

# EE441 Economics of Public Expenditure

## 11. Social Security

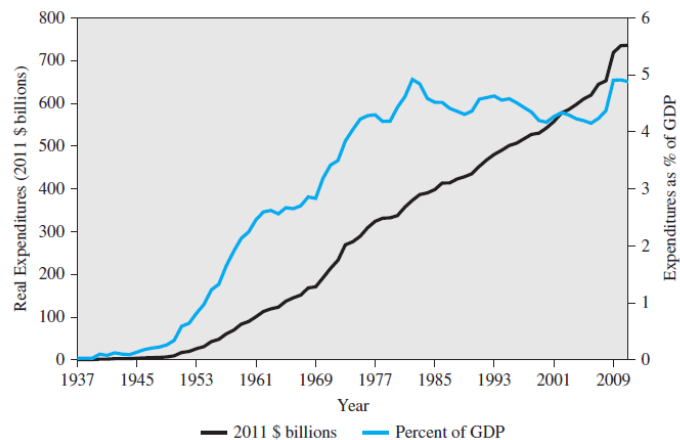
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1/2017

## Outline of Topic 11

1. Why have social security
  - a. Consumption smoothing and annuity market
  - b. Adverse selection and the annuity market
  - c. Other justifications
2. Structure of Social Security
  - a. Basic components
  - b. Distributional issues
  - c. The Trust Fund
3. Effect of social security on economic behavior
  - a. Saving behavior
  - b. Retirement decisions
  - c. Implications
4. Long-term stress on social security
5. Social security reform
  - a. Maintain the current system
  - b. Privatize the system
6. Social Protection in Thailand
7. Conclusion

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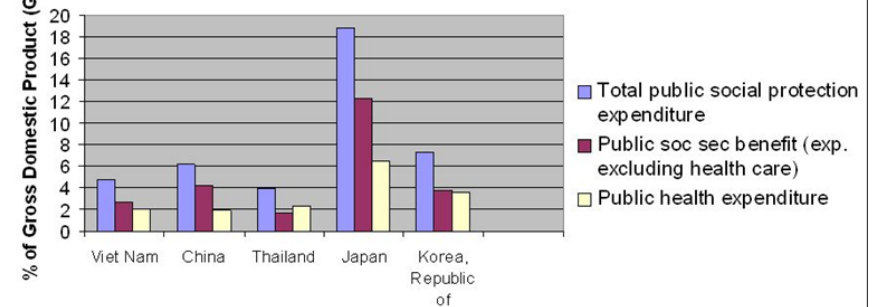
## Social Security Expenditures (1939-2011)



Source: Social Security Trustees [2012].

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## Cost of social protection in selected Asian countries (latest available years)



Source: ILO's Asian Decent Work Decade 2006-2015

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# Why Have Social Security?

- Consumption Smoothing and the Annuity Market
  - How Social Security works
    - During their working lives, members of the system and their employers make contributions via a tax on payrolls. Upon retirement, members are eligible for monthly payments based in part on their contributions.
    - Consider the risks of dying too young and living too old.
  - Annuity
    - Insurance plan that charges a premium and then pays a sum of money at some regular interval for as long as the policyholder lives.
  - Consumption smoothing
    - Reducing consumption in high-earning years in order to increase consumption in low-earning years.
  - *Why can't private market be relied upon to provide annuities instead?*
- Adverse Selection and the Annuity Market
  - Asymmetric information
    - A situation in which one party engaged in an economic transaction has better information about the good or services traded than the other party.
  - Adverse selection
    - The phenomenon under which the uninformed side of a deal gets exactly the wrong people trading with it (that is, it gets an adverse selection of the informed parties).

# Other Justifications

- Lack of foresight and paternalism
  - If left to their own devices, most people would not accumulate enough assets to finance an adequate level of consumption during their retirement, even if they don't live longer than expected.
- Moral hazard
  - When obtaining insurance against an adverse outcome leads to changes in behavior that increase the likelihood of the outcome.
  - Individuals whose saving for retirement is insufficient may believe that the government will feel obliged to come to their aid if their situation is desperate enough.
- Economize on decision-making and administrative costs
  - By requiring everyone to participate in Social Security, and by restricting the available options to the participants, the government program could be cheaper to administer than private plan.
  - Counter-argument: Variety is costly, but that doesn't mean that the variety is undesirable.
- Income Redistribution
  - Under Social Security, people with high lifetime earning tend to receive proportionally smaller returns on their taxes than people with low lifetime earnings. This helps explain why Social Security is compulsory.
- Improve the Economic Status of the Aged
  - One of the main purposes is to maintain the incomes of the elderly.
  - The benefits do not necessarily represent net increase of the resources to retirees. People may save less in anticipating of receiving Social Security or they may retire early to qualify for the benefits.

# Structure of Social Security

- Fully funded
  - A pension system in which an individual's benefits are paid out of deposits that have been made during his or her working life, plus accumulated interest.
- Pay-as-you-go (PAYGO) or unfunded
  - A pension system in which benefits paid to current retirees come from payments made by current workers.
- Supplemental Security Income (SSI)
  - A welfare program that provides a minimum income guarantee for the aged and disabled.
- Average indexed monthly earnings (AIME)
  - The top 35 years of wages in covered employment, indexed each year for an average wage growth. The AIME is used to compute an individual's Social Security benefit.
- Primary insurance amount (PIA)
  - The basic Social Security benefit payable to worker who retires at the normal retirement age or becomes disabled.
- Normal retirement age
  - Age at which an individual qualifies for full Social Security retirement benefits. Historically, it was 65 years (in US; 55 years in Thailand), but is now gradually being increased to 67 (in US, still 55 in Thailand).

# Fully Funded Plan

	Period 1	Period 2	Period 3	Period 4
The <i>Greatest Generation</i>	Work contribute	Retire benefits	Dead	Still Dead
The Baby Boom Generation	Childhood		Dead	Dead
Generation X	Unborn		Retire benefits	Retire benefits

## Pay As You Go (or Unfunded) System

	Period 1	Period 2	Period 3	Period 4
	benefits			
The <i>Greatest Generation</i>	Work contribute	Retire benefits	Retire benefits	Dead
The Baby Boom Generation	Childhood	Work contribute	Retire benefits	Dead
Generation X	Unborn	Childhood	Work contribute	Retire benefits

Each generation's benefits come from tax payments made by current workers

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## Today's Partially Funded System

	Period 1	Period 2	Period 3	Period 4
	benefits			
The <i>Greatest Generation</i>	Work contribute	Retire benefits	Retire benefits	Still Dead
The Baby Boom Generation	Childhood	Work contribute	Retire benefits	Dead
Generation X	Unborn	Childhood	Work contribute	Retire benefits

Baby Boomers and Gen X are also contributing to their own retirement

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## Explicit Transfers

- Benefits for dependents and survivors (1939)
- Supplemental Security Income (SSI, 1972)
  - a welfare program that provides a federal minimum income guarantee for the aged and disabled.

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## Benefits

- How to calculate benefits
  - AIME (Average Indexed Monthly Earnings) – average monthly earnings in 35 highest paid years
    - Wages indexed for inflation
    - Ceiling on AIME – up to tax ceiling

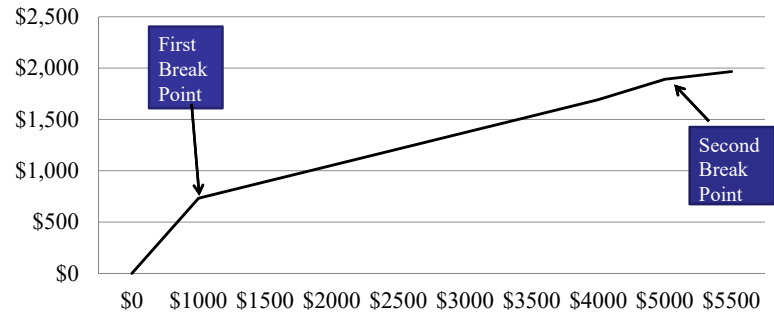
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## Benefit Structure

If AIME < \$711 → PIA = .90\*AIME

If \$711 < AIME < \$4288 → PIA = .90\*\$711 + .32\*(AIME - \$711)

If AIME > \$4288 → PIA = .90\*\$711 + .32\*(\$4288-\$711) + .15\*(AIME - \$4288)



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## Adjustments

- Family Status
  - +50% for spouse or dependent child
  - If covered worker dies spouse receives 100% of worker's benefit or spouse's own benefit (whichever is higher)
  - Divorced spouse married at least 10 years gets spouse benefit if not remarried while covered worker alive
- Earnings test and taxing benefits
  - Benefits reduced \$1 for every \$2 earned above \$14,160
  - Individuals losing benefits may have later benefits increased
  - Up to 85% of benefits taxed for recipients with income above a base amount (\$25,000 for single and \$32,000 for married taxpayers)

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## Financing

- FICA (Federal Insurance Contribution Act)
- Partially Funded System
- 2008 Social Security Tax rates (payroll tax)
  - Employee
  - 6.2% (OASI - 5.6%, DI - .6%) of first \$102,000 of earnings on both employee and employer
  - Self-employed
    - 12.4%
- 2008 Medicare Tax rates
  - 1.45% on both employer and employee with no earnings ceiling
- *Why not fund Social Security through general tax revenues?*
  - More political than economic reasoning. A link between taxes and benefits creates an obligation on the part of the government to maintain the system that promised the benefits.

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## Why not funded through general tax revenue?

*“Those taxes were never a problem of economics. They are politics all the way through. We put those payroll contributions there so as to give the contributors a legal, moral and political rights to collect their pensions. With these taxes in there, no damn politician can ever scrap my Social Security Program.”*

-President Franklin Roosevelt

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## Distributional Issues

- Actuarially fair return
  - An insurance plan that on *average* pays out the same amount that it receives in contribution.
  - The calculation must be made “on average” because total benefits depend on the individual’s life span, which cannot be known in advance with certainty.
- Intergenerational redistribution (in PAYGO)
  - Total benefits =  $N_b * B$
  - Total taxes =  $t * N_w * w$
  - If total benefits = total taxes:  
 $N_b * B = t * N_w * w$  or  
 $B = t * (N_w/N_b) * w$

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## Distributional Issues

$$B = t * (N_w/N_b) * w$$

Implications:

- If we assume that the tax rate is constant over time, then average benefits (we call it the “implicit” rate of return for PAYGO) can increase only if wages increase or if the number of workers relative to retirees increases (ie., population grows).
- If wages and population both increase at a constant rate, then retirees receive a positive return on the taxes they contributed to Social Security, with the return equal to the sum of wage growth and population growth.
  - Thus, when the ratio of workers to beneficiaries in a society falls, there will be problems.
- The equation suggests that one way to increase the average benefit to retirees is to increase the tax rate. However, the future generation are no better off (since the old paid lower tax rates during their working years).
  - This reinforces the point: Any sustainable increase in the return of a PAYGO system can only be accomplished through some combination of population growth and wage growth.
- A generation of retirees can receive extraordinarily high returns from a PAYGO system when the system is just starting up.

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## Social Security wealth

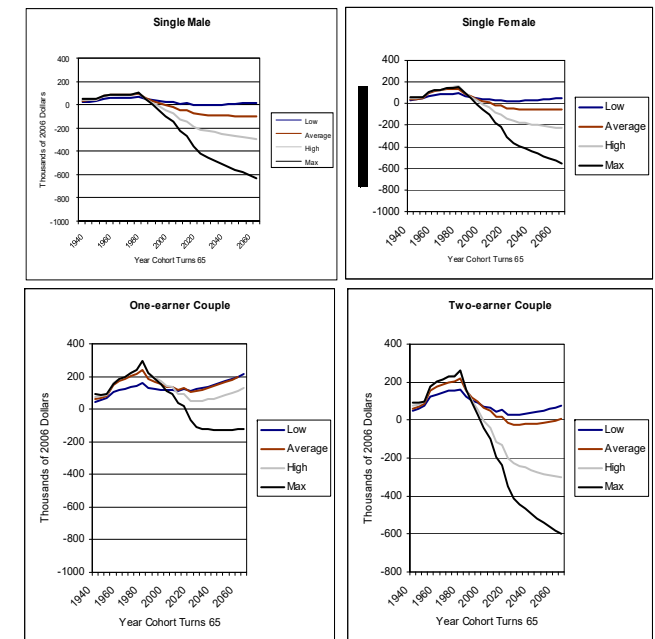
- The present value of one’s expected Social Security benefits minus expected payroll taxes paid.
- The expected lifetime net benefits from Social Security.
- Used to explore distributional issues in Social Security.

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## Social Security Wealth: Representative Individuals

Source: Updated tables, furnished by C. Eugene Steuerle and Adam Carrasso, 2006.  
See C. Eugene Steuerle and Jon M. Bakija [1994] for original tables and methodology.

All values expressed in 2006 dollars.



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## Cartoon made the point of Social Security

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"By the way, Sam, as someday you'll be paying for my entitlements, I'd like to thank you in advance." © The New Yorker Collection 1996 J. B. Handelsman from cartoonbank.com. All Rights Reserved.

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## Other Distributional Issues

- Redistribution within a generation
  - Differences by earnings
  - Differences by lifespan
  - Differences by living arrangements
  - Differences by number of earners in the family
- Normative evaluation

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## The Trust Fund

- A fund in which Social Security surpluses are accumulated for the purpose of paying out benefits in the future.

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## The Social Security Trust Fund



- Social Security and National Saving
- Budget Treatment of Social Security
  - Off budget
    - Federal expenditures and revenues that are excluded by law from budget totals.
  - Unified budget
    - The document that includes all the federal government's revenues and expenditures.

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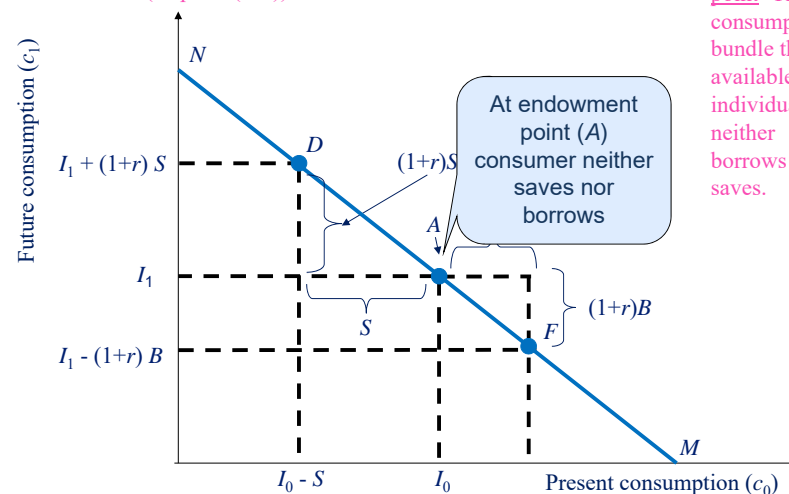
# Social Security and Savings Behavior

- Life-cycle theory of savings
  - The life-cycle model- The theory that individuals' consumption and savings decisions during a given year are based on a planning process that considers lifetime circumstances.
  - The introduction of Social Security system can substantially alter the amount of lifetime saving. Such changes are the results of three effects:
- Wealth Substitution Effect
  - The crowding out of private savings due to the existence of Social Security.

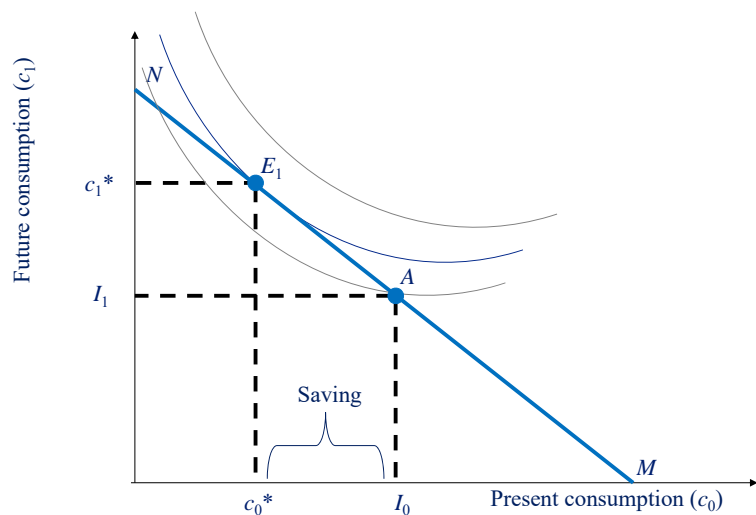
## Budget Constraint for Present and Future Consumption

MN- Intertemporal budget constraint- The set of feasible consumption levels across time (slope of  $(1+r)$ ).

Endowment point- The consumption bundle that is available if an individual neither borrows nor saves.

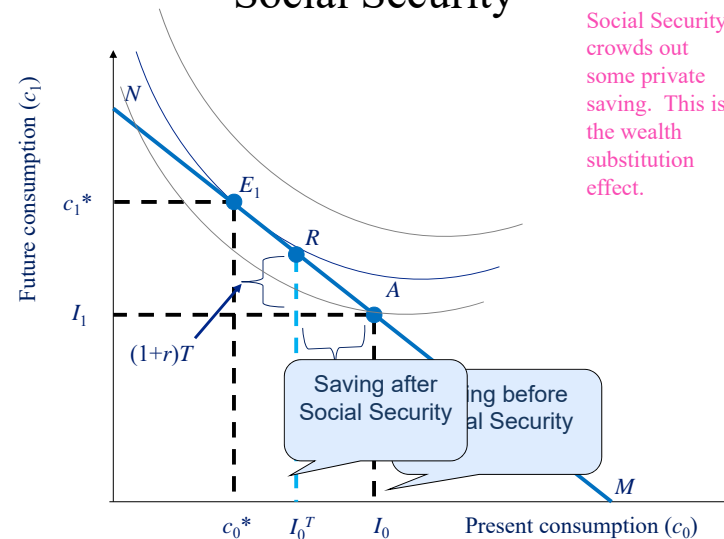


## Utility-maximizing Choice of Present and Future Consumption



## Crowding out of private saving due to Social Security

Social Security crowds out some private saving. This is the wealth substitution effect.



## Other ways Social Security Affects Saving

- Retirement Effect
  - To the extent that Social Security induces people to retire earlier, people may save more in order to finance a longer retirement.
- Bequest Effect
  - Theory that people may save more in order to finance a larger bequest to children in order to offset the intergenerational redistribution of income caused by Social Security.
- Inconclusive empirical evidences.

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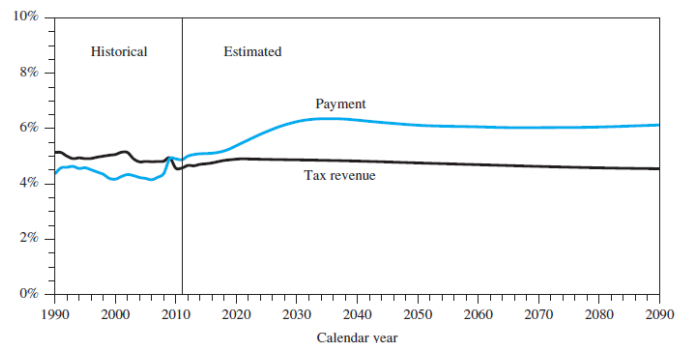
## Retirement Decisions

- Social Security wealth and the retirement decision
- Empirical evidence
  - Diamond and Gruber [1999]
    - There is neither an incentive nor a disincentive to retiring and collecting Social Security between the ages of 62 and 65. However, there is a disincentive to continue working and forgoing Social Security benefits after 65, because the increase in monthly benefits after this point is not enough to make up for the lost years of benefits and the additional payroll taxes that must be paid.
  - Gruber and Wise [2004]
    - The age at which benefits are first available has an important effect on the likelihood of retirement.

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## Long-Term Stresses on Social Security

Projected revenues and projected costs of Social Security as share of Gross Domestic Product



Source: Social Security Trustees [2012]

## Dependency and Replacement Ratios

- Dependency ratio
  - The ratio of Social Security beneficiaries to covered workers.
- Replacement ratio
  - The ratio of average Social Security benefits to average covered wages.

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## Long-Term Stresses on Social Security

Since:  $B = t * (Nw/Nb) * w$

Rearrange:  $t = (Nw/Nb) * (B/w)$



With increasing dependency ratio, there are several ways to keep a PAYGO system solvent.

- Increase covered wages.
- Increase tax rates.
- Decreasing benefits.

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## Social Security Reform

- Time horizon for solvency
  - Sustainable solvency
    - Expected present values of revenues and expenditures are equal into the indefinite future.

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## Maintain the Current System

- Raise the payroll tax
- Raise the Maximum Taxable Earnings Level
- Raise the Retirement Age
- Reducing the Cost-of-Living Adjustment
- Change the Benefit Formula
- Comparing the Options

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## Privatize the System

- Personal Accounts
  - Retirement savings accounts managed by individuals as part of a Social Security privatization plan. They are also known as “individual accounts” or “personal savings accounts.”
  - In effect, privatization moves Social Security in the direction of a fully funded pension system, as opposed to the current PAYGO structure.
- Pros and cons of personal accounts
  - Effect on Solvency
    - To compensate for paying less in the existing Social Security, they would have to require that each dollar a worker diverts into a personal account be offset by a reduction in the future benefits from the tradition system.
    - If the expected PV of the benefit reduction just equals the decrease in taxes, then the solvency of the system is unaffected.
    - If the expected PV of benefit reduction is less than the decrease in taxes, then Social Security’s solvency would actually get worse.

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## Privatize the System (Cont.)

- Effect on Saving
  - Carve-out accounts
    - Personal accounts that are funded by diverting payroll tax revenues away from the traditional Social Security system.
  - Add-on accounts
    - Personal accounts that are funded from workers' resources rather than by diverting money from the payroll tax.
- Risk
  - Higher expected returns come at a price of higher risk.
- Administration
  - Some fear that such costs would be very high under privatization.

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## Social Protection in Thailand: Issues and Options

Bill Salter  
Director  
ILO Subregional Office for East Asia



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## Outline



- Social protection floor
- Principal instruments to extend social security
- A new pension scheme for Thailand?
- Social protection: shaping the society we want

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## Social Protection Floor

On April 2009, the UN Chief Executives Board (CEB) has agreed on **nine joint initiatives** to confront the crisis, accelerate recovery and pave the way for a fairer and more sustainable globalization:

1. Additional financing for the most vulnerable
2. Food Security
3. Trade
4. A Green Economy Initiative
5. A Global Jobs Pact
6. **A Social Protection Floor**
7. Humanitarian, Security and Social Stability
8. Technology and Innovation
9. Monitoring and Analysis

**"A certain minimum level of social protection needs to be an accepted and undisputed part of the socio-economic floor of the global economy"**

World Commission on the Social Dimension of Globalization



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## A Global Social Protection Floor



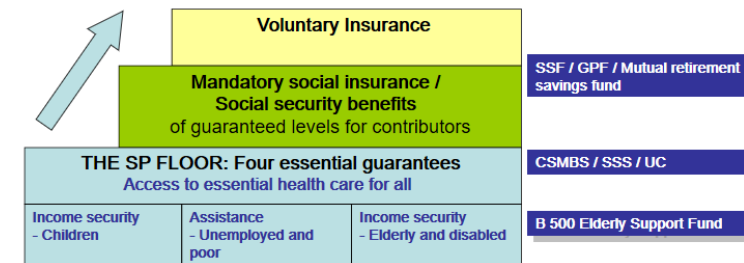
- Includes a basic and modest set of social security benefits for all citizens
- 4 types of social transfers in cash or in kind:
  - Financing universal access to essential health care
  - Income security for all children through child benefits
  - Some modest conditional support for the poor in active age (employment programmes, benefits), and
  - Income security through basic, tax-financed, universal non-contributory pensions for older persons, persons with disabilities and those who lost the main breadwinner in a family
- Also access to essential services

## Social Security Development Staircase



Horizontal and Vertical Dimensions

Thailand:  
Where it is now



SSF – Social Security Fund / GPF – Government Pension Fund  
CSMBS – Civil Service Medical Benefit Scheme / SSS – Social Security Scheme / UC – Universal Coverage



## Social protection floor can be affordable

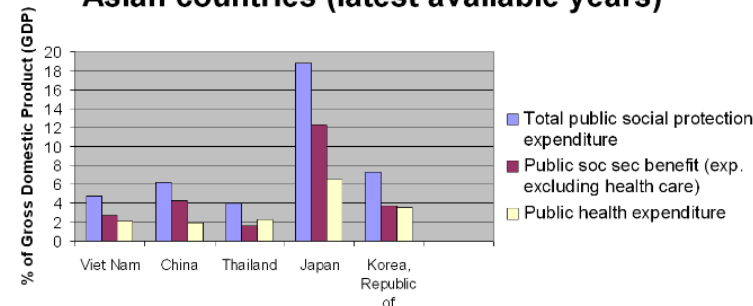


- An ILO study in 10 Latin American countries shows that:
  - A modest package of conditional child cash transfers, universal pensions and basic health care can cost **under 5% of GDP**
  - the poverty headcount effects can reach a reduction of more than 50%.
- Experience in a GTZ-sponsored targeted cash transfer pilot in Zambia suggests that scaling up to national level may be possible at affordable cost, possibly in the order of **0.5% of GDP**.
- Universal pension schemes in Botswana, Brazil, Lesotho, Mauritius, Namibia, Nepal, and South Africa, cost between **0.2 and 2% of GDP**.

## Social protection floor can be affordable



### Cost of social protection in selected Asian countries (latest available years)



## Principal instruments to extend social security

- **Option 1: Extending classical social insurance**
  - earnings-related and meets “fairness” considerations (benefits linked to contribution)
  - Smooths consumption over the life cycle
  - primarily designed for the formal sector, gender bias
  - no redistribution towards excluded segments of the population



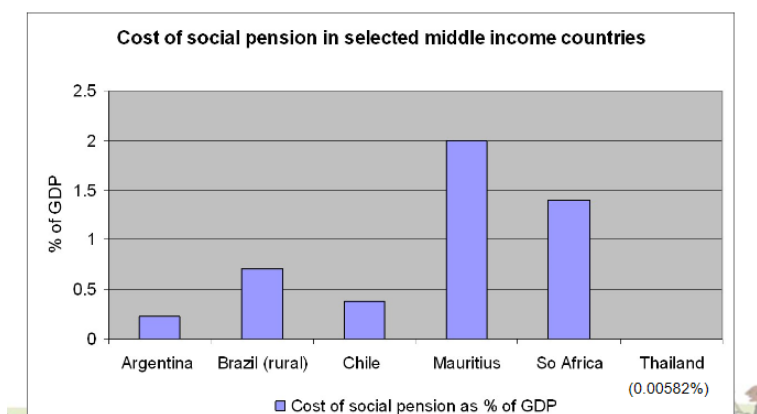
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## Principal instruments to extend social security

- **Option 2: Extending tax-financed schemes** (conditional, unconditional, means-tested, universal)
  - Can reach out to entire population subgroups; requires some basic logistical capacity
  - Can be tailored to cost considerations (e.g. budget can determine eligible minimum age and benefits)
  - Poverty impact of minimum income in old age for all
  - Some level of social security can be afforded by all
  - **Probably the biggest potential**
- Social security systems often mix non-contributory and contributory

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## Expenditure on social pension in selected middle income countries



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## A new pension scheme for Thailand?

- Social protection for more or social protection for all?
- Decent pension or maximum coverage?
  - Pension for all – but universal 500 baht scheme too low for significant poverty and security impact
  - Pension for all – but global evidence that mandatory membership of contributory schemes in the informal sector is impossible to administer



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# Social protection: shaping the society we want



- Poverty reduction
- Equity
- Social cohesion
- Nation building
- Economic growth

(These could all lead to more effective poverty reduction)

