Is Survey of Income and Living Conditions Suitable for Studying Labor Market Dynamics?

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Is SILC Suitable for Studying Labor Market Dynamics?

Outline

1. Labor market dynamics — research questions
2. SILC panel data — brief introduction
3. Challenges in the use of SILC for studying labor market dynamics
4. Attrition as a 'veil'
5. Is SILC appropriate for studying labor market dynamics?
   - Labor market transitions — evidence from 2006-17
   - Footprint of shocks — the 2008-09 global crisis and the minimum wage hike
   - Labor turnover — job separation, job finding and job-to-job transition patterns
6. Conclusion — thumbs up!

Labor market dynamics - research questions

- Questions motivated by job search theory
  - Transitions in and out of unemployment
  - Transitions between formal and informal employment
  - Labor market turnover
- Examples of specific types of labor market dynamics: school-to-work transition, transition to retirement, return to work after childbirth
- Most studies use 3 by 3 transition matrix: employed, unemployed and non-participant

Related literature

- The literature on EU-SILC: annual (Lehmann et al., 2020), monthly (Berger and Schaffner, 2017) and quarterly (Duhautois et al., 2018; Symeonaki et al., 2019) labor market transitions
- The literature on Turkey: thin, mostly uses HLFS, cross-section data (Şengül, 2014; Şengül and Taşçı, 2020; Polat and Ulus, 2022) or short panel component (Taşçı and Tansel, 2005; Tunalı, 2009; İkizler and Tunalı, 2011; Özkan and Tunalı, 2013; Gökçe and Tunalı, 2014), except Cilasun et al. (2015) which uses T-SILC

What we do

- Evaluate the suitability of SILC data for studying labor market dynamics
- Examine a broader set of LM states
  - See how labor market transitions evolved from 2006 to 2017
- Look for footprints of shocks
  - 2008-09 global crisis
  - Minimum wage hike at the beginning of 2016
- Study job separation and job finding, and labor market turnover rates

SILC data

- Coordinated by EUROSTAT
- Conducted in 36 European countries as of 2016
- Address-based sampling frame
- Rotating panel
  - Follows households and household members for 4 years
  - Adds a nationally representative fresh sample every round

SILC data (cont'd)

- Aims to collect comparable data on income distribution, poverty and social exclusion across European countries
  - Tries to learn individuals' self-perception of their employment status
    - Does not follow ILO guidelines
    - May include perceptual bias
    - Might offer insights...but is subjective
- How we define labor market status:
  - Exploit additional information supplied on the current job to reconcile employment status with ILO guidelines

SILC data (cont'd)

- Supplied in the form of an annual cross-section or 4-year panel
  - 2-year, 3-year and 4-year panel components contained in the 4-year panel
- TURKSTAT weights
  - Separate weights for 2-year, 3-year and 4-year panels
  - Available only for those who are present as of the last visit
  - Adjusts for non-response using MAR approach
  - Assumes that attrition is random conditional on observables used in the weight calculation: age group, gender, region, and calibration (household type, household size and urban/rural designation)
- How we use the data
  - Extract 2-year panels
  - Construct our own weights

SILC data (cont'd)

SILC Rotation Plan

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1st visit	4	1	1	1	1	1	1	1	1	1
2nd visit	0	3	1	1	1	1	1	1	1	1
3rd visit	0	0	2	1	1	1	1	1	1	1
4th visit	0	0	0	1	1	1	1	1	1	1
	2									
S	3	3								
U	4	4	4							
B	5	5	5	5						
S		6	6	6	6					
A			7	7	7	7				
M				8	8	8	8			
P					9	9	9	9		
L						10	10	10	10	
E							11	11	11	11
S								12	12	12
									13	13
										14

Two-year panel

Challenges & shortcomings

- Attrition
  - Non-ignorable household attrition with respect to the labor market status of the household head
- To side-step the attrition problem
  - Use fresh subsamples
  - Include attrition and reverse attrition as terminal and origin states
- Revise weight calculation to ensure representativeness of fresh subsamples
  - Keep all individuals who are surveyed in the first period of 2-year panels
  - Target population obtained from cross-section version of SILC
  - Use education to account for absence of region and additional information used in the calibration
  - MAR approach is acceptable in our case because attrition and reverse attrition emerge later

Challenges & shortcomings (cont'd)

Survey nonresponse in T-SILC, by subsamples

	Subsample											
code	3	4	5	6	7	8	9	10	11	12	13	Total
20010	0	0	0	0	0	0	0	0	0	0	78	78
20011	0	0	0	0	0	0	0	0	0	0	5.643	5.643
20012	0	0	0	0	0	0	0	0	0	0	2	2
20013	0	0	0	0	0	0	0	0	0	0	193	193
20020	0	0	0	0	0	0	0	0	0	0	506	506
20030	0	0	0	0	0	0	0	0	0	0	340	340
20100	0	0	0	0	0	0	0	0	0	59	0	59
20110	0	0	0	0	0	0	0	0	0	77	0	77
20111	0	0	0	0	0	0	0	0	0	5.566	0	5.566
20112	0	0	0	0	0	0	0	0	0	1	0	1
20113	0	0	0	0	0	0	0	0	0	139	0	139
20120	0	0	0	0	0	0	0	0	0	1	0	1
20130	0	0	0	0	0	0	0	0	0	99	0	99
20131	0	0	0	0	0	0	0	0	0	110	0	110
20200	0	0	0	0	0	0	0	0	0	568	0	568
20300	0	0	0	0	0	0	0	0	0	418	0	418
21000	85	96	99	29	39	35	17	82	76	0	0	558
21011	0	0	0	0	1	0	1	1	0	0	0	3
21013	0	0	0	0	0	0	1	0	0	0	0	1
21100	2.554	38	54	43	34	21	40	70	58	0	0	2.912
21101	0	0	0	0	0	4	0	1	0	0	0	5
21110	0	2.609	32	33	44	46	35	58	61	0	0	2.918
21111	0	0	2.729	2.736	3.001	3.013	2.955	5.548	5.600	0	0	25.582
21112	0	0	4	1	2	7	2	3	1	0	0	20
21113	0	0	121	140	116	119	108	178	149	0	0	931
21120	0	7	7	2	1	3	1	8	2	0	0	31
21121	0	0	1	0	0	0	0	0	0	0	0	1
21130	0	135	56	74	67	70	68	143	92	0	0	705
21131	0	0	83	90	93	73	52	129	122	0	0	642
21200	16	15	28	6	1	3	6	11	4	0	0	90
21300	183	154	167	58	83	69	70	130	126	0	0	1.040
21310	0	0	0	3	2	7	4	0	4	0	0	20
21311	0	0	0	50	73	84	78	106	94	0	0	485
21313	0	0	0	7	6	12	26	10	8	0	0	69
22000	205	178	75	53	78	189	213	371	485	0	0	1.847
23000	327	327	285	384	222	314	355	483	420	0	0	3.117
Total	3.370	3.559	3.741	3.709	3.863	4.069	4.032	7.332	7.302	7.038	6.762	54.777

Challenges & shortcomings (cont'd)

- Gap between the reference periods of income and detailed labor market information
  - previous calendar year for income
  - previous full week for labor market status
  - new entrants, returners and job changers pose challenges
- Potential recall bias in responses recorded in the income section

Challenges & shortcomings (cont'd)

- Job history section contains month-by-month labor market activity information for the previous year
- Potential for studying monthly and quarterly dynamics, subject to caveats
- Month-by-month labor market status is also self-perceived
  - Inconsistency in months worked information (6.8 percent)
    - From current job section: Number of months worked in last year
    - From job history section: Month-by-month labor market activity information

Challenges & shortcomings (cont'd)

- No public/private distinction
- 'Workers' with entrepreneurial income
- No working hours information in the income section
- No information on tenure in current job
- ... but actual years of experience recorded (retrospective)

How we study LM transitions

- Annual labor market transitions
- 7 by 8 transition matrices
  - Forward transitions
  - Backward transitions
- The states of interest:
  - Employment
    - Full-time (FT) formal wage and salary (WS)
    - FT informal WS
    - Part-time (PT) formal WS
    - PT informal WS
    - non-WS employment
  - Unemployment
  - Non-participation
  - Attrition (reverse attrition)

The key challenge

	0-E	1-U	2-NP	3-A	
0-E	$\widetilde{p_{00}}$	$\widetilde{p_{01}}$	$\widetilde{p_{02}}$	$\widetilde{p_{03}}$	$p_{0\cdot}$
1-U	$\widetilde{p_{10}}$	$\widetilde{p_{11}}$	$\widetilde{p_{12}}$	$\widetilde{p_{13}}$	$p_{1\cdot}$
2-NP	$\widetilde{p_{20}}$	$\widetilde{p_{21}}$	$\widetilde{p_{22}}$	$\widetilde{p_{23}}$	$p_{0\cdot}$
3-RA	$\widetilde{p_{30}}$	$\widetilde{p_{31}}$	$\widetilde{p_{32}}$	X	
	$q_{\cdot 0}$	$q_{\cdot 1}$	$q_{\cdot 2}$		

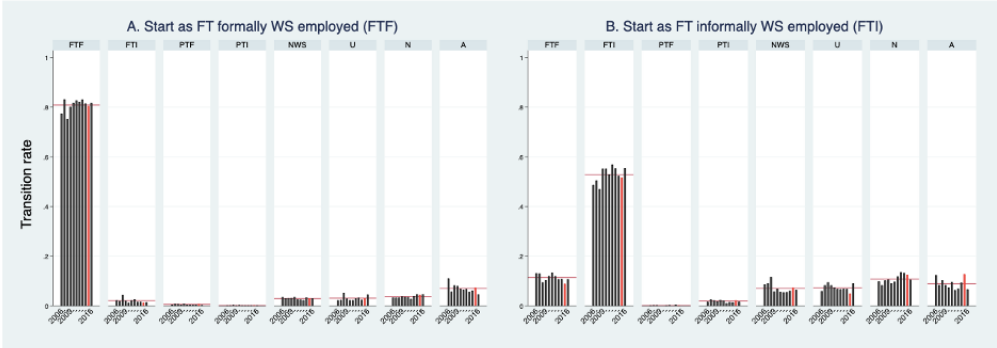
FT analyses

- What others do: $\frac{\widetilde{p_{ij}}}{\widetilde{p_{i\cdot}}}$, i=1,2,3; j=1,2,3
- What we do: $\frac{\widetilde{p_{ij}}}{p_{i\cdot}} \neq \frac{p_{ij}}{p_{i\cdot}}$, i=1,2,3; j=1,2,3

Justification for using fresh subsamples

- Test comparability of fresh subsamples and other subsamples
  - Null: Annual stock shares are the same.
- Number of rejections:
  - In subsamples that survived 1-round of attrition: 11 out of 63
  - In subsamples that survived 2-rounds of attrition: 16 out of 63
- We present results from fresh subsamples

Forward transition rate graphs, aged over 15



▸ 1-round attrition survivor subsamples ▸ 2-rounds attrition survivor subsamples

Findings from FT rates

- Persistence is the dominant state
  - High persistence ($\sim$ 80 percent): Non-participation, non-WS employment and FT formal WS employment
  - Medium persistence (53 percent): FT informal WS employment
  - Low persistence (22.3 percent): Unemployment
- Transitions out of PT WS employment are noisy (data sparse).

Findings from FT rates (cont'd)

- Transition from employment to
  - Employment: 83.5 percent
    - FT formal WS employment: 37.6 percent
    - Non-WS employment: 35.3 percent
    - FT informal WS employment: 9.1 percent
    - PT WS employment: 1.6 percent
  - Non-participation: 7 percent
  - Attrition: 6.6 percent
  - Unemployment: 2.8 percent

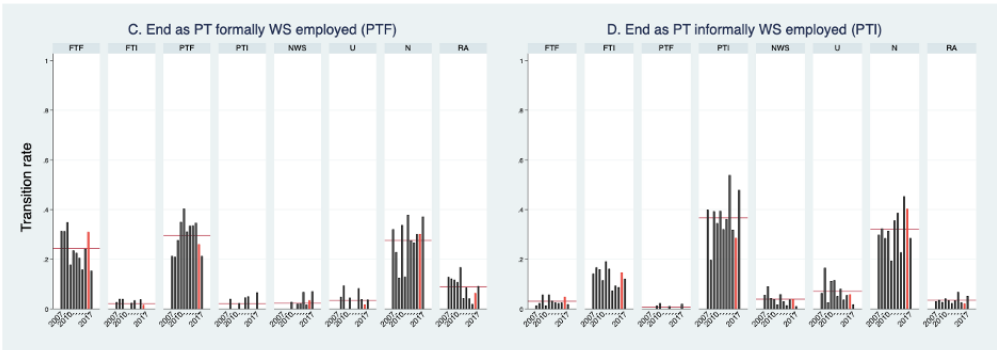
Findings from FT rates (cont'd)

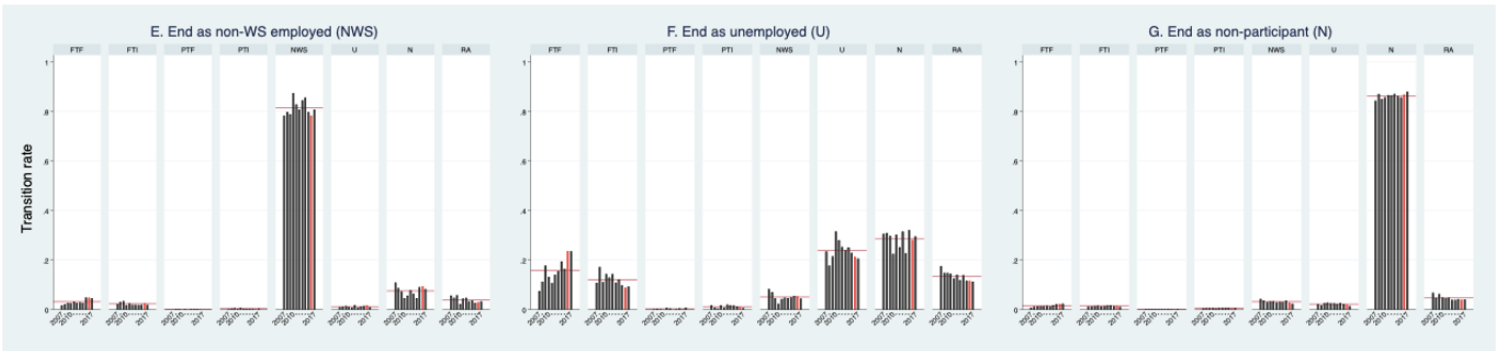
- Transition from unemployment to
  - Employment: 39.3 percent
    - FT formal WS employment: 18.9 percent
    - FT informal WS employment: 12.7 percent
    - Non-WS employment: 5.7 percent
    - PT WS employment: 1.9 percent
  - Non-participation: 26.6 percent
  - Unemployment: 22.3 percent
  - Attrition: 11.8 percent

Findings from FT rates (cont'd)

- Transition from non-participation to
  - Non-participation: 82 percent
  - Attrition: 8.6 percent
  - Employment: 7.3 percent
  - Unemployment: 2.1 percent
- Key take from our brief examination: Attrition is a significant transition state

Backward transition rate graphs, aged over 15





▸ 1-round attrition survivor subsamples ▸ 2-rounds attrition survivor subsamples

Findings from BT rates

- Results are consistent with forward transition rates.
- Share of reverse attritors among
  - Unemployed: 13.5 percent
  - FT WS employment: 7 percent
    - FT informal WS employed: 5.2 percent
    - FT formal WS employed: 1.8 percent
  - Non-participant: 4.7 percent
  - Non-WS employed: 4 percent

The key challenge - revisited

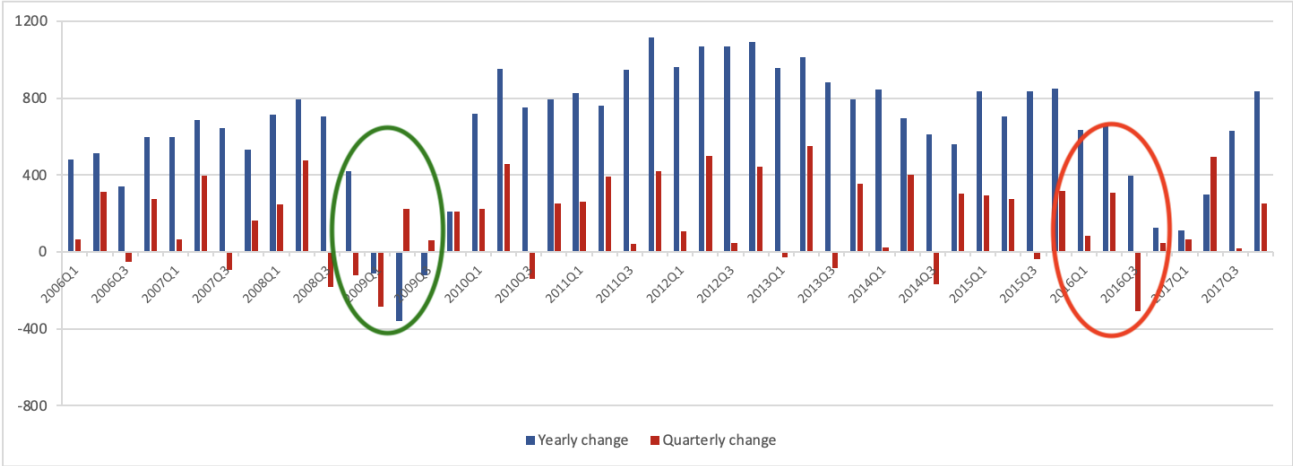
	0-E	1-U	2-NP		
0-E	$\widetilde{p_{00}}$	$\widetilde{p_{01}}$	$\widetilde{p_{02}}$	$\widetilde{p_{0\cdot}}$	$M_{0\cdot}$
1-U	$\widetilde{p_{10}}$	$\widetilde{p_{11}}$	$\widetilde{p_{12}}$	$\widetilde{p_{1\cdot}}$	$M_{1\cdot}$
2-NP	$\widetilde{p_{20}}$	$\widetilde{p_{21}}$	$\widetilde{p_{22}}$	$\widetilde{p_{2\cdot}}$	$M_{2\cdot}$
	$\widetilde{p_{\cdot 0}}$	$\widetilde{p_{\cdot 1}}$	$\widetilde{p_{\cdot 2}}$		
	$M_{\cdot 0}$	$M_{\cdot 1}$	$M_{\cdot 2}$		

- A method for reconciling the balanced panel counts with the two margins is available: İkizler and Tunalı (2011), Tunalı et al. (2012), Özkan and Tunalı (2013), Gökçe and Tunalı (2014).
- M's denote margins obtained from external data (official TURKSTAT statistics).

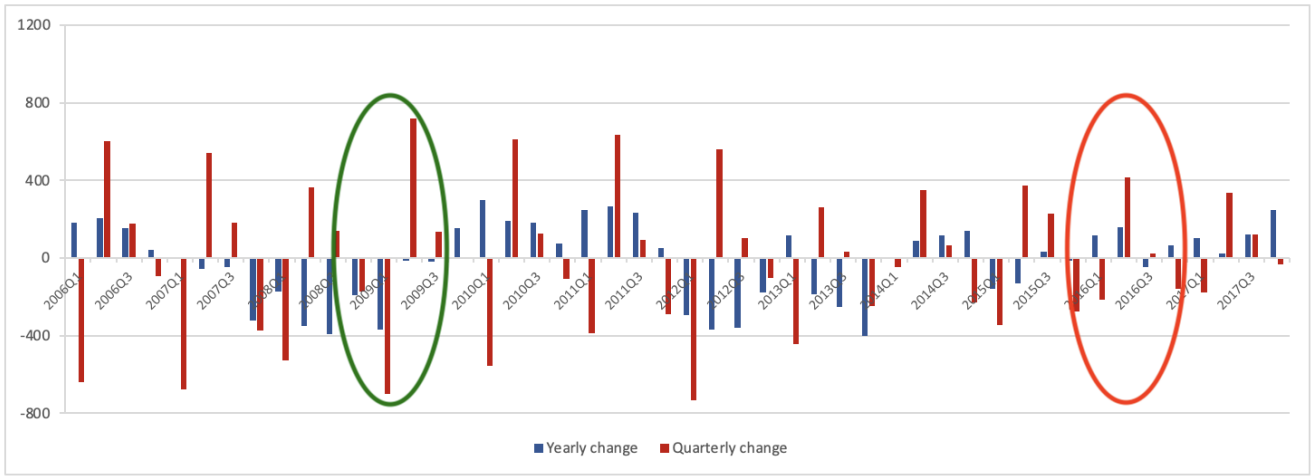
Footprint of shocks

Annual and quarterly changes in the WS employment - quarterly HLFS

A. Formal WS employment



B. Informal WS employment



Footprint of shocks (cont'd)

Impact of the global crisis

- Are transitions that start in 2008 and 2009 affected?
  - Null: Average transition rates are the same.
- We exclude transitions that start in 2016 from the average.
- Key differences
  - increase in job separations from FT formal WS employment
  - rise in the transitions from formal to informal sector
  - increase in the labor market participation of non-participants - added worker effect?
  - recovery after 2009

Footprint of shocks (cont'd)

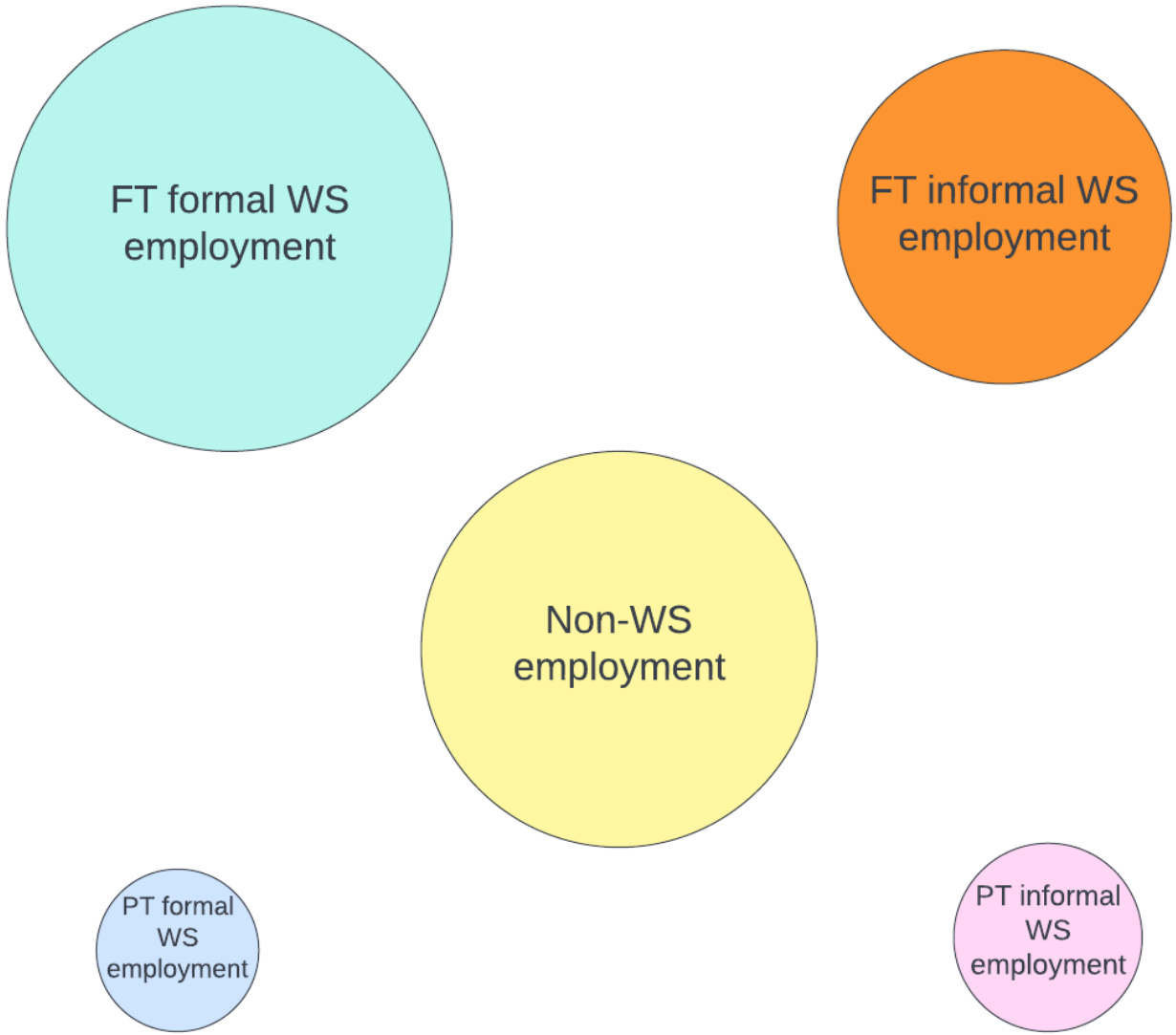
Impact of the minimum wage hike in 2016

- Are forward transitions that start in 2015 affected?
  - Null: Average transition rates are the same.
- We exclude transitions that start in 2006, 2007 and 2008 from the average.
- Key differences
  - increase in transitions to attrition from employment, unemployment and non-participation
  - decline in the persistence rate in FT formal WS employment
  - difficulty in transitions to formal and informal sector for unemployed individuals
  - increase in transitions from non-participation to FT formal WS employment

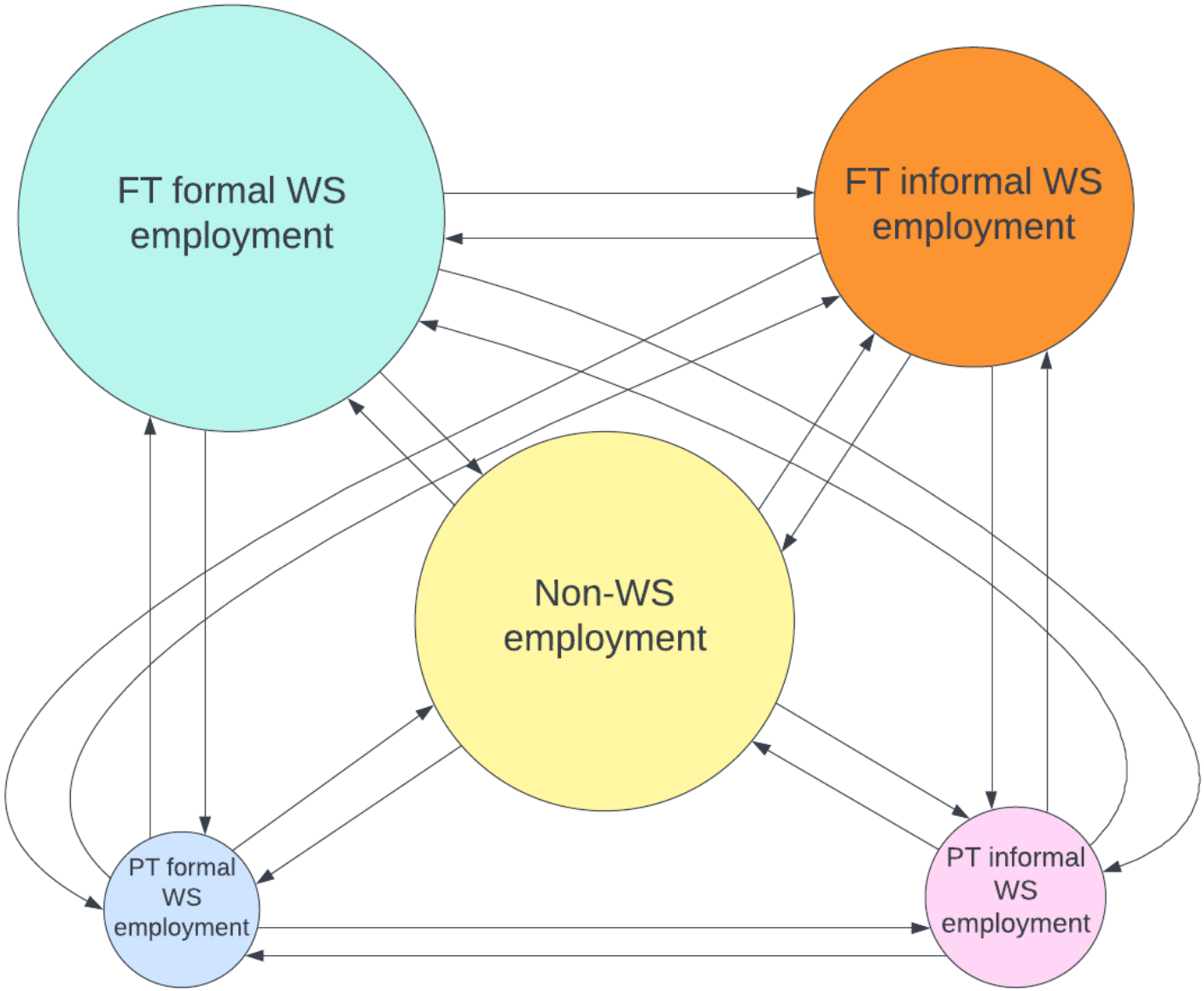
Labor market turnover

- We examine job finding, job separation, and job-to-job transition rates
- Forward transition flows and labor market stocks are obtained from fresh subsamples
- We break total employment into components: FT formal and informal WS employment, and non-WS employment
- We do not calculate rates for PT WS employees due to data sparsity
- We treat attrition as a form of separation

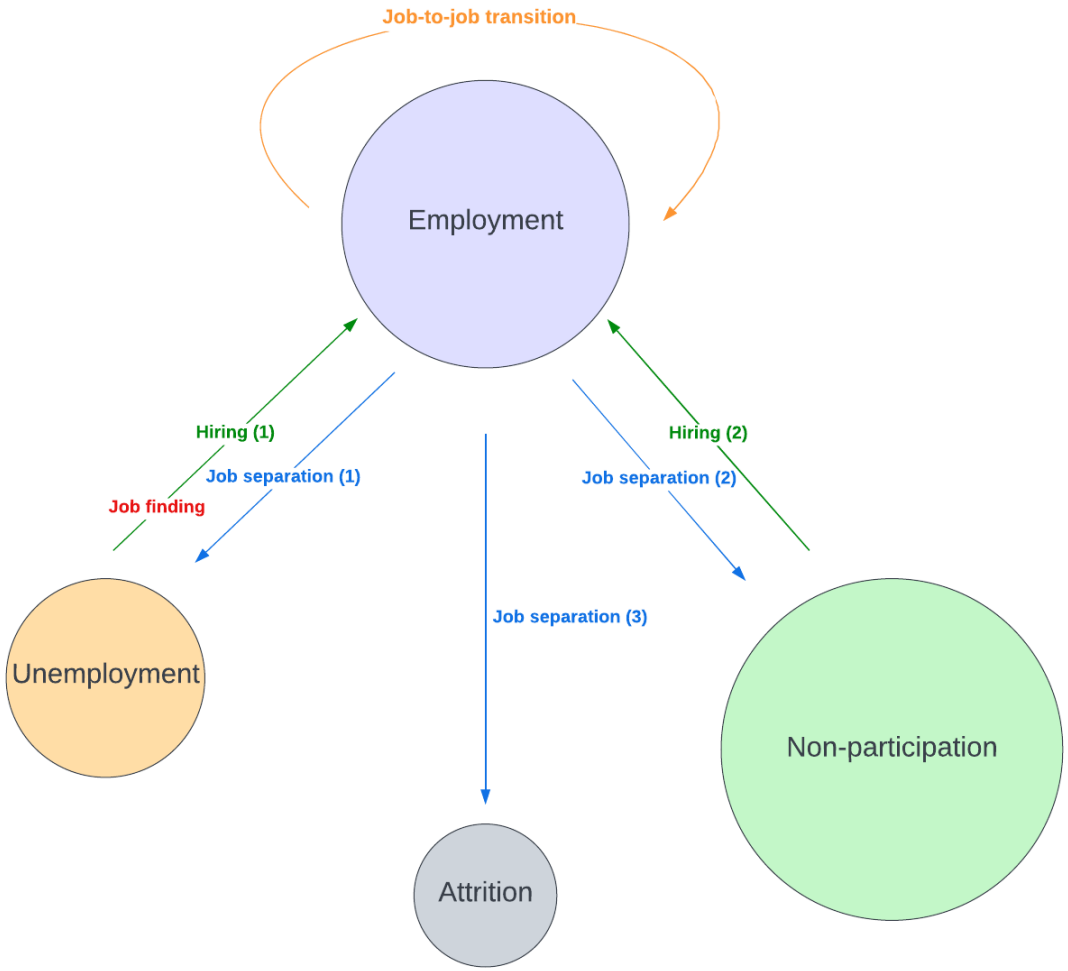
Labor market turnover (cont'd)



Labor market turnover (cont'd)

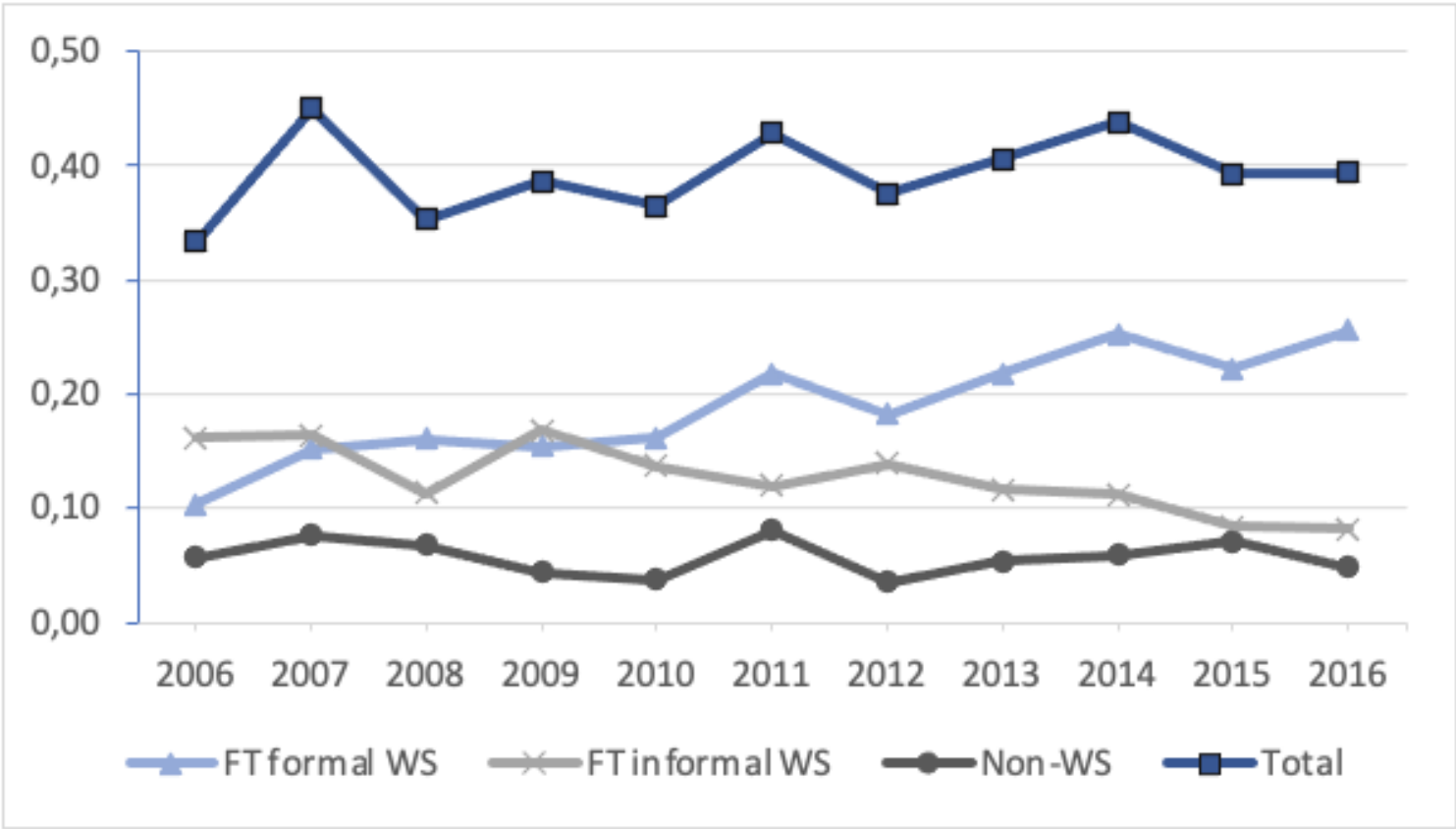


Labor market turnover (cont'd)



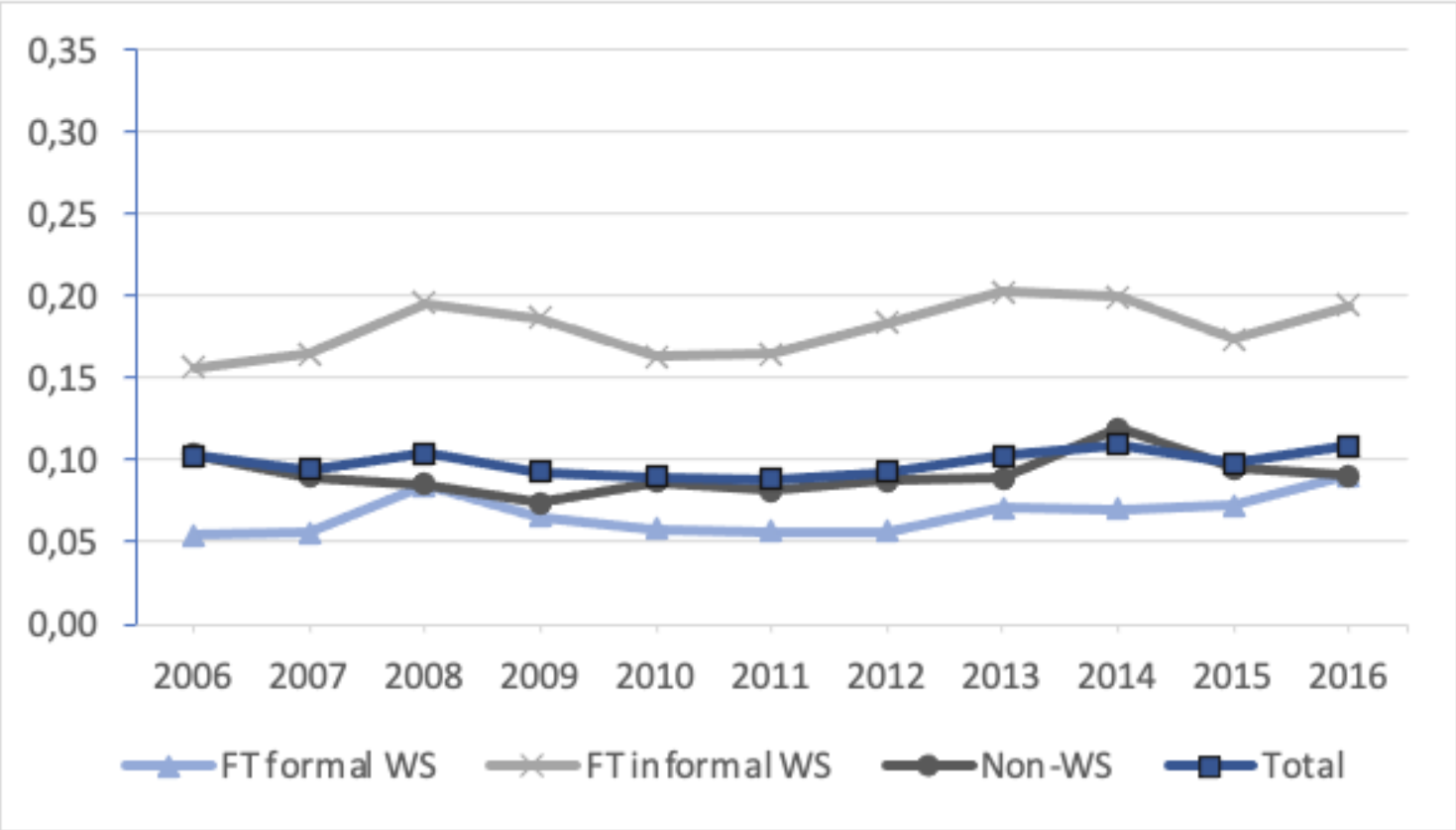
Job finding rates

- Fraction of unemployed individuals who find jobs in the second period



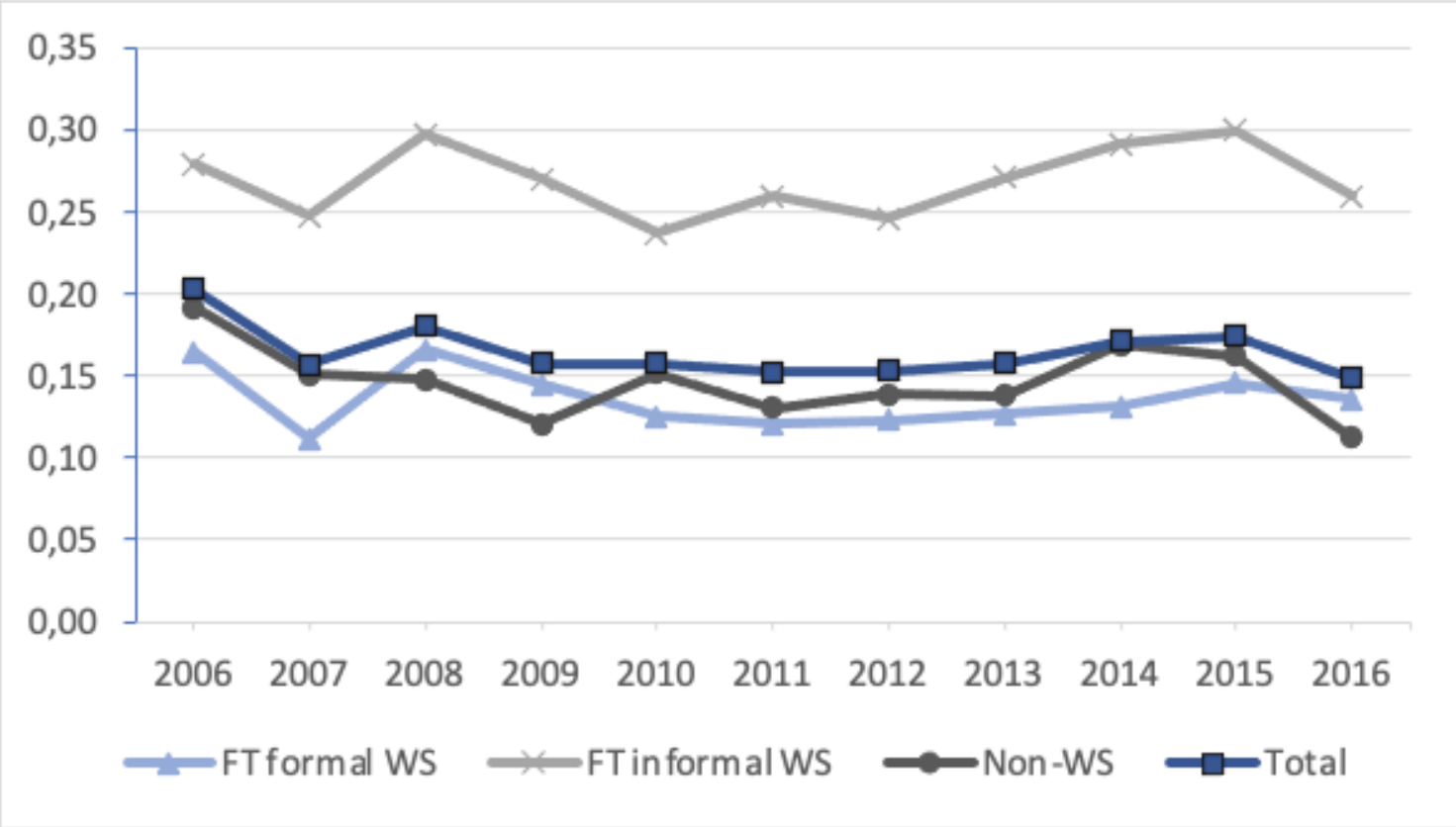
Job separation rate

- Fraction of employed individuals who become unemployed or non-participant in the second period



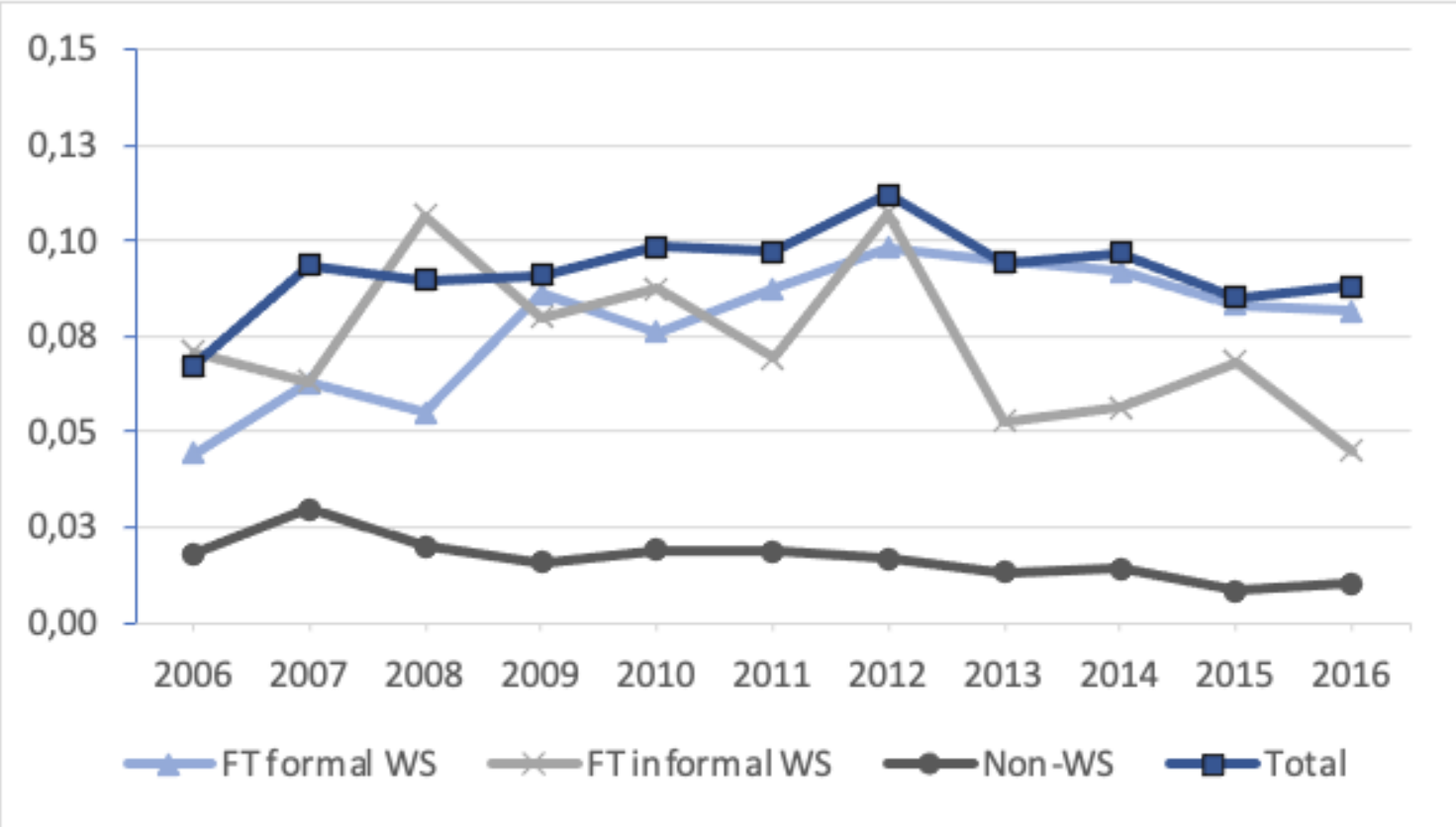
Job separation rate (cont'd)

- Fraction of employed individuals who become unemployed, non-participant or attritor in the second period



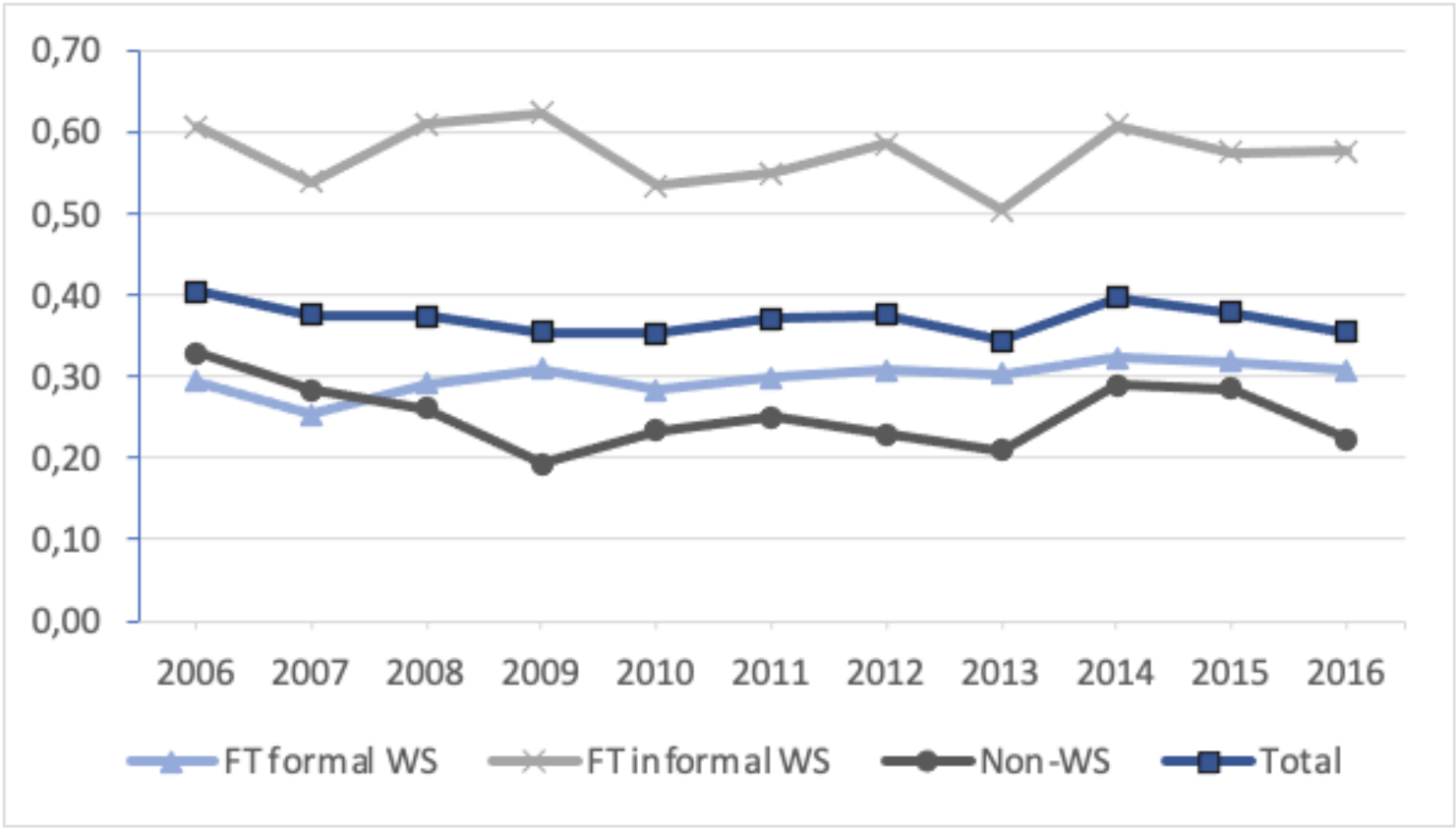
Job-to-job separation rate

- Fraction of employed individuals who change their jobs between first and second periods



Labor turnover rate

- Fraction of employed individuals who find jobs, separate from their jobs or change their jobs in the second period



Labor turnover

Comparison with earlier studies that uses LFS data for OECD countries

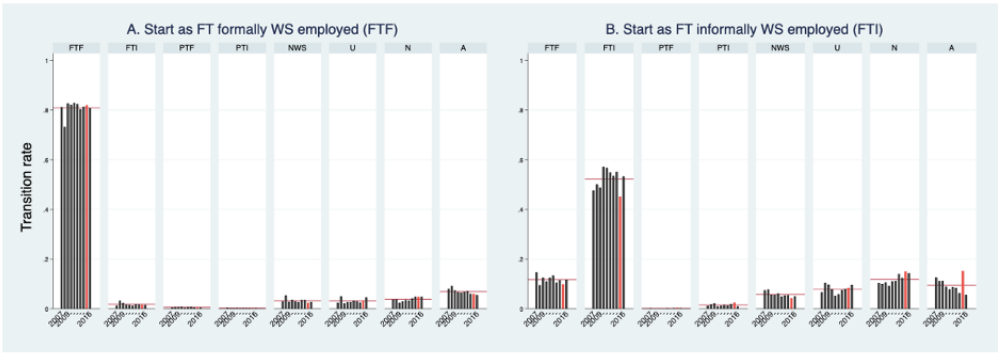
- High job-finding rate, but not as much as the U.S. and Sweden, close to Finland and Denmark
- Consistent job-separation rates with the literature, one of the highest with Nordic countries
- Lower labor turnover rate compared to the results obtained from T-LFS, close to Nordic countries

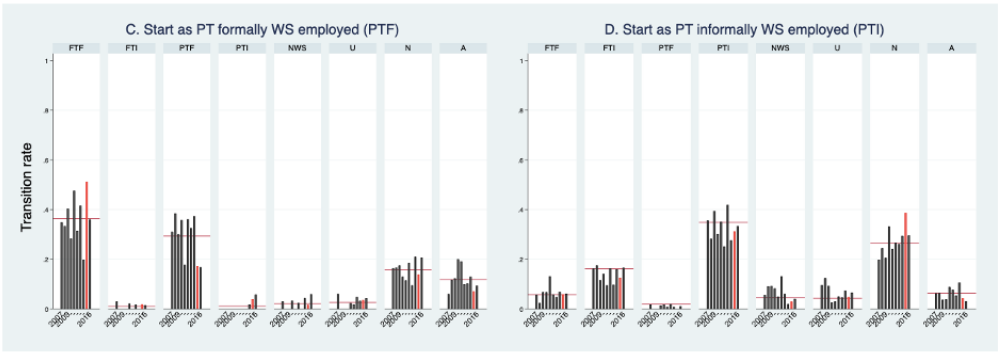
Conclusion

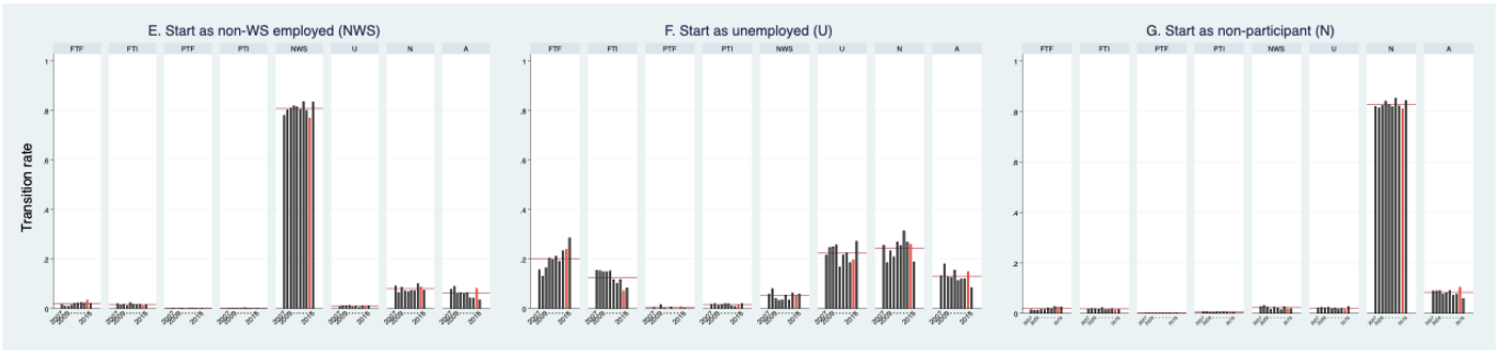
Is SILC suitable for studying labor market dynamics?

- Overall our assessment is positive
- Invest in the survey instrument, it's worth it!
- Keep the challenges and shortcomings in mind
- Attrition acts as a 'veil'
- SILC has great potential to shed light on attrition and reverse attrition, which stand in the way of proper characterization of labor market dynamics
- In conclusion: thumbs up! 

Forward transition rate graphs, aged over 15







▸ Fresh subsamples

Forward transition rate graphs, aged over 15

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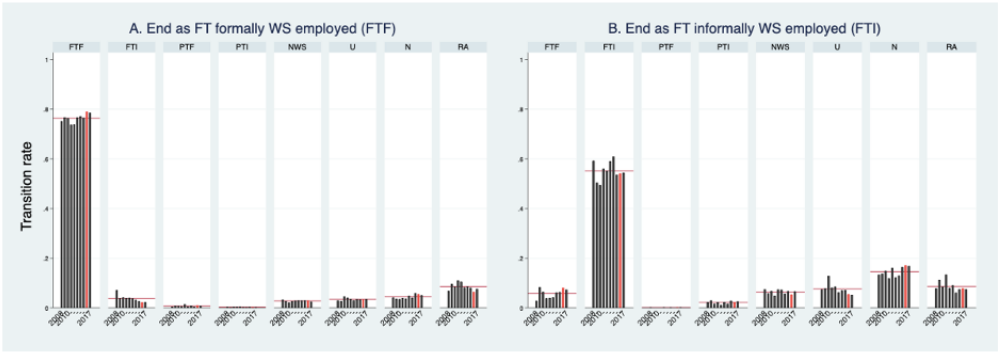
Backward transition rate graphs, aged over 15



▸ Fresh subsamples

Backward transition rate graphs, aged over 15

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