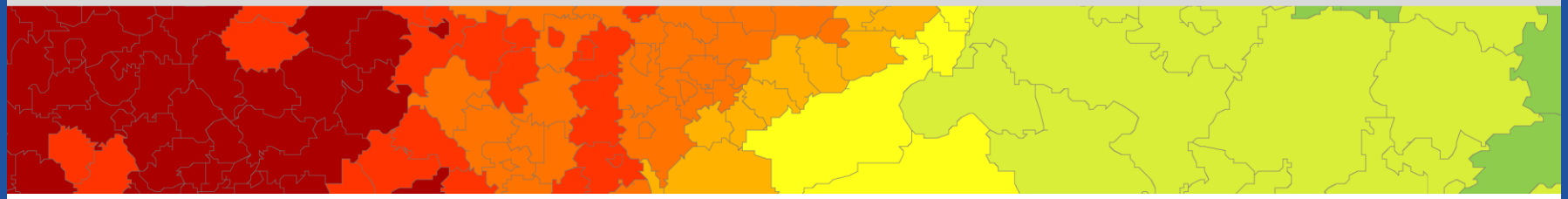
ESPON

EUROPEAN SPATIAL PLANNING
OBSERVATION NETWORK



ET2050
Meta Analysis of Model Results

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ET2050 Modelling Workshop
Brussels, 4 September 2014

Meta Analysis

Meta analysis

A meta analysis is a way to cross-validate the results of different models by systematically comparing their results to ***identify differences*** between them and, if they differ, explore the reasons why.

To overcome the differences in spatial resolution and time horizon between the models, not absolute values but ***differences*** between the ***exploratory scenarios*** and the ***Baseline Scenario*** are compared.

Meta analysis method

A meta analysis of scenario results

- treats scenarios as ***observations*** with attributes,
- distinguishes between **input** and ***output*** attributes,
- explores ***cause-effect*** relationships between input and output attributes,
- applies ***univariate***/***multivariate*** statistical analyses.

Economic Development

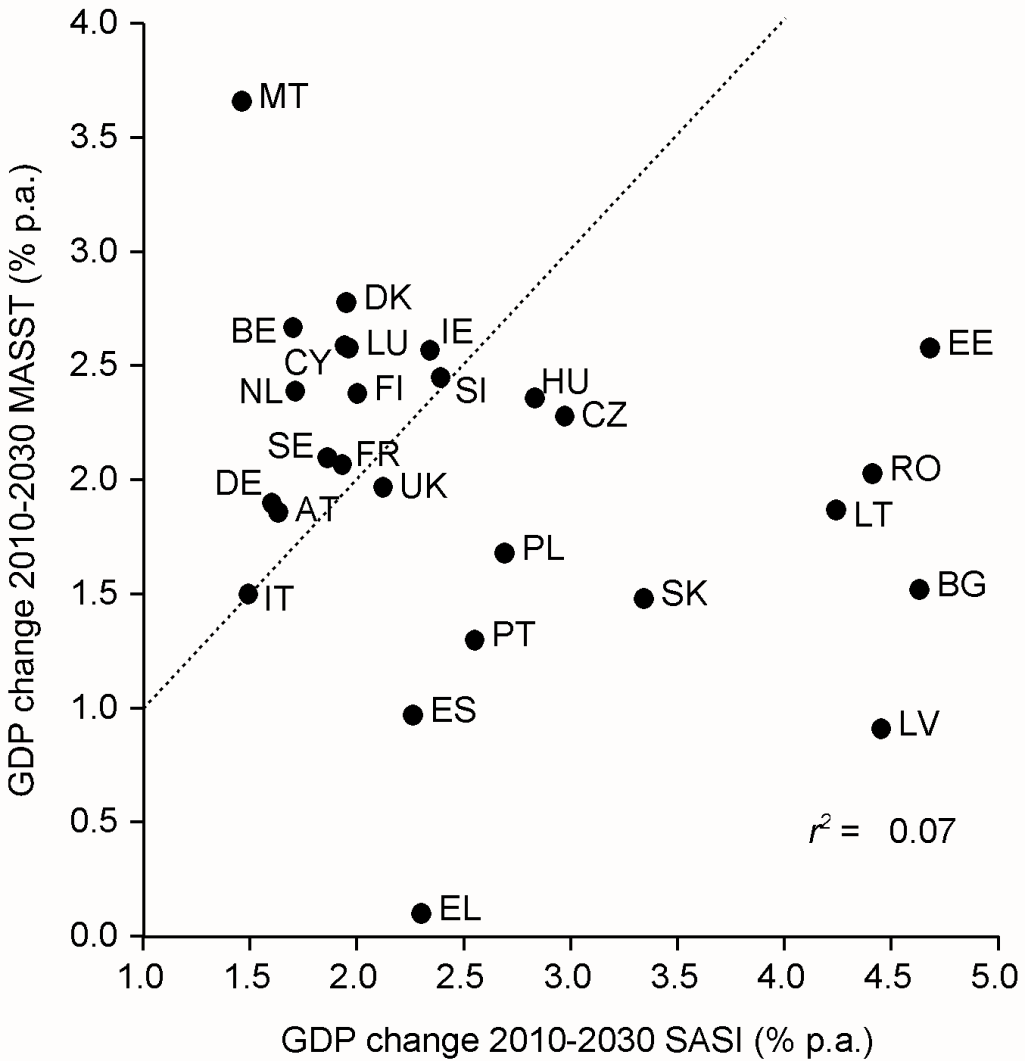
Economic development

The economic assumptions of the ***MASST*** and ***SASI*** models differ in ***two*** respects:

- In MASST it is assumed that the most crisis-stricken countries in southern Europe will suffer from high ***inflation*** and ***taxation*** and continue to stagnate economically.
- In SASI it is assumed that all countries will continue to ***grow***, though ***more slowly*** than before the crisis, and that the new member states will catch up in ***productivity***.
- These differences are visible ***in all scenarios***.

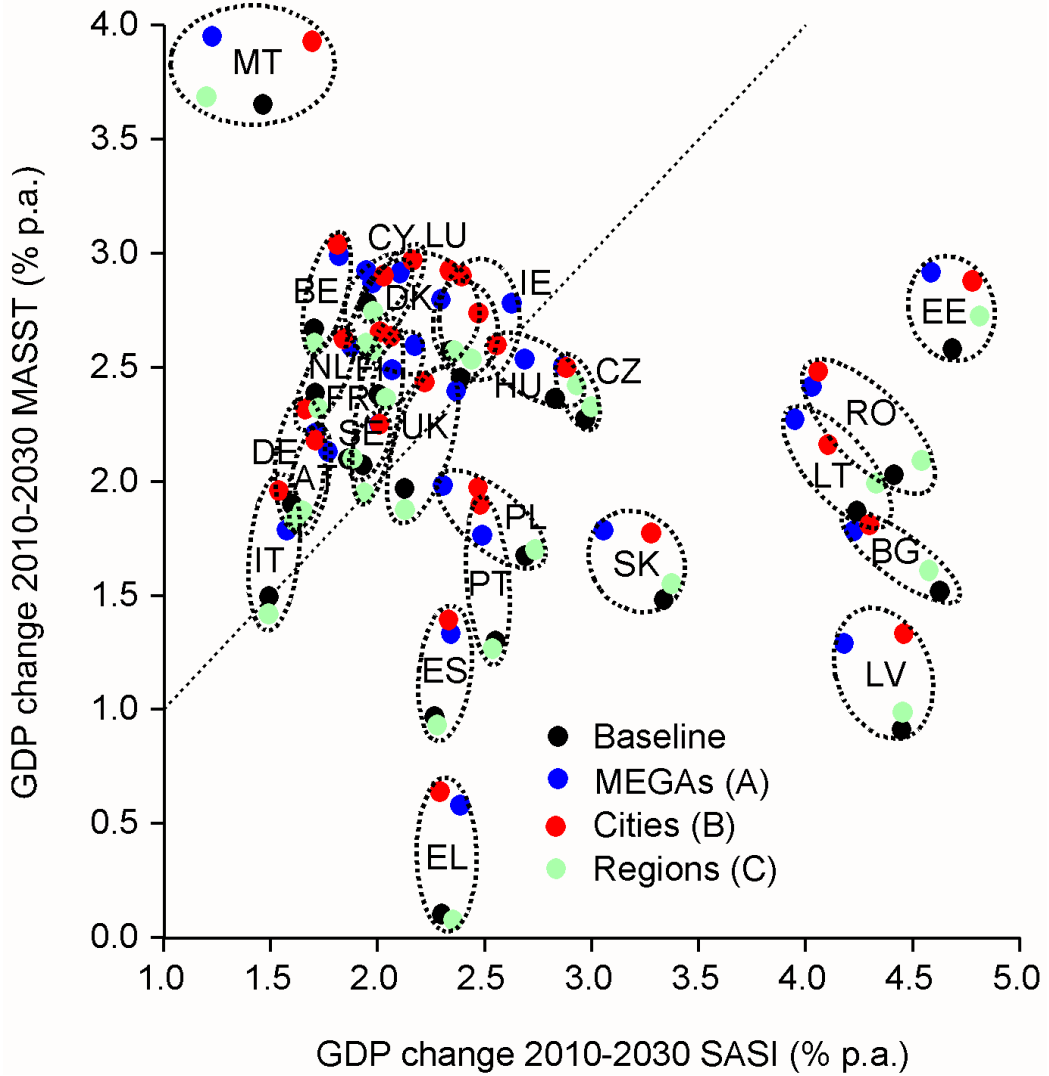
Economic development

GDP change 2010-2030
Baseline scenarios
MASST v. SASI
(% p.a.)



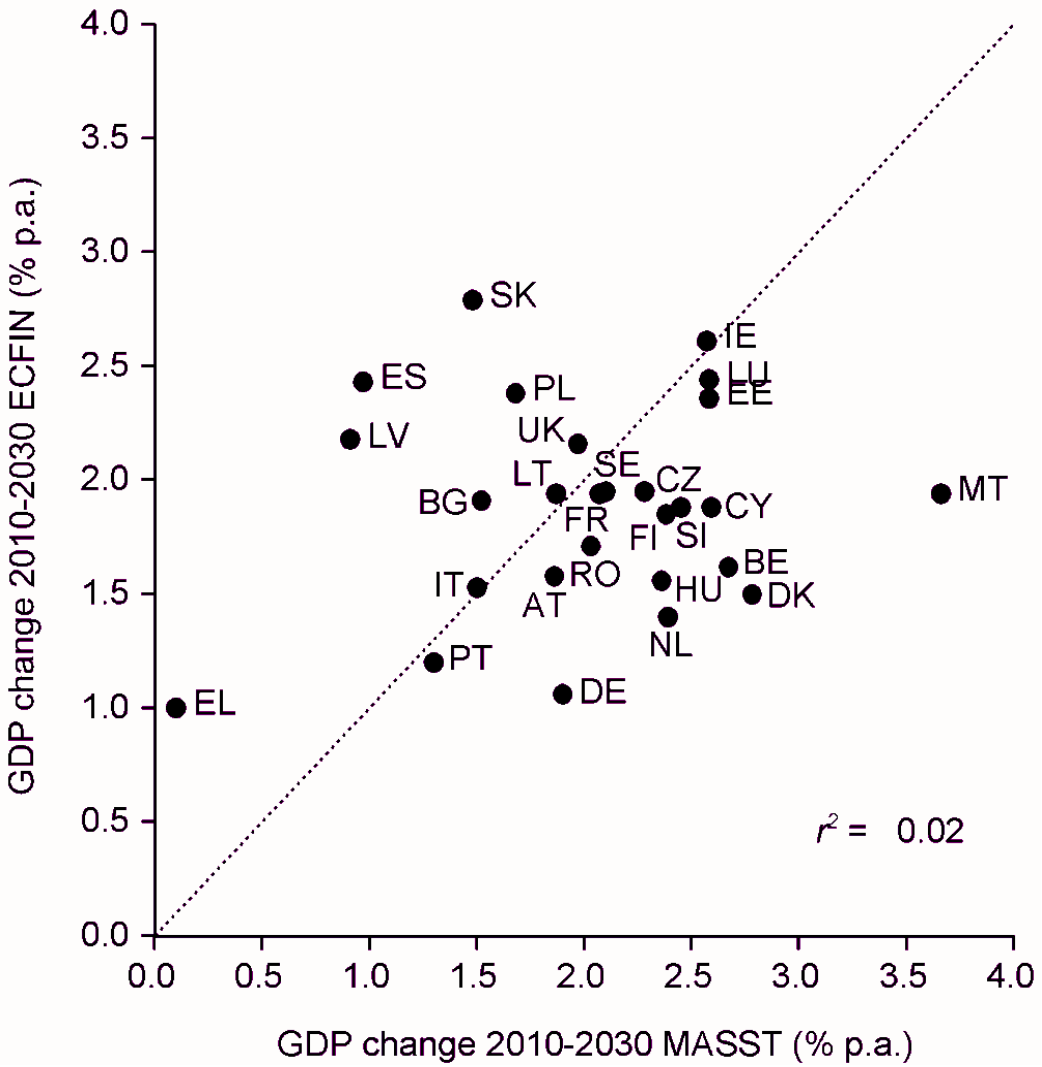
Economic development

GDP change
2010-2030
all scenarios
MASST v. SASI
(% p.a.)



Economic development

GDP change 2010-2030 Baseline scenario MASST v. ECFIN (% p.a.)

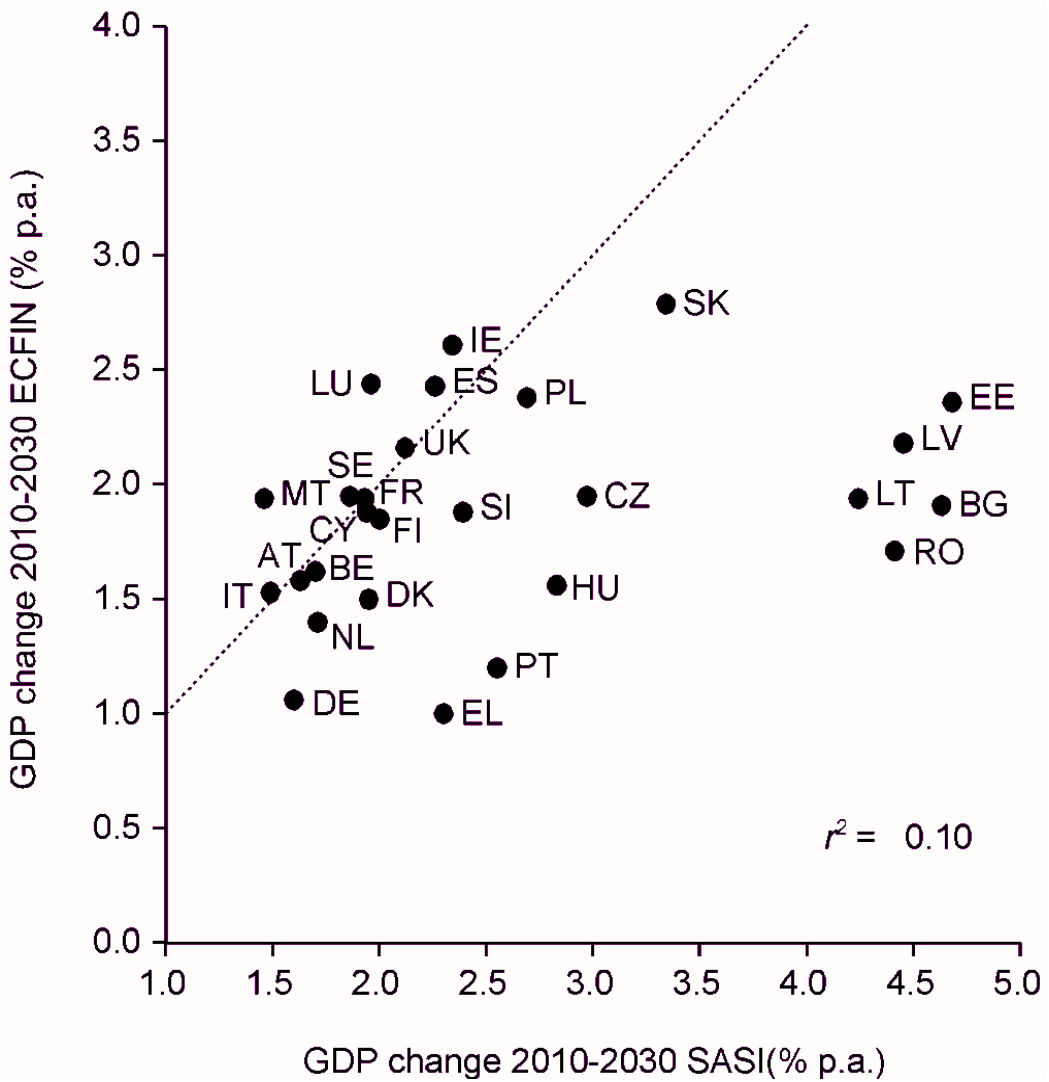


Source ECFIN: European Commission (2012), Table A 24

Economic development

GDP change 2010-2030 Baseline scenario SASI v. ECFIN (% p.a.)

Source ECFIN: European Commission (2012), Table A 24

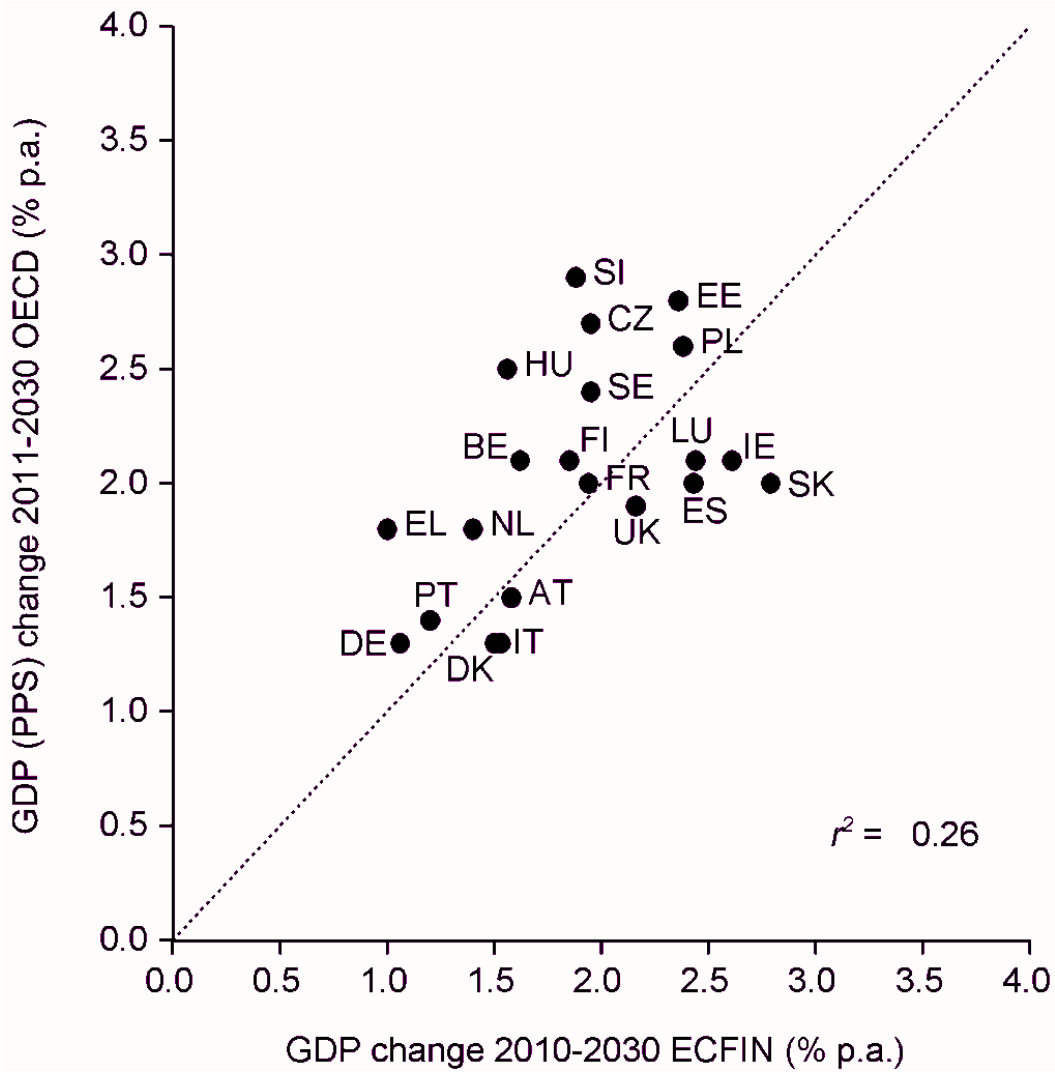


Economic development

GDP change 2010-2030 ECFIN v. OECD (% p.a.)

Source ECFIN: European Commission (2012), Table A 24

Source OECD: OECD (2012), Table A.1



Economic development

The MASST and SASI models differ with respect to the ***eastern*** and ***southern*** countries:

- MASST is more ***pessimistic*** with respect to the ***southern*** countries
- SASI is more ***optimistic*** with respect to the ***eastern*** countries.

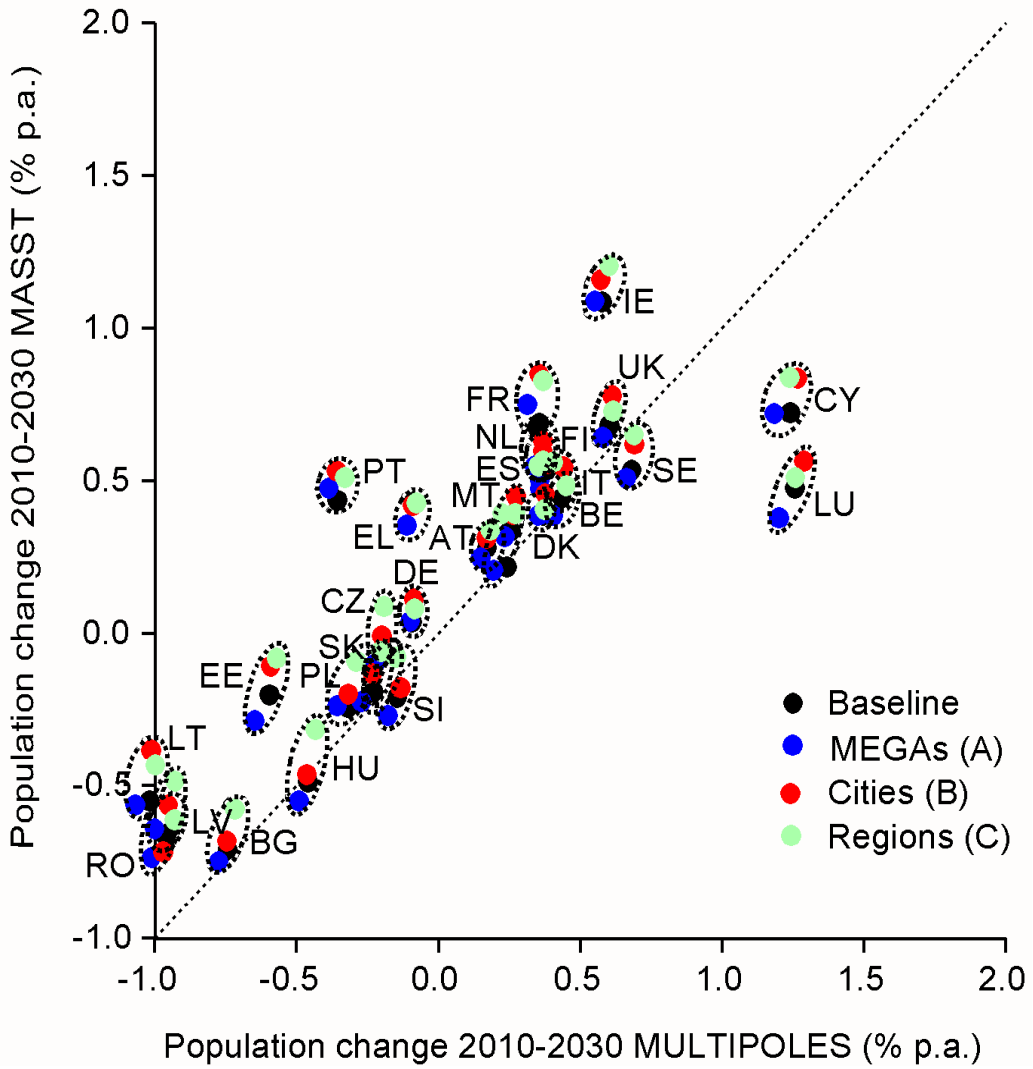
Both models therefore differ from the forecasts of DG ***ECFIN*** and the ***OECD***.

Also the economic forecasts of ECFIN and OECD differ from each other.

Population Development

Population development

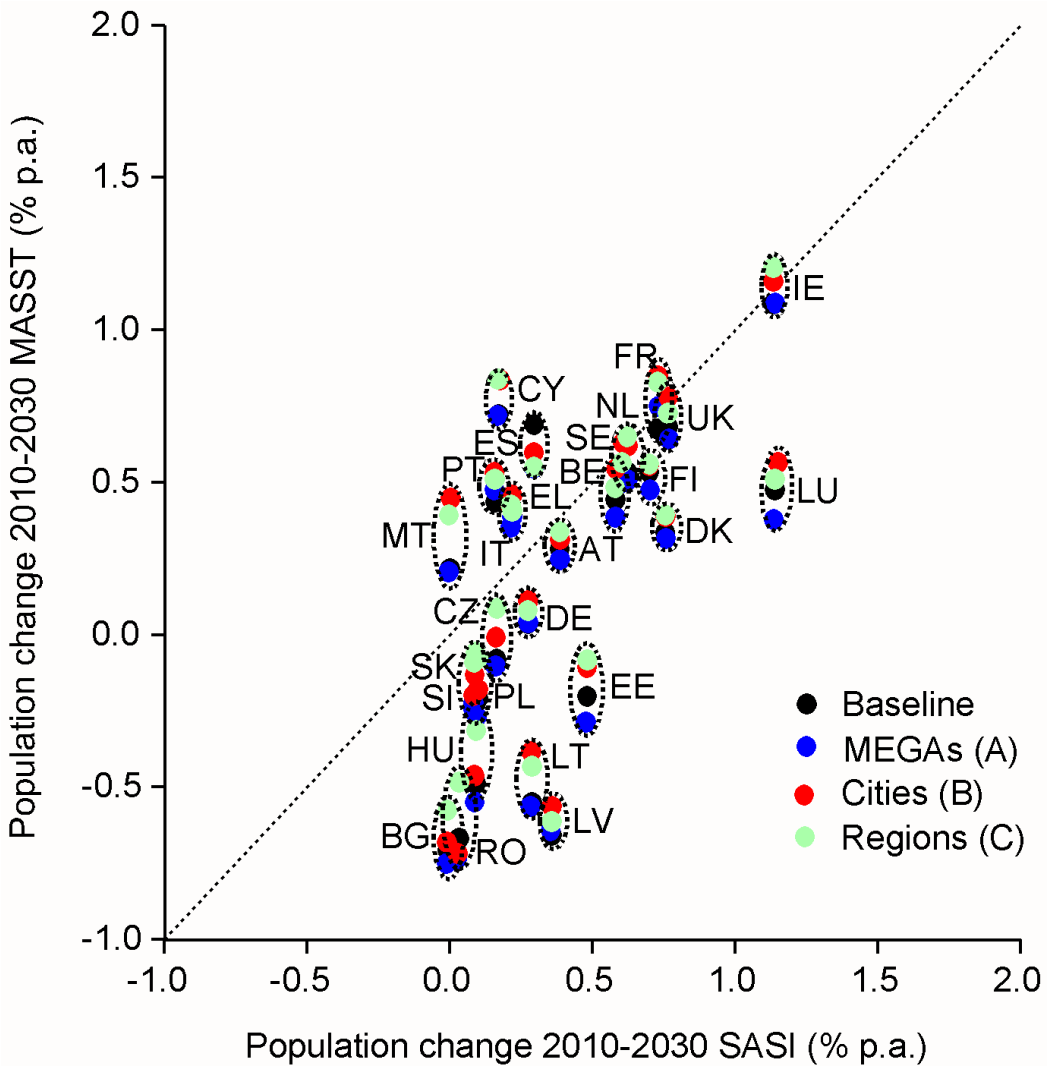
Population change 2010-2030 MULTIPOLES v. MASST (% p.a.)



Population development

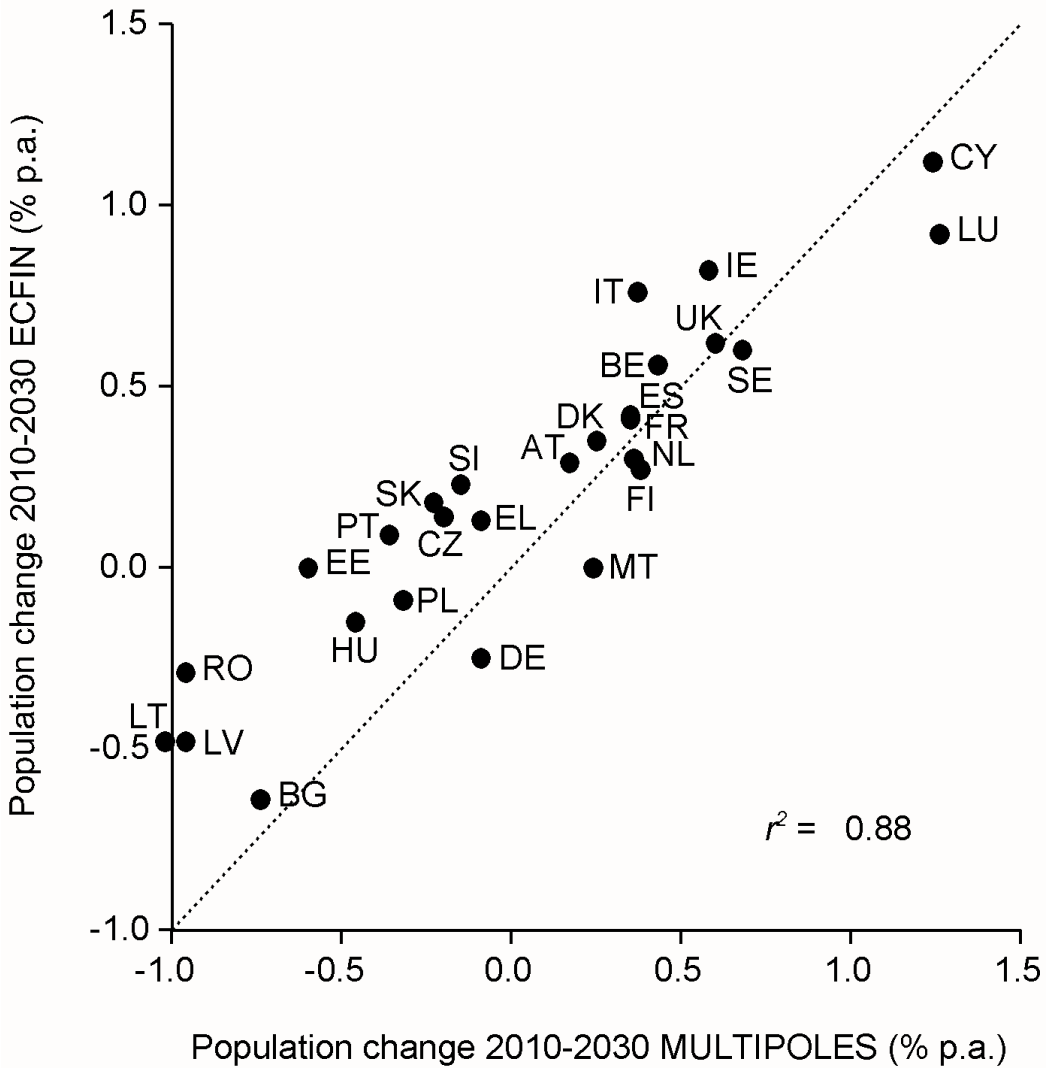
Population change 2010-2030 MASST v. SASI (% p.a.)

Sources: MASST, SASI



Population development

Population change 2010-2030 Baseline scenarios MULTIPOLES v. ECFIN (% p.a.)

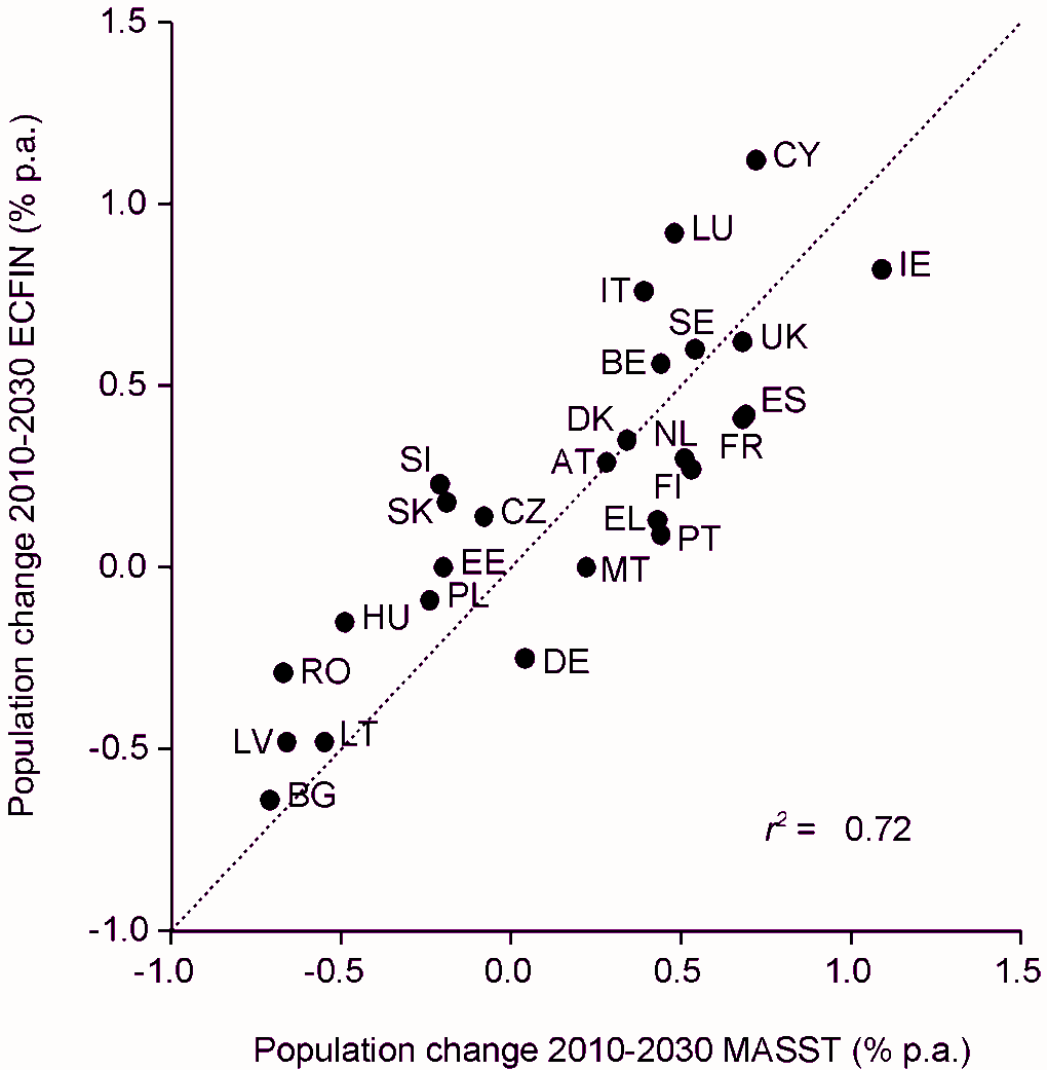


Source ECFIN: European Commission (2012), Table A 8

Population development

Population change 2010-2030 Baseline scenario MASST v. ECFIN (% p.a.)

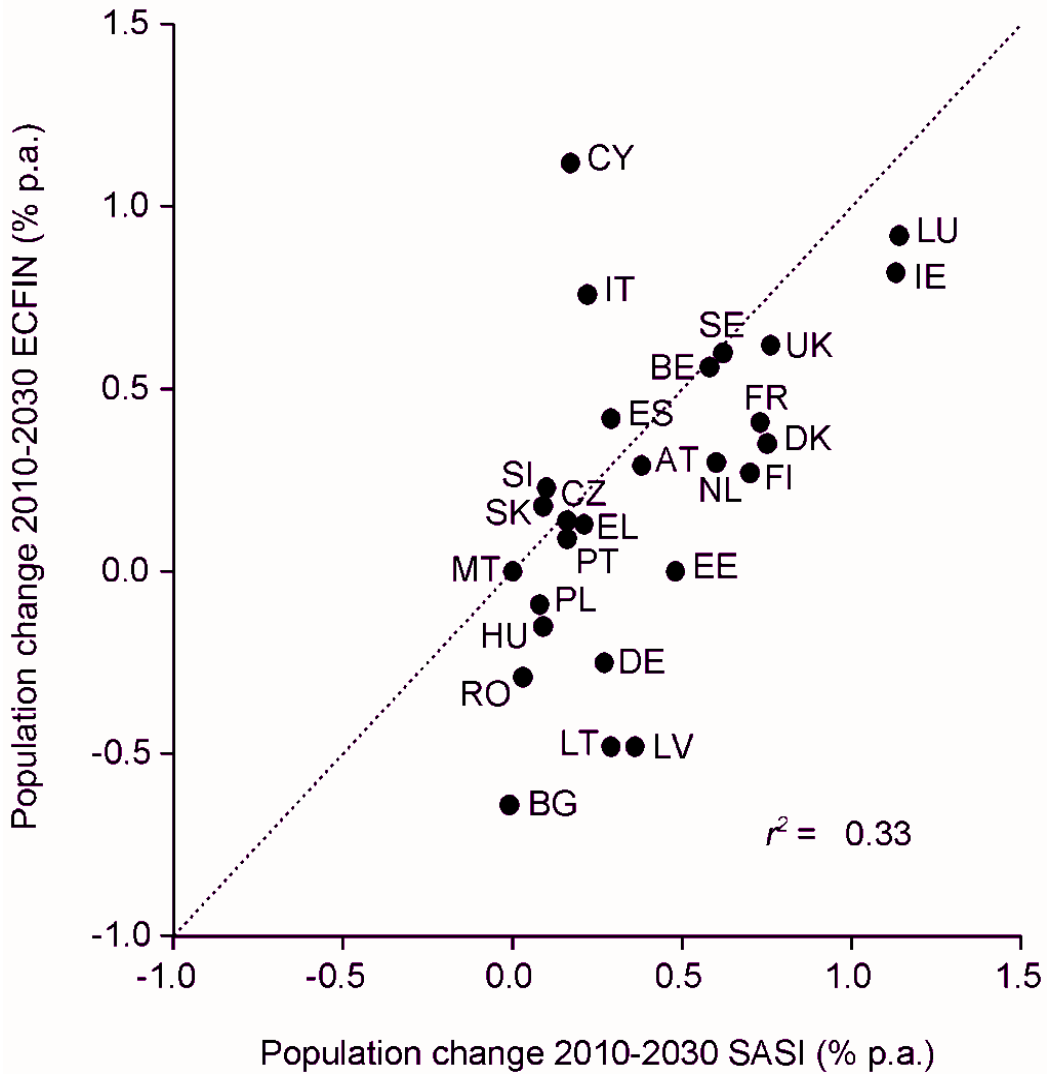
Source ECFIN: European Commission (2012), Table A 8



Population development

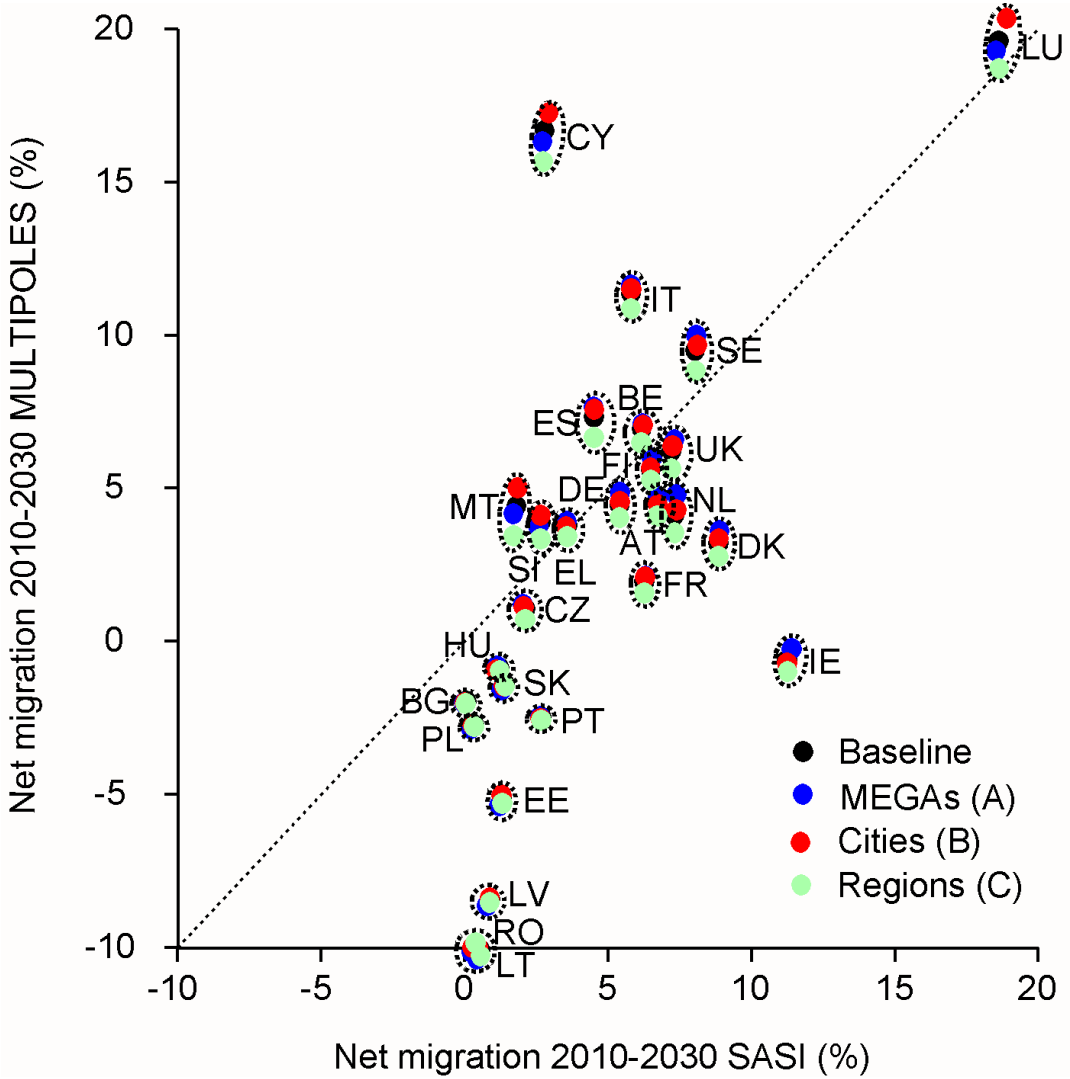
Population change 2010-2030 Baseline scenario SASI v. ECFIN (% p.a.)

Source ECFIN: European Commission (2012), Table A 8



Population development

Net migration 2010-2030 all scenarios MULTIPOLES v. SASI (%)



Population development

Population forecasts can be compared between ***three*** models (MULTIPOLES, MASST and SASI) and the 2012 Ageing Report by DG ECFIN:

- The population forecasts by ***MULTIPOLES*** are very similar to those of ***ECFIN***.
- The population forecasts by ***MASST*** differ from those of ***MULTIPOLES*** through their different assumptions about migration.
- The population forecasts by ***SASI*** differ from both ***MULTIPOLES*** and ***MASST*** by its much larger net migration.

Conclusions

Conclusions

The results of the ***MASST*** and ***SASI*** models may be interpreted as two ***fundamental options*** for the future of the European project:

- The ***MASST*** model envisages that at least in the medium term the economic convergence experienced until 2006 ***will not continue***.
- The ***SASI*** model envisages that in a Europe of open borders convergence ***will continue***, but the East-West gap will remain.

Compared with these ***fundamental*** options, the ***spatial*** scenarios make no great difference.

Conclusions

However, the results of the ***meta analysis*** may also teach a lesson for the organisation of future ***scenario projects***:

- ***Long-term*** scenario projects should not rely on one model only but use ***several*** models.
- ***Meta anaysis*** should be applied ***early*** in the project to ***cross-validate*** the models.
- To make the model results comparable, ***early agreement*** on ***assumptions*** and ***scenario definitions*** should be achieved.

More information

European Commission: *The 2012 Ageing Report. Economic and Budgetary Projections for the 27 EU Member States* (2010-2060). Brussels: DG Economic and Financial Affairs. http://ec.europa.eu/economy_finance/publications/european_economy/2012/pdf/ee-2012-2_en.pdf

OECD (2012): *Looking to 2060: A Global Vision of Long-Term Growth*. Economics Department Policy Note 15. Paris: OECD. http://www.oecd.org/eco/outlook/2060policynote.pdf

Wegener, M. (2010): *Meta Analysis of Scenario Results*. Technical Note S&W STEPs 03. Dortmund: Spiekermann & Wegener Stadt- und Regionalforschung. http://www.spiekermann-wegener.de/pro/pdf/SuW_STEPs_03.pdf