

The EU-SILC in comparative income distribution research: design and definitions in international perspective

Markus Jäntti¹

Åbo Akademi, LIS, WIDER

Eurostat/EU-SILC Conference November 6, 2006

Outline

- 1 Introduction
- 2 Survey design and income measurement
- 3 Income inequality and poverty
- 4 Concluding comments

At outset

- highly useful to have research seminar on EU-SILC

At outset

- highly useful to have research seminar on EU-SILC
- high marks for disseminating data early

At outset

- highly useful to have research seminar on EU-SILC
- high marks for disseminating data early
- wide use of EU-SILC data may broaden understanding and acceptance of the indicators for social inclusion

At outset

- highly useful to have research seminar on EU-SILC
- high marks for disseminating data early
- wide use of EU-SILC data may broaden understanding and acceptance of the indicators for social inclusion
- pressure from statistical, research and policy community for more and better data important

Purpose of this presentation

- discuss the use of EU-SILC for cross-country comparisons of disposable income-based distributional assessments in comparison (and in conjunction) with an other source, the Luxembourg Income Study

Purpose of this presentation

- discuss the use of EU-SILC for cross-country comparisons of disposable income-based distributional assessments in comparison (and in conjunction) with an other source, the Luxembourg Income Study
- discuss design and measurement of income in the two sources

Purpose of this presentation

- discuss the use of EU-SILC for cross-country comparisons of disposable income-based distributional assessments in comparison (and in conjunction) with an other source, the Luxembourg Income Study
- discuss design and measurement of income in the two sources
- compare both sources to national accounts

Purpose of this presentation

- discuss the use of EU-SILC for cross-country comparisons of disposable income-based distributional assessments in comparison (and in conjunction) with an other source, the Luxembourg Income Study
- discuss design and measurement of income in the two sources
- compare both sources to national accounts
- take a look at inequality and poverty statistics

Sampling design issues

- the SILC designs affected by ECHP experiences and national sampling traditions (the sampling frame; sample persons or households primarily)

Sampling design issues

- the SILC designs affected by ECHP experiences and national sampling traditions (the sampling frame; sample persons or households primarily)
- the data sources in LIS are either based on the ECHP or on the national data sources that have affected the national SILC designs

Sampling design issues

- the SILC designs affected by ECHP experiences and national sampling traditions (the sampling frame; sample persons or households primarily)
- the data sources in LIS are either based on the ECHP or on the national data sources that have affected the national SILC designs
- main problem with LIS is that the extent to which the late waves of ECHP are cross-sectionally representative is open to debate

Sampling design issues

- the SILC designs affected by ECHP experiences and national sampling traditions (the sampling frame; sample persons or households primarily)
- the data sources in LIS are either based on the ECHP or on the national data sources that have affected the national SILC designs
- main problem with LIS is that the extent to which the late waves of ECHP are cross-sectionally representative is open to debate
- the structure of SILC designs are quite similar to those used originally for the ECHP

Measurement of income

- income measurement in both SILC and LIS heavily affected by Canberra group recommendations

Measurement of income

- income measurement in both SILC and LIS heavily affected by Canberra group recommendations
- net/gross measurement differences to fade away

Measurement of income

- income measurement in both SILC and LIS heavily affected by Canberra group recommendations
- net/gross measurement differences to fade away
- unsolved measurement problems related to property-related sources and self-employment income

Measurement of income

- income measurement in both SILC and LIS heavily affected by Canberra group recommendations
- net/gross measurement differences to fade away
- unsolved measurement problems related to property-related sources and self-employment income
- quality assessments of the different income sources important

Register and interview income

- an important way of studying the accuracy of income reports is to have an independent measurement of income (components) to which interview sources are compared

Register and interview income

- an important way of studying the accuracy of income reports is to have an independent measurement of income (components) to which interview sources are compared
- the independent measure should **not** be thought of as being measured with no error (but hopefully as having independent error)

Register and interview income

- an important way of studying the accuracy of income reports is to have an independent measurement of income (components) to which interview sources are compared
- the independent measure should **not** be thought of as being measured with no error (but hopefully as having independent error)
- in some cases, the ECHP gathered information from both both interviews and from registers

Register and interview income

- an important way of studying the accuracy of income reports is to have an independent measurement of income (components) to which interview sources are compared
- the independent measure should **not** be thought of as being measured with no error (but hopefully as having independent error)
- in some cases, the ECHP gathered information from both both interviews and from registers
- it seems that errors in interview income may be disproportionately concentrated to the low end of income

Definitions of interview and register income

- the household head asked *current monthly income* as amount [Q 84] or income range [Q 86]. This is *current household interview income*.

Definitions of interview and register income

- the household head asked *current monthly income* as amount [Q 84] or income range [Q 86]. This is *current household interview income*.
- each household member about all components of disposable money income [H 137–H388]. Amounts are summed across components within households to get *household interview income*

Definitions of interview and register income

- the household head asked *current monthly income* as amount [Q 84] or income range [Q 86]. This is *current household interview income*.
- each household member about all components of disposable money income [H 137–H388]. Amounts are summed across components within households to get *household interview income*
- The disposable income of each *household* member in the previous year summed across the components as recorded in relevant registers is aggregated within households to generate *household register income*

Definitions of interview and register income

- the household head asked *current monthly income* as amount [Q 84] or income range [Q 86]. This is *current household interview income*.
- each household member about all components of disposable money income [H 137–H388]. Amounts are summed across components within households to get *household interview income*
- The disposable income of each *household* member in the previous year summed across the components as recorded in relevant registers is aggregated within households to generate *household register income*

Selected percentiles of the income distribution

p10	Wave 3		Wave 7		Change	
	1995	1996	1999	2000	1999-95	2000-1996
HH, int, month		6295		6855		560
HH, int, ann	7032		7305		273.1	
HH, reg, ann	8552		8560		8.1	
DU, reg, ann	8268		8244		-24.3	

p90	Wave 3		Wave 7		Change	
	1995	1996	1999	2000	1999-95	2000-1996
HH, int, month		19108		21843		2736
HH, int, ann	20080		23988		3908	
HH, reg, ann	22494		24820		2325	
DU, reg, ann	22453		25140		2688	

Note: The numbers refer to 2001 euros of disposable equivalent money income using the income source indicated, estimated for the responding ECHP sample in each wave.

Relative inequality indices

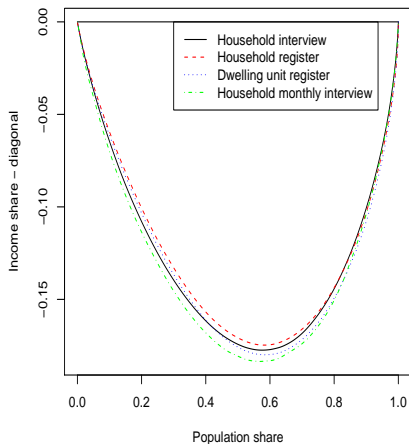
gini	Wave 3		Wave 7		Change	
	1995	1996	1999	2000	1999-95	2000-1996
HH, int, month		0.247		0.255		0.00782
HH, int, ann	0.234		0.270		0.0361	
HH, reg, ann	0.228		0.253		0.0252	
DU, reg, ann	0.234		0.270		0.0362	

cv2	Wave 3		Wave 7		Change	
	1995	1996	1999	2000	1999-95	2000-1996
HH, int, month		0.226		0.25		0.024
HH, int, ann	0.210		0.367		0.1570	
HH, reg, ann	0.302		0.356		0.0539	
DU, reg, ann	0.313		0.524		0.2106	

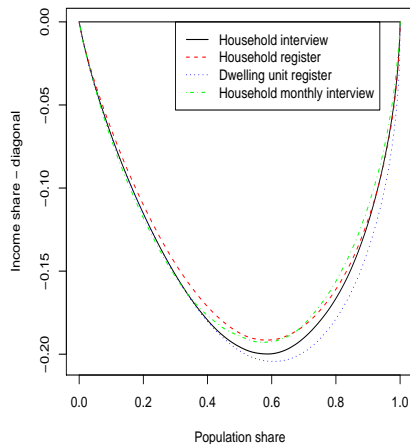
Note: The numbers refer to 2001 euros of disposable equivalent money income using the income source indicated, estimated for the responding ECHP sample in each wave.

Lorenz curves for different income concepts

Wave 3

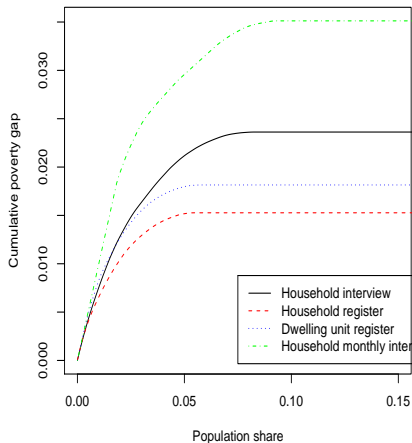


Wave 7

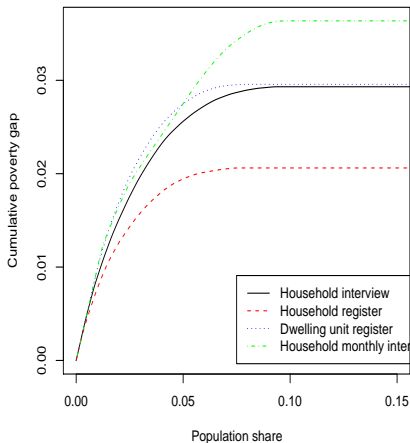


Poverty for different income concepts – ECHP Wave 3

Wave 3



Wave 7



Measurement error in the tails

Table 2: Mean gross earned income per decile in 1995 and 1999 when individuals are ordered according to their net earned income as estimated as estimated from registers in respective year†

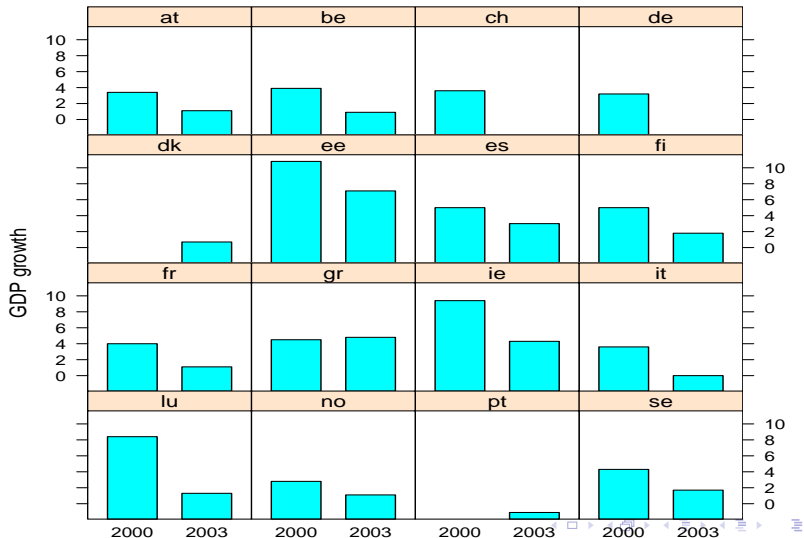
Decile	Mean income (FIM)					
	1995			1999		
	Survey (1)	Registers (2)	Diff. (%) $100 \frac{(1)-(2)}{(2)}$	Survey (3)	Register (4)	Diff. (%) $100 \frac{(3)-(4)}{(4)}$
I	22 763	15 122	+50.6	32 788	19 576	+67.5
II	51 781	46 709	+10.9	77 748	59 126	+31.5
III	76 605	73 590	+4.1	99 313	91 173	+8.9
IV	91 994	92 112	-0.1	114 718	109 580	+4.7
V	99 707	103 786	-3.9	135 308	122 576	+10.4
VI	112 938	115 104	-1.9	140 158	135 494	+3.4
VII	124 833	129 102	-3.3	148 839	150 883	-1.4
VIII	142 976	147 140	-2.8	169 490	170 483	-0.6
IX	165 212	173 714	-4.9	199 308	204 433	-2.5
X	248 107	265 434	-6.5	310 651	325 268	-4.5
All	113 546	116 159	-2.2	142 910	138 756	+3.0

Sample size 1995: 4564, 1999: 2641

†Included are only individuals normally working at least 15 hours/week and having earnings according to the registers in respective year and participated in both waves.

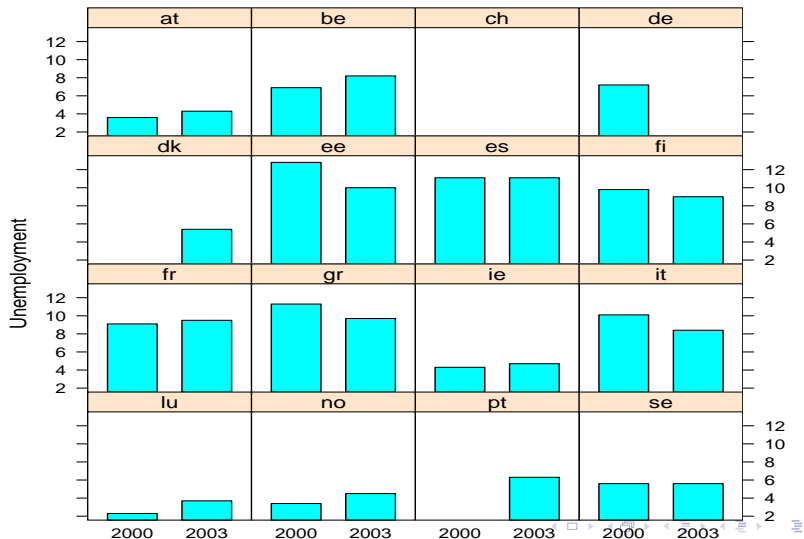
The economic context

GDP growth

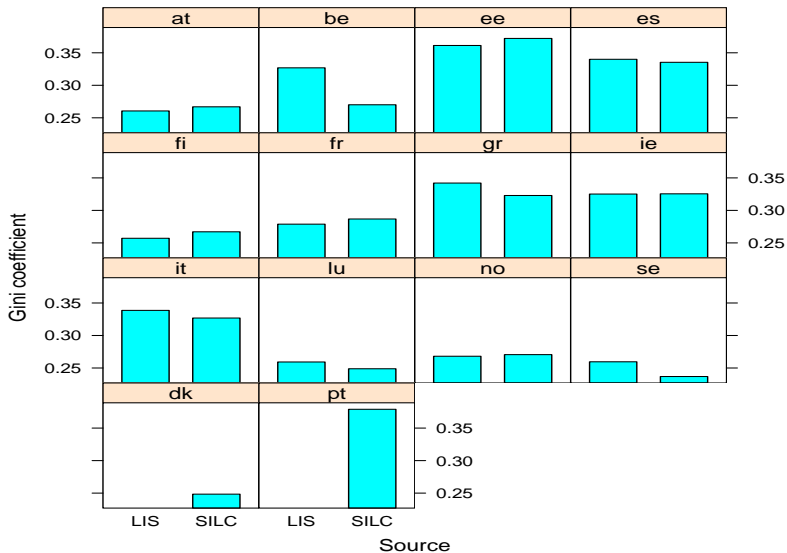


The economic context

Unemployment

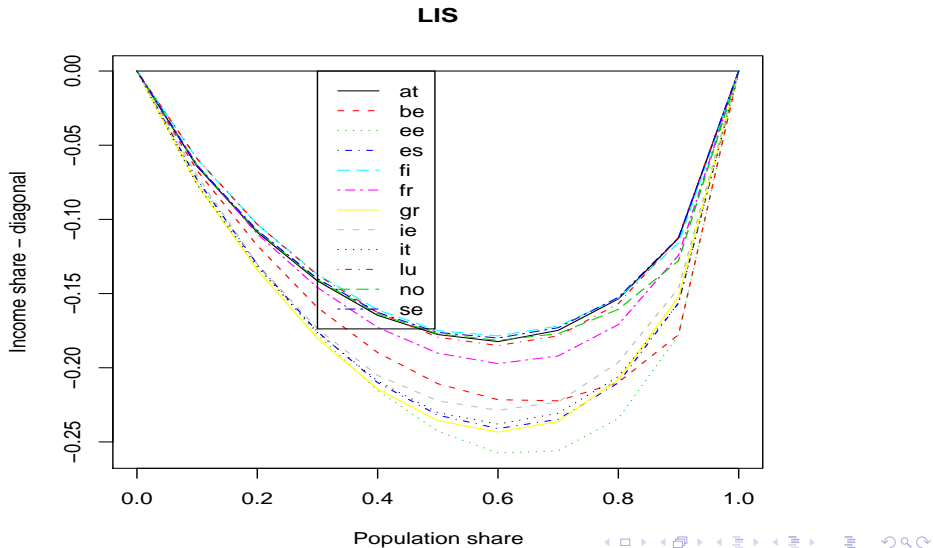


Gini coefficient of disposable income



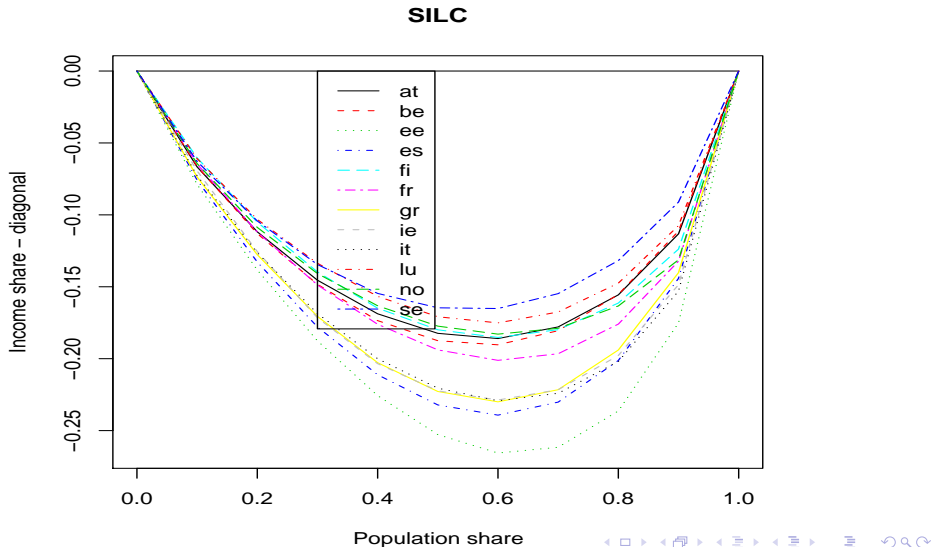
Lorenz curves

for LIS data



Lorenz curves

for SILC data



Lorenz dominance

for LIS data

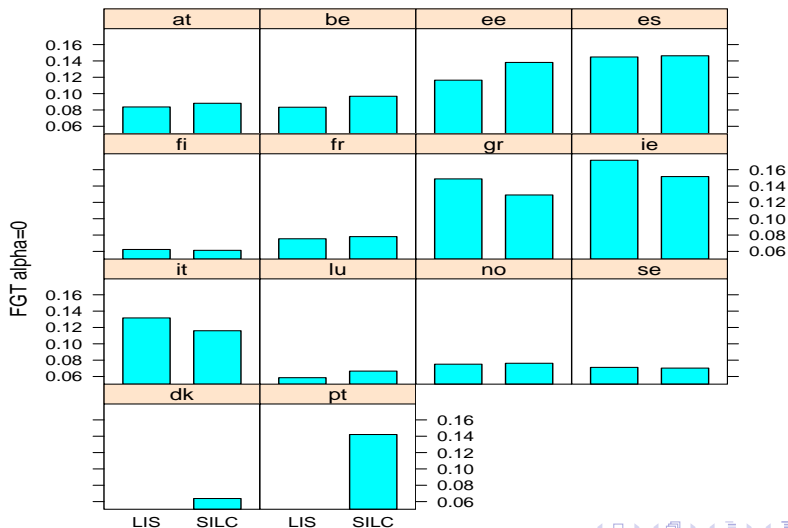
	at	be	ee	es	fi	fr	gr	ie	it	lu	no	se
at		0	0	0	0	0	0	0	1	0	0	-1
be			1	0	0	-1	0	0	0	0	0	-1
ee				0	0	-1	0	0	0	0	0	-1
es					0	-1	0	-1	0	0	0	-1
fi						0	0	0	0	0	1	0
fr							1	1	1	0	0	0
gr								-1	0	0	0	-1
ie									1	0	0	-1
it										0	0	-1
lu											0	0
no												0
se												

Lorenz dominance

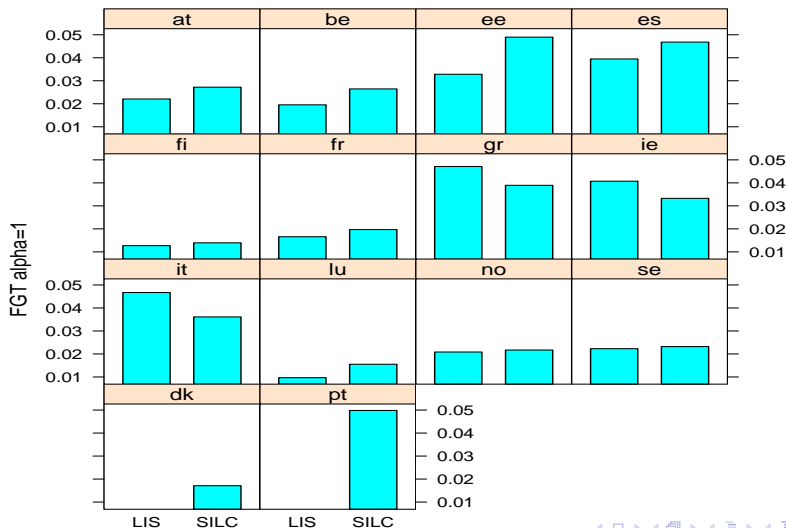
for SILC data

	at	be	ee	es	fi	fr	gr	ie	it	lu	no	se
at		0	1	0	0	0	1	1	1	-1	0	0
be			0	0	0	0	1	1	0	-1	0	0
ee				-1	0	0	0	0	0	-1	0	0
es					0	0	0	0	0	-1	0	0
fi						0	0	0	0	0	0	0
fr							1	1	0	-1	0	0
gr								0	0	-1	-1	-1
ie									0	-1	0	0
it										-1	0	0
lu											1	0
no												-1
se												

Poverty comparisons – head count poverty ratio in EU-SILC and LIS data

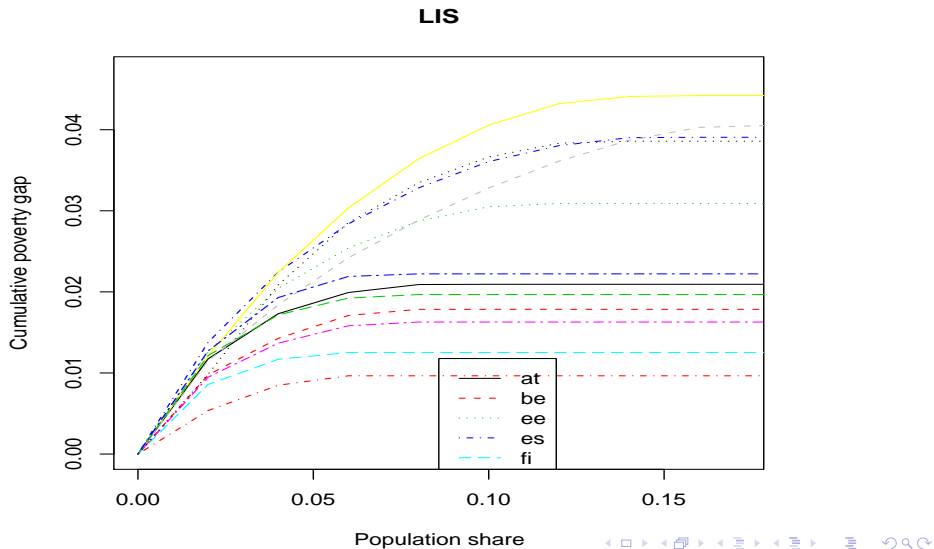


Poverty comparisons – the poverty gap ratio in EU-SILC and LIS data



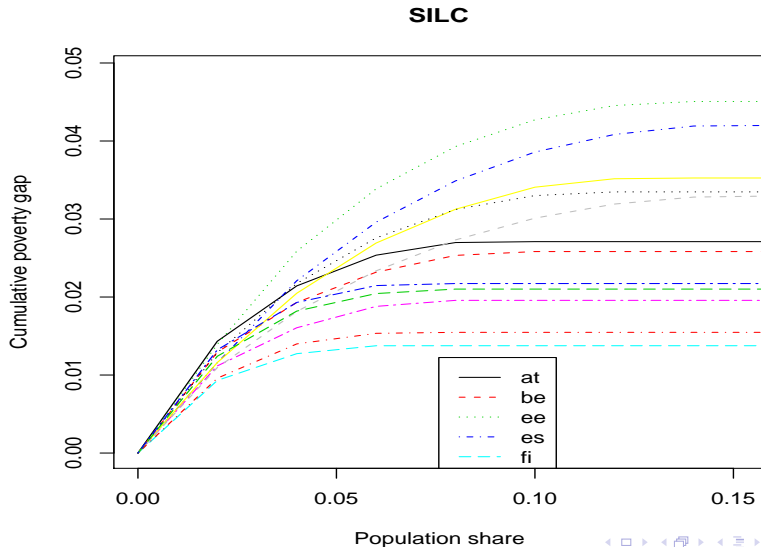
Poverty comparisons

TIP curves for LIS data



Poverty comparisons

TIP curves for SILC data



“TIP” dominance

in LIS data

	at	be	ee	es	fi	fr	gr	ie	it	lu	no	se
at		-1	1	1	-1	-1	1	0	0	-1	0	1
be			1	1	-1	-1	1	1	1	-1	1	1
ee				1	-1	-1	0	0	0	-1	-1	0
es					-1	-1	0	0	0	-1	-1	-1
fi						1	1	1	1	-1	1	1
fr							1	1	1	-1	1	1
gr								-1	-1	-1	0	0
ie									0	-1	0	0
it										-1	0	0
lu											1	1
no												1
se												

“TIP” dominance

in SILC data

	at	be	ee	es	fi	fr	gr	ie	it	lu	no	se
at		-1	0	0	-1	-1	0	0	0	-1	-1	-1
be			1	0	-1	-1	0	0	0	-1	-1	0
ee				-1	-1	-1	-1	-1	-1	-1	-1	-1
es					-1	-1	0	-1	0	-1	0	0
fi						1	1	1	1	1	1	1
fr							1	0	1	-1	1	1
gr								-1	0	-1	0	0
ie									1	-1	0	0
it										-1	-1	0
lu											1	1
no												1
se												

Concluding comments

- SILC sample designs and income definitions reasonably well anchored in national traditions and international standards

Concluding comments

- SILC sample designs and income definitions reasonably well anchored in national traditions and international standards
- similar at least in principle to data in the Luxembourg Income Study

Concluding comments

- SILC sample designs and income definitions reasonably well anchored in national traditions and international standards
- similar at least in principle to data in the Luxembourg Income Study
- differences in data sources and income definitions probably of a comparable order of magnitude as within changes to domestic survey instruments

Concluding comments

- SILC sample designs and income definitions reasonably well anchored in national traditions and international standards
- similar at least in principle to data in the Luxembourg Income Study
- differences in data sources and income definitions probably of a comparable order of magnitude as within changes to domestic survey instruments
- many highly useable extensions in SILC: flagging, imputation information, dissemination of microdata