Quantitative evidence of post-crisis structural macroeconomic changes

Roberto Camagni, Roberta Capello,

*Andrea Caragliu, Barbara Chizzolini*

Politecnico di Milano

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Aim of the presentation

Initial quantitative evidence of post-crisis structural macroeconomic changes is here provided with the aim to discuss with the advisory board members about:

- the possible consequences of such changes for Europe and its territory;

- the inclusion of such chamges into a reference scenario;

- the linkage of such changes with the policy debate (see document ECP).

Output level

Pre-crisis growth path
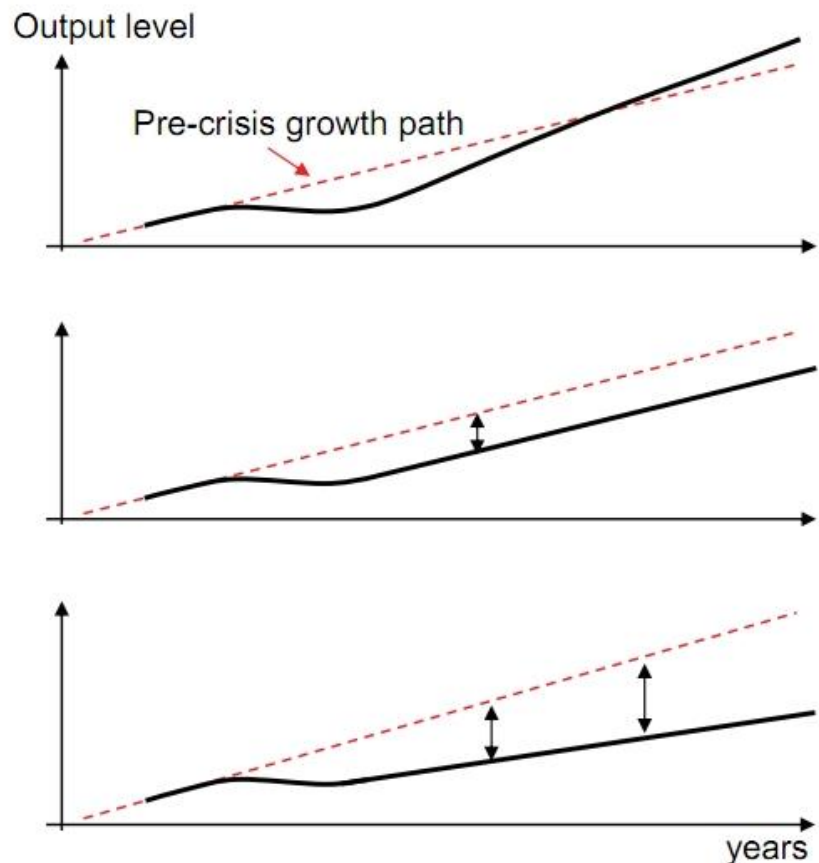
« Strong recovery »
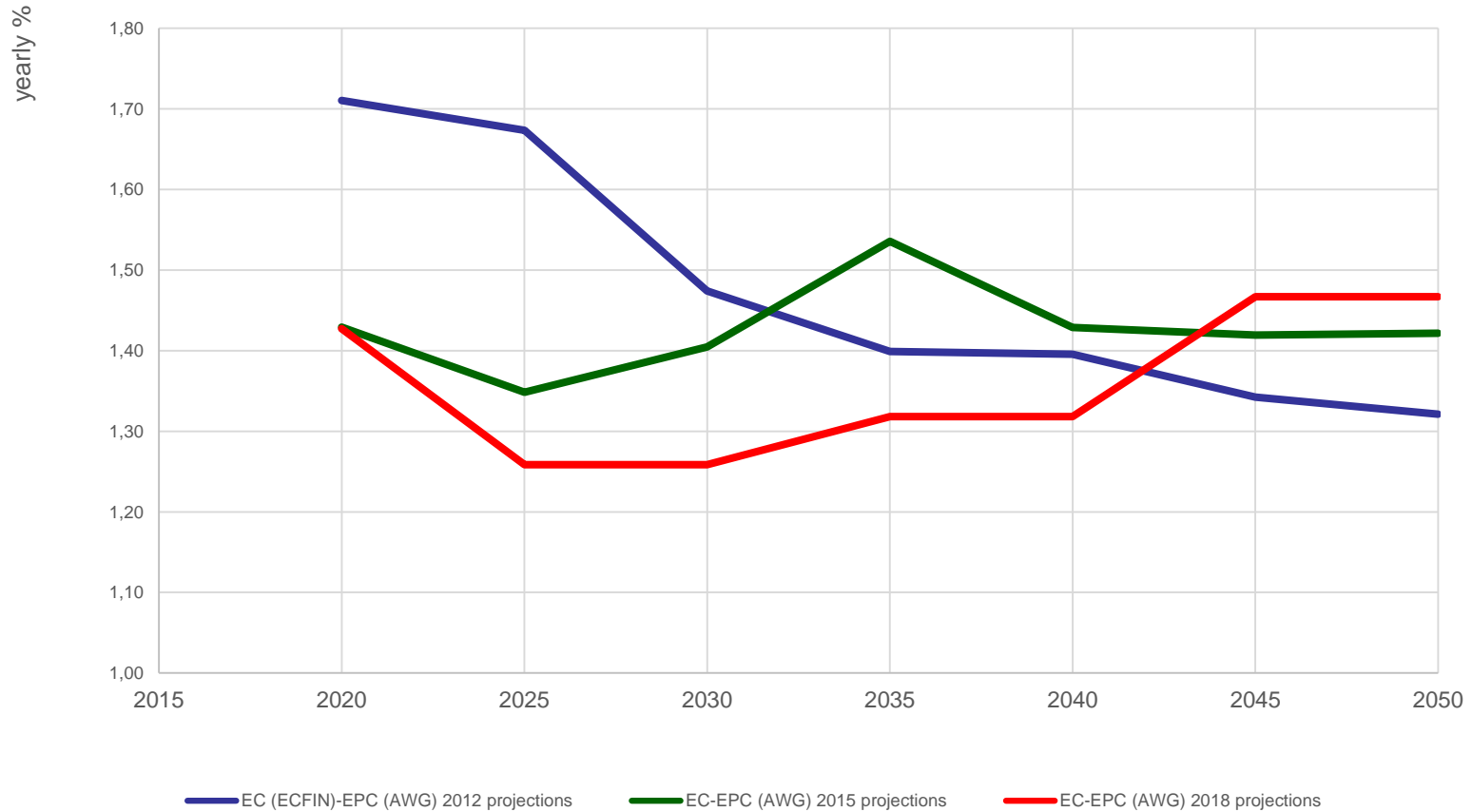a full return to earlier growth path and a capacity to go beyond

« Sluggish recovery »
a permanent loss in wealth and stagnation on a lower growth path

« Lost decade »
a permanent loss in wealth and an eroded potential for future growth

years

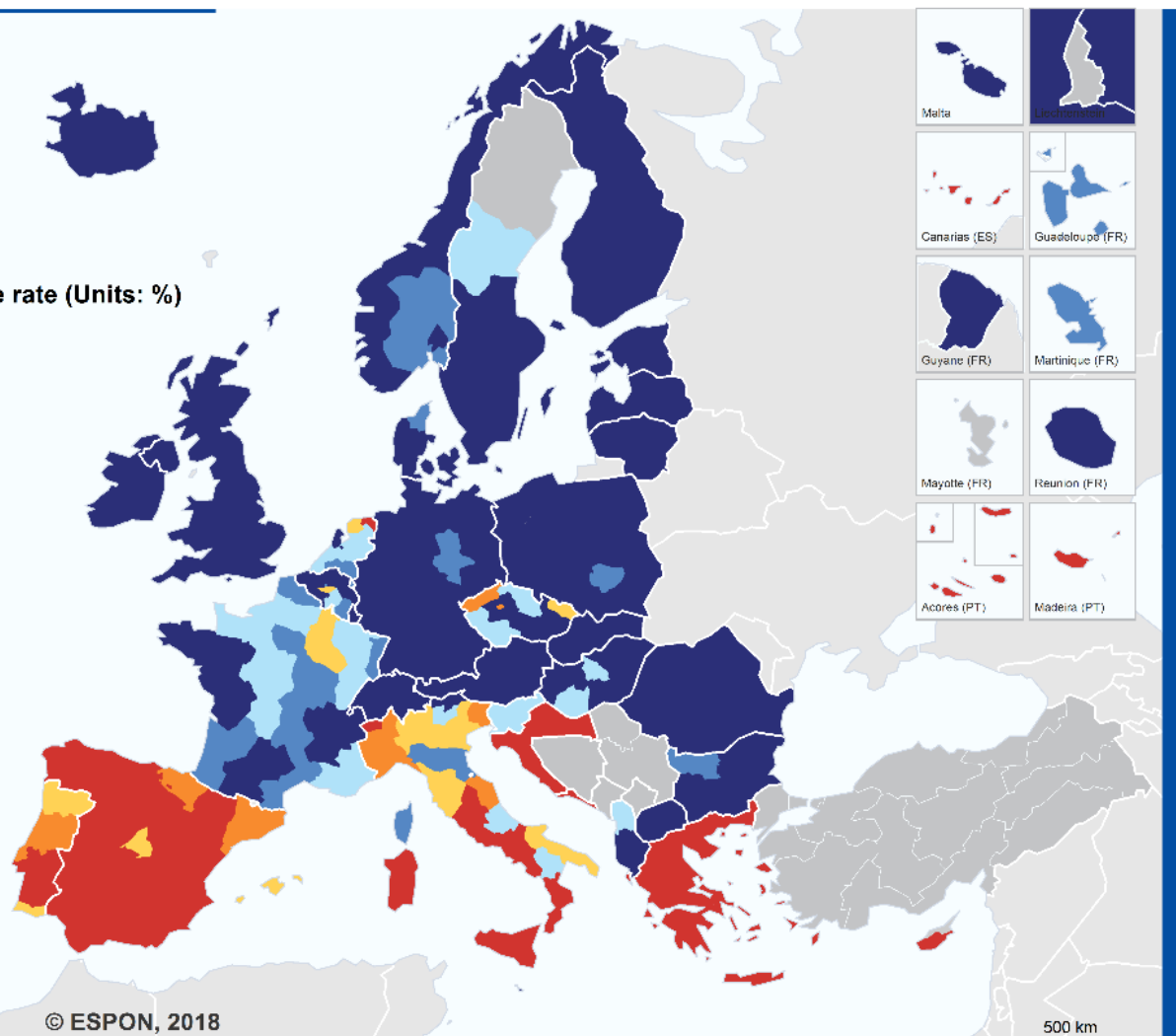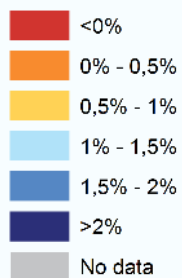*Source: JM Barroso, Informal European Council (Feb.2010)*

EU28 GDP average anual growth rate 2015-2050 according to ECFIN in the **2012**, **2015** and **2018** updates of the Ageing Report

GDP Yearly Growth Rate. 2010-2015

Growth annual average rate (Units: %)
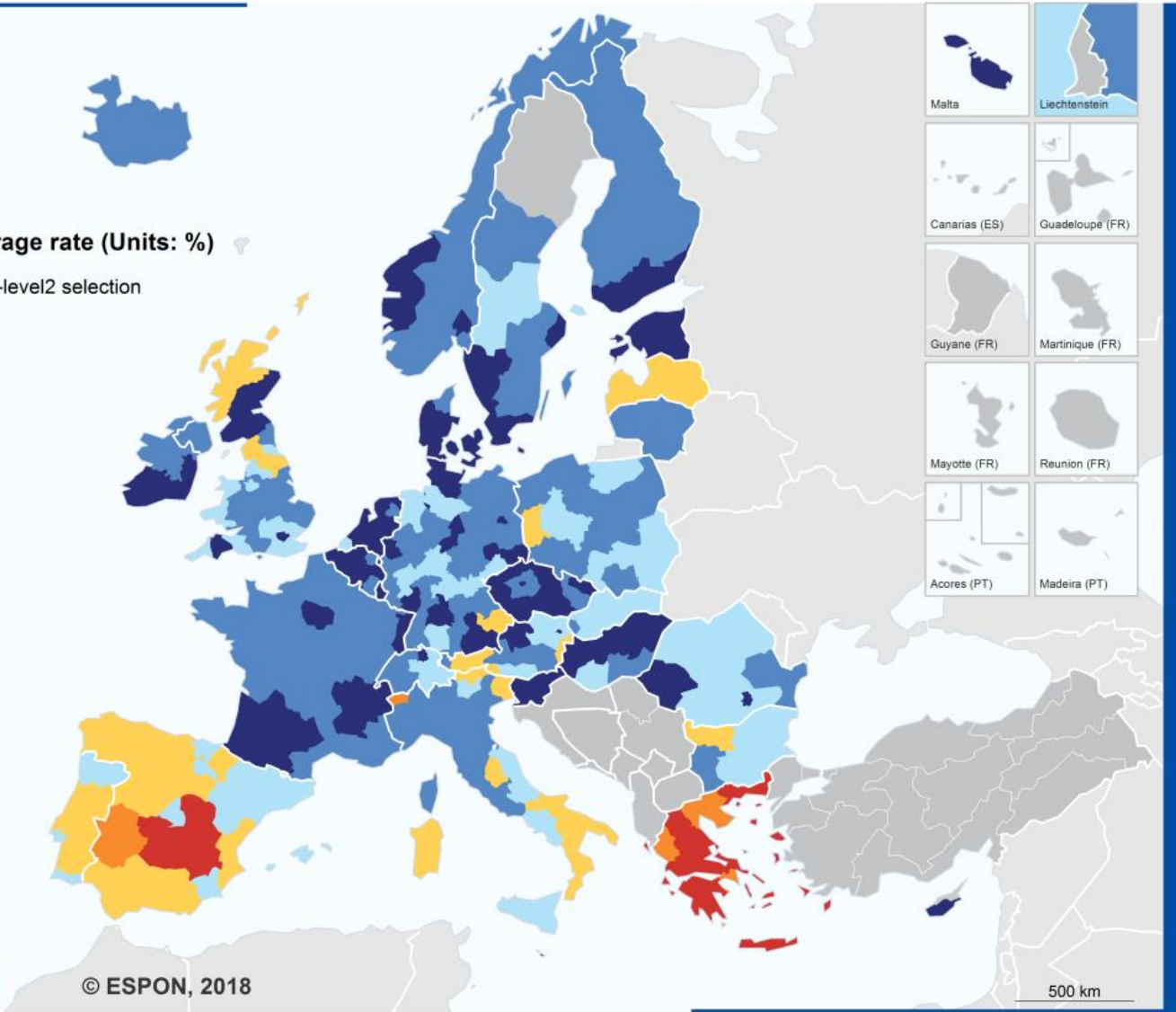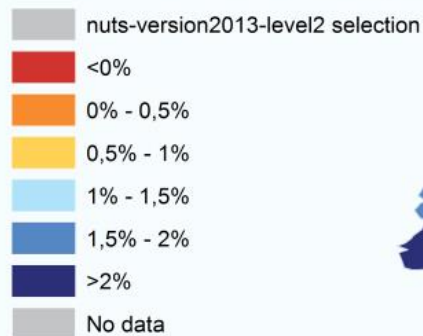
- <0%
- 0% - 0,5%
- 0,5% - 1%
- 1% - 1,5%
- 1,5% - 2%
- >2%
- No data

Malta

Canarias (ES)

Guadeloupe (FR)

Guyane (FR)

Martinique (FR)

Mayotte (FR)

Reunion (FR)

Acores (PT)

Madeira (PT)

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500 km

GDP Yearly Growth Rate. 2010-2030. ET2050 MASST3 Model (Polimi, 2013)

Growth annual average rate (Units: %)

- nuts-version2013-level2 selection
- <0%
- 0% - 0,5%
- 0,5% - 1%
- 1% - 1,5%
- 1,5% - 2%
- >2%
- No data

Malta
Liechtenstein
Canarias (ES)
Guadeloupe (FR)
Guyane (FR)
Martinique (FR)
Mayotte (FR)
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Regional level: NUTS2 (2013)
Source: Politecnico di Milano, 2013
Origin of data: MASST3 Model
cc UMS RIATE for administrative boundaries

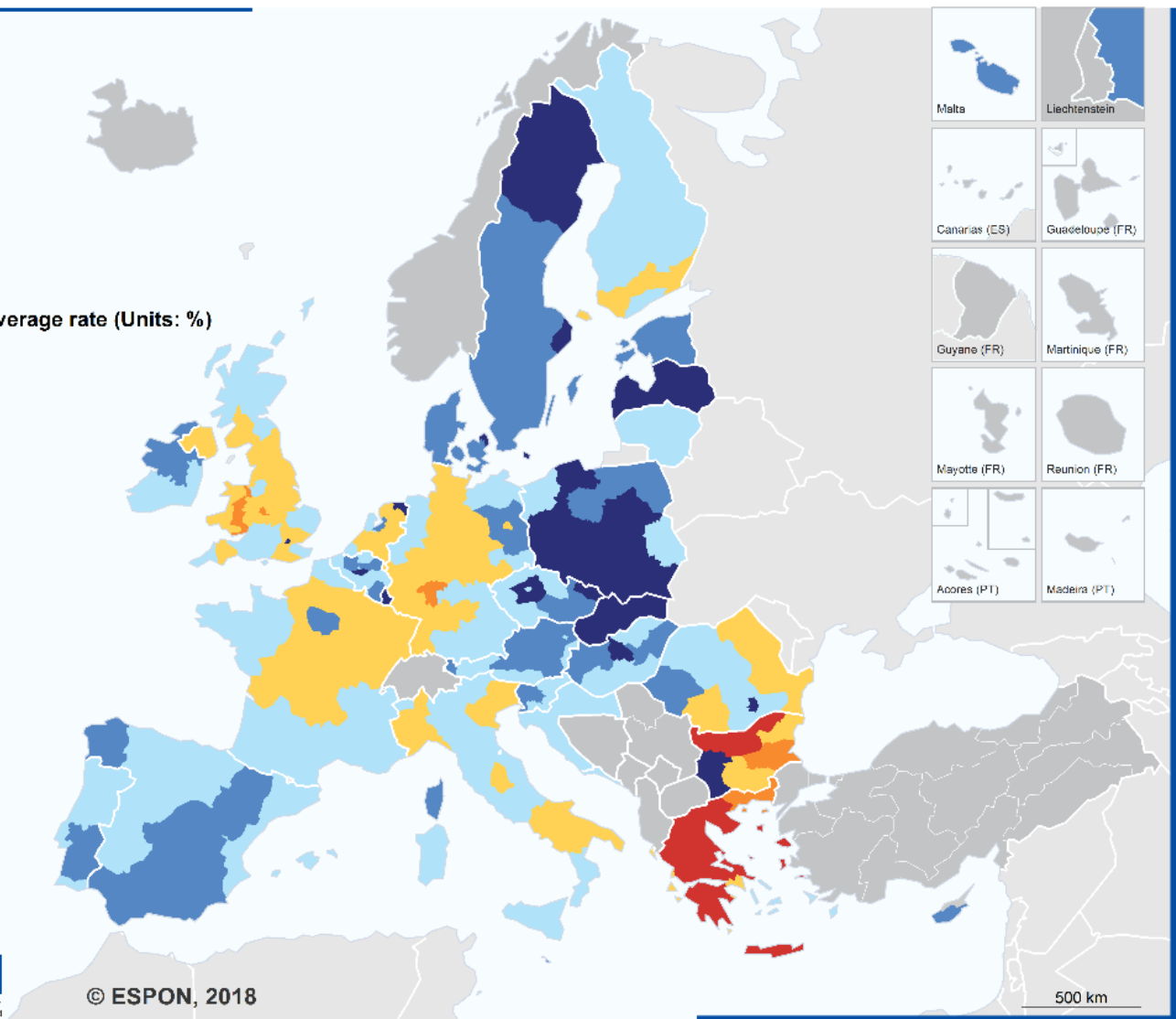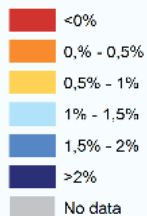# GDP Yearly Growht Rate. Trend Scenario 2010-2030.
LUISA Platform. Ageing Report 2015 (JRC, 2016)

GDP Growth annual average rate (Units: %)

- <0%
- 0,% - 0,5%
- 0,5% - 1%
- 1% - 1,5%
- 1,5% - 2%
- >2%
- No data

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Groups of countries obtained through a cluster analysis on GDP performance in the post-crisis period (2012-2016)

Low growth countries

Austria	1
Belgium	1
Cyprus	1
Finland	1
France	1
Italy	1
Luxembourg	1
Netherlands	1

Medium growth countries

Croatia	2
Denmark	2
Germany	2
Greece	2
Malta	2
Romania	2
Slovenia	2
Spain	2
Sweden	2

High growth countries

| Bulgaria	3
Czech Republic	3
Estonia	3
Hungary	3
Ireland	3
Latvia	3
Lithuania	3
Poland	3
Portugal	3
Slovakia	3
United Kingdom	3

GDP levels 2000-2016
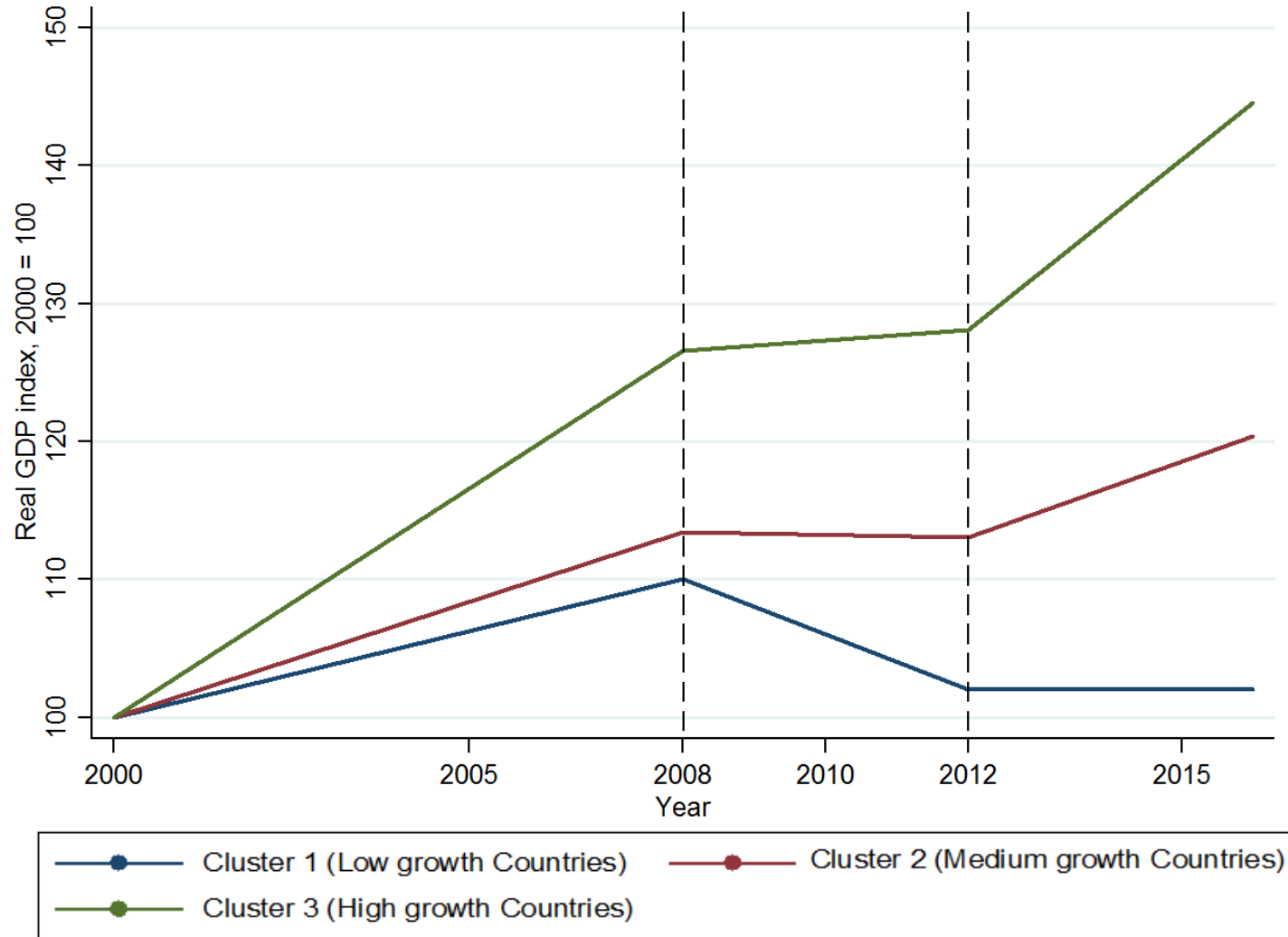
Comments

- **Clusters look as geography-neutral** (East-West, North-South divide not visible as before the crisis). Low growing countries are not only the Southern ones; not all Eastern countries are fast growing; Northern countries are present in all groups;

- The **relative performance of the clusters in the post-crisis period looks similar to the other two periods**, namely:

  – fast growing countries were also faster before the crisis and with limited effects of the crisis; the growth rate of the post-crisis period is higher than the pre-crisis;

  – low growing countries were also growing less in the previous two periods and less after crisis than in the pre-crisis;

  – the medium growing countries always lied in between the other two, and show a simialr performance before and after the crisis.

Possible explanation on the differentiated growth paths: pre-crisis and post-crisis investments trends
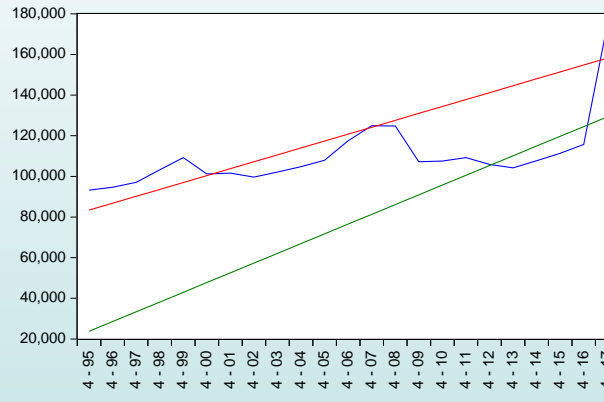

Low-growing countries
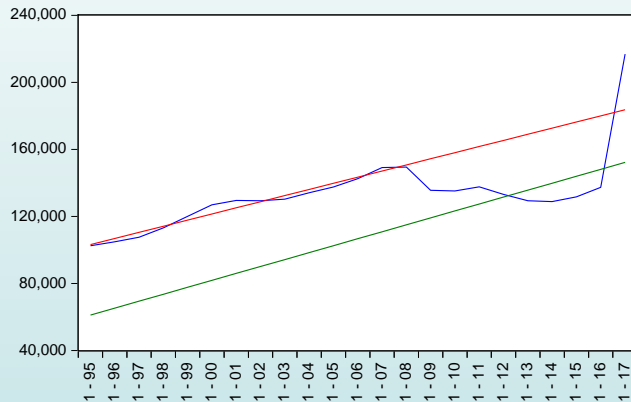
Medium-growing countries

Fast-growing countries

Legend:
Red - pre-crisis (1995-2008) trend
Green – post-crisis (2012-2017) trend
Blu – annual investments

Possible explanation for the differentiated growth paths: investments trends

Comparing post-crisis with pre-crisis investment trends:

- **low-growing countries** show a **similar investment trend** (but lower than the other two groups of countries);

- **medium-growing countries** have **a steeper investment trend**;

- fast-growing countries have **a much steeper investment trend**.

Long run explanation of investment growth: 1995-2012 vs. 1995-2015

			pre-crisis and crisis periods					pre-crisis, crisis and post-crisis periods			
Dependent variable: growth in investment											
	Coefficient	Std. Error	t-Statistic	Prob.			Coefficient	Std. Error	t-Statistic	Prob.
Constant	-1.29	0.55	-2.35	0.02		Constant	1.404	0.421	3.334	0.001
FDI in previous periods	0.01	0.00	1.42	0.16		FDI in previous periods	0.219	0.091	2.409	0.016
GDP growth in previous period	0.68	0.18	3.75	0.00		GDP growth in previous periods	0.774	0.146	5.290	0.000
Real interest rate	-0.49	0.00	-4.08	0.00		Real interest rate	-0.018	0.002	-9.339	0.000
unit labor cost	-0.15	0.02	-6.36	0.00		unit labor cost	-0.240	0.001	-1.985	0.048
Dummy crisis	-0.07	0.01	-7.27	0.00		Dummy crisis	-0.045	0.009	-5.015	0.000
gamma	-0.41	0.05	-8.64	0.00		gamma	-0.313	0.035	-8.830	0.000
Investment trends	-1.15	0.10	-11.33	0.00		Investment trends	-0.523	0.127	-4.129	0.000

Comments

In the post-crisis period:

- the **reactivity of investment growth to GDP growth is higher**: → higher cumulative effects (I → GDP → I);

- **investments become more volatile**, i.e. they are less linked to their long-term trend.

Possible explanation for the differentiated growth paths: export performance (1995-2016)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Euro/& exchange rate	1.402918	0.224092	6.260458	0.0000
Deflator in hi-med countries (wrt. low-growing)	0.108632	0.058504	1.856837	0.0639
Deflator in low-growing countries	-0.721240	0.203870	-3.537738	0.0004
Japan and US GDP growth rate	0.003889	0.001151	3.378030	0.0008
BRIC GDP growth rate	0.006684	0.001555	4.299001	0.0000
2009	-0.122844	0.018533	-6.628260	0.0000
Eastern countries	0.011816	0.005140	2.298914	0.0219
Constant	-0.004438	0.010134	-0.437980	0.6616

|				
R-squared	0.419266	Mean dependent var		0.055669
Adjusted R-squared	0.411821	S.D. dependent var		0.073059
S.E. of regression	0.056031	Akaike info criterion		-2.911490
Sum squared resid	1.714150	Schwarz criterion		-2.849148
Log likelihood	814.4826	Hannan-Quinn criter.		-2.887135
F-statistic	56.31280	Durbin-Watson stat		1.413576
Prob(F-statistic)	0.000000			

Comments

In the post-crisis period:

- **rise in price deflator hits only low growing countries**;

- **medium and high growing countries instead suffer less** (due to likely high price competitiveness and to likely specialization in sectors with anelastic demand).

→ These last countries perform better due to **a wider structural transformation in their economies**.
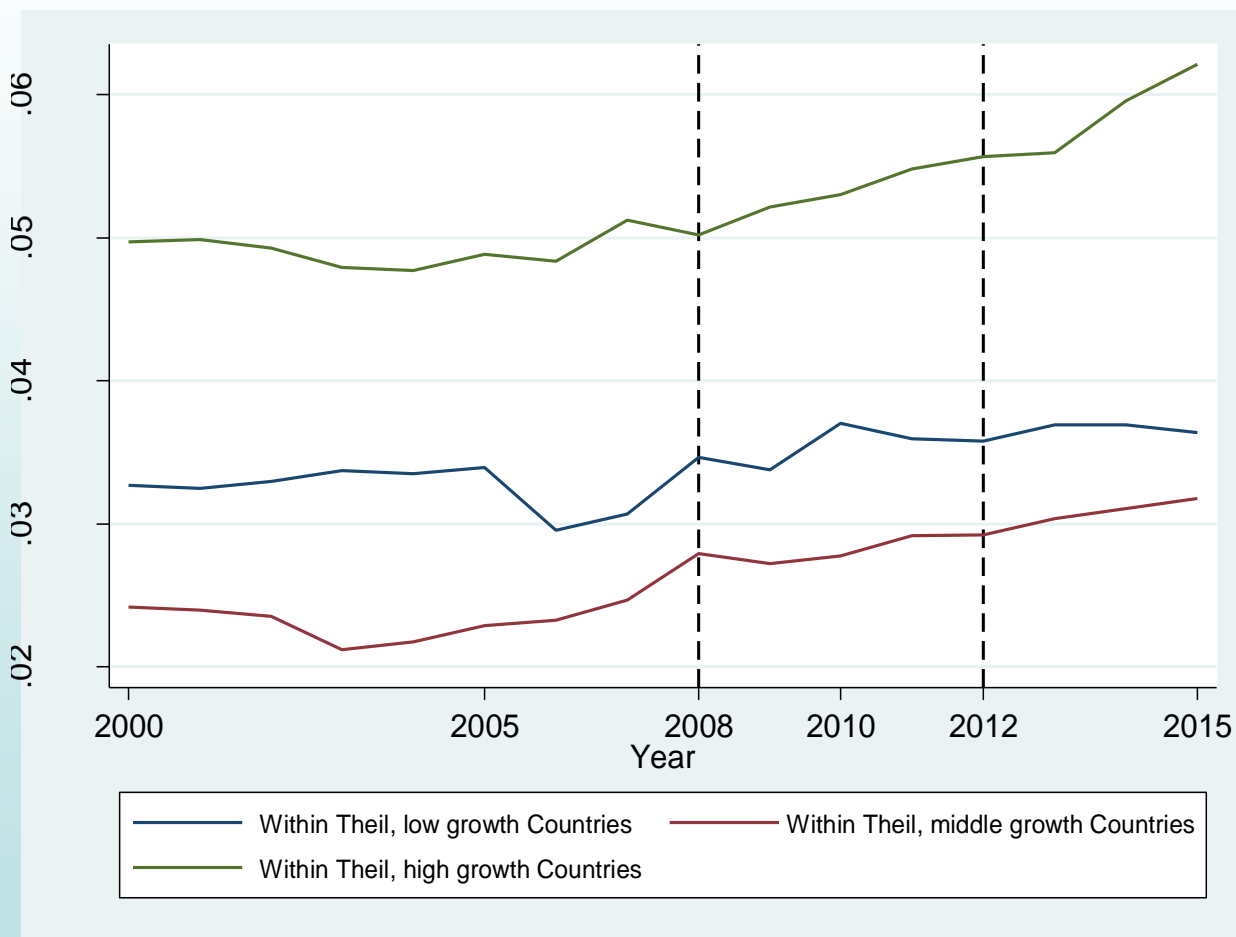
Regional disparities (Theil index)
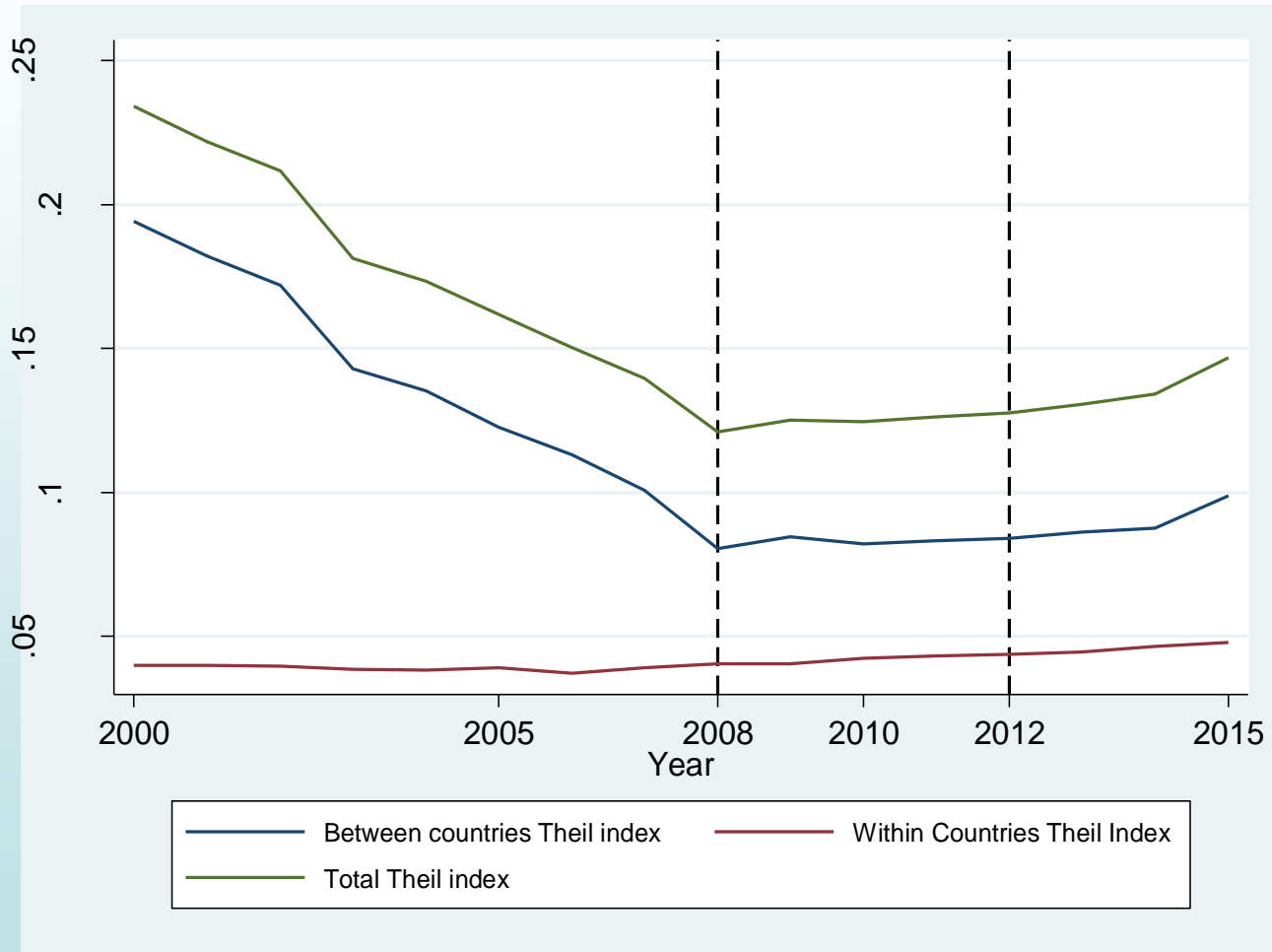
Trends in regional disparities

The Theil index confirms previous forecasts of the MASST model (ET2050), namely:

- the end of inter-national reduction of disparities;

- the continuing increase of intra-national disparities;

- the increase since 2008 of overall regional disparities.

Within countries regional disparities by groups of countries

Within countries (intra-national) regional disparities by groups of countries

The Theil index shows:

- **fastest growing countries show a faster increase in internal disparities** since the beginning of the crisis;

- **all clusters show an increase in internal disparities**;

- this increase started **well before the crisis** (2003-2004) in the case of fast growing and medium growing countries.

Disparities between agglomerated and rural regions

Disparities between agglomerated and rural regions

The Theil index between agglomerated and rural regions shows:

- a **reduction during the pre-crisis period**, in which rural areas where growing;

- a **stability during the crisis**, due to the downturn which characterised agglomerated areas;

- an **increase after the crisis**.

Tentative conclusions (after crisis)

- **A geograhically-neutral, multi-speed Europe**;

- **crucial role of investments and structural change**;

- **increase in regional disparities** leading possibly to increased political fragmentation;

- the opening of a **new dichotomy between urban and rural areas** (with similar effects on political fragmentation);

- **crucial role of both macroeconomic (national) and territorial elements** → multi-scalar, selective policies needed.