

# Low earnings and poverty in European welfare states: Redistribution within the household and via taxes/transfers

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European Labour Force Survey (EU-LFS) and European Union  
Statistics on Income and Living Conditions (EU-SILC):  
2nd European User Conference, Mannheim, March 31-April 1, 2011

## Motivation

- Discussion about labour market participation as a means to achieve social inclusion
- “there does not appear to be a very strong link between low pay and poverty” (Marx and Verbist 1998: 76)
- but: the strength of this link differs between countries and over time
- different role of low earnings across institutional contexts

# Overview

- Data and methods
- Measuring low earnings using EU-SILC
- The process of income redistribution
- Results
- Conclusion

## Data and methods

- EU-SILC 2004-2008, cross-sectional data only, n=107 country-year observations at macro level
- all EU member states (except Malta) plus Norway and Iceland
- main analysis: working population, core working age (25-54 years)
- poverty threshold defined as 60 percent of national median equivalised net household income using the “modified” OECD scale
- yearly income (income reference period)
- earnings: gross employee cash or near-cash income, non-cash employee earnings (company car), cash benefits or losses from self-employment

# Measurement of low earnings

- standard calculation of gross hourly wages (gross monthly wage/weekly hours\*4.3) not feasible
- for majority of countries no monthly earnings (“member state has other source to calculate gender pay gap”)
- calculating low wages using yearly earnings data
  - calculation of yearly hours not feasible (main activity part-time or full-time employment)
  - main activity=self-employed not available for all countries
- low earnings: person who has worked at least 7 months in income reference period and has yearly personal gross earnings below the standard poverty threshold

# Measurement of low earnings: approaches

- Data collection:
  - survey countries: earnings and employment data from survey
  - register countries: earnings data from registers, employment data from survey (or other register)
- Definitions of “working”:
  - employed  $\geq 7$  months during income reference period

For sensitivity analyses:

  - earnings  $\geq 1$  Euro during income reference period
  - employed  $\geq 1$  months during income reference period
- Working age:
  - 18-64 years, 25-64 years, 18-64 years, 25-54 years

# Earnings from survey and register data

Table 1 Share of non-working population (%) with employee cash or near cash income

	2004	2005	2006	2007
17–64 years				
survey	5.0	4.7	4.9	6.1
survey/proxy	9.9	15.4	11.4	10.9
register	41.5	37.0	36.0	36.0
register/proxy	49.7	44.6	43.9	47.0
25–54 years				
survey	4.1	5.1	4.8	6.2
survey/proxy	5.2	23.1	15.1	14.6
register	39.3	27.7	29.1	26.5
register/proxy	35.8	28.4	28.0	33.6

Source: EU-SILC 2004-2007 (unweighted), persons with earnings from self-employment excluded.

Lohmann 2011 in JESP 21(1)

# Percentage of persons with low earnings by definition of “working” and age group

	18-64 years		25-54 years	
	earnings >= 1 Euro	employed >=1 month	earnings >= 1 Euro	employed >=1 month
Belgium	12.6	11.7	8.3	9.1
Denmark	18.7	10.2	9.9	7.2
Ireland	27.5	26.7	18.4	19.3
Norway	26.4	17.3	16.9	12.9

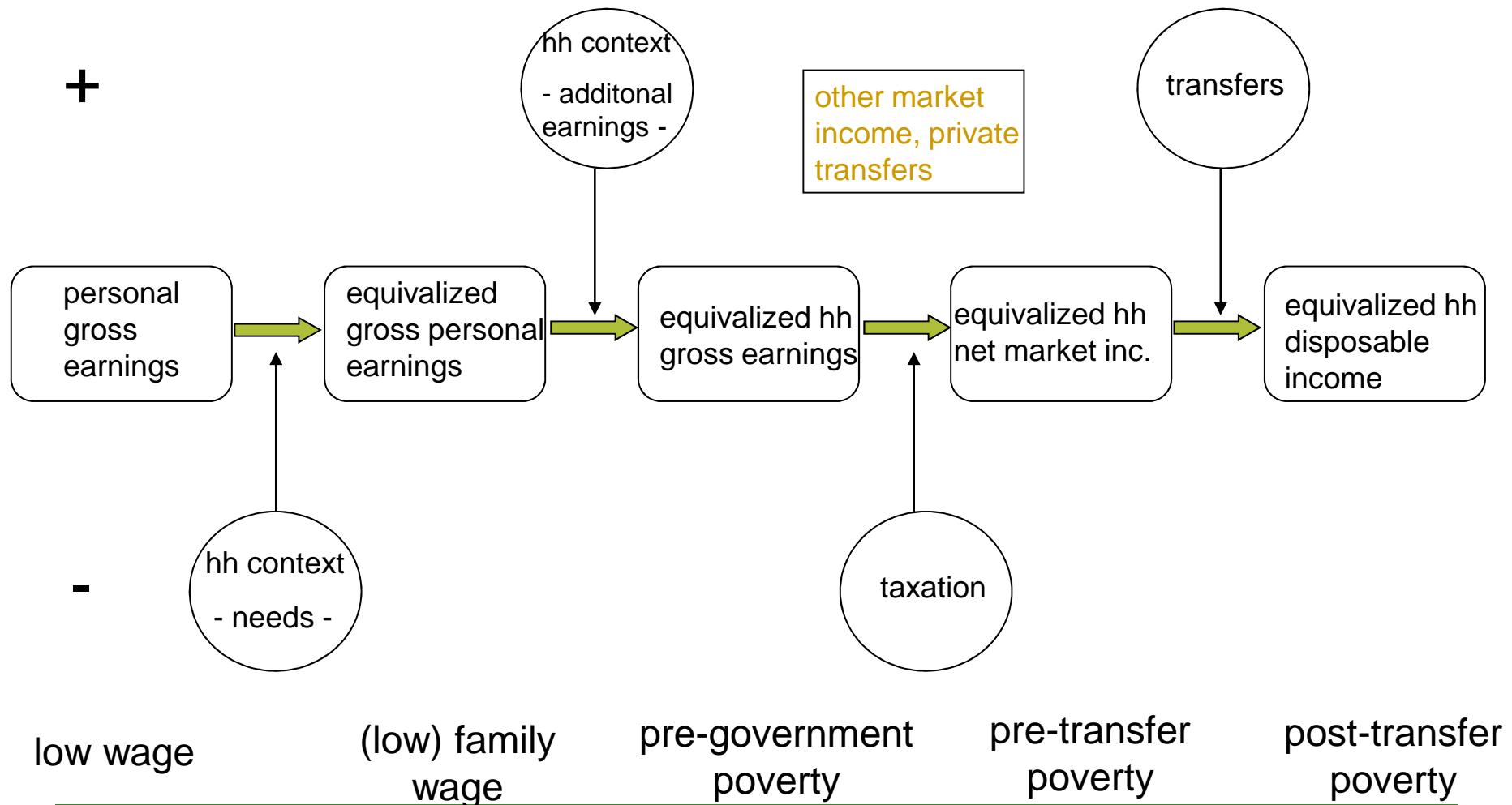
Source: EU-SILC 2008 (weighted), persons with income from self-employment excluded.

Correlation between different low earnings rates (n=107):

register countries = 0.29	=0.85
survey countries = 0.77	=0.75

Low-earnings → poverty

# Low earnings → poverty



# Counterfactual analysis

- counterfactual poverty rates using the following income components:
  - personal gross earnings
  - equivalised gross household earnings before taxes and transfers
  - equivalised household earnings after taxes
  - equivalised net household income
- basic question at all stages: Is income higher than standard poverty threshold?
- Changes in poverty rates interpreted as poverty reduction via household context, taxes and transfers.

# Low earnings → poverty

- household: needs
  - family as context for care (children, elderly)
  - family as security network (e.g., unemployed youths living with parents)
  - demography (number of children, [healthy] life expectancy)
  - cultural differences in styles of family living
- household: earners
  - family as context for care (children, elderly)
  - labour market regulation (e.g., employment protection legislation)
  - wage setting mechanisms
  - cultural differences in earner models
- taxation and transfers
  - taxation of earned incomes (of low-wage workers)
  - in-work transfers
  - unemployment transfers, social assistance
  - family benefits
  - pensions

## Macro indicators

- Employment rate of women
- Part-time employment rate of women
- Family service expenditure as a percentage of GDP
- Family cash expenditure as a percentage of GDP
- social expenditure as a percentage of GDP
- percentage change of GDP
- unemployment rate
  
- Source: ESSPROS database, EUROSTAT aggregate statistics

# Poverty and poverty reduction

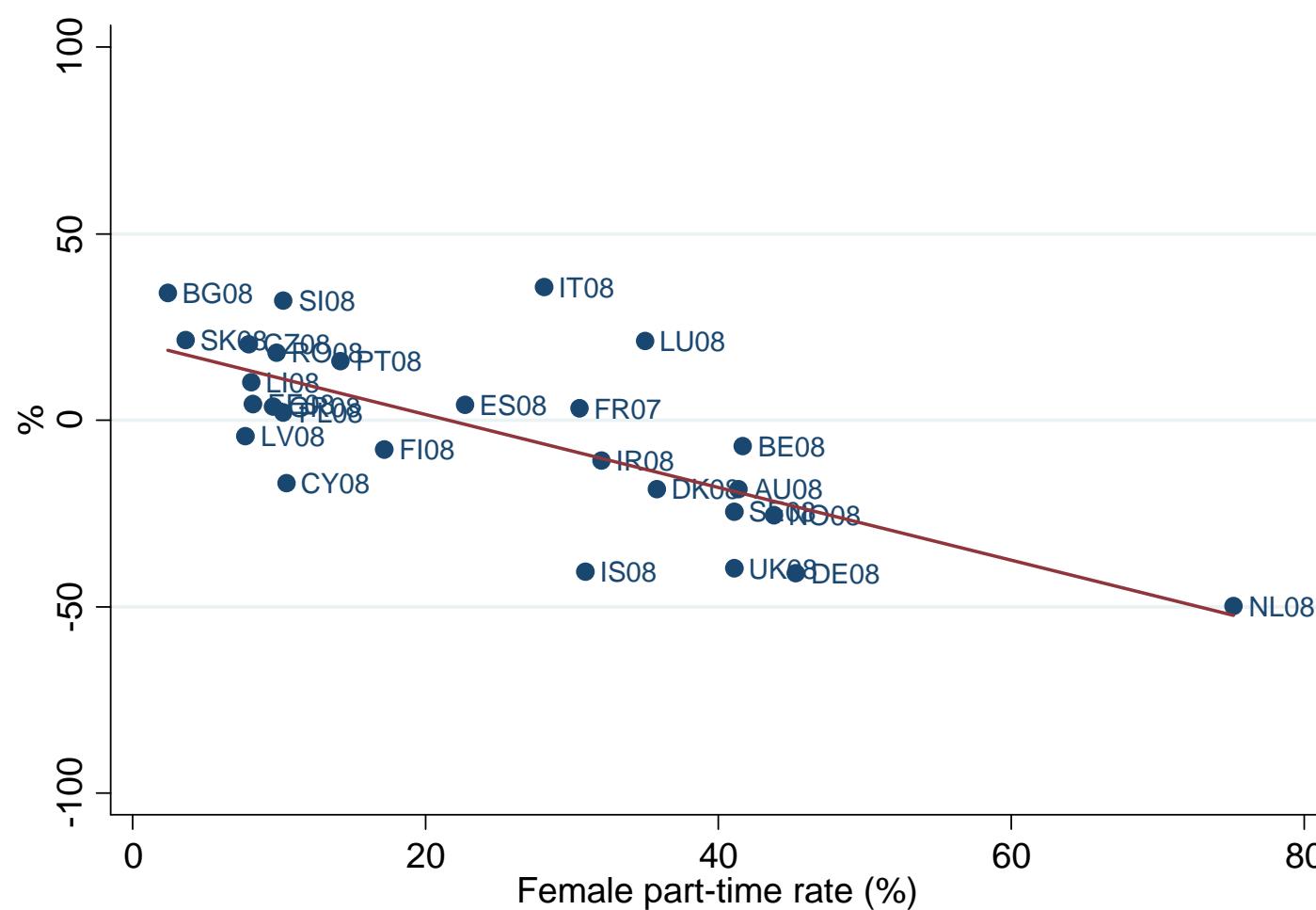
	poverty rate based on ...				poverty reduction ...		
	personal earnings	equivalised hh earnings	hh earnings after taxes and transfers		household taxes/ transfers	transfers	transfers
	(1)	(2)	(3)	(4)	(2-1)/(1)	(4-2)/(2)	(4-3)/(3)
DK	7.0	5.7	10.5	4.5	-18.5	-20.7	-56.7
DE	12.9	7.6	12.0	6.3	-41.2	-16.9	-47.4
IE	16.7	14.9	15.2	6.2	-10.8	-58.0	-58.9
IT	7.6	10.4	12.7	9.3	35.7	-10.2	-26.6
GR	12.9	13.4	14.8	13.3	3.7	-0.8	-10.2

Source: EU-SILC 2008 (weighted), persons at least employed 7 months during income reference period.

$$(5.7 - 7.0) / 7.0 = -18.5\%$$

# Household context

% of poverty reduction by female part-time rate

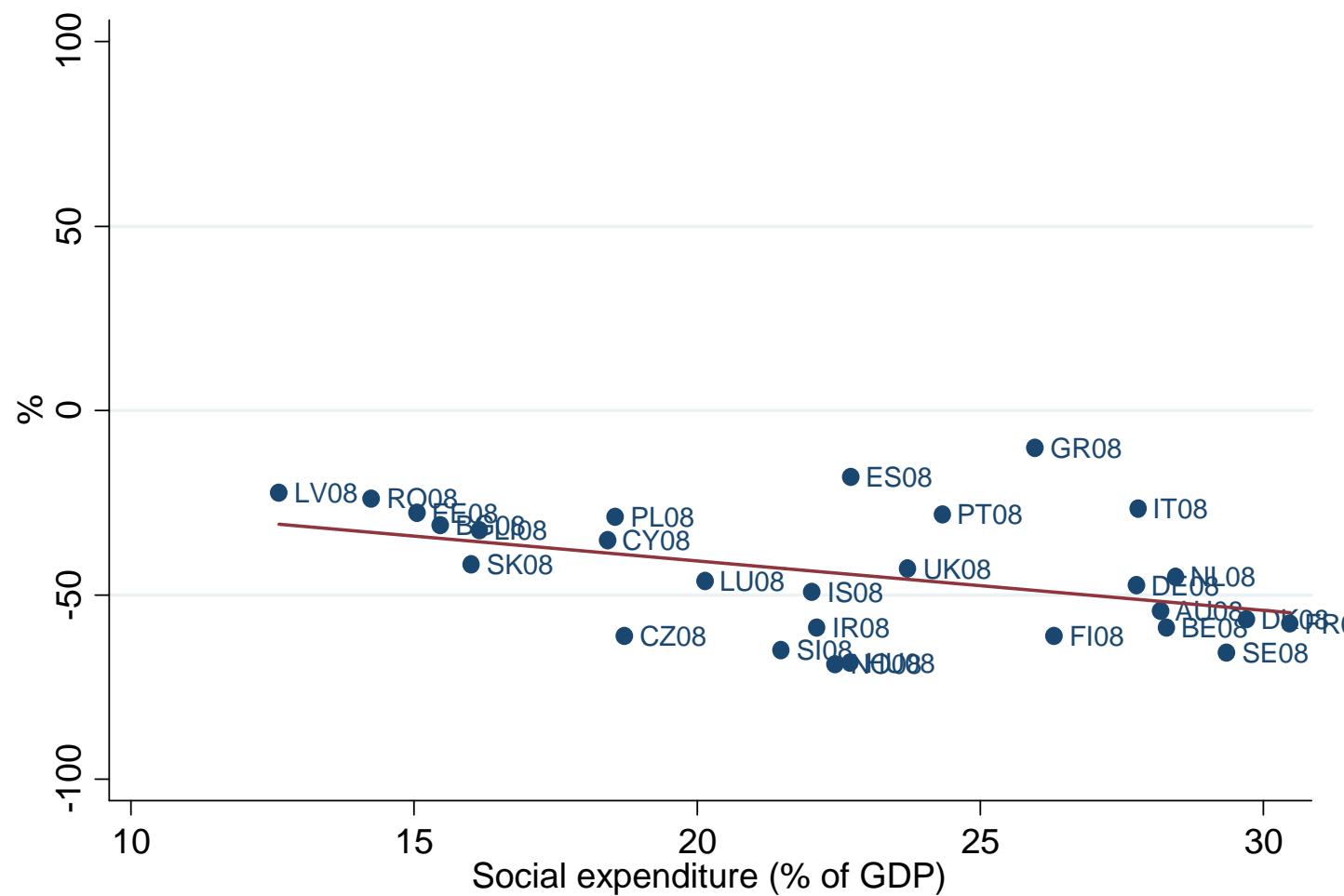


Correlation: -.61

Source: EU-SILC 2008 (weighted), persons at least employed 7 months during income reference period. EU-LFS aggregate data. 15 Hungary excluded as an outlier.

# Transfers

% of poverty reduction by social expenditure

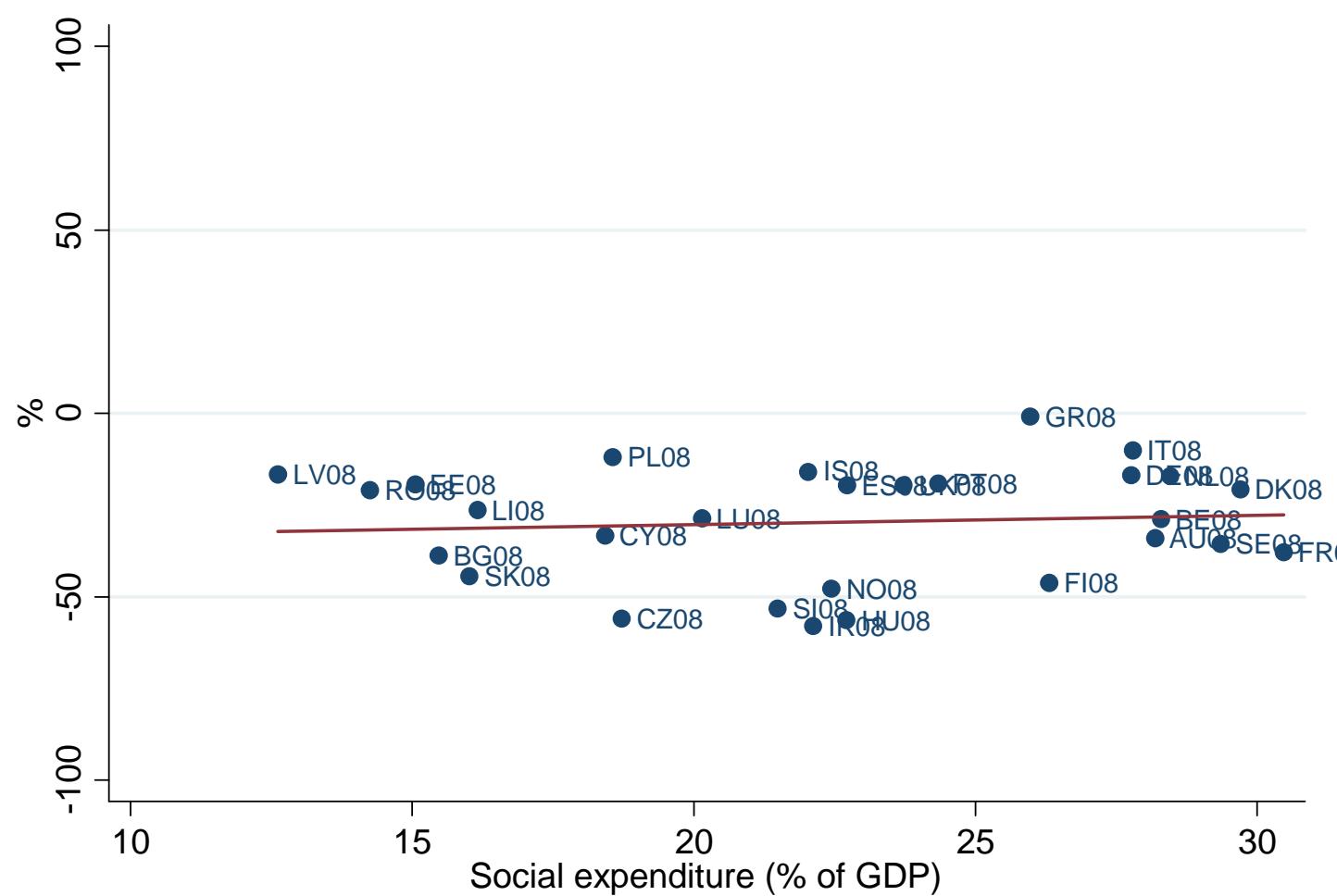


Correlation: -.42

Source: EU-SILC 2008 (weighted), persons at least employed 7 months during income reference period, ESSPROS database.

# Transfers and taxes

% of poverty reduction by social expenditure



Correlation: .08

Source: EU-SILC 2008 (weighted), persons at least employed 7 months during income reference period, ESSPROS database.

# Probability of poverty reduction via hh context

## Logit coefficients (robust standard errors at country level)

	x-section 2008	pooled 2004-8	country fixed effects 2004-8
family service exp. (% GDP)	-0.097	-0.110	0.190
female part-time rate (%)	0.012 **	0.013 ***	-0.001
female employment rate (%)	0.011	0.014 *	-0.037 ***
unemployment rate (%)	-0.056 **	-0.032 *	-0.046 ***
% change GDP	-0.025 +	-0.029 *	-0.008
micro-level variables	yes	yes	yes
countries	28	28	28
observations	19885	73626	73626
Pseudo-R <sup>2</sup>	0.079	0.073	0.082

Source: EU-SILC (weighted), persons at least employed 7 months during income reference period. Micro-level variables: gender, education, age (squared), household structure, Sig: + 10%, \* 5%, \*\*1 %, \*\*\* 0.1%.

# Probability of poverty reduction via transfers

## Logit coefficients (robust standard errors at country level)

	x-section 2008	pooled 2004-8	country fixed effects 2004-8
family cash exp. (% GDP)	0.377 +	0.481 **	0.235 **
social exp. (% GDP)	0.016	0.011	0.045 *
unemployment rate (%)	-0.154 *	-0.062 +	-0.009
% change GDP	-0.055 +	-0.054	0.015
micro-level variables	yes	yes	yes
countries	28	28	28
observations	24368	103247	103247
Pseudo-R <sup>2</sup>	0.071	0.071	0.117

Source: EU-SILC (weighted), persons at least employed 7 months during income reference period. Micro-level variables: gender, education, age (squared), household structure, Sig: + 10%, \* 5%, \*\*1 %, \*\*\* 0.1%.

# Conclusion

## Conclusion I

- link between low earnings and poverty differs between welfare states
- low earnings as main or additional income source: poverty reduction vs. poverty increase in household context
- differences in the efficiency of the tax/transfer system

## Conclusion II

- lack of current monthly earnings data restricts potential of EU-SILC for analyses directed at the relationship between labour market position and well-being
- measurement of yearly income
  - difficult to decompose household income into single income components
  - negative incomes not in all countries
  - non-cash income components not yet standard
- data collection approaches are diverse (e.g., register/survey): more research needed how this influences substantial results

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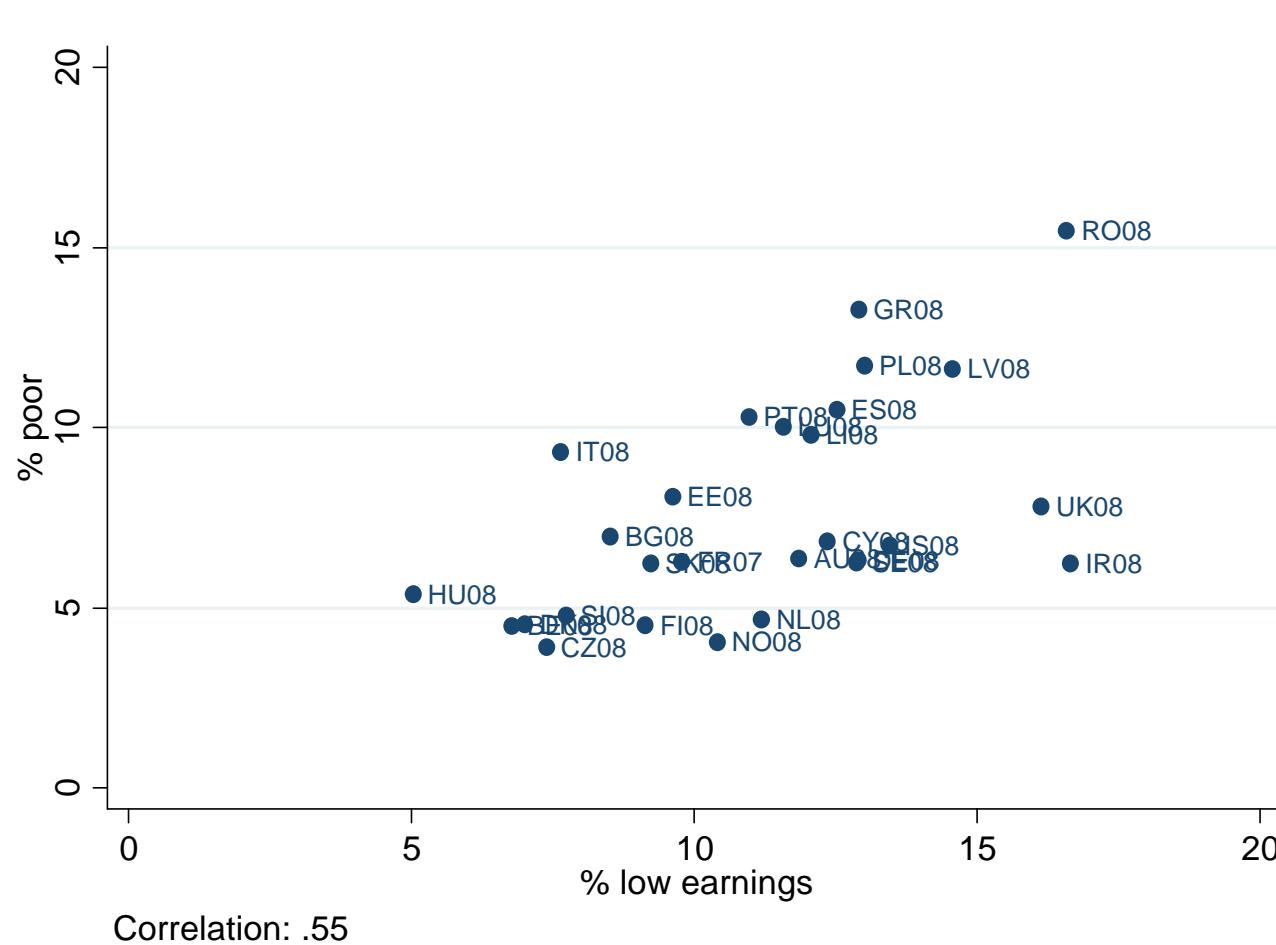
# Appendix

# Poverty and poverty reduction

	poverty rate based on ...				poverty reduction ...		
	personal earnings	equivalised hh earnings	equivalised hh earnings after taxes	equivalised hh earnings after taxes and transfers	taxes/transfe		
					household	(4-2)/(2)	(4-3)/(3)
	(1)	(2)	(3)	(4)	(2-1)/(1)		
BE	6.8	6.3	11.0	4.5	-6.9	-28.9	-59.0
DK	7.0	5.7	10.5	4.5	-18.5	-20.7	-56.7
DE	12.9	7.6	12.0	6.3	-41.2	-16.9	-47.4
GR	12.9	13.4	14.8	13.3	3.7	-0.8	-10.2
ES	12.5	13.1	12.8	10.5	4.2	-19.6	-18.1
FR	9.8	10.1	14.9	6.3	3.3	-37.8	-57.8
IR	16.7	14.9	15.2	6.2	-10.8	-58.0	-58.9
IT	7.6	10.4	12.7	9.3	35.7	-10.2	-26.6
LU	11.6	14.1	18.6	10.0	21.4	-28.7	-46.2
NL	11.2	5.6	8.5	4.7	-49.8	-17.0	-45.0
AU	11.9	9.7	14.0	6.4	-18.6	-34.0	-54.4
PT	11.0	12.7	14.3	10.3	15.9	-19.1	-28.3
FI	9.1	8.4	11.6	4.5	-7.9	-46.3	-61.2
SE	12.9	9.7	18.3	6.3	-24.6	-35.6	-65.8
UK	16.1	9.7	13.7	7.8	-39.8	-19.6	-42.9
BG	8.5	11.4	10.1	7.0	34.0	-38.9	-31.3
CY	12.4	10.3	10.5	6.8	-16.9	-33.5	-35.2
CZ	7.4	8.9	10.1	3.9	20.3	-56.1	-61.2
EE	9.6	10.0	11.2	8.1	4.4	-19.5	-27.8
HU	5.0	12.3	17.0	5.4	145.1	-56.5	-68.3
LV	14.6	14.0	14.9	11.6	-4.3	-16.7	-22.2
LI	12.1	13.3	14.5	9.8	10.2	-26.4	-32.5
PL	13.0	13.3	16.5	11.7	2.1	-11.9	-28.9
RO	16.6	19.6	20.4	15.5	18.0	-21.0	-24.0
SK	9.2	11.2	10.7	6.2	21.4	-44.4	-41.8
SI	7.7	10.2	13.6	4.8	32.0	-53.2	-65.0
IS	13.5	8.0	13.3	6.7	-40.6	-15.9	-49.2
NO	10.4	7.8	13.0	4.1	-25.5	-47.8	-68.8

Source: EU-SILC (own calculation).

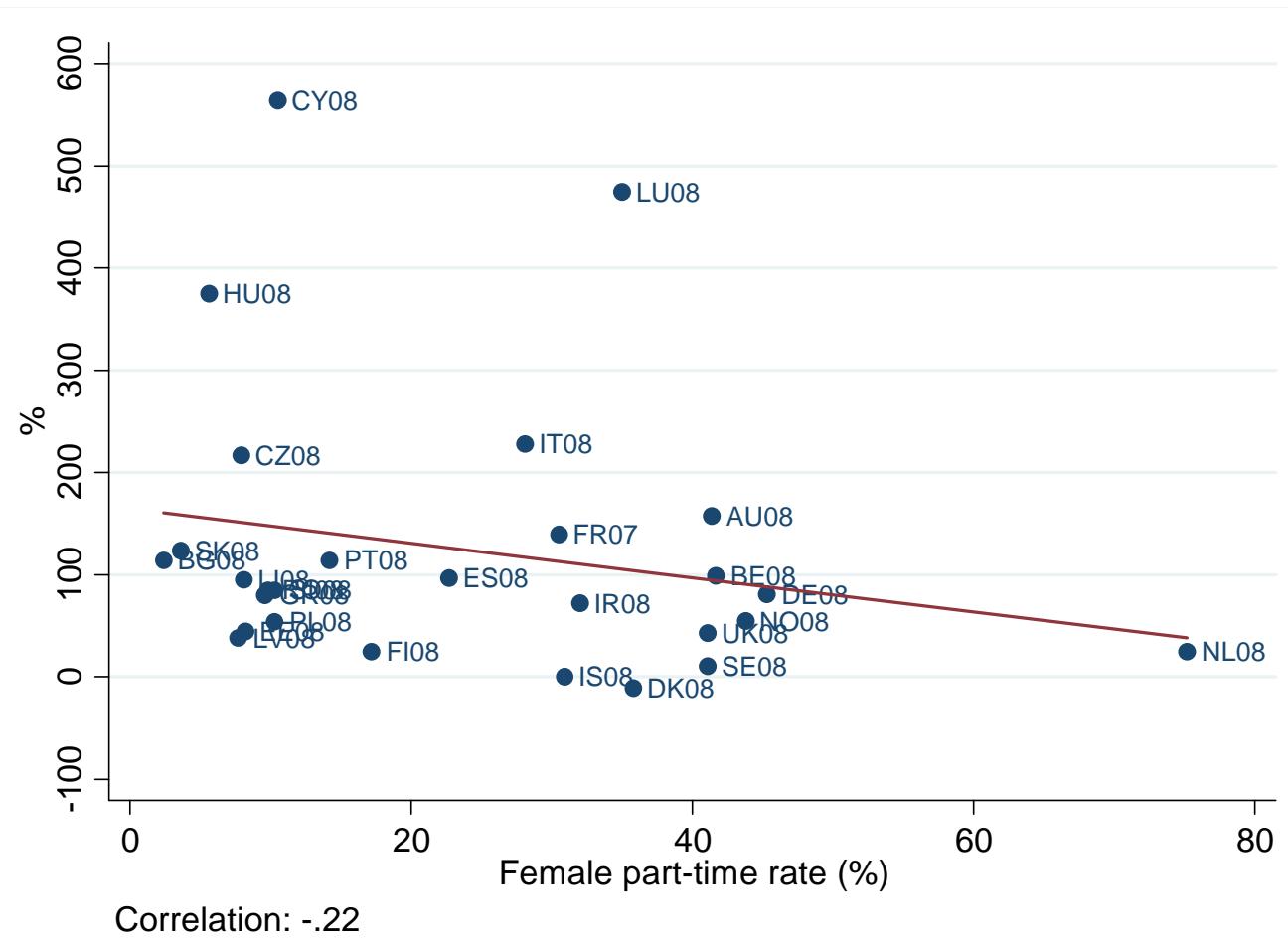
# Low earnings and poverty



Source: EU-SILC 2008 (weighted), persons at least employed 7 months during income reference period.

# Household context

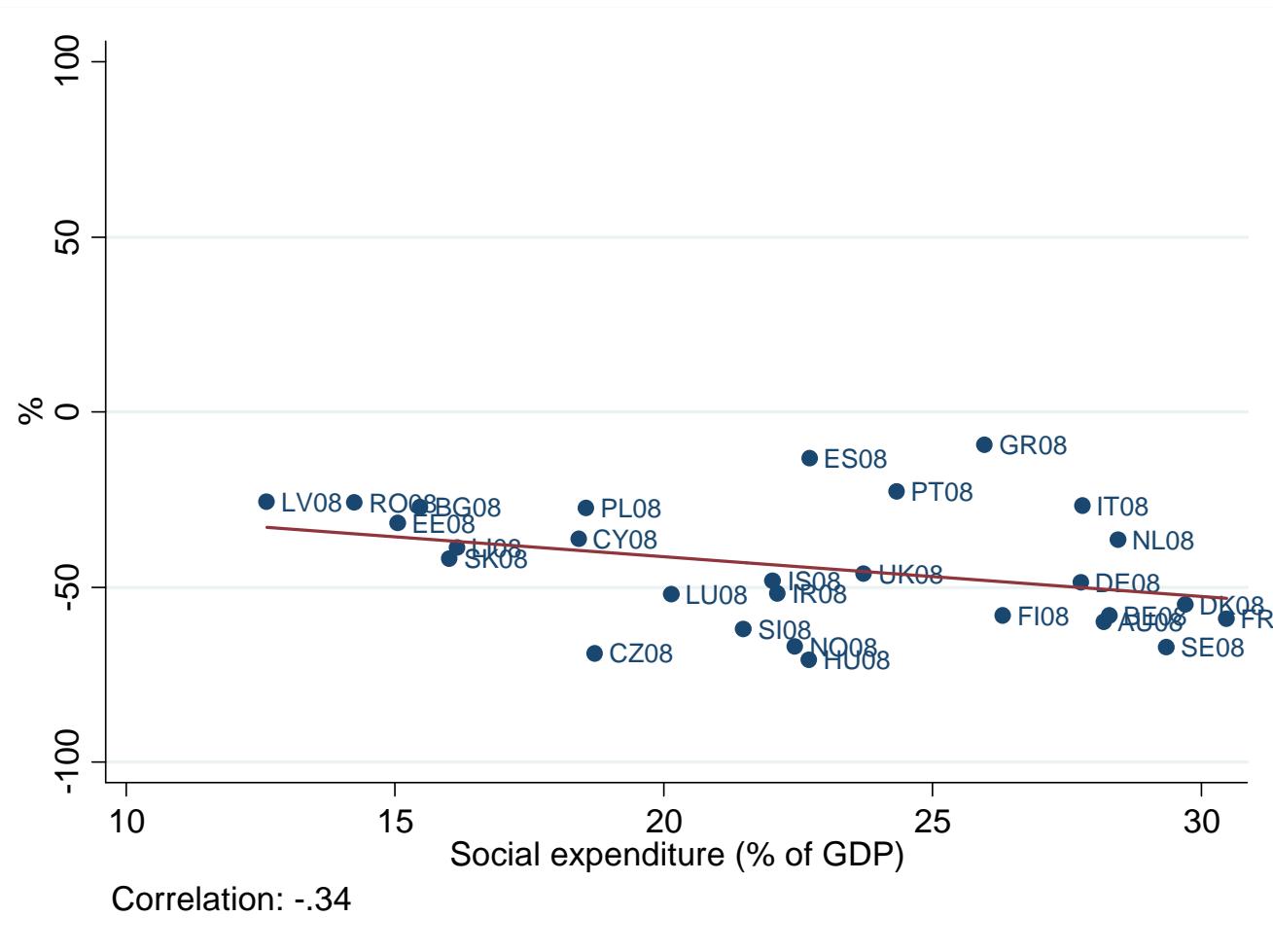
% of poverty reduction by female part-time rate



Source: EU-SILC (own calculation), EU-LFS aggregate data, full-year/full-time workers.

# Transfers

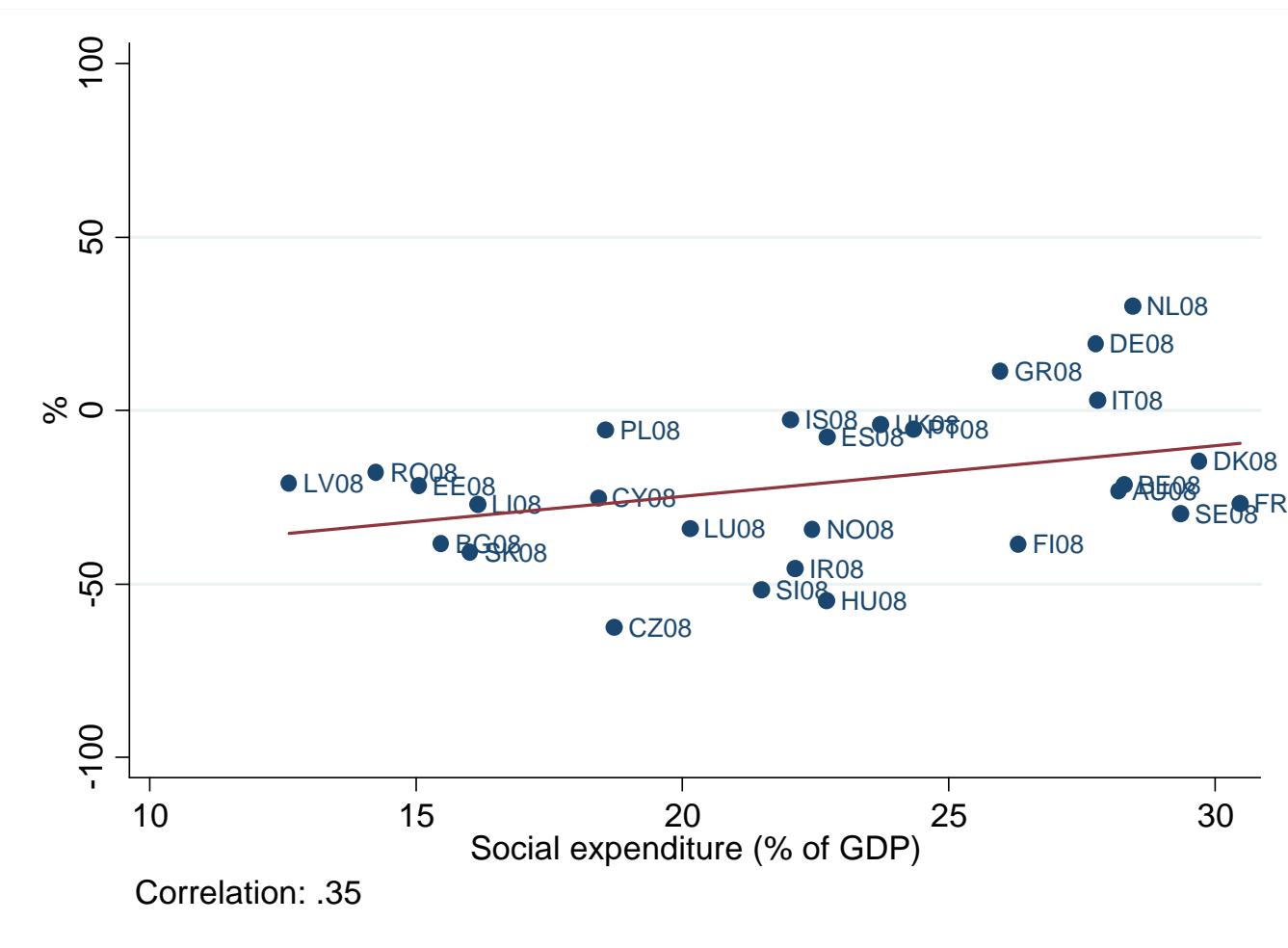
% of poverty reduction by social expenditure



Source: EU-SILC (own calculation), ESSPROS database, full-year/full-time workers.

# Transfers and taxes

## % of poverty reduction by social expenditure



Source: EU-SILC (own calculation), ESSPROS database, full-year/full-time workers.

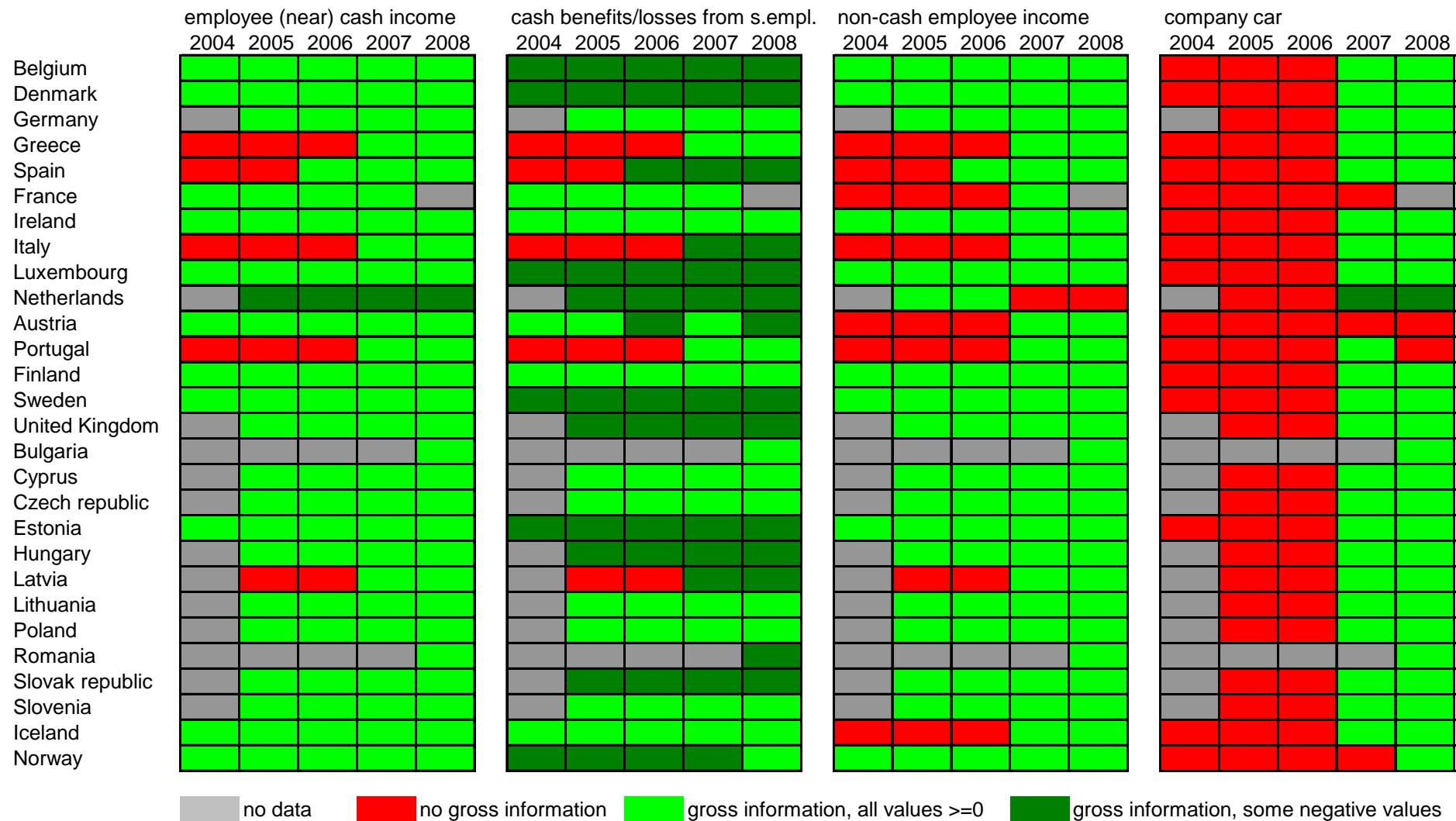
# Micro-level coefficients, pooled x-sections

## Logit coefficients (robust standard errors at country level)

	household	transfers	taxes/transfers
female	1.051 ***	0.164 ***	0.274 ***
educ3	0.380 ***	0.496 ***	0.357 ***
educ45	0.494 ***	0.230 *	0.233 *
age	-0.097 **	-0.073 *	-0.085 ***
age2	0.001 **	0.001 +	0.001 ***
kid02_n	-0.062 **	0.173 ***	-0.056
kid35_n	-0.014	0.052 *	-0.097 ***
kid612_n	-0.051 ***	0.017	-0.085 ***
kid1317_n	-0.101 ***	0.028	-0.142 ***
adult_n	0.073 ***	-0.002	0.059 ***
macro-level	yes	yes	yes

Source: EU-SILC (weighted), persons at least employed 7 months during income reference period, , Sig: + 10%, \* 5%, \*\*1 %, \*\*\* 0.1%.

# Earnings components in EU-SILC



# Correlation of low earnings rates (different definitions of working)

	18-64 years		25-54 years	
	survey	register	survey	register
>= 1month	0.95	0.82	0.95	0.88
>= 7 months	1	1	1	1
>= 7 months + currently	0.93	0.93	0.98	0.97
>= 12 months	0.97	0.97	0.98	0.98

Source: EU-SILC 2008 (weighted), n=107, persons with income from self-employment excluded.

# Probability of poverty reduction via taxes/transfers

## Logit coefficients (robust standard errors at country level)

	x-section 2008	pooled 2004-8	country fixed effects 2004-8
family cash exp. (% GDP)	0.182	0.195 +	-0.070
social exp. (% GDP)	-0.003	-0.002	0.060 *
unemployment rate (%)	-0.081 *	-0.040 +	-0.011
% change GDP	-0.058 *	-0.052 *	-0.012
micro-level controls	yes	yes	yes
countries	28	28	28
observations	19970	71737	71737
Pseudo-R <sup>2</sup>	0.039	0.031	0.052

Source: EU-SILC (weighted), persons at least employed 7 months during income reference period. Micro-level variables: gender, education, age (squared), household structure, Sig: + 10%, \* 5%, \*\*1 %, \*\*\* 0.1%.