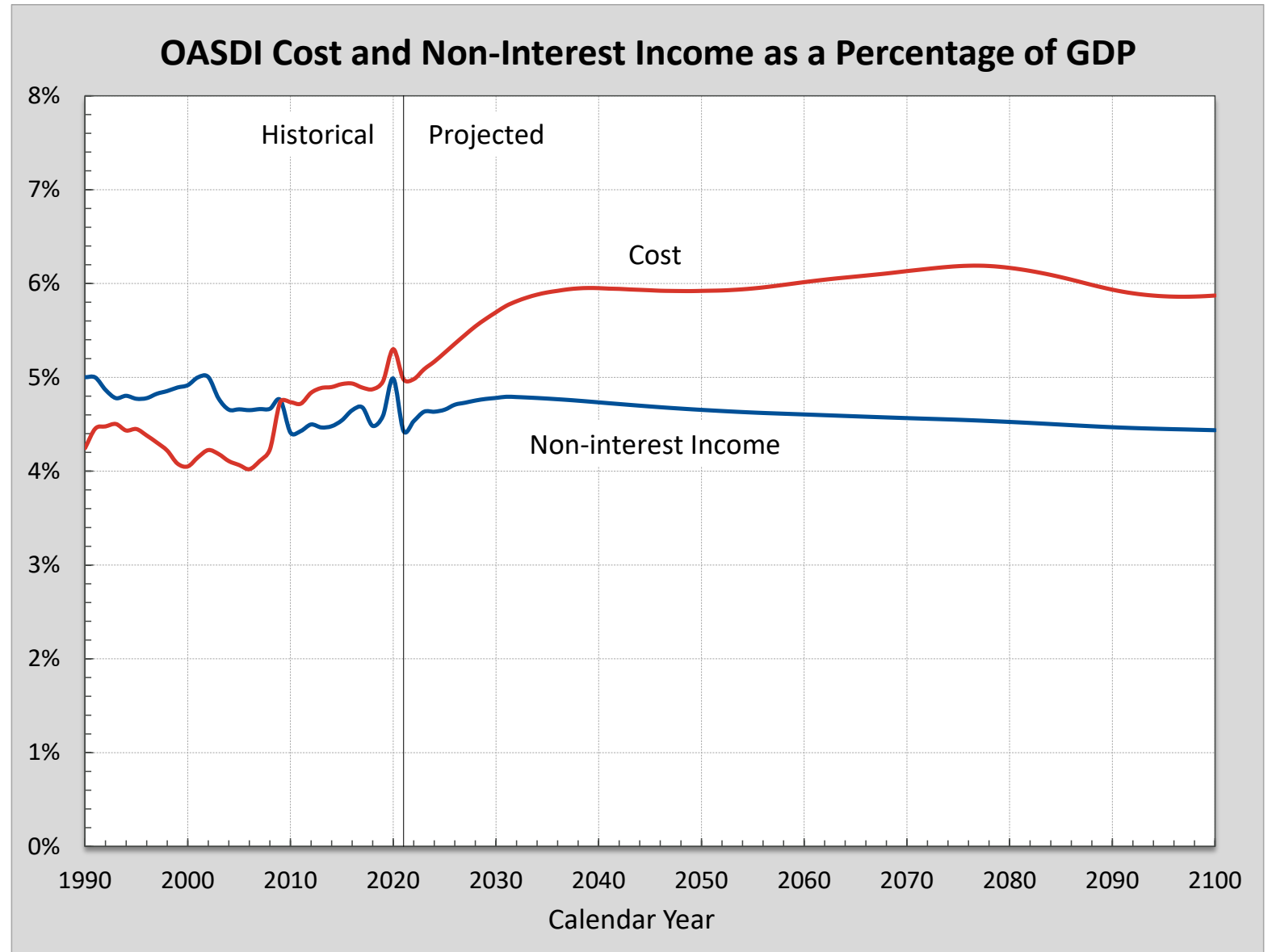
80 percent of scheduled benefits still payable at trust fund reserve depletion.

Annual deficit in 2096: 4.25 percent of payroll: 0.09 percent smaller than last year



SUSTAINABILITY: Cost as percent of GDP

Rises from a 4.2 percent average in 1990-2008, to a peak of about 6.2 percent for 2077, and then declines to 5.9 percent by 2096.



1. Introduction of US social security actuarial statistics/method

b. SSA's most recent typical case studies

- Changes considered over the most recent two to three years have primarily included increased taxes to pay for the currently scheduled benefits
 - Currently a payroll tax of 12.4 percent on annual earnings up to \$147,000 (roughly 3 times the national average wage level) provides most of the revenue for the program
 - About 82 percent of all earnings are taxed
 - If all earnings were taxed, this could eliminate about 2/3 of the long-range shortfall
 - For our estimates, we assume there will be some behavioral response to increase in taxes
 - We assume that employers and employees will reallocate employee compensation, avoiding about 5 percent of the potential revenue increase
- Other proposals have considered taxing investment income for Social Security
 - Also premiums paid toward Employer Sponsored Group Health Insurance, and even an inheritance tax

1. Introduction of US social security actuarial statistics/method

b. SSA's most recent typical case studies

- But changes in scheduled benefits have also been considered, such as:
 - Increasing the Normal Retirement Age
 - Reducing the annual cost-of-living adjustment
 - Indexing benefits from one generation to the next by price change rather than wage growth
- A history of legislative proposals from the Congress and others that we have developed estimates for can be found at <https://www.ssa.gov/oact/solvency/index.html>
- Also, a listing of individual provisions for change that have been proposed, with our current estimates for their effect can be found at <https://www.ssa.gov/oact/solvency/provisions/index.html>
 - We update the estimates for these provisions annually

1. Introduction of US social security actuarial statistics/method

c. Summary of adjustment system of social security insurance rate

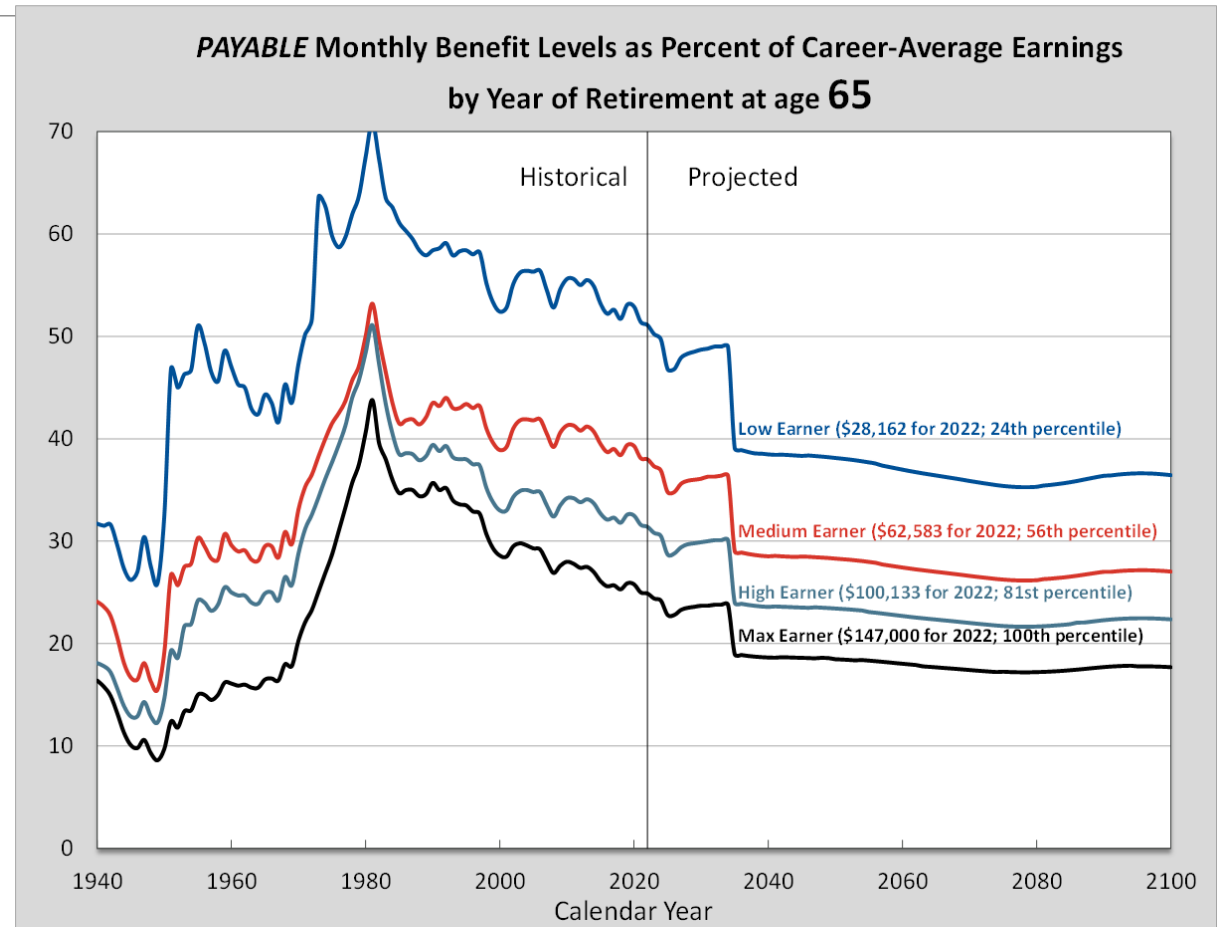
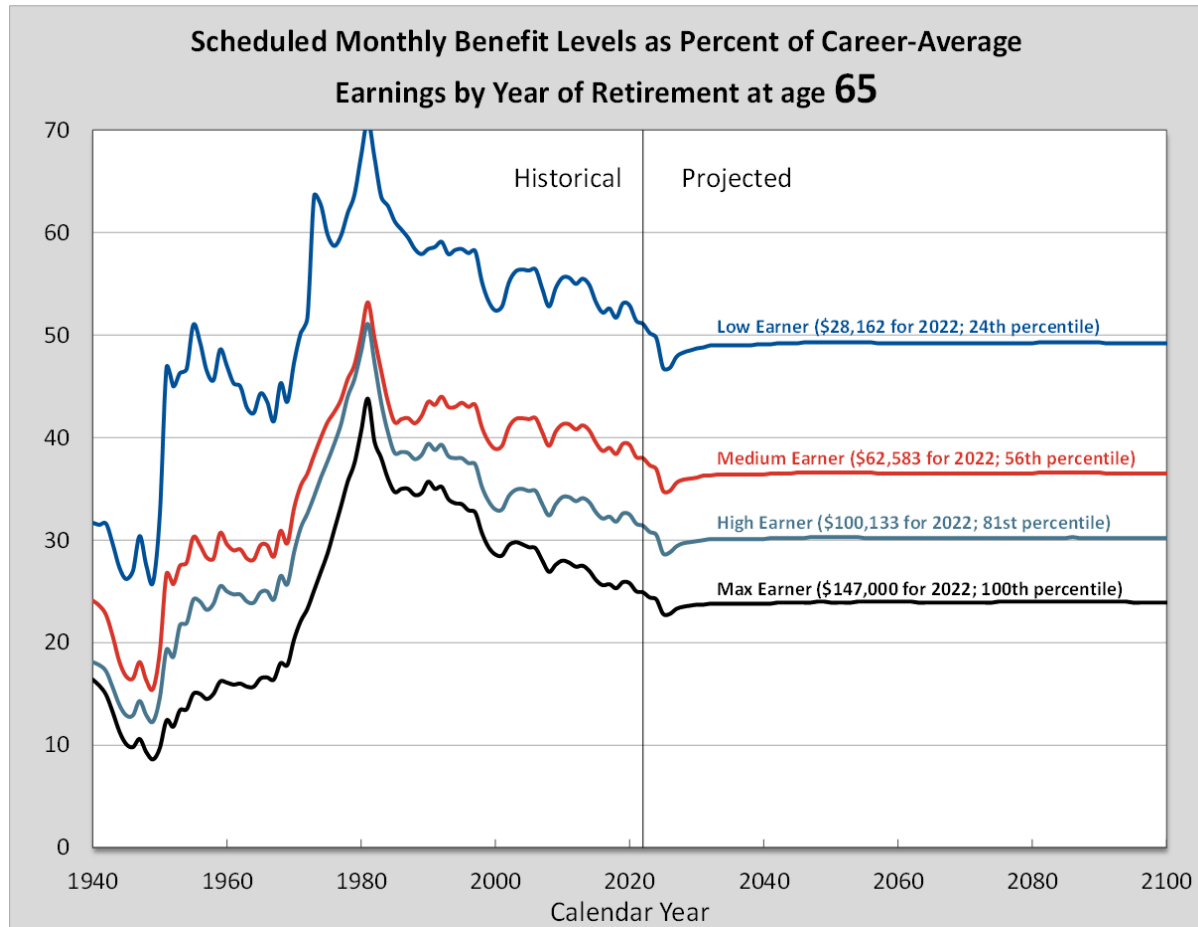
- The payroll tax rate (on annual earned income up to \$147,000) is fixed in law, and can only be changed by a change in the law
- However, the earnings limit (the \$147,000) for the 12.4 percent tax is automatically adjusted each year to keep up with growth in the average wage level for all wage earners
- In addition, up to 85 percent of benefits is subject to federal personal income tax, with most of the proceeds transferred to the Social Security Trust Funds. Benefits are taxed only to the extent that total income, including half of Social Security benefits, exceeds \$25,000 per year for an individual or \$32,000 for a married couple. These thresholds are fixed.
- The final source of revenue is interest earnings on Social Security Trust Fund asset reserves, which are currently about \$2.85 trillion, or a little less than 3 times the annual cost of the program benefits

1. Introduction of US social security actuarial statistics/method

c. Summary of adjustment system of social security insurance rate

- The level of “scheduled” benefits is prescribed in current law, and can only be changed by a change in the law
- However, if the combination of current tax income and asset reserves in the trust funds are not enough to pay the scheduled benefits, then full scheduled benefits cannot be paid on a timely basis
- Congress has never allowed benefits to fall below the scheduled level due to insufficient funding
 - Congress has always made changes to revenue or scheduled benefit levels to maintain benefits
- One automatic adjustment is in the law: if trust fund reserves fall below 20 percent of annual program cost, then the annual cost of living adjustment will be the lower of price and average wage increase
- There are no automatic adjustments for the payroll tax rate provided in the law

Scheduled and Projected Payable Benefit Levels Under Current Law, As Percentage of Career Average Earnings Level



Day two

2. Introduction of US Social Security actuarial model

a. The principle of the actuarial model

Basic components:

1. Demographic—project the US population by age sex, marital status
2. Economic—project the US economy including GDP, employment, earnings, interest, etc.
3. Project Social Security “program” parameters—retirement and disability rates

Develop projections of all scheduled revenue and costs for the future

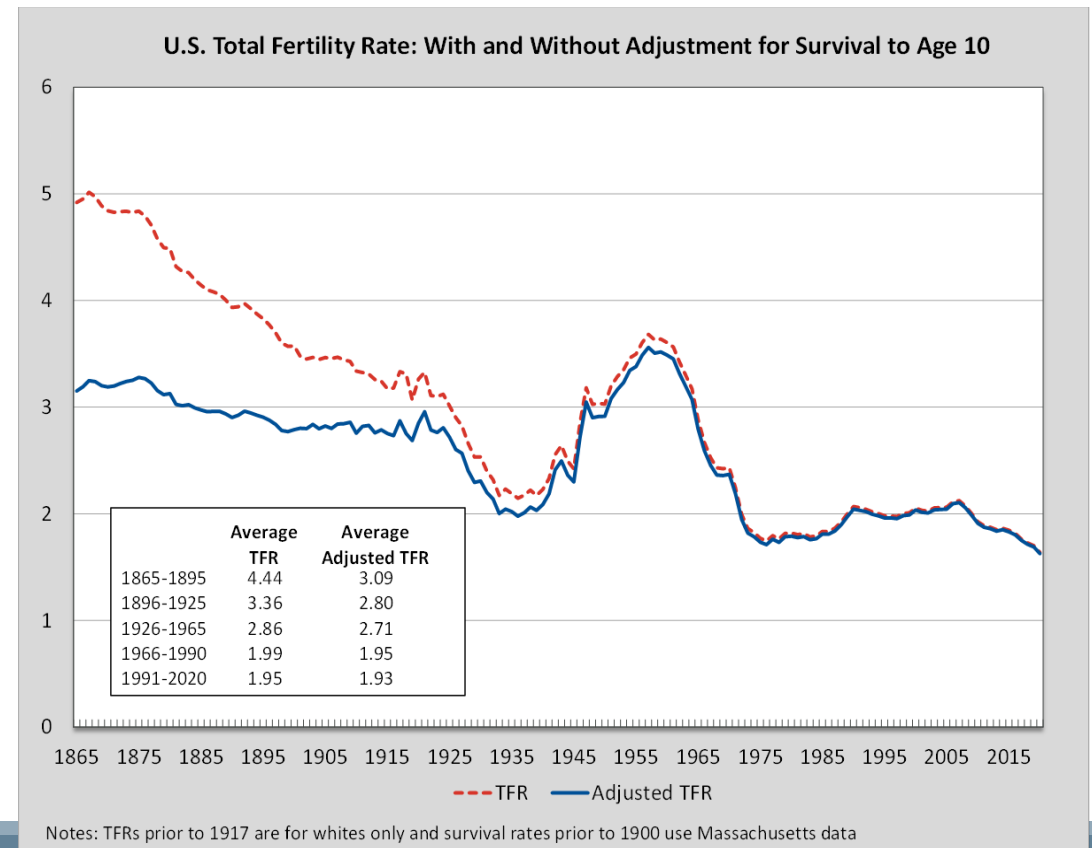
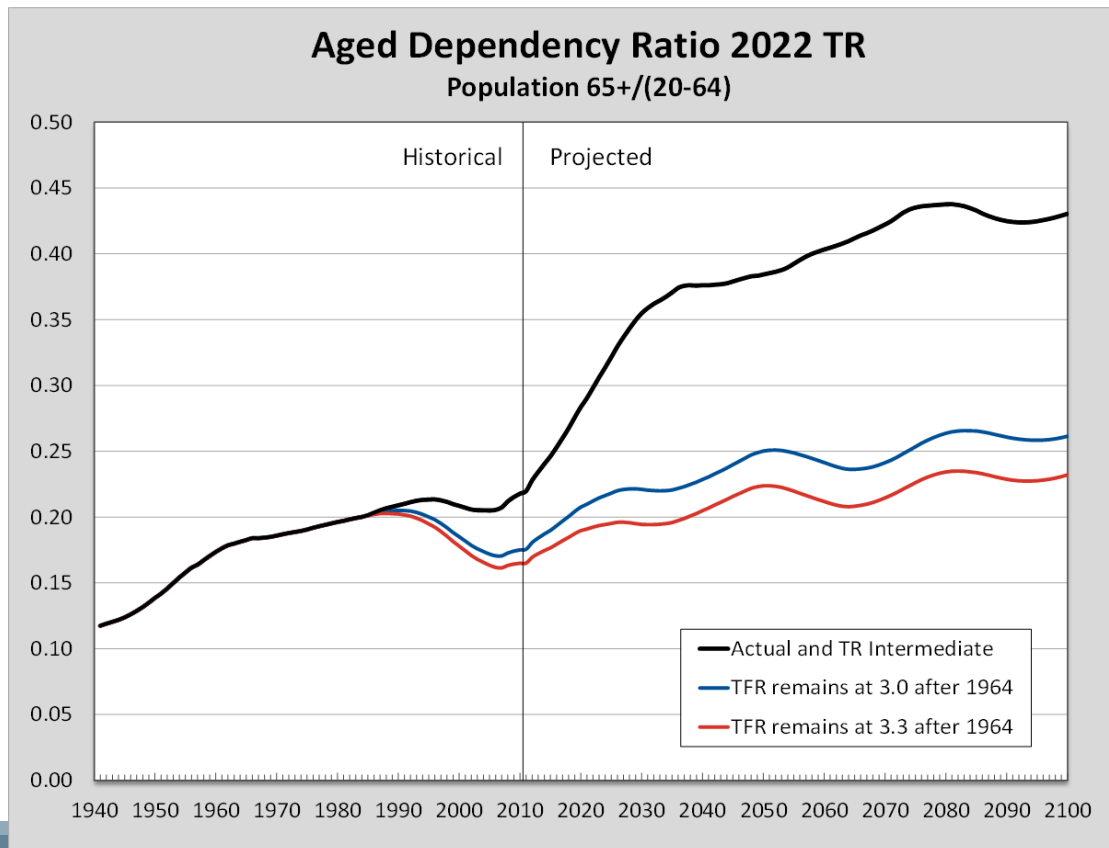
- Then project the levels of Trust Fund reserves to determine adequacy of financing
- Inform policymakers of actuarial status, particularly when and by how much shortfall
- This allows Congress time to work toward changes in law that will be acceptable

2. Introduction of US Social Security actuarial model

b. Explanation of leading indicators

US Social Security is financed on basically a Pay-As-You-Go basis

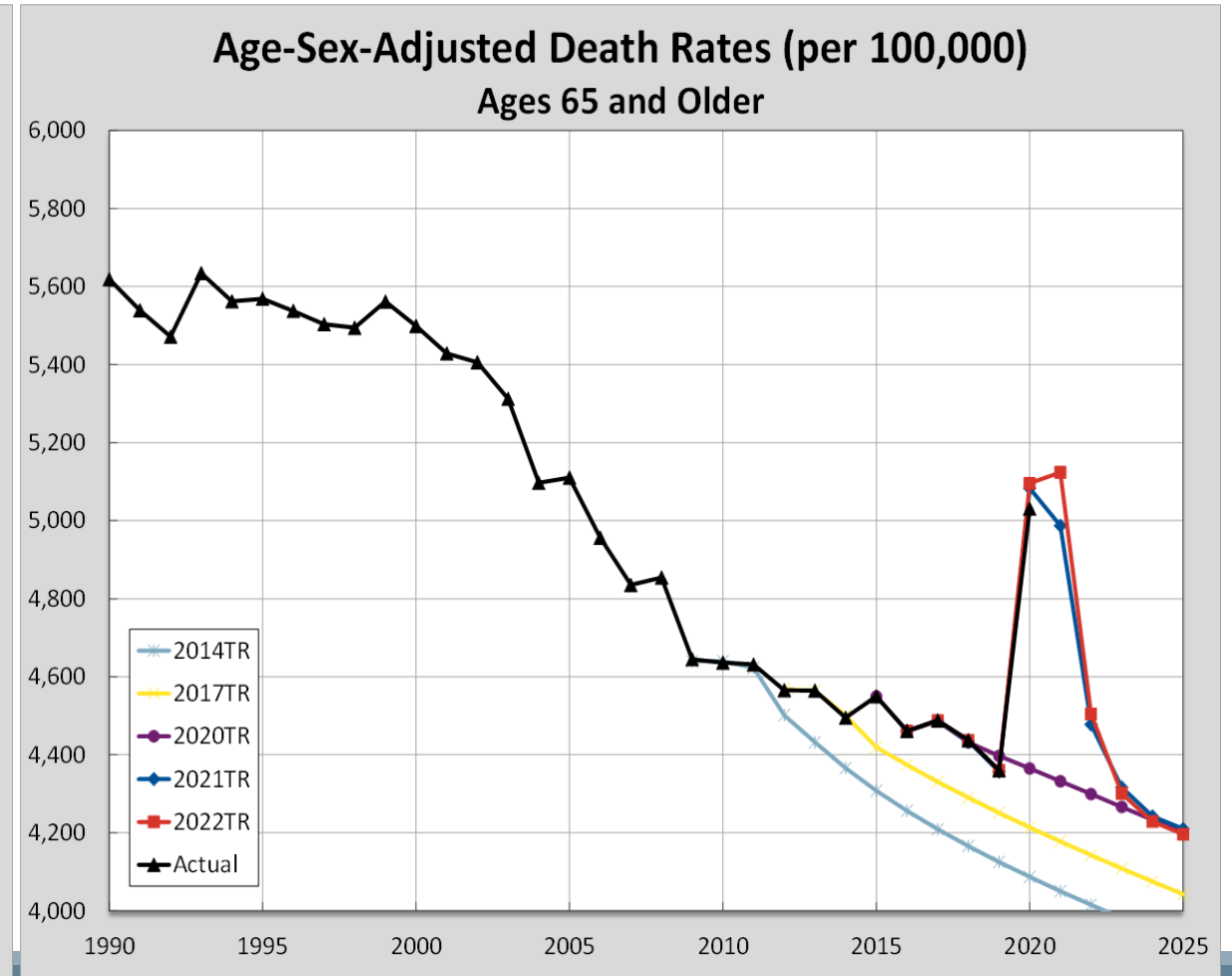
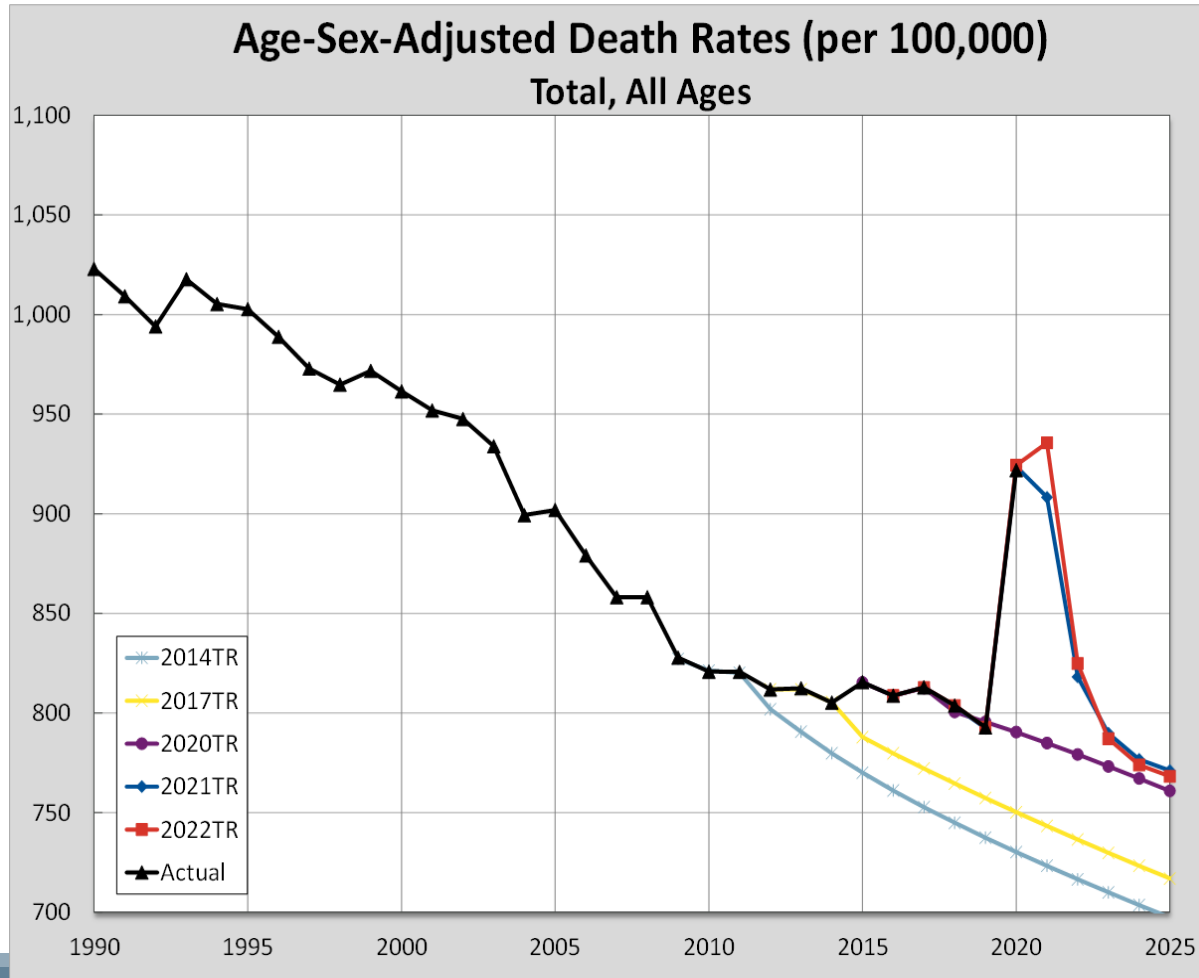
- Current workers pay taxes on earnings, financing benefits for current beneficiaries
- Thus, the age distribution of the population is the most important factor; birth rates and immigration are key



2. Introduction of US Social Security actuarial model

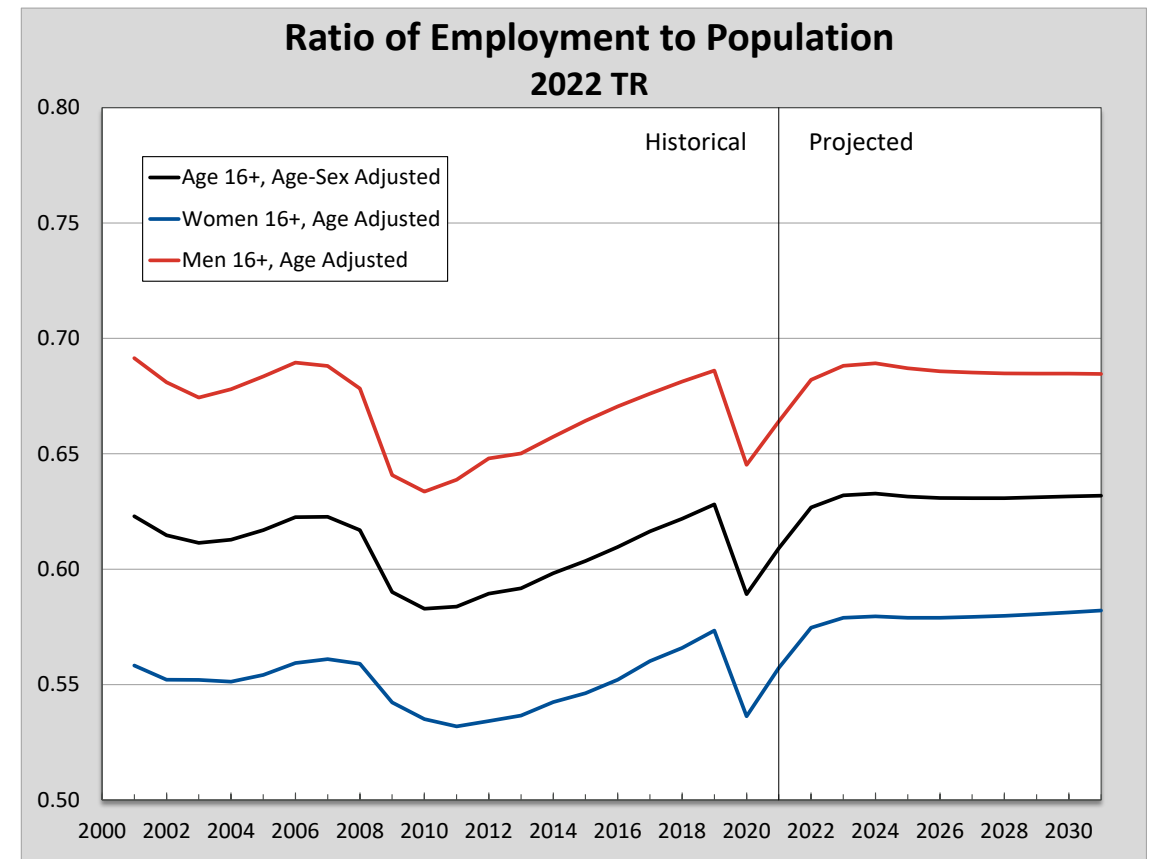
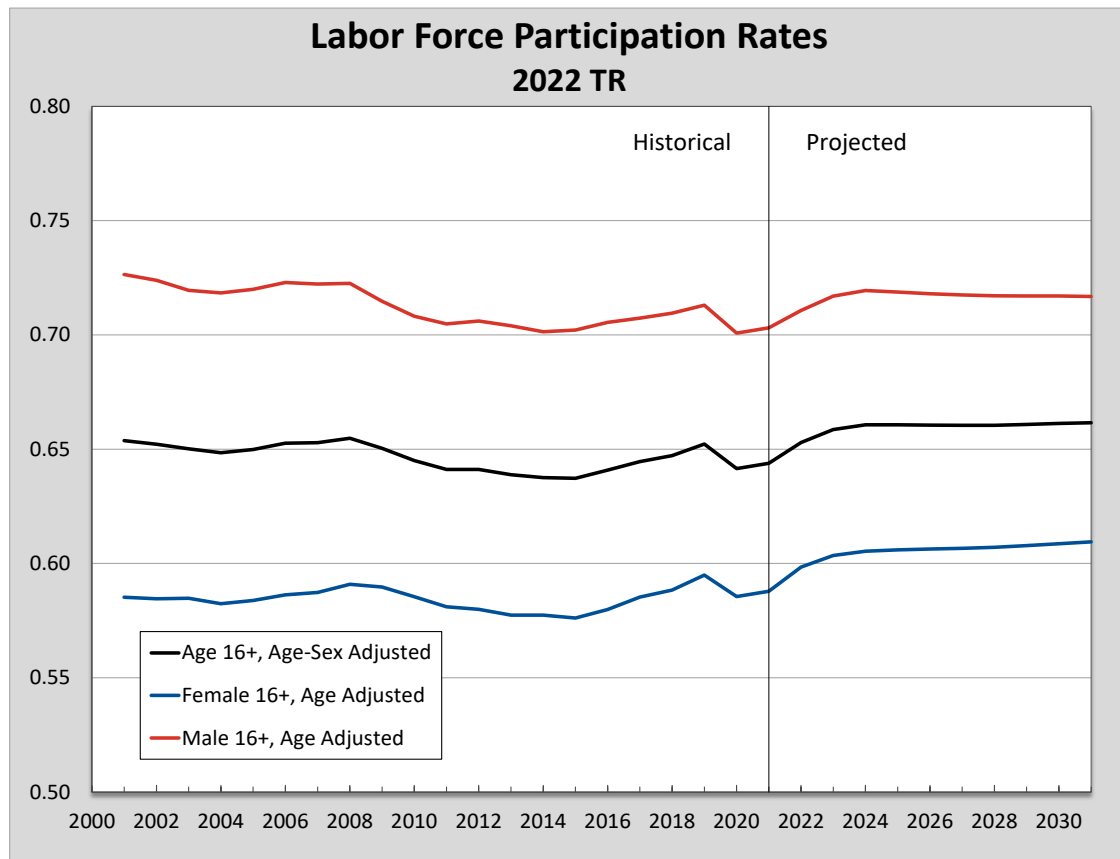
b. Explanation of leading indicators

Rate of improvement in mortality is an additional key factor



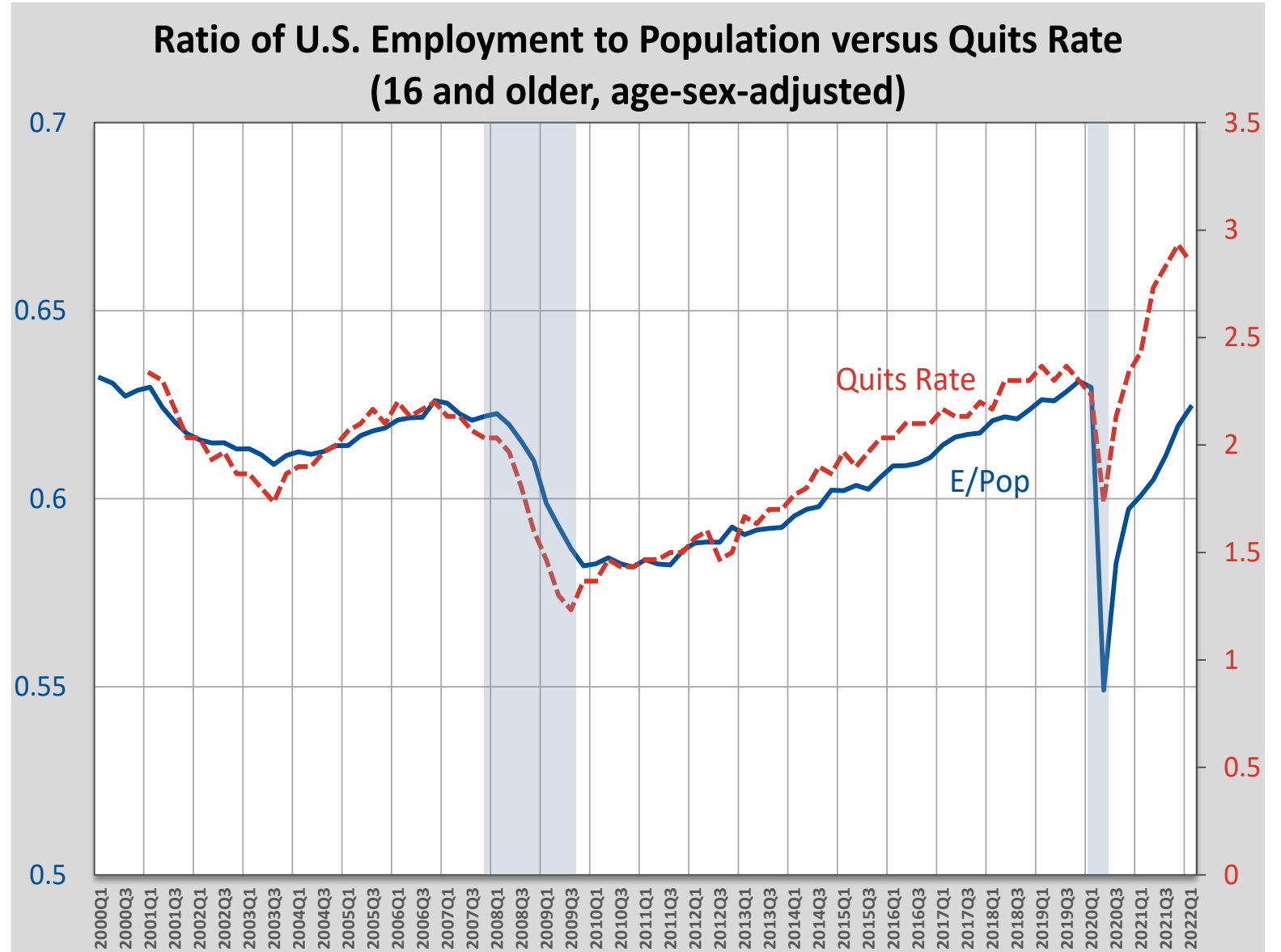
Secular Stagnation in Labor Force? Recovery of Employment

Employment has recovered: measured labor force participation is still below recent peaks



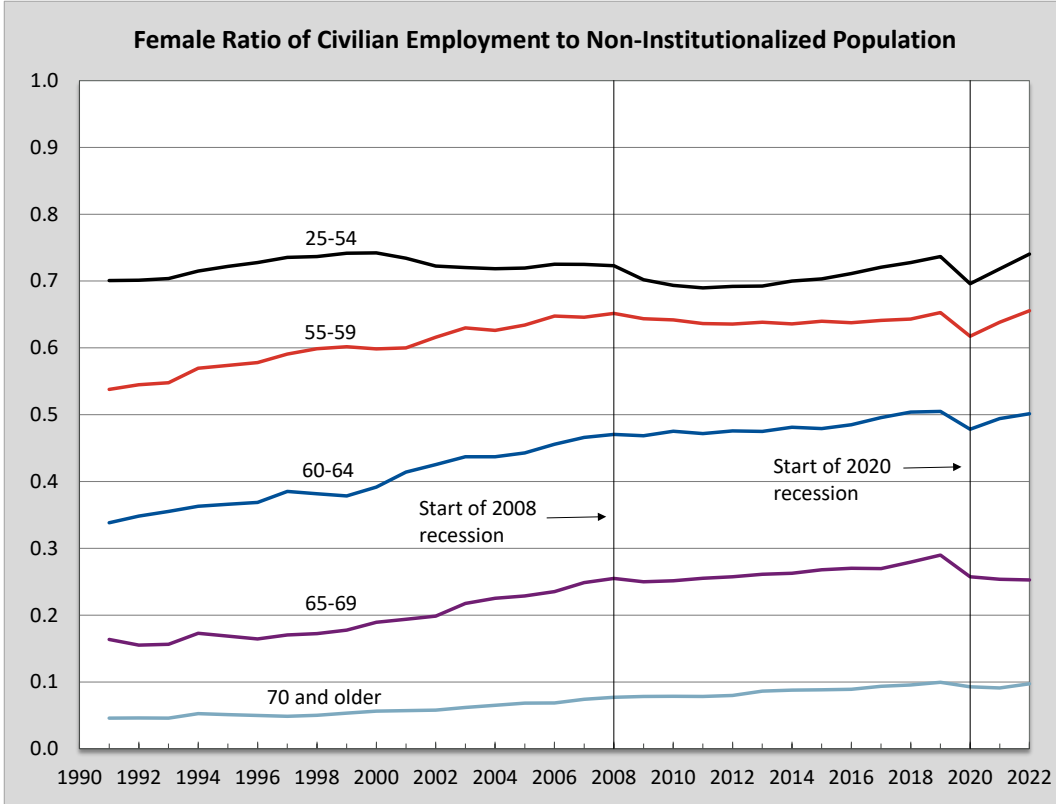
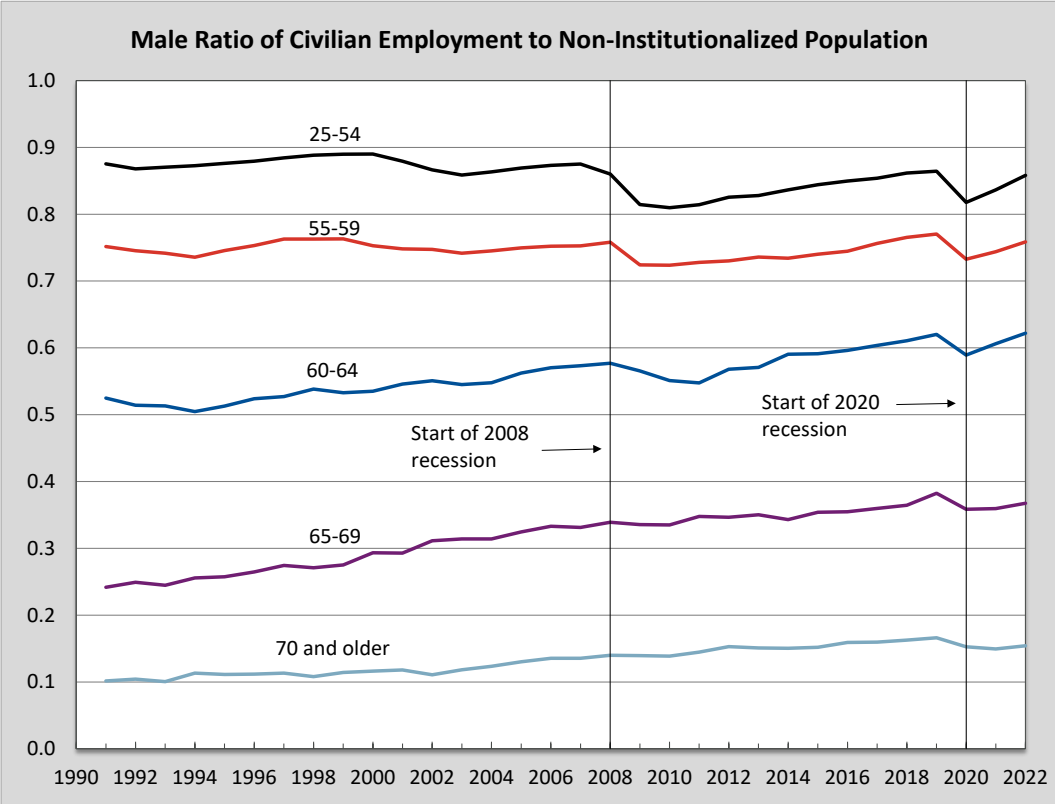
Ratio of Employment to Population vs. Quits Rate

Ratio of employment to population has recovered rapidly since the Trustees Report projections were developed.



Employment Over Age 65...

declined briefly with the 2020 recession, but is projected to continue rising. How much of this is from changing the NRA and earnings test? *Is the best retirement approach a job (Paul Samuelson)?*

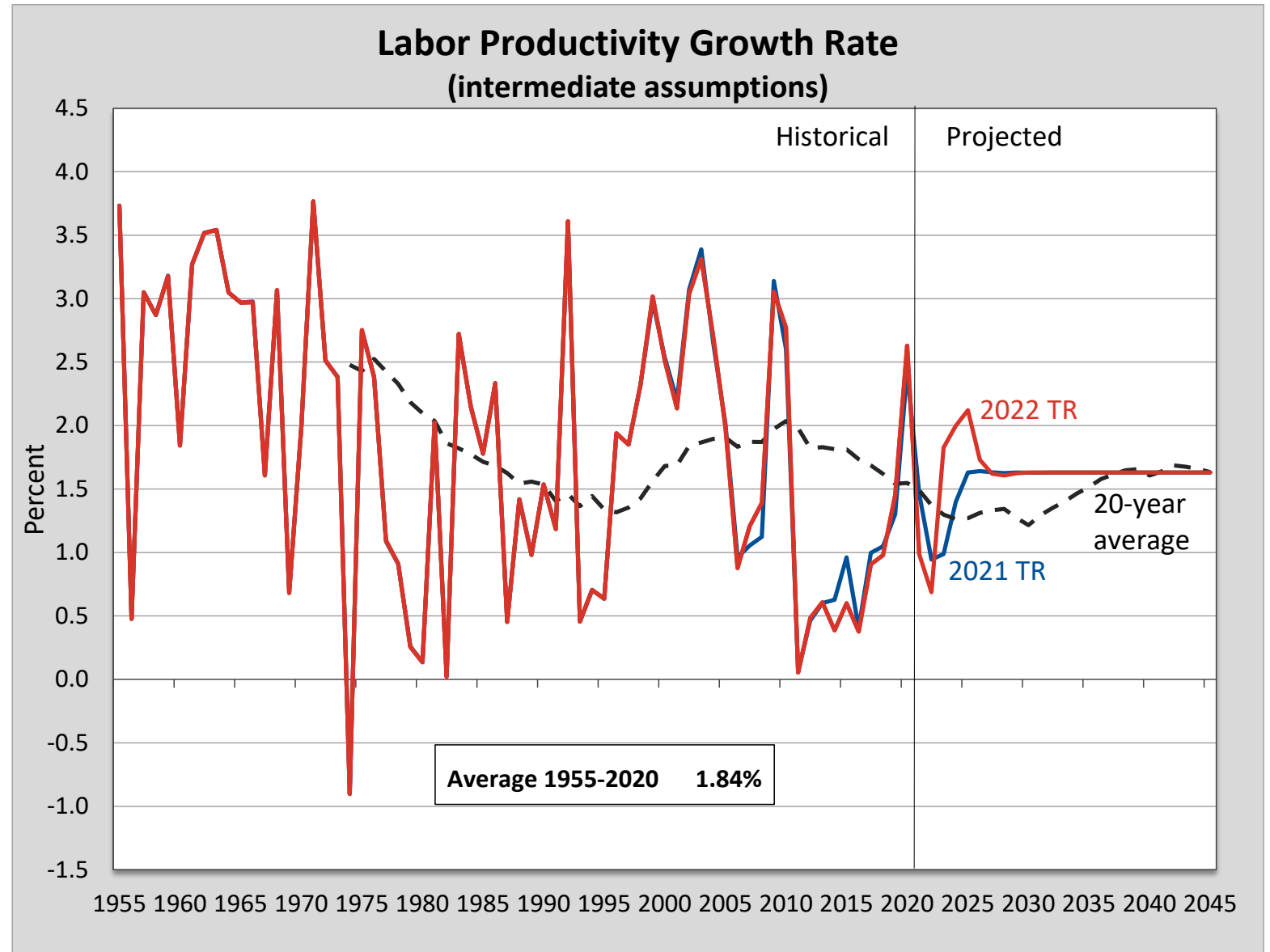


Labor Productivity Growth Rate

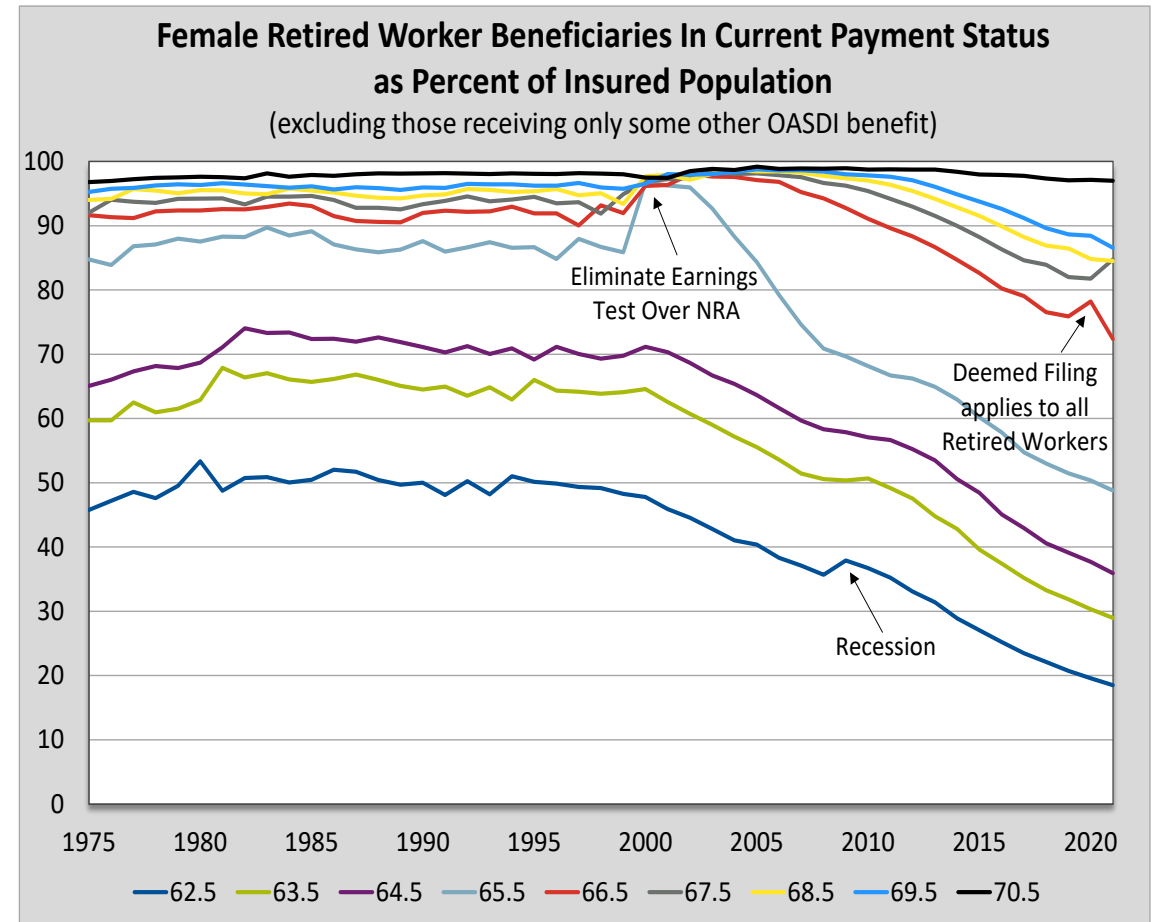
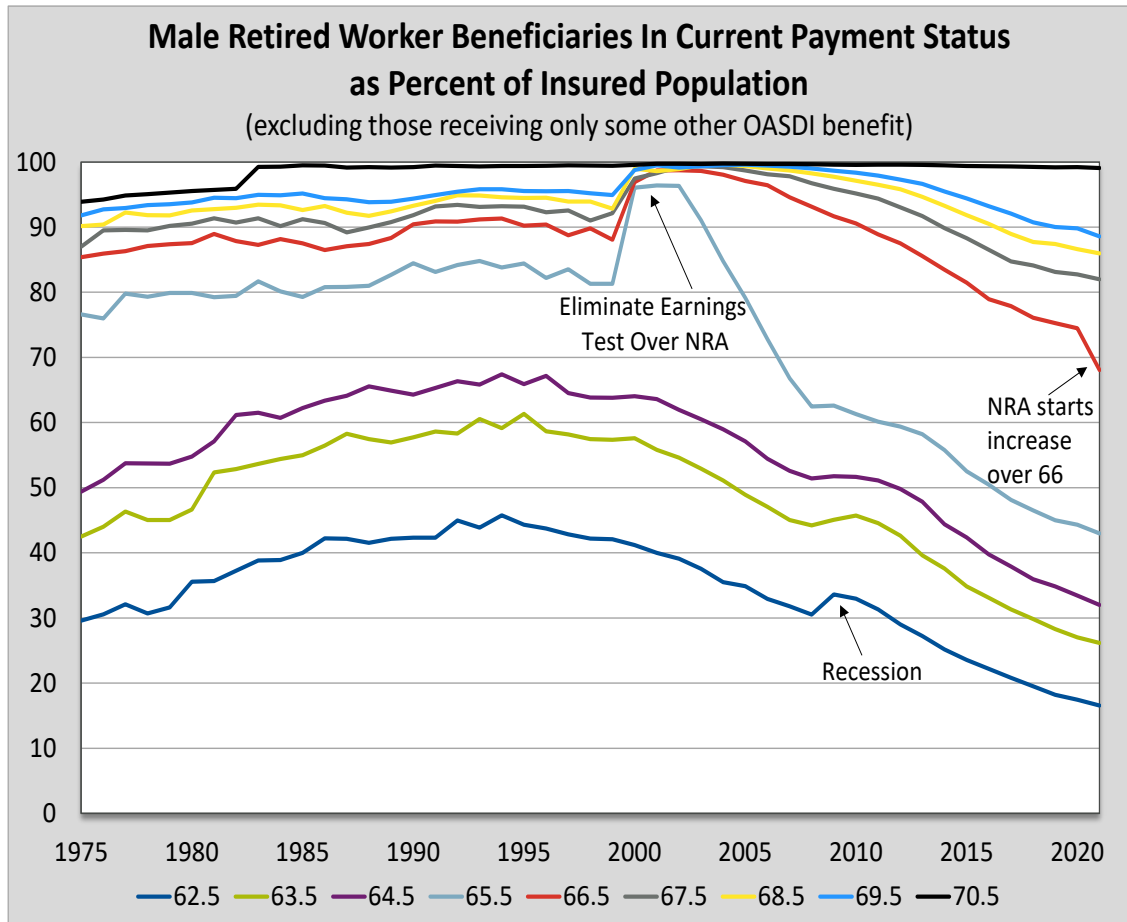
The estimated annual growth in labor productivity in 2020 is 2.63 percent, as employment declined more than GDP during the 2020 recession. As employment recovers, especially in the labor-intensive service industries, productivity growth is expected to slow to 0.98 percent in 2021 and 0.69 percent in 2022.

Projected slowdown in productivity growth in the near-term is assumed to be temporary.

Ultimate annual change in labor productivity growth is unchanged from the 2021 TR.



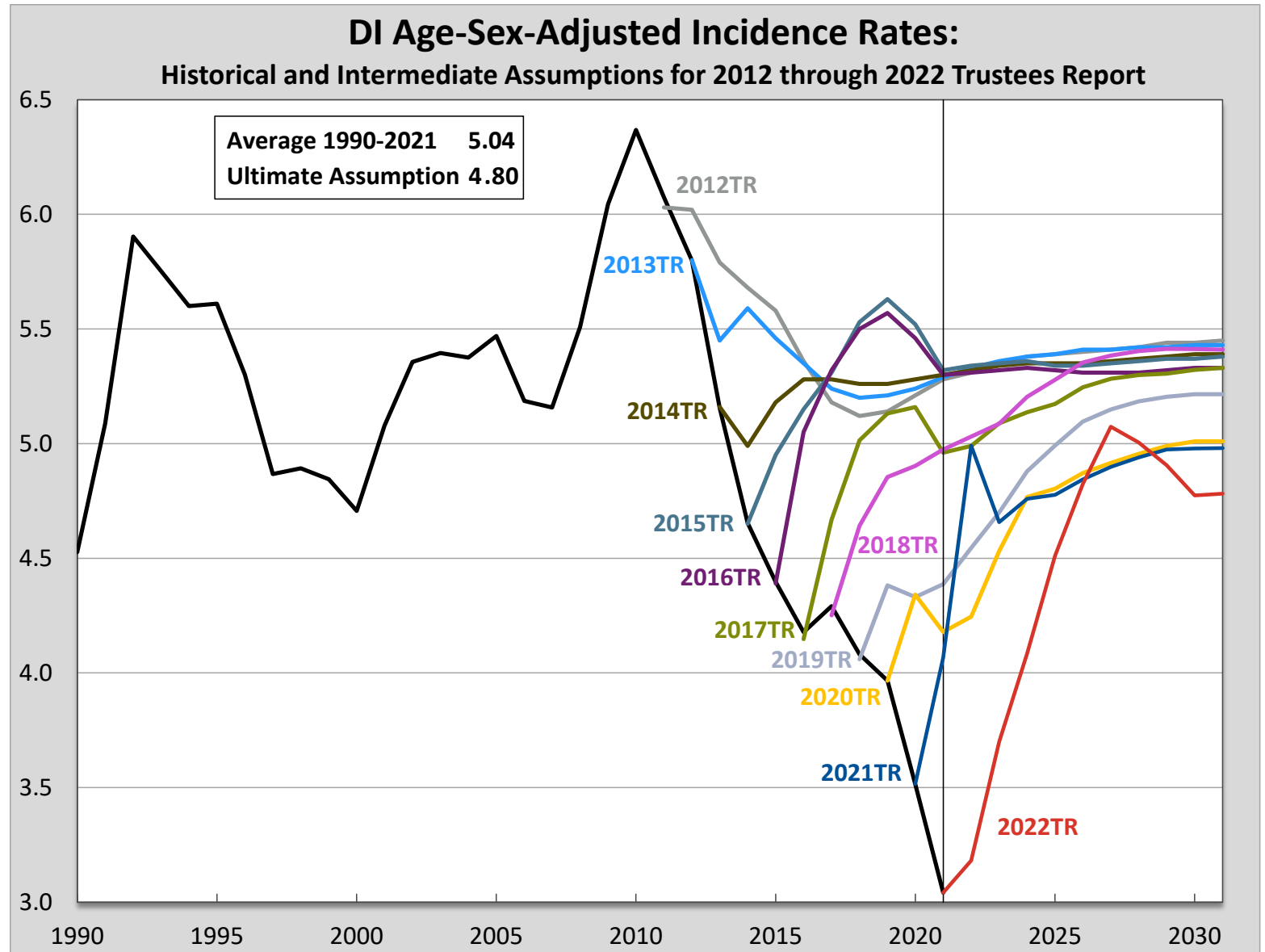
Age of Starting Social Security Retirement Benefits



Disability Incidence Rate Also Remains Historically Low

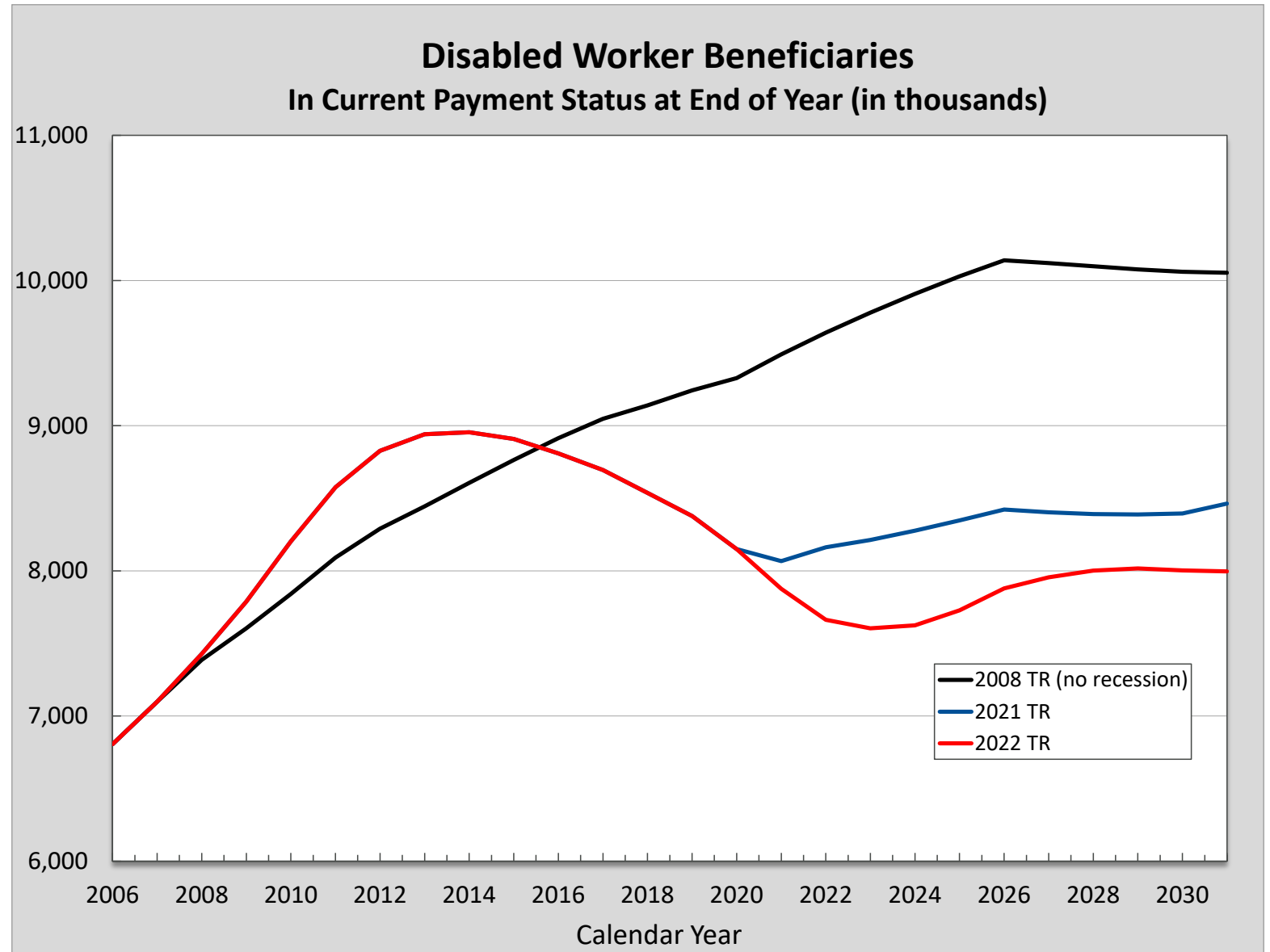
DI disabled worker incidence rate rose sharply in the 2008 recession, and has declined since the peak in 2010 to extraordinarily low levels in 2016 through 2021.

What will be the NET effect of COVID and post-COVID conditions?



Fewer Disabled Worker Beneficiaries

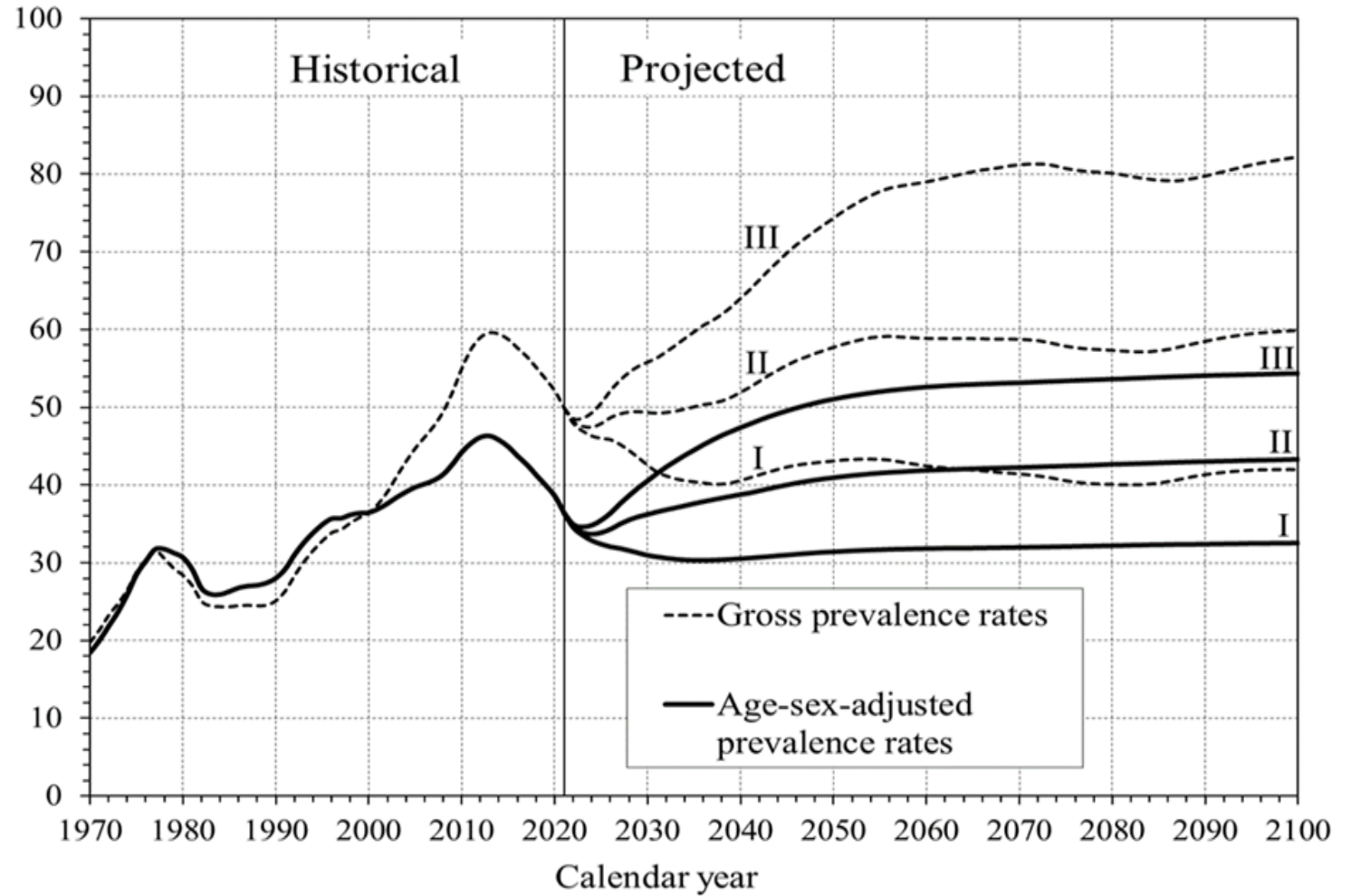
Fewer now and in near term based on recent applications and incidence rates.



Disabled Worker Prevalence Rates

Recover to level above that before the 2007-09 recession?

DI Disability Prevalence Rates, 1970-2100



2. Introduction of US Social Security actuarial model

c. Information operating of actuarial model/introduction of operating system

- We use national data for population and the economy, and all Social Security program data
- We employ a multitude of models for different purposes and using different software
 - Macro/aggregate models as well as microsimulation and stochastic
- Many special models developed for new proposals to alter the form of the plan
- For proposed changes in law, we project not only the program cost implications, but also the effects on beneficiary benefit levels, and worker tax rates, by career earnings levels

2. Introduction of US Social Security actuarial model

d. Summary of Actuarial Report

The principal objectives:

1. Develop projections of future cost and income, and actuarial status under current law, to advise policymakers and the general public
2. Work with policymakers in the development of proposals to change the law that will effectively and efficiently meet their stated goals
3. Develop the best possible estimates of the effects on proposed changes in law on workers, beneficiaries, program solvency, and the federal budget