Income distribution in recession in Nordic countries

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Outline

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Introduction

- the Nordic countries have extensive welfare states (Esping-Andersen, 1990; Korpi and Palme, 1998)
- distributional outcomes in the cross section favorable (i.e., low inequality) (Atkinson, Rainwater, and Smeeding, 1995)
- longer-run measures (intra- and inter-generational inequality) also favorable (Aaberge et al., 2002; Björklund and Jäntti, 2009; Burkhauser and Couch, 2009)
- small open economies (such as the Nordic ones) vulnerable to large economic shocks – is inequality affected?

This talk

- ▶ discuss a traditional way of examining the sensitivity of income distribution to macroeconomic variation (with evidence for UK)
- ▶ discuss two macroeconomic shocks that hit the Nordic countries in early 1990s and late 2000s
- ▶ examine inequality during the first shock (all Nordic countries)
- ▶ compare inequality during the two shocks (mainly Sweden)
- ▶ look at longer-term worries
- ▶ conclude
- ▶ I draw on papers with many coauthors, including Jäntti and Jenkins (2010), Aaberge et al. (2002), and Björklund and Jäntti (2012)

Inequality and real income around 2004 (LIS Wave VI)
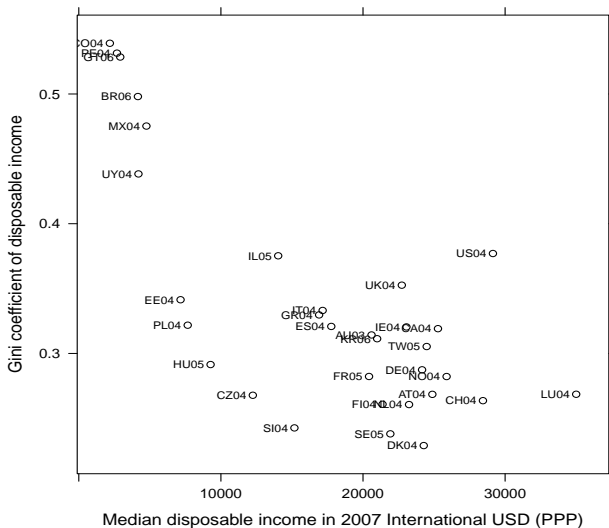
Source: Own calculations based on LIS data (Luxembourg Income Study Database (LIS), 2011)

Relative inequality trends (Gini) in LIS
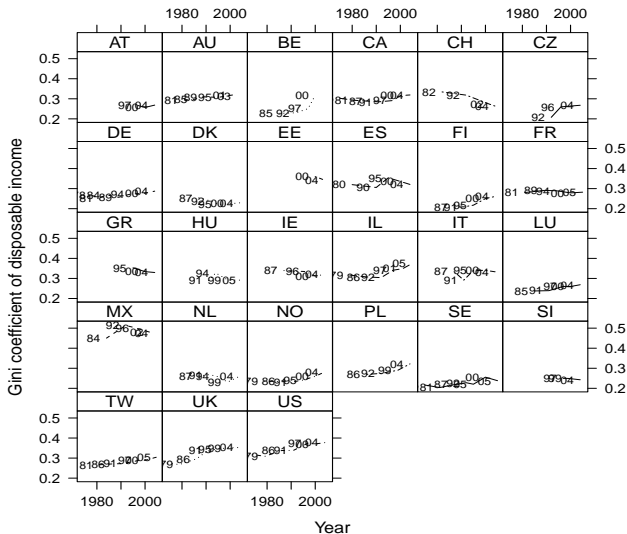
Source: Own calculations based on LIS data (Luxembourg
Income Study Database (LIS), 2011)

# Long-run trends in income inequality in selected OECD countries

Average annual growth across the income distribution ca 1985-2008

	Overall	%-change Bottom 10%	Top 10 %
Denmark	1.0	0.7	1.5
Finland	1.7	1.2	2.5
France	1.2	1.6	1.3
Germany	0.9	0.1	1.6
Italy	0.8	0.2	1.1
Norway	2.3	1.4	2.7
Sweden	1.8	0.4	2.4
United Kingdom	2.1	0.9	2.5
United States	1.3	0.5	1.9
OECD27	1.7	1.3	1.9

Source: OECD (2011)

The OECD Analytical Framework

Source: OECD (2011)
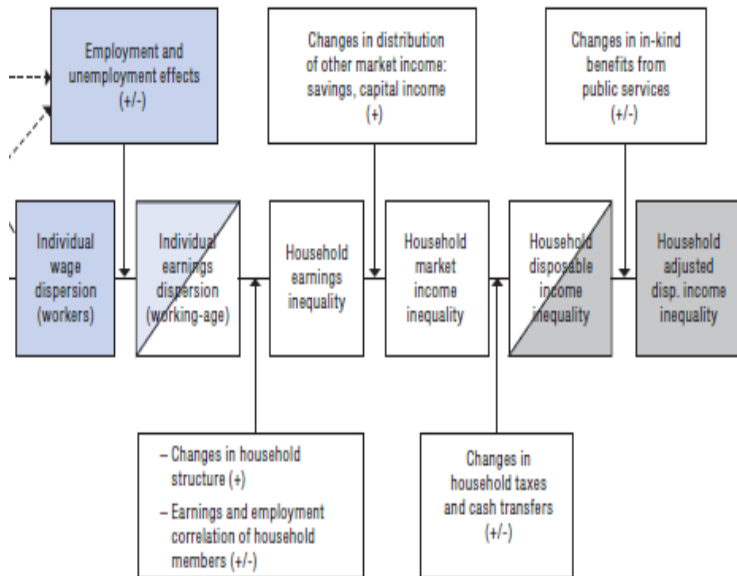
Outline

Inequality across the business cycle

- ▶ Blinder and Esaki (1978) examined inequality wrt. both inflation and unemployment, inspired by pronouncements on the harmfulness of inflation for the poor (see also Metcalf, 1969; Thurow, 1970)

- ▶ issue studied in **US** i.a. by Blank and Blinder (1986), Beach (1977); **UK** Nolan (1988-89), Jäntti and Jenkins (2010); **Sweden** Björklund (1991); **Canada** McWatters and Beach (1990)

- ▶ the typical finding is that unemployment is positively associated with increases in inequality, inflation not at all or negatively

Inequality across the business cycle critiqued

- ► Mocan (1999), Ashworth (1994), and Parker (1996) use modern dynamic time-series econometrics;
- ► Parker (2000) critically reviews the earlier approaches
- ► Parker points out that time series tend to be intergrated, so one should look for cointegration relations among the data. . .
- ► . . . but (many popular) inequality indices are logically bounded (e.g., Gini coefficient, quantile group shares) (Jäntti and Jenkins, 2010)
- ► a logically bounded variable can not by integrated and thus can not be cointegrated

A bounded variable and a random walk

- $S_{i,t}$ is the share of the ith income quintile group in year $t = 1, \ldots, T$; $0 \le S_{1,t} \le \cdots \le S_{5,t} \le 1$; it follows that $\text{Var}(S_{i,t}) < \infty, \forall t$

- consider the simplest possible case of a variable that is integrated of order 1 [$I(1)$], the random walk:

$$S_{i,t} = S_{i,t-1} + \varepsilon_{i,t}, \quad \varepsilon_{i,t} \sim N(0, \sigma_i^2) \tag{1}$$

- we know that

$$
\begin{aligned}
S_{i,t} &= \sum_{\tau=0}^{t} \varepsilon_{i,t-\tau} \Rightarrow \\
\text{Var}(S_{i,t}) &= t\sigma^2 \Rightarrow \\
\lim_{t \to \infty} \text{Var}(S_{i,t}) &\to \infty.
\end{aligned} \tag{2}
$$

- it follows that examining the degree of integration in incoem shares, or the Gini coefficient, is fruitless

Inequality and the busines cycle using parametric distributions

- ▶ one option would be to specify a joint distribution function for income and the macroeconomic variables of interest $F(Y, U, \pi; \{t\})$, and deduce the relevant structural relationships based on a theoretical model
- ▶ another, purely descriptive/empirical alternative is to regress estimated parameters of a parametric distribution function on macro variables
- ▶ thus, instead of

$$\mathbf{l}_t = \mathbf{x}'_t \beta + \varepsilon_t, \tag{3}$$

formulate

$$\theta_t = X_t \beta + \varepsilon_t; \tag{4}$$

- ▶ find the empirical relationships of interest from

$$I[F(y; \hat{\theta}_t)] = I[F(y; X_t \hat{\beta})]. \tag{5}$$

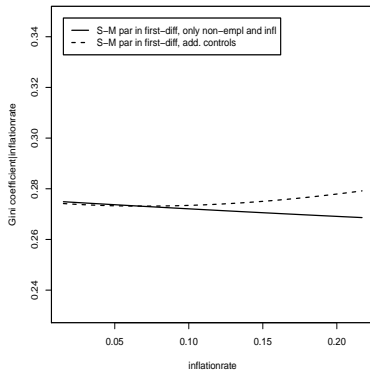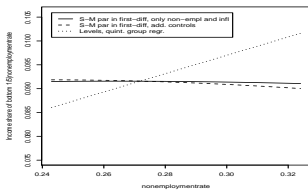# Income inequality and business cycle in UK
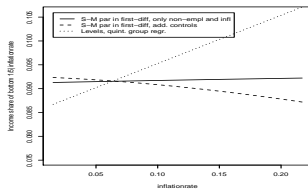
Source: Jäntti and Jenkins (2010)
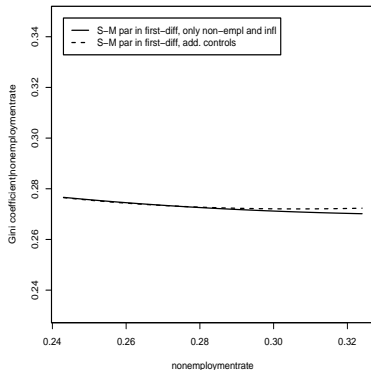
Income inequality and business cycle in UK

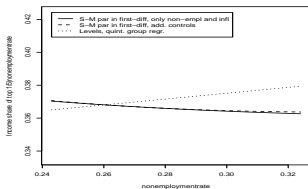
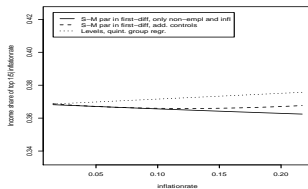Poorest fifth: Non-Employment

Poorest fifth: Inflation

Richest fifth: Non-Employment

Richest fifth: Inflation

Why are associations absent?

- ▶ the "road" from macroeconomic fluctuation to income inequality long (see OECD analytical framework); not all stages much affected by cycles
- ▶ protective effect of policy?
- ▶ unemployment less unequally distributed than one might think?
- ▶ effects on different groups and income components operate with different lags, making it hard to measure effects
- ▶ we may be asking both too much and too little using time series methods – descriptive analysis instead

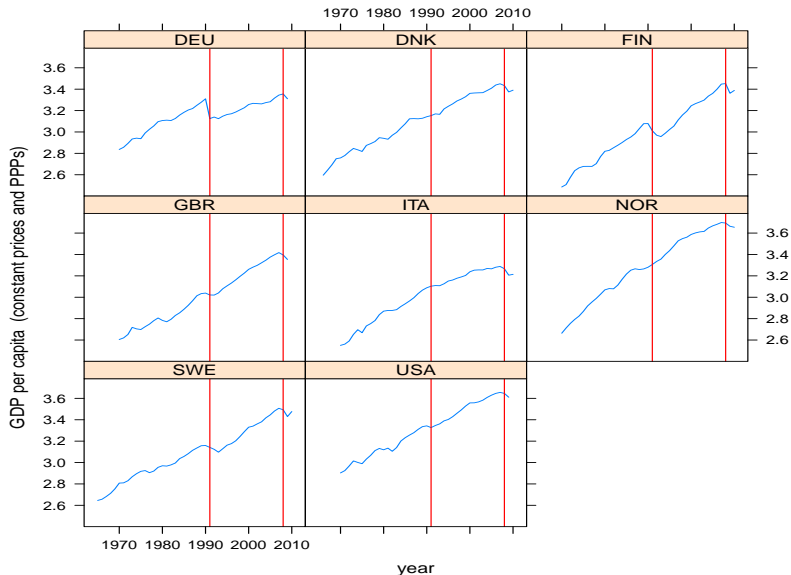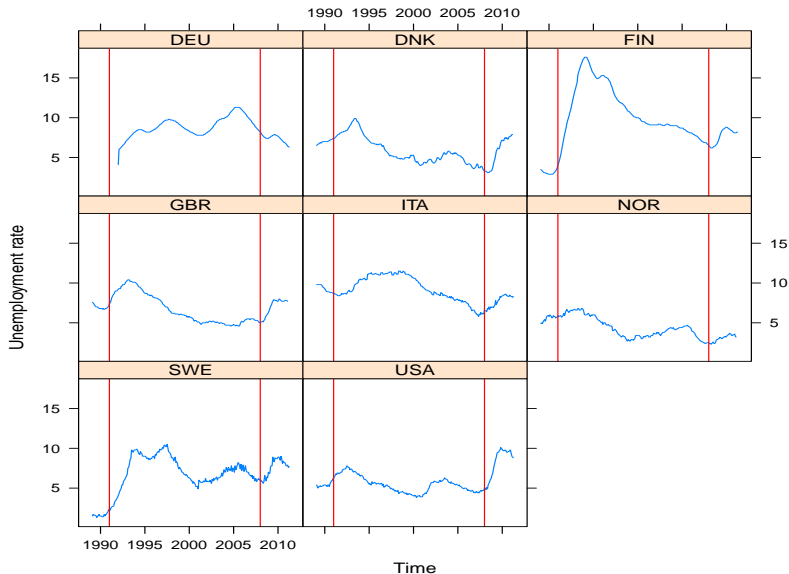# Outline

GDP per capita in selected countries
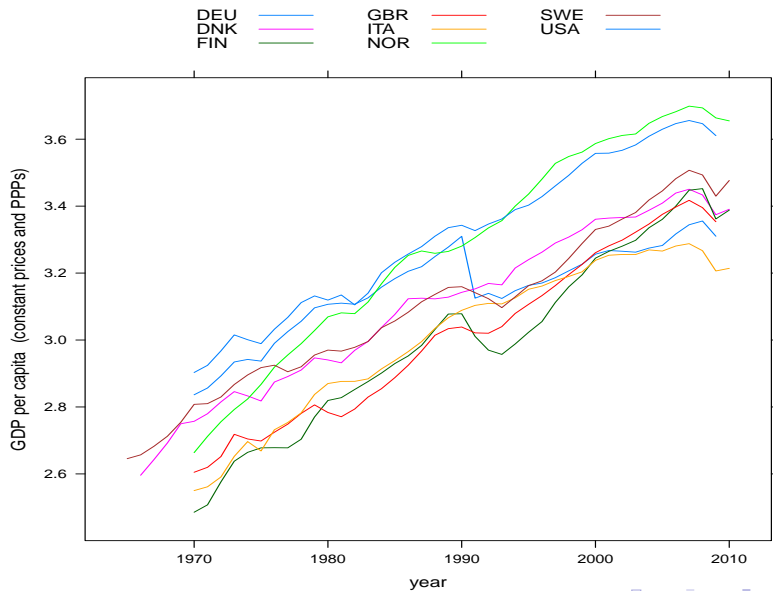
GDP per capita in selected countries
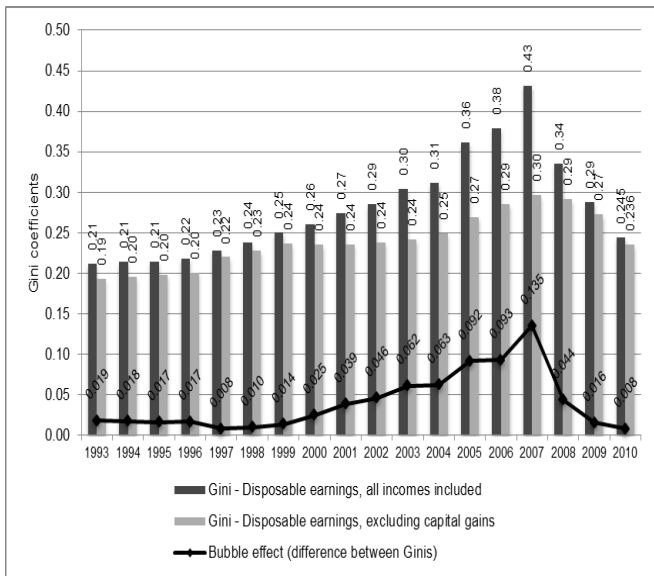
Unemployment in selected countries

Income inequality in Nordic countries in the late 2000s

Gini coefficient for disposable income (national definitions)

Country	2006	2007	2008	2009	2010
Finland	0.273	0.280	0.268	0.259	0.266
Iceland	0.40	0.44	0.37	0.34	
Norway	0.243	0.252	0.248	0.241	0.245
Sweden	0.288	0.307	0.289	0.291	0.297

Inequality in Iceland

Outline

Unemployment shocks in and income inequality in Nordic countries in 1990s

- ▶ Nordic countries in early 1980s had likely among the most equal income distributions
- ▶ unemployment shocks to all Nordic countries in late 1980s/early 1990s (Denmark had persistently high and increasing unemployment)
- ▶ what consequences for inequality did increased unemployment have?

Unemployment and income distribution – lessons from the 1990s

Denmark   Norway
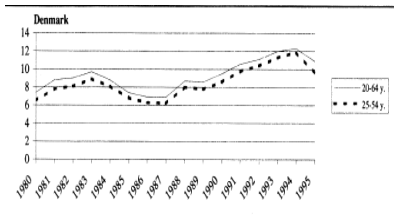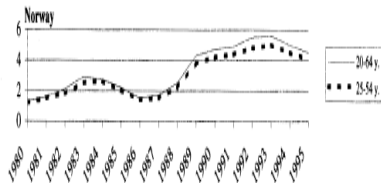
Unemployment

The Gini coefficient of disposable income

Source: Aaberge et al. (2000)

Unemployment and income distribution – lessons from the 1990s
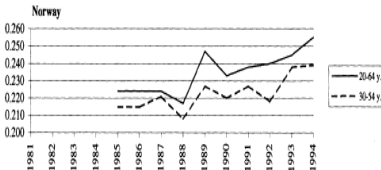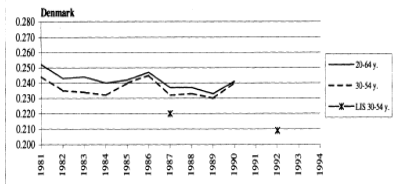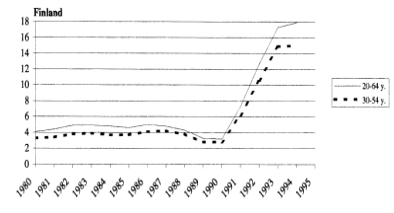
Finland

Sweden

Unemployment
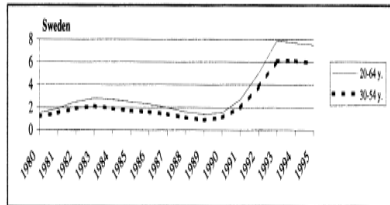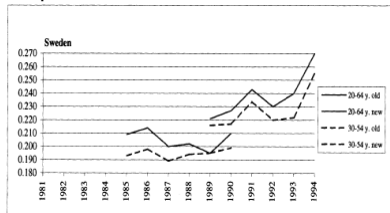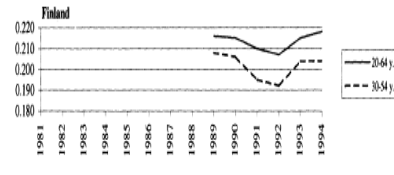
The Gini coefficient of disposable income

Source: Aaberge et al. (2000)

Unemployment and income distribution – lessons from the 1990s recession

Components of the Gini coefficient

Income source	Denmark		Norway	
	1987	1992	1989	1993
Earnings	0.304	0.311	0.244	0.235
Self-employment	0.049	0.059	0.087	0.081
Capital income	0.017	0.00	0.040	0.050
Unempl. ben.	−0.008	−0.012	−0.001	−0.002
Public transfers	−0.005	−0.018	−0.013	−0.258
Taxes	−0.38	0.139	−0.100	−0.100
Disposable income	0.220	0.209	0.227	0.238
	(0.004)	(0.005)	(0.007)	(0.010)

Source: Aaberge et al. (2000)

Unemployment and income distribution – lessons from the 1990s recession

Components of the Gini coefficient

Income source	Finland		Sweden	
	1989	1993	1989	1993
Earnings	0.269	0.276	0.291	0.327
Self-employment	0.049	0.032	0.002	0.006
Capital income	0.022	0.047	0.071	0.036
Unempl. ben,	−0.004	−0.019	−0.002	−0.021
Public transfers	−0.021	−0.005	−0.014	−0.021
Taxes	−0.141	−0.128	−0.132	−0.119
Disposable income	0.208	0.204	0.214	0.223
	(0.002)	(0.003)	(0.004)	(0.010)

Source: Aaberge et al. (2000)

What did we learn?

- ▶ inequality changed little (varying patterns)
- ▶ explanations:
    - ▶ unemployment benefits vary in generosity, but in conjunction with other benefit systems, UB may have limited income losses, but not by much
    - ▶ unemployment may have been reasonably evenly distributed across the distribution, but also here, this explains little
    - ▶ intra-household adjustments also do not explain much
- ▶ the recession involves many complex mechanisms; a model that accounted for interactions between income components and allow different groups to fare differently would probably be needed
- ▶ the move to dual tax systems (at least in Sweden and Finland) coincides with the shock, further complicating matters

Outline

Income distribution in a recession revisted – Sweden in the GR

- ▶ the Great Recession is the second large macroeconomic shock to hit Sweden in a generation
- ▶ the two recessions quite different:
    - ▶ 1990s: bursting housing/debt bubble, hike in real interest rates, currency devaluation (internal reasons); steep increase in unemployment, weak public finances
    - ▶ GR: larger decline in GDP, driven by large negative shock to export demand, strong public finances
- ▶ effect on income inequality?

The great recession and income distribution – Sweden
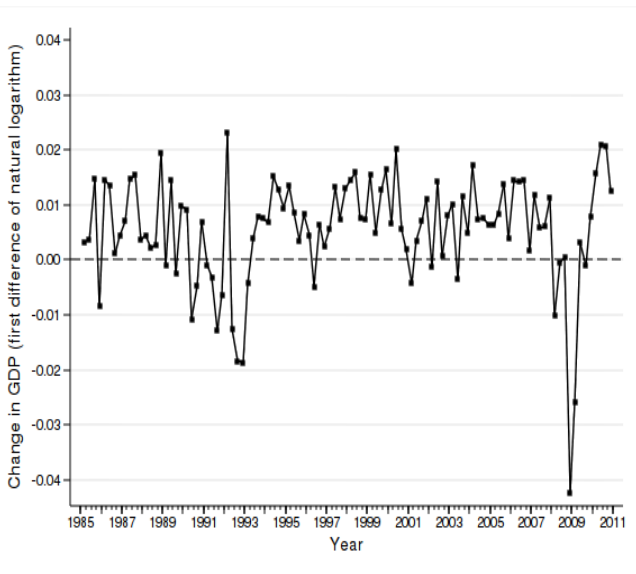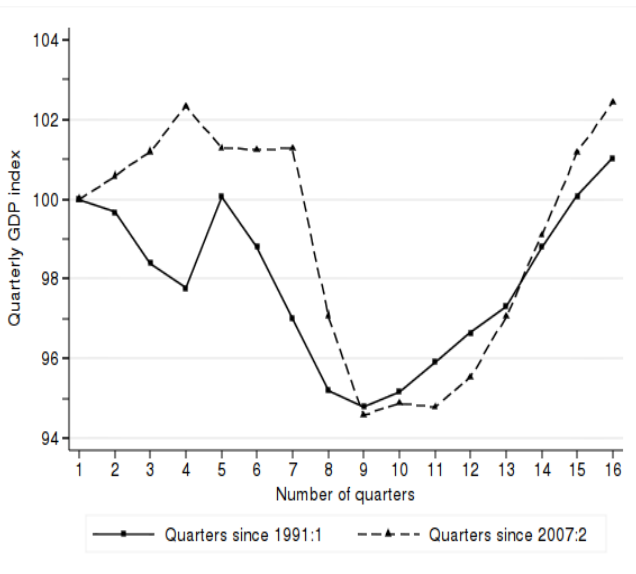
GDP change

Source: (Björklund and Jäntti, 2012)

The great recession and income distribution – Sweden
GDP change

Source: (Björklund and Jäntti, 2012)

The great recession and income distribution – Sweden
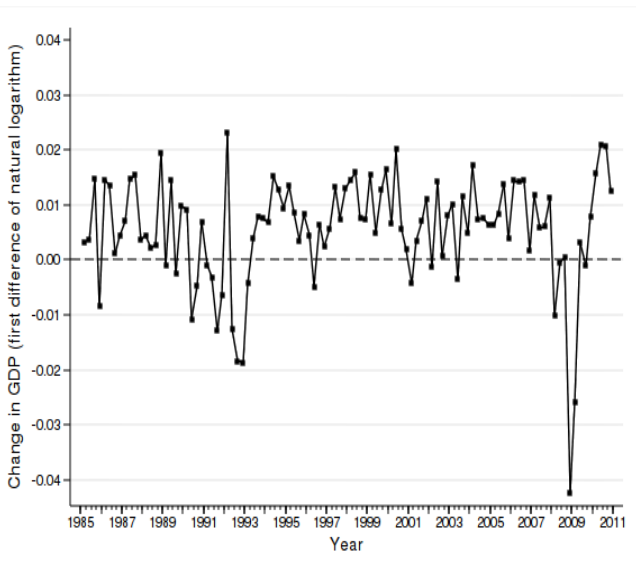
Unemployment

The great recession and income distribution – Sweden

Unemployment
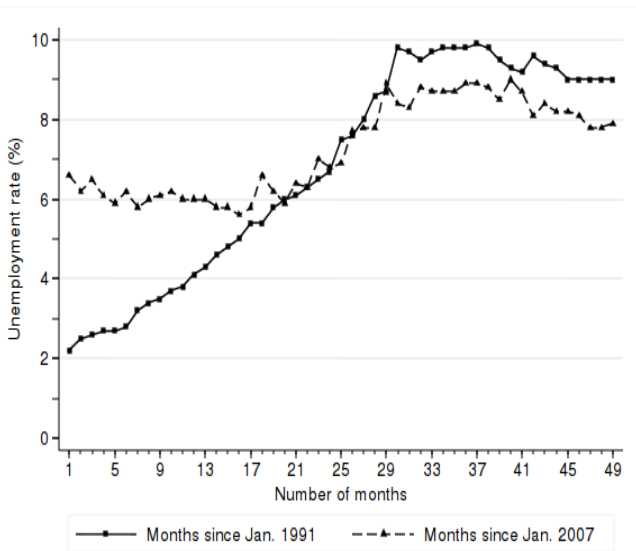
The great recession and income distribution – Sweden

Real income change 1985-2009
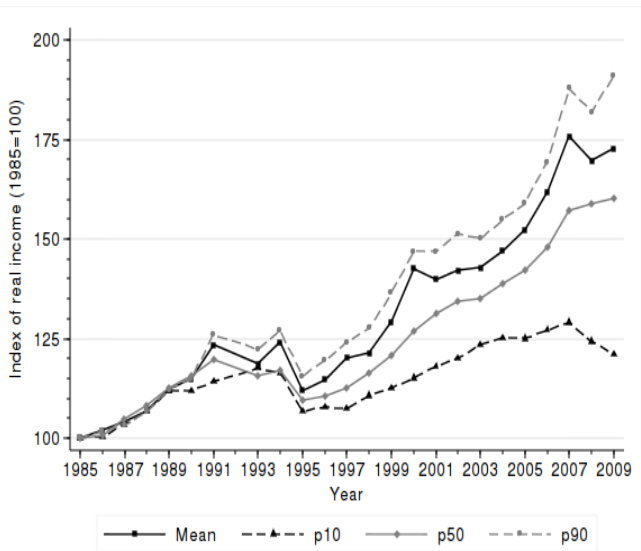
The great recession and income distribution – Sweden

Real income change in the 1990s and 2000s recession
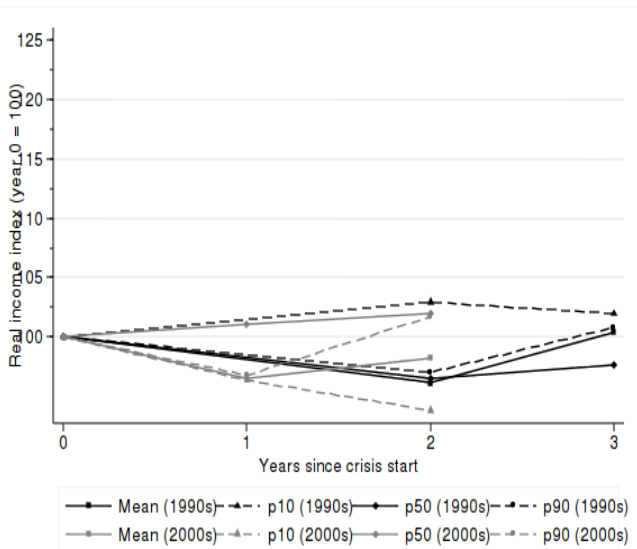
The great recession and income distribution – Sweden

Real income change 1985-2009 – 10th percentile
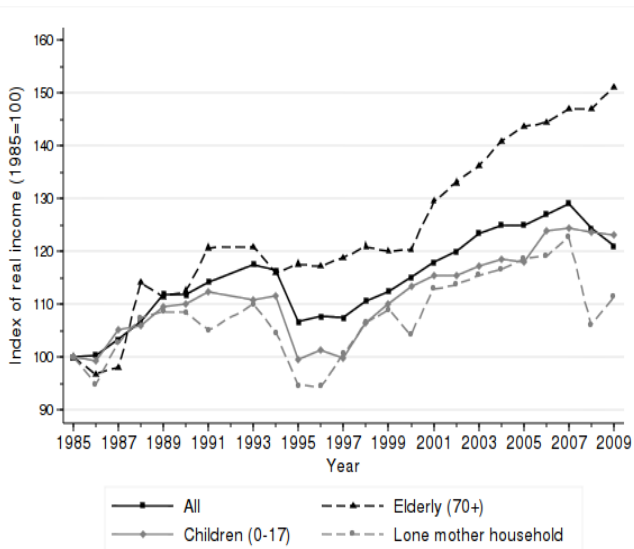
The great recession and income distribution – Sweden

Real income change 1985-2009 – 50th percentile (median)
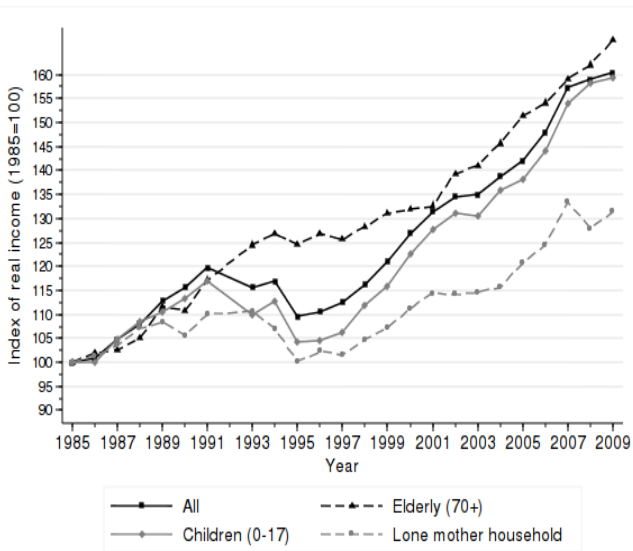
The great recession and income distribution – Sweden

Inequality of disposable income 1985-2009
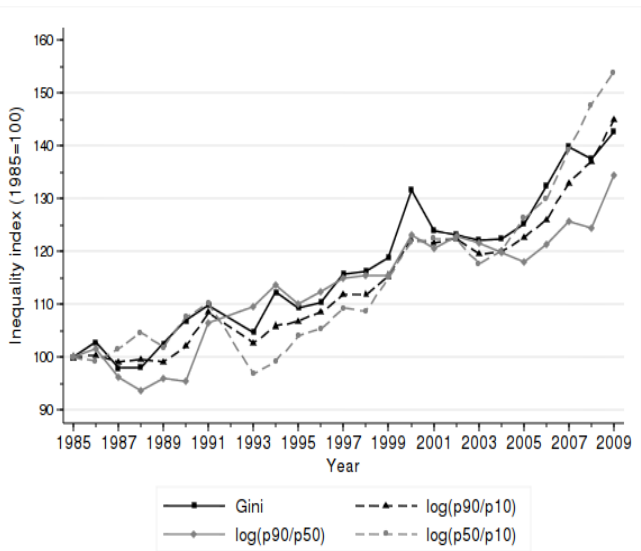
The great recession and income distribution – Sweden
Composition of inequality 1985-2009

Concentration coefficient
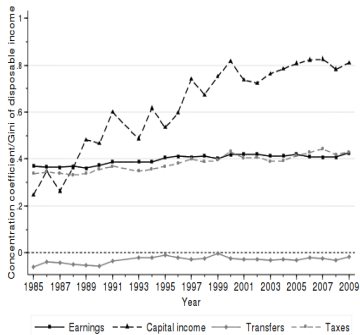
Income share
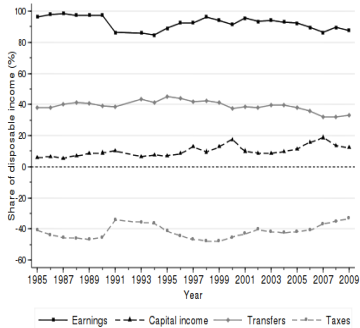
The great recession and income distribution – Sweden

Composition of inequality 1985-2009
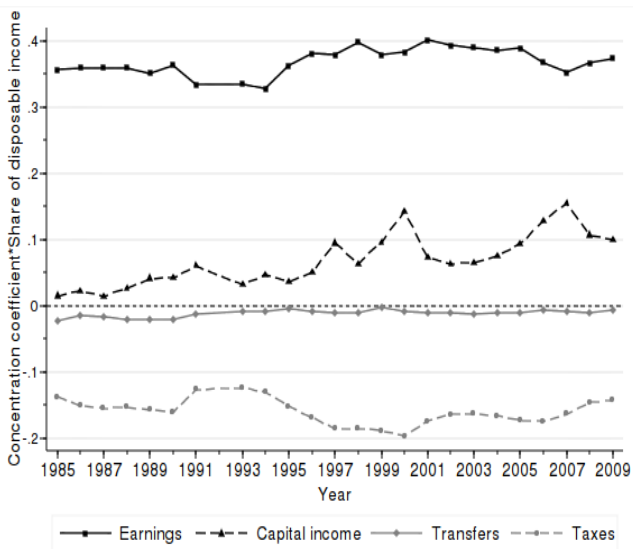
Inequality in two crises (and aftermath)

Disposable and factor income; national definitions
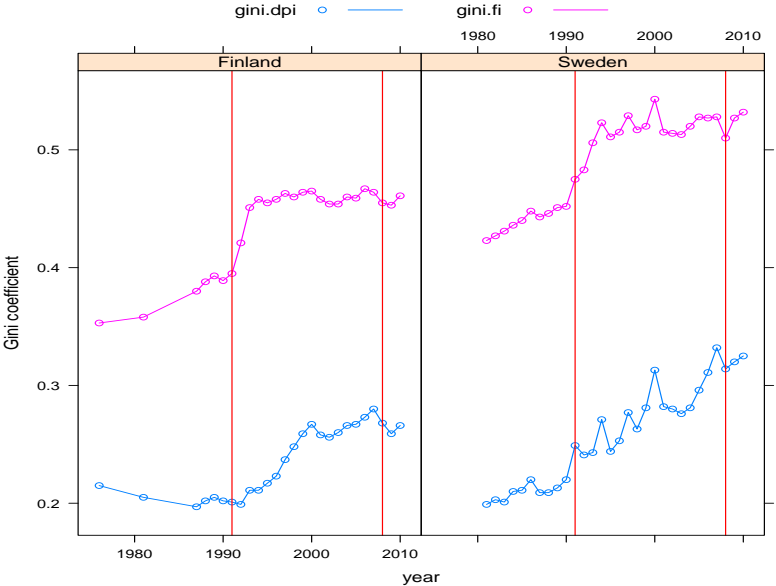
Outline

Poverty rates for all persons and children in lone-parent and two-parent households in Sweden
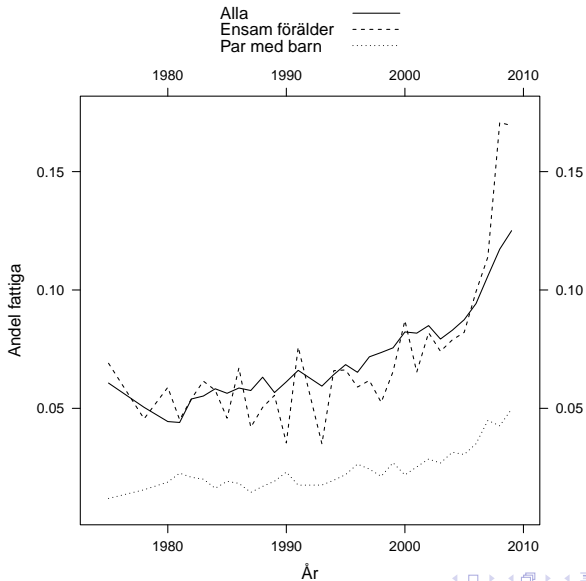
Income and life expectancy in Finland

(Tarkiainen et al., 2011)
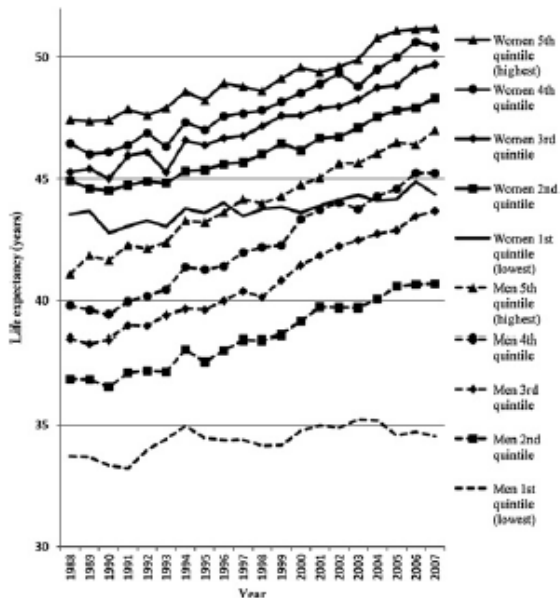
Simulated and realised levels of inequality in Finland 1995-2004

	1995	2000	2004
Overall inequality log(p90/p10)			
Simulated	105.2	112.1	113.8
Realised	94.6	109.1	113.1
Inequality at low end log(p50/p10)			
Simulated	52.8	58.7	60.0
Realised	49.2	56.7	59.3

Short- and long-run effects of government policy on income distribution in Sweden

Inkomstgrupp (justerad disponibel inkomst, rad 1)
Individuell bruttoinkomst per månad vuxna (1000-tal kronor, rad 2)
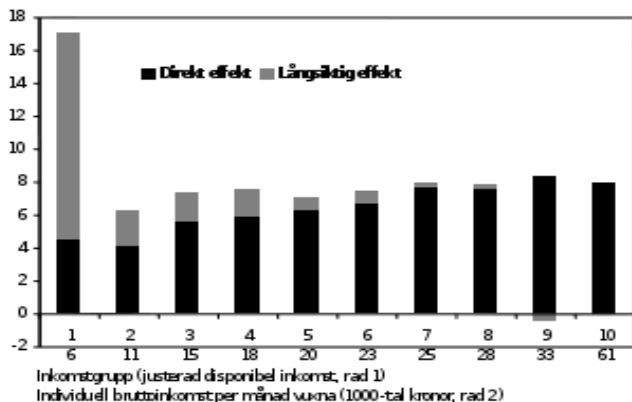
Anm: Justerad disponibel inkomst är hushållets sammanlagda inkomst justerad för
försörjningsbörda. Bruttoinkomst avser inkomst i 2011 års prisnivå.
Källor: Statistiska centralbyrån och egna beräkningar.

Income and political power

- who, in terms of income, do decision-makers listen to?
- i.e., are income differences associated with differences in political influence?
- if yes, will *increased* inequality of income lead to *increased* inequality of political influence?

Income and political power (in the US)

(Bartels, 2006)
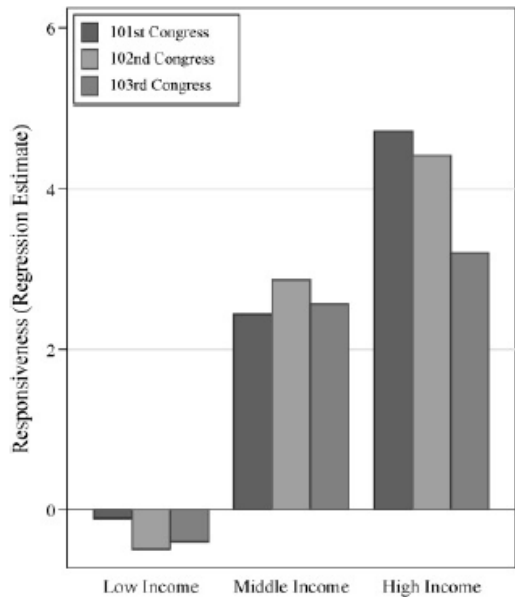
Income and political power (in the US)

(Bartels, 2005)

Figure 3: Democratic and Republican Senators' Responsiveness to Income Groups
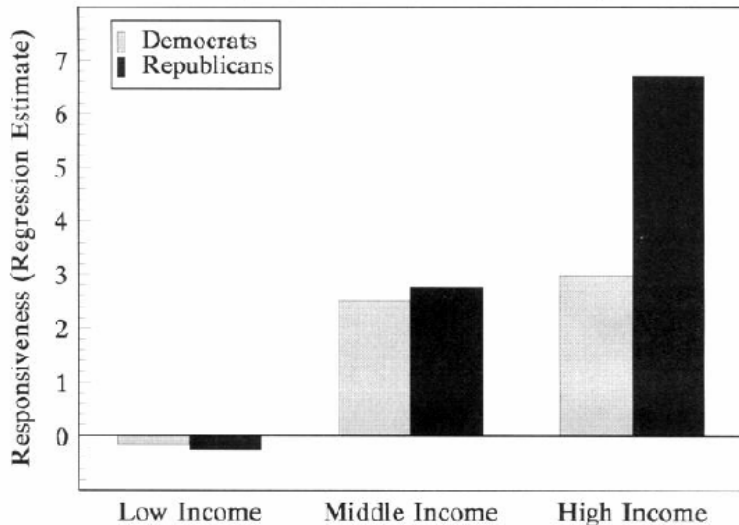
Income and political power (in the US)
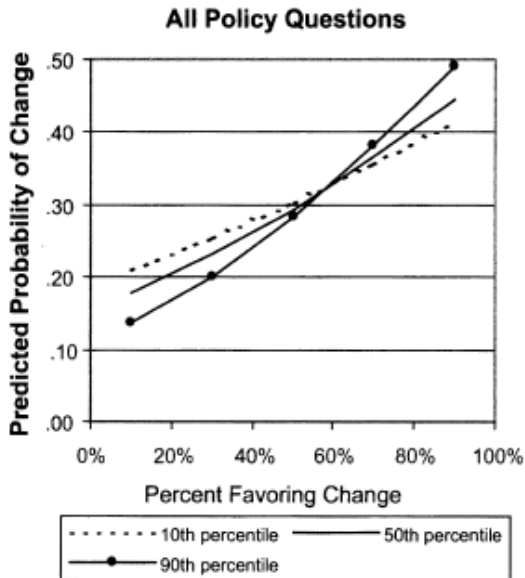
Gilens (2005)

All Policy Questions

A chart plotting Predicted Probability of Change (y-axis, from .00 to .50) against Percent Favoring Change (x-axis, from 0% to 100%) for the 10th percentile, 50th percentile, and 90th percentile.

Income and political power (in the US)

Gilens (2005)

Questions where Preferences of the 10th and 90th Income Percentiles Diverge

10th percentile
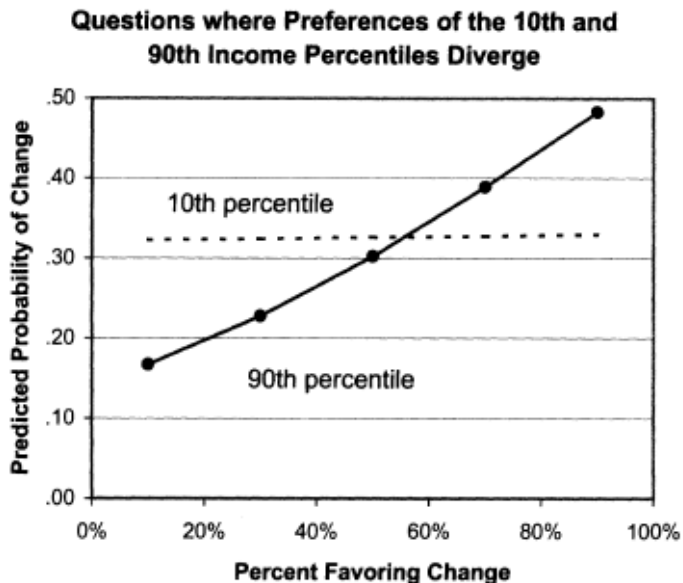
90th percentile

Income and political power (in the US)

Gilens (2005)

Questions where Preferences of the 50th and 90th Income Percentiles Diverge
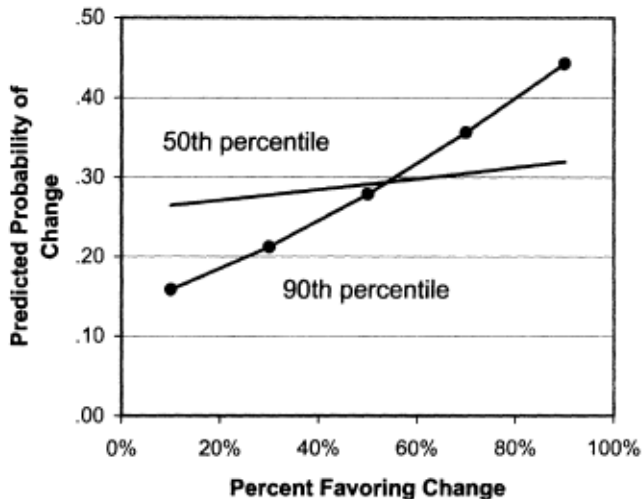
50th percentile

90th percentile

Outline

Concluding comments

- inequality has increased in many countries. . .
- . . . including the Nordic ones
- the effect of recessions on income inequality dampened by income protections
- inequality increases driven by
  - changes in taxation and capital markets (income shifting, increased capital income inequality, lower prorgessivity)
  - stagnant transfers at the bottom

The equality multiplier

- ▶ traditional view: equity-efficiency trade-offs redistribution desirable (more equality is good), but costly (reduces efficiency through disincentives): find suitable balance
- ▶ modern view: the equality multiplier (Barth and Moene, 2009)
  - ▶ equal outcomes in labour markets and tax-and-transfer policies reinforce each other
  - ▶ more equality not necessarily inefficient, but. . .
  - ▶ shocks toward increased inequality may lead to reinforcing upward spiral

Concluding remarks

- increased cross-sectional inequality not necessarily followed by negative consequences, but...
- ...we may value small income differences in and of themselves
- greater inequality suggest re-evaluating policies (e.g., higher pension-age limits for high-income earners)
- the consequences of rapid rise in income inequality important topic for future research:
    - long-run (economic) outcomes
    - long-run (health, education, etc) outcomes
    - citizenship, civic participation, political influence

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