



The Use of EU-SILC for Labor Flows Analysis: Methodology and Some First Results

Martina Mysíková

Institute of Sociology, Academy of Sciences of the Czech
Republic, Prague

Vladislav Flek

Metropolitan University Prague

3rd EU-LFS and EU-SILC conference, Mannheim, March 21-22, 2013

- A relatively long tradition in labor market flows research
- U.S.: typically explore **monthly** data from the Current Population Survey (CPS)
- Europe: labor flows analyses are conventionally based on **quarterly** LFS
- EU-LFS longitudinal data not available
- Gomez (2009) - UK longitudinal LFS
- Cassado, Fernandez, Jimeno (2011) - EU-LFS for comparative labor flows analysis - a retrospective question on labour market status in previous year
- We use longitudinal EU-SILC 2008 for CZ, SK and PL



- Compare labor market status in period t and $t+1$
- Three possible statuses:
 - ▶ Employed - E
 - ▶ Unemployed - U
 - ▶ Inactive - I
- Nine possible situations:

▶ $E_t \rightarrow E_{t+1}$	$E_t \rightarrow U_{t+1}$	$E_t \rightarrow I_{t+1}$
▶ $U_t \rightarrow E_{t+1}$	$U_t \rightarrow U_{t+1}$	$U_t \rightarrow I_{t+1}$
▶ $I_t \rightarrow E_{t+1}$	$I_t \rightarrow U_{t+1}$	$I_t \rightarrow I_{t+1}$
- Calculate the average (monthly) number of individuals involved in each gross labor market flow



- EU-SILC - longitudinal **ANNUAL** survey
- **MONTHLY** economic activity - self-reported, retrospectively for the whole previous calendar year
- EU-SILC 2008 - covers the period 1/2004-12/2007
- Working-age population - 16-65 during the 4-year period
- Four-year rotational panel
- 4-year subsample - 48 months, 47 matched periods
- Longitudinal weights (RB064 - four-year duration)
 - pure panel, weights should minimize non-response / attrition bias



- ILO definition vs. self-reported
 - Time aggregation bias
 - ▶ EU-SILC - fails to capture short-term changes, such as U lasting less than two weeks
 - ▶ Quarterly data - disregards even longer-lasting status changes than the monthly data
 - Multiple transitions - similar
 - ▶ e.g., E → U → E within less than one quarter of a year
 - ▶ Quarterly data - individual remains E over the whole period
 - ▶ Monthly EU-SILC - two changes in labor market status over the same period
- **higher** flows at monthly data



- EU-SILC monthly results different, almost by definition, from those of quarterly surveys
 - ▶ E.g., individual U in January who finds job in April
 - ▶ Quarterly data: $U_1 \rightarrow E_2$
 - Average quarterly labor market status change: 100%
 - ▶ Monthly EU-SILC data: $U_1 \rightarrow U_2 \rightarrow U_3 \rightarrow E_4$
 - Average monthly labor market status change for the same individual: 33%
- **lower** flows at monthly data



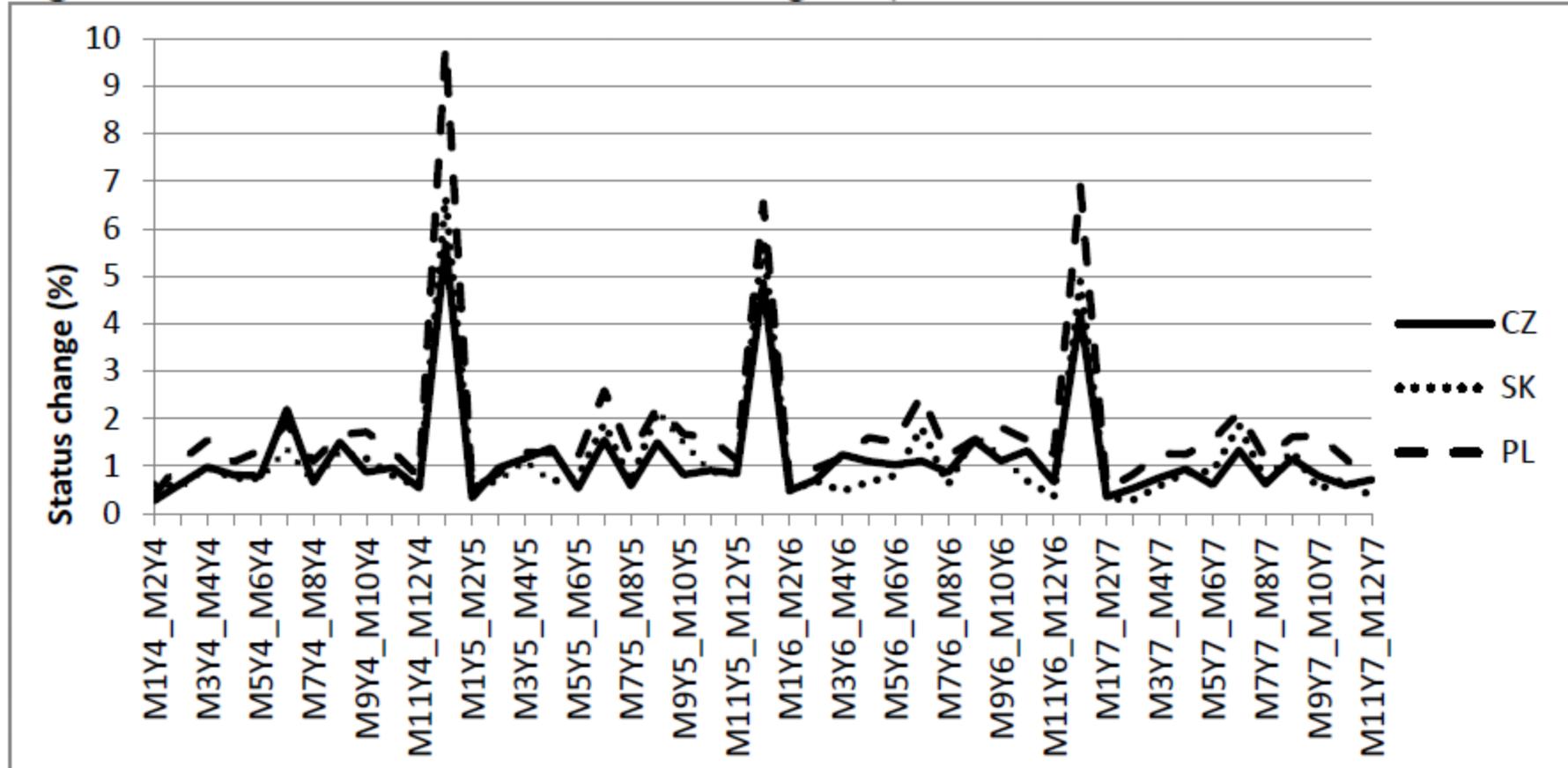
- Direct job-to-job movements
 - ▶ Cannot be analyzed by EU-SILC data
 - ▶ EU-SILC captures only change of job since the last year, not number of changes
 - ▶ EU-LFS could
- Response-error bias
 - ▶ incorrectly reported data
 - ▶ E.g., incorrectly recording one U status within a long period of actual E would indicate two labor market status changes, instead of none at all
 - ▶ commonly believed that labor market status changes are **overestimated**
 - ▶ Abowd, Zellner (1985): $E \leftrightarrow U$ unaffected, flows from and to I overestimated in the U.S.



- EU-SILC - no reason to believe that respondents would enter incorrect information, e.g. claiming to have been U for one month while actually they were E the whole year
- Rather the contrary
 - ▶ Respondents might hide e.g. a period of U (to ease interview, forget)
 - ▶ labor market status changes **underestimated**
- Restrospective activity
 - ▶ Respondents might not recall exactly when they changed their labor market status during last calendar year
 - ▶ E.g., U respondent finds a job in March but, to ease the interview or simply because s/he does not remember exactly, claims to have found it back in January

Data problems

Figure 1: Labor market status changes (in % of total month-to-month states)



Source: EU-SILC LONGITUDINAL UDB 2008, version 3 of August 2011; own calculations.



- Most labor market status changes occur between December and January
 - ▶ Retirements, quits and layoffs at the end of the year
 - ▶ Part due to incorrectly reported data
- Lower peaks in June-July and August-September
 - ▶ seasonal jobs, students
- The precise month of the change does not affect the results of average monthly gross labor market flows (unless we analyze flows in time)



Results - CR (weighted)

Table 1 Average monthly gross flows in CR, in thousands (2004-2007)

	Et+1	Ut+1	Nt+1	row total
Et	4219	16	14	4249
Ut	20	399	6	425
Nt	12	7	1708	1727
column total	4251	421	1729	6401

Table 2 Average monthly gross flows in CR, in % of working age population (2004-2007)

	Et+1	Ut+1	Nt+1	row total
Et	65.91	0.24	0.23	66
Ut	0.32	6.23	0.09	7
Nt	0.18	0.11	26.69	27
column total	66	7	27	100



Table 3 Average monthly gross flows in CE, in % of working age population (2004-2007)

	$E_t \rightarrow U_{t+1}$	$E_t \rightarrow I_{t+1}$	$U_t \rightarrow E_{t+1}$	$U_t \rightarrow I_{t+1}$	$I_t \rightarrow E_{t+1}$	$I_t \rightarrow U_{t+1}$	<i>sum</i>
CR	0.24	0.23	0.32	0.09	0.18	0.11	1.17
Slovakia	0.26	0.16	0.38	0.08	0.19	0.12	1.19
Poland	0.34	0.30	0.49	0.15	0.33	0.14	1.75

- Low mobility
- U.S. - 5-7%
- Poland - most “mobile”; CR - most “rigid”
- Flows between U and E most frequent



- Transition probabilities (hazard rates)
 - ▶ probability of an individual moving between statuses (depending only on the individual's immediately preceding status)
 - ▶ E.g. $UE = (U_t \rightarrow E_{t+1}) / U_t$

Table 4 Transition probabilities, monthly average, in % (2004-2007)

	<i>EE</i>	<i>EU</i>	<i>EI</i>	<i>UE</i>	<i>UU</i>	<i>UI</i>	<i>IE</i>	<i>IU</i>	<i>II</i>
CR	99.3	0.4	0.3	4.8	93.8	1.4	0.7	0.4	98.9
Slovakia	99.3	0.4	0.3	5.0	94.0	1.0	0.7	0.4	98.9
Poland	98.9	0.6	0.5	4.6	94.0	1.4	1.0	0.4	98.6

- Similar in CE countries
- *UE* 4.6 to 5.0 % (more than 5x higher in the U.S./UK)
- *EU* 0.4 to 0.6 % (2-3x higher in the U.S./UK)



Conclusion...?

EU-SILC

- 😊 Allows international comparisons
- 😊 Monthly economic activity

- 😞 Retrospective nature, self-reported - possible biases
- 😞 No better alternative than EU-LFS with a retrospective question on activity in previous year



- ? Are the relatively low flows caused by underestimation
- ? ILO definition in LFS vs. self-reported in EU-SILC
- ? How much retrospectivity biases the results
- ? Do longitudinal weights help to decrease the attrition bias? (Does it use characteristics more associated with attrition?)
- ? Is EU-SILC suitable for flows analysis ???



- **Abowd, J., Zellner, A. (1985),** “Estimating Gross Labor Force Flows.” *Journal of Economics and Business Statistics*, Vol. 3, No. 3, pp. 254-283.
- **Cassado, J. M., Fernandez, C. Jimeno, J. F. (2011),** “Labour Market Flows in the European Union.” Paper presented at the *GESIS 2nd EU-Microdata User Conference* Mannheim.
- **Gomez, P. (2009),** “Labour Market Flows: Facts from the United Kingdom.” *Bank of England WP 367*.

