

# Public Economics

## Lec 11: Pensions and retirement

**Alessandro Martinello**

alfa 4035B

[alessandro.martinello@nek.lu.se](mailto:alessandro.martinello@nek.lu.se)



**LUND UNIVERSITY**

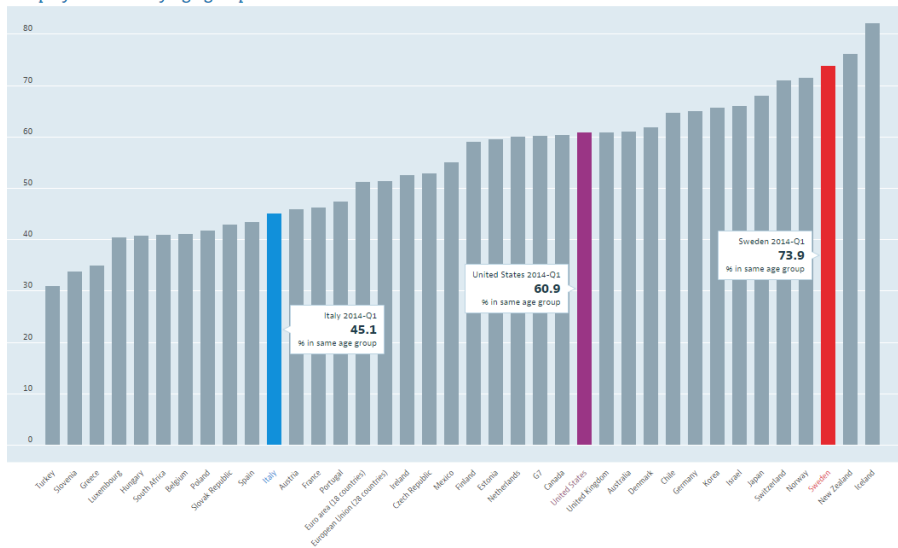
School of Economics and Management

- **Seminar day schedule**
- **Leftovers from L10**
  - **Medicaid** - special case of in-kind benefit
  - **Training & education**

- **RG ch. 11**
- **Recommended readings**
  - Gruber & Wise (1999)
  - Kruse & Ståhlberg (2013)
  - Kruse (2010)
- Also <http://www.issa.int/>

# Large fraction of elderly inactive

Employment rate by age group 55-64 year-olds, % in same age group, Q1 2014



# Why a public retirement program

- **Increase in last 60/70 years**
- **Risk of living too long**
  - **Not much risk of that 100 years ago**
- ① **Consumption smoothing  $\implies$  insurance**
  - Adverse selection
  - Moral hazard
- ② **Paternalism**
  - **Individuals not able to optimize**
  - **6/10 Danes don't know which pension plan they have**
- ③ **Redistribution**
  - **Inertia**

# Characterizing a pension scheme

- **Funding**
  - **Unfunded** (Pay-as-you-go, PAYG) system
  - **Funded** system
- **Quantification of benefits**
  - **Defined contribution**
  - **Defined benefit**
- **Normal retirement age**
  - Can be  $\neq$  for  $\neq$  programs
  - Usually incentive scheme tied to age threshold
- **Redistribution**
  - None: **actuarial system**
  - Tax liability, means-testing
  - Explicit transfers (dependents & survivors)

# Actuarial VS redistributive system

- **Actuarial**

- **Expected benefits = expected contributions**
- **Moral hazard** (also later)
- **Adverse selection**
  - Requires **mandate**
- **Mandated actuarial system good for both efficiency & paternalism**

- **Redistributive**

- Requires **mandate**
- **Equity** considerations
- Why not through other (clearly redistributive) system?
  - **Gruber:** Lack of transparency...

# The Swedish pension system ('99/'03)

- ① **Basic pension** (tested against ② and ③)
  - Funded by **taxes**, payed out from age 65
- ② **Earnings (income)**
  - Notional accounts (**PAYG**), from age of 61 (↘ benefits)
  - Return determined by AVG wage growth
  - **Demographic changes** ⇒ **instability**
  - Rate (benefits) ↘ automatically if system ≈ unstable
  - ⇒ **increase in** ①
- ③ **Earnings (premium)**
  - **Fully funded**
  - **Large** choice of investment funds
    - Potentially large ≠ in returns
- ④ **Occupational pension schemes**



# Pensions & savings (I)

- Intertemporal optimization, 2 periods
- **Pension scheme redefines endowment point**
- **Wealth substitution effect**
  - Pension crowds out private savings
- **PAYG: Macro implications**
  - Contributions  $\nrightarrow$  investments
  - Macro: **underdevelopment**

# Pensions & savings (II)

## 1 Crowd-out of savings

- ↗ pension, ↘ savings
- **No matter the system - rational people will reoptimize**

## 2 Bequest motive

- Build stock of wealth for heirs
- **If pensions system redistributes**, offset redistribution
- ↗ pension, ↗ savings

## 3 Moral hazard

- **Pension**  $\implies$  **earlier retirement**
- Save more to prepare for longer inactive period
- ↗ pension, ↗ savings

## Effect of pension on savings

- **Attanasio & Brugiavini (2003)**
  - Wealth survey information
  - DiD on policy change in Italy
  - **Crowd-out evidence**
    - Less for older people & with more children (**bequest motive**)
  - Findings conformed by Attanasio & Rohwedder (2003) in UK
- **Chetty et al (2014)**
  - Register data information, 12 million obs
  - Set of policy/natural experiment variations
  - **Mandatory savings & Incentives to save**
    - **Both work**, but for  $\neq$  people
    - Some (minority) reoptimize, some (majority) passive
    - **Crowd-out** only for financially active people

## Redistribution within a generation

- **Protection of survivors**
  - Favors low-earning member of couple
  - Transfer tends to be towards women
  - + transfers to children
- **Guaranteed income**
  - Financing proportional to income
    - Who pays the payroll tax?
  - Benefits decreasing with income
- **PAYG  $\implies$  across generations**

# Transfers across generations

- **Benefits received = taxes paid**

$$N_b \cdot B = t \cdot w \cdot N_w$$

$$B = t \cdot w \cdot \frac{N_w}{N_b}$$

- ↗ **benefits only through (real) wage or population growth**
- **Social security wealth**
  - **Present value** of benefits - taxes paid

## Instrumental for intergenerational redistribution

- **Defined benefit**
  - All (economic & demographic) adaptation falls on the **working generation**
  - Fix  $B$ , then taxes have to change
- **Defined contribution**
  - All adaptation falls on the **retired**
  - Fix  $t$ , then benefits have to change
- **Financing through ↗ in debt**
  - Next lecture

# Rationales behind redistribution

- **Equity**

**Within a generation: Highest benefits to families with  $\neq$  incomes**

- **Incentive to childbearing**

- Population growth = sustainability

- **Subsidies to home production**

- Disincentive to work  $\implies$  less taxable income

- **Remember: transfers across generation**
  - Issue for almost all OECD countries

$$t = \underbrace{\frac{N_b}{N_w}}_{\text{Dependency ratio}} \cdot \underbrace{\frac{B}{w}}_{\text{Replacement rate}}$$

## **Dependency ratios—calculations based on age:**

**IT:** 25.2% in 1997 → 32.7% in 2013

**DE:** 23% in 1997 → 31.3% in 2013

**SE:** 27.4% in 1997 → 29.9% in 2013



# The future



# The future



## 1 Reducing benefits

- Raise retirement age
- Reduce top benefits

## 2 Raising taxes/contributions

- ... again.
- **Efficiency loss**
- **Question redistribution:** mandatory accounts?

## 3 Improve efficiency

- **Privatization?**
- **Competition**
  - **Sweden** & scandinavia successful examples so far