

integration of heterogeneous data sources

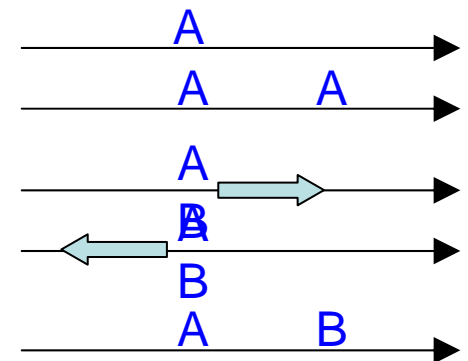
study with designed data

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general method

- grouping to validity level of all data sources; depends on
 - accuracy (e.g. terrestrial more accurate than remote sensing)
 - comparability of classification
IPCC GPG LULUCF / AFOLU
- loop of function with decreasing validity
 - direct assignment (no controversy)
 - interpolation A A
 - controversial decision to future
 - controversial decision to past
- interpolation A B
 - linear interpolation (virtual split of area related to point)
- extrapolation



idea

LUMs (land use matrices) can be re-constructed from available data sources

**(independent sample points; data base application;
decision trees > objective, transparent;
presentation Gensior&Stümer, DE NIR2012)**

calculation of LUM accuracy: in reality true lum unknown

- uncertainty assessment by general study with designed LUMs
(1000 points; defined by start distribution and transition
probabilities)**
- from each LUM various heterogeneous datasets derived
(number of sample points; error probabilities;
combintations)**
- acutally 20 LUMs à 115 data source combinations
(> 2000 simulations)**

questions

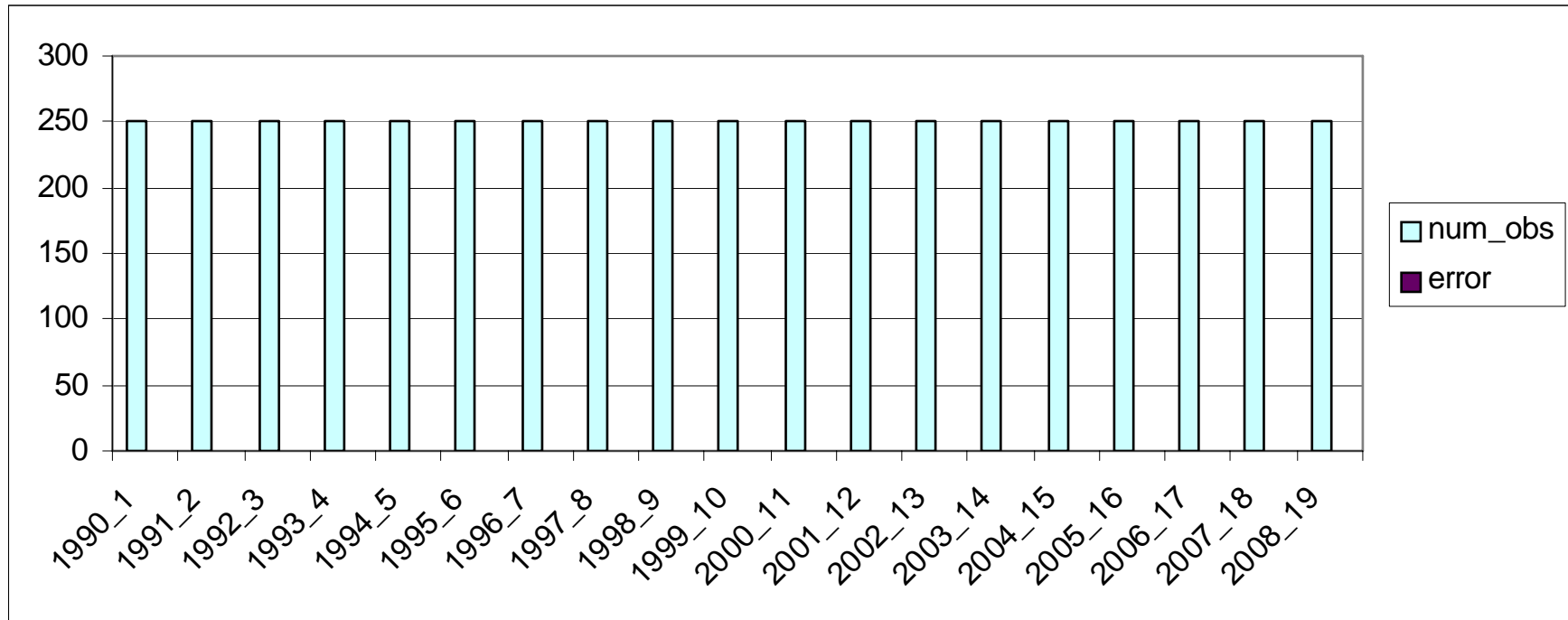
Do

- start & transition prob. of "true" LUM
- information gaps in set of data sources
- errors in data sources

affect

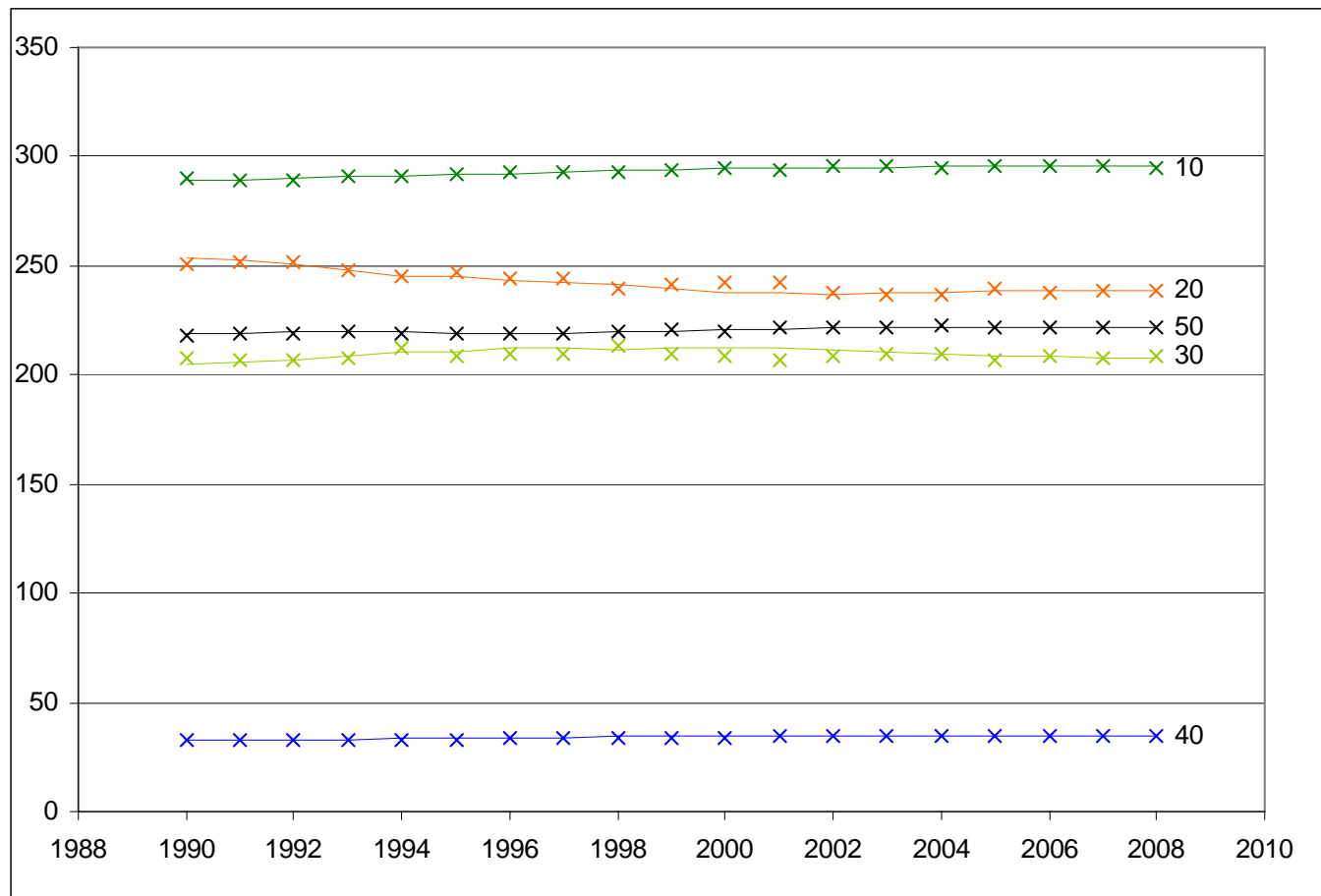
- ➔ distribution of land use classes
- ➔ annual change rates ?

annual data, 250 points
(4years circular)



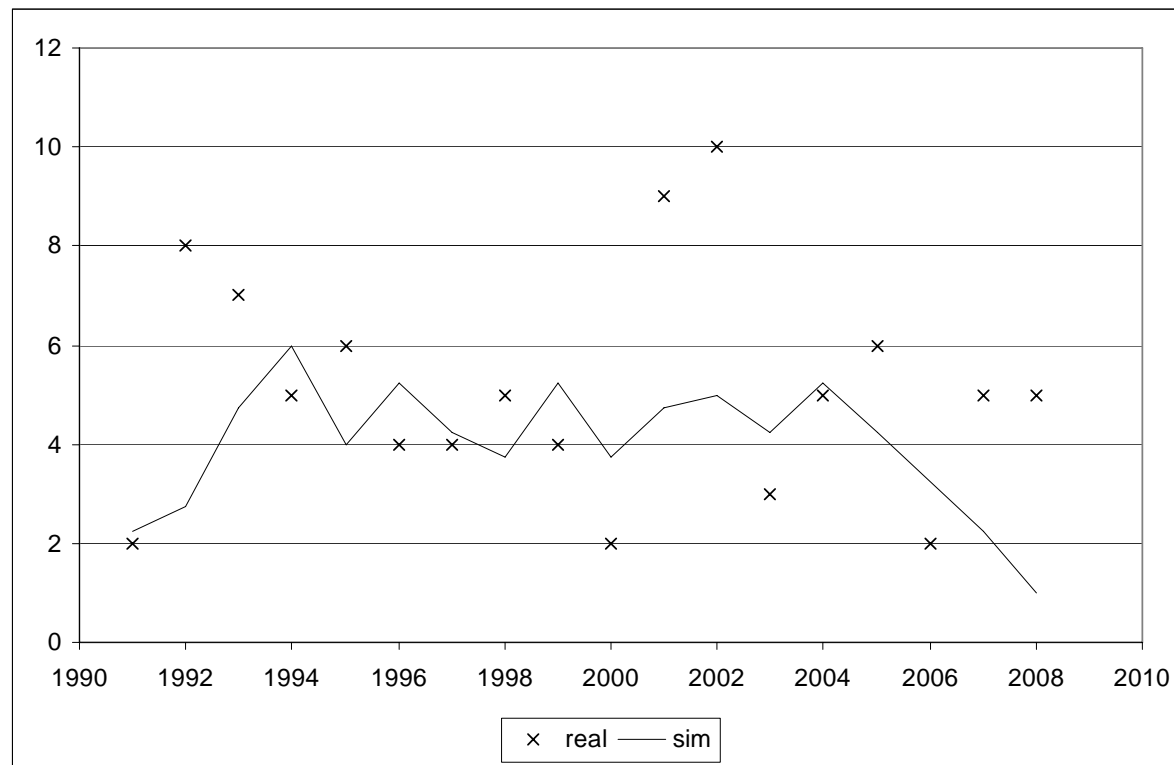
example 1

annual data, 250 points



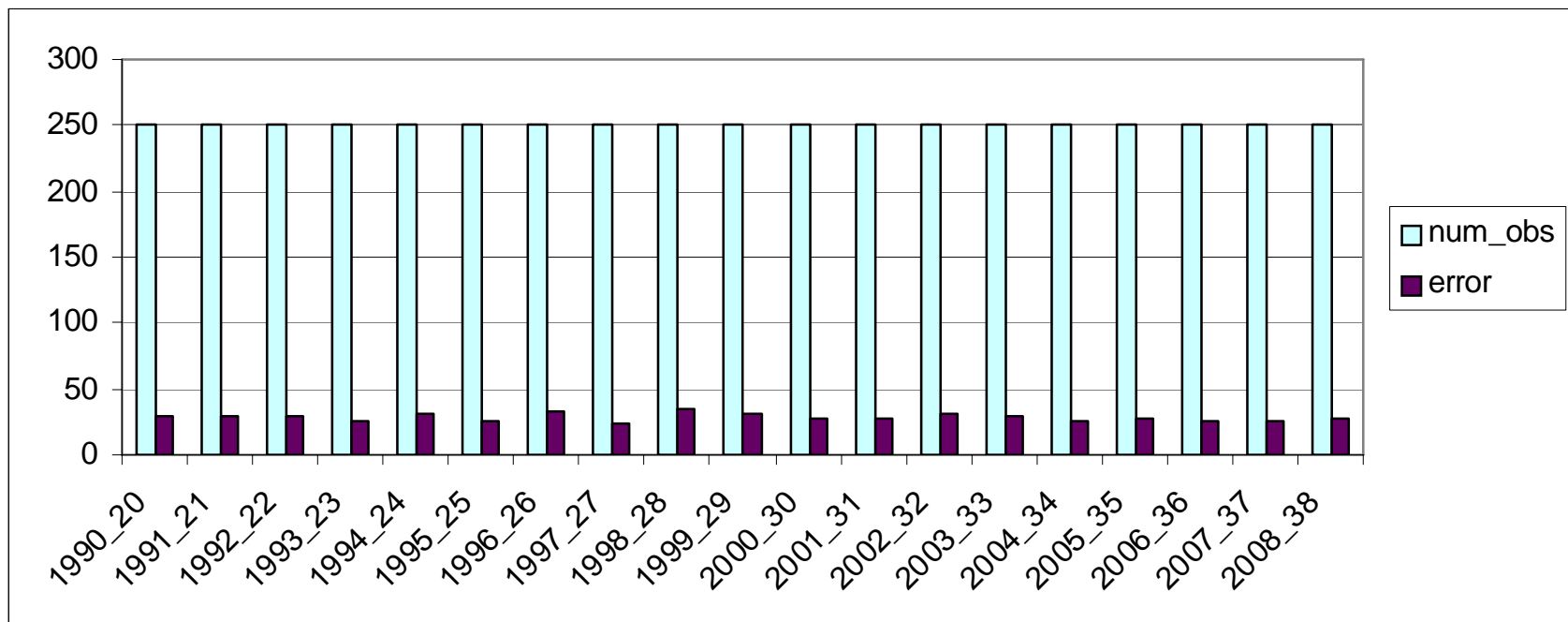
example 1

annual data, 250 points

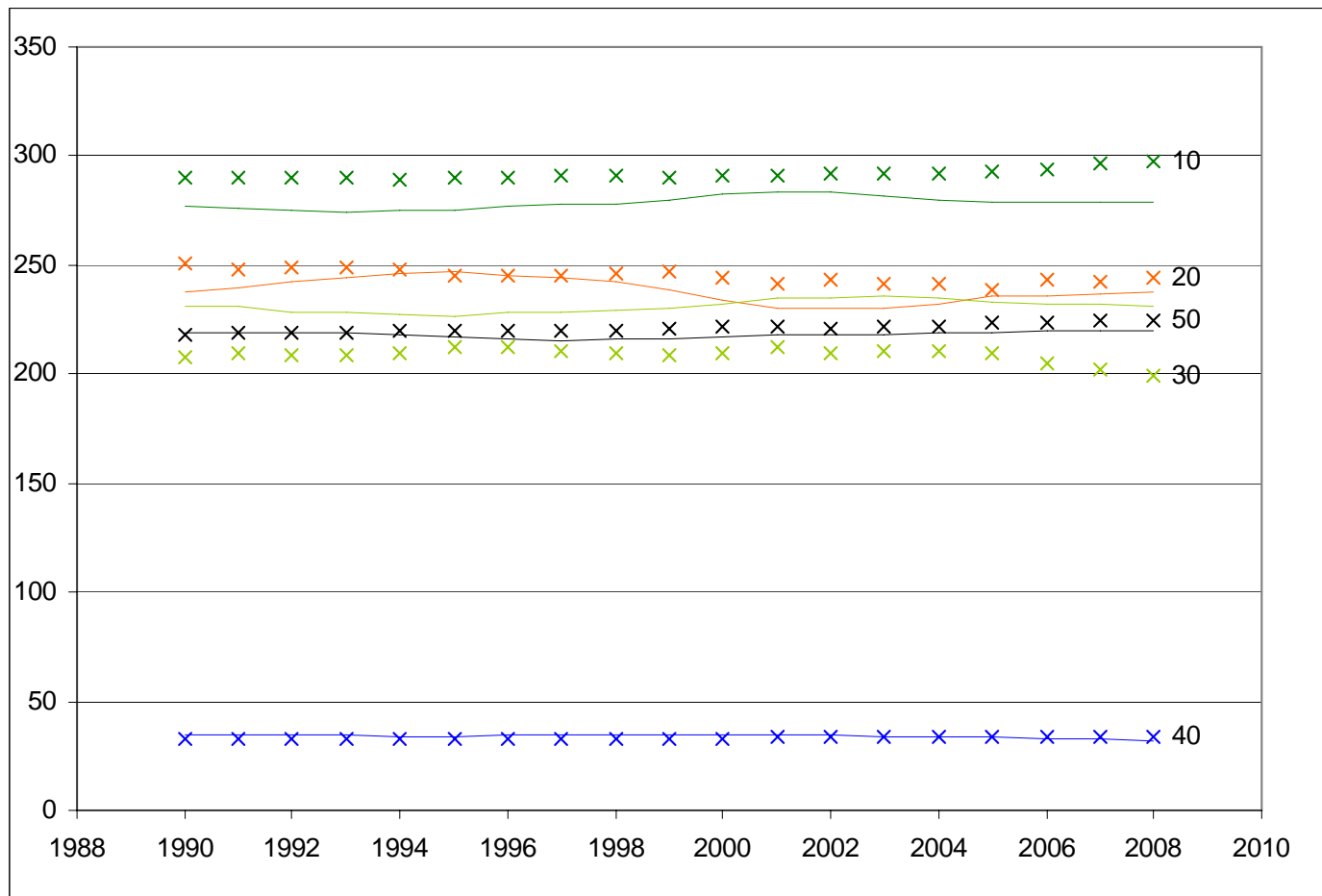


example 2

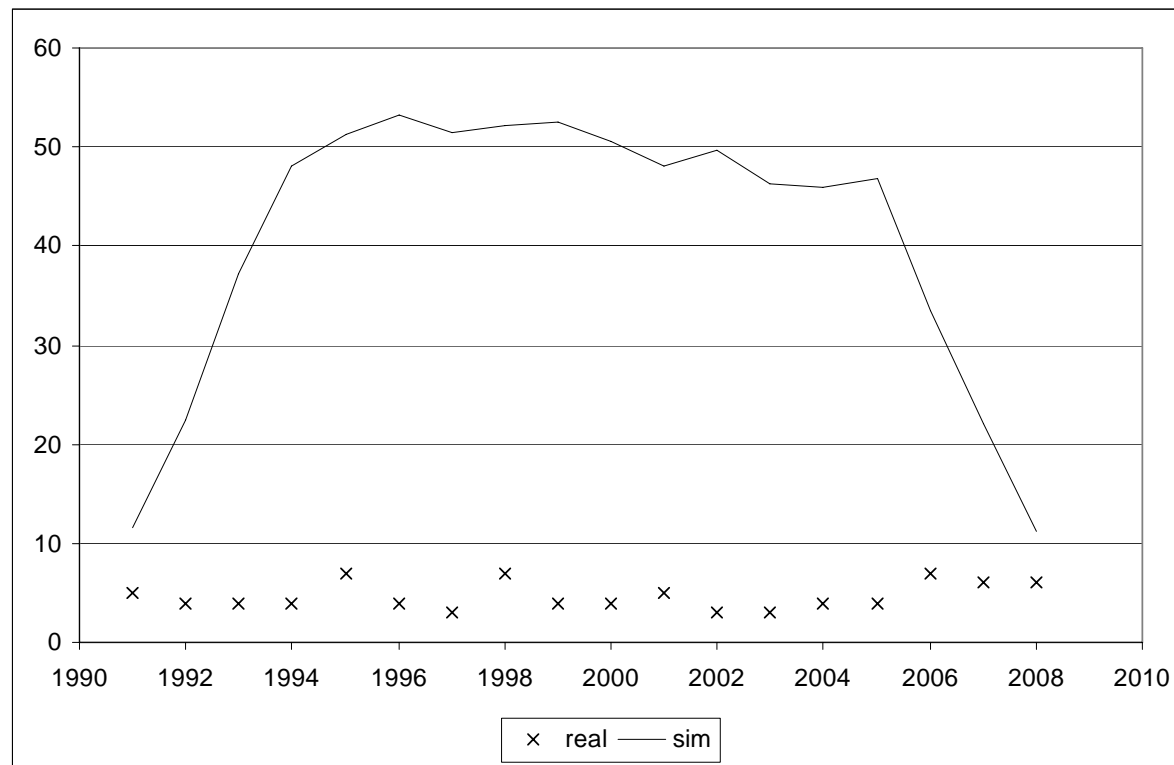
annual, 250 points, high errors
(9 to 14.2% per data source)



annual, 250 points, high errors

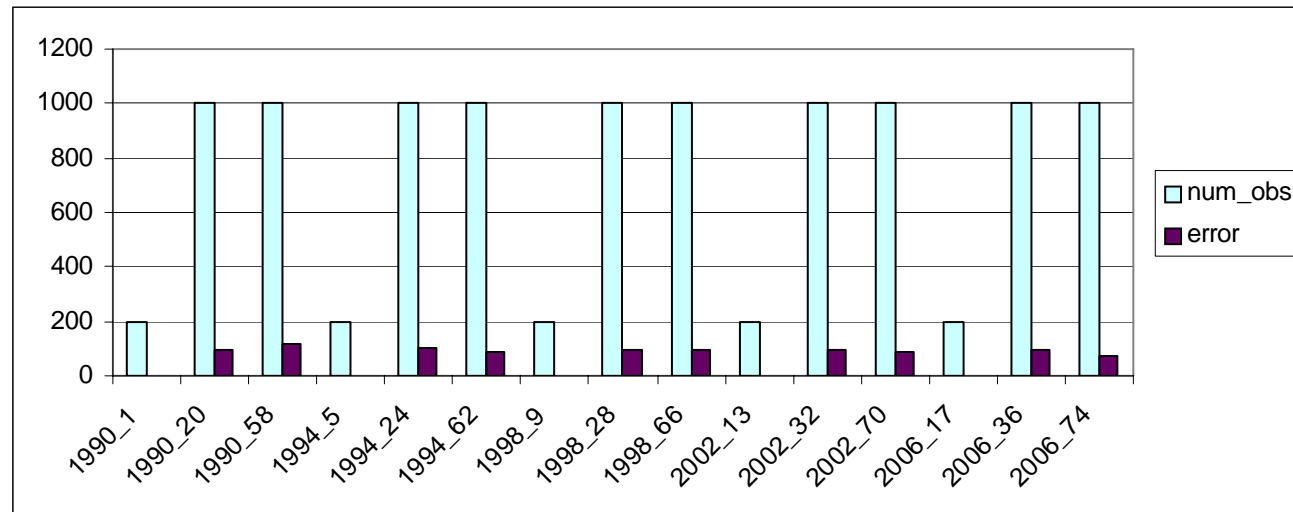


annual, 250 points, high errors

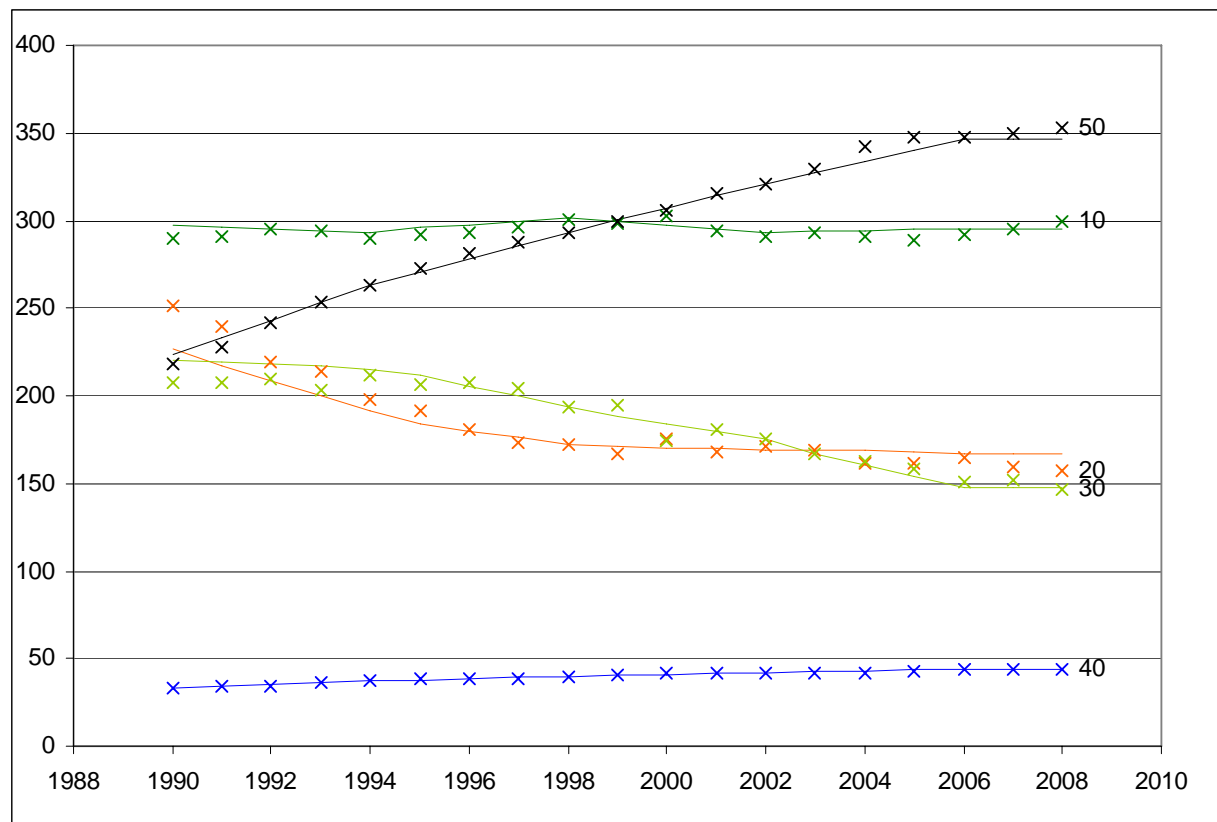


example 3

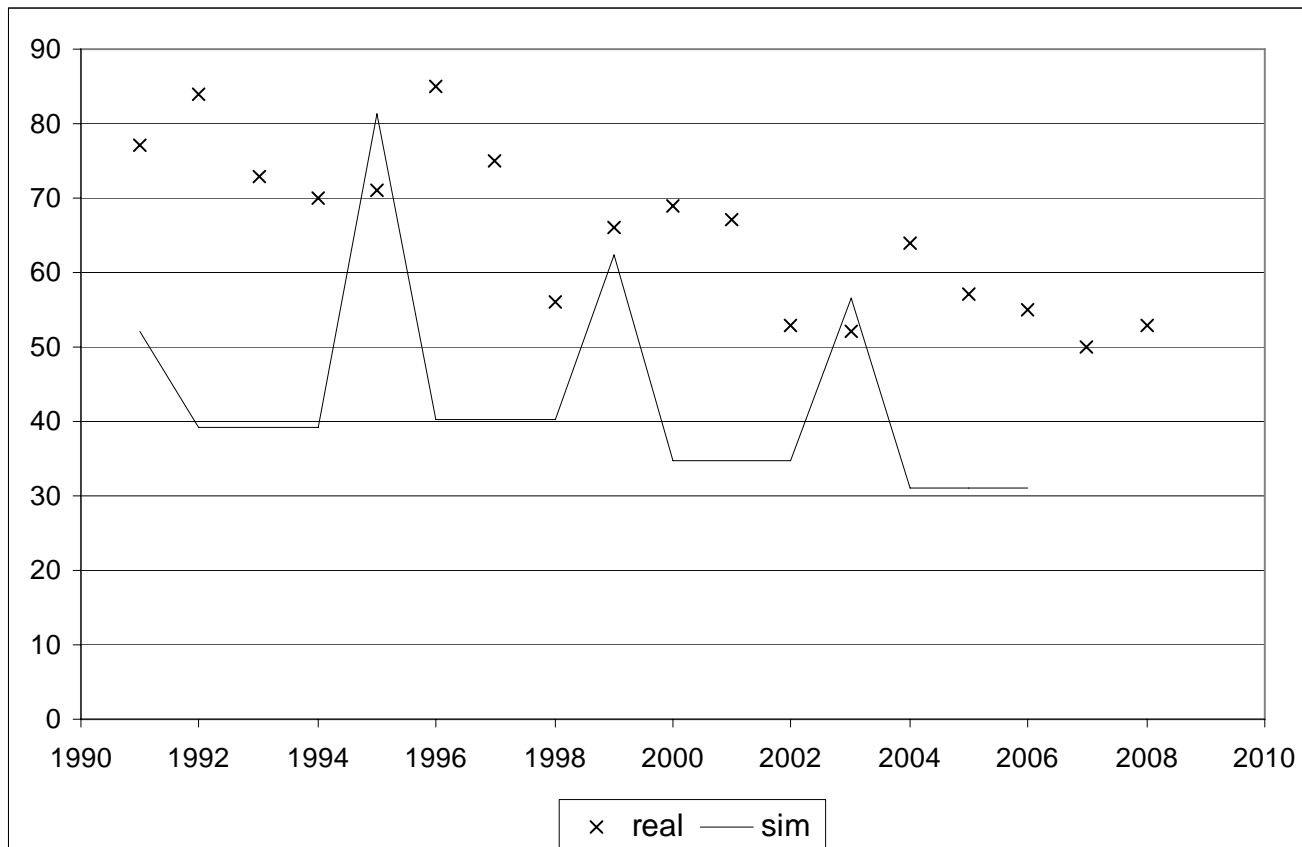
High transition prob.; 5 years,
each with 3 data sources,
1 no errors 200 points (always
same), 2 with high errors 1000 p



5 y, 3 data sources, high errors



5 y, 3 data sources, high errors



preliminary conclusions

- „only“ designed data but results of general reliability; study may be adapted to country specific values
- study on variation and sensitivity
> understanding increased ; publ. in prep.
- cooperation welcome and needed
- thanks for your attention!