



# **Sensitivity of Forecasts on Regional Growth and Disparities to Models' Nature and Assumptions**

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# Introduction (1)

- Models are simplified representations of reality, as all the elements and complex interactions that happen in the real world can hardly be considered and appropriately replicated through quantitative modelling.
- Therefore, models' "foresights", conditioned by specific scenario assumptions – have to be deeply inspected considering the nature of the single models and the relative assumptions.
- Moreover, it looks important to inspect the sensitivity of the single results to changes in some exogenous assumptions.

## Introduction (2)

- In the ET2050 Project two best-practice econometric and simulation models have been utilised: the MASST model and the SASI model.
- According to the two models, the comparative performance of the four scenarios of ET 2050, in terms of both aggregate EU growth and disparities, turned out to be quite similar.
- However, the two models showed an opposite sign as far as the evolution of regional growth and disparities is concerned: the SASI model was much more optimistic, while the MASST model was more pessimistic.

**Why?** Difference in the nature of the models and difference in crucial assumptions.

## The different nature of the models

1. The SASI model is a mainly supply-side model, based on regional production functions, regional endowments, labour markets structure, transport accessibility and population dynamics.
2. On the other hand, the MASST model is both a supply-side and a demand-side model: it is based on regional endowments and territorial capital assets, but at the same time it considers the demand-side, national and macroeconomic effects connected to fiscal public policies, monetary and not just real adjustments in a crisis condition (“internal devaluations”).

## The different assumptions of the models

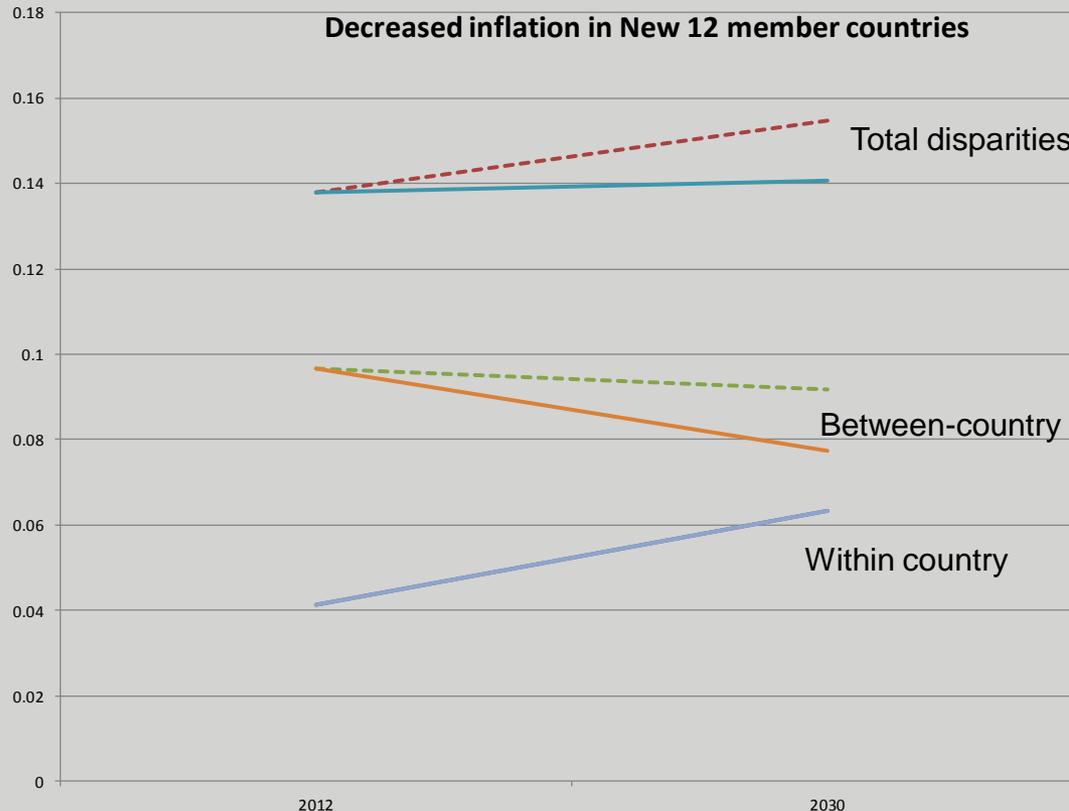
1. The main exogenous assumptions of the two models (in each scenario) were by and large similar.
2. But these assumptions were not identical, given the different exogenous variables considered by each model.
3. In particular, two of them turned out to be **extremely effective** in determining growth potentials of countries (and consequently of their regions):
  - the expected (exogenous) **inflation rate of NMCs with respect to Old Member Countries** (MASST model); and
  - the expected (exogenous) **productivity growth in NMCs** in the SASI model.

## Sensitivity analysis on the Baseline Scenario (2030)

A **sensitivity analysis** was run on the “Disparities” result, changing these single exogenous hypotheses, namely:

- Lower internal inflation rates of New 12 Countries with respect to Old 15: → higher control on external competitiveness → higher growth expected
- Increased tax rates in “vicious” countries (too high public debt): → lower growth potential expected
- Lower pace of productivity convergence in NMCs with respect to the recent past → lower growth rates expected in NMCs.

## Lower inflation rates in NMCs (MASST)



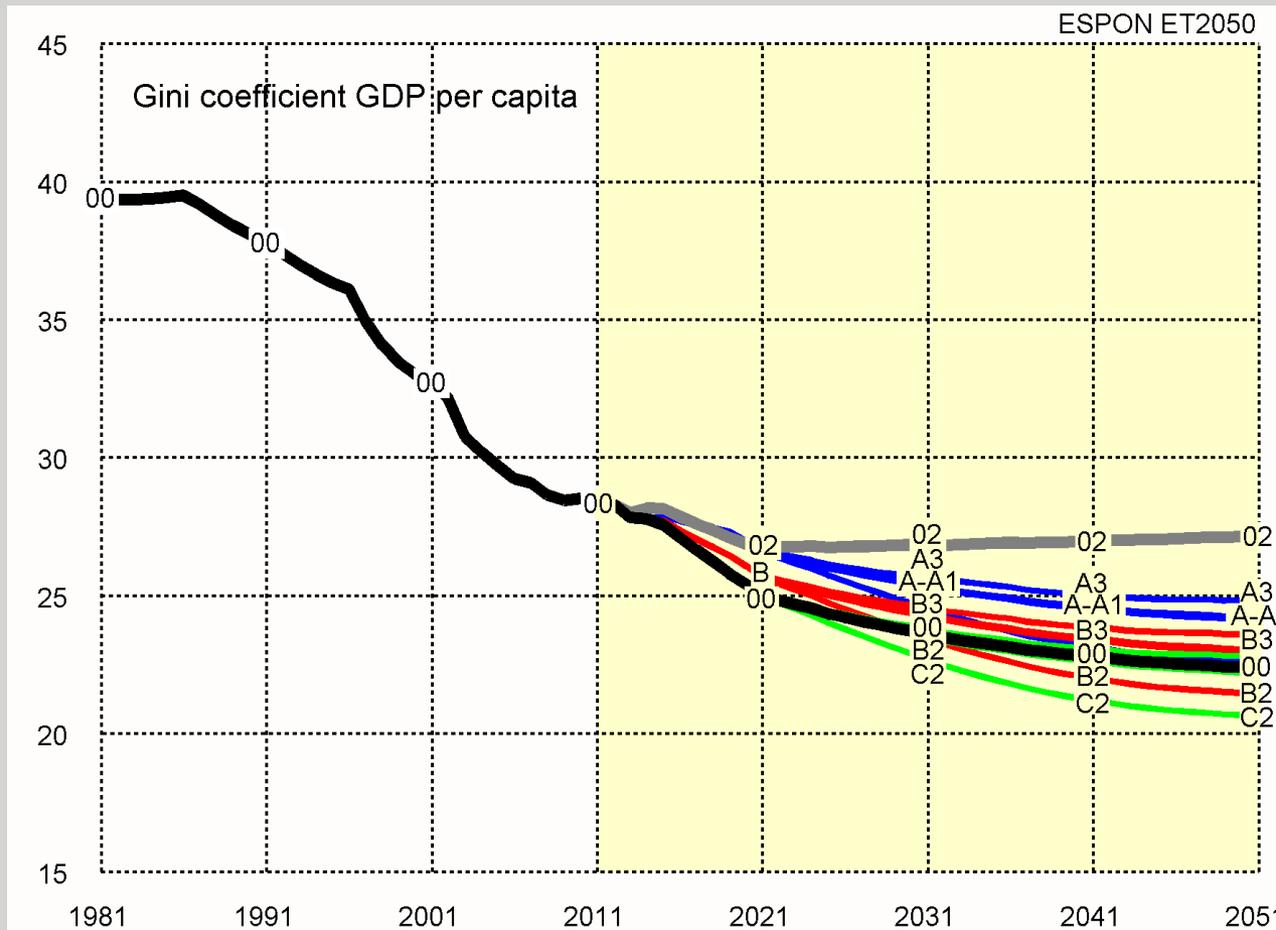
Dotted lines refer to Baseline scenario

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This lever has strong effects on growth rates in NMCs; new assumptions generate a strong decrease in inter-national disparities and a light increase in tot. disparities

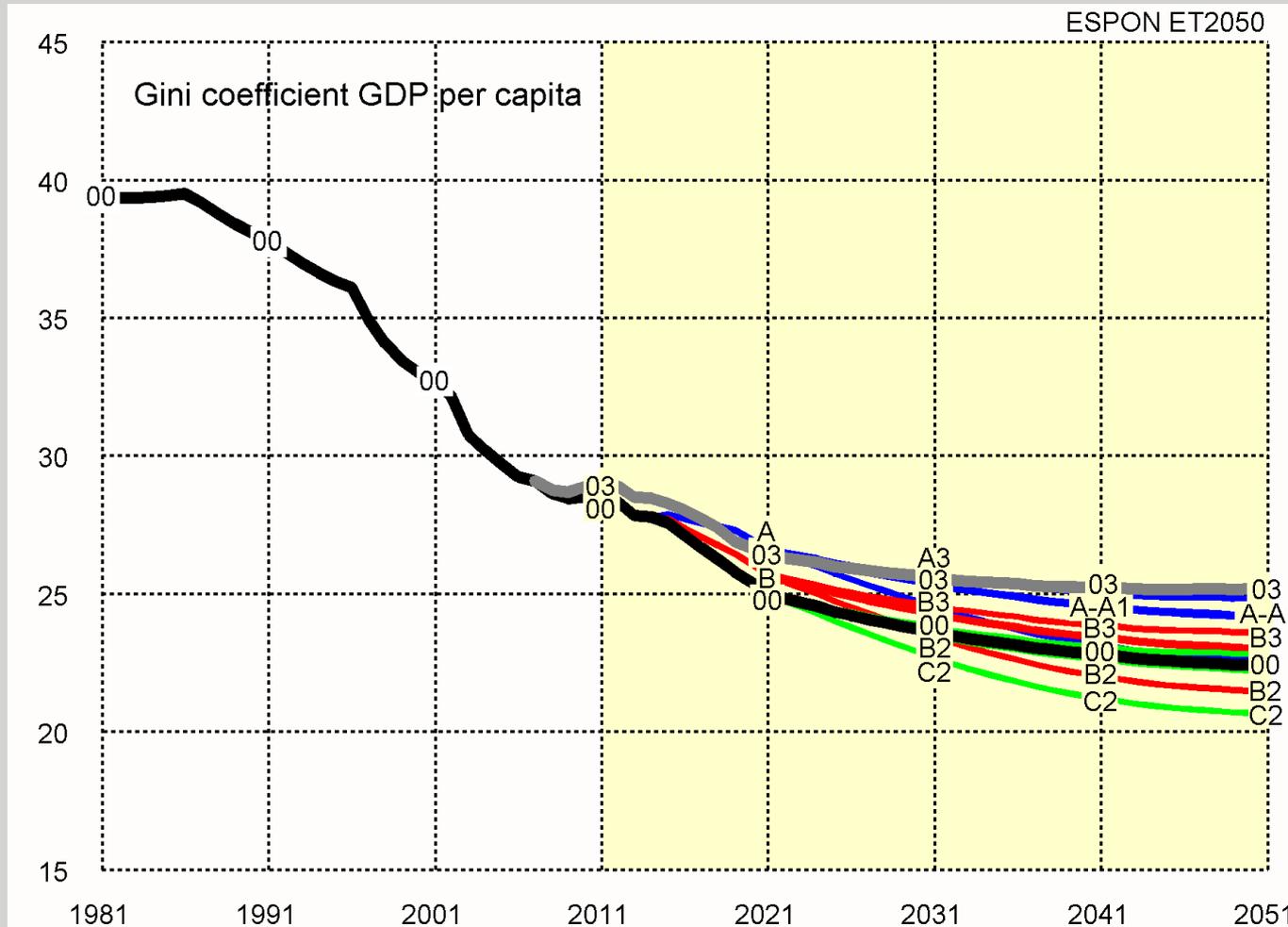
Note: Inflation in New 12 countries was taken down from 5% to 3%. Baseline assumption in Old15 member countries is 2.5%.

# No productivity convergence in NMC (SASI)



← Grey line

# Slower productivity convergence in NMC (SASI)



← Grey line

## Conclusions

Which assumptions are the most likely?

In the case of inflation rates in the NMCs, probably a distinction should be made by countries (Poland is behaving better than other countries in this respect).

In the case of productivity catch-up in NMCs, the last hypothesis of a slower catch-up pace with respect to the past is the most rational: Catch-up processes are never linear but asymptotic.

**With these changes, the results of the two models are coming much closer!**

**THANK YOU VERY MUCH  
FOR YOUR ATTENTION!**