Assessing the impact of EU cohesion policy: What can economic models tell us?

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Bruegel Workshop
Brussels
Tuesday May 15th, 2012

A full version of the paper is downloadable from
http://www.herminonline.net/

How do we obtain a cohesion policy "counterfactual"

"Counterfactual impact evaluation (here termed simply impact evaluation) allows the assessment of policy effects without the use of complex econometric models, in which strong hypotheses need to be made which are often hard to appreciate by the layman, and to act as a leverage for policy improvement. It focuses on using data of good quality and on the robustness of the method through which a population "similar" to the target population is identified".

Barca, 2009, p.47

"Hard" versus "Soft" Counterfactuals

- **HARD**: Constructed using an explicit model that attempts to articulate how policy affects the economy, thus permitting direct analysis of "with policy" compared to "without policy" scenarios
- **SOFT**: Use data of good quality and the robustness of the method through which a population "similar" to the target population is identified

Objectives of presentation

- Use a “hard” counterfactual based on a macro model (in our case, HERMIN)
- Describe the different essential stages in model-based cohesion policy analysis
- Identify areas of general agreement among modellers and areas of possible disagreement
- Use published *Fifth Cohesion Report (2010)* results to illustrate policy impacts based on HERMIN and QUEST
- Initiate a discussion of how different model-based impact results can disagree

The logic of “hard” cohesion policy impact analysis

- ***Stage 1: Evaluating cohesion policy interventions: methodology***
- ***Stage 2: Evaluating cohesion policy interventions: results***

Stage 1: Evaluating cohesion policy interventions: methodology

- Step 1: *Economic theory and public investment*
- Step 2: *Empirics of investment impacts*
- Step 3: *Why models are needed?*
- Step 4: *What kind of macro model?*
- Step 5: *Demand versus supply impacts*
- Step 6: *Sectoral issues in modelling*

Stage 2: Evaluating cohesion policy interventions: results

- Step 7: *The "no cohesion policy" counterfactual*
- Step 8**:** *Policy Impacts for a single country*
- Step 9: *Policy Impacts for many countries*
- Step 10: *Drawing conclusions*

What precise “no cohesion policy” counterfactual should one use?

- ***The “zero substitution” case***

  Domestic authorities do not substitute with domestic finance and cancel the entire investment programme (usually selected as the default case)

- ***The “full substitution” case***

  Domestic authorities fully implement original CP investments, but finance them entirely out of their own resources

- ***The “partial substitution” case***

  Domestic authorities implement only part of the original CP investments, but financed out of their own resources

How the counterfactual is used in model simulations

1. Project all non-cohesion policy (CP) exogenous variables (i.e., the domestic policy and global variables that are not modelled explicitly) out to the terminal year of the simulation (say, 2020)
2. Set all CP instruments to the appropriate counterfactual values (see later)
3. Simulate the model out to 2020, thereby generating a medium-to long-term baseline “no cohesion policy” projection
4. Re-set the CP instruments to their appropriate actual values, derived from the programme budget allocations over time to specific investments
5. Re-simulate the model to 2020
6. Compare results obtained from stage (5) to results from stage (3), to evaluate CP impacts

Post-implementation impacts: the “cumulative” multiplier

$$Normal\ policy\ multiplier = \frac{Change\ in\ GDP}{Change\ in\ public\ investment}$$

The cumulative policy multiplier (between time t and time t+n) is defined as:

$$Cumulative\ CP\ multiplier = \frac{Cumulative\ percentage\ change\ in\ GDP}{Cumulative\ percentage\ share\ of\ CP\ in\ GDP}$$

Areas of possible broad agreement between different models

- Step 1: *Economic theory and public investment*
- Step 3: *Why are models needed*
- Step 7: *The "no cohesion policy" counterfactual*:

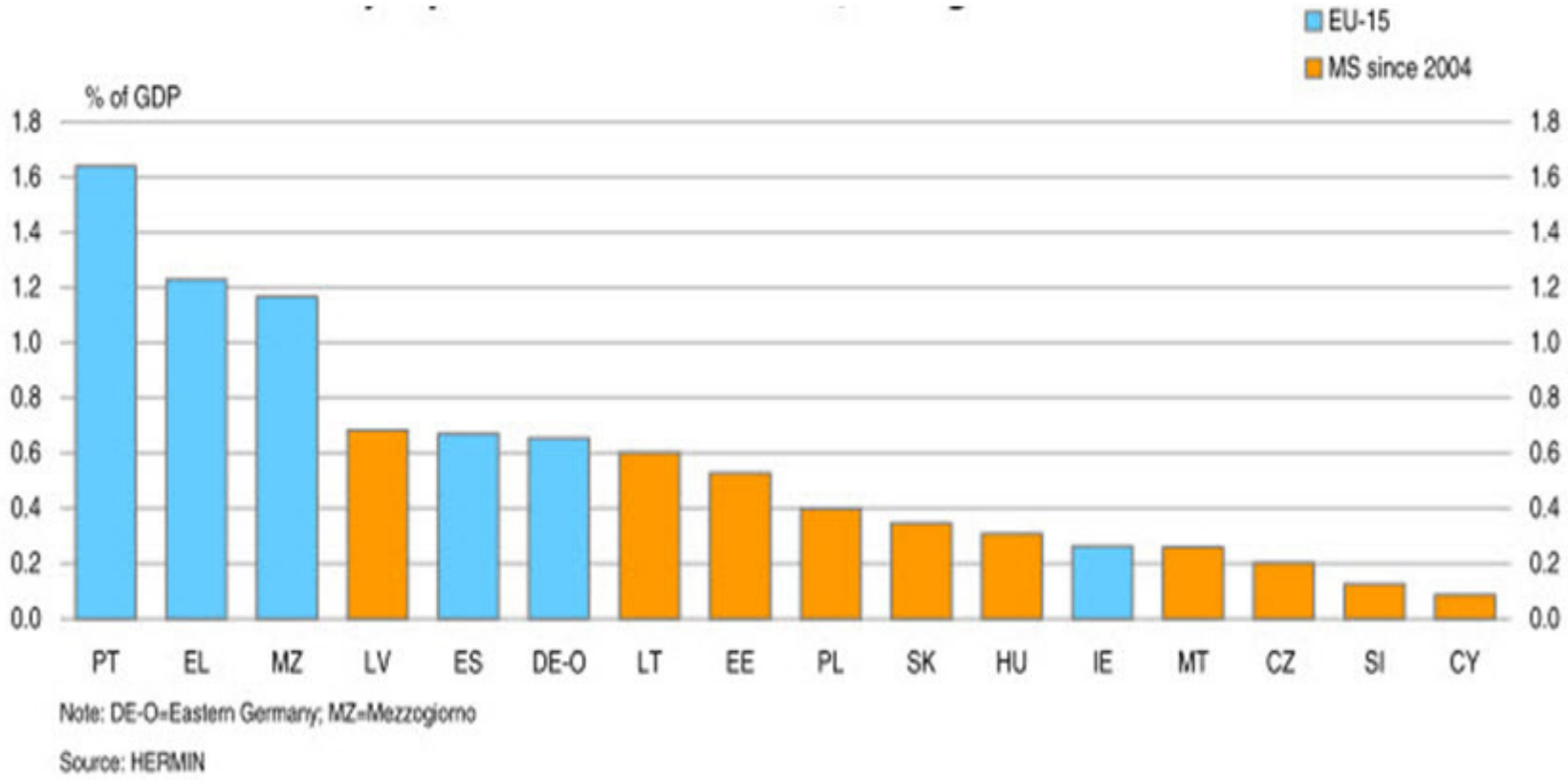
Areas of possible disagreement between different models

- Step 2: *Empirics of investment impacts*
- Step 4: *What kind of macro model?*
- Step 5: *Demand versus supply impacts*
- Step 6: *Sectoral issues in modelling*
- Steps 8-10: *Policy impacts*

Two model-based evaluations of cohesion policy

- **HERMIN**: The macro model system used within DG-REGIO
- **QUEST**: The DSGE macro model system used within DG-ECFIN
- **The task**: Ex-post evaluation of cohesion policy for 2000-2006 programme and ex-ante examination of 2007-2013 programme
- **Results**: Presented in *Fifth Cohesion Report*, 2010

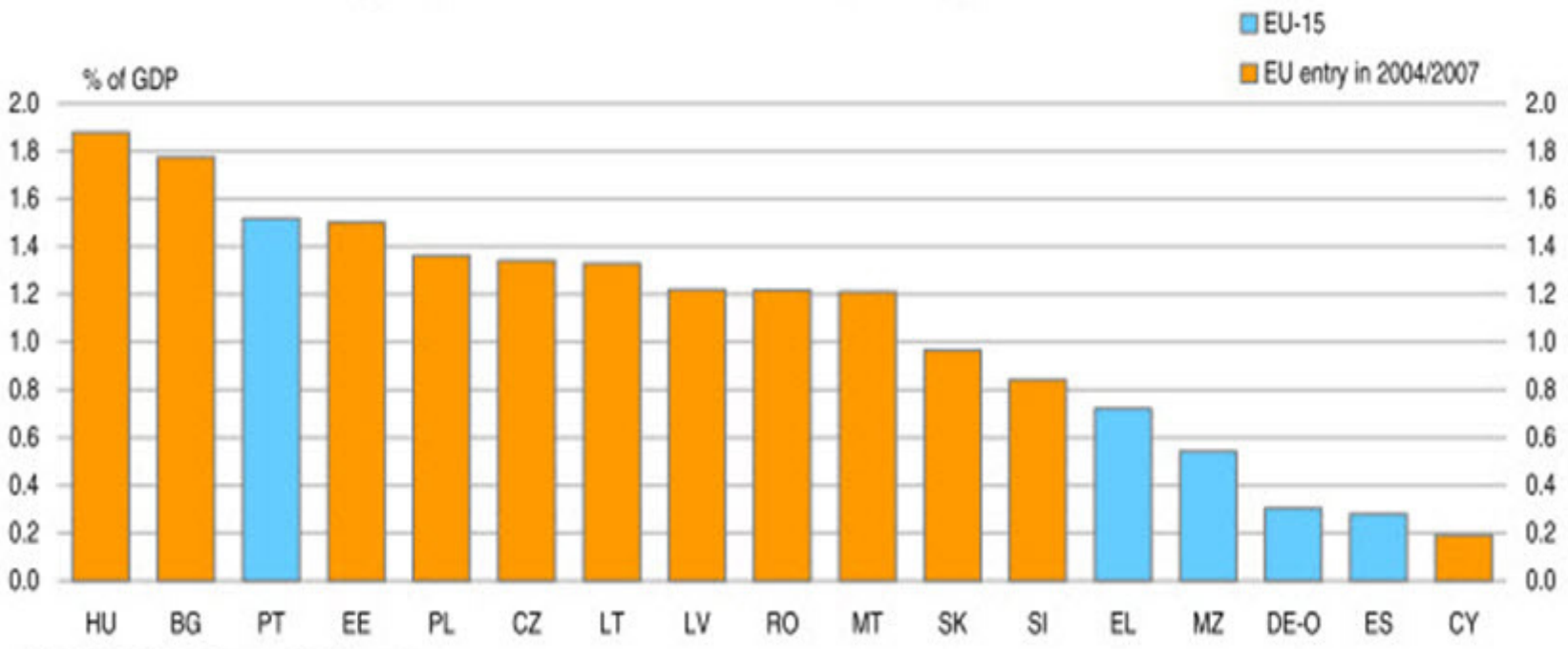
Figure 1: Cohesion policy expenditure relative to GDP, average 2000-2006



Note: DE-O=Eastern Germany; MZ=Mezzogiorno

Source: HERMIN

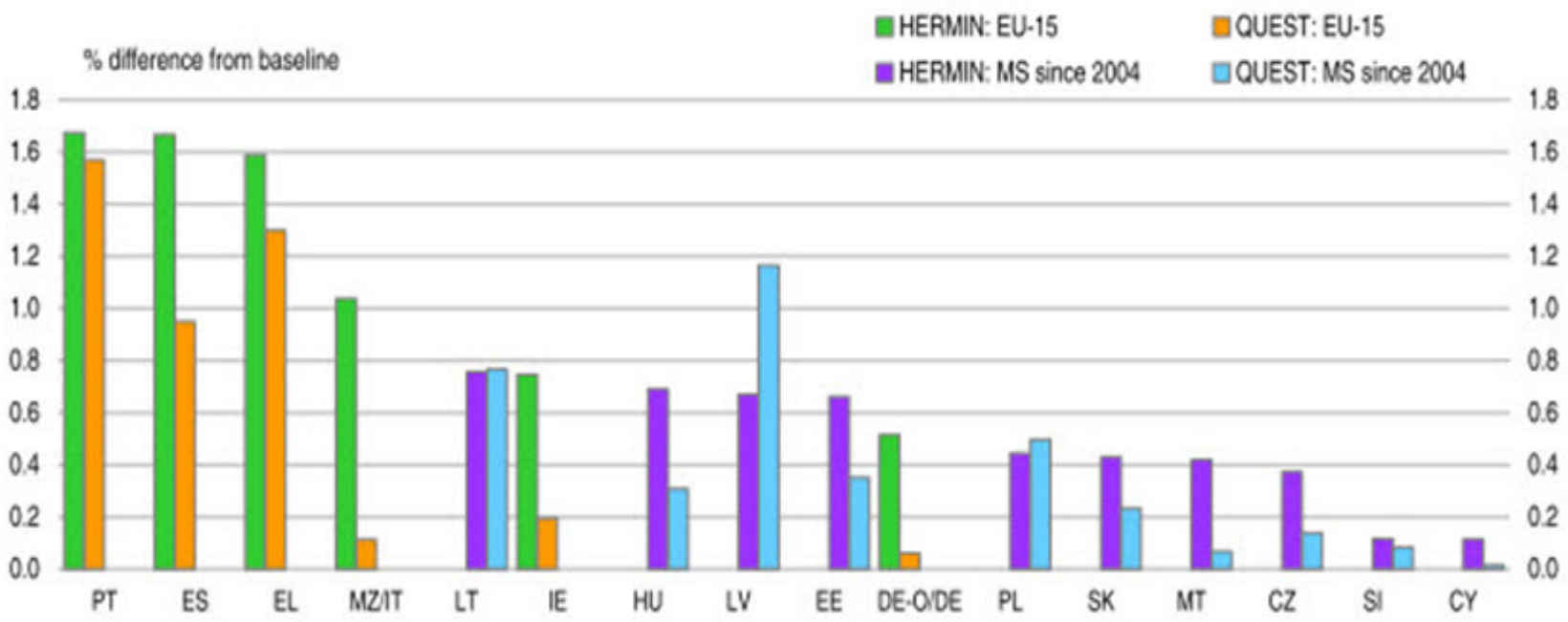
Figure 2: Cohesion policy expenditure relative to GDP, average 2007-2013



Note: DE-O=Eastern Germany; MZ=Mezzogiorno

Source: HERMIN

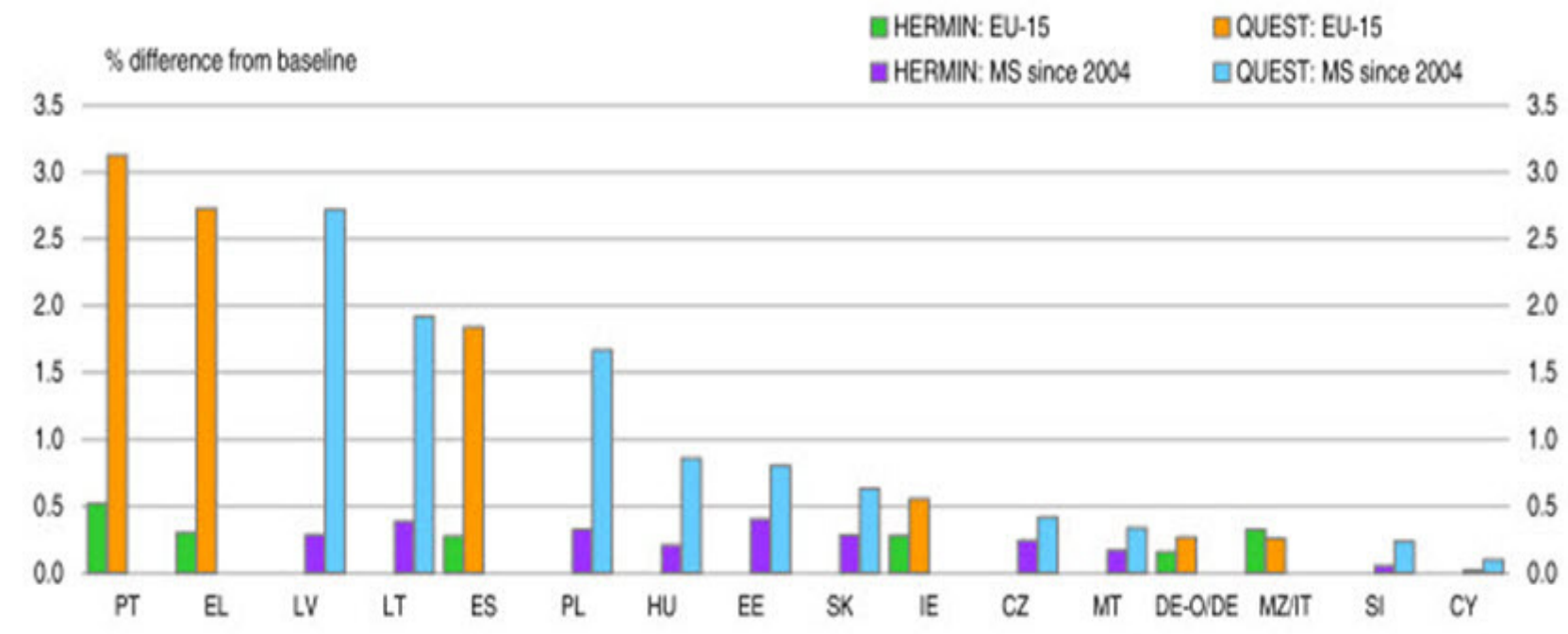
Figure 3: Estimated impact of cohesion policy expenditure on GDP, average 2000-2009



Note: DE-O=Eastern Germany; MZ=Mezzogiorno HERMIN models the impact for DE-O and MZ while QUEST shows the impact for the whole of DE and IT

Source: HERMIN, QUEST

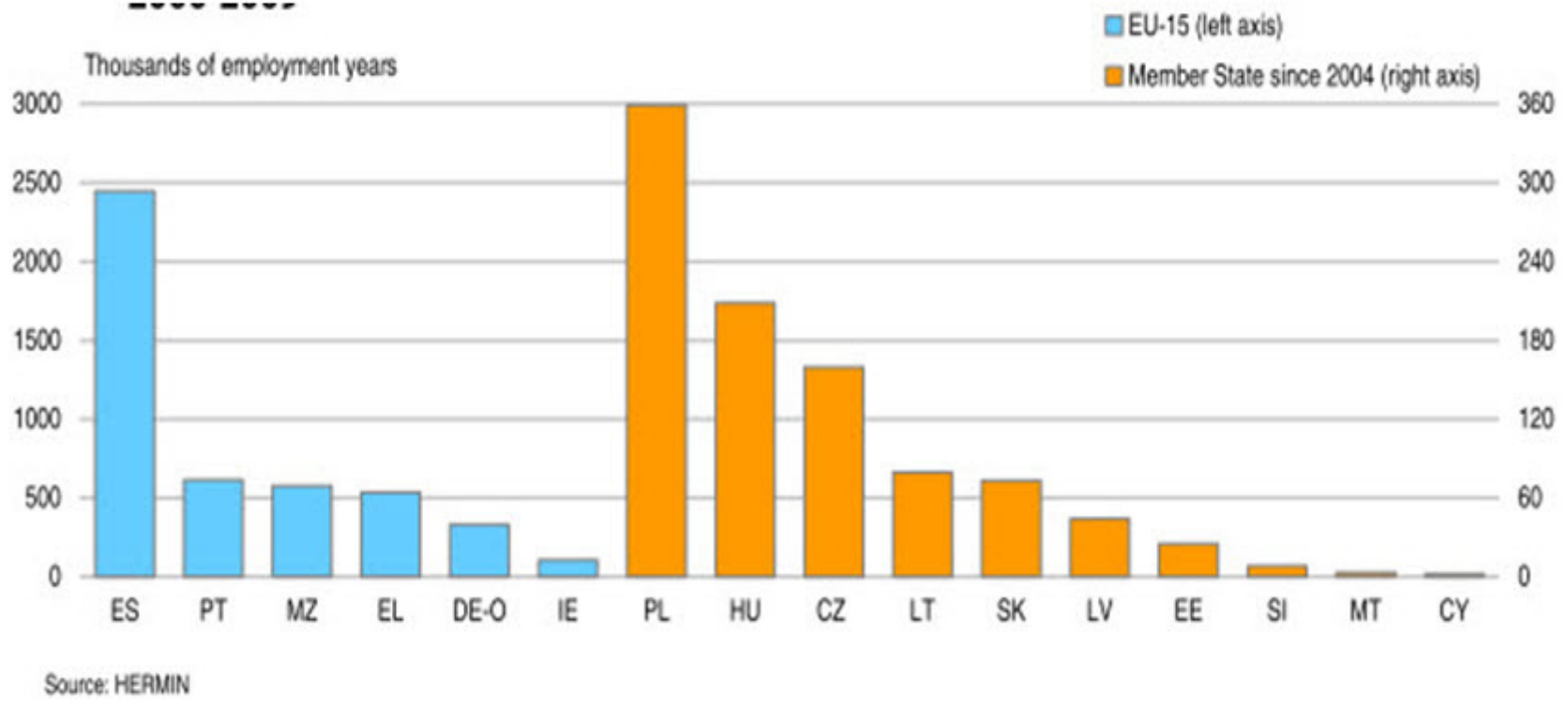
Figure 4: Estimated impact of cohesion policy expenditure on GDP in 2014



Note: DE-O=Eastern Germany; MZ=Mezzogiorno HERMIN models the impact for DE-O and MZ while QUEST shows the impact for the whole of DE and IT

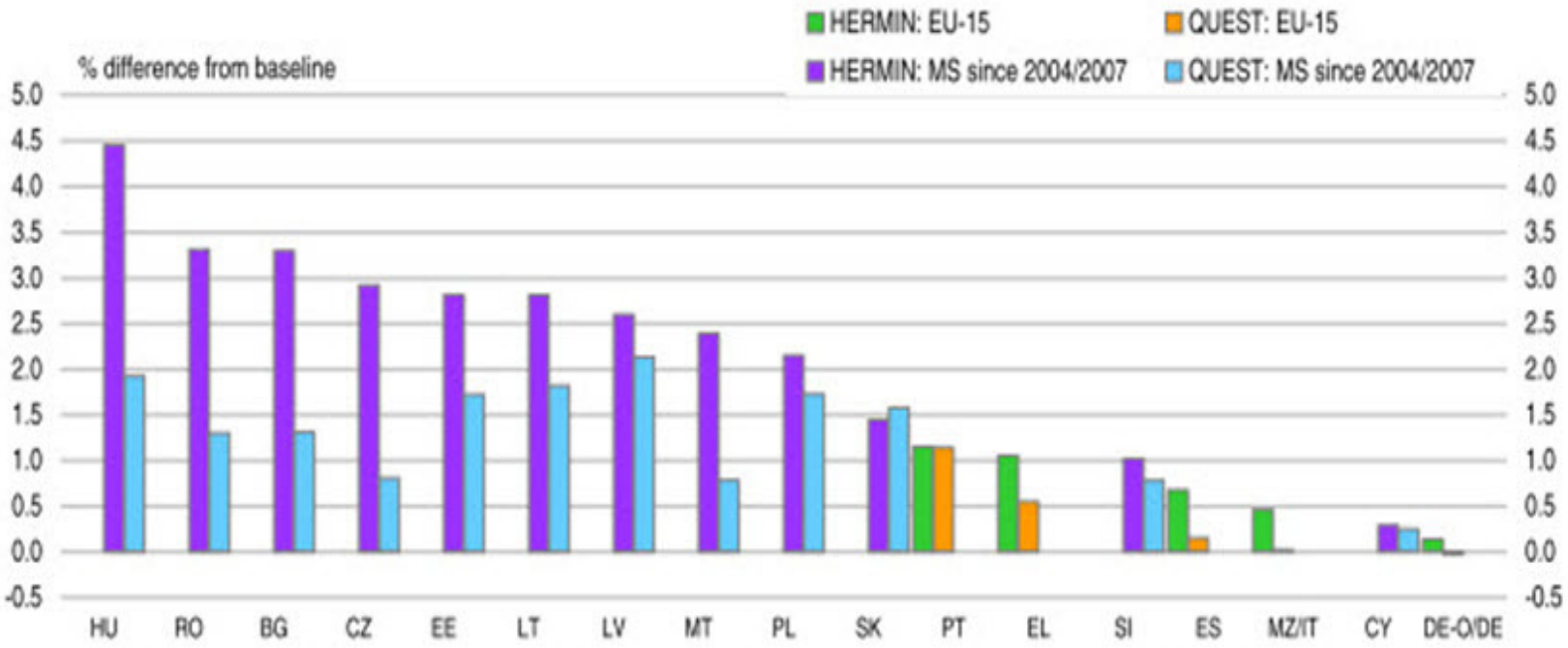
Source: HERMIN, QUEST

Figure 5: Estimated employment creation induced by cohesion policy expenditure, 2000-2009



Source: HERMIN

Figure 6: Estimated impact of cohesion policy expenditure on GDP, 2007-2016



Note: DE-O=Eastern Germany; MZ=Mezzogiorno HERMIN models the impact for DE-O and MZ while QUEST shows the impact for the whole of DE and IT

Source: HERMIN, QUEST

Interpreting differences in model-based impact analyses

- **Modelling cohesion policy supply-side spillover effects**
- Differences in how actual output and capacity output are determined, resulting in very different crowding out processes during implementation. HERMIN is more Keynesian in the short run.
- Differences in disaggregation of production side of economy
- **Other differences between QUEST and HERMIN**
- Differences in how productivity increases affect wage rates
- Differences in how “expectations” are handled (backward looking in HERMIN and model-consistent in QUEST)

Concluding remarks

- Impact analysis of cohesion policy interventions is complex and the final results published are often determined by a series of choices made by the modellers which need to be made more transparent
- Complex policies need complex analysis tools (models), which present “communication” challenges for results. The answers can be as complex as the questions! Models can examine far more than GDP impacts.
- Policy impact differences between models usually point to areas of the economy where researchers hold different views (“Freshwater” versus “Saltwater”) and should serve as a focal point for specific research initiatives (e.g., macro characteristics of less developed economies; the spillover impacts of infrastructure, human capital, R&D, etc.)

Concluding remarks (continued)

- Models illustrate that the gains from cohesion policy are positive, but they are by no means the major determinants of growth and development.
- HERMIN suggests that the Keynesian implementation impacts can be large, but the long-term impacts are more modest. QUEST suggests the opposite.
- Both HERMIN and QUEST stress the role of the underlying structure of the “recipient” economy as the most important long-term determinant of growth (e.g., investment and trading relationships with the rest of the world; competition policy; industrial strategy; and other non-cohesion fiscal and monetary policies).