RAND LABOR AND POPULATION

Economic Preparation for Retirement

Michael D. Hurd ***Susann Rohwedder***

ICI Retirement Summit, April 2014

We gratefully acknowledge research support from the Social Security Administration via the Michigan Retirement Research Center, and additional support from the National Institute on Aging and the Department of Labor.

Adequacy of resources in retirement: No absolute standard

- **Lifetime resources vary across households**
- **Households poor during working life will be poor during retirement**
- **No absolute standard. Instead "Comparison" problem.**

How to assess those resources?

Assessing adequacy: Three methods

1. Income replacement rate:

Ratio of income after retirement to income before retirement

But common implementations ignore

- Financing consumption out of saving
- Time horizon or survival curve of the *household*
- Reduction in spending following widowing
- Consumption path is not flat, changes with age
- Differing role of taxes for households at different points of the income distribution
- Lower survival chances of the poor

Assessing adequacy: Three methods (cont.)

2. Compare actual wealth at retirement with "optimal wealth"

- Data on lifetime earnings
- Estimate optimal consumption path
- Accumulate wealth
- Compare with actual wealth at household level

Data intensive and hard to do (lifetime earnings, inheritances, rates of return, portfolio choices, etc.)

Assumptions needed to be tractable.

Assessing adequacy: Three methods (cont.)

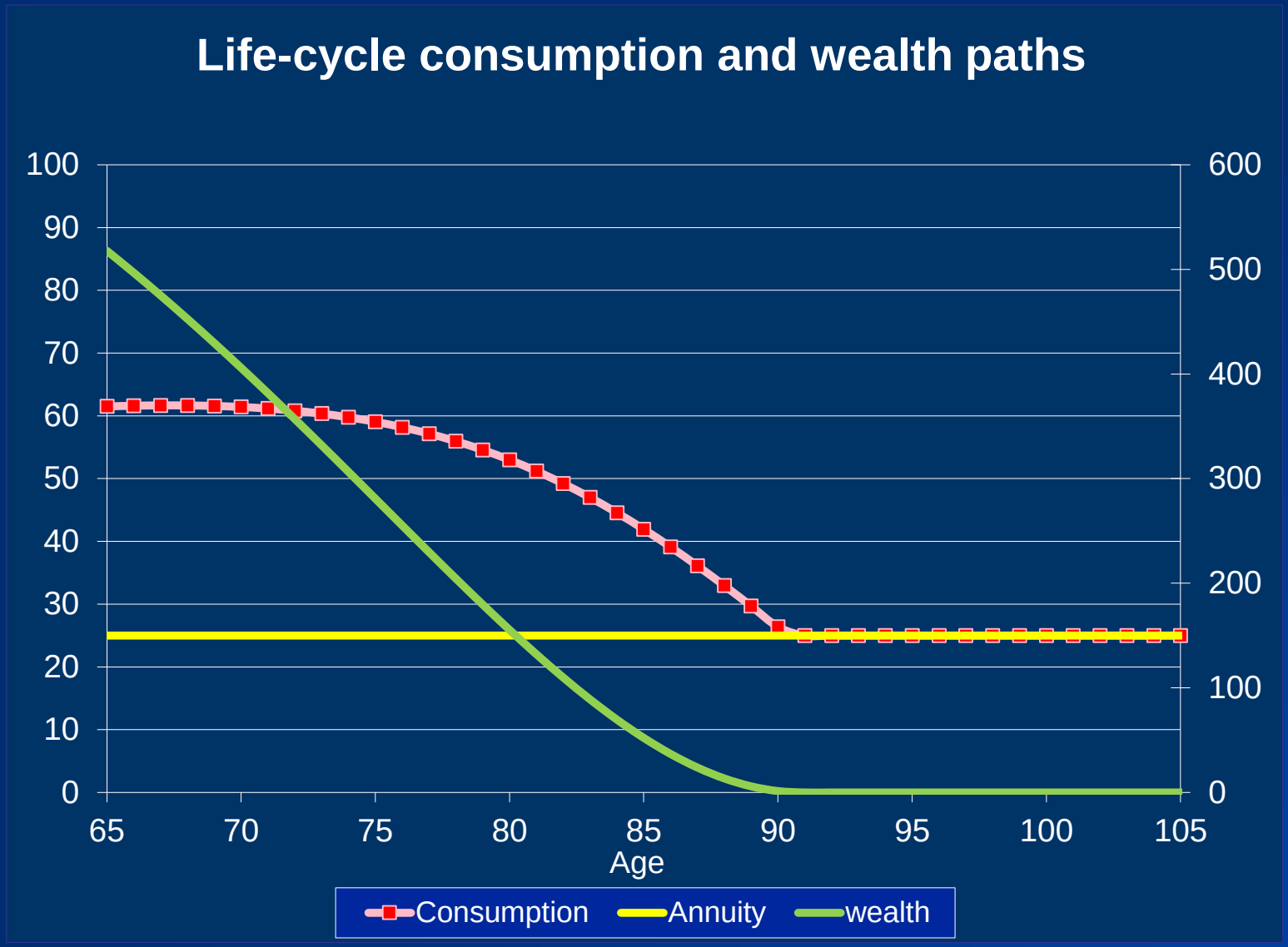
3. Can household finance predicted consumption path during retirement, given its resources?

- ***Predict consumption path from beginning of retirement to end of life***
- ***Calculate economic resources necessary to finance that consumption path***
- ***Compare with actual financial resources at household level***

This study uses third method:

- **Obtain empirically estimated consumption path**
- **take into account sources of uncertainty and heterogeneity**

(Exactly) Affordable Consumption Path



DATA

Health and Retirement Study (HRS)

- Representative sample of U.S. population age 51+
- Follows households over time: core survey every two years
- Refreshes with new group age 51 to 56 every six years

Consumption and Activities Mail Survey (CAMS)

- Supplemental study on household spending
- Use data from 2001, 2003, 2005, and 2007

Empirically estimated consumption paths

Estimate 2-year change in consumption …

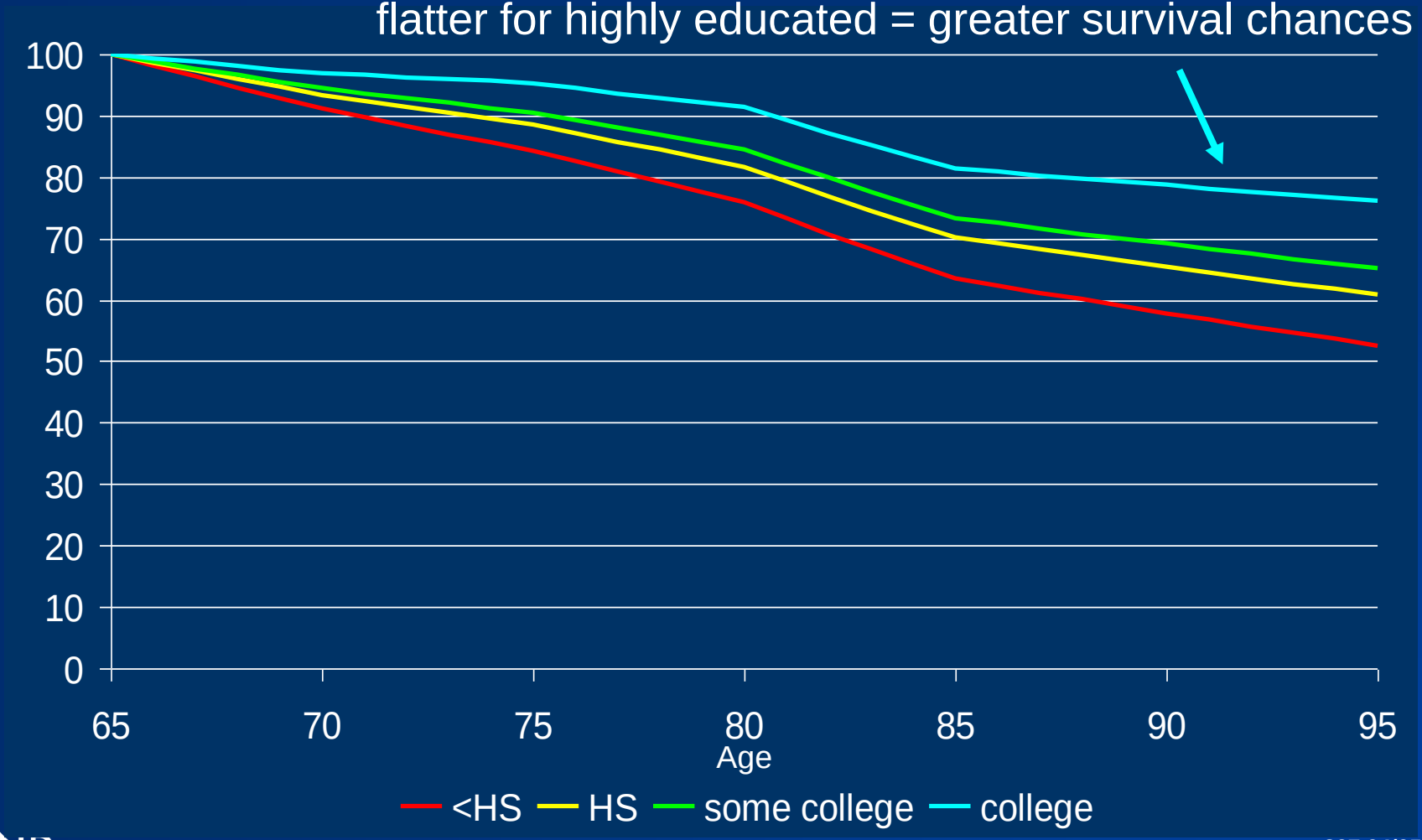
- By age, education level and gender
- Separate estimations for single and married persons
- Only households with positive wealth included in estimation
- Constant within age brackets

Use resulting consumption path to simulate lifecycle consumption paths

Estimated Consumption Paths Decline with Age

Single Females by Education

Consistent with theory, observed consumption paths are flatter for highly educated = greater survival chances



Assessing resource adequacy: Can observed economic resources sustain the projected consumption path?

Method:

- **Use each household's *observed* consumption at age 66-69 as starting point for consumption path**
- **apply estimated 2-year changes in consumption to obtain complete consumption path**
- **Obtain comprehensive measure of resources (incl. Social Security, housing, future earnings & pensions)**
- **Simulate resources and consumption until death**
- **Multiple simulations for each household to account for uncertainty (mortality and medical expenditure risk)**
- **Assess if resources can fund consumption until death**

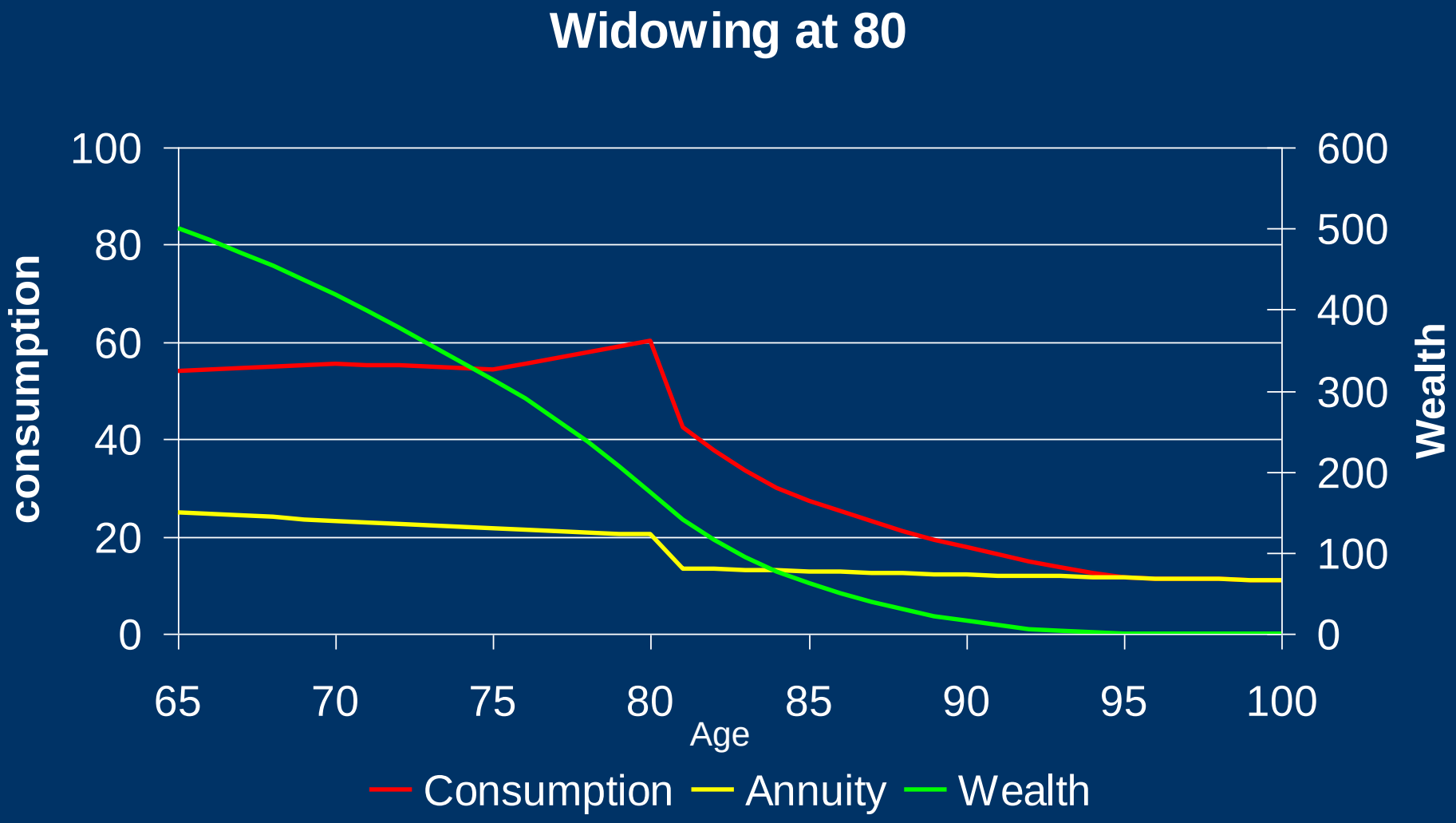
Adapt Approach for Married Persons: lifespan of household and widowing

- **Begin with observed consumption of married household**
- **Follow consumption path of couples as long as both alive**
- **Random mortality from life tables, independent draws for each spouse**
- **At widowing**

  Reduce consumption according to returns to scale
  Reduce annuities to 0.67 times couple's annuities

Then follow singles' path

Combining singles and couples
(Exactly) Affordable (hypothetical) Path



Simulations account for

- **Differential mortality**
- **Future earnings**
- **Housing wealth**
- **Taxes**
- **Risk of out-of-pocket medical expenditures**

Differential mortality

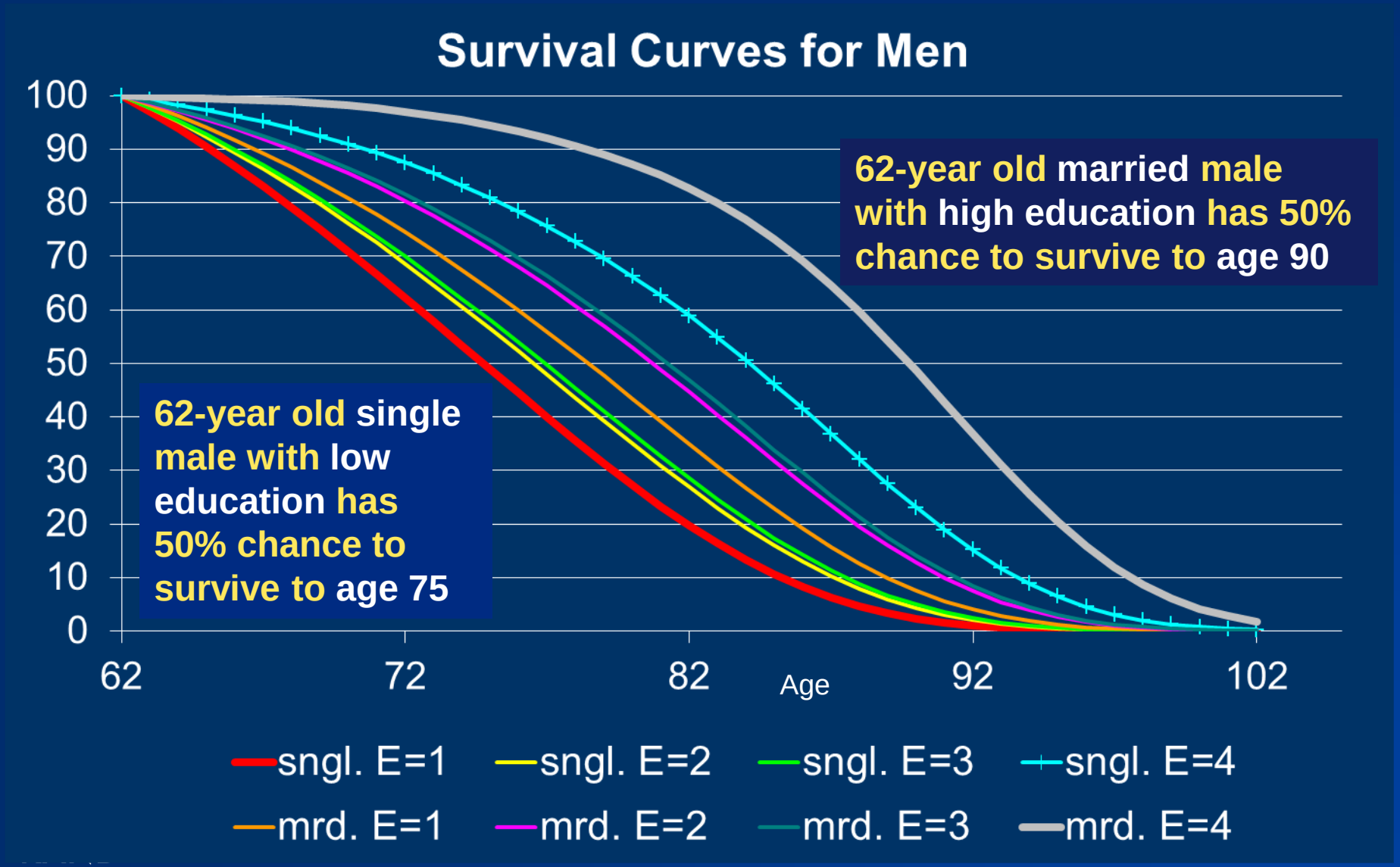
The wealthy survive longer than the poor

Married people live longer than single people

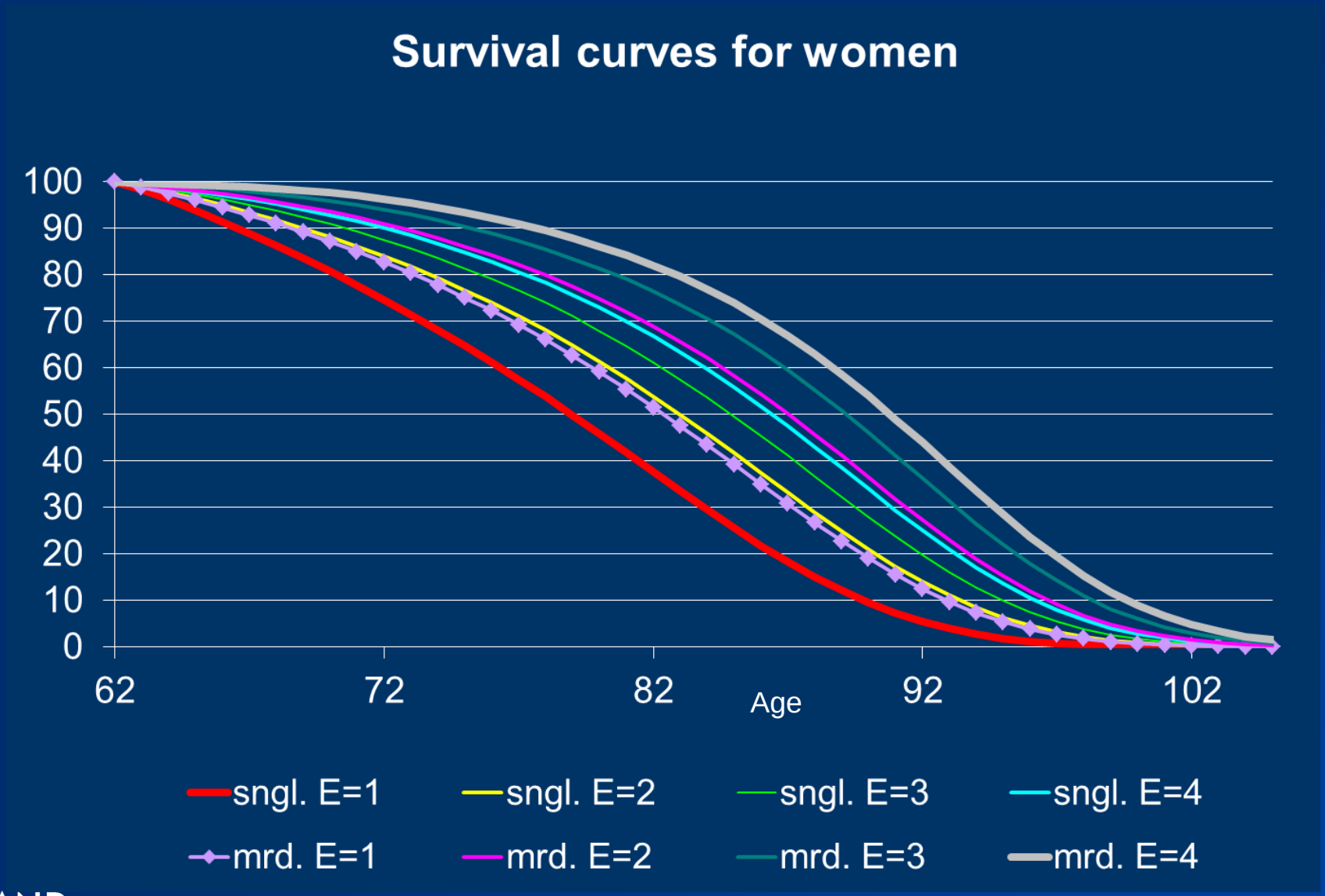
Implication

- **Poor people (who may run out of money) may die before**
- **“Don’t need as much”**
- **Will overestimate number running out of wealth if use population life tables**

Large differentials in survival probabilities



Large Differentials also Among Women



Earnings

Some individuals in late 60s in our sample have earnings

Singles: 26% have income from earnings (all are 66-69)

Couples: 42% have income from earnings (some are age 62-65)

Method to account for earnings:

- Estimate in panel probability of working and earnings conditional on working
  - Covariates: sex, education, age, separate regressions for couples and for singles
- Compute expected present value of future earnings for those with observed earnings at baseline
- Add to wealth

Taxes

Important to account for taxes for more affluent, higher educated part of the population.

Three aspects

1. **Taxes on ordinary income**
   - **federal taxes, taking into account break points with different tax rates**
   - **State taxes, using weighted average**
2. **Partial taxation of Social Security**

3. **Marginal tax rate on withdrawals from IRAs (taking into account mandatory withdrawals)**

Housing Wealth

Account for

- **Housing wealth usually not tapped for financing consumption until very late in the life-cycle**
- **Capital gains on housing largely not taxed (large exemption)**

Implementation in our simulations:

- **keep housing wealth separate from other wealth**
- **rate of appreciation: 2.5% real p.a. (OFHEA)**
- **first deplete all other wealth (IRA and non-IRA assets)**
- **deplete housing wealth last**
- **no taxation on capital gains from housing wealth**

Risk Related to Out-of-Pocket Medical Expenditures

Take into account variability in out-of-pocket medical expenditures by age, sex, marital status and education

Risk is likely to be serially correlated over time:
current health status likely to influence future health status

Higher serial correlation in OOP Spending on health Care

- **among less educated**
- **at older ages**
- **among single persons**

Groups with worse health and more chronic conditions

Individual-level Metric with Respect to Wealth

Ask:

What are the chances that individuals will die with positive wealth?

Metric:
Adequately prepared IF
chances of dying with positive wealth 95% or greater

Implementation:

- **Run 100 simulations for each individual**
- **Count number of simulations where individual dies with positive wealth**
- **If 95 or greater then individual is adequately prepared.**

Percent with High Chances (95% or more) of Dying with Positive Wealth

	Singles			Couples		
	All	Male	Female	All	Male	Female
Less than high-school	35.4	63.6	28.2	67.4	66.7	68.0
High-school	58.1	66.7	55.1	78.5	75.9	79.8
Some college	49.2	65.6	44.0	77.1	74.7	78.5
College and above	64.0	65.0	63.8	85.6	83.3	87.5
All	51.2	65.5	46.8	77.7	75.5	79.0

Overall 68% adequately prepared.

Couples less likely to run out of wealth than singles.

Single females more vulnerable, and large education gradient

Distinguish Small from Large Shortfalls

In previous table household a few dollars short classified the same way as household several hundred thousand dollars short.

Modify metric for assessing adequacy of resources to flag larger shortfalls, but not small ones.

→ Express in terms of changes to initial consumption

Individual-level metric in Terms of Initial Consumption

Metric:
Necessary reduction in initial consumption of the household to keep chances of dying with positive wealth "reasonably" high.

In each simulation:

Not adequately prepared if need to reduce initial consumption by more than 10%

Taking into account uncertainty (mortality risk) and out-of-pocket spending risk on health care:

How often does this happen in 100 simulations?

If in 5% or less of the simulations
adequately prepared

Percent Adequately Prepared

Reduce initial consumption by 10%

	Singles			Couples		
	All	Male	Female	All	Male	Female
Less than high-school	40.9	66.7	34.4	70.6	71.4	69.9
High-school	64.9	73.0	62.2	81.2	78.4	82.7
Some college	54.5	68.8	50.0	80.7	77.2	82.6
College and above	69.7	70.0	69.6	88.5	86.5	90.2
All	57.2	70.3	53.2	80.7	78.6	82.0

Higher levels of adequacy (72% overall), same patterns:
More couples better prepared, single females most vulnerable.

Percent adequately prepared: Sensitivity to Thresholds for Singles

	Drop in Consumption		
Chances of dying with positive wealth	<5%	<10%	<15%
95% or greater	54.0	57.2	60.3
90% or greater	57.5	61.0	64.0
85% or greater	59.4	62.4	64.9
80% or greater	60.8	63.7	66.0

For couples the fraction adequately prepared ranges between 79.0% to 86.2% depending on thresholds used.

Policy Scenarios

1. **What if out-of-pocket medical expenditures were perfectly insured?**

   That is, average household spending would be the same, but there would be no variance, no shocks.

2. **Reduction in Social Security benefits by 30%.**

Rerun Simulations Under Policy Scenarios:
Effects largest for single females

	Single males	Single females	Married persons
health risk	70.3	53.2	80.7
no health risk	70.9	70.3	83.8
change	0.6	17.1	3.1
Social Security	70.3	53.2	80.7
cut by 30%	63.5	41.4	73.0
change	-6.8	-11.8	-7.7

Looking Ahead

- Used *observed* spending levels and age-patterns:

A good guide to future?

- Future out-of-pocket health care costs.

But Medicare Part D not reflected in our estimates.

Conclusions

Based on observed consumption paths and starting conditions in early retirement

- **72% adequately prepared overall:**
  81 % of married persons
  57% of single persons

- **much lower preparedness among those with low education**

- **Social Security benefit very important contributor to financial security at older ages.**