



# Test of an estimation method for annual migration flows between EU-EFTA countries

**Giampaolo Lanzieri**  
**Eurostat**

# Background

- Old problem of inconsistencies in mirror statistics
- Several scientific proposals over the latest years
- Possibility (by EU law) of their implementation in official statistics



Tests of application on real data  
(including of doubtful quality)

# The first test: Abel's method (2013)

- Reasons for this first choice:
  - **It suits origin/destination international migration tables**
  - **It uses as input data on migrants stocks, usually more reliable than migration flows data**
  - **It is accompanied by an R package developed by the author**
  - **Eurostat collects some data suitable to the method**

# Logic of the method

- Two main phases:
  - **Data preparation**
  - **Estimation**
- Developed for global scale and broad migration flows, but applicable on set of countries (regions)
  - better on 'closed' systems
- Challenge of application to single country/year

# Data preparation

- Starting data are 2 square matrices 'country-of-birth' x 'country-of-residence' (at two different times)
- Using a demographic balance approach, the numbers of births, deaths and migration to/from the region are progressively removed
- Totals by row (i.e., persons born in country X and residing in one of the countries considered) are then equal in the two moments
- Each couple of rows (t1 and t2) becomes respectively the row-column marginal totals in an (empty) origin-destination migration table

# Estimation

- The cells of the each matrix (i.e., for each country of birth considered) are filled in by an algorithm by Abel (2013)
- However, it is necessary to remove the stayers, thus assumption of maximum number of stayers
- Data from each matrix are then compiled up to the overall origin-destination matrix

# Application

- 21 EU or EFTA Member States, varied composition (big/small, receiving/sending, etc.)
- Year 2012
- Extended also to citizenship data or with no breakdowns
- Detailed results in the paper

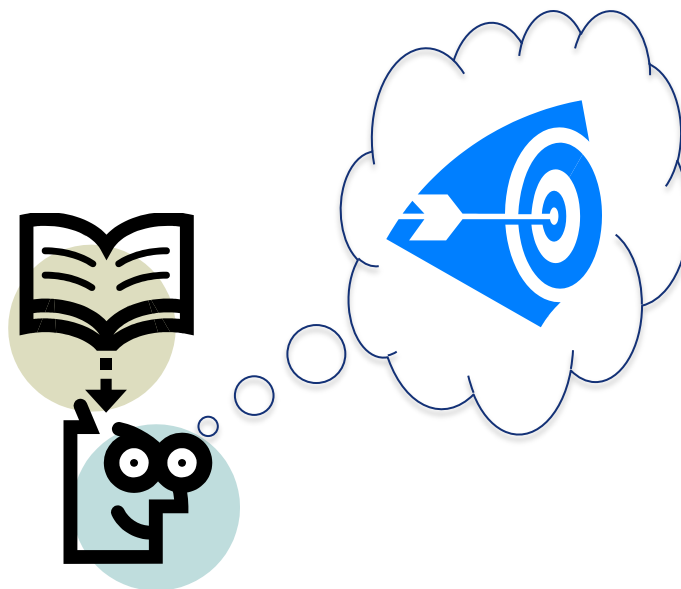
## Main outcomes

- Not possible to get entire (intra-EU) migration flows using breakdowns unless corresponding data on global scale are available
- Some assumptions used during data preparation may be improved (proportional allocation, maximum number of stayers)
- The performance of the method may greatly benefit of additional information (offsets)
- Unknown impact of data quality issues



## A long way to go...

- Additional tests, wider geographical and temporal coverage
- Work on identification of suitable offsets
- Sensitivity analysis on robustness against data quality issues
- Test applicability for internal migration
- Comparisons with (several) other methods



**Thanks for the attention!**

*For additional information:  
[giampaolo.lanzieri@ec.europa.eu](mailto:giampaolo.lanzieri@ec.europa.eu)*