



European  
Commission

# Sampling for EU Labour Force Survey

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**Ljubljana, 15 - 16 March 2017**

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# LFS Council Regulation (577/98) about units of scope and representativeness conditioning sample design (1)

- The survey shall be carried out in a **sample** of **households** (private, collective) or of **persons** residing in the State at the time of the survey ...

## LFS Council Regulation (577/98) about units of scope and representativeness conditioning sample design (2)

- For the group of unemployed people representing 5 % of the working age population the **relative standard error** (coefficient of variation) for the estimation of annual averages at **NUTS 2 level shall not exceed 8 %** ...

→ Framework regulation for the production of European statistics on persons and households (Integrated European Social Statistics - IESS) resumes existing requirements regarding LFS sample design.

# Target population

- Residents of a country at the reference period (according to the definition of population)
  - households or
  - individuals

# Sampling frame (list of units)

- Population registers (BE, IT, LT, AT, NO, FI, SE, IS, SI, CH)
  - + additional sources (NL, DK, LV, ES)
- Latest Population Census (from year 2011)
- List of addresses from e.g. the Postal Authorities
- Tax register (FR)
- Combination of different sources

# Properties of Sampling frame

- **Undercoverage** (e.g. unregistered people, unregistered phone numbers, newly-build dwellings)
  - **Overcoverage** (e.g. people having left the country, collective households member, empty dwellings, holiday homes)
- It's quality depends on the frequency of updating of the frame and dynamic of the population change.

# Sampling design

How to select a sample of elements from the frame?

The sampling designs in the EU-LFS are very varied.

- Random methods
- Stratification
- One or more stages of selection
- Sample size
- Rotation schemes

# Example: Sampling of Slovenian LFS (1)

Frame: Central Population Register (CPR),  
maintained by Ministry for Internal Affairs

- State on March 1<sup>st</sup> was a frame for the sample for 2<sup>nd</sup> Quarter
  - from the frame we exclude individuals, selected in the sample in previous two years
- The frame is divided in 47 strata (Statistical regions [12] \* settlement size classes [6])

## Example: Sampling of Slovenian LFS (2)

- We select individuals 18 years and older, proportional to their distribution in the sampling frame
- All persons living in the household of selected individuals represent a LFS sample

## Allocation of the sample (new part)

LFS 2016q3	Nonrural settlements < 2000 inhabitants	Rural settlements < 2000 inhabit.	Settlements 2000 - 10000 inhab.	Settlements > 10000 inhab.	Maribor	Ljubljana	TOTAL
<b>NUTS 3 - TOTAL</b>	<b>673</b>	<b>515</b>	<b>452</b>	<b>414</b>	<b>125</b>	<b>432</b>	<b>2611</b>
Pomurska	21	80	17	18			<b>136</b>
Podravska	107	96	41	29	125		<b>398</b>
Koroška	25	18	42				<b>85</b>
Savinjska	96	75	48	97			<b>315</b>
Zasavska	16	11	24	23			<b>74</b>
Spodnjeposavska	17	40	30				<b>87</b>
Dolenjska	40	58	37	34			<b>169</b>
Osrednjeslovenska	142	44	76	40		432	<b>743</b>
Gorenjska	98	21	45	96			<b>260</b>
Notranjsko-kraška	15	19	28				<b>62</b>
Goriška	52	37	32	20			<b>141</b>
Obalno-kraška	44	16	32	57			<b>149</b>

## Panel rotation scheme

- EU LFS is a panel survey
  - renewal of the sample
  - estimation of change between two consecutive quarters, years
- Eurostat recommends
  - Q-o-Q overlap min. 50% (theoretical)
  - Y-o-Y overlap min. 20% (theoretical)
- The number of panels (waves) in EU countries ranges from 2 to 8

## Most Common rotation scheme (2-[2]-2)

DEL	Q1	Q2	Q3	Q4	Q1
2013/4	4. wave				
2014/1	3. wave	4. wave			
2014/2		3. wave	4. wave		
2014/3			3. wave	4. wave	
2014/4	2. wave			3. wave	4. wave
2015/1	1. wave	2. wave			3. wave
2015/2		1. wave	2. wave		
2015/3			1. wave	2. wave	
2015/4				1. wave	2. wave

## SI Rotation scheme (3-[1]-2)

DEL	Q1	Q2	Q3	Q4	Q1
2013/4	5. wave				
2014/1	4. wave	5. wave			
2014/2		4. wave	5. wave		
2014/3	3. wave		4. wave	5. wave	
2014/4	2. wave	3. wave		4. wave	5. wave
2015/1	1. wave	2. wave	3. wave		4. wave
2015/2		1. wave	2. wave	3. wave	
2015/3			1. wave	2. wave	3. wave
2015/4				1. wave	2. wave

# References

- Introduction to survey sampling, Graham Kalton, 1983, SAGE Publications  
([http://hbanaszak.mjr.uw.edu.pl/StatRozw/Books/Kalton%20\\_1983\\_Introduction%20to%20Survey%20Sampling.pdf](http://hbanaszak.mjr.uw.edu.pl/StatRozw/Books/Kalton%20_1983_Introduction%20to%20Survey%20Sampling.pdf))
- Quality report of the European Union Labour Force Survey, 2014  
(<http://ec.europa.eu/eurostat/documents/3888793/7018036/KS-TC-15-004-EN-N.pdf/6775b2b5-4ec9-4e4e-b6a0-f618f4ddf73e>)