Using EU-SILC data for cross-national analysis: strengths, problems and recommendations

Maria Iacovou

Department of Sociology, University of Cambridge

UNIVERSITY OF
CAMBRIDGE

Using EU-SILC data for cross-national analysis: strengths, problems and recommendations

Maria Iacovou
Institute for Social and Economic Research
University of Essex

Olena Kaminska
Institute for Social and Economic Research
University of Essex

Horacio Levy
Institute for Social and Economic Research
University of Essex

No. 2012-03
January 2012

INSTITUTE FOR SOCIAL & ECONOMIC RESEARCH

ISER working paper (2012)

W/P and book chapter on following rules (2012, 2013)

Series of reports for Eurostat on the longitudinal component of EU-SILC (2012)

Chapters in "Monitoring Social Europe". (2018)

Work of NET-SILC, NET-SILC2 and NET-SILC3 programmes

Content and design of EU-SILC under review, for 2021 or 2022
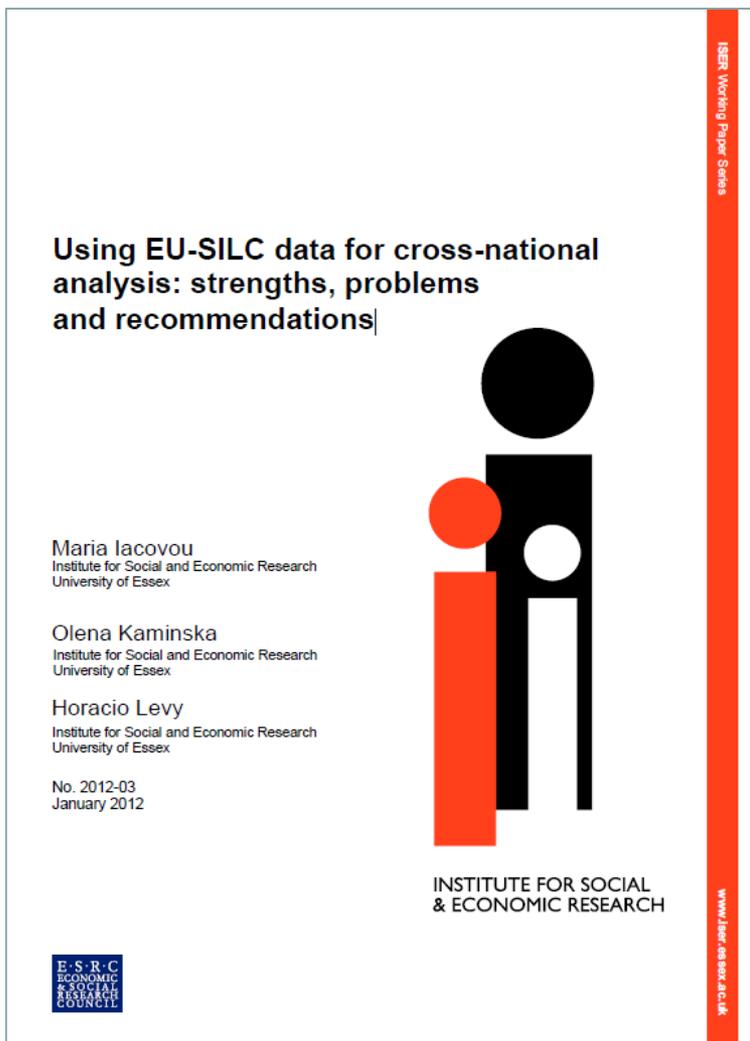
Iacovou, Kaminska, Levy (2012)

- Input versus output harmonization

- "Survey" versus "Register" countries

- Sampling – stratum and cluster indicators, and weighting

- Household grid

- Implementation of following rule

- Links between cross-sectional and longitudinal data

- Four-year rolling panel (versus longer rotation or full panel)

- Income data
  - Aggregation of income components
  - Measurement: net and gross
  - Reference period mismatch

UNIVERSITY OF CAMBRIDGE

The household grid – nuclear family

	Person 1	Person 2	Person 3	Person 4	Person 5
Person 1	-	Spouse/ partner	Natural Parent	Natural Parent	Natural Parent
Person 2		-	Natural Parent	Natural Parent	Natural Parent
Person 3			-	Full Sibling	Full Sibling
Person 4				-	Full Sibling
Person 5					-

The household grid – blended family

	Person 1	Person 2	Person 3	Person 4	Person 5
Person 1	-	Spouse/ partner	Natural Parent	Step-parent	Natural Parent
Person 2		-	Step-parent	Natural Parent	Natural Parent
Person 3			-	Step-sibling	Half-Sibling
Person 4				-	Half-sibling
Person 5					-

The household grid - stepfamily

	Person 1	Person 2	Person 3	Person 4	Person 5
Person 1	-	Spouse/ partner	Step-parent	Step-parent	Step-parent
Person 2		-	Natural Parent	Natural Parent	Natural Parent
Person 3			-	Full sibling	Half-Sibling
Person 4				-	Half-Sibling
Person 5					-

Household grid – mum's partner recently moved in

	Person 1	Person 2	Person 3	Person 4	Person 5
Person 1	-	Spouse/ partner	Unrelated	Unrelated	Unrelated
Person 2		-	Natural Parent	Natural Parent	Natural Parent
Person 3			-	Full sibling	Half-Sibling
Person 4				-	Half-Sibling
Person 5					-

UNIVERSITY OF CAMBRIDGE

Household grid – extended family

	Person 1	Person 2	Person 3	Person 4	Person 5
Person 1	-	Spouse/ partner	Natural Parent	Full Sibling	Full Sibling
Person 2		-	Natural Parent	Bro/Sister-In-law	Bro/Sister-In-law
Person 3			-	Niece/ Nephew	Niece/ Nephew
Person 4				-	Full Sibling
Person 5					-

UNIVERSITY OF CAMBRIDGE

EU-SILC – the nuclear family

PID	Spouse/ Partner ID	Father ID	Mother ID
10001	10002	.	.
10002	10001	.	.
10003	.	10001	10002
10004	.	10001	10002
10005	.	10001	10002

The household grid – nuclear family

	Person 1	Person 2	Person 3	Person 4	Person 5
Person 1	-	Spouse/ partner ✓	Natural Parent ✓	Natural Parent ✓	Natural Parent ✓
Person 2		-	Natural Parent ✓	Natural Parent ✓	Natural Parent ✓
Person 3			-	Full Sibling ✓	Full Sibling ✓
Person 4				-	Full Sibling ✓
Person 5					-

UNIVERSITY OF CAMBRIDGE

Household grid – extended family

	Person 1	Person 2	Person 3	Person 4	Person 5
Person 1	-	Spouse/ partner	Natural Parent	Full Sibling	Full Sibling
Person 2		-	Natural Parent	Bro/Sister-In-law	Bro/Sister-In-law
Person 3			-	Niece/ Nephew	Niece/ Nephew
Person 4				-	Full Sibling
Person 5					-

EU-SILC – the extended family

PID	Spouse/ Partner ID	Father ID	Mother ID
10001	10002	.	.
10002	10001	.	.
10003	.	10001	10002
10004	.	.	.
10005	.	.	.

Household grid – extended family

	Person 1	Person 2	Person 3	Person 4	Person 5
Person 1	-	Spouse/ partner ✓	Natural Parent ✓	Full Sibling 🚫	Full Sibling 🚫
Person 2		-	Natural Parent ✓	Bro/Sister-in-law 🚫	Bro/Sister-in-law 🚫
Person 3			-	Niece/ Nephew 🚫	Niece Nephew 🚫
Person 4				-	Full Sibling 🚫
Person 5					-

EU-SILC – the step-family. See the problem?

PID	Spouse/ Partner ID	Father ID	Mother ID
10001	10002	.	.
10002	10001	.	.
10003	.	.	10002
10004	.	.	10002
10005	.	.	10002

UNIVERSITY OF
CAMBRIDGE

In summary:

- Evidence that the "qualification" for the father ID is not consistent – we are fairly sure that some step-parent/child relationships appear as natural parent/child relationships (Iacovou and Skew, 2012)

- It is not possible to distinguish between non-biological families which consider themselves to be stepfamilies, and families where the mother's partner has recently taken up residence.

- Cannot identify relationships in many extended family households

- Cannot distinguish between non-nuclear households containing "other" family members and non-family members

- Resistance to incorporating a full household grid on the grounds of time burden

The extent of the problem

▶ **2.8% of households across the EU**

▶ **Over 6% in Ireland and Latvia**

▶ **Wider problem with stepfamilies**

▶ **"Problem" cases are not a majority of households, but they are some of the most interesting ones.**

	% of households containing non-standard relationships	% of individuals living in households where there are non-standard relationships
Sweden	0.9	1.2
Finland	0.9	1.3
Luxembourg	1.3	1.6
Germany	1.3	1.8
Czech Republic	1.8	2.1
Denmark	1.4	2.2
Estonia	1.9	2.6
Slovenia	2.5	2.9
France	2.1	3.0
Poland	2.3	3.0
Netherlands	2.8	3.0
Italy	2.8	3.5
Austria	2.6	3.7
Greece	3.6	3.7
Slovakia	3.5	4.3
UK	3.3	4.3
Hungary	3.7	4.3
Lithuania	3.4	4.4
Cyprus	4.2	4.5
Bulgaria	3.8	4.6
Belgium	2.9	4.7
Portugal	4.4	5.5
Spain	5.1	5.9
Romania	5.7	6.8
Ireland	6.5	7.0
Latvia	6.1	8.0
EU-27	2.8	3.6

Source: EU-SILC cross-sectional file, release 2008-2, except France, which is based on release 2007-2; weighted using cross-sectional weights supplied with EU-SILC

UNIVERSIT CAMBRIDGE

Is a full household grid really so burdensome?

Household size	Questions – hh grid	Questions – EU SILC style
1	0	3
2	1	6
3	3	9
4	6	12
5	10	15
6	15	18
7	21	21
8	28	24
9	36	27
10	45	30

UNIVERSITY OF
CAMBRIDGE

Following Rules

- Mentioned in Iacovou, Kaminska, Levy (2012)

- Developed in Iacovou and Lynn (2013 and 2018)

- Sample members identified at start of survey (or of rotational group)

- A few extra people become sample members

- When a sample household splits, departing household members should be followed

- Enormous variability between countries (minimum = 0)

UNIVERSITY OF
CAMBRIDGE

Is this a big problem?

▶ **Household splits do not form a large percentage of households**

▶ **But some of the most interesting demographic transitions often involve household splits**

Table 3: The percentage of household splits attributable to a range of transitions

		N	Percent
(1)	Young adult (16-35) leaving parental home	20581	52.7
(2)	Divorce or relationship separation	6649	17.0
(3)	Both (1) and (2) in the same year	1599	4.1
(4)	Older adult (36-50) leaving parental home	1235	3.2
(5)	Young single adult (16-35) leaving non-parental household	3823	9.8
(6)	Elderly adult (60+) moving to an institution	433	1.1
(7)	Indeterminate - missing partner or parent IDs	709	1.8
(8)	Other	3991	10.2
	Total	32923	100.0

Source: EU-SILC longitudinal files, 2003-2010
Note: the unit of analysis is the household in which the split took place, not all individuals living in these households, and not all individuals who left their original households

Following rates, by type of household split

Table 4: Re-interview rates, by type of household split

Non-register countries	Men			Women		
	Re-interviewed	Moved out of scope	Still in scope but not re-interviewed	Re-interviewed	Moved out of scope	Still in scope but not re-interviewed
Young adult (16-35) leaving parental home	28.6	21.1	50.3	33.1	17.7	49.2
Divorce or relationship separation	17.0	17.5	65.4	23.5	16.2	60.3
Older adult (36-50) leaving parental home	28.8	15.3	56.0	33.5	15.0	51.6
Young single adult (16-35) leaving non-parental h/h	11.6	10.3	78.0	15.8	12.4	71.8
Elderly adult (60+) moving to an institution	-	100.0	-	-	100.0	-
Indeterminate - missing partner or parent IDs	0.9	0.0	99.1	1.4	0.0	98.6
Other	30.0	7.2	62.7	31.9	11.0	57.1

Overall following rates are very low…

▶ Following divorce, following rates are too low everywhere to do any meaningful longitudinal work on outcomes.

▶ Following home-leaving, a few countries manage to interview 40-50% of home-leavers, making longitudinal research possible.

▶ "Register" countries have a different notion of "sample members";
  ▸ More likely to follow the departing partner in a divorce
  ▸ Less likely to follow the remaining partner
  ▸ Hardly follow any home-leavers

Conclusions:

▶ Lax following rules are not too problematic for areas such as income analysis

▶ But they are highly problematic for (eg) demographic analysis

▶ Solution: enforce following rules; share best practice.

UNIVERSITY OF CAMBRIDGE

Incomes

▶ **Focus on the issue of "reference periods" (Heuberger, 2003)**

▶ **Most questions in EU-SILC relate to "now"**

▶ **Income questions relate to a reference period**
  ▸ **Usually, the calendar year prior to interview**
  ▸ **Ireland: previous 12 months; UK: current year**

Income measured
Jan 2017 – Dec 2017

Interview –
June 2018

▶ **Not a huge problem for stable households**

▶ **But potentially a massive problem for changing or unstable households**

UNIVERSITY OF
CAMBRIDGE

The problem

	Year of interview	Health	Income in Year of Interview	HHINC in Year of Interview	HHINC in EUSILC data
10001	*2015*	*Exc.*	*42000*	*52000*	
10002	*2015*	*Exc.*	*10000*	*52000*	
10003	*2015*	*-*	*0*	*52000*	
10001	2016	Exc.	42000	54000	52000
10002	2016	Exc.	12000	54000	52000
10002	2016	-	0	54000	52000
10001	2017	Poor	10000	25000	54000
10002	2017	Exc.	15000	25000	54000
10003	2017	-	0	25000	54000
10001	2018	Fair	20000	35000	25000
10002	2018	Exc.	15000	35000	25000
10003	2018	-	0	0	25000

The fix?

▶ Add a measure of contemporaneous income

▶ Otherwise, researchers using longitudinal data can use income data from year t+1.

▶ This loses a year of data in an already short rotation

UNIVERSITY OF
CAMBRIDGE

Length of rotational panel

- In consultancy work for Eurostat, Peter Lynn and I consulted the research community and NSIs

- Very widespread support in the research community for longer rotations

- Demographers were among those arguing for a longer rotation

- Many respondents noted that the potential of the data was severely limited by the rotational length

- Rotating design does have some advantages
  - Panel is constantly refreshed, so attrition is less of a problem
  - The properties of the panel become stable over time

- We recommended an increase in rotational length to 6 years

- Likely to be adopted…. *in some countries*.

UNIVERSITY OF
CAMBRIDGE

Conclusions

▶ EU-SILC is an excellent and unique resource

▶ Primarily a series of "performance indicators"

▶ NOT designed for the needs of demographers

▶ Designed by a hugely complex process of negotiation and consensus

▶ Hugely different levels of experience among national statistical institutes

▶ In some respects we have seen a "race to the bottom" – the lowest standards to which all countries will agree

▶ Possible change in culture, allowing most countries to adopt higher specifications and a few countries to have lower specifications – an excellent development

UNIVERSITY OF
CAMBRIDGE

Eurostat (2012), "Drawbacks of the current design of the longitudinal component of EU-SILC. Specific Eurostat Contract nº 10602.2012.004 - 2012.194 under the Framework contract nº 61001.2008.001 - 2009.065 on a study for the Assessment of the future design of the EU-SILC longitudinal component", Doc. LC-LEGAL/37-1/12/EN.

Eurostat (2012a), "Rotation schemes for the longitudinal component of EU-SILC. Specific Eurostat Contract nº 10602.2012.004 - 2012.194 under the Framework contract nº 61001.2008.001 - 2009.065 on a study for the Assessment of the future design of the EU-SILC longitudinal component", Doc. LC- LEGAL/37-2/12/EN.

Eurostat (2012b), "Best practices to reduce and control attrition bias. Specific Eurostat Contract nº 10602.2012.004 - 2012.194 under the Framework contract nº 61001.2008.001 - 2009.065 on a study for the Assessment of the future design of the EU-SILC longitudinal component", Doc. LC- LEGAL/37-3/12/EN.

Eurostat (2012c), "Proposed adjustments to the longitudinal design of the longitudinal component. Specific Eurostat Contract nº 10602.2012.004 - 2012.194 under the Framework contract nº 61001.2008.001 - 2009.065 on a study for the Assessment of the future design of the EU-SILC longitudinal component", Doc. LC- LEGAL/37-4/12/EN.

Eurostat (2012d), "Methodological and practical recommendations for the future EU-SILC longitudinal component. Specific Eurostat Contract nº 10602.2012.004 - 2012.194 under the Framework contract nº 61001.2008.001 - 2009.065 on a study for the Assessment of the future design of the EU-SILC longitudinal component", Doc. LC- LEGAL/37-5/12/EN.