Social Security Actuaries’ Use of Vital Records

NCVHS Hearing on Next Generation Vital Statistics

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Vital Statistics (Events)

• Levels and trends determine the size and composition of the future population
  – Our projections for Social Security, Medicare, SSI, Medicaid, plus OMB long-term projections

• Future costs and revenues flow directly or indirectly from population dynamics
  – Average earnings and benefits rise similarly
  – So changes in population distribution (by age, sex, etc) determine cost relative to financing sources
    • For entitlements and all economic units
Aged Dependency Ratios, 2017 Trustees Report
Population 65+ / (20 to 64)

Historical

Projected

Year

Aged Dependency Ratio


High-cost

Intermediate

Low-cost
Aged Dependency Ratios, 2017 Trustees Report
Population 65+ / (20 to 64)

- Actual and TR Intermediate
- TFR Remains at 3.0 after 1964
- TFR Remains at 3.3 after 1964
Social Security Cost as Percent of Taxable Payroll, 2017 TR

Calendar year

Historical

Estimated

OASI

DI

High-cost

Intermediate

Low-cost

OASI cost rates

DI cost rates
Vital Events that Matter

1) Births
2) Deaths
3) Marriage and Divorce
4) Immigration and Emigration
5) Disability
1) Births

• Compute age-specific birth rates

  – Births from NCHS by age of mother
    • Reported by 50 States plus DC
  – Numbers of women from Census Bureau
    • Estimated for 50 States plus DC
Historical and Projected Total Fertility Rates, 2017 TR

Historical
2) Deaths (Mortality)

- Data under age 65
  - NCHS deaths by cause for 50 States and DC
  - Census population for 50 States and DC
  - Relative underreporting issues

- Data age 65 and over
  - Medicare deaths and enrollments (limited to OASDI beneficiaries)
  - Consistent deaths and exposures
  - Minimized age misstatement
  - *NCHS distribution by cause of death*
Projection of Mortality

- Assumed rates of decline by age-group, sex, and cause—closely monitor rates by age and sex
- Assume generally slower decline than past
- But for 85+ faster decline than in recent years
- Reduced “age gradient” for future mortality decline
- Very gradual deceleration is effected for all ages through use of different ultimate rates of decline by cause
Declining Age Gradient and Rate of Decline

**Long-Term Historical Average Annual Rates of Reduction in Mortality 1929 to 2009**

- Canada
- UK
- US

**Recent Historical Average Annual Rates of Reduction in Mortality 1982 to 2009**

- Canada
- UK
- US

**Ultimate Projected Annual Reduction in Mortality in 2013**

Projected for 2030-2080

- Canada
- UK
- US
3) Marriage and Divorce

• Critical to benefits (and employment)
• NCHS
  – Age distribution through 1988, provisional through 1995, and totals through 2014
• ACS
  – Age distribution for marriages, beginning in 2008
• Data from various states
  – Age distribution for divorces, for some recent years
For More Information...

http://www.ssa.gov/oact/

- Annual Trustees Reports
  https://www.ssa.gov/oact/TR/index.html

- Documentation of Trustees Report data & assumptions

- Historical and projected mortality rates
  https://www.ssa.gov/oact/HistEst/DeathHome.html

- Actuarial Notes on population flows and characteristics
  https://www.ssa.gov/oact/NOTES/actnote.html