Lecture 6: Disability Insurance and Long-term Care Insurance

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Introduction

- **Social insurances are at the heart of the welfare state**
  - Insuring social risks (unemployment, sickness, accidents, disability, etc.)
  - Universal in design (not means-tested)
  - Hope originally that social insurance would make social assistance useless
- **Key policy questions**
  - Private or public insurance ?
  - High or low benefit coverage ?
  - Which design for social insurance ?

Which risk to insure ?

- **Workers compensation :** work-related accident
- **Unemployment insurance (UI)** : loss of income with job loss, expenses for looking for a job
- **Health care insurance** : health care expenses following sickness or accident
- **Statutory sick pay/maternity pay** : income loss during sick leave / maternity leave
- **Disability insurance (DI)** : loss of income following onset of disability
- **Old-age insurance** : longevity risk
- **Long-term care insurance** : expenses for help in conducting daily activities (not health care)

Outline of the lecture

I. **Rationales for social insurance**
   - The gains of insurance
   - Why can private insurance fail ?

II. **Disability insurance**
   - Moral hazard as a limit to social insurance
   - Redistribution as part of social insurance

III. **Insurance for long-term care**
   - Why no private insurance ?
   - Designing long-term care insurance

I. Rationales for social insurance

1. The gains of insurance
2. Why can private insurance fail ?

The gains of insurance

- **Uncertainty**
  - There are risks, i.e., probability of adverse events

  e.g., being sick, becoming disable, losing a job
  - These risks when they happen can lead to great income loss

- **Limitation of self-insurance**
  - Self-insurance means saving as a precautionary motives, to face the risks of adverse events
  - Often it would imply very large saving rates, generally not enough to face to most severe adverse event

- **Gains of insurance**
  - Risk-adverse individuals would prefer to pay a small amount to reduce the risk of a large catastrophic event

A Simple Model of Insurance Decisions

- **Risk modelled as two possible states (good/bad)**
  - good state : denoted 1, income is E_1
  - bad state : denoted 2, income is E_2, $E_2 < E_1$
  - Probability of an **adverse event** (i.e., being in the bad state) is denoted p
- **Insurance**
  - It costs a premium α_1
  - It pays out α_2 if the individual is in the bad state
  - Consumption in the two states :

$$(C_1, C_2) = (E_1 - \alpha_1, E_2 + \alpha_2)$$

Expected Utility

- Individuals' **expected utility** is :

$$\text{EU} = (1-p)u(E_1 - \alpha_1) + p \cdot u(E_2 + \alpha_2)$$

- Individuals are **risk averse** : $u''(C_i) < 0$
  means that individuals prefer the expected value of the lottery (expected consumption) to the lottery itself :

$$u\big[(1-p)C_1 + p \cdot C_2\big] > (1-p)u(C_1) + p \cdot u(C_2)$$

- **Marginal rate of substitution** between good and bad state :

$$\text{MRS}_{12} = \frac{1-p}{p} \cdot \frac{u'(C_1)}{u'(C_2)}$$

Actuarially Fair Insurance

- The insurance market is assumed to be **perfectly competitive**
- Hence insurance companies must earn **zero expected profits** in equilibrium :

$$E\Pi = (1 - p)\alpha_1 - p \cdot \alpha_2 = 0$$

- Insurance companies charge an **actuarially fair** premium, i.e. the insurance premium is set equal to the expected payout :

$$\alpha_2 = \frac{1 - p}{p}\alpha_1$$

Optimal Insurance Decision

- Plugging in $\alpha_2 = \dfrac{1-p}{p}\alpha_1$, each individual solves :

$$\max_{\alpha_1}(1-p)u(E_1-\alpha_1)+p\cdot u(E_2+\frac{1-p}{p}\alpha_1)$$

- FOC : $\text{MRS}_{12} = \frac{1-p}{p}$, i.e. $u'(C_1) = u'(C_2) \Rightarrow$ **Full insurance**
- Optimal insurance premium : $C_1 = C_2 \Rightarrow \alpha_1^* = p(E_1 - E_2)$
- Individuals are perfectly insured : they earn their **expected income** $\overline{E} = (1-p)E_1 + p\cdot E_2$ regardless of the state
- **General result** : if individuals are risk-averse (diminishing marginal utility of consumption) and the insurance pricing is actuarially fair, the efficient market outcome is full insurance and thus full consumption smoothing

Conditions under which competitive insurance will be efficient

1. **Individual risk not systemic risk**
   - Actuarial insurance pools risks across individuals
   - Risk probabilities should be independent

   e.g., inflation is a systemic risk

2. **Risk, not certainty**
   - Probability p of adverse event should be less than 1

   e.g., pre-existing health condition or chronical illness leads to certain health care expenses

3. **Risk, not uncertainty**
   - Probability p must be known or estimable

   e.g., risk too rare

   e.g., long term risk can be unknown

Conditions under which competitive insurance will be efficient

4. **No adverse selection**
   - *Hidden knowledge :* the purchaser of insurance may know better that he/she has high risk (Akerlof, 1970 ; Rothshild and Stiglitz, 1976)
   - Insurers want to separate policies to high/low risks
   - Only high risks will ask for the insurance (market fails)

5. **No moral hazard**
   - *Hidden action :* the adverse behavior that is encouraged by insuring agents against an adverse event

e.g., Unemployment insurance : less job search
e.g., Workers' compensation : reporting fake injuries
e.g., Health insurance : overconsumption of medical goods

Moral Hazard is Multidimensional

- **Reduced precaution** against entering the adverse state
  e.g., a person covered by medical insurance might reduce preventive activities to protect her health
- **Increased probability** of entering the adverse state
  e.g., a person covered by workers' compensation might be more likely to claim that she was injured on the job
- **Increased expenditures** when in the adverse state
  e.g., health insurance could lead to overconsumption of medical care
- **Supplier responses** to insurance against the adverse state
  e.g., because of workers' compensation, firms might not be as careful about protecting workers against workplace accidents

Why social insurance ?

1. **Mandates removes adverse selection**
   - But mandates does not imply public insurance
2. **The contract is not fully specified**
   - benefits can respond to unforeseen events
   - enables protection against uncertainty, as well as risk
3. **But moral hazard plagues also social insurance**
   - no exception to adverse behavioural responses from insured individuals

Other Motives for Social Insurance

4. **Externalities** : there are negative externalities from underinsurance, especially health insurance

   e.g., Flu shots. If you do not get insured, I get sick

5. **Administrative costs** : large economies of scale can lead to efficiency gains in mandating pooled insurance

   e.g., in the U.S., administrative costs represent 12% of insurance premiums in the private health insurance market vs. 3.2% for Medicare/Medicaid

6. **Individual failures** : individuals may not adequately insure themselves

   e.g., Individuals may misperceive the probability of layoffs or overestimate the probability of finding a job $\Rightarrow$ might end up underinsuring themselves

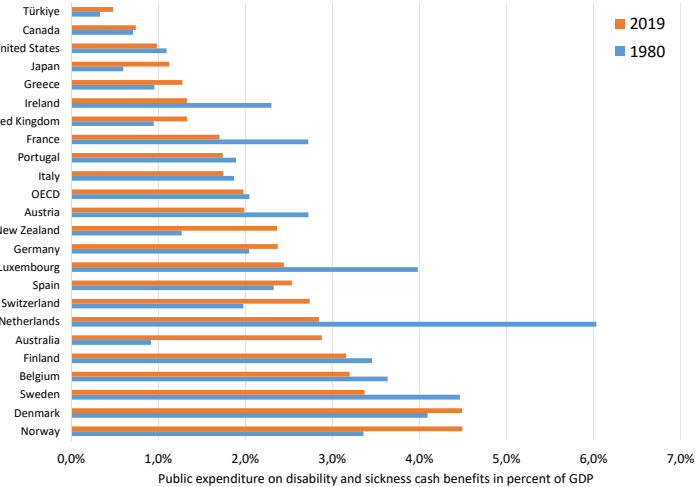
II. Disability insurance

1. DI a social insurance scheme
2. Estimating the moral hazard
3. Long-term unemployment insurance vs disability insurance ?

Disability insurance

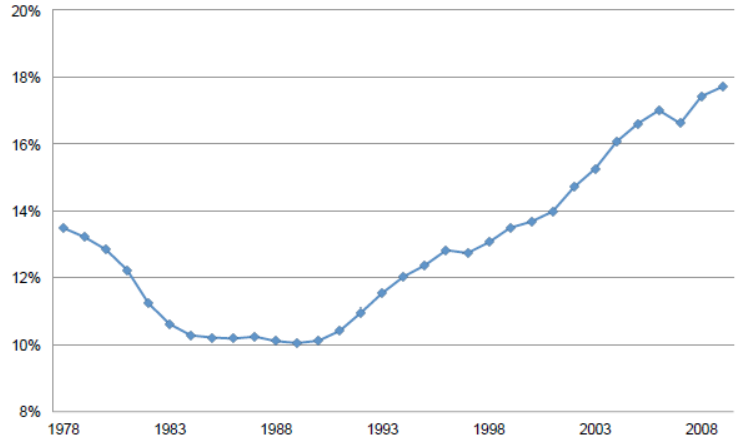
- **Large social insurance scheme in most countries**
  - In the U.S. Social Security Disability Insurance (SSDI)
  - In the U.K. incapacity benefits (IB)
  - Large DI in the Netherlands, and Nordic countries
- **Large increase in recent decades**
  - "Fiscal crisis looming" (Autor and Duggan JEL 2004)
  - Role of generosity of benefits (Gruber 2000)
  - Stringency of health test (Parsons 1980, Bound 1989, Gruber and Kubik 1997, Karlstrom et al. 2008)
  - View that DI progressively evolved into long-term unemployment schemes

Figure 1 – Public expenditure in disability/sickness cash benefits (% GDP)



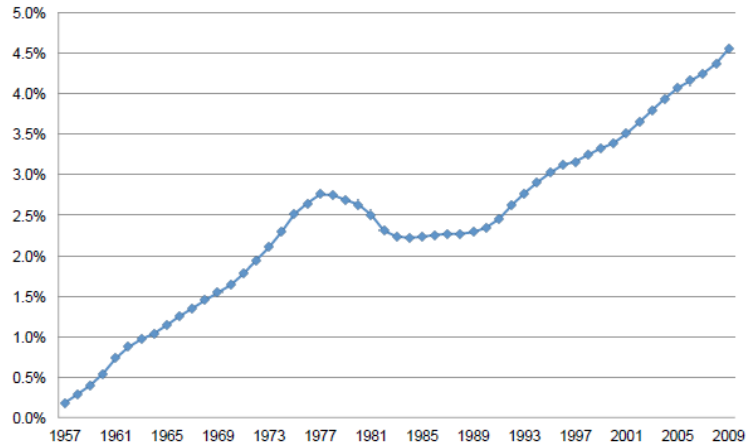
Source : OECD Social Expenditure Database (SOCX).

Figure 2 – SSDI expenditures as a share of total OASDI expenditures (1979–2009)



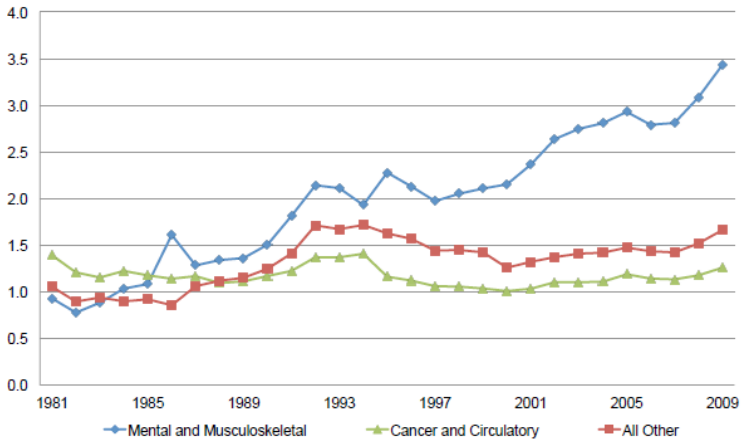
Source : Autor (2015), Fig. 2.

Figure 3 – Percent of individuals receiving SSDI Disabled Worker benefits (1957–2009)



Source : Autor (2015), Fig. 3.

Figure 4 – SSDI Awards per 1,000 Insured, by diagnosis

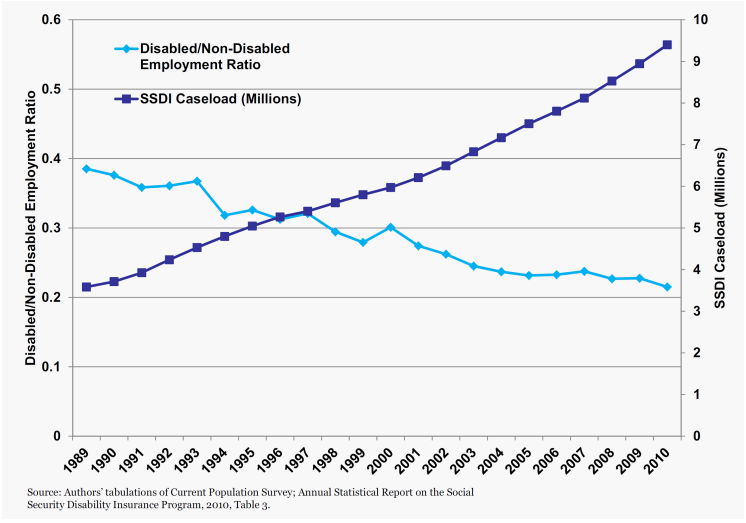


Source : Autor (2015), Fig. 4.

Figure 5 – SSDI Applications per 1,000 Adults vs US unemployment rate

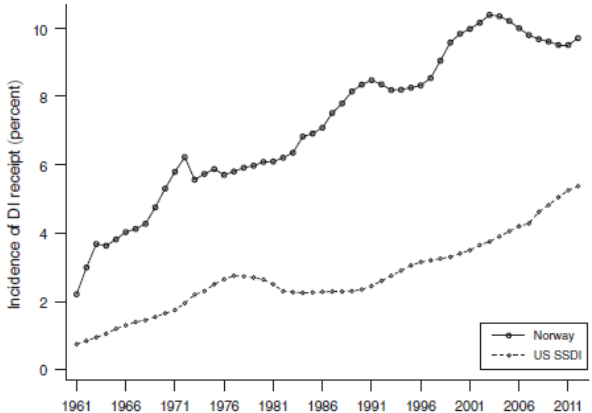
Source : Autor (2015), Fig. 5.

Figure 6 – Rise of claimants of DI in the U.S. (1989–2011)



SOURCE : Maestas, Mullen and Strand (2013), Fig. 1, p. 1798.

Figure 7 – Trends in DI receipts in Norway and the U.S. (1961–2012)



Source : Autor, Kolstol, Mogstad and Setzler (2019), Fig. 1, p. 2624.

Key issue in DI design

- **Difficulty in screening test**
  - Disability is not that easy to observe
  - Mental health is a large part of disability (40%)
  - For not severe disability, unclear boundaries
  - Dynamics of disability is more complex (health improvement possible)
- **Debate in the literature**
  - In the rise in DI claimants the sign of moral hazard ?
  - Or the result of increased needs from individuals with bad health conditions ?
  - Debate between Parsons (1980) and Bound (1989)

Parsons (JPE, 1980)

- **Estimates of impact of DI on labor supply**
  - Cross-section regressions of the form :

$$L = \beta DI + \gamma X + \varepsilon$$

  - L labour force participation
  - DI replacement rate from DI
  - X is a set of controls

- **Results**
  - β is negative
  - "elasticity of non-participation to replacement rate of DI is -0.6"
  - Estimate of almost one-to-one impact of DI on LFP

  $\Rightarrow$ "*The recent increase in nonparticipation in the labor force of prime-aged males can apparently be largely explained by the increased generosity of social welfare transfers, particularly Social Security disability payments.*"

Figure 8 – Labour force participation of males, aged 48-62 in 1969, probit estimates

	1	2
Constant	5.626	5.572
	(10.94)	(10.76)
Price variables:		
*SSB/W**	−.00542	−.00319
	(2.48)	(1.30)
*SSB/W*MORT*	. . .	−.0147
		(2.14)
WEL/W†	−.00278	−.00138
	(1.97)	(.84)
*WEL/W*MORT*	. . .	−.0117
		(2.38)
UR‡	−.835	−.904
	(3.13)	(3.37)
Demographic:		
Age§	−.0639	−.0658
	(7.15)	(7.31)
Mortality index‖	−.944	.228
	(8.21)	(.51)
Log of likelihood	−650.5	−644.8
Sample size	3,219	3,219

Note : Col. (1) is a linear model, while col. (2) reports a health-price interaction model, including interactions for individuals in poor health. Data is from the National Longitudinal Surveys. Poor health is proxied using probability of death during a period of the survey.
Source : Parsons (1980), Tab. 5, p. 127.

Bound (AER, 1989)

- **Issues with previous empirical strategy**
  - Disabled may have lower past earnings
  - Implies higher DI replacement rate
  - National program implies only variation in income generates variation in DI replacement rate
  - Omitted variable biais could explain negative β
- **How to identify the impact of DI ?**
  - Look for random variation in DI replacement rate
- **Look at participation of rejected DI claimants**
  - Social Security Administration's 1972 and 1978 Surveys of the Disabled

  $\Rightarrow$ Less than 50% of rejected DI applicants work

Figure 9 – Employment, earnings and other characteristics of rejected DI applicants

	1972			1978		
	Population	Rejected Applicants	Beneficiaries	Population	Rejected Applicants	Beneficiaries
Labor Supply						
Percent Employed	77.7	32.6	3.2	69.3	28.7	2.3
Percent Worked 71/77	91.9	45.0	7.5	86.7	40.4	5.5
Percent Full Year (≥ 50 Weeks)[a]	76.8	47.4	31.4	83.5	41.2	22.2
Percent Full Time (≥ 35 Hours)[a]	95.4	75.9	25.0	92.4	79.6	38.3
Earnings Among Positive Earners						
Median Annual Earnings, 71/77[b]	$9000	$4000	$700	$14000	$5300	$1000
Median Weekly Earnings[b]	175	120	25	300	218	70
Demographics						
Median Age	58.7	57.9	58.1	53.8	55.6	58.3
Median Education	11.0	8.1	8.1	11.7	9.2	9.1
Percent Nonwhite	8.9	17.6	11.2	10.4	13.2	12.4
Percent Married	87.8	77.3	83.6	87.2	74.3	79.9
Percent Reporting Work Limitations						
Percent Severely Disabled	12.0	50.5	92.7	14.3	64.0	97.0
Percent Partially Disabled	14.8	39.2	6.9	13.2	26.4	1.9
Percent Capable of the Same Kind of Work as Before Health Limitation	–	14.5	0.7	–	11.0	0.8
Percent with Health Condition						
Musculoskeletal	22.3	40.0	41.1	17.6	58.6	51.3
Cardiovascular	28.8	56.4	60.4	21.0	58.6	67.4
Mental/Nervous	6.8	16.4	27.4	5.1	26.3	31.0
Respiratory	6.7	22.7	26.7	6.0	26.3	28.2
Digestive	9.6	21.3	24.7	9.1	15.0	21.3
Neurological	0.7	2.2	6.7	0.6	1.5	3.2
Urogenital	2.4	4.9	6.5	3.0	6.8	7.5
Cancer	3.7	6.2	6.9	2.8	2.3	7.7
Endocrine	6.9	8.8	9.9	4.6	11.3	15.9
Blind	3.8	10.7	11.1	2.3	13.5	13.4
Median Year Applied for DI	–	68.7	67.0	–	74.5	74.4
Number of Observations	2779	273	590	1272	136	1722

SOURCE : Bound (1989), Tab. 2, p. 486.

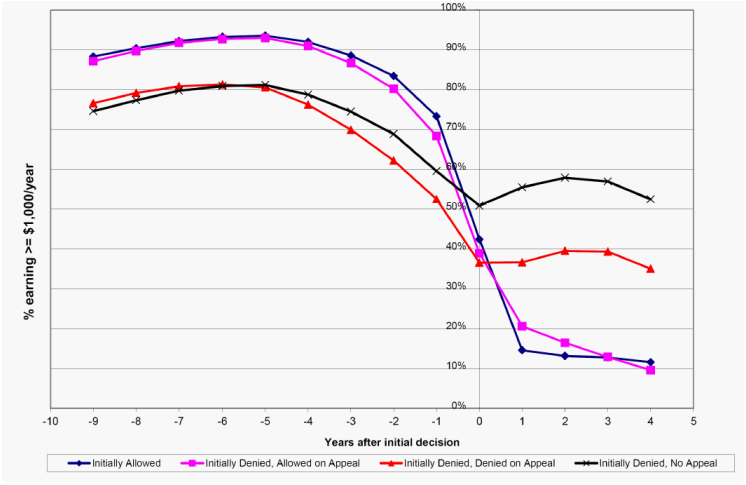
Bound (AER, 1989)

- **Interpretation**
  - "*Data on rejected DI applicants seem to provide clear, direct evidence that DI beneficiaries are on the whole disabled, and that many of them would not be working even if they were not on DI.*"
  - At most DI explain 50% of the drop in male LFP
- **Parsons-Bound debate**
  - Parsons (1991) replies that DI applicants may reduce their labor supply in order to become eligible (hence not a good control group)
  - Large literature follows with general consensus that generosity of DI reduces labor supply but not as much as suggested in cross-sectional regressions

Maestas, Mullen and Strand (AER, 2013)

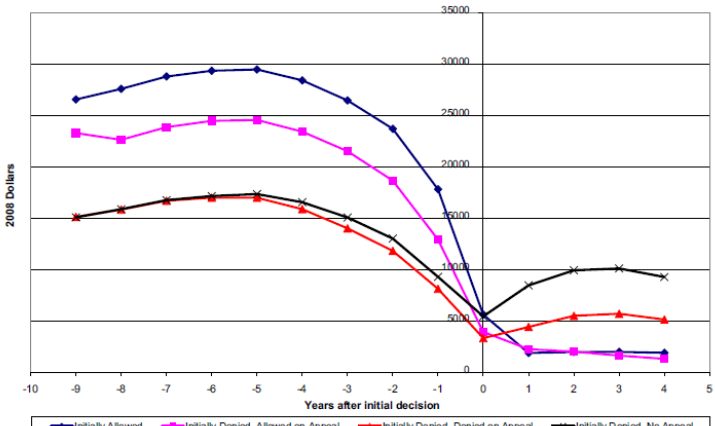
- **Identification strategy : random assignment to the DI examiner**
  - Variation in examiners' stringency
  - Large admin data on application to SSDI with identifier of the disability examiner
- **Intention-to-treat framework**
  - First-stage : identify residual examiner's propensity to accept claimant
  - Second-stage : use propensity of examiners to estimate impact of DI on outcomes

Figure 10 – Employment before and after initial decision



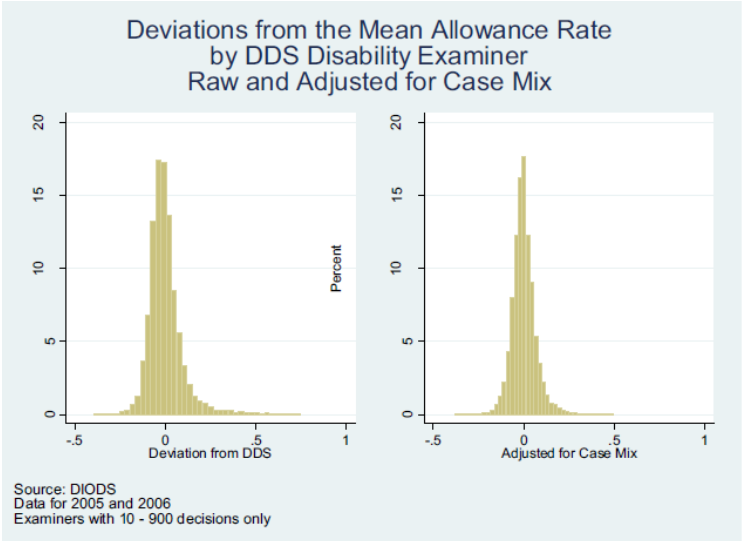
SOURCE : Maestas, Mullen and Strand (2013), Fig. 2, p. 1808.

Figure 11 – Earnings before and after initial decision



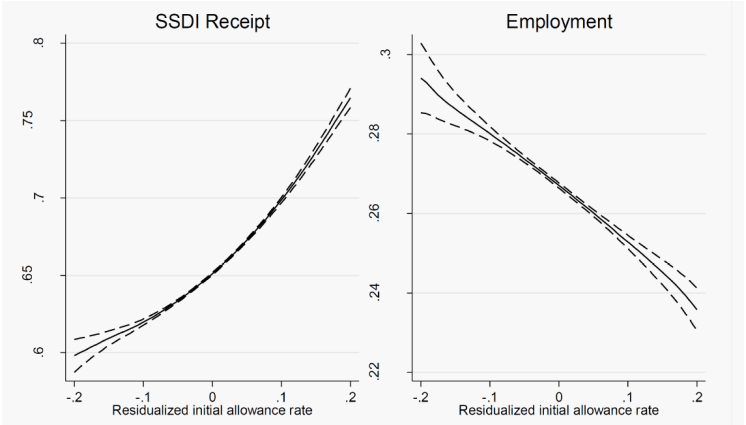
SOURCE : Maestas, Mullen and Strand (2013), appendix.

Figure 12 – Distribution of examiners deviation from mean



Source : Maestas, Mullen and Strand (2013), Fig. 4, p. 1813.

Figure 13 – SSDI receipts and employment by examiner residualized initil allowance rate



Source : Maestas, Mullen and Strand (2013), Fig. 4, p. 1813.

Figure 14 – First stage : impact on SSDI receipts

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2005							
Coefficient on EXALLOW	0.278***	0.271***	0.220***	0.215***	0.209***	0.204***	0.204***
t-stat	31.01	30.45	26.56	25.97	26.82	26.15	26.1
Fraction of always takers (P_A)							0.59***
t-stat							3.53
R^2	0.012	0.017	0.042	0.043	0.118	0.128	0.128
2006							
Coefficient on EXALLOW	0.309***	0.306***	0.258***	0.254***	0.245***	0.242***	0.243***
t-stat	31.73	31.66	30.88	30.7	32.48	32.16	32.28
Fraction of always takers (P_A)							0.56***
t-stat							3.32
R^2	0.013	0.018	0.044	0.045	0.117	0.127	0.128
2005 and 2006							
Coefficient on EXALLOW	0.294***	0.289***	0.240***	0.235***	0.227***	0.224***	0.226***
t-stat	41.87	40.73	38.81	38.09	40.2	39.33	39.9
Fraction of always takers (P_A)							0.57***
t-stat							3.42
R^2	0.012	0.017	0.042	0.043	0.117	0.127	0.127
Control variables included							
Three-digit zip code		X	X	X	X	X	X
Body system codes			X	X	X	X	X
Terminal illness indicator				X	X	X	X
Age group dummies					X	X	X
Average previous earnings						X	X
Month dummies							X
Control variables	112	1,015	1,031	1,031	1,040	1,041	1,052

SOURCE : Maestas, Mullen and Strand (2013), Fig. 2, p. 1814.

Figure 15 – Second stage : impact on labour force participation and earnings

	Two years after decision		Three years after decision		Four years after decision	
Outcome	OLS	IV	OLS	IV	OLS	IV
Panel A. 2005 decisions						
1) Earn > = $1,000/year						
Mean dependent variable | allowed	0.148		0.128		0.106	
Mean dependent variable | denied	0.522		0.515		0.471	
Coefficient on ALLOW	−0.347***	−0.279***	−0.361***	−0.227***	−0.345***	−0.158***
	(−322.48)	(−8.64)	(−336.60)	(−6.99)	(−321.81)	(−4.83)
R^2	0.200	0.195	0.218	0.200	0.209	0.171
2) Earn > = SGA						
Mean dependent variable | allowed	0.050		0.043		0.033	
Mean dependent variable | denied	0.293		0.302		0.270	
Coefficient on ALLOW	−0.242***	−0.192***	−0.255***	−0.166***	−0.233***	−0.113***
	(−256.29)	(−7.62)	(−264.05)	(−6.70)	(−252.71)	(−4.59)
R^2	0.149	0.144	0.166	0.152	0.156	0.128
3) Earnings						
Mean dependent variable | allowed	1,951		1,737		1,494	
Mean dependent variable | denied	8,928		9,191		8,496	
Coefficient on ALLOW	−7,435***	−3,781***	−7,715***	−3,007***	−7,221***	−1,716
	(−126.50)	(−3.05)	(−182.51)	(−2.92)	(−176.24)	(−1.60)
R^2	0.133	0.117	0.145	0.114	0.125	0.084
Observations	1,090,345		1,069,494		1,042,666	

SOURCE : Maestas, Mullen and Strand (2013), Tab. 4, p. 1819.

Maestas, Mullen and Strand (AER, 2013)

- **Results**
  - DI receipt reduces probability of employment by 28% for marginal applicants
  - Severely disabled individuals would be granted DI by all examiners
  - The marginal SSDI entrant is more likely to have a mental disorder, be younger, and have preonset earnings in the lowest earnings quintile

III. Insuring against long-term care risk

1. High uninsured risk
2. Why so little private insurance ?
3. Which design for public policies ?

Large and uncertain risk

- **High out-of-pocket expenditures**
  - Nursing home cost on average $6000 p.m. (in the U.S.)
  - 33% long-term care expenditures paid out-of-pocket
- **High variance of expenditures**
  - 35%-50% of 65 year-old will use nursing home (in the U.S.)
  - among which 10-20% more than 5 years
- **Insurance dominates self-insurance (Barr, 2010)**
  - If annual cost of 30K, duration of 0-20 years, one would need 600K of savings to cover the maximum risk
  - If probability $= 1/6$, average duration 2 years, insurance cost $=$ 10K

$\Rightarrow$ **Large and uncertain risk suggests great value to insurance**

High uninsured risk

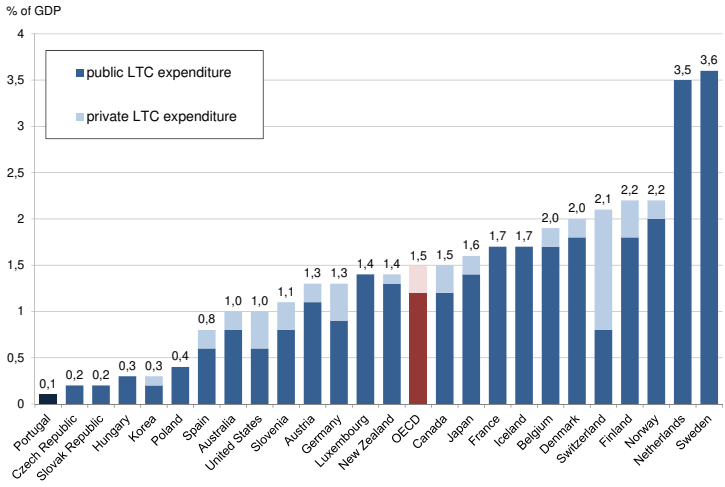
- **Incomplete public coverage in many countries**
  - U.S. : means-tested benefit with Medicaid
  - U.K. and Canada : means-tested benefit
  - Germany, Japan, Austria, France : universal social insurance but limited coverage
- **Little private insurance coverage**
  - U.S. 14% of 60+ had a long-term care insurance policy (HRS 2008 data)
  - Typical policy only covers 2/3 of long-term care cost, with a premium of \$4,500 per year

Figure 16 – Private Long-Term Care Insurance Ownership Rate (U.S., 2008)

		By wealth quintile				
	Whole sample	*Top*	*Fourth*	*Third*	*Second*	*Bottom*
Whole sample	13.8%	26.9%	19.0%	10.7%	6.6%	4.1%
By gender						
Men	13.6%	25.5%	17.1%	10.0%	4.8%	5.5%
Women	13.9%	28.4%	20.7%	11.2%	7.8%	3.3%
By marital status						
Married	16.3%	28.0%	19.2%	10.3%	5.9%	5.5%
Single	10.4%	23.5%	18.8%	11.2%	7.3%	3.6%
By age group						
60–64	12.7%	24.1%	18.7%	9.3%	5.8%	4.7%
65–69	14.7%	29.6%	19.4%	8.8%	5.9%	5.5%
70–74	15.0%	29.6%	16.8%	14.8%	6.6%	3.5%
75–79	14.7%	28.2%	21.1%	10.5%	8.6%	2.6%
80–84	13.9%	25.0%	20.8%	12.5%	6.9%	5.0%
85+	10.9%	22.1%	19.2%	8.7%	7.6%	1.6%

SOURCE : Brown and Finkelstein (2011), Tab. 1, p. 124.

Figure 17 – LTC expenditures in OECD countries



Source : OECD *Help Wanted*, Colombo et al. (2011), Fig. 1.8, p. 46.

Why so little private insurance ?

- **Supply side market failures**
  - asymmetric information (adverse selection and moral hasard)
  - imperfect competition
  - transaction costs
  - dynamic problems in long-term contracting (learning and lapsing ; aggregate risk)
- **Limited demand**
  - Imperfect but cheaper substitute (Medicaid in the U.S., financial transfer from kids, informal care)
  - Limited rationality

Why so little private insurance ?

- **What is the price of insurance ?**
  - Relevant price is not the premium but the load
  - Load is the excess of premium over expected claim
- **Loads of an insurance policy**

$$load = 1 - \frac{PDV\ of\ benefits}{PDV\ of\ premiums}$$

  - Actuarially fair policy has a load of 0
  - High load means low expected return

Why so little private insurance ?

- **Brown and Finkelstein (JPubE, 2007)**
  - Use market-wide premium data from Weiss Ratings'
  - Compute loads and comprehensiveness of policy offered

- **Computing loads**

$$load = 1 - \frac{\sum_{t=0}^{T} \sum_{s=1}^{5} \frac{Q_{t,s} \min(X_{t,s} B_{t,s})}{\Pi_{j=0}^{t}(1+i_j)}}{\sum_{t=0}^{T} \sum_{s=1}^{5} \frac{Q_{t,s} P_s}{\Pi_{j=0}^{t}(1+i_j)}}$$

  - Need premium P, benefits B, current and projected utilization rates Q and current and projected costs X, and interest rate i
  - Results are sensitive to projection of costs and utilization

Why so little private insurance ?

Table 1 – Loads of "typical" insurance policy in the U.S. (cents on the dollar)

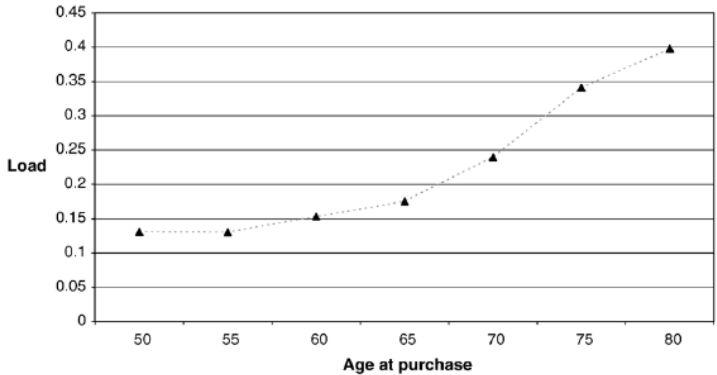
	Policy held till death	Accounting for policy termination probabilities
Unisex	32.1	49.9
Male	55.4	66.4
Female	13.2	36.0

NOTE : Estimates of load expressed in terms of cents on the dollar for a policy purchased at age 65.
SOURCE : Brown and Finkelstein (2011), Table 3, p. 128.

- **High loads estimated for long-term care insurance**
  - Loads of 32 cents on the dollar
  - Compared to 6-10 cents for group health insurance

Why so little private insurance ?

Figure 18 – Loads by age of purchase



SOURCE : Brown and Finkelstein (2007), Fig. 1, p. 1981.

Why so little private insurance ?

Figure 19 – Loads on typical policy purchased for 65 year old, by gender

	Policy held until death		Accounting for termination probability	
	Male	Female	Male	Female
Base case	0.44	−0.04	0.65	0.39
Alternative assumptions				
Corporate interest rate	0.50	0.07	0.68	0.44
Real cost growth 3%/year	0.40	−0.12	0.63	0.34
Real cost growth 0.75%/year	0.46	−0.004	0.66	0.41
Top five companies	0.45	−0.03	0.66	0.39
Spousal discount (10%)	0.41	−0.09	0.64	0.35

SOURCE : Brown and Finkelstein (2007), Tab. 7, p. 1983.

Why so little private insurance ?

- **Implicit tax from Medicaid in the U.S.**
  1. Asset and income test : individuals who own private insurance are less likely to be eligible
  2. Secondary payer : Medicaid comes after any benefit paid by private insurers

- **Brown and Finkelstein (AER, 2008)**
  - For males, 60% PDV of private insurance benefits are redundant with Medicaid
  - For females, implicit tax is close to 75%
  - Medicaid provides very imperfect consumption-smoothing for all but the poorest Americans

Why so little private insurance ?

- **Individual failures**
  - Underestimation of risk
  - Low utility of consumption when disabled (Finkelstein, Luttmer and Notowidigdo, 2008)

- **Long-term uncertainties**
  1. Organisation and delivery of long-term care likely to change
  2. Public sector coverage might increase in the future
  3. Aggregate risks of increased long-term care spending not well pooled by insurance companies (not idiosyncratic risks)

Which design for public policies ?

1. **Tax finance for means-tested benefit**
   - Means-tested benefits for low income households

   e.g., U.S., U.K., France pre-2002

2. **Social insurance ex ante (Barr, 2010)**
   - Mandating public insurance without means-testing
   - Funded by contribution during working life

   e.g., Germany, the Netherlands

3. **Social insurance ex post**
   - Mandating public insurance without means-testing
   - Funded by contribution of retirees, or paid at death on estate

   e.g., Proposals by Loyld (2008), Masson (2015)

Netherlands : public LTC insurance

- **Algemene Wet Bijzondere Ziektekosten (AWBZ)**
  - Since 1968 mandatory LTC insurance
  - Separate insurance from health insurance
- **Coverage**
  - Elderly and chronically ill
  - Mentally handicapped persons
  - Physically handicapped persons
  - Chronic psychiatric patients
- **Funding**
  - Income-related contribution (12.15% up to 31,589 EUR)
  - State subsidy
  - Co-payments

Netherlands : public LTC insurance

Table 2 – Funding and expenses of AWBZ (2007-2008)

Sources of funding	Payments (billion euros)	Share of total payments
Income-related contributions	13.1	68%
State subsidy (from general taxation)	4.6	24%
Co-payments	1.7	9%
Total	19.3	
Type of LTC user	**Expenditure (billion euros)**	**Share of total expenditure**
Elderly and chronically ill	11.4	65%
Mentally handicapped persons	4.6	26%
Physically handicapped persons	0.5	3%
Chronic psychiatric patients	1.1	6%
Total	17.6	

NOTE : Funding payments in billion euros for 2008, and expenditures for 2007.
SOURCE : Schut and Van den Berg (2010), Table 1 and 2, p. 414.

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