

Unbalanced growth

Drivers, conditions, interdependencies
and implications for theory and policy

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Understanding growth performance

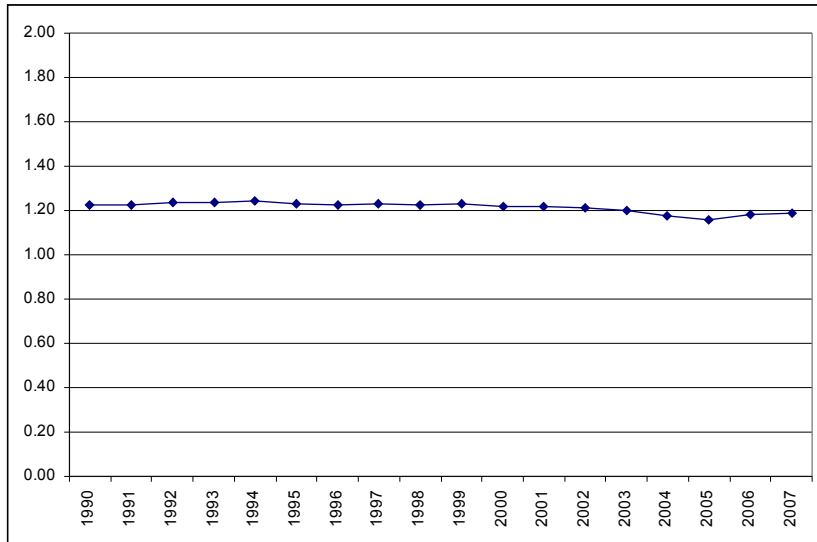
- A variety of frameworks is analysing the processes of economic performance and growth
- No unifying economic theory
- Debates on the importance and direction of the impact of many factors

Evidence on differential growth performance

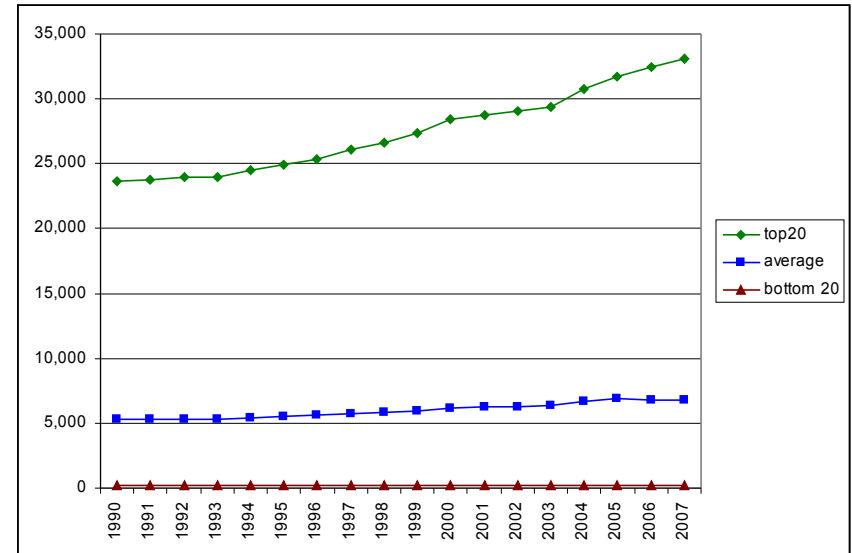
- Mixed evidence in the growth literature
- The literature is inconclusive, but an increasing number of papers suggest that divergence trends may dominate
- A variety of performances in different scales
- Inequalities are usually higher at lower levels of aggregation (within countries) and lower at higher levels of aggregation (between countries)
- Leading regions usually perform better
- Weaker regions often fall behind

International level growth evidence

Weighted coefficient of variation of GDP/cap (constant 2000 US\$), 1990-2007



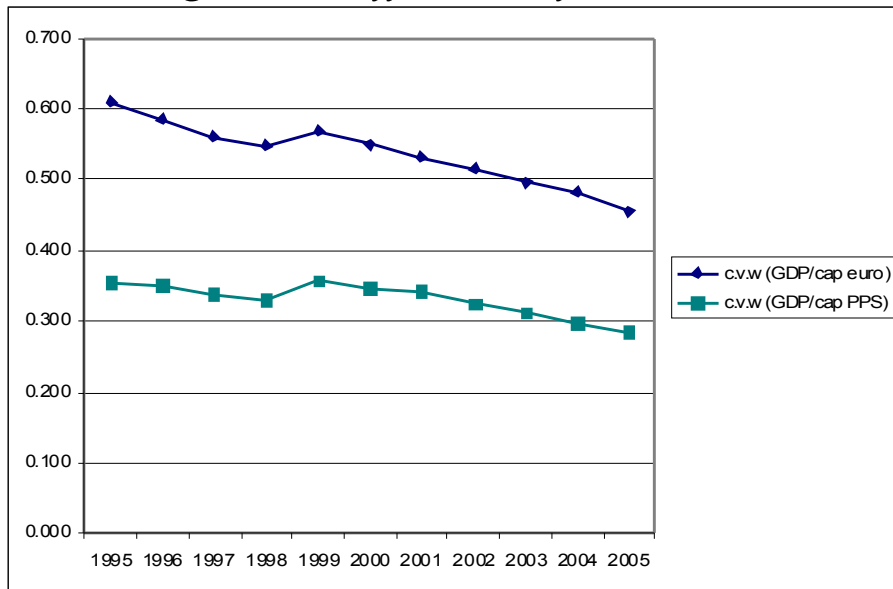
Top-20 and bottom-20 of GDP/cap (constant 2000 US\$), 1990-2007



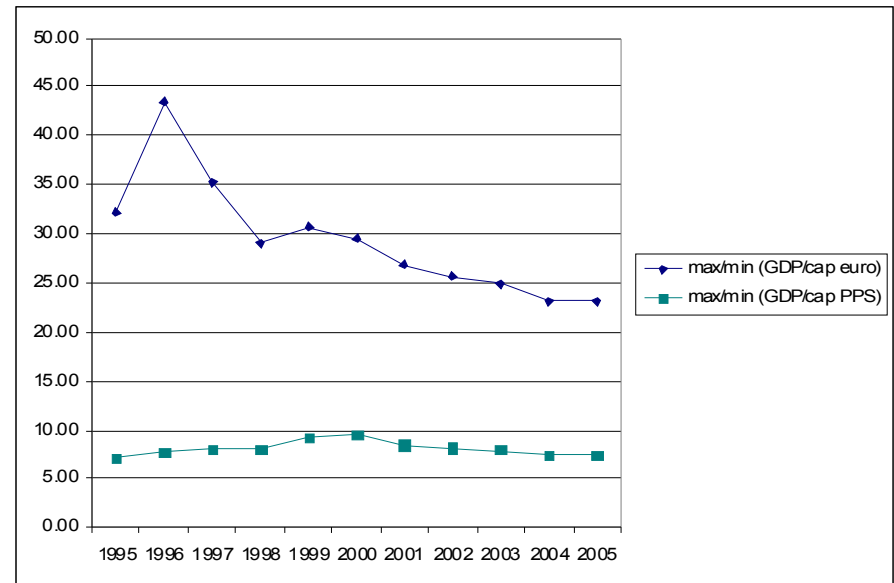
EU National level growth evidence

Measures of inequality among the EU-27 countries, 1995 - 05

Weighted coefficient of variation



Max/min ratio

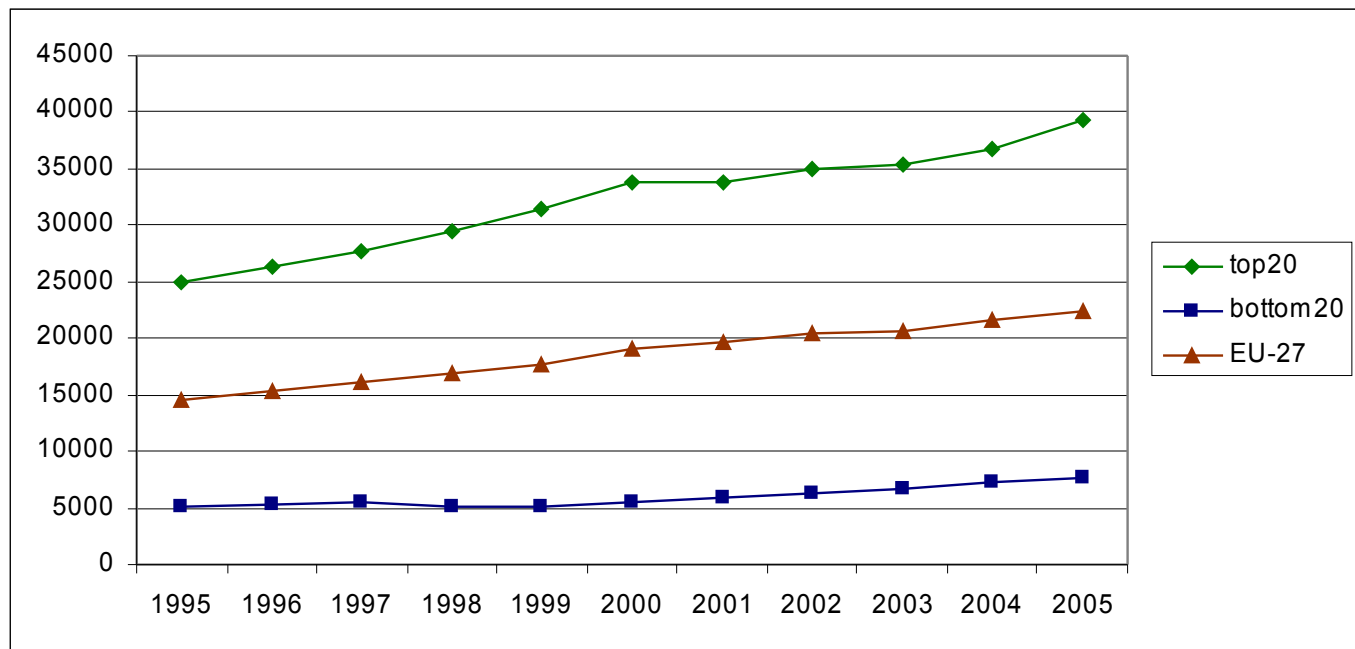


EU National level growth evidence II

	Country	in euro	in PPS
<i>GDP per capita in euro and PPS, EU-27 countries, 2005</i>	Luxembourg	64,557	59,202
	Ireland	38,928	32,197
	Denmark	38,338	28,376
	Sweden	32,633	27,721
	Netherlands	31,192	29,374
	UK	29,968	26,715
	Finland	29,964	25,774
	Austria	29,797	28,852
	Belgium	28,830	27,135
	France	27,348	25,077
	Germany	27,219	25,797
	Italy	24,281	23,474
	Spain	20,933	23,069
	Cyprus	18,025	20,753
	Greece	17,921	21,589
	Portugal	14,125	16,891
	Slovenia	14,120	19,462
	Malta	11,790	17,330
	Czech	9,803	17,156
	Hungary	8,815	14,393
	Estonia	8,319	14,093
	Slovakia	7,143	13,563
	Poland	6,405	11,482
	Lithuania	6,055	11,914
	Latvia	5,657	11,180
	Romania	3,681	7,933
	Bulgaria	2,835	7,913

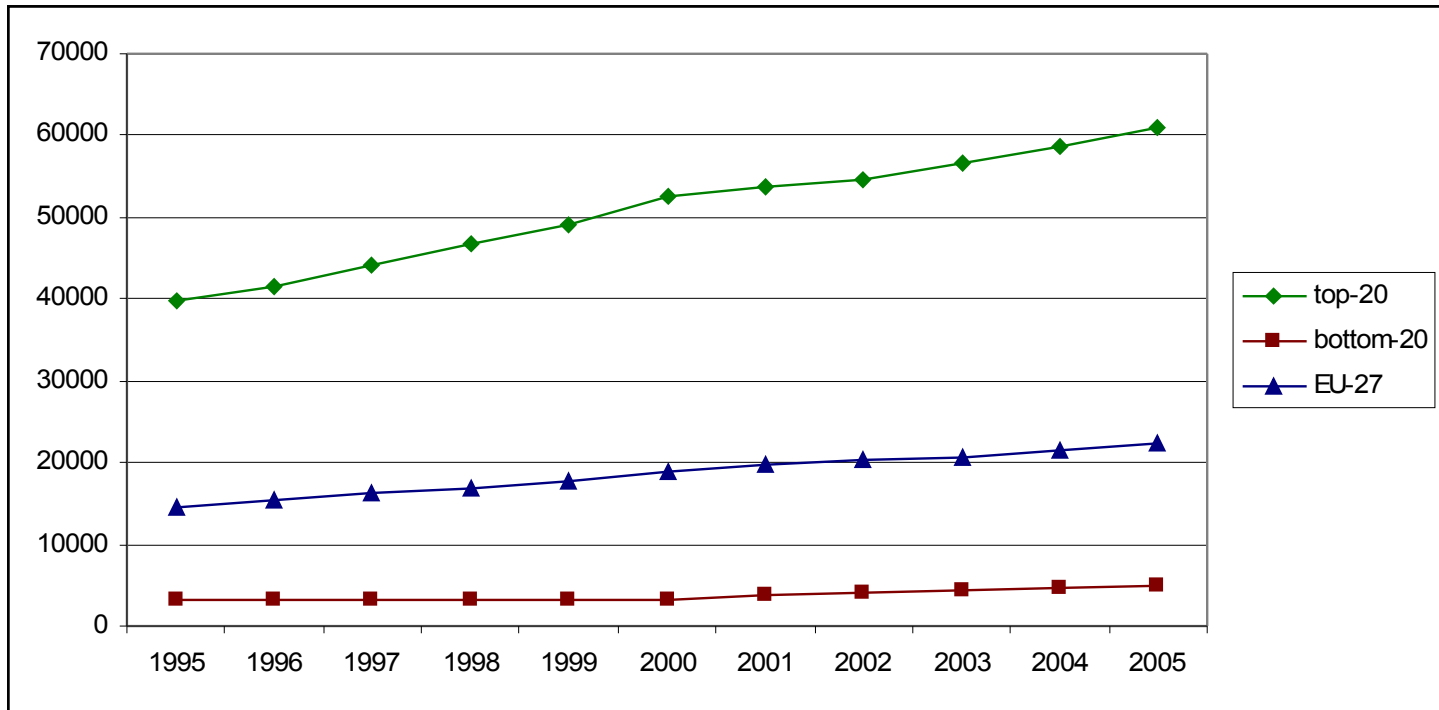
EU Regional level growth evidence

The evolution of GDP/cap (in PPS) for the EU-27 top 20 and bottom 20 NUTS II regions, 1995-2005



EU Regional level growth evidence II

The evolution of GDP/cap (in PPS) for the top 20 and bottom 20 NUTS III regions, 1995-2005



EU member-states: regional growth evidence I

	countries	CVw NUTSII		CVw NUTSIII	
		1995 ^a	2005	1995 ^b	2005
The weighted coefficient of variation of GDP per capita in PPS, NUTS II and NUTS III level, 1995 and 2005	Italy	0,268	0,267	0,303	0,891
	Hungary	0,327	0,481	0,570	0,789
	Latvia			0,454	0,714
	UK	0,307	0,406	0,468	0,577
	Bulgaria	0,229	0,330	0,395	0,569
	Estonia			0,390	0,546
	Slovakia	0,387	0,463	0,419	0,513
	France	0,183	0,241	0,507	0,512
	Romania	0,226	0,381	0,320	0,508
	Greece	0,152	0,387	0,234	0,507
	Poland	0,181	0,300	0,461	0,495
	Portugal	0,257	0,254	0,443	0,453
	Germany	0,245	0,238	0,454	0,449
	Czech	0,258	0,392	0,272	0,422
	Lithuania			0,160	0,374
	Austria	0,269	0,221	0,413	0,359
	Belgium	0,087	0,180	0,327	0,338
	Slovenia			0,261	0,327
	Ireland	0,214	0,205	0,265	0,322
	Finland	0,464	0,814	0,231	0,298
Netherlands	0,118	0,156	0,203	0,281	
Denmark		0,204	0,182	0,267	
Sweden	0,109	0,218	0,170	0,251	
Spain	0,218	0,205	0,213	0,198	
Malta			0,121	0,159	

EU member-states: regional growth evidence II

	countries	1995	2005
GDP share of metropolitan NUTS III regions in 1995 and 2005	Malta		94,09
	Estonia	53,95	59,32
	Latvia	49,32	57,36
	Greece	38,07	48,84
	Ireland	37,55	37,76
	Austria	27,89	27,43
	Slovenia	33,45	35,93
	Lithuania	28,64	35,94
	Hungary	33,94	35,91
	Finland	31,33	35,61
	Portugal	30,69	31,79
	Bulgaria	24,81	30,98
	Sweden	25,28	28,99
	Slovakia	24,65	27,31
	Czech	20,02	24,04
	Denmark	16,25	21,19
	Romania		19,66
	Spain	16,81	17,62
	Poland	9,42	13,27
	Netherlands	10,78	11,82
Belgium	12,38	11,73	
Italy ^a	10,03	10,14	
Germany	4,32	3,52	
France	10,21	9,46	
UK	6,84	7,95	

Competing theories

- The convergence school
- vs
- The divergence school

Competing theories: the convergence school

- **NC CRS growth models** predict convergence among advanced and less advanced regions, based on diminishing capital productivity (Solow)
- **NC inter-regional trade theories** predict convergence of wage levels as regional trade interaction based on CA expands (H-O-S)
- **NC migration models** predict convergence in wage levels, as migrants move from low-wage less advanced regions to high-wage more advanced regions (Greenwood)

Competing theories: the (possible) divergence school

- Cumulative causation (Myrdal)
- Linkages models (Hirschman)
- Urban growth and agglomeration economies (Henderson)
- Business cycles models (Berry)
- Core-periphery models (Friedmann)
- Regional inequality and development (Williamson)
- Initial conditions and path-dependency models
- Integration among unequal partners (Amin, Camagni)
- New Economic Geography models (Krugman)
- Endogenous growth models (Romer)

Non-linear growth evidence I

- Hypothesis:

The process of regional growth in Europe is characterized by convergence in earlier levels of development and divergence in more advanced levels of development

- Model:

$$g_i = b_0 + b_1 y_i + b_2 y_i^2 + e_i$$

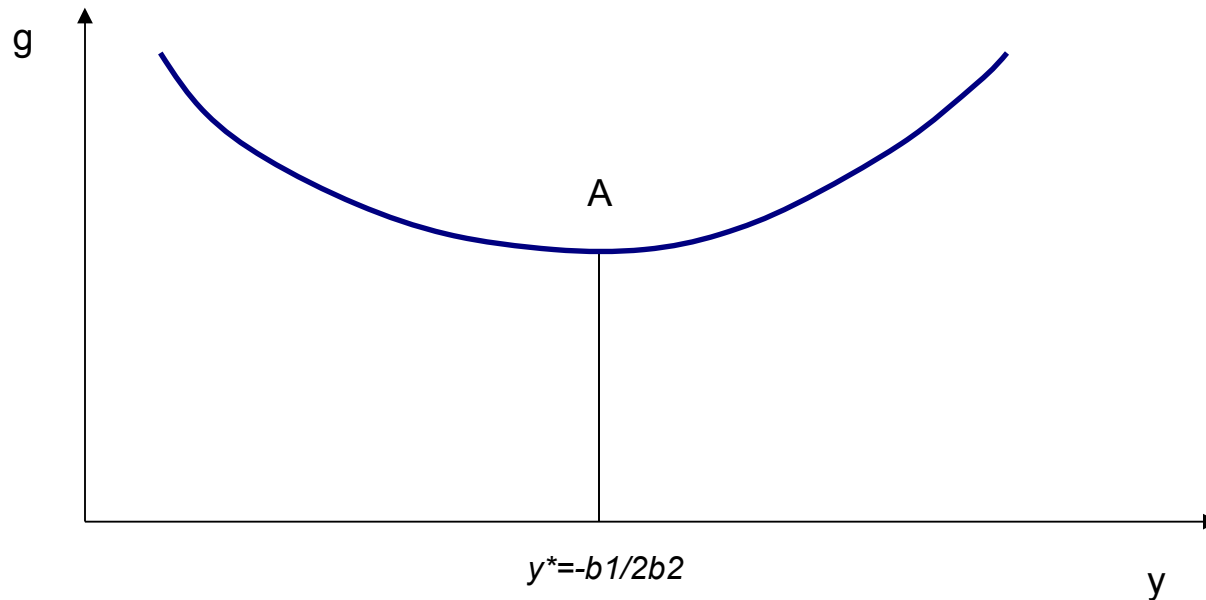
$$b_1 < 0, b_2 > 0, y^* = -b_1 / 2b_2 \text{ (turning point)}$$

- Method:

OLS - WLS

Non-linear growth evidence II

- Convergence forces dominate up to point A, where the level of development equals y^*
- Divergence forces dominate afterwards



Exploring the non-linearity hypothesis: The theoretical basis

- As regions develop, their economies change in a number of ways (quality, size, structure, integration)
- Both processes of convergence and divergence co-exist at all levels of development, but in different proportions and with different strength
- The balance between convergence and divergence forces changes with development levels

Empirical results

Table 1. Linear and Non-linear OLS/WLS regional convergence models for the EU

	Linear Model		Quadratic model	
	OLS	WLS	OLS	WLS
Constant	46.711 (12.12)	46.689 (6.732)	54.979 (9.52)	64.587 (6.34)
Y	-0.001396 (-6.78)	-0.001301 (-3.28)	-0.0028 (-4.77)	-0.0042 (-3.19)
Y ²			4.51E-08 (3.14)	8.82E-08 (3.23)
Threshold Y*			31,219	24,076
Regions with Y<Y*			242	226
Regions with Y>Y*			7	23
R ² adjusted	0.20	0.23	0.22	0.33
Akaike criterion	9.004	9.38	8.981	9.241
F-statistic	62.79	76.466	36.194	62.600
N	249	249	249	249

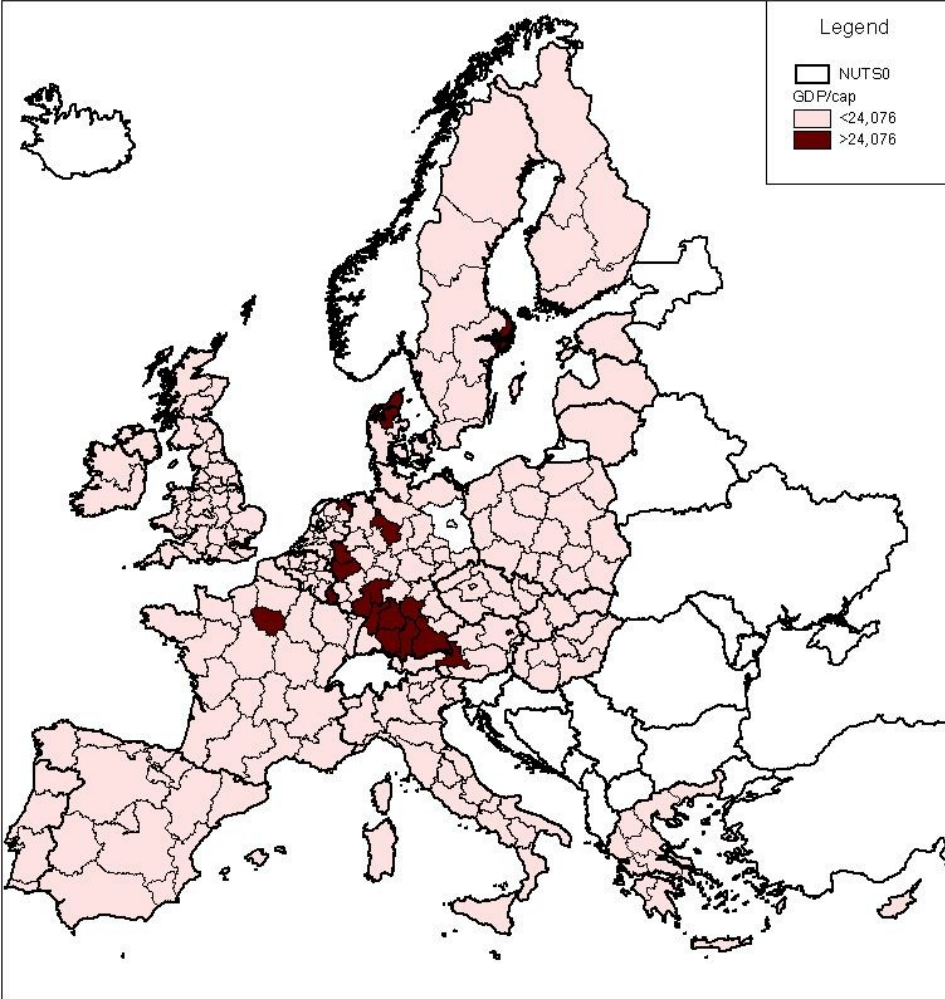
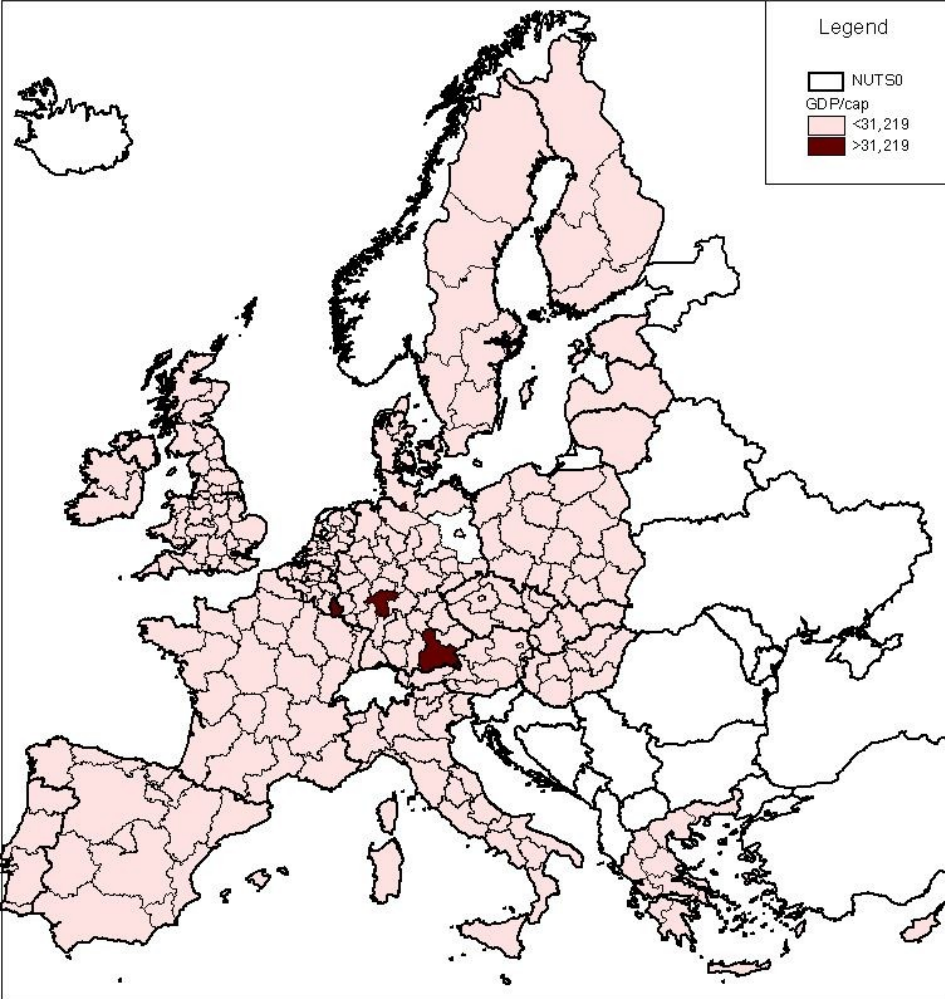
Exploring the non-linearity hypothesis: The results

- A non-linear pattern of growth may take place at the EU regional level.
- After a threshold, the most dynamic regions eventually grow faster and as a result divergence trends eventually dominate.
- Two regional clubs in Europe: A convergence club that includes the great majority of the regions and a divergence club including the European leading regions with high and very high levels of development.
- The gradual formation of a diverging leaders-club may have serious implications for theory and policy

Map 1. The divergence regional leader's club

The OLS model

The WLS model



Learning from success

- What can we learn from the experience of the dynamic regions?
- What are the drivers of their growth?
- Is this knowledge useful for weak and falling behind regions?

The drivers of growth

- Different in the national and regional level
- Different in developed and developing countries

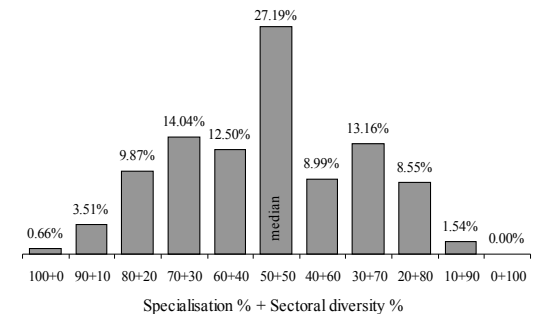
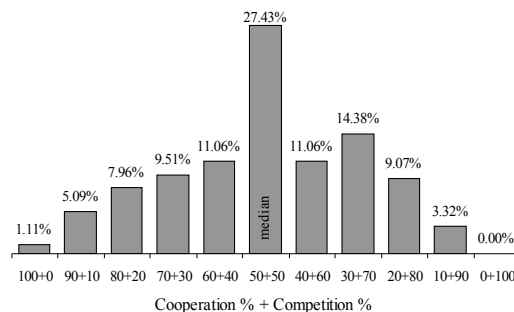
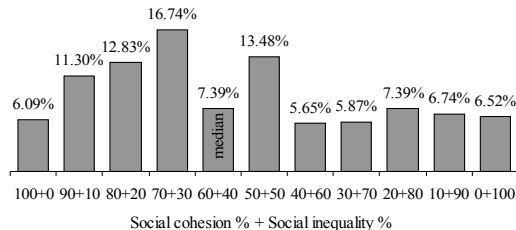
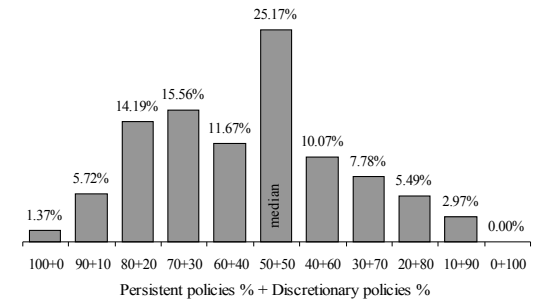
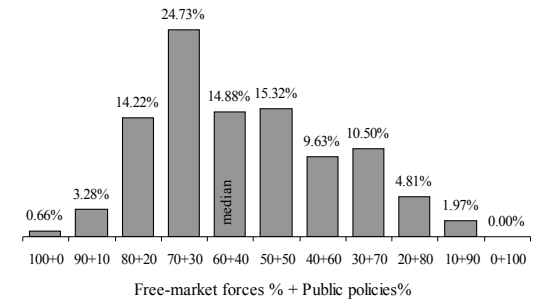
The drivers of growth: [inter] national level

- Different mix: determinants of economic growth do not have the same influence in the advanced and the less advanced economies (*international expert survey*).

<i>rank</i>	<i>Developed economies</i>	<i>Developing economies</i>
1	<i>High quality of human capital (7.93)</i>	<i>Stable political environment (7.05)</i>
2	High technology, innovation, R&D (7.91)	Significant FDI (6.95)
3	Specialize in knowledge intensive sectors (7.34)	<i>Secure formal institutions (6.93)</i>
4	<i>Good infrastructure (7.19)</i>	<i>Good infrastructure (6.46)</i>
5	<i>Secure formal institutions (6.96)</i>	Rich natural recourses (6.35)
6	<i>High degree of openness to trade (6.92)</i>	<i>Robust macroeconomic management (6.20)</i>
7	<i>Capacity for adjustment (6.61)</i>	<i>High quality of human capital (6.15)</i>
8	<i>Stable political environment (6.49)</i>	<i>High degree of openness to trade (6.11)</i>
9	Free market economy (6.33)	Low levels of public bureaucracy (6.10)
10	<i>Robust macroeconomic management (6.13)</i>	<i>Capacity for adjustment (6.05)</i>

The drivers of growth: the limits

- The prevailing mix of characteristics that promote economic dynamism indicates that a number of policies are effective only within a limited scope.
- Questions for the validity of linear models of growth, in which an impact is either positive or negative.



Evaluating theories of growth

- Theories matter: some are considered to explain growth performance better than others
- New synthetic approaches are more popular

<i>Rank</i>	<i>Theoretical perspectives</i>	<i>Average rank</i>	<i>1st choice (%)</i>
1	Endogenous growth theories	3.03	24.32
2	New Economic Geography (new trade theories)	3.13	22.33
3	(New) Institutional Economics	3.87	14.89
4	Demand management models (Keynesian, neo-Keynesian)	4.06	11.91
5	Supply-side theories	4.08	6.70
6	Neoclassical models	4.34	9.93
7	Path dependence / cumulative causation	4.73	7.69

The drivers of growth: regional level

- Agglomeration economies
- Geography – Accessibility – Connectivity
- Integration
- Human capital – Knowledge economy – Innovation
- Specialization – Diversification – Structural change
- Administrative structure
- Threshold - Critical scale of activities
- Home market effects
- Spatial and sectoral policies
- Institutional setting
- Cultural characteristics

Learning from success and failure

- Most drivers of growth identified in the literature tend to favor central and advanced regions / areas, but not necessarily weak and peripheral ones
- As a result, understanding performance in weak regions / areas may require special attention
- Success and failure are parallel and not necessary symmetric conditions
- Learning from failure may be equally important to learning from success
- However, this experience is practically unused in the design of development policies

The return of development policy

- Divergence clubs and spatial selectivity: Need for a return of development in the International and European policy agenda
- The policy mix of the EC and most EU countries is not theory-free or ideology-free
- It has been shaped mostly under the influence of NC, Supply-Side or other pro-market economic doctrines
- As the world gains new experiences (crisis) and the theoretical discussion re-discovers a positive role for the state, the policy mix is likely to change
- The “keyword” may gradually change from “competitiveness” to “sustainable development”

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