2011 Technical Panel: Overview of Assumptions, Methods, Presentation for 2010 TR Projections

SSA/OCACT

OCTOBER 1, 2010

Objective

- Inform Participants of Financial Status
- Inform Policymakers of Need for Change
- Evaluate in Context of Funding Mechanism
- Projections: Not Predictions or Forecasts
- Reasonable Assumptions
- Incremental Changes in Assumptions and Methods from One Report to the Next

Legislative Mandate

- Social Security Act Requires Annual Reports to the Congress

  - Last Year's Operations
  - Operations next 5 years
  - "Actuarial Status"

Social Insurance Uniqueness

- Universal coverage, or near universal
- No underwriting or antiselection
- Portability
- Open system with PAYGO financing
- Plan termination — not an issue
- Therefore:
  - Must project national population and economy

Projection Methods

- ## Segmented Model (http://www.ssa.gov/OACT/TR/2009/documentation_2009.pdf)
  - Detailed modeling of successive components
  - Linear development — not recursive
  - Uses readily available aggregated data
- ## Stochastic Model (http://www.ssa.gov/OACT/NOTES/s2000s.html)
  - Illustrates uncertainty — but limited by availability of data
  - High computational needs — past vs. future variance uncertain
- ## Microsimulation Model (coming to a website near you)
  - Micro interdependence — recursive
  - Ideal for distributional analysis
  - Limited by availability of interdependent data — **complexity**

Models Used for Social Insurance Projection

- **Segmented model best captures aggregate trends**
  - Individual components modeled to best use data
- Microsimulation model is useful derivative
  - Requires aggregate "guidance" of segmented model
- Stochastic model useful display of possibles
  - Requires central trend guidance of segmented model
- Feedback among models is critically useful
- Segmented model is base approach

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Segmented Model for US Program

- General population projection
  - Age, sex, marital status, immigration status
- Total economy projection
- Covered employment, earnings, taxes
- Insured population
- Beneficiary population
- Average benefit levels
- Financial operations — income, outgo, assets

Emphasis on What Matters

- **Social Insurance Plan Characteristics — US**
  - PAYGO financing — and valuation
  - Benefits reflect full-career earnings
  - Benefit formula NOT linear on career earnings
  - Benefits for spouses, children and survivors
  - Benefits price indexed after initial eligibility
   - » Decline relative to earnings levels

PAYGO Financing — and Valuation

- No borrowing authority — cumulative net income must be positive for solvency (cannot exhaust Trust Funds)

- Annual scheduled income and outgo important indicators of demand on economic base

- But Trust Fund status at any point in time determines ability to pay scheduled benefits
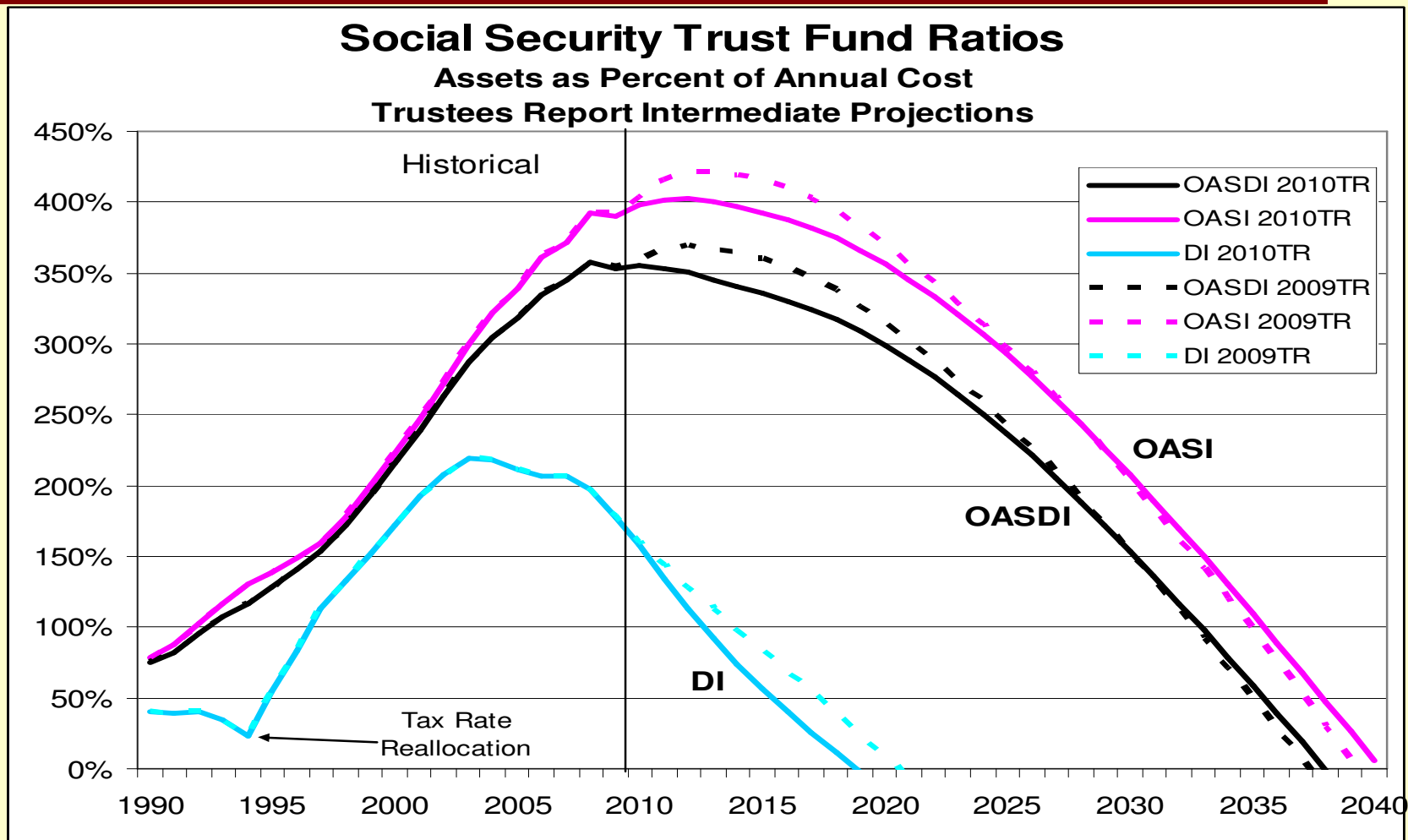
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US Social Security "Scheduled" Cost

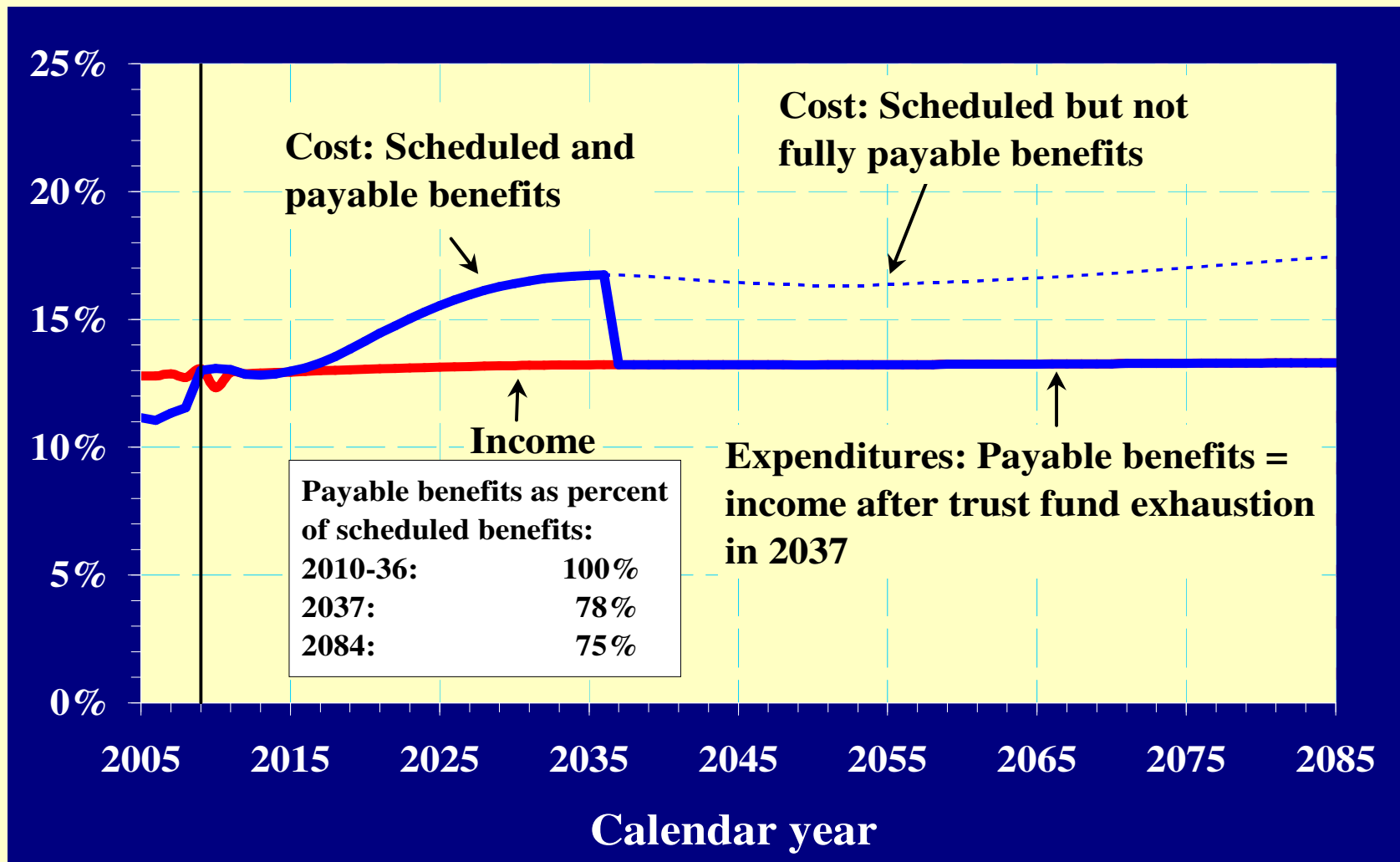**Scheduled Cost and Tax Revenue as Percent of GDP**
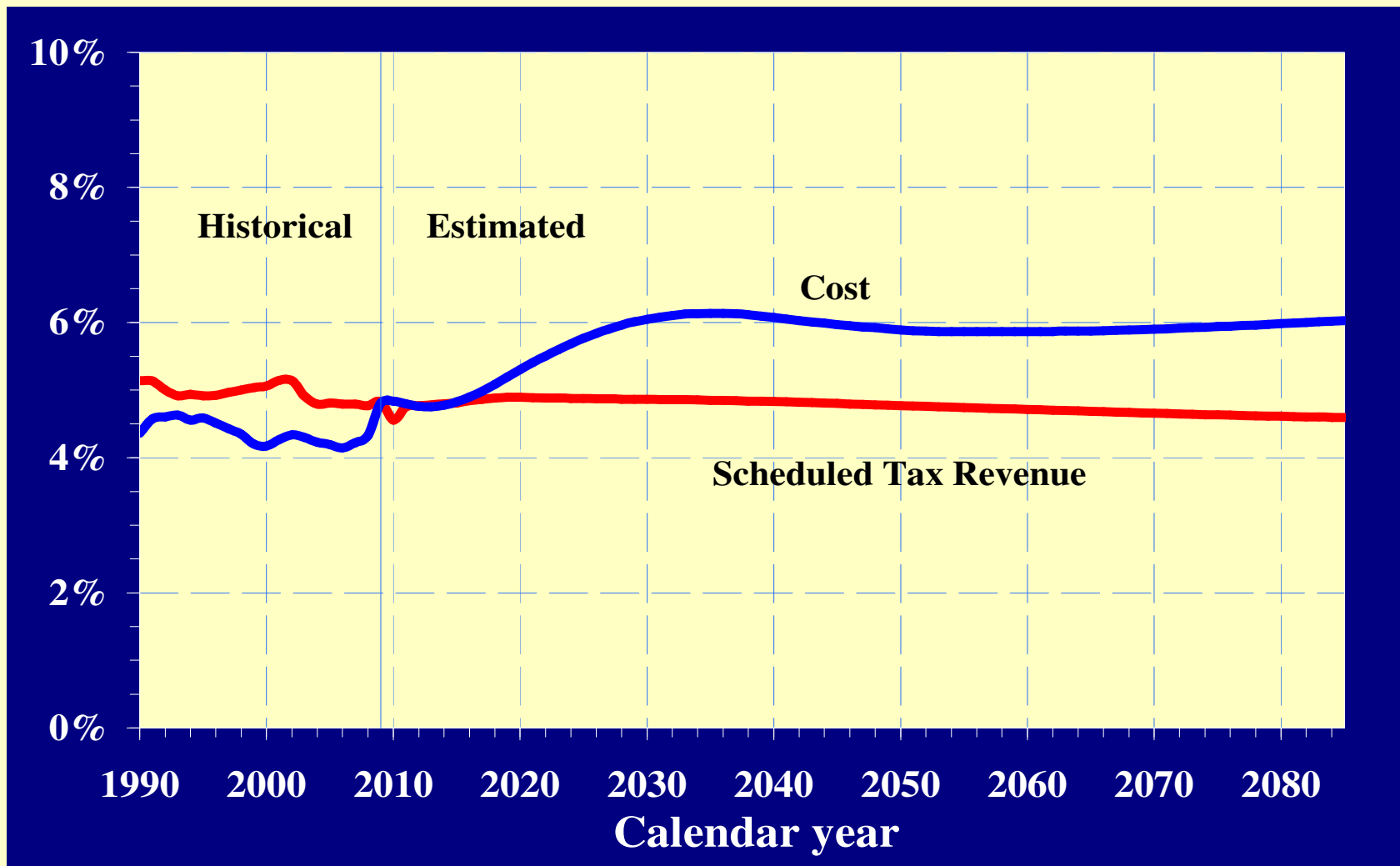
Solvency: OASDI Trust Fund Exhaustion 2037
Last 16 Reports (1995-2010) Varied from 2029 to 2042

Social Security Trust Fund Ratios
Assets as Percent of Annual Cost
Trustees Report Intermediate Projections

Implications of Trust Fund Exhaustion

Social Security Cost and Taxes as Percent of Payroll

Cost: Scheduled and payable benefits

Cost: Scheduled but not fully payable benefits

Income

Expenditures: Payable benefits = income after trust fund exhaustion in 2037

Payable benefits as percent of scheduled benefits:
2010-36:   100%
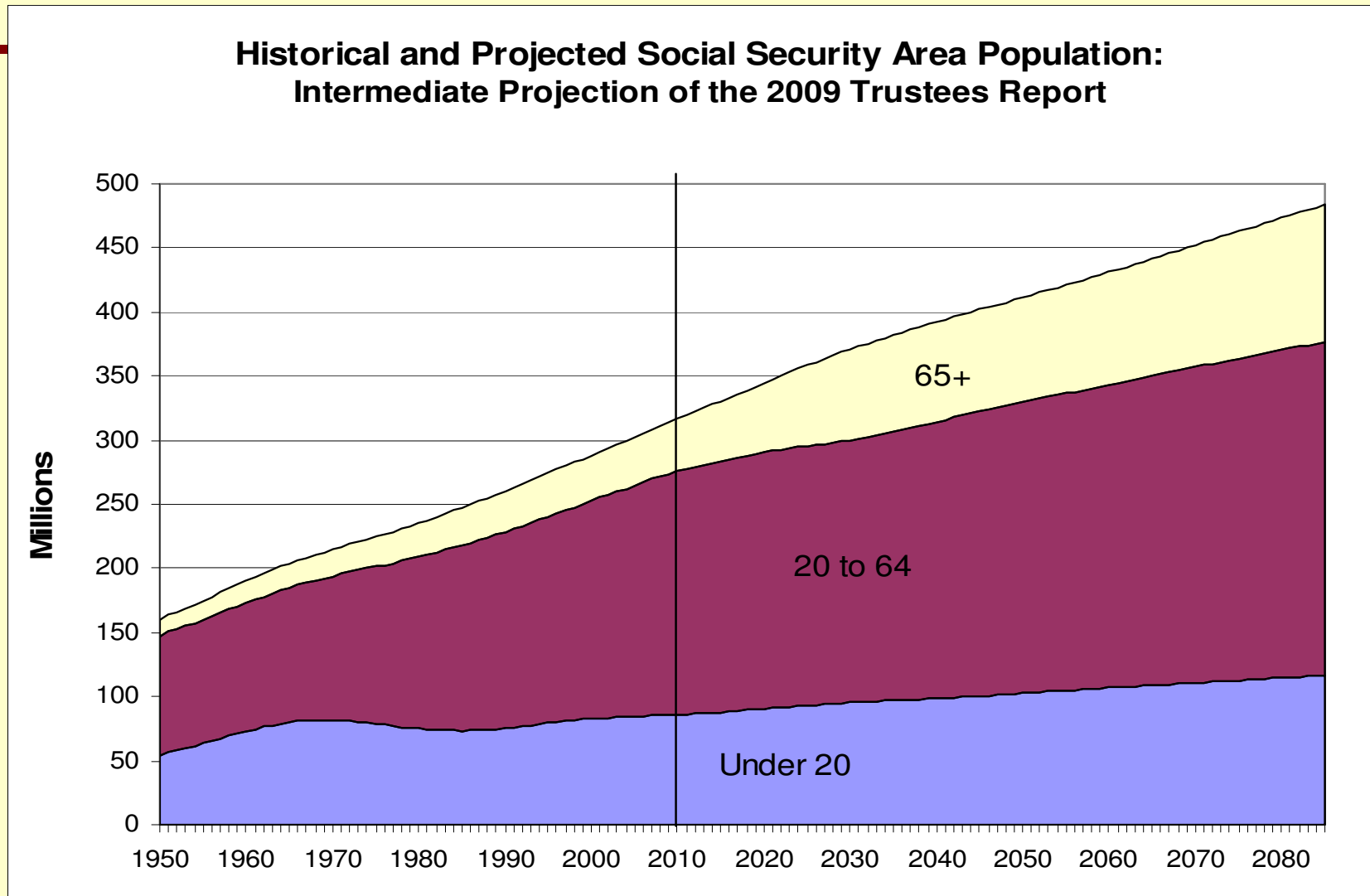2037:   78%
2084:   75%
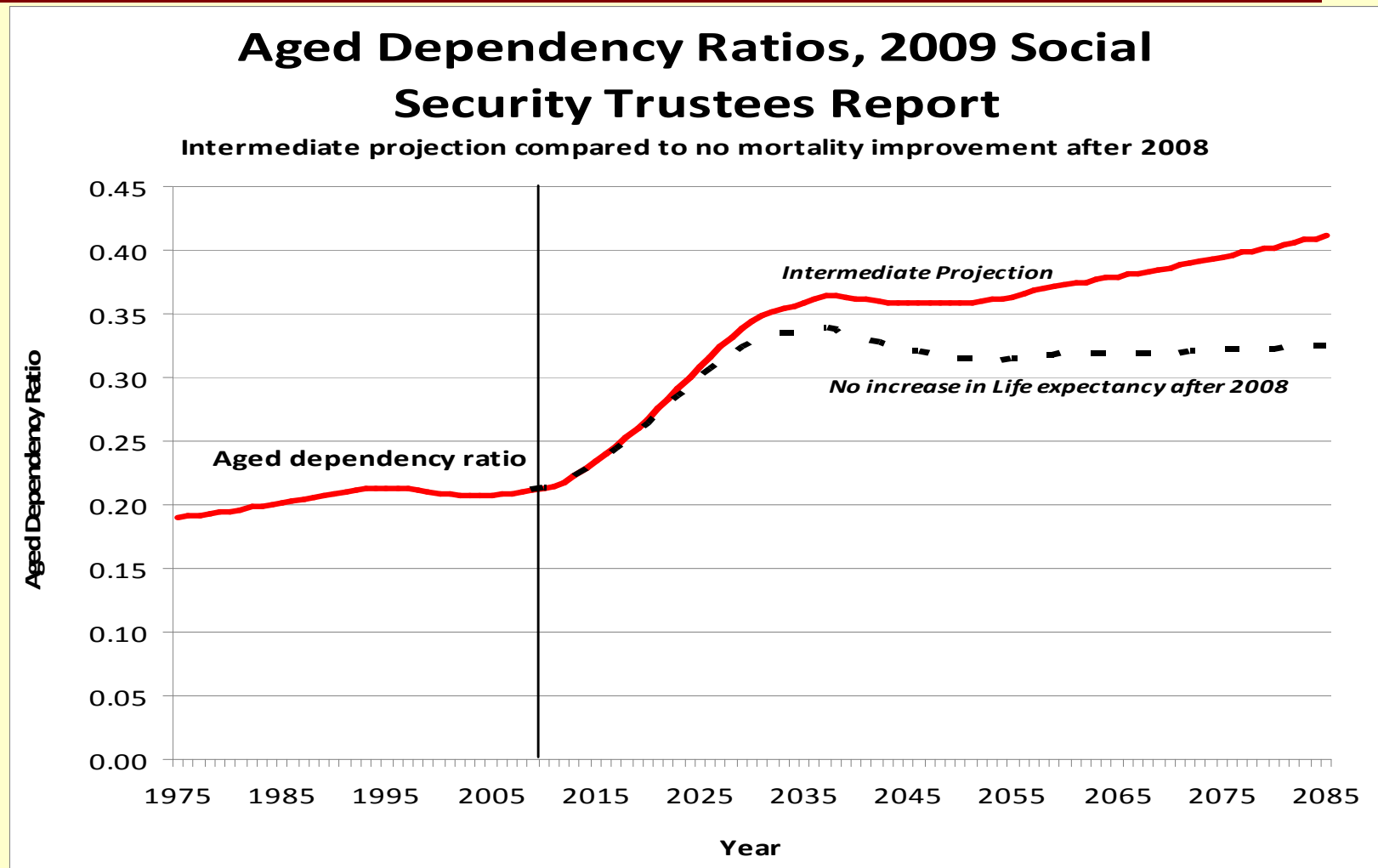
Calendar year

Demographics Drive Financial Status

- Population projection
  - Birth rates, mortality rates, immigration/emigration
  - Develop population by age, sex (and marital status)
- Age distribution of population determines
  - Aged dependency ratio
  - Ratio of workers to beneficiaries
  - Ratio of cost to payroll-tax base

Expansion of Aged Population

Historical and Projected Social Security Area Population:
Intermediate Projection of the 2009 Trustees Report

65+

20 to 64

Under 20

Millions

Birth Rates Shift Age Distribution until 2030; After 2030, Gradual Effect of Longer Life

Aged Dependency Ratios, 2009 Social Security Trustees Report

Intermediate projection compared to no mortality improvement after 2008

Lower Birth Rates Since 1965

U.S. Total Fertility Rate: With and Without Adjustment for Survival to Age 10

	Ave TFR	Ave AdjTFR
1875-1925	3.67	2.85
1926-1965	2.84	2.69
1966-1990	1.99	1.95
1991-2003	2.01	1.99
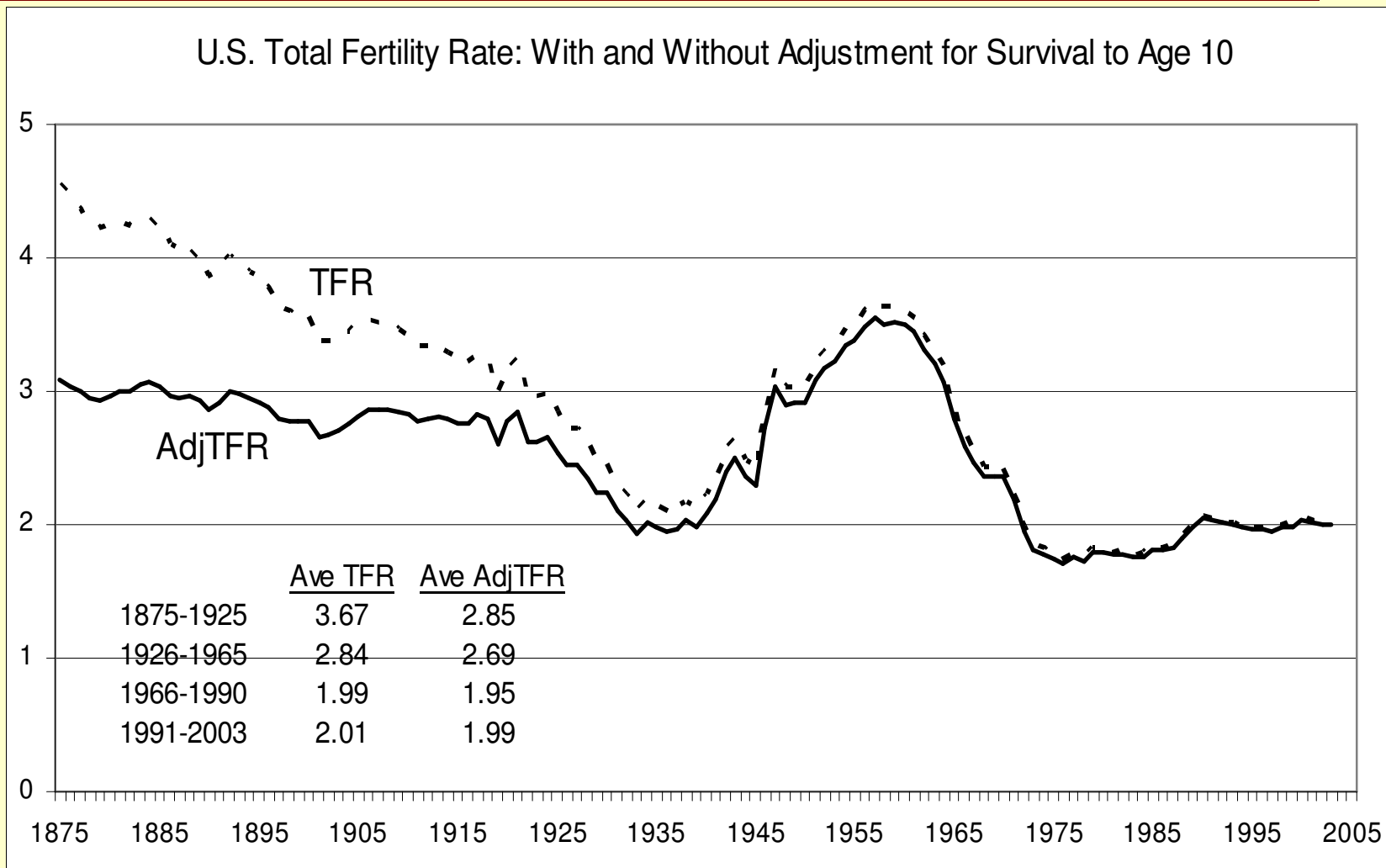
Age Distribution Drives PAYGO Cost

3.3 workers per beneficiary since 1975; just 2 after 2030

Covered Workers Per OASDI Beneficiary

Demographic Change

Program Matures

Low Cost

High Cost
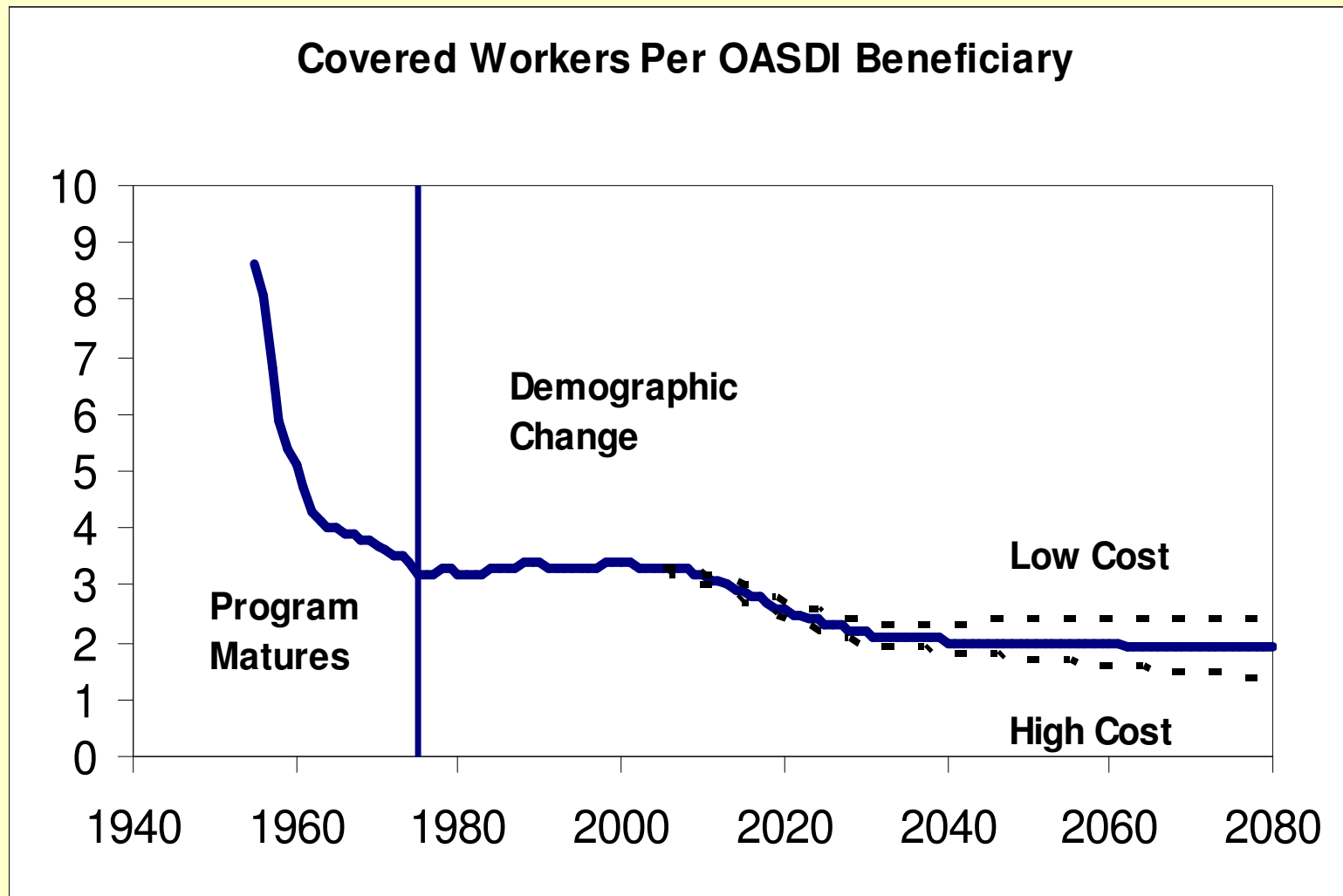
Immigration Detail—2008 Model

- Assume about 0.5M enter legally each year
- Assume about 1.5M enter "other" each year
- Assume about 0.5M "other" become legal
- Assume about 0.25M legal emigrate
- Assume about 0.6M to 0.7M "other" emigrate
- Net immigration: 0.75M legal per yr

  0.3M "other" per yr
- In contrast to about 4M births annually

Immigrant Participation

- Legal immigrants much like native population
- Other population
  - Temporary visas and overstayers
  - Undocumented
  - Assume employed at rate of general population
    - But greater proportion underground & suspense
  - Changing profile post 9/11/01
    - Fewer appearing as legal
    - Enumeration at Birth
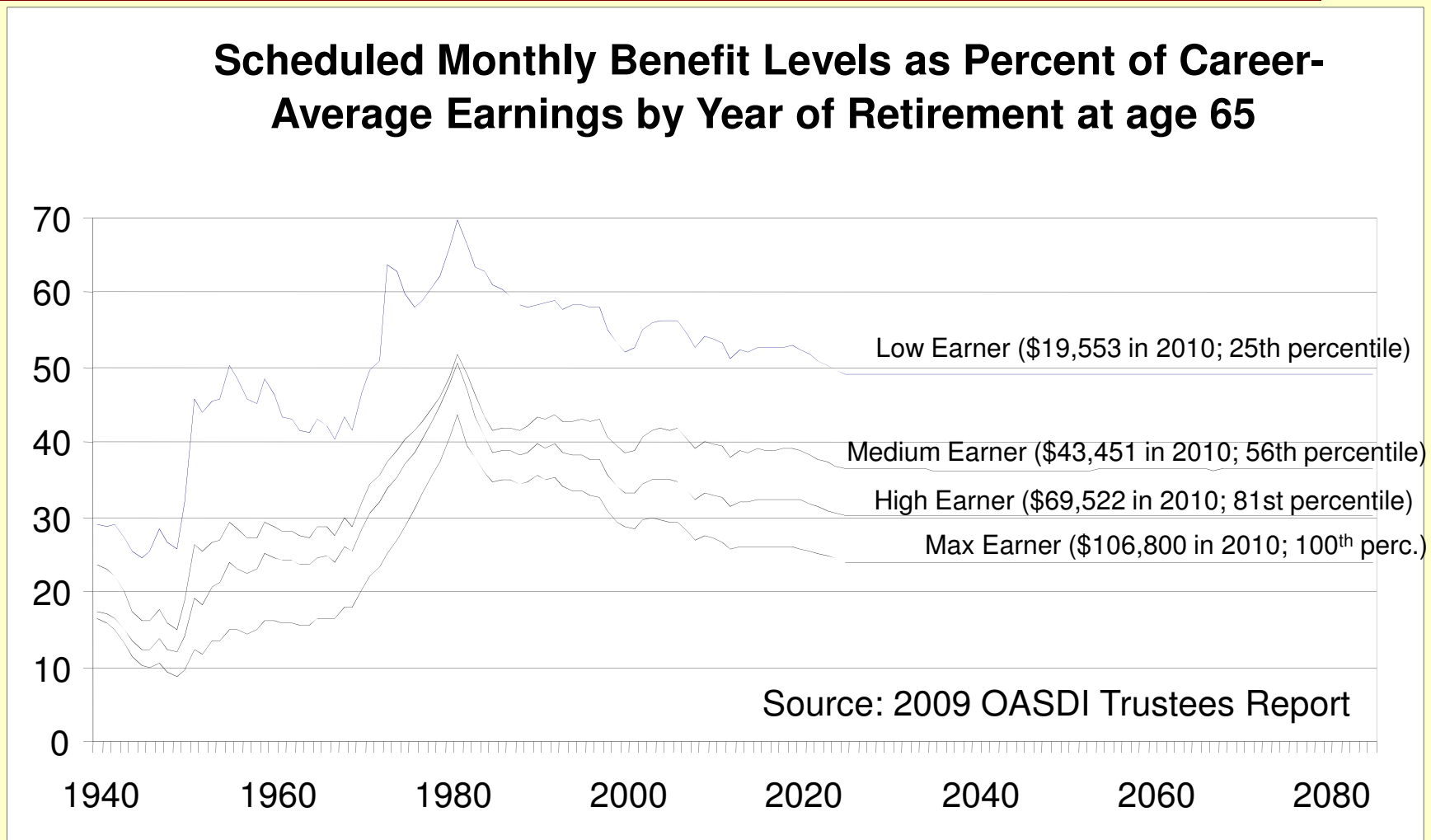
Economic Projections

- National labor force follows population by age/sex
- Covered employment is a fairly level share by age/sex
- Projected output (GDP) per hour grows 1.7%/yr
- Average annual real earnings rises 1.2%/year
- Average earnings increase NOT highly critical
  - Average tax/worker and average *new* benefit rise same
  - BUT, lifetime distribution of earnings (AIME) important because of non-linear benefit formula (PIA)
    - » Important modeling challenge with substantial leverage on projected cost

Economic Projections

- Average earnings reflect—
  - Labor productivity (output per hour)
    - Capital, technology, education, skill
  - Average hours and weeks worked
  - Ratio of compensation to GDP
  - Ratio of earnings to compensation
  - Ratio of covered to total earnings
  - Ratio of taxable to covered earnings

Initial benefit levels stabilize relative to earnings levels

Scheduled Monthly Benefit Levels as Percent of Career-Average Earnings by Year of Retirement at age 65

Low Earner ($19,553 in 2010; 25th percentile)

Medium Earner ($43,451 in 2010; 56th percentile)

High Earner ($69,522 in 2010; 81st percentile)

Max Earner ($106,800 in 2010; 100th perc.)

Source: 2009 OASDI Trustees Report

Economic Projections

- Real earnings increase IS important
  - Benefit after initial eligibility rises only with price level
  - Thus, benefit falls further behind current earnings level with increasing age
  - So as beneficiary age distribution extends older, average benefit falls further below current average earnings level
    - » Partial mitigation for decreased workers per beneficiary

Benefits decline relative to average earnings after eligibility

OASI Retirement Benefit Change After 62 Relative to Average Wage Level (Worker Standard of Living)
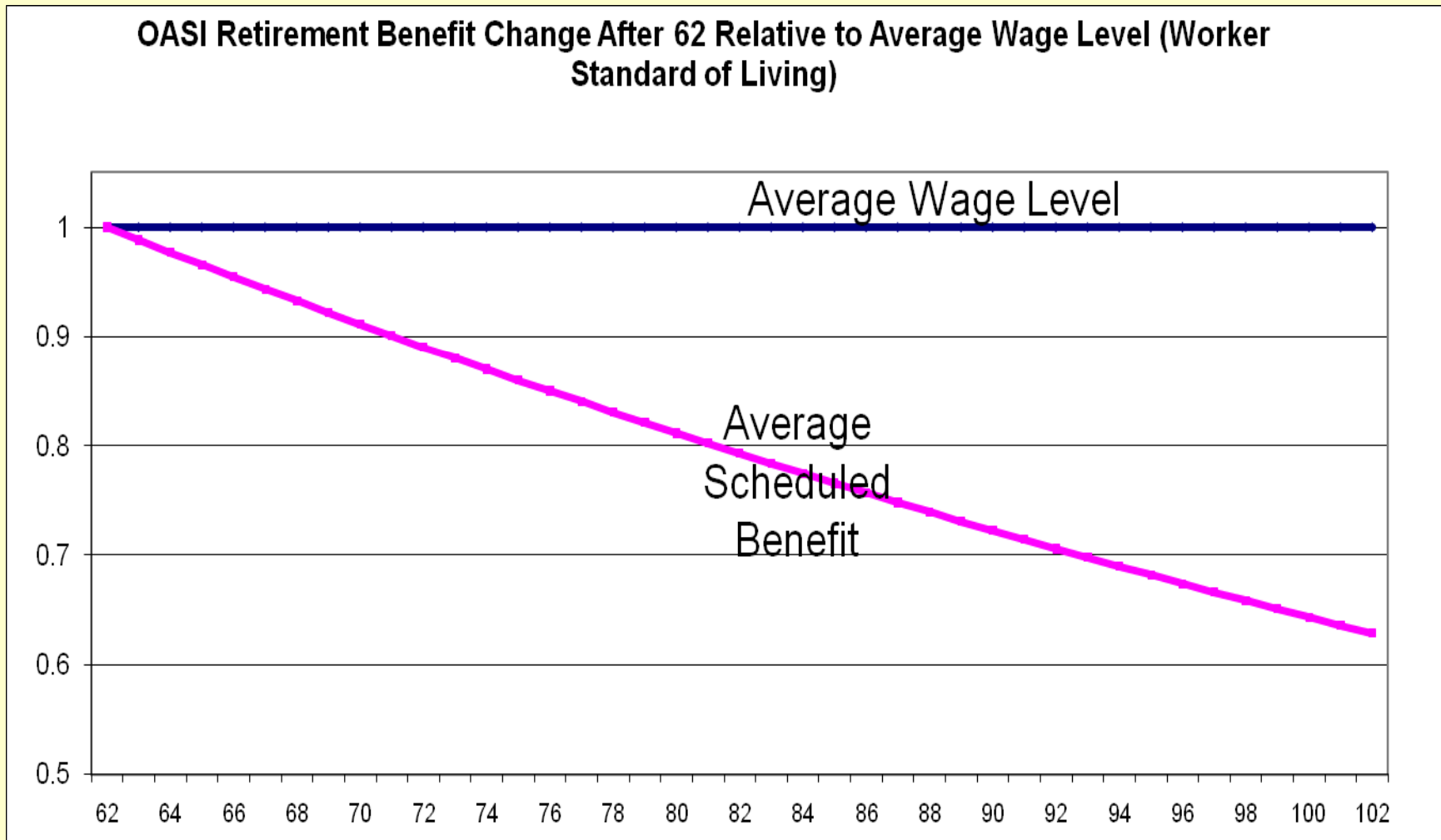
Economic Projections

- Real Interest Rate on Trust Fund Assets (2.9%)
  - Matters because cumulative net income is required
  - Target is "sustainable solvency"
    - » Positive trust fund assets throughout 75 years
    - » Trust fund assets as percent of annual outgo stable or rising
- Interest can supplement taxes
  - With real interest rate (2.9%) > real growth in cost (1.7%) over the period 2035 to 2085
  - Then "excess" interest of 1.2% lowers required taxes

Programmatic Projections

- Insured
  - Follow population and covered employment
- Beneficiaries—primary workers
  - Follow insured, and the Normal Retirement Age
  - Retirement (aged) beneficiaries follow directly
  - Disability incidence and termination important
    » Project increasing disability prevalence by age
      - Small increase in incidence rates
      - But higher incidence at younger ages than in past
      - Death termination rates decline at same rate as overall
      - High uncertainty about disability projections

Programmatic Projections

- Average benefit levels critical and difficult
  - Depend on dispersion of earnings years and levels
  - Non-linear benefit formula
- Average benefits change as cohorts age
  - COLAs
  - Post entitlement factors
    - Differential mortality and post entitlement earnings
- Method—Successive cohorts & microsimulation

Programmatic Projections

- Auxilliary beneficiaries
  - Spouses, children, and survivors
- Dual entitlement excess benefits
  - Spouse relative earnings
- Maximum family benefits
- Government Pension Offset and Windfall Elimination Provision
- Earnings Test

Bottom Line Message to Policymakers: Rising Cost Above Tax Income Will Exhaust Trust Fund Reserves and Force a Sudden Drop in Benefits—*Unless They Act*

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