

LECTURE 6

I. SOCIAL INSURANCE

-definition, examples of Social Insurance

-characteristics:

1. participation is compulsory
2. eligibility and benefits depend on past contributions
3. benefits begin with some identifiable occurrence
4. NOT means-tested

II. FAILURES OF SOCIAL INSURANCE

A. Adverse Selection and Moral Hazard

III. REASONS FOR SOCIAL INSURANCE

1. Paternalism
2. Economies of Scale
3. Redistribution

IV. STRUCTURE OF SOCIAL SECURITY

A. Basic Components

- financing, benefits

-Replacement Rate equation

B. Who benefits?...who doesn't?

V. EFFECTS ON ECONOMIC BEHAVIOR

A. Savings Behavior

1. Wealth Substitution Effect
2. Retirement Effect
3. Bequest Motives
4. Uncertainty about Life

B. Retirement

VI. THE TRUST FUND

A. Facts

$\text{CAPITAL ACCUM.} = \text{PUBLIC SAVINGS} + \text{PRIVATE SAVINGS}$

You may want to review the following problems:

Midterms

Spring 1995, Question 3

Fall 1997, Question 3

Finals

Fall 1995, Question 6

Winter 1996, Question 6

I. Introduction

A. Insurance is used as protection against bad outcomes -- you pay premium and then receive benefits in adverse circumstances.

B. This not only occurs in private markets -- the federal government also replaces income losses that are outside of personal control through social insurance. These programs include: Social Security, Medicare, Unemployment Insurance, Disability Insurance, and Workers Compensation.

C. Characteristics of social insurance programs:

1. Participation is compulsory.
2. Eligibility and benefits depend in part on past contributions.
3. Benefits begin with some identifiable occurrence such as unemployment, illness, injury, or retirement.
4. The programs are not means-tested.

II. Why have social insurance?

What market failures cause the fundamental welfare theorem to fail?

A. Adverse selection and moral hazard

- Private markets for insurance may fail to emerge. One important example could be health insurance coverage for specific ailments such as AIDS. Why? We can expect an individual who knows he is likely to collect benefits to have an especially high demand for insurance, which is known as "adverse selection." Even with rigorous testing, the individual still probably has better information than the insurer. Therefore, only the high risks take up the insurance, so the plan loses money if it is set for the whole population. Therefore, increase premium, but this in turn exacerbates adverse selection.

- Another example could be "grade insurance." Suppose your professor offered you the following insurance plan: if you receive a grade of C- or below, your grade will be brought up to a C. On the other hand, your grade will be lowered by half a grade if you get a C+ or better. That is, if you get deserve to get a B+, you will be

awarded a B. If you deserve to get an A, you will get an A-. First, who would take up this plan? Many of the students who expect a low grade would take it up, while those who expect a higher grade would not. That is adverse selection. Second, the presence of insurance could change the student's behavior -- why bother studying if the lowest grade one can receive is a C? This second effect is called moral hazard.

B. Other justifications

1. Paternalism: people may not be farsighted enough to buy sufficient insurance for the own good and therefore the government must force them to. For example, people might not save enough for an adequate retirement. Also, individuals who can opt out of a social insurance program may believe that if they put themselves in a sufficiently desperate situation, society will feel obliged to come to their aid. This gaming of the system could be perceived as an externality if society cannot refuse to give care.

2. Economies of Scale: if there is a sense of a "right" insurance policy, could be cheaper to provide it through one big body.

3. Redistribution: Although they are not welfare programs, the link between some programs to previous contributions quite weak.

III. Structure of Social Security

Officially "OASDI" -- Old Age, Survivors, and Disability Insurance. Largest single domestic program in terms of dollars spent.

Structure:

- during working life, the employee and employer pay contributions through a payroll tax.
- when the employee retires, he or she collects benefits as a function of previous contributions.

A. Basic Components:

1. *Why go through all these details?*

When we discussed welfare programs, we avoided a lot of the numbers. But very few U.K. students will ever be on welfare. Virtually all students will collect Social Security someday, and everyone pays into the system through the payroll tax. Thus, you should be more self-interested in Social Security.

2. Partially funded financing

How do we pay for Social Security? When it started out, it was fully funded -- a person would pay into the system, the deposits would accumulate interest, and the benefits would be paid out upon retirement.

The system quickly turned into pay-as-you-go system, meaning the benefits of current retirees come from current workers. Each generation of retirees is supported by payments made by current generation of workers, not by drawing down an accumulated fund.

In 1983, the Social Security Trust Fund (SSTF) was created, with purpose of supporting baby boom's retirement (people born from 1945-1964). It currently has substantial surpluses, because this group has not reached retirement age. SSTF means that current contributions from baby-boomers also going for their future retirement. Therefore current system is neither fully funded nor pay-as-you-go.

3. Benefit structure

Benefit level, $B=f(\text{earnings history, age, other personal circumstances})$

Step 1: Calculate average indexed monthly earnings (AIME) – average wages (indexed for inflation) over the length of his/her working life. There is a ceiling, so someone earning \$1,000,000/mo has same AIME as someone earning \$2,000,000/mo. Also lowest five years of earnings may be dropped, which implies that the contributions while young (when wages tend to be low) may not count.

Step 2: Substitute AIME into benefit formula to find primary insurance amount (PIA), which is basic benefit amount for worker who retires at 65.

$$0 < \frac{\partial PIA}{\partial AIME} < 1, \quad \text{that is benefits increase with contributions, but not one-for-one.}$$

For person turning 65 in 1993 (the "normal" retirement age), PIA is:

90% of first \$401 of AIME

32% of AIME between \$402 and \$2,420

15% of AIME above \$2,402 up to the maximum.

Those with low wages get a payout that is a larger proportion of their previous earnings than those with high wages. For a "low earner," the replacement rate is around 60% of earnings, for "high earner" the replacement rate is 25%.

Step 3: Age at which benefits are drawn

- can retire as early as 62 (but benefits are reduced by 20 %)
- benefits increased if retire after 65
- Starting in year 2000, retirement age (for full benefits) gradually increased.

Age To Receive Full Social Security Benefits	
Year Of Birth	Full Retirement Age
1937 or earlier	65
1938-1942	65 + (Birth Year - 1937)*2 months
1943-1954	66
1955-1959	66 + (Birth Year - 1954)*2 months
1960 and later	67
Source: www.ssa.gov	

- the normal retirement age for most U.K. students will therefore be 67.

Step 4: Family status

- Fully insured retired worker retires at 65, benefit equals PIA.
- If the worker has a dependent wife, husband, or child, another 50% is added to the PIA. That is, the benefit may be increased dramatically.

Step 5: Outside earnings

- For a person collecting OASDI benefits, there is an "earnings test"
In 1993, for those between 65 and 69, earnings in excess of \$10,560 reduced social security benefit by one-third. Does not apply to those over age 70.
- Up to 85 % of OASDI benefits received by individuals whose incomes exceed certain amount subject to federal income tax. \$34 K for single, \$44 for married.
- Note that this changes the budget constraint in {Leisure, Consumption} space.

Step 6: Benefits are indexed for inflation

In the past year there has been heated discussion about changing the CPI (consumer price index). The argument revolves around whether the CPI accurately measures inflation -- it does not really account for changes in quality of goods (very important for electronics and computers), and it does not account for changes in tastes (for example, consumers in the U.S. eat less red meat and smoke fewer cigarettes than 30 years ago) in a very satisfactory way. Why is this related to Social Security? Changing (reducing) the measured inflation rate lowers government expenditures on Social Security -- by many billions of dollars. Implicitly, CPI changes amount to a reduction in the real Social Security benefit level.

4. Financing

Government raises money through a payroll tax, a flat %age of an employee's annual gross wages up to a certain amount.

On paper, one-half of tax paid by employee, one-half by employer.
However, employer may be able to shift part or all of their share of their

share to the employee in the form of a lower pre-tax wage. It is unlikely that true division of costs is really split equally.

Payroll taxes have grown over time (as have benefits and expenditures). It is currently 6.2% on employer and employee (12.4% altogether). There is also payroll tax on Medicare (health insurance for the elderly) of 1.45% for both employee and employer. These two taxes combined amount to 15.3%.

B. Distributional Issues

Some generations and income groups benefit from OASDI, others are clobbered by it.

How do we figure this out? Several steps:

- calculate Social Security wealth: how much benefit is the worker entitled to?
- lifetime costs of payroll taxes paid

Generally younger cohorts do not benefit very much, as do higher income earners. Also, women gain more than men because longer life expectancies. Since African-Americans have shorter life expectancies, they lose. Married people with non-working spouses gain more than single people, because of 50% of AIME and survivors benefits. One earner couples benefit more than two earners, because second person's earnings are subject to payroll taxes but it does not increase OASDI benefit very much. Smokers lose because they die sooner.

C. Economic Status of the Aged

Poverty rate for elderly has fallen dramatically. In 1970, they were a disadvantaged group, now their poverty rates are lower than the general population.

At same time, the elderly are working less . . . labor force participation among elderly men has fallen from 27% in 1970 to 16% in 1992.

Elderly widows have not fared very well, however. Many widows live in

poverty.

IV. Effects on Economic Behavior

A. Savings Behavior

- Saving decisions are based on lifetime considerations. During their working lives, individuals save some portion of their incomes to accumulate wealth from which they can finance their retirement.

- Social Security can alter lifetime savings. Why?

1. In exchange for their contributions, a person is guaranteed a retirement annuity. Thus, one would save less on their own if Social Security does saving for them. This is called the "wealth substitution effect."

2. Social Security may induce people to retire earlier than they would have. There is a "spike" in retirement rates at age 65. By retiring earlier, there is a longer amount of time which need to finance retirement; this increases saving and is called the "retirement effect."

3. Bequest motives -- If parents want to leave bequests to children, and realize that Social Security redistributes across generations, they may increase bequests to mitigate intergenerational inequities. This "bequest effect" would increase savings.

- These three effects go in different directions, one must go to data to resolve how important Social Security is for saving.

- Draw budget constraint with consumption during working years and during retirement. How does Social Security affect saving decision? Price equals the market interest rate. $U = U(C_1, C_2)$.

***** SEE FIGURE 6-1 *****

Feldstein (1974): wealth substitution effect dominates bequest/retirement effects. Social security wealth increases current consumption, and crowds out savings. But numbers are controversial.

B. Retirement (labor supply)

- Labor force participation of elderly men has declined over time. More women have entered the labor force, however.

Year	1930	1950	1992
Fraction of elderly men in the labor force	54%	41%	16%

- Compared to working, Social Security provides good replacement rates. One example in Rosen's textbook shows that after account for interactions of Social Security with the tax system, earning another \$1 increases income by 23 cents.
- Some studies conclude that Social Security may have accounted for one-half the increase in the retirement rate of older men. However many variables are unaccounted for and are difficult to measure, such as health status, local labor market conditions, and wealth from pensions.

V. The Trust Fund

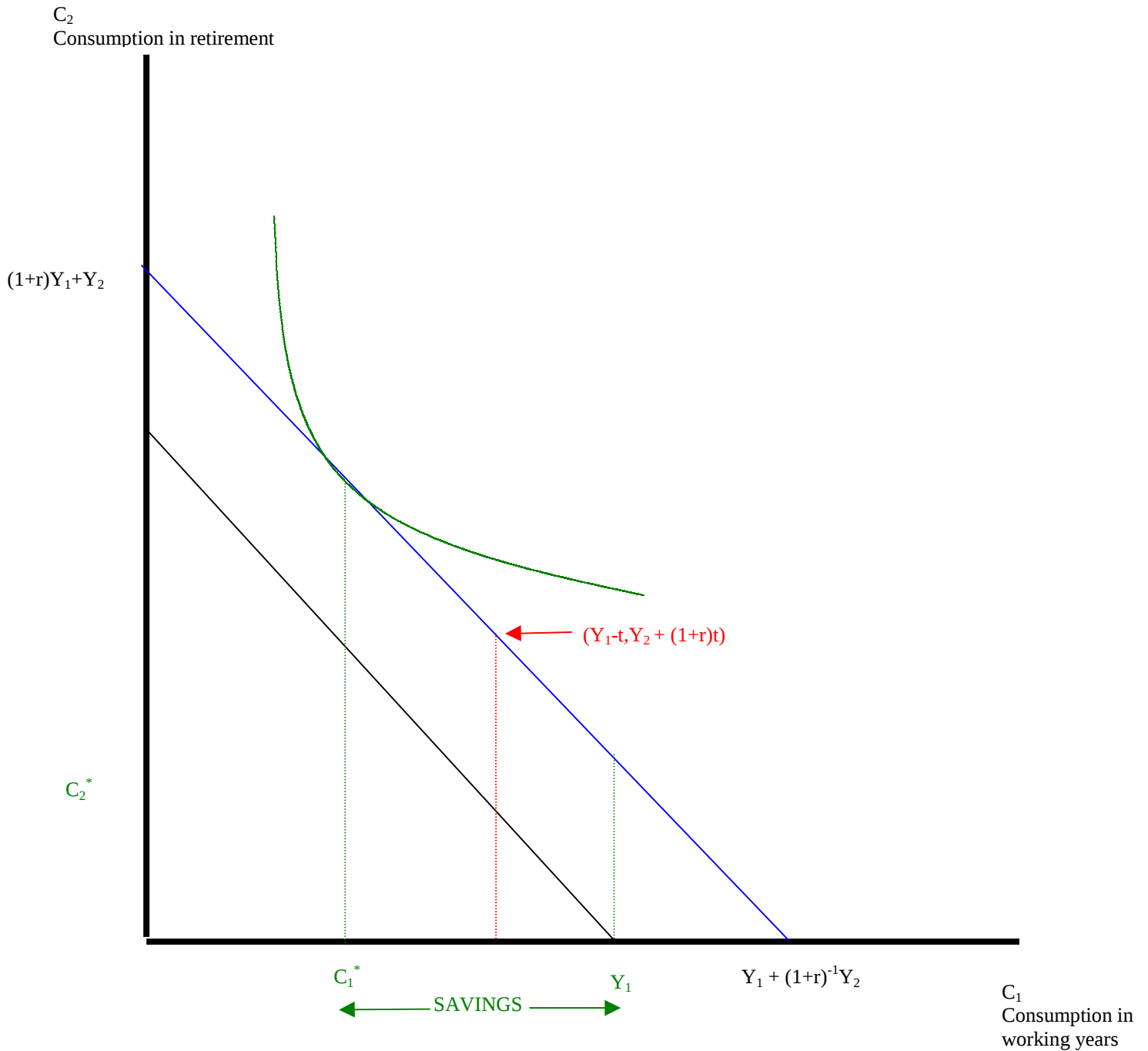
A. Some Facts

- It was motivated by fact that there are 74 million people born between 1946 and 1964, or 30 % of population. Currently there are 3.3 workers per retiree, by 2030 will be about 1.9 workers per retiree.
- Payroll tax is currently 12.4%; it would increase to 33% if government continued on a Pay-As-You-Go system.
- Currently revenue from payroll taxes exceeds the benefits paid out, but there will be shortfalls in future. The trust fund will grow until 2025 (when it will reach \$4.9 trillion), and will be exhausted by 2040 (around time that you will retire!!!).

B. Does the Trust Fund make sense?

- *Will it increase the current capital stock? Are the surpluses being used to finance investment?*
- The trust fund can only invest its money in federal debt, it cannot buy stock in firms that invest in plant and equipment. BUT this does mean that less private sector money is needed to finance the debt, frees up that money to invest in private sector.
- $CAPITAL\ ACCUM = PUBLIC\ SAVINGS + PRIVATE\ SAVINGS$
- Between 1983-1990, the surplus in Social Security counted as revenue for computing deficit. It made the deficit look artificially small during that time period. There were fears that with a smaller official deficit, government expenditures would increase (less political concerns) and that the taxes would essentially be financing current consumption.

Figure 6-1 – Consumption in the future is just another “good”



The price of consumption in the future is divided by the interest rate, r .