

Longevity and Public Finance

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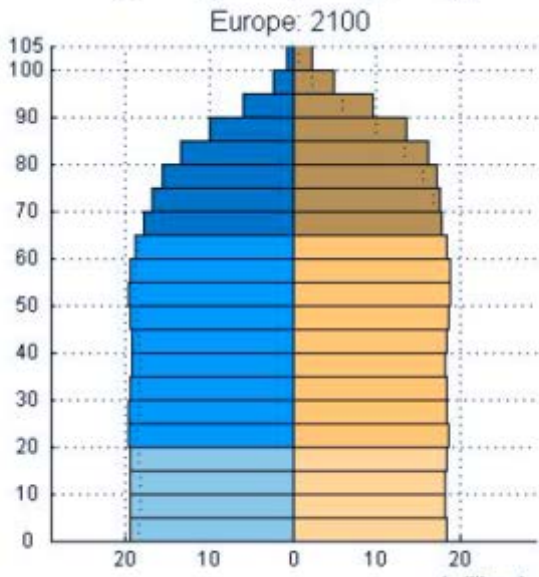
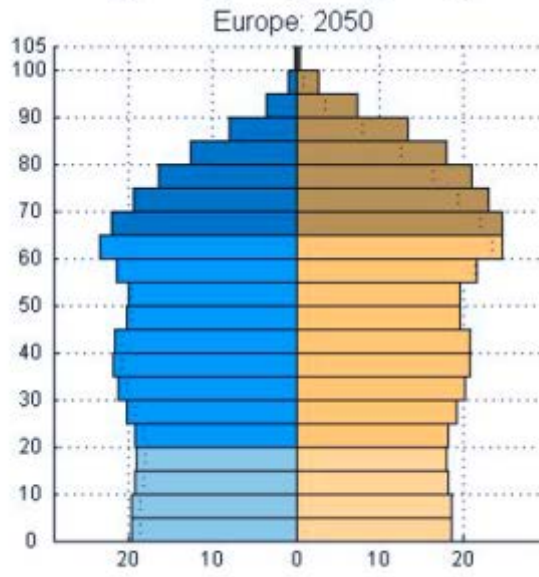
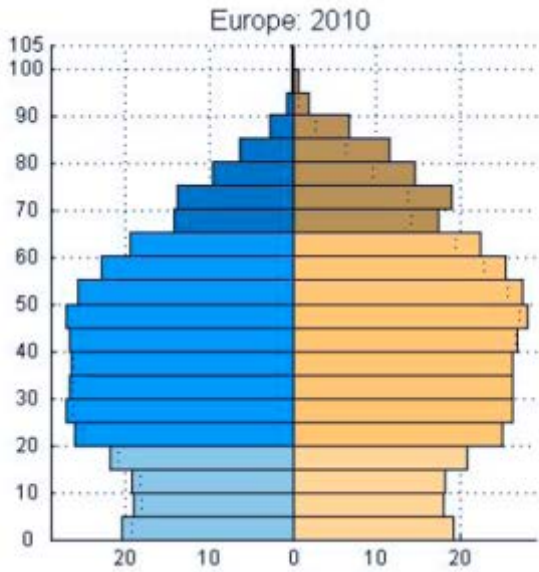
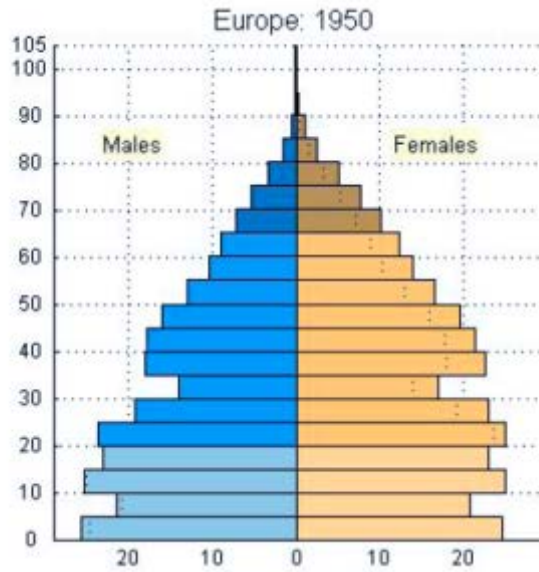
Stanford University

*Based on work by Dana Goldman and many other people on
the US and Japan Future Elderly Model Projects*

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Population Aging Around the World

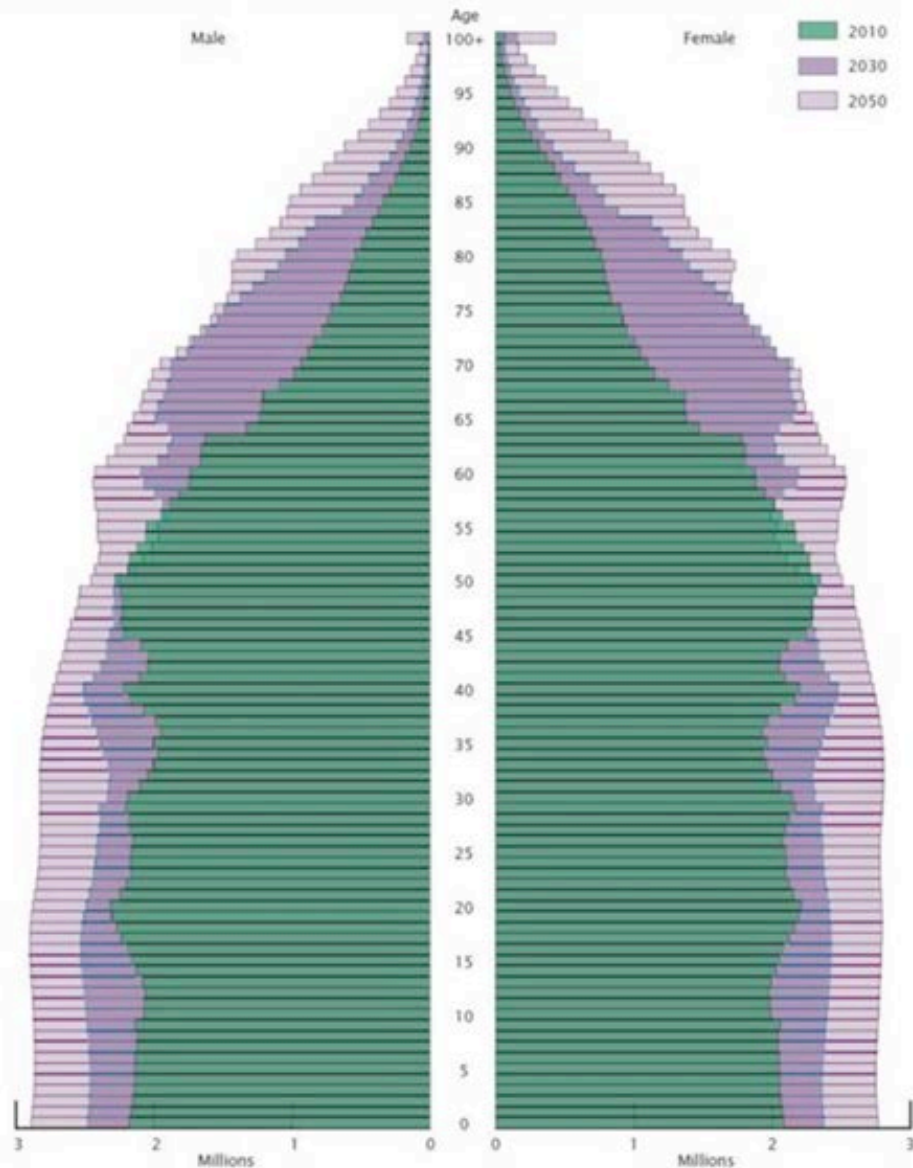
- Like Japan, China, and Europe, the American population is aging
- The reasons for population aging include
 - Decreased fertility
 - Increased life expectancy
- The US population is aging more slowly than the rest of the world, but still aging very quickly



European
Population
Pyramid, 2010-
2100

(millions)

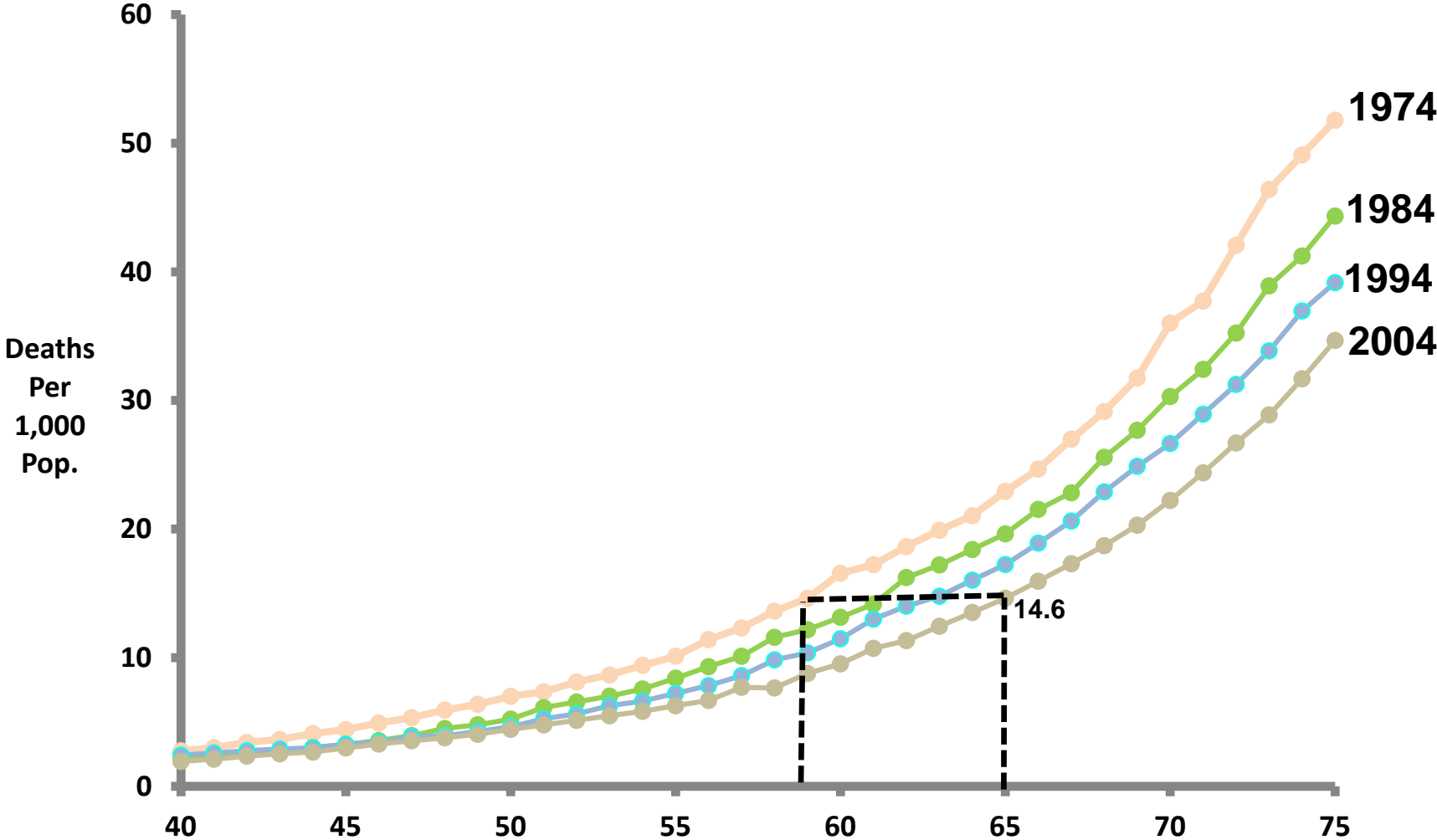
Figure 1.
Age and Sex Structure of the Population for the United States: 2010, 2030, and 2050



Source: U.S. Census Bureau, 2008.

US Population Pyramid, 2010-2050

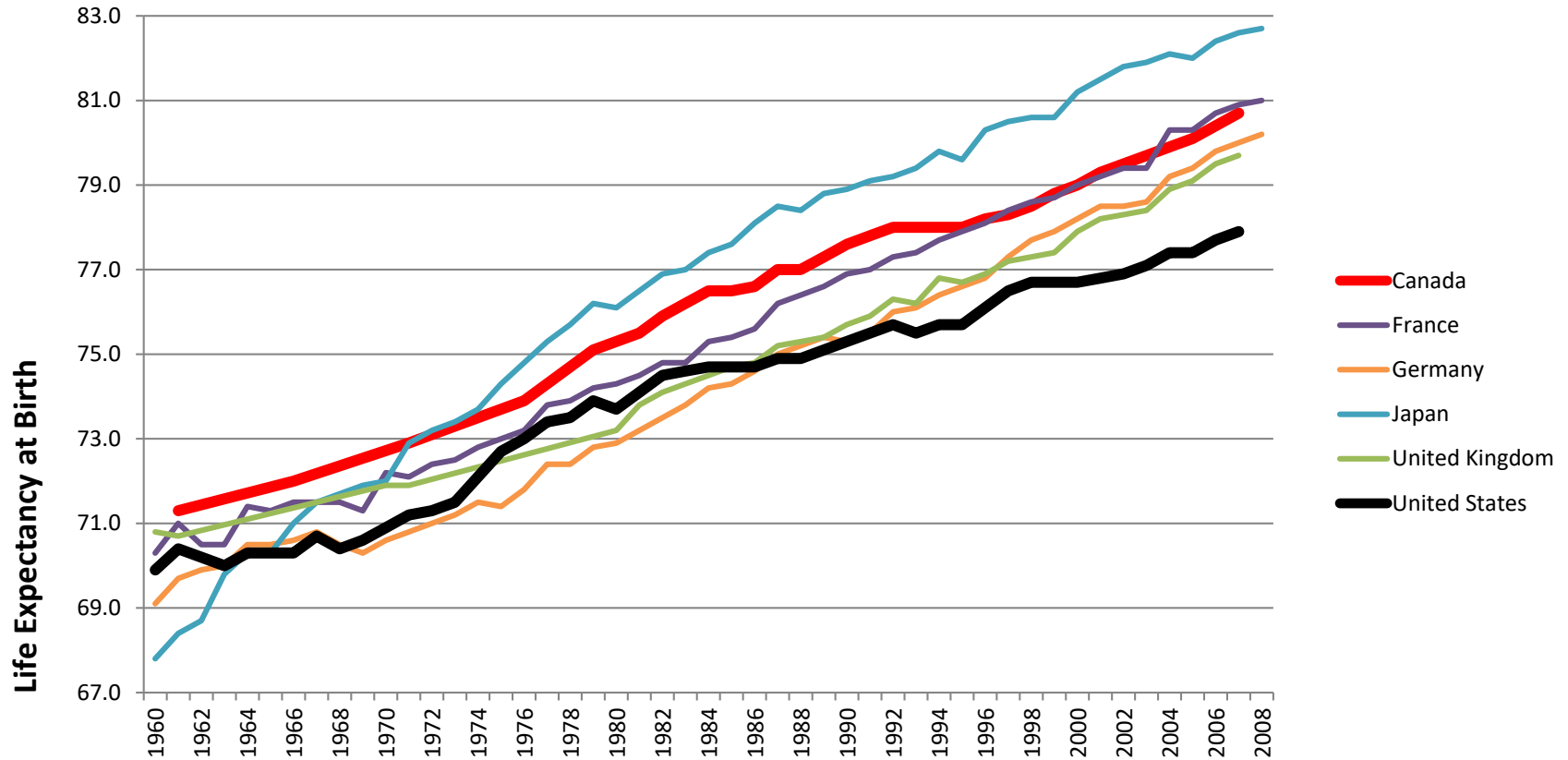
Improvements in US Mortality



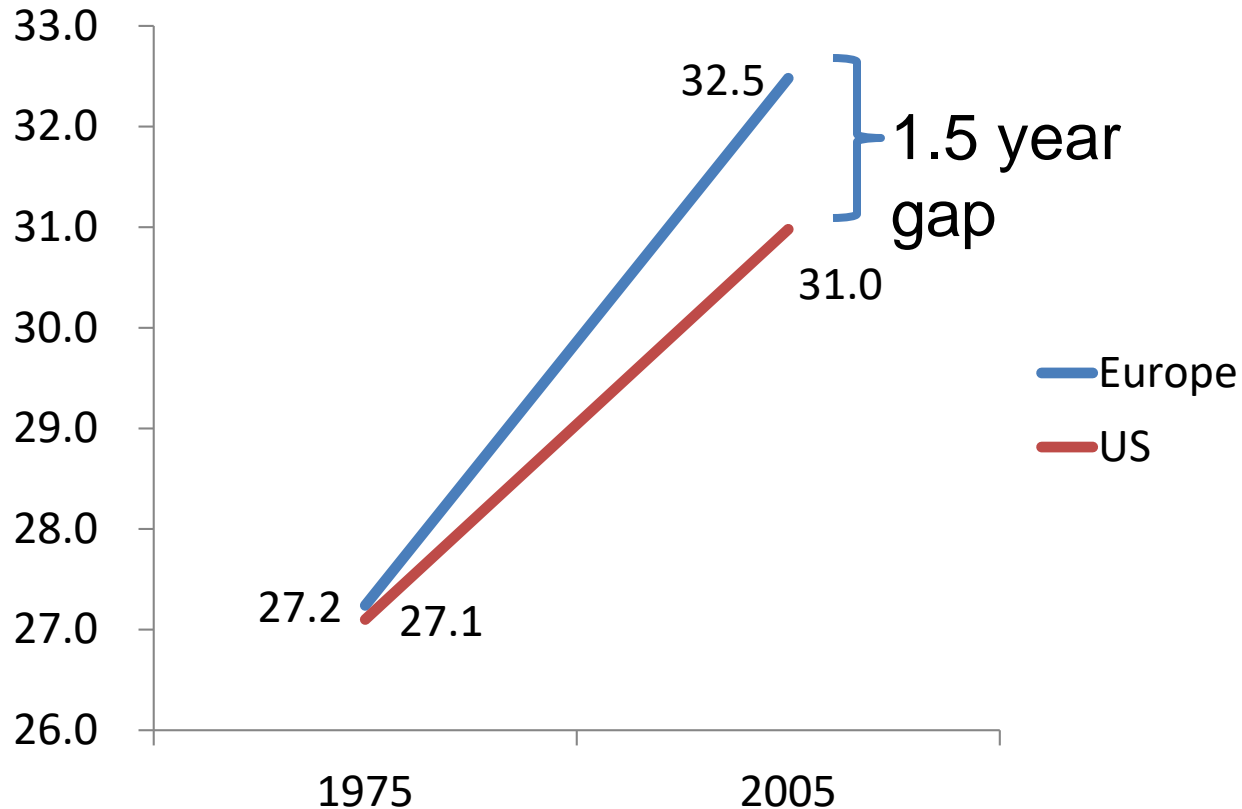
Source: Martin, Freedman, Schoeni, 2008.

The United States is Falling Behind...

Life Expectancy at Birth, OECD

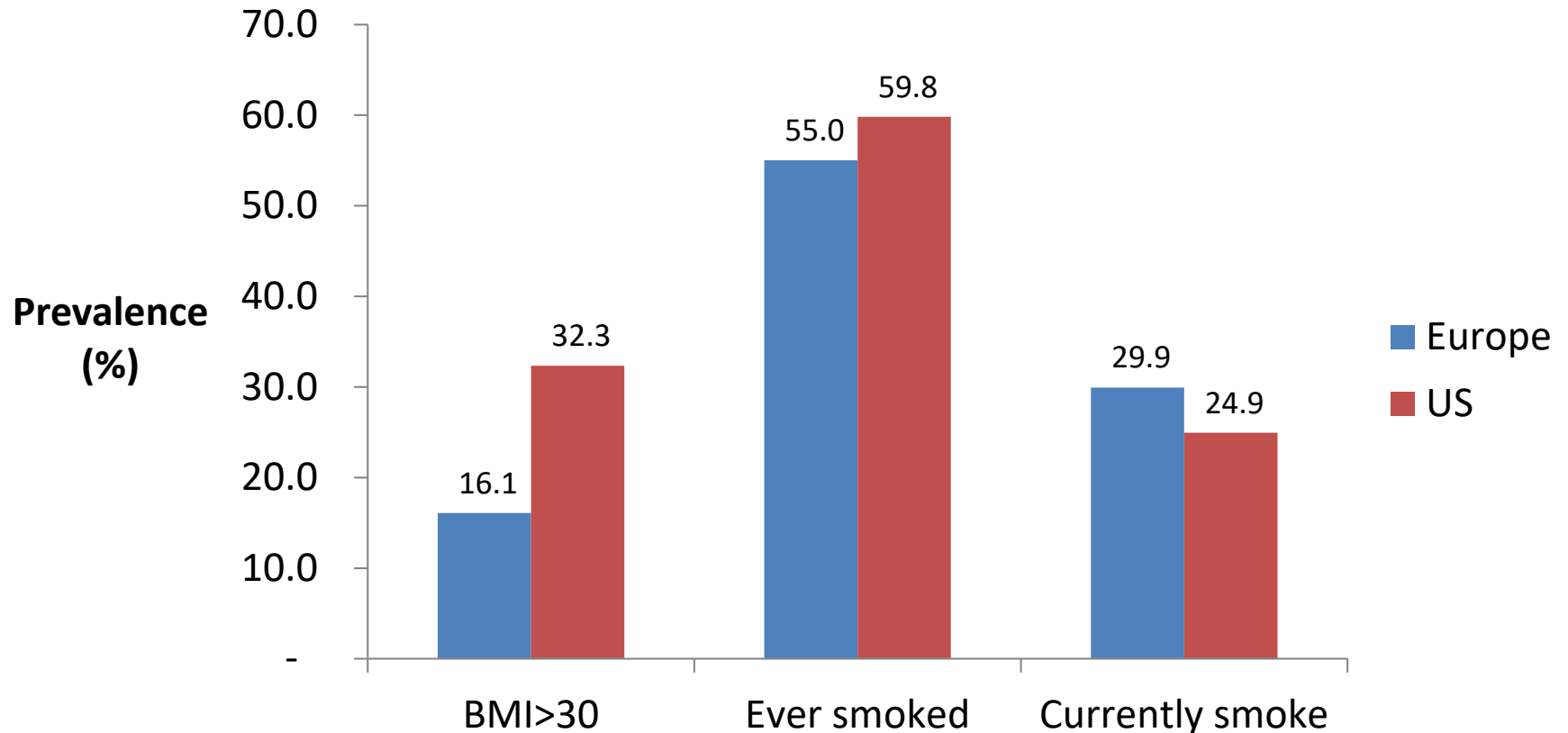


...Especially at Older Ages



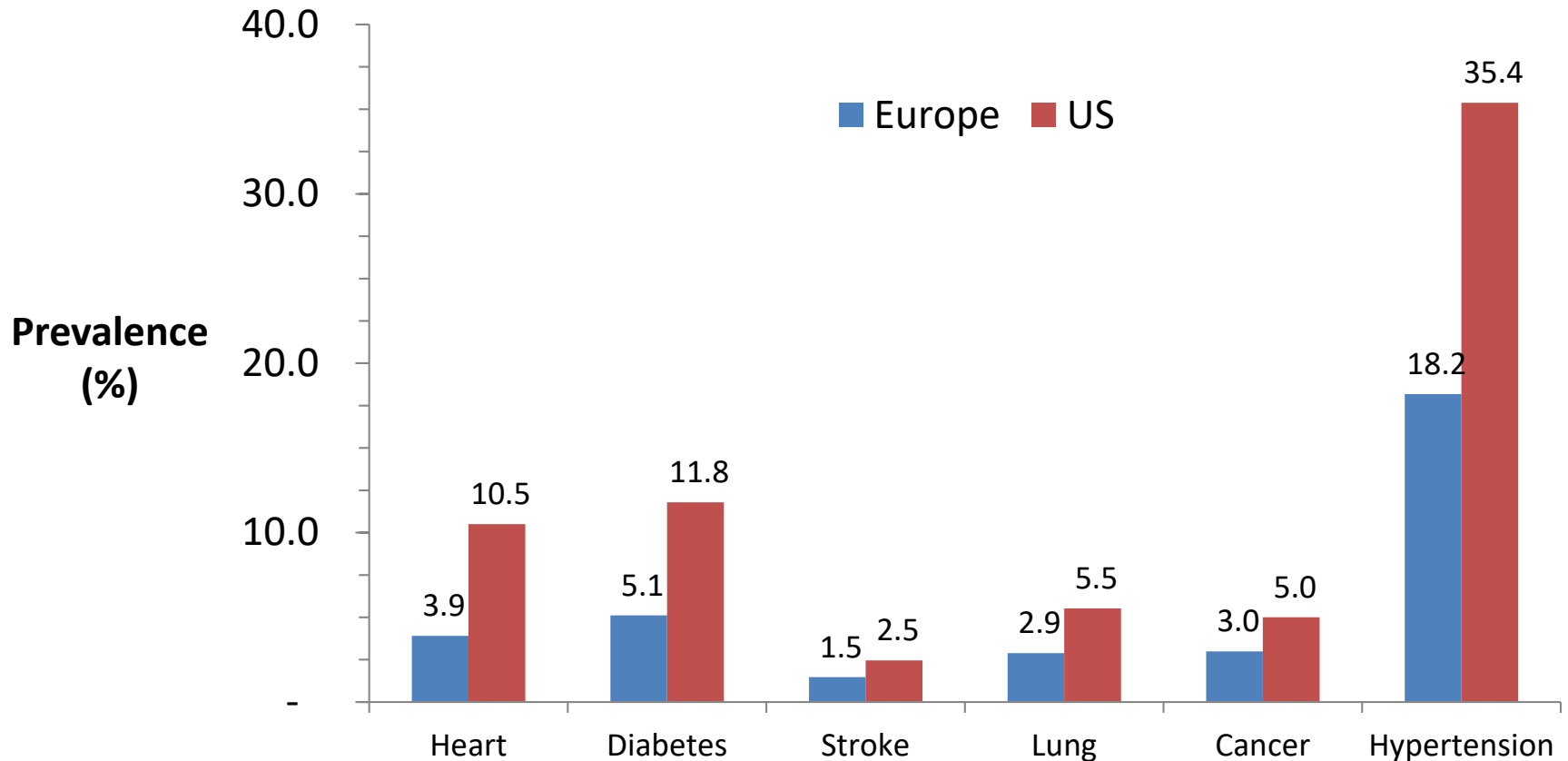
Notes: Data come from the Human Mortality Database period life tables for 1975 and 2005. European countries are Denmark, France, Italy, The Netherlands, Spain and Sweden. Weighted average using population size age 50.

Unhealthy Behaviors Play a Role...










Notes: Comparison of Health and Retirement Study 20 04 and Survey of Health Ageing and Retirement in Europe 2004 (Denmark, France, Germany, Greece, Italy, Netherlands, Spain, Sweden). Data from Austria not included because of lack of appropriate population weights and Switzerland because of low response rate and small sample. Sample weights used.

...With Resulting Disease in United States



Notes: Comparison of Health and Retirement Study 2004 and Survey of Health Ageing and Retirement in Europe 2004 (Denmark, France, Germany, Greece, Italy, Netherlands, Spain, Sweden). Data from Austria not included because of lack of appropriate population weights and Switzerland because of low response rate and small sample. Sample weights used.

10-Year Trends in Health for 40-59 Year Olds

<u>Condition</u>	<u>1997-98</u>	<u>2005-06</u>	<u>Change*</u>
Musculoskeletal	47	43	
Cardiovascular	30	32	
Obesity	26	33	
Vision	11	10	
Lung	10	11	
Diabetes	5.6	7.5	
Cancer	5.4	5.8	

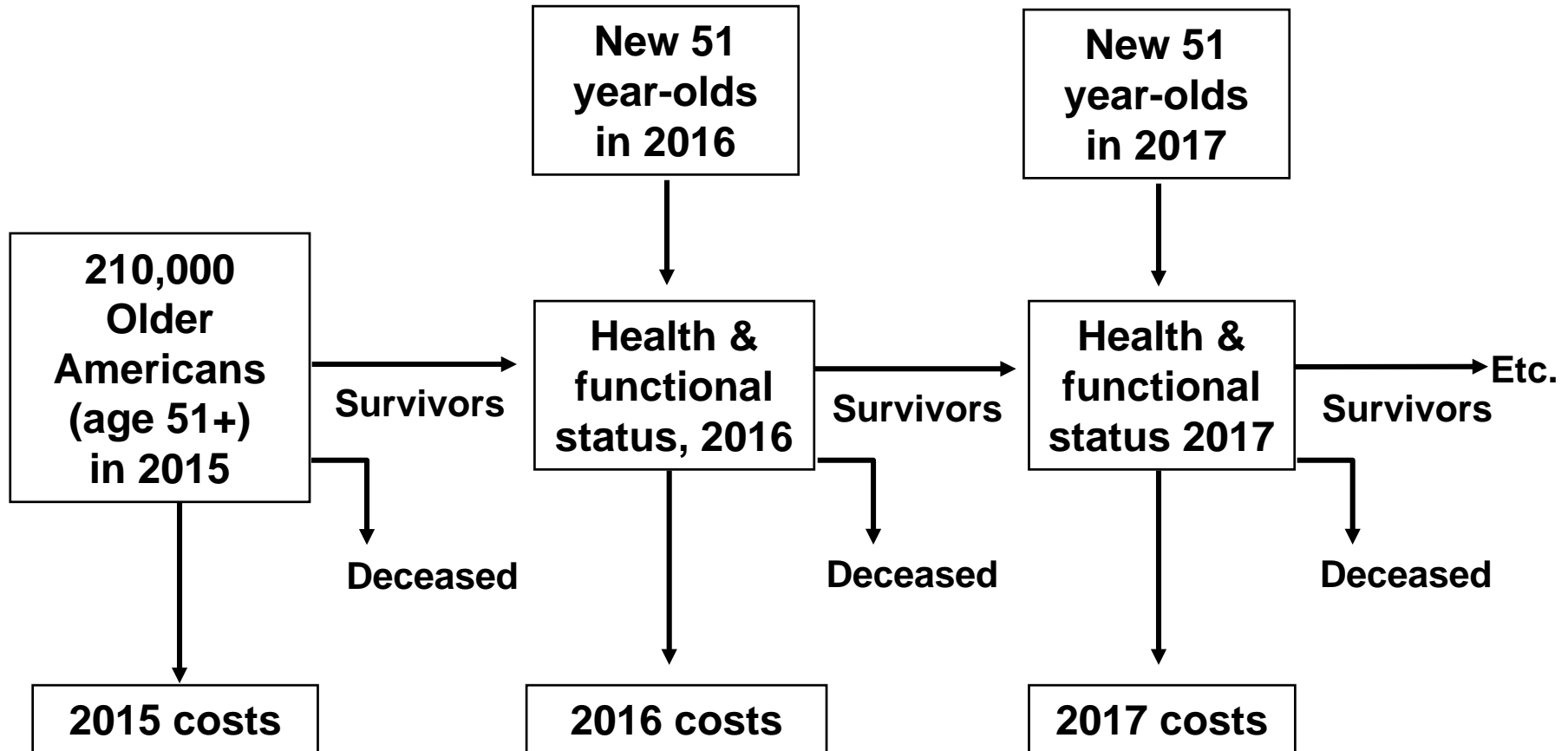
*Significance based on p-values for test of trend for 10-year period in logistic models run separately by condition and controlling for 5-year age intervals.

Source: Martin, Freedman, Schoeni, Andreski (2008).

The Future Elderly Model

- The model tracks the complex interaction between health conditions, disability and mortality
 - Estimated on Health and Retirement Study Data (longitudinal)
 - It tracks economic outcomes such as work, program participation, wealth and detailed medical expenditures (Medicare, Medicaid and Private)
- It uses actual and simulated cohorts of future age 50 individuals

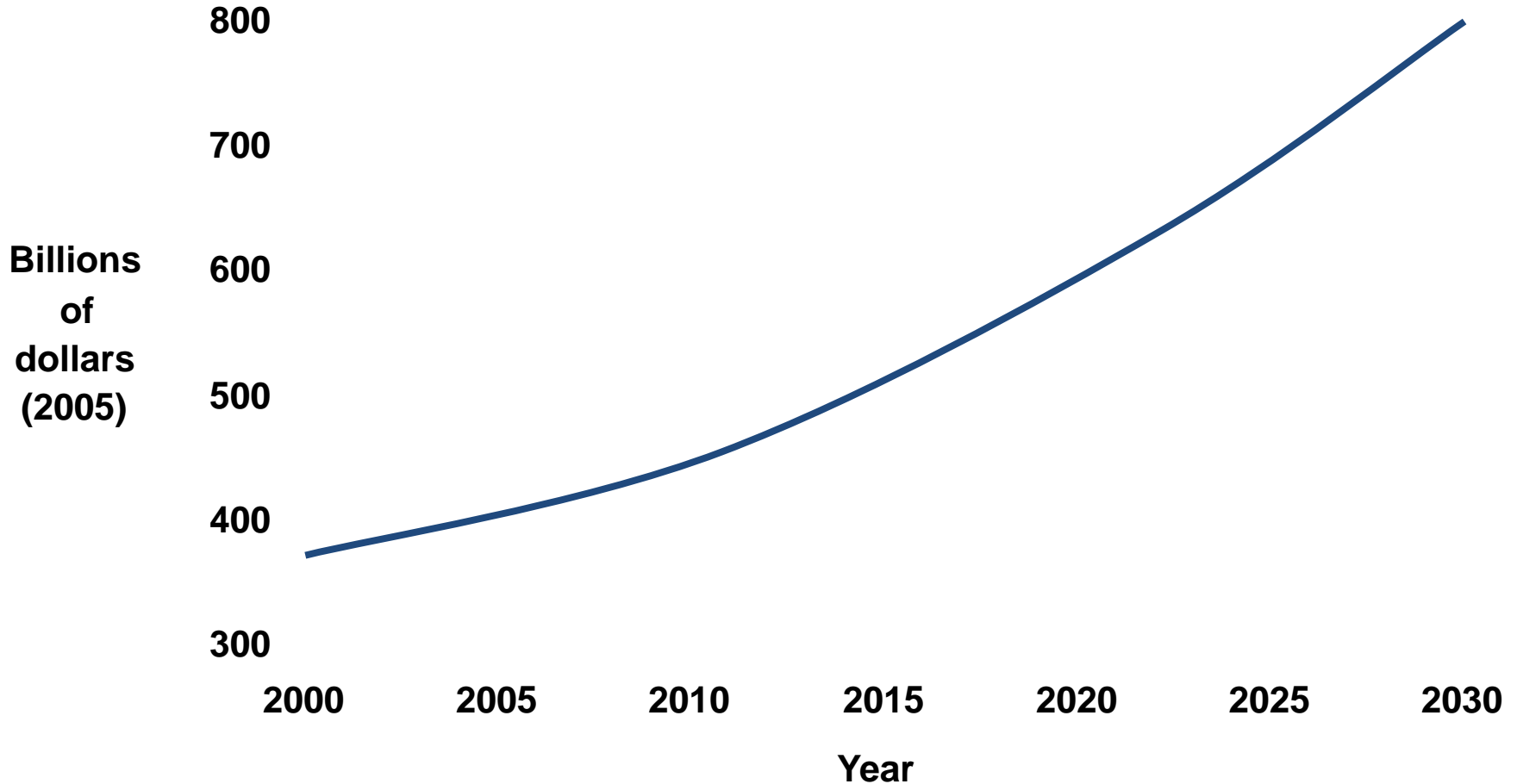
Microsimulation Tracks Individuals Over Time



Elements of the Model

- Health-Related Outcomes
- Conditions
 - Heart disease
 - Diabetes
 - Lung disease
 - Cancer
 - Hypertension
 - Stroke
- Functional status
 - ADLs and IADLs
 - Nursing home
 - Death
- Risk Factors
 - BMI
 - Smoking (now/ever)
- Economic Outcomes
- Labor Market
 - Employment
 - Earnings
- Social Security-Related
 - Benefit receipt & amount
 - SS tax revenues
 - Widowhood
- Spending
 - Total medical spending
 - Out-of-pocket spending
- Other Demographic Factors
 - Non-time varying
 - Age, gender, race, education, marital status

Forecast of Real Health Care Spending by Elderly



Matches pre-ACA CBO long run forecast

Simulate What Would Happen if Americans Were as Healthy as Europeans

- Cohort Scenario:
 - Give 2004 cohort of age 50 Americans the health profile of the same cohort of Europeans
 - Keep constant other characteristics of the American population
 - US health improves and catches up in 2030

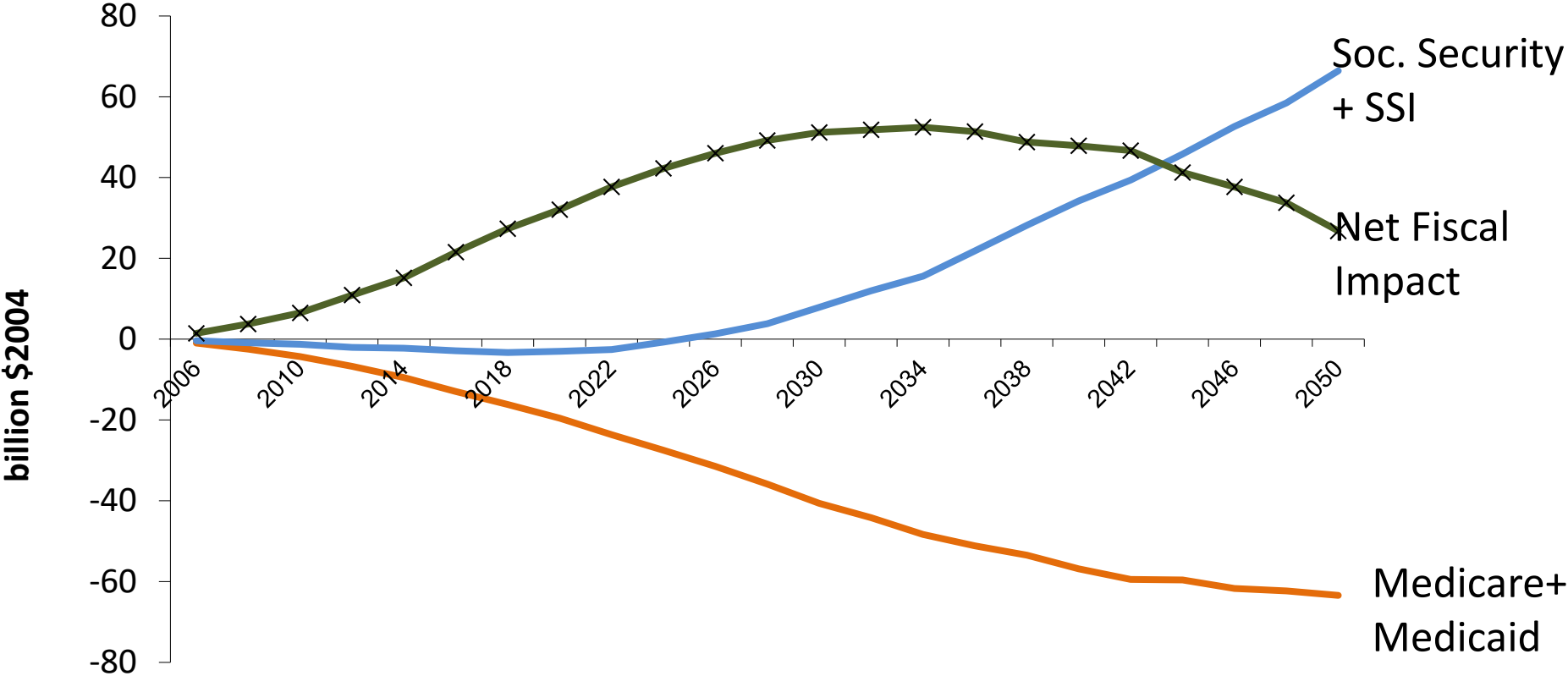
Net Fiscal Effects for Age 50 Cohort

Expenditure Category	Status Quo	European Scenario	Difference
<u>Government Revenues</u>			
Federal Tax	46,289	47,637	1,348
State Tax	16,035	16,535	500
Social security payroll taxes	16,566	17,031	465
Medicare payroll taxes	<u>4,020</u>	<u>4,132</u>	<u>112</u>
Total	82,910	85,335	2,425
<u>Government Expenditures</u>			
Old Age and Survivors Insurance (OASI)	138,123	144,716	6,593
Supplementary Security Income (SSI)	3,454	3,471	17
Disability Insurance benefits (DI)	6,356	5,673	-683
Medicare costs	73,391	68,674	-4,717
Medicaid costs	<u>21,745</u>	<u>18,058</u>	<u>-3,687</u>
Total	243,069	240,592	-2,477
Net Fiscal Effect			+4,902

Source: Authors' calculations using the microsimulation model. Amounts reported in \$2004 USD. Present discounted values computed using a real discount rate of 3%.

Population Scenario

Fiscal Impact Relative to Status Quo



Summary

- What is the impact of these health differences on government finances?
 - NPV of savings to government is \$700 billion; \$1.1 trillion in reduced health spending
 - Savings in per-period health expenditures are balanced by the annuity burden from longer life expectancy
- All of this ignores the (very large) value to people of better health and longer lives!