

Social Insurance: The New Function of Government

131 Undergraduate Public Economics
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OUTLINE

Chapter 12

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MOTIVATION

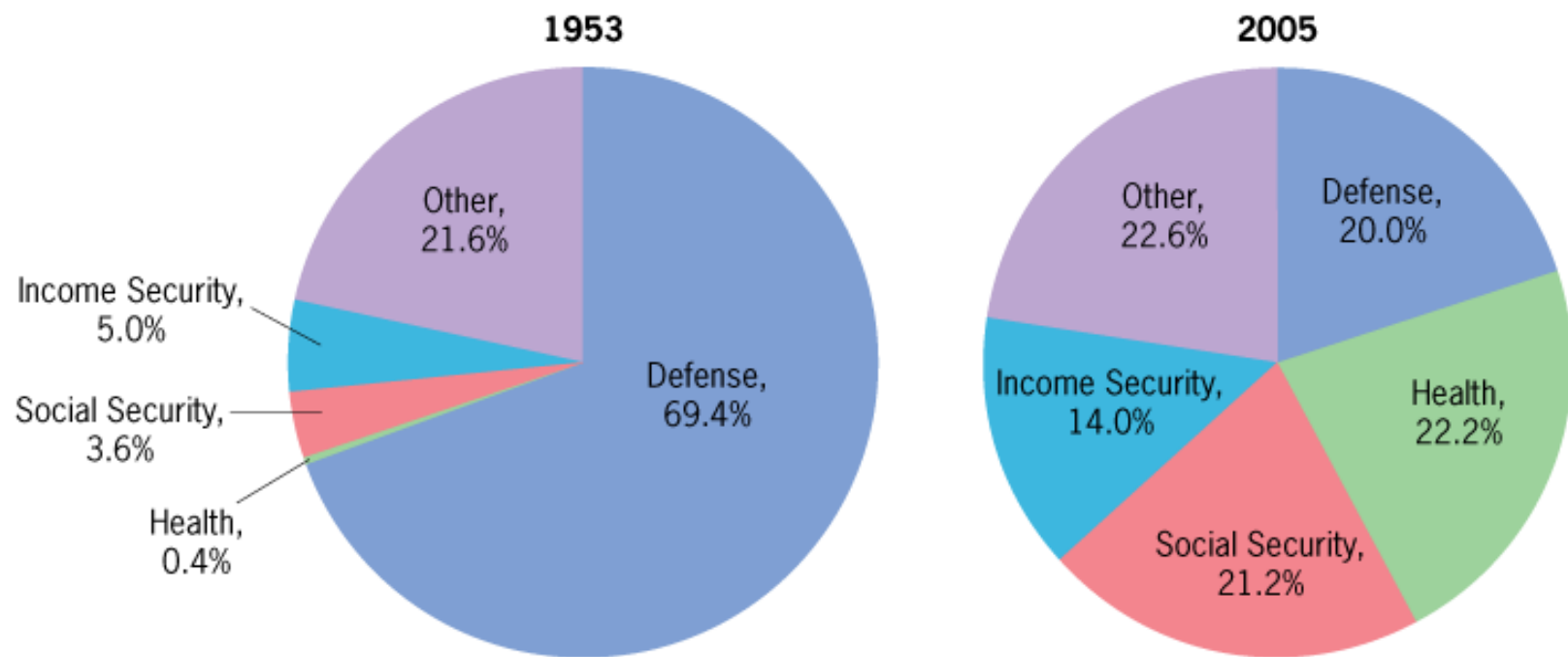
In the preamble to the United States Constitution, the framers wrote that they were uniting the states in order to “provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity.”

For most of the country’s history “common defense,” was the federal government’s clear spending priority.

Since then, the government’s spending priorities shifted dramatically, away from “common defense” and toward promoting “the general welfare.”

Social Insurance: The New Function of Government

■ FIGURE 12-1



Government Spending by Function, 1953 and 2005 • Government today devotes a much larger portion of its budget to social insurance than it did 50 years ago.

Source: Office of Management and Budget (2006a), Table 3.1.

DEFINITION

Social insurance programs: Government interventions in the provision of insurance against adverse events:

Examples: (a) health insurance (Medicaid, Medicare), (b) retirement and disability insurance, (c) unemployment insurance

Means-tested: Programs in which eligibility depends on the level of one's current income or assets

Example: Medicaid (health insurance for the poor) is means-tested. Medicare (health insurance for the elderly 65+) is not means-tested.

What Is Insurance?

Insurance premiums: Money that is paid to an insurer so that an individual will be insured against adverse events.

A sampling of private insurance products that exist in the United States includes:

- Health insurance
- Auto insurance
- Life insurance
- Casualty and property insurance

Why Do Individuals Value Insurance?

Consumption smoothing: The translation of consumption from periods when consumption is high, and thus has low marginal utility, to periods when consumption is low, and thus has high marginal utility.

States of the world: The set of outcomes that are possible in an uncertain future.

The fundamental result of basic insurance theory is that individuals will demand *full insurance in order to fully smooth their consumption across states of the world.*

EXPECTED UTILITY MODEL

Expected utility model: Individuals want to maximize expected utility defined as the weighted sum of utilities across states of the world, where the weights are the probabilities of each state occurring.

If q is probability of adverse event, expected utility is written as:

$$EU = (1-q) * U(\text{consumption with no adverse event}) + q * U(\text{consumption with adverse event})$$

Actuarially fair premium: Insurance premium that is set equal to the insurer's expected payout.

EXPECTED UTILITY MODEL

Let $U(c)$ be the utility function, increasing and concave in c : $U'(c) > 0$ and $U''(c) < 0$

Person has income W (regardless of health)

Person is sick with probability q

If sick, person incurs medical cost d to get better

Insurance contract: pay premium p , and receive payout b if sick

Expected utility:

$$EU = (1 - q)U(W - p) + qU(W - p - d + b)$$

Expected profits of insurers: $EP = p - qb$

Competition among insurers $EP = 0 \Rightarrow b = p/q$

This is called **actuarially fair** insurance

EXPECTED UTILITY MODEL

Individual chooses the level of insurance premiums p to maximize expected utility:

$$EU = (1 - q)U(W - p) + qU(W - d - p + p/q)$$

First order condition:

$$0 = dEU/dp = -(1 - q)U'(W - p) + q[-1 + 1/q]U'(W - d - p + p/q)$$

$$\Rightarrow U'(W - p) = U'(W - d - p + p/q)$$

$\Rightarrow W - p = W - d - p + p/q$ (because U is concave and hence U' is strictly decreasing and hence invertible)

$$\Rightarrow 0 = -d + p/q \Rightarrow p = d * q$$

This implies that the person is perfectly insured: consumption is the same in both states and equal to $W - d * q$

Intuition: with concave utility, marginal utility decreases and it is always desirable to reduce consumption in high income states to increase consumption in low income states

Introducing heterogeneity in risk across individuals

Suppose now that there are two types of individuals: sickly and healthy
Sickly have $q = q_S$ and Healthy have $q = q_H$ with $q_S > q_H$

First scenario: Symmetric Information: Insurance companies and individuals can observe q_H vs. q_S types (for example, could be age status)

Then insurance companies will charge 2 policies, each actuarially fair:

$b_S = p/q_S$ for the sickly

$b_H = p/q_H$ for the healthy

Each type will still choose to buy perfect insurance

Sickly always consume $W - q_S d$

Healthy always consume $W - q_H d$

Private insurance does not equalize incomes across types only within types

Pre-existing conditions will lead to inequality in insurance premia and welfare but no failure in the insurance market

Introducing heterogeneity in risk across individuals

Second scenario: Asymmetric Information: Insurance companies cannot observe q_H vs. q_S types but individuals do (for example, diet or family health history)

If insurance companies charge the same two policies as before

$b_S = p/q_S$ for the sickly

$b_H = p/q_H$ for the healthy

Then everybody wants to buy the healthy insurance which is cheaper $\Rightarrow$ Insurance company will make losses $\Rightarrow$ cannot be an equilibrium [this is called **Adverse Selection**]

Two equilibrium possibilities:

1) Pooling equilibrium: Insurance companies offer a contract based on average risk [good deal for sickly, mediocre deal for healthy but maybe better than no insurance]

2) Separating equilibrium: Insurance companies offer two contracts: one expensive contract with full insurance for the sickly, one cheap contract with partial insurance for the healthy: each type self-select into its contract $\Rightarrow$ Outcome not efficient as healthy as under-insured



APPLICATION

Adverse Selection and Health Insurance “Death Spirals”

Harvard offered its employees a wide variety of health insurance plans. The prices charged to the university for these plans were a function of how much each plan’s enrollees made use of the medical care. If a plan had many sick enrollees, then its costs were higher.

experience rating Charging a price for insurance that is a function of realized outcomes.

The university shielded its employees from the fact that some plans were more expensive than others by paying a larger share of the more expensive health insurance plans.

In 1995, Harvard moved to a system in which the university paid the same amount for each plan so that employees had to pay more for the more generous health plans. The insurance group moved to a *separating equilibrium*, with the less-healthy getting more generous insurance at high prices.

Because these less-healthy employees used much more medical care, the experience-rated premiums of the more generous plans increased substantially.

By 1998, the most generous plan had gotten so expensive that it was no longer offered. Adverse selection had led to a “death spiral” for this plan.

How Does the Government Address Adverse Selection?

The government can address adverse selection and improve market efficiency in a number of ways, but they involve redistribution, which may be quite unpopular.

Natural solution is to impose a mandate: everybody is required to purchase insurance

If price is the same for everybody, the low risk end up subsidizing the high risks

However, from a social perspective, being high risk (e.g. having a sickly constitution) is rarely consequences of individual choices ⇒ Society might want to compensate individuals for this

⇒ Explains why all OECD have adopted universal health insurance (US being the last one to do it with Obamacare)

WHY SOCIAL INSURANCE: OTHER REASONS

Externalities

Your lack of insurance can be a cause of illness for me, thereby exerting a negative physical externality.

Example: flu shots protect the individual who gets it from the flu but indirectly protects others (as the flu is very contagious)

Administrative Costs

The administrative costs for Medicare are less than 2% of claims paid. Administrative costs for private insurance average about 12% of claims paid.

At those higher prices, some not-very-risk-averse consumers may decide against buying insurance. In this way, administrative inefficiencies can lead to market failure because not all people will be fully insured, as is optimal.

WHY SOCIAL INSURANCE: OTHER REASONS

Redistribution

Genetic testing may ultimately allow insurers to remove many problems of asymmetric information via the testing of individuals to accurately predict their health costs. Those who are genetically ill-fated will pay much higher prices for insurance than those who are genetically healthy $\Rightarrow$ Private insurers cannot provide insurance against pre-existing conditions

Individual Failures

Individuals may not appropriately insure themselves against risks if the government does not force them to do so (myopia, lack of information, self-control problems)

If individuals understand their own failures, they will support social insurance (e.g., Medicare Health Insurance for elderly is very popular)

If individuals really want to be myopic, they will oppose govt social insurance (paternalism)

▶ APPLICATION

Flood Insurance and the Samaritan's Dilemma

When a disaster hits, the government will transfer resources to help those affected. Since individuals know that the government will bail them out if things go badly, they will not take precautions against things going badly.

To reduce taxpayer-funded federal expenditures on flood control, the federal government established the National Flood Insurance Program (NFIP) in 1968.

- Areas with a 1% chance of flooding in any given year are given the option of buying flood insurance through the program.
 - Following Hurricane Katrina, it was revealed that nearly half of the victims did not have flood insurance. The claims from those who did have flood insurance bankrupted the program.
 - Failures of the NFIP have many sources. Among these is that many individuals opt out of paying for insurance.

This is a classic example of the Samaritan's Dilemma: If the government is going to continue to help individuals in disasters, and people are not required by law to buy flood insurance, then why buy it?

A solution to this problem would be to mandate the purchase of flood insurance at actuarially fair prices in areas at risk of flooding.

SOCIAL INSURANCE VS. SELF-INSURANCE

Self-insurance: The private means of smoothing consumption over adverse events, such as through one's own savings, labor supply of family members, or borrowing from friends.

Example: Unemployment Insurance

Individuals do not generally have a private form of unemployment insurance, but they do have other potential means to smooth their consumption across unemployment spells:

- They can draw on their own savings.
- They can borrow, either in collateralized forms or in uncollateralized forms.
- Other family members can increase their labor earnings.
- They can receive transfers from their extended family, friends, or local charitable organizations.

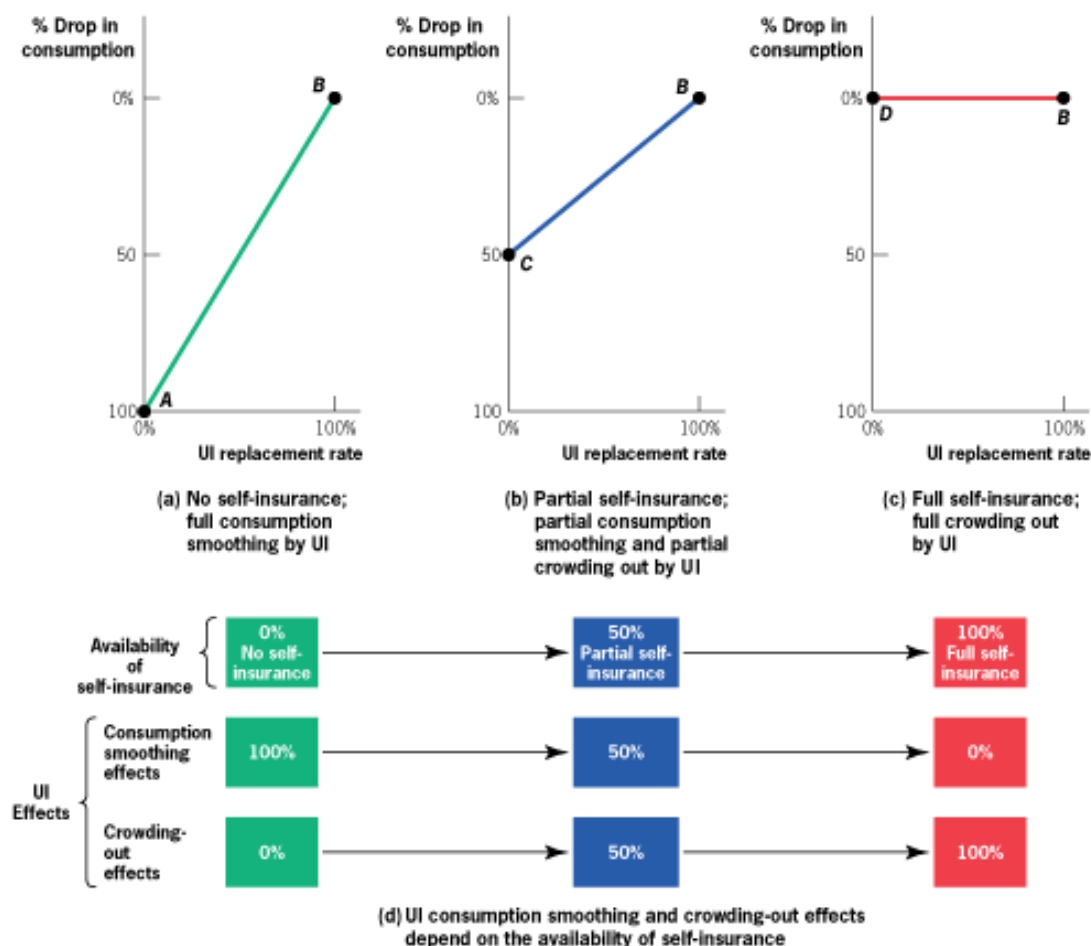
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Social Insurance Versus Self-Insurance: How Much Consumption Smoothing?

Example: Unemployment Insurance

UI replacement rate The ratio of unemployment insurance benefits to pre-unemployment earnings.

■ FIGURE 12-2



MORAL HAZARD

Moral hazard: Adverse actions taken by individuals or producers in response to insurance against adverse outcomes.

Example: If you receive unemployment benefits replacing lost wages, you may not search as much for a new job $\Rightarrow$ Insurance reduces incentives to remedy adverse events

Moral Hazard exists with both private and social insurance as long as insurer cannot perfectly monitor the person insured $\Rightarrow$ Insurers do not offer perfect insurance

The existence of moral hazard problems creates the *central trade-off of social insurance*: by fixing failures in private insurance markets, the government can worsen the underlying problem that is being insured against.

▶ APPLICATION

The Problems with Assessing Workers' Compensation Injuries

- ▶ Thirty-five-year old Ricci DeGaetano had been a guard in a Massachusetts prison until he slipped and fell on the job. He returned to work the next year, but soon after claimed he was injured while fighting with an inmate. He collected \$82,500 in workers' compensation claims for the next three years. The problem? DeGaetano was operating a karate school the entire time.
- ▶ New Orleans police officer David Dotson started getting workers' compensation after an April 2001 claim that he received a shoulder injury while on patrol. His story began to unravel when his supervisors saw him give an emotional television interview upon his return from the 9/11 World Trade Center attacks. They wondered how Dotson's shoulder injury allowed him to work with a bucket brigade at Ground Zero.
- ▶ Two on-the-job traffic accidents had given Los Angeles police detective Rocky Sherwood constant pain in his spine and right knee, rendering him unable to work. The LAPD suspected deception and made a videotape of him coaching his Little League team. The tape showed Sherwood hitting, pitching, fielding, and demonstrating for the kids how to slide into a base.

MORAL HAZARD

What Determines Moral Hazard?

- How easy it is to observe whether the adverse event has happened.
- How easy it is to change behavior in order to establish the adverse event.

Moral Hazard Is Multidimensional

In examining the effects of social insurance, four types of moral hazard play a particularly important role:

- 1) Reduced precaution against entering the adverse state.
- 2) Increased odds of entering the adverse state.
- 3) Increased expenditures when in the adverse state.
- 4) Supplier responses to insurance against the adverse state.

THE CONSEQUENCES OF MORAL HAZARD

Moral hazard is costly for two reasons:

(1) The adverse behavior encouraged by insurance lowers social efficiency because it reduces the provisions of socially efficient labor supply.

(2) When social insurance encourages adverse events, which raise the cost of the social insurance program, it increases taxes and lowers social efficiency further.

PUTTING IT ALL TOGETHER: OPTIMAL SOCIAL INSURANCE

- Optimal social insurance systems should partially, but not completely, insure individuals against adverse events.
- The benefit of social insurance is the amount of consumption smoothing provided by social insurance programs.
- The cost of social insurance is the moral hazard caused by insuring against adverse events.

CONCLUSION

Asymmetric information in insurance markets has two important implications:

- 1) It can cause adverse selection.
- 2) It can cause moral hazard.

The ironic feature of asymmetric information is, therefore, that it simultaneously motivates and undercuts the rationale for government intervention through social insurance.