Challenges of Long-Term Social Security Forecasting

OCACT Model

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OCACT Economic Model and the OASDI Trustees Report

- What we do
  - Actuarial valuation
- Why we do it
  - Legally mandated
  - This is key, we start from here
- How we do it
  - Analysis primarily needs to advance the goals set by the What and the Why

Why? – Legislative mandate for the annual OASDI Trustees Report

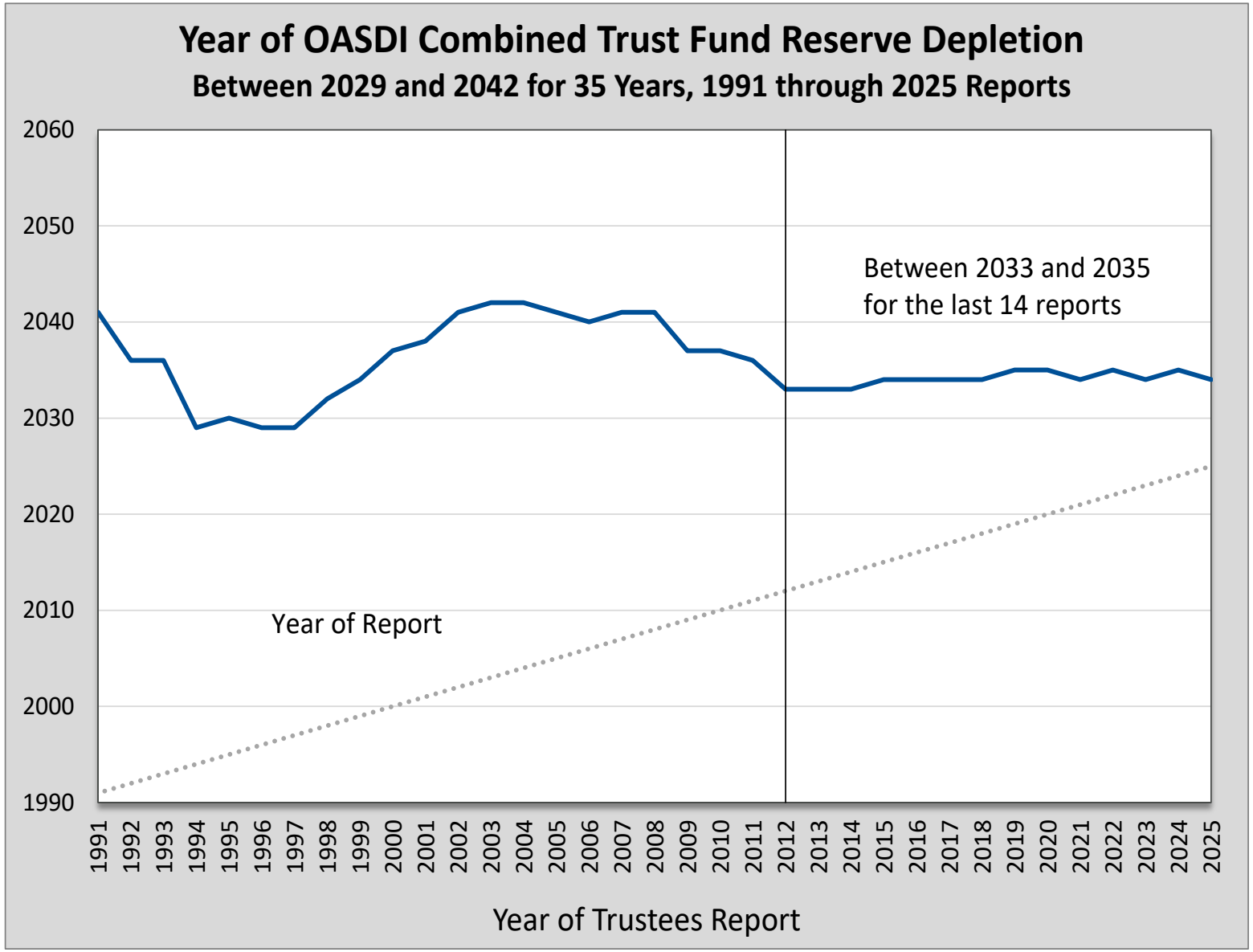
- Sec. 201. [42 U.S.C. 401](c) of the Social Security Act states:
  - "The report (…) shall include (…) a statement of the actuarial status of the Trust Funds."
  - "Such statement shall include a finding (…) as to whether the [Trust Funds], individually and collectively, are in close actuarial balance."
  - "Such report shall include an actuarial opinion by the Chief Actuary of the Social Security Administration certifying that the techniques and methodologies used are generally accepted within the actuarial profession and that the assumptions and cost estimates used are reasonable."
- Hence, an *actuarial valuation* model for the OASDI program is required

What? – Actuarial Valuation

- Actuarial status of the OASI and DI trust funds
  - The ability to meet the cost of scheduled benefits with scheduled revenue and trust fund reserves
  - And the extent to which scheduled revenue would fall short under current law, indicating the size of legislative changes that will be needed
- Intended audience (principals) for the Trustees Report
  - Congress – relies on the report to assess the need for program changes and the effects of various legislative proposals
  - The public – to be informed about financial status of the program
- Actuarial practice and the audience (who are not technical experts) call for the assumptions to be clear and reasonably simple and stable

Year of OASDI Combined Trust Fund Reserve Depletion

OASDI reserve depletion date varied from 2033 to 2035 in reports over the last 14 years (2012-2025) and from 2029 to 2042 in reports over the last 35 years (1991-2025).



OCACT Model

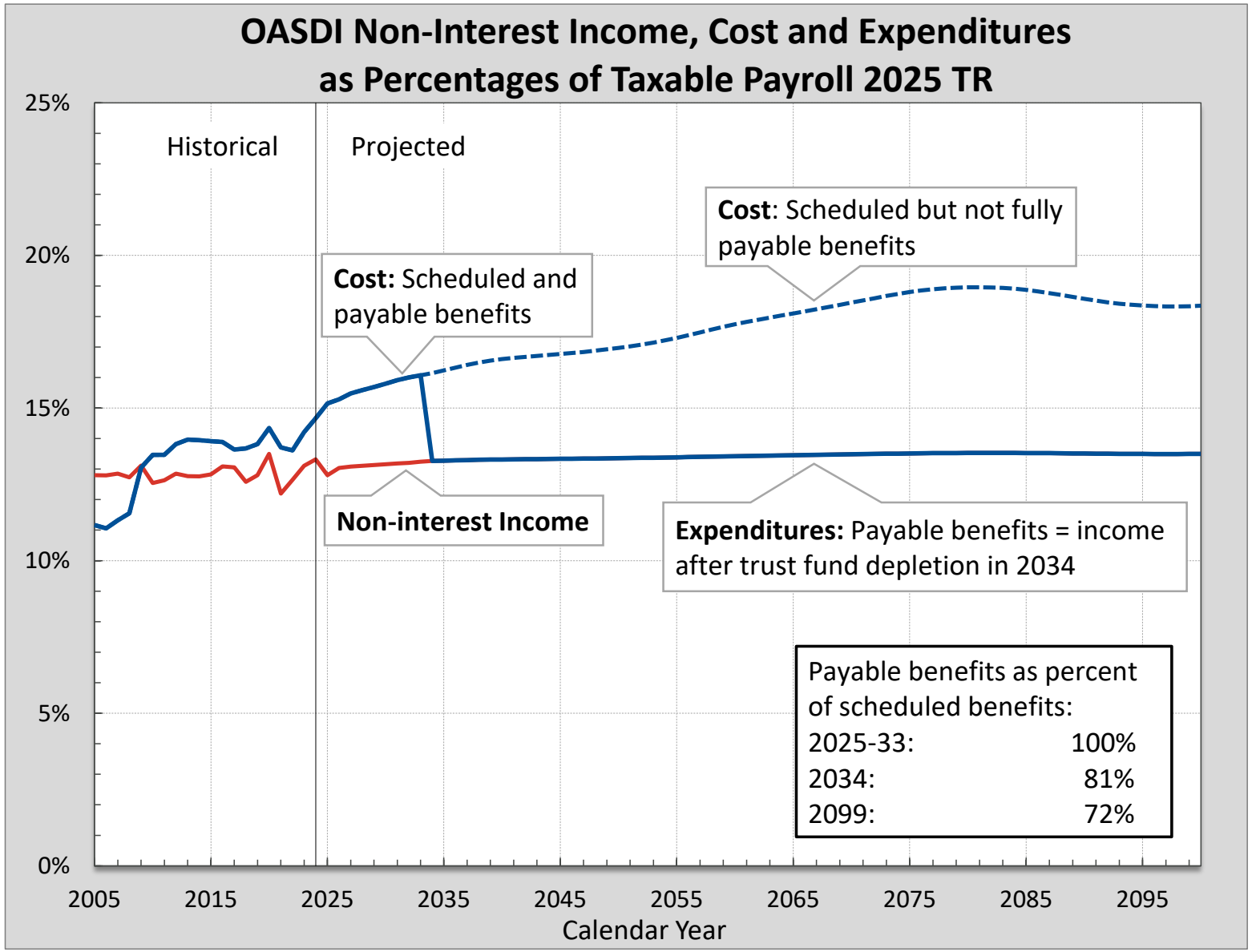
- OCACT model projects revenue and costs for the trust funds that are used for
  - Long-range (75-year) actuarial projections to be included in the annual OASDI Trustees Report
  - Evaluating the effects of legislative proposals for OASDI program changes on the actuarial status of the trust funds
- Assumes OASDI program remains as set by current law
  OR
  assumes specified changes to the program when evaluating legislative proposals
- The purpose of an actuarial valuation model is different from that of an economic forecasting model or a comprehensive policy analysis model
- Projections are made given a set of demographic, economic, and program-specific assumptions
- Macroeconomic models can inform the actuarial model (help set assumptions and/or parameters)

2025 Trustees Report Projections

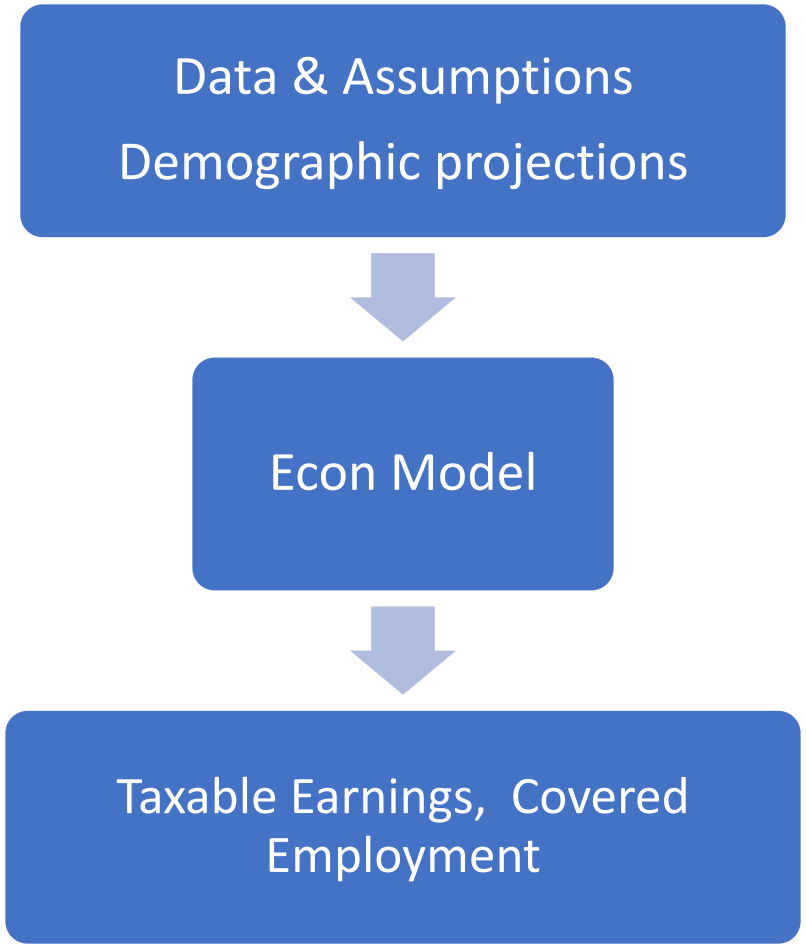
Compare future obligations arising from the benefits scheduled under current law to the projected income from current-law taxes and accumulated past surpluses.

Projections are not meant to represent a realistic scenario beyond trust fund reserve depletion.

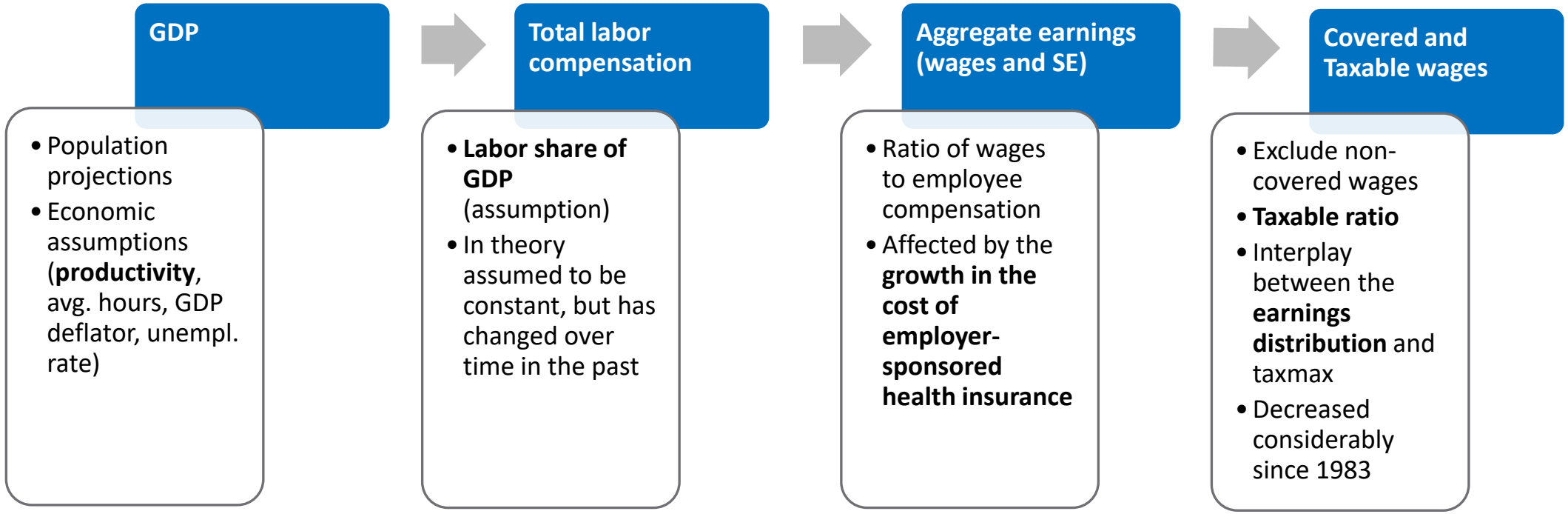
Rather, they highlight the extent to which projected obligations exceed income in the absence of changes to the program.



The Big Picture:
OCACT Economic Model



OCACT Economic Model – Essential Elements



Challenges for long-term projections: Common to all models

Examples of assumptions (or parameters) that significantly affect the projections and are also challenging to project

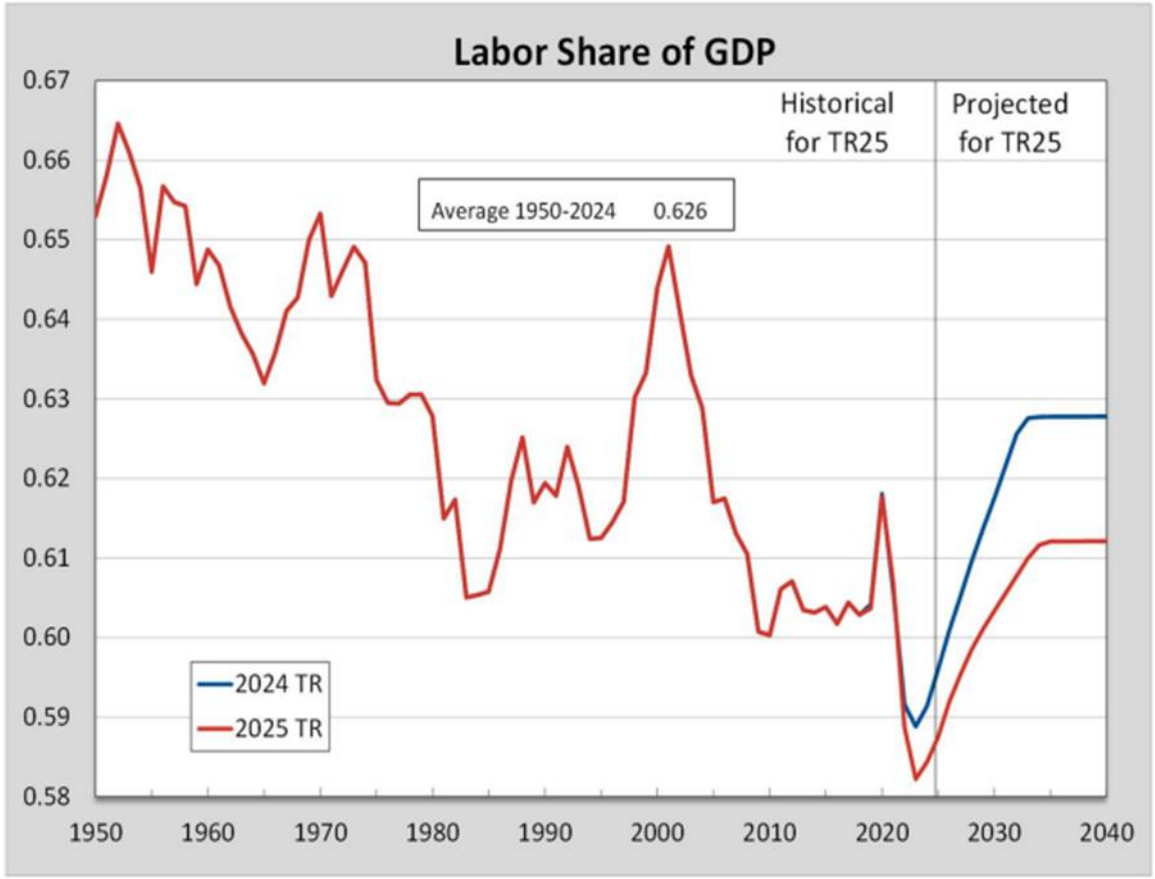
- Demographic assumptions
  - Especially fertility and immigration
- Determinants of average earnings
  - Productivity (output per hour) growth rate
    Economic models can project capital accumulation and its effect on productivity for a given TFP; but projecting the growth rate of TFP remains a challenge
  - Labor compensation as a share of GDP
    Economic models often assume it to be constant over time
  - Healthcare cost growth
    Affect non-wage portion of employee compensation

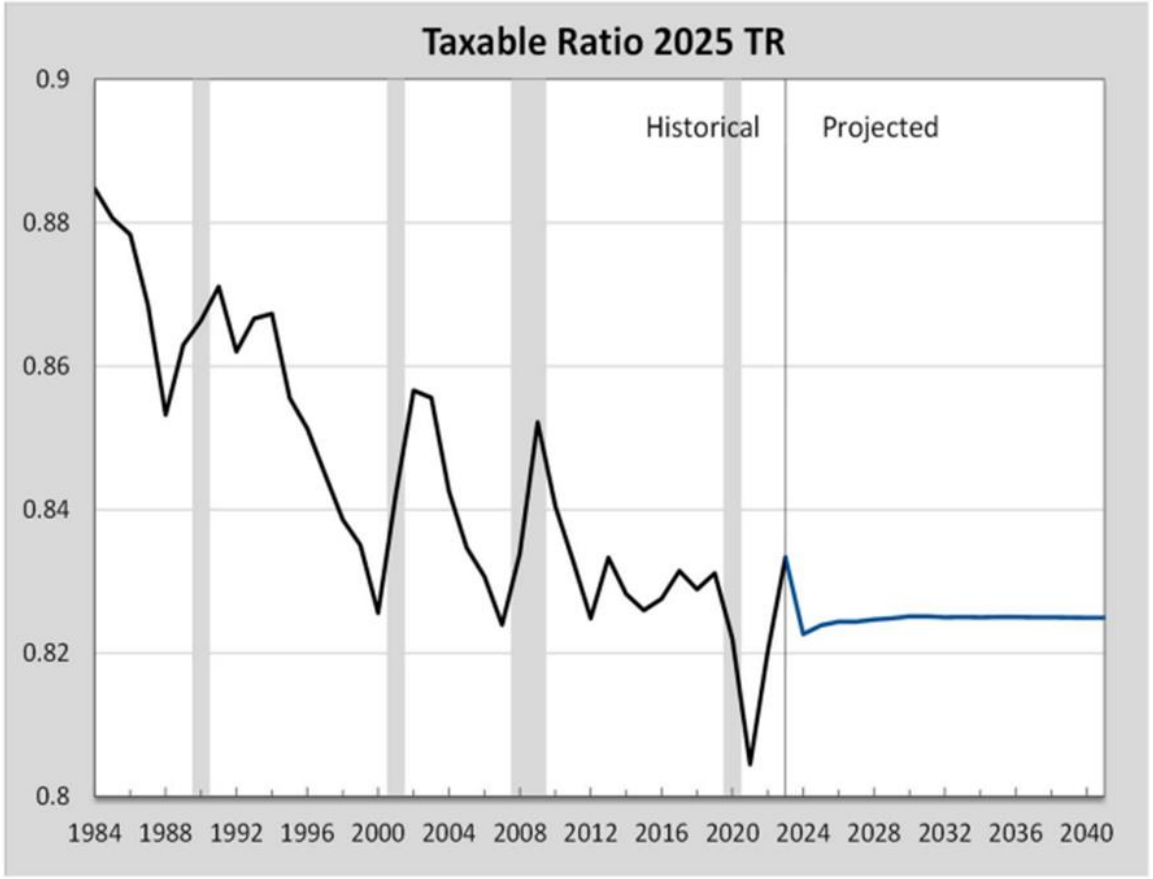
Challenges specific to the OCACT model

Standard measures of employment and earnings are only a starting point for projecting covered employment and taxable earnings. We also need to take into account:

- Earnings distribution and its evolution over time
  - Matters because of the contributions and benefit base (taxable maximum)
  - Affect the taxable ratio
- Sectoral composition of employment and earnings
  - Employees in some sectors (e.g. state and local gov't) are not covered by OASDI
- Detailed projections of immigration
  - Some immigrants are not authorized to work; some of them work and pay taxes
  - Those authorized to work but not covered by OASDI (e.g. students and exchange visitors)
- At-any-time annual employment (TE) vs. average weekly employment (E)
  - Macroeconomic models make no distinction between E and TE, but it is central for the trust fund projections
  - COVID showed how complex the relationship is (almost nobody accurately modeled TE in year 2020)

Two Ratios that Changed Unexpectedly



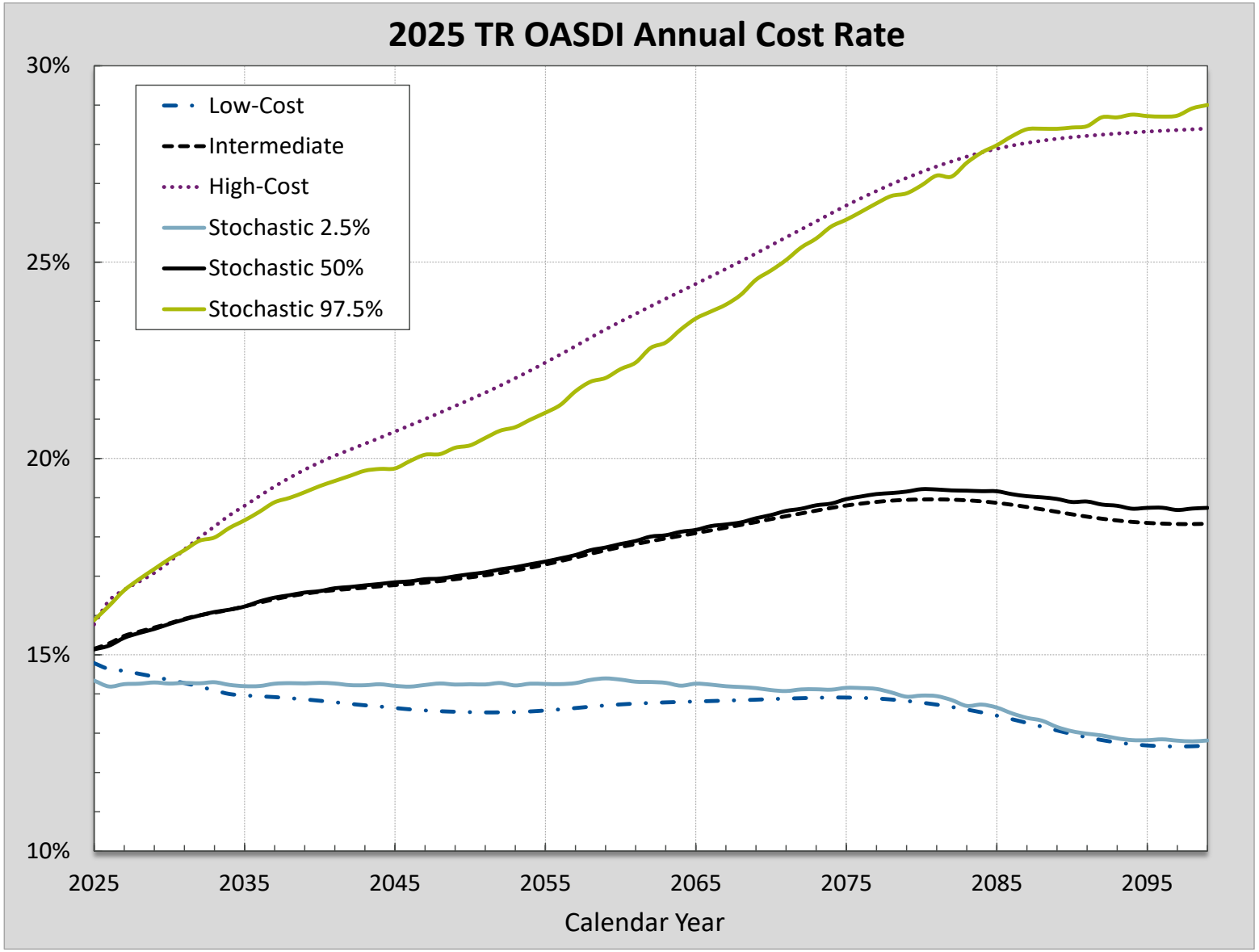


How do we address uncertainty?

- Three alternatives – low-cost, intermediate, high-cost
  - Change *all* assumptions in the direction of lower cost (or higher cost) to the program
- Stochastic simulation (independent of three alternatives)
  - Estimate a probability distribution of future outcomes of the financial status of the OASI and DI trust funds
  - Simulations allow key variables/assumptions to vary throughout the long-range period
- Sensitivity analysis
  - Vary *one parameter/assumption at a time* and compute the effect on the financial status of the OASI and DI trust funds and the actuarial balance

Uncertainty Illustrations

Stochastic simulations suggest that the high- and low-cost alternatives, in the aggregate, roughly coincide with the 95% range of outcomes.

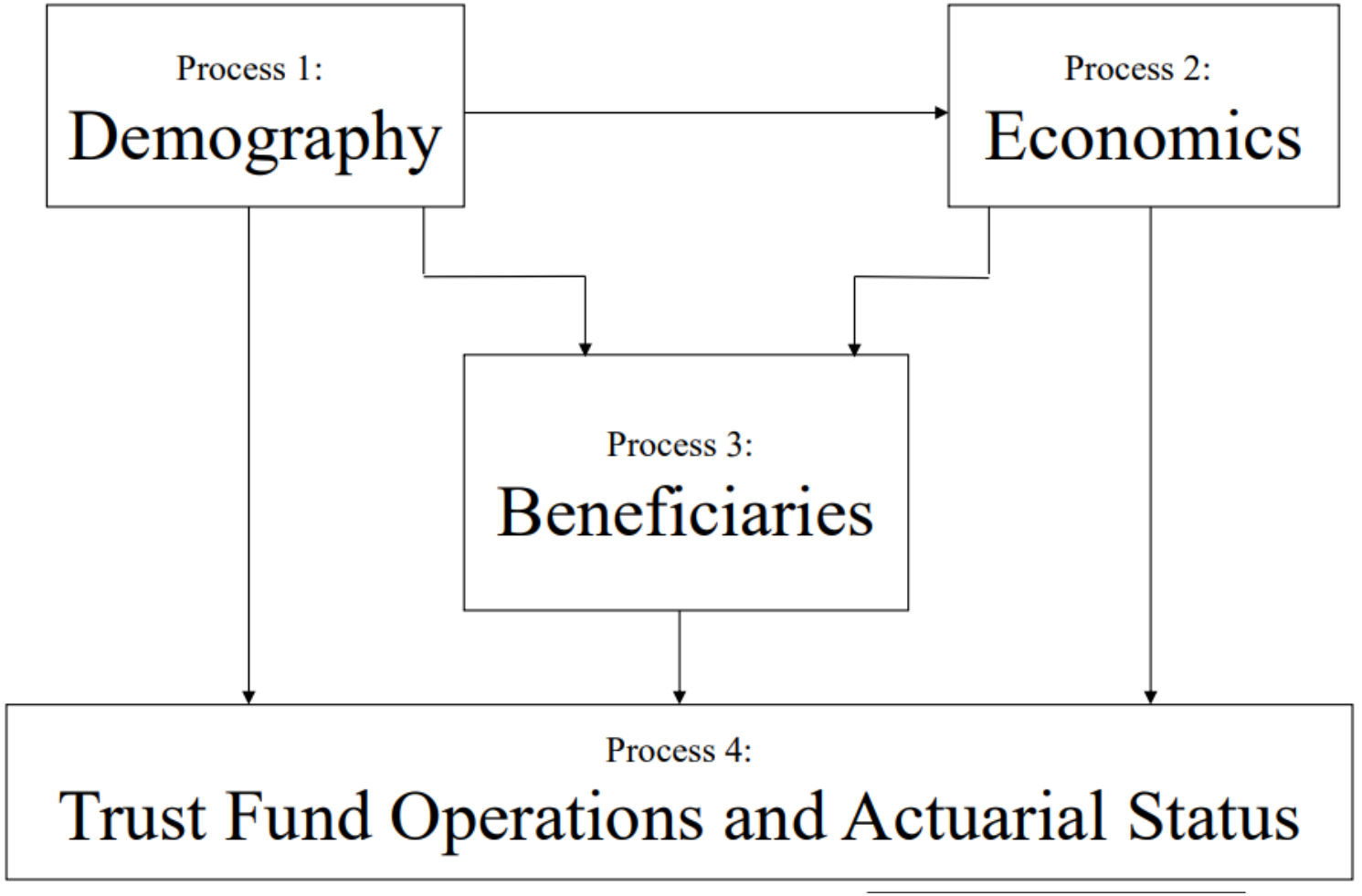


For More Information Go to http://www.ssa.gov/oact/

- There you will find:
  - The 2025 and all prior OASDI Trustees Reports
  - Detailed single-year tables for recent reports
  - Our estimates for comprehensive proposals and individual provisions
  - Actuarial notes
  - Actuarial studies
  - Extensive databases
  - Congressional testimonies
  - Presentations by OCACT employees

Additional Information

Long-Range OASDI Projection Methodology



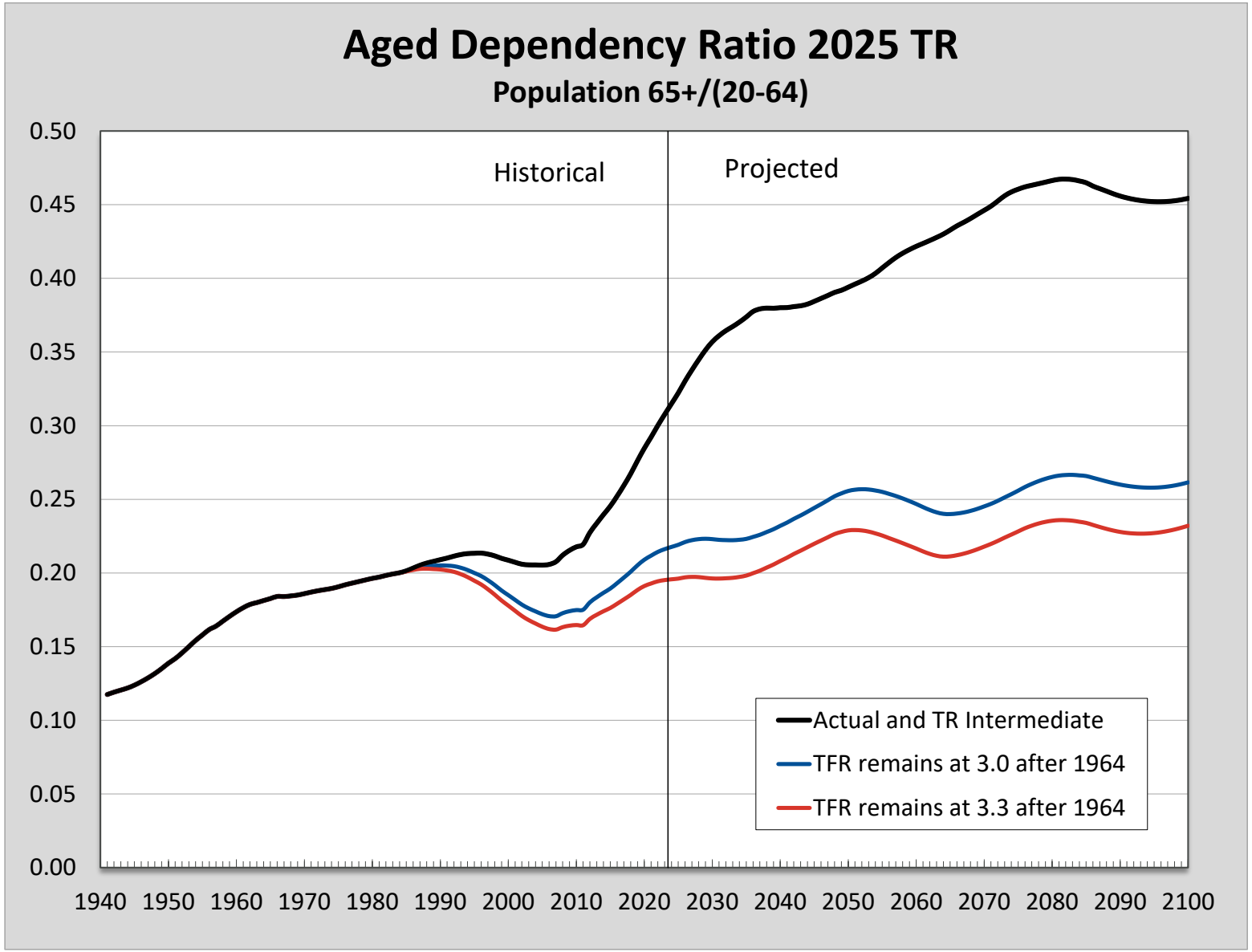
2025 Trustees Report Economic Assumptions

Assumption	2025 Trustees Report
Total-economy labor productivity (real GDP per hour worked), growth rate	1.63 percent (total economy); 2.00 percent (nonfarm business)
Labor share of output	61.2 percent ultimate ratio
Average hours worked per week, growth rate	-0.05 percent per year
Earnings as a share of compensation, growth rate	-0.09 percent per year
Consumer Price Index for Urban Wage Earners (CPIW), growth rate	2.40 percent per year
Price differential (GDP deflator growth less CPIW growth)	-0.35 percentage point
Share of OASDI covered earnings subject to OASDI taxes (taxable ratio)	82.5 percent in the 10th year of the projection period
Unemployment rate (ultimate)	4.5 percent (age-sex-adjusted)
Real interest rate on trust fund new issues	2.3 percent (for the last 55 years of the projection period)

Aging – Change in Age Distribution

This is the primary reason for increasing cost relative to payroll and GDP.

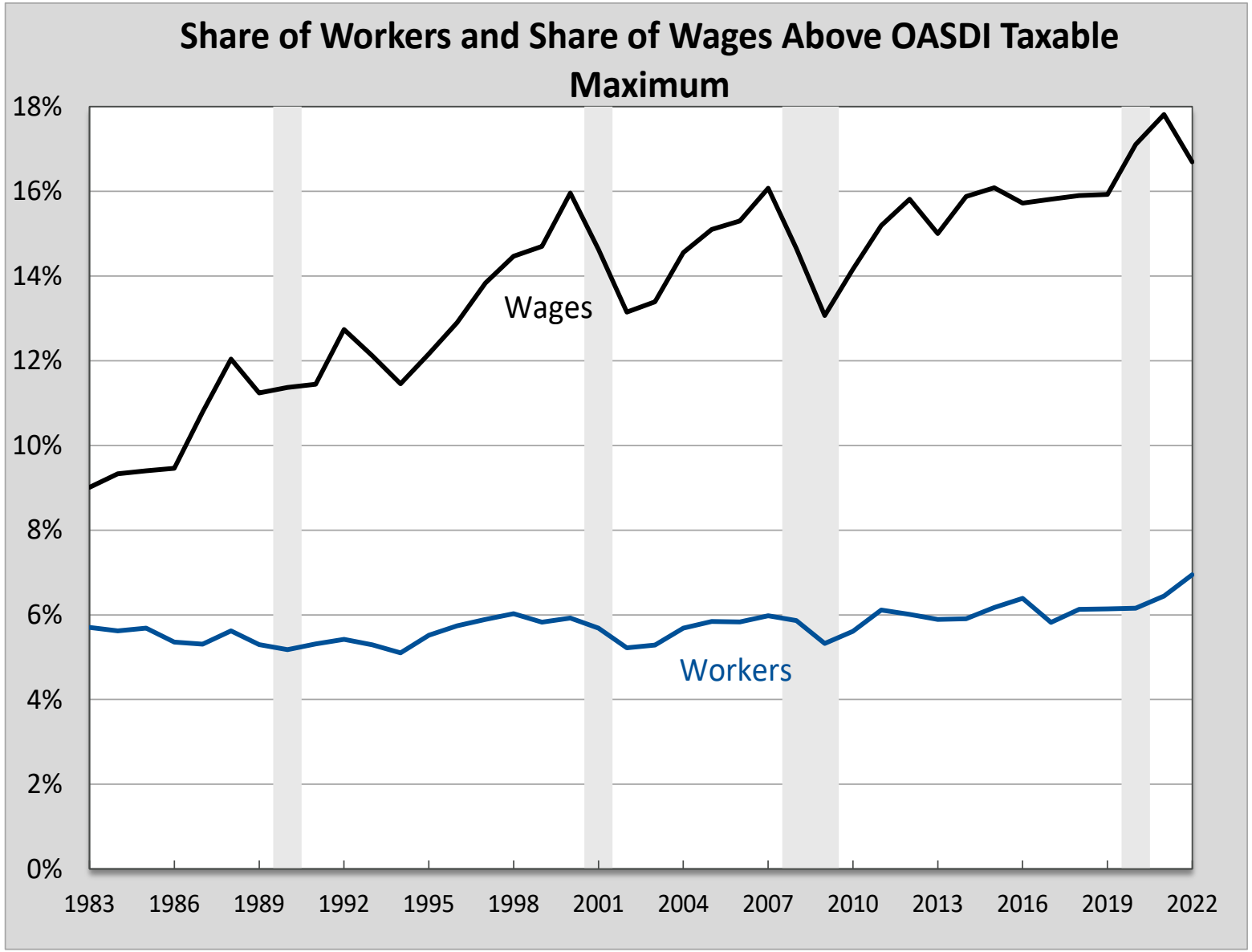
Mainly due to drop in birth rates.



OASDI-Covered Wages in Excess of the Taxable Maximum

The share of *workers* with wages exceeding the OASDI taxable maximum remained fairly stable around 6 percent.

The share of *wages* in excess of the OASDI taxable maximum has generally risen since 1983 and it stood at 16.7 percent in 2022 (the latest historical data available).



Share of Wages Earned by the Top 1% of Wage Earners

The trend and fluctuations in wages earned by the top 1% significantly influence the trend and fluctuations of all wages above the taxable maximum.