

Econ 21SI

**Saving Social Security**  
*Proposals for Reform*

Student Initiated Course

Instructor: Sean Arenson

Faculty Sponsor: Prof. John Shoven

Stanford University, Spring Quarter, 2006

Tuesdays, 4:15-5:30PM, Bldg 200 Rm 217

[econ21si.stanford.edu](http://econ21si.stanford.edu)

# ***Course Objectives***

- Understand the principles of the Social Security program
- Recognize the factors driving the need for reform
- Generate an informed opinion on how Social Security should be reformed

## ***Course Format***

- Nine class sessions including four lectures/discussions led by me and five guest lectures
- Two written assignments
  - Short editorial
  - Medium length “final paper”
- Most important component: attendance
  - Attendance required – must notify me of conflicts
- Optional (*highly* encouraged) reading posted prior to each session

## ***Guest Lectures***

- April 25: Prof. John Cogan
  - President's Commission and Private Accounts
- May 2: Prof. Shripad Tuljapurkar
  - Demographics of Social Security
- May 9: Gopi Shah
  - Work incentives of Social Security, longer careers
- May 23: Prof. Sita Slavov
  - Elements of risk in Social Security, economic effects
- May 30: Prof. John Shoven
  - Budgetary concerns, Private Accounts, Hybrid Indexing

# ***Today's Topics***

- A Brief History of Social Security
- How Social Security Works Today
- What is the Social Security Crisis?
- Major Options for Reform

# ***Social Security: A Brief History***



## ***Social Security: A Brief History***

### ***Beginnings of Social Insurance***

- Otto von Bismarck initiated the first social insurance programs in Germany
  - 1883 - Sickness and maternity benefits for industrial workers
  - 1884 - Workers compensation
  - 1889 - Old-age and invalidity benefits
  - 1911 - Survivor benefits
- German philosophers and economists of the period cultivated a perception of the role of the state in providing for the general welfare
- Socialist movement led to organization of labor – Bismarck sought to quell movement with social insurance

## ***Social Security: A Brief History***

### ***Beginnings of Social Insurance***

- Social insurance popular around the world
- By 1930, dozens of countries had social insurance programs
- In US, 44 states w/ workers comp, 46 w/ widows pensions, 24 w/ old age pensions – all based on financial hardship



## *Social Security: A Brief History*

# *Beginnings of Social Insurance*

- US one of the last major countries to adopt social insurance – due to ideals of “rugged individualism”
- Summation of ***three major forces*** in 1930s overcame resistance - public opinion became very much in favor

## ***Social Security: A Brief History***

### ***Force #1: Industrialization***

- 1880 – more than half of labor force in agriculture  
1930s – One in five workers in agriculture
- Urbanization of workforce increased volatility of employment levels.
  - Ex: 1920-1924 unemployment ranged from 4.1-19.5% in non-farm
- Result: Workers more vulnerable to economic downturns, disabling injuries, illness, old age.

## *Social Security: A Brief History*

### *Force #1: Industrialization*

- Industrialization particularly hard on elderly and occurred concurrently with aging of population
  - 1870 – 3% over age 65
  - 1930 – 5.4% over age 65
  - 1980 (est) – 11.3% over age 65

## *Social Security: A Brief History*

### ***Force #2: Economic Conditions***

- 1929 - Stock market crash  
Early 1930s - Great Depression
- Results: Wiped out assets and savings.
  - Value of all stocks on NYSE went from \$89.7 bil on Sept 1, 1929 to \$15.6 bil half way through 1932. 34 months, stocks lost 83% of value
- Unemployment peaked in 1932 at 25.2%, but among non-farm workforce it reached 38%.

## ***Social Security: A Brief History***

### ***Force #2: Economic Conditions***

- Elderly hit particularly hard
- Elderly unemployment very high
  - 54% unemployment over 65 plus additional 25% temporarily laid off from work w/o pay.
- Retirement savings in stocks and banks lost
- Businesses folded, pensions lost.

## ***Social Security: A Brief History***

### ***Force #3: Political Movements***

- System of capitalism fundamentally questioned
- Income disparity rampant – capital investment enormous but purchasing power minimal, therefore, low output. Perhaps communism or socialism might be better?
- More moderate proposal – tax high incomes and inheritances and redistribute money to increase purchasing power of the masses. Goal: Minimize useless capital investment and stimulate demand, lowering unemployment

## ***Social Security: A Brief History***

### ***Force #3: Political Movements***

- Townsend Proposal (1934) – very popular
  - Every unemployed citizen over 60 receives monthly allowance of \$200 (about \$4000 in 2006\$) – must be spent within a month.
  - Over 25 mil people signed petitions – became chief political issue
- Louisiana Gov. Huey Long – *Every Man a King*
  - Potential 1936 Presidential candidate
  - Share Our Wealth - “A chicken in every pot” and “soak the rich”
  - Massive redistribution incl. old-age pensions, free college, min annual income of \$5000 and max of \$1 mil, max personal fortune of \$50 mil, etc.

## ***Social Security: A Brief History***

### ***FDR Takes Action***

- Roosevelt forced to include old-age retirement plan in New Deal, but did not want to leave heavy burden on future generations
- Result: Social Security Act signed into law August 14, 1935.
- Act included many social welfare programs. “Social Security” today refers to the Old-Age and Survivors Insurance and Disability Insurance (OASDI) programs.



# *Social Security: A Brief History*

## *Program Principles*

- Consensus that program should be based on “insurance principles” with employee contributions

### **Welfare**

### **Social Insurance**

No contribution	Contribution constitutes "premium"
Income and assets test	Right to benefits independent of wealth
Discourages work	Probably encourages work
Discourages saving	Probably also discourages saving
Designed for the already poor	Designed to prevent poverty from occurring
Stigmatized - indicative of failure	Positive connotation - worked to achieve insured status

## *Social Security: A Brief History*

### *Program Principles*

- Welfare discourages work – social insurance less so
- Welfare discourages work among poor and wealthy alike
- Social insurance discourages work in that it reduces compensation, but encourages work by tying benefits to income
  - Disincentive softened on wealthiest (“most productive”)
  - Still disincentive to work by elderly

## *Social Security: A Brief History*

### *Program Principles*

- Twin goals: Equity and Adequacy
- Equity: Benefits indexed to income (contribute more, get more)
- Adequacy: Progressive benefits formula, better returns on low incomes
- Adequacy: Early recipients received disproportionate benefits

## *Social Security: A Brief History*

### *Program Funding*

- System to be self-supporting
- Pay-as-you-go (“PAY-GO”) vs. fully funded system
- Pay-Go
  - Pros: High benefit level for initial recipients possible
  - Cons: Aging of population would reduce dependency ratio
- Fully Funded
  - Pros: Funds able to earn interest, guaranteed availability of funds
  - Cons: Projected reserves would exceed available gov’t bonds, deflationary tax, government spending might increase

## ***Social Security: A Brief History***

### ***Program Funding***

- Solution: Mix of Pay-Go and Fully Funded systems – “Partially Funded”
  - Early recipients had benefits paid by current workers
  - Surpluses placed in Social Security Trust
- Predominantly Pay-Go
  - Right didn’t want increase in federal spending
  - Left wanted opportunity to increase benefits to early recipients

## ***Social Security: A Brief History***

### ***Program Funding***

- Payroll tax of 1% each on employer and employee up to cap of \$3000
- Scheduled increases to 6% by 1949 repealed due to prosperity from war

## ***Social Security: A Brief History***

### ***Legislated Changes***

- Program revised in 1950 – increased wage cap and raised payroll taxes to 1.5% each and scheduled to rise to 3.25% by 1970. Extended coverage to self-employed and farm workers
- 1957 – Disability Insurance
- 1961 – Early retirement at age 62 offered
- 1965 – Medicare added
- 1972 - Indexing provisions including COLA and income cap
- 1983 – Major reforms increased payroll taxes, cut benefits, federal and non-profit employees covered, self-employed payroll tax.

## ***Social Security: A Brief History***

### ***Where are we now?***

- Social Security provides an inflation adjusted annuity to nearly all retirees
- Social Security provides insurance against harsh economic conditions, death, and disability.
- For 1/3 of elderly, Social Security represents all income. For another 1/3, it represents a very significant part of retirement income



# ***Social Security Today***



# *Who is covered?*

- Almost all employed and self-employed persons in the United States
- Exceptions
  - Civilian federal employees hired before 1984
  - About 25% of state and local employees
  - Railroad workers

# *How is the system funded?*

- Payroll tax on covered employees and employers of **6.2%** each
  - Economist agree - effectively **12.4%** tax on wages
- Self-employed pay full **12.4%**
- Tax paid on first \$90,000 of earnings in 2005.
  - “Maximum taxable base” increases annually with wage growth
- Additional Medicare payroll tax of 1.45% (2.9% self-emp)
  - Medicare tax paid on full earnings (no cap as of 1994)
- Together, SS and Medicare payroll taxes are referred to as **FICA** (Federal Insurance Contribution Act) taxes.

## *Social Security Today*

### *When are benefits paid?*

	You	Your Spouse	Your Unmarried Child
Retirement	<ul style="list-style-type: none"><li>• Age 62 or older</li></ul>	<ul style="list-style-type: none"><li>• Age 62 or older</li><li>• Any age if caring for your under 16 or disabled child</li></ul>	<ul style="list-style-type: none"><li>• Under 18</li><li>• Any age if disabled before 22</li></ul>
Disability	<ul style="list-style-type: none"><li>• Any age before Full Retirement Age (FRA)</li></ul>	<ul style="list-style-type: none"><li>• Age 62 or older</li><li>• Any age if caring for your under 16 or disabled child</li></ul>	<ul style="list-style-type: none"><li>• Under 18</li><li>• Any age if disabled before 22</li></ul>
Death	<ul style="list-style-type: none"><li>• None (obviously)</li></ul>	<ul style="list-style-type: none"><li>• Age 60 or older</li><li>• Age 50-59 if disabled</li><li>• Any age if caring for your under 16 or disabled child</li></ul>	<ul style="list-style-type: none"><li>• Under 18</li><li>• Any age if disabled before 22</li></ul>

# *How are benefits calculated?*

- Benefits are based on the Primary Insurance Amount (**PIA**)
- PIA is defined as the monthly benefit due if one retires at the Full Retirement Age (**FRA**)
- PIA locked in at age 62. Increases annually by COLA (based on CPI).
- PIA calculated based on Average Indexed Monthly Earnings (**AIME**)

## ***How are benefits calculated?***

Average Indexed Monthly Earnings (AIME) Calculation  
for someone turning 62 in 2006

- Each year's earnings indexed for increase in average wage by multiplication by the factor

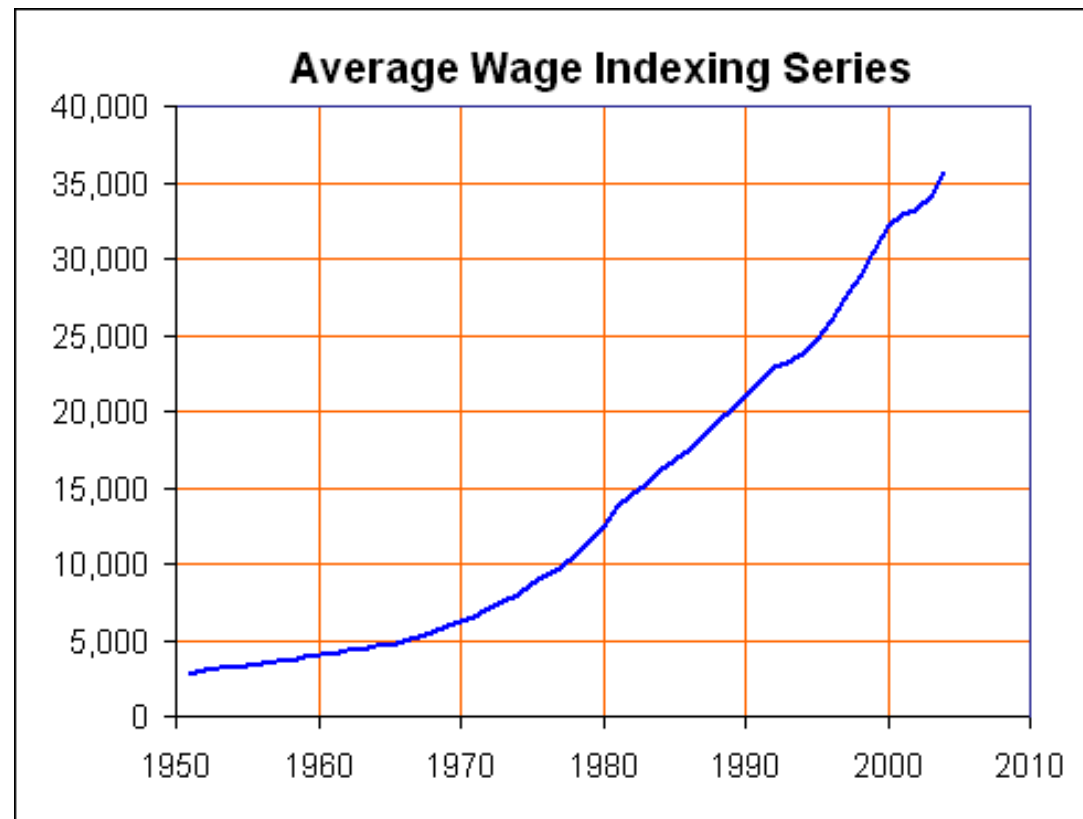
$$\frac{\text{National Average Wage Index for 2004}}{\text{National Average Wage Index for Year of Earnings}} \cdot$$

- Earnings for 2005 and 2006 not indexed

## *Social Security Today*

# *How are benefits calculated?*

Average Indexed Monthly Earnings (AIME) Calculation  
for someone turning 62 in 2006



## *How are benefits calculated?*

Average Indexed Monthly Earnings (AIME) Calculation  
for someone turning 62 in 2006

- 35 years with highest indexed earnings count
- Fewer than 35 years of earnings? Additional years count as zeros
- Add up highest earnings and divide by 420  
(35 yrs x 12 mo)
- Result: **AIME**



## ***How are benefits calculated?***

Determination of Monthly Benefit  
for someone turning 62 in 2006

- 90% of first \$656 of AIME
- 32% of AIME between \$656 - \$3955
- 15% of AIME above \$3955 (up to cap)
  
- “Bend points” of \$656 and \$3955 indexed to wage growth

# *How are benefits calculated?*

Determination of Monthly Benefit  
for someone turning 62 in 2006

- Lower benefits for higher incomes
- AIME = \$600, PIA =  $(600)(0.90) = \$540$   
 $540/600 = 0.9 = 90\%$  replacement rate
- AIME = \$3000, PIA =  $(656)(0.90) + (3000 - 656)(.32) =$   
\$1340.48  
 $1340.48/3000 = .45 = 45\%$  replacement rate
- Average replacement rate = 43%

# *How are benefits calculated?*

Determination of Monthly Benefit  
for someone turning 62 in 2006

- PIA is monthly benefit for someone retiring at FRA

<b>Year of birth</b>	<b>Normal Retirement Age</b>
1937 and prior	65
1938	65 and 2 months
1939	65 and 4 months
1940	65 and 6 months
1941	65 and 8 months
1942	65 and 10 months
1943-54	66
1955	66 and 2 months
1956	66 and 4 months
1957	66 and 6 months
1958	66 and 8 months
1959	66 and 10 months
1960 and later	67

Note: Persons born on January 1 of any year should refer to the normal retirement age for the previous year.

## *How are benefits calculated?*

Determination of Monthly Benefit  
for someone turning 62 in 2006

- PIA adjusted with early retirement penalty or delayed retirement credit such that **lifetime benefits are actuarially fair at any retirement age.**
- 62 is earliest month of eligibility
- 70 is latest benefits can be delayed

# Social Security Today

## How are benefits calculated?

Benefit, as a percentage of Primary Insurance Amount (PIA), payable at ages 62-67 and age 70

Year of birth	Normal Retirement Age (NRA)	Credit for each year of delayed retirement after NRA (percent)	Benefit, as a percentage of PIA, beginning at age--						
			62	63	64	65	66	67	70
1924	65	3	80	86 2/3	93 1/3	100	103	106	115
1925-26	65	3 1/2	80	86 2/3	93 1/3	100	103 1/2	107	117 1/2
1927-28	65	4	80	86 2/3	93 1/3	100	104	108	120
1929-30	65	4 1/2	80	86 2/3	93 1/3	100	104 1/2	109	122 1/2
1931-32	65	5	80	86 2/3	93 1/3	100	105	110	125
1933-34	65	5 1/2	80	86 2/3	93 1/3	100	105 1/2	111	127 1/2
1935-36	65	6	80	86 2/3	93 1/3	100	106	112	130
1937	65	6 1/2	80	86 2/3	93 1/3	100	106 1/2	113	132 1/2
1938	65, 2 mo.	6 1/2	79 1/6	85 5/9	92 2/9	98 8/9	105 5/12	111 11/12	131 5/12
1939	65, 4 mo.	7	78 1/3	84 4/9	91 1/9	97 7/9	104 2/3	111 2/3	132 2/3
1940	65, 6 mo.	7	77 1/2	83 1/3	90	96 2/3	103 1/2	110 1/2	131 1/2
1941	65, 8 mo.	7 1/2	76 2/3	82 2/9	88 8/9	95 5/9	102 1/2	110	132 1/2
1942	65, 10 mo.	7 1/2	75 5/6	81 1/9	87 7/9	94 4/9	101 1/4	108 3/4	131 1/4
1943-54	66	8	75	80	86 2/3	93 1/3	100	108	132
1955	66, 2 mo.	8	74 1/6	79 1/6	85 5/9	92 2/9	98 8/9	106 2/3	130 2/3
1956	66, 4 mo.	8	73 1/3	78 1/3	84 4/9	91 1/9	97 7/9	105 1/3	129 1/3
1957	66, 6 mo.	8	72 1/2	77 1/2	83 1/3	90	96 2/3	104	128
1958	66, 8 mo.	8	71 2/3	76 2/3	82 2/9	88 8/9	95 5/9	102 2/3	126 2/3
1959	66, 10 mo.	8	70 5/6	75 5/6	81 1/9	87 7/9	94 4/9	101 1/3	125 1/3
1960 and later	67	8	70	75	80	86 2/3	93 1/3	100	124

## ***Earnings Test***

- No earnings test after FRA (as of 2000)
- Under FRA, earnings in excess of \$12,000 penalized at a rate of 50 cents/dollar

# *Family Benefits*

- Can only be claimed once worker receives benefits
- Spouse – (of at least 1 year):
  - 50% of worker's PIA at FRA
  - Reduced amount at 62-FRA
  - If insured for own career, receive own benefit if larger
- Ex-Spouse (if marriage lasted at least 10 years and not remarried):
  - Same as current spouse
- Child (if unmarried and under 18 or disabled before 22)
  - 50% of highest parent's PIA

## ***Disability Benefits***

- Eligible if physically or mentally impaired to extent that gainful work impossible (as determined by medical evidence)
- PIA calculated based on AIME for adjusted number of years based on age of disability
- Family benefits same as for retirement
- Minimum number of “credits” required



# Social Security Today

## Disability Benefits

Disabled at age	Credits Required
31 through 42	20
44	22
46	24
48	26
50	28
52	30
54	32
56	34
58	36
60	38
62 or older	40

### Earnings per Credit (Up to 4/year)

Year	Earnings	Year	Earnings
1975	\$50	1991	540
1976	50	1992	570
1977	50	1993	590
1978	250	1994	620
1979	260	1995	630
1980	290	1996	640
1981	310	1997	670
1982	340	1998	700
1983	370	1999	740
1984	390	2000	780
1985	410	2001	830
1986	440	2002	870
1987	460	2003	890
1988	470	2004	900
1989	500	2005	920
1990	520	2006	970

## *Social Security Today*

# *Survivor Benefits*

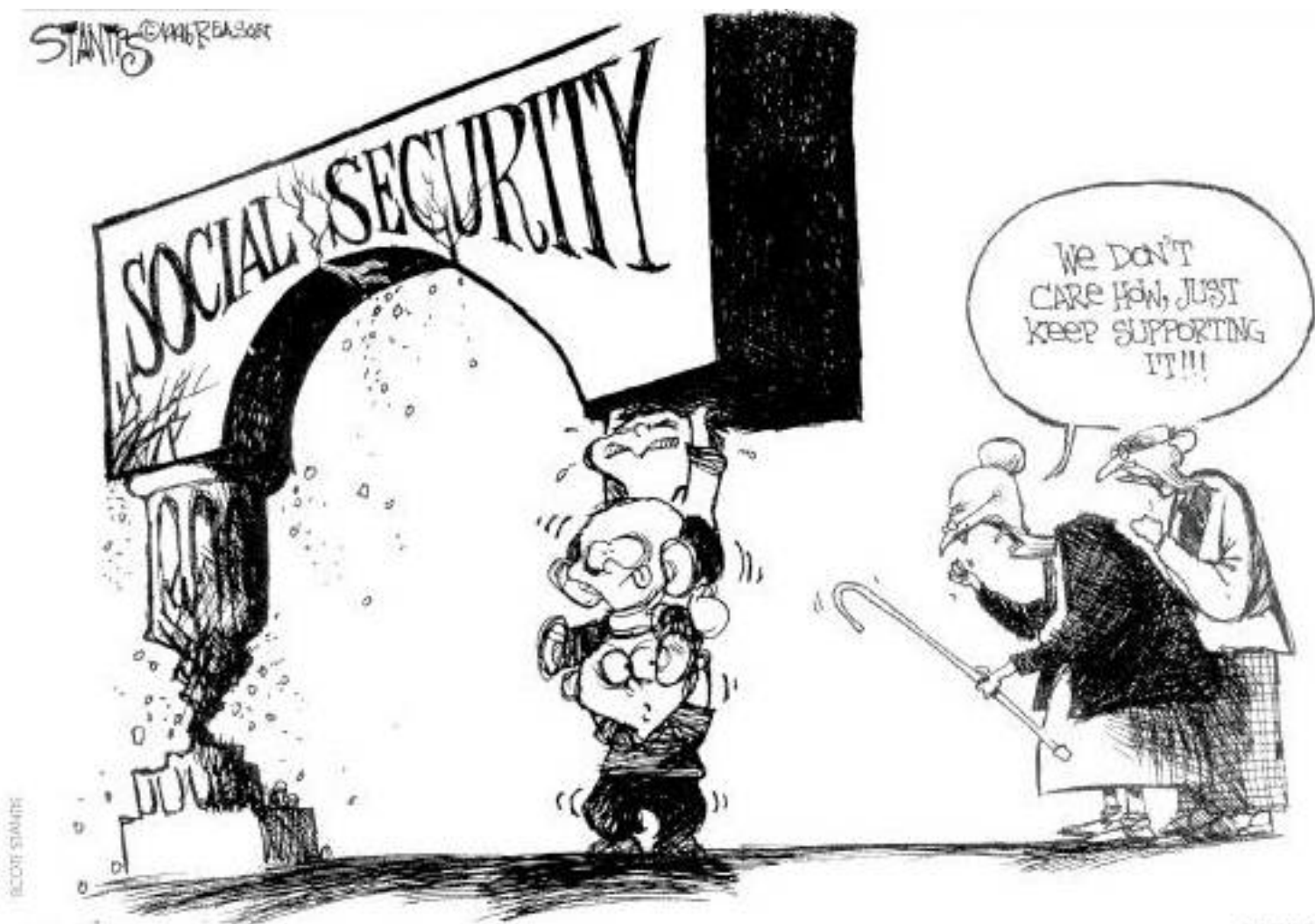
- Insured if earned credits proportional to age of death:

Age of Death	Credits	Age of Death	Credits	Age of Death	Credits
29	6	41	18	52	29
30	7	42	19	53	30
31	8	43	20	54	31
32	9	44	21	55	32
33	10	45	22	56	33
34	11	46	23	57	34
35	12	47	24	58	35
36	13	48	25	59	36
37	14	49	26	60	37
38	15	50	27	61	38
39	16	51	28	62	39
40	17				

# *Survivor Benefits*

- Widow(er) receives lump sum of \$255
- Widow(er) at FRA receives 100% of PIA (based on years of employment indexed to age of death). Less if below FRA
- Ex-spouse of at least 10 years and not remarried before 60 – same as widow(er).
- Child under 18 or disabled before 22 receives 75% of PIA

# *The Social Security “Crisis”*



SCOTT STANTIS

MARCH 1996

REASON 27

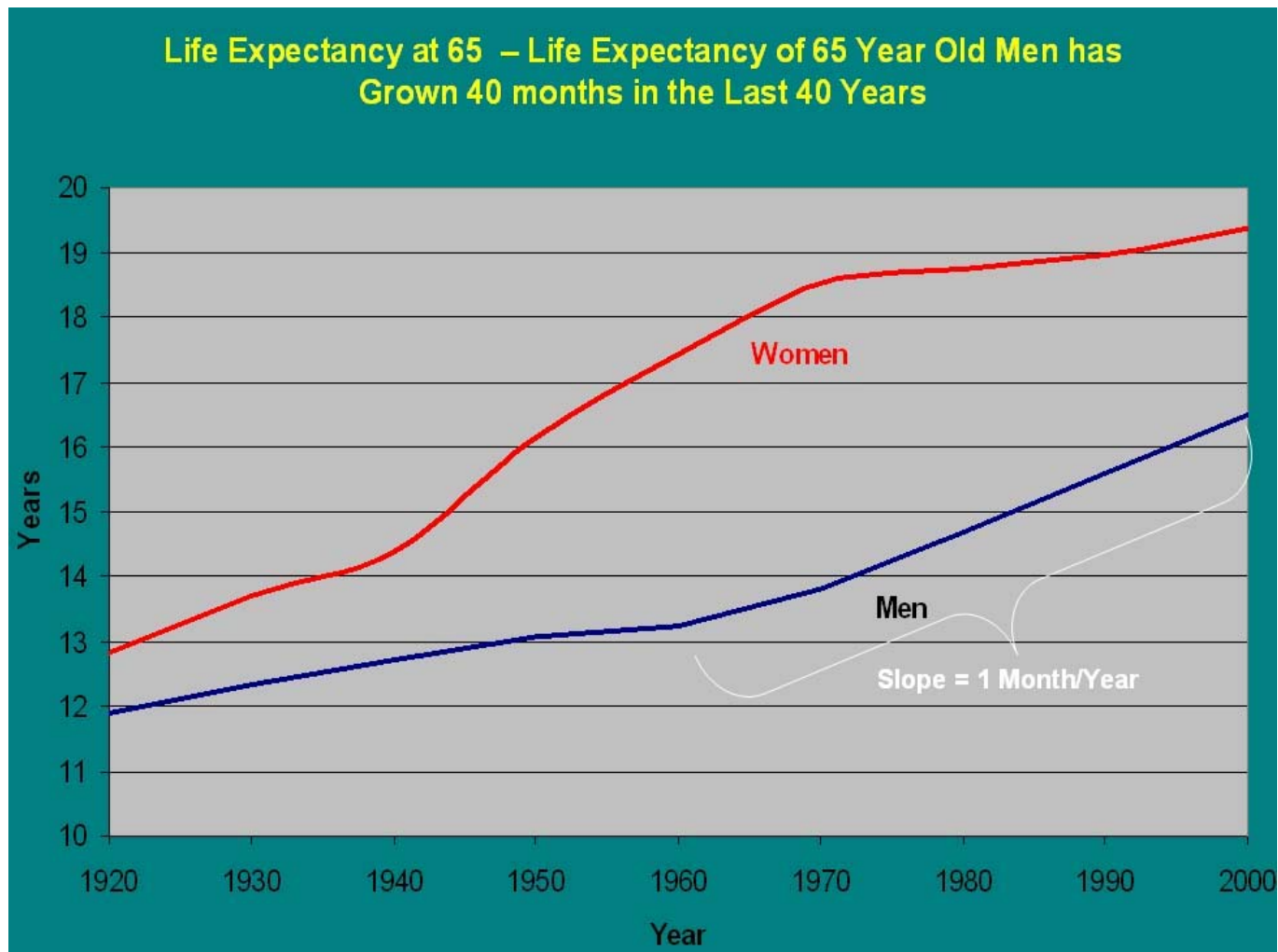
## *The Social Security “Crisis”*

### *What’s the problem?*

- Simply: Promised benefits exceed expected funding
- Currently, Trust Fund surplus of \$1.8 trillion
- 2005: \$600 billion revenue, \$500 billion outlays
- Future outlays increasing due to several factors
  - Retirement of baby boomers
  - Longer life expectancy
- Future revenue stagnant
  - No population growth

# The Social Security “Crisis”

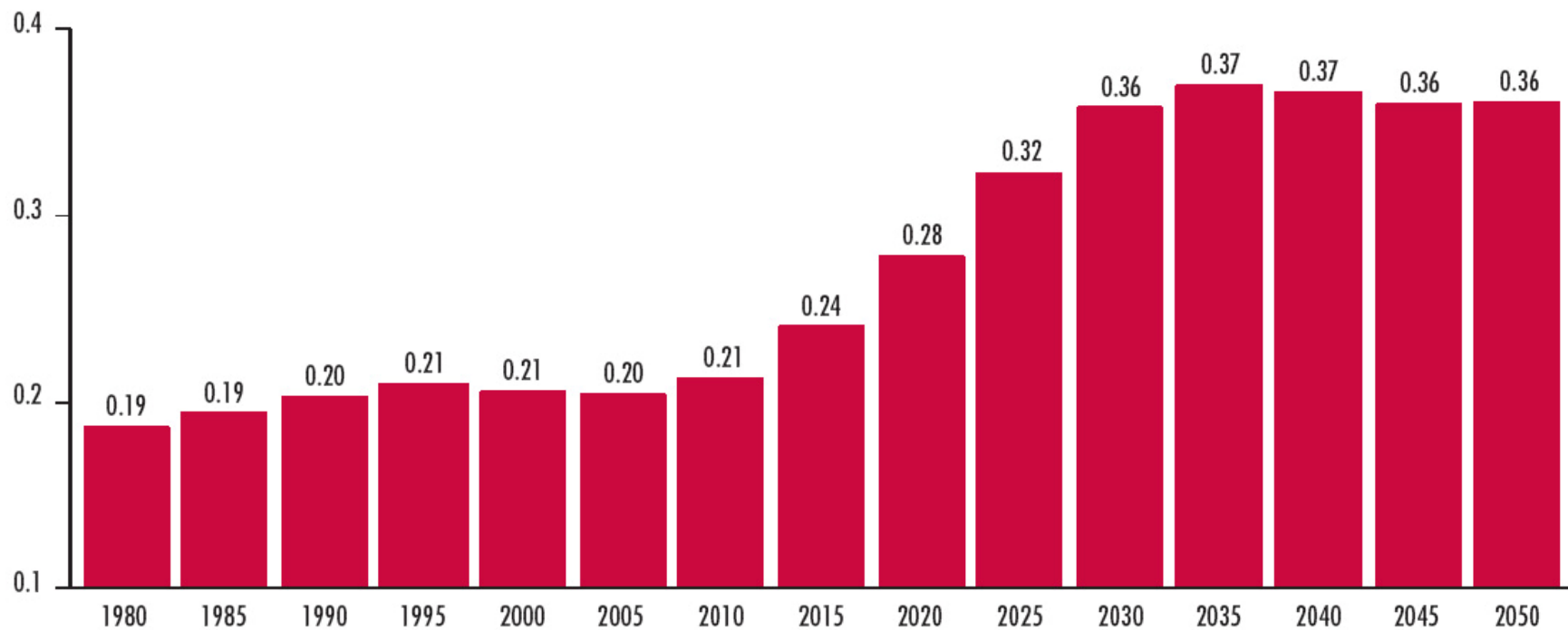
## Increasing Life Expectancy



# *The Social Security “Crisis”*

## *Increasing Dependency Ratio*

**Figure 3**  
**Old-Age Dependency Ratio (Persons Aged 65+ / Persons Aged 18-64)**



*Source: Census Bureau*

## *The Social Security “Crisis”*

### *Pay-Go System Flaw*

- Pay-Go System:

$$t * N_w * W = N_b * B$$

- $t = (N_b/N_w) * (B/W)$

- tax = dependency ratio \* replacement rate

- Currently: dependency ratio about 0.2 and replacement rate about 0.45.

$$t = 0.2 * 0.45 = 0.09$$



## *The Social Security “Crisis”*

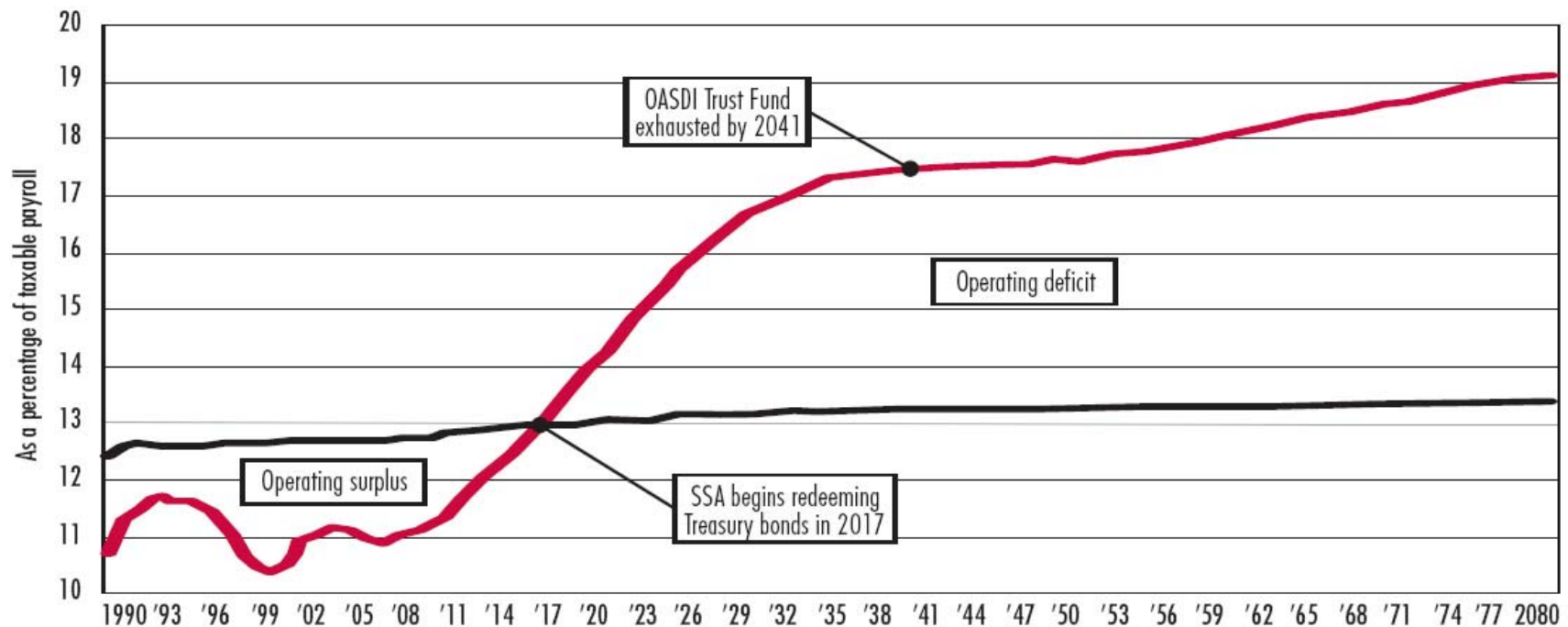
### *Pay-Go System Flaw*

- By 2035, dependency ratio about 0.4
- $t = 0.4 * 0.45 = 0.18$
- But payroll tax not scheduled to increase

# The Social Security "Crisis"

## Long Term Deficit

**Figure 1**  
Social Security Income and Cost (% of taxable payroll, historical and projected)



Source: OASDI Trustees Report, 2005