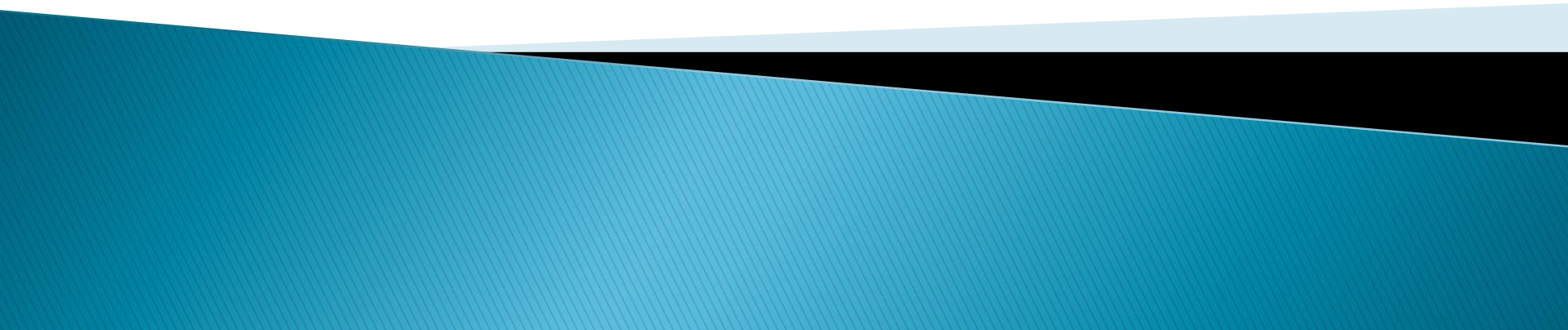


*The uneven spatial impacts of economic crisis and
austerity:
the case of Greece*

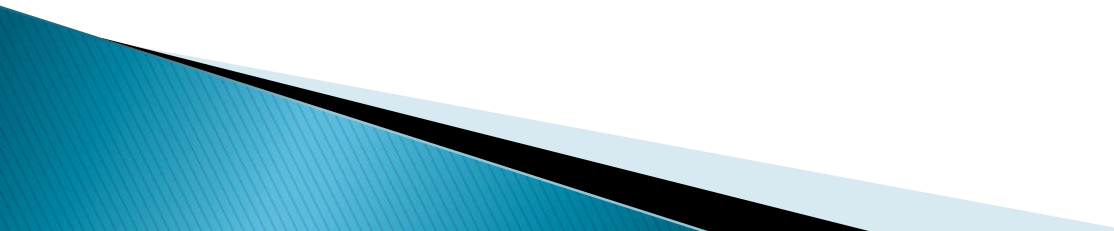


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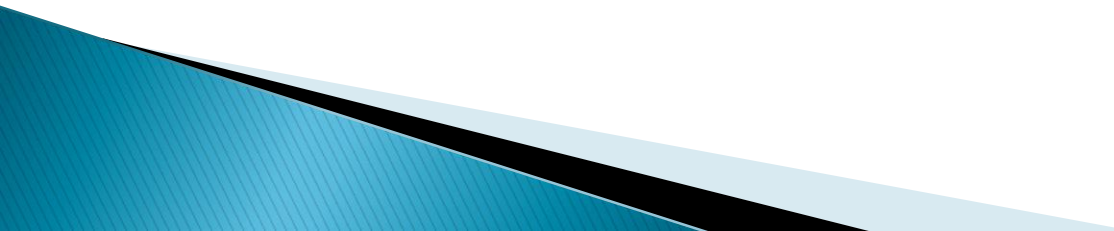
London, November 23rd 2012

1. GREECE – THE BACKGROUND
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- 

1. The background

- ▶ Greece is the 27th (?) richest country in the world;
 - ▶ Its economic development follows a peculiar history, as the country has grown “in episodes” throughout the existence of the modern Greek state, alternating in outperforming and underperforming compared to the EU average;
 - ▶ During the first post-war decades intra-country disparities have increased with significant urbanisation trends and whole (mountainous in particular) areas abandoned
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1. The background (cont.)

- ▶ Greece joined the EU (then EEC) in 1981
 - ▶ It benefitted from significant regional development aid since the '90s
 - ▶ However, this aid did not help transforming the productive sector into economic sustainability
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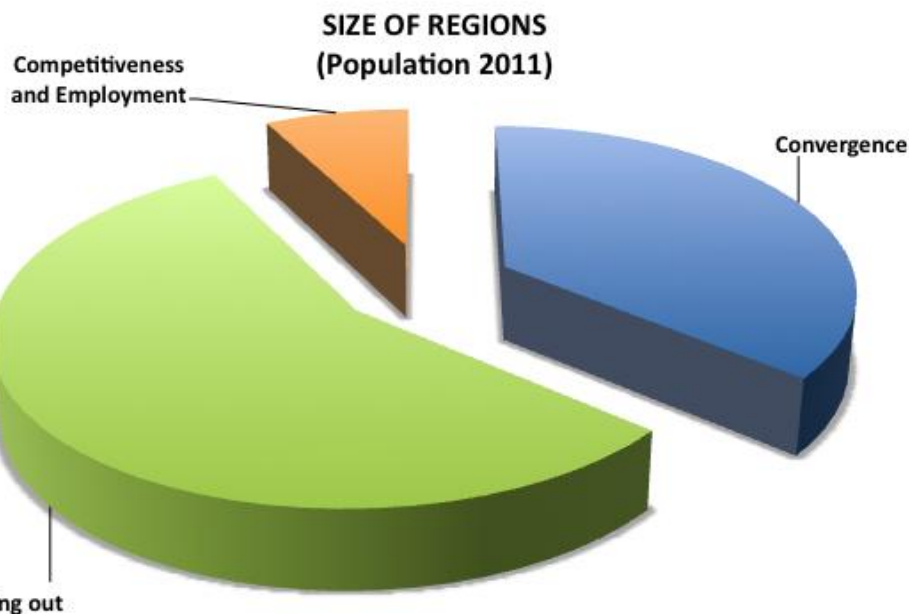
2. CURRENT ECONOMIC ANALYSIS

- The world 2008– financial crisis produced an asymmetric shock for the country revealing significant and chronic structural deficiencies
- This has resulted to a serious contraction of GDP and to record levels of unemployment, which could not be prevented by consecutive rescue packages (MoUs) agreed with the European Commission, the ECB and the IMF (Troika)
- At the end of 2011, GDP per capita was at EUR 18,500 million, compared to EUR 19,600 at the end of 2010 (5.6% decrease). Annual GDP had decreased by 1.4% in the period 2007–2011, compared to 5.6% increase in the period 2002–2007

2. CURRENT ECONOMIC ANALYSIS

- At the end of August 2012, long term unemployment rate was at 24.8% in Greece, compared to circa 11% in the beginning of the crisis and 11.2% in EU17 and 10.3% in EU27.
- Total number of unemployed exceeded 1.2 million in 2011
- A further deceleration of economic activity is expected in the next three years, as a third Memorandum of Understanding has been agreed with the EU, ECB and IMF, resulting to additional wage cuts and a rationalization of employment conditions in state companies

2. REGIONAL CHARACTERISTICS (latest GDP figures 2009)



Source: Eurostat

UNEMPLOYMENT RATE (%)		2011	Average
GREECE		17,7	17,7
Convergence	East Macedonia/Thrace	19,9	16,1
	Thessalia	16,8	
	Ipeiros	16,7	
	Ionian islands	14,2	
	Western Greece	17,3	
	Peloponnisos	14,2	
	North Aegean	14,3	
Phasing out regions	Central Macedonia	19,5	20,1
	West Macedonia	23,2	
	Attiki	17,6	
Competitiveness and employment	Stereia Ellada	18,9	16,95
	South Aegean	15	

GDP (Euro/inhabitant)		2009	Average
GREECE		20.500	20.500
Convergence	East Macedonia/Thrace	15.300	16.113
	Thessalia	15.800	
	Ipeiros	14.200	
	Ionian islands	17.700	
	Western Greece	14.300	
	Peloponnisos	16.600	
	North Aegean	16.600	
Phasing out regions	Central Macedonia	16.600	20.800
	West Macedonia	18.800	
	Attiki	27.000	
Competitiveness and employment	Stereia Ellada	19.000	21.900
	South Aegean	24.800	

- Greece is divided into 13 regions with different GDP and labour market characteristics. These regions are grouped into 3 categories, based on their GDP/head compared to the EU average
- Convergence and Phasing out regions are characterised by lower GDP/capita compared to Competitiveness and Employment regions. Competitiveness and Employment regions exhibit higher GDP/capita compared to the Greek average
- Annual unemployment is significantly higher in Phasing out regions, compared to the other regions and the Greek average.

3. RESEARCH QUESTION (S)

- Greece is a country of particular interest in terms of spatial inequality, as it has persistently demonstrated differentiated patterns of convergence and divergence, both as a country compared to the EU average, and within the country itself
- The purpose of this paper is to investigate trends of regional disparities in Greece and try to link them to the economic cycle and to overall Greece/EU growth
- The hypothesis tested:
 - Regional disparities increase as Greece converges to EU average (inta-country divergence)
 - Regional disparities decrease as Greece converges to EU average (intra-country convergence)

4. LITERATURE REVIEW

- A number of studies have focused on estimating regional trends between Greek regions, first and foremost in the period 1970–1995
- The majority of the studies used GDP as an approximation metrics and σ/β convergence as method of analysis
- Key findings can be summarised as follows:
 - In the period 1970–1995 most studies could evidence convergence
 - In the period 1995–2000, results are rather inconclusive, depending on the method that is being used
 - After 2000, there is evidence of non convergence between Greek regions
- Comparison between the various studies may not be so representative due to differences in methodologies and time series used
- There is no study analysing regional disparities in the last ten years

4. LITERATURE REVIEW: Overview of results

Time period	Metrics	REGIONAL CONVERGENCE	
		Convergence	Divergence
1970–2000	GVA	YES	
1970–1994	β convergence/ stochastic processes	weak	
1971–1993	σ/β convergence Markov chains	YES	
1971–1995	Growth model accounting	YES (service sector)	
1971–1996	β convergence	NO	
1971–2003	σ/β convergence	NO	
1975–2000	GDP		YES(1992–2000)
1981–1990	σ/β convergence	weak	
1981–1991	β convergence	YES	
1981–1996	β convergence	NO	
1981–2000	Composite index – equal weighting		YES
1981–2004	Composite index – equal weighting – β – convergence		YES
1990–2000	σ/β convergence	YES	
1995–2007	Composite index/cluster analysis	NO	

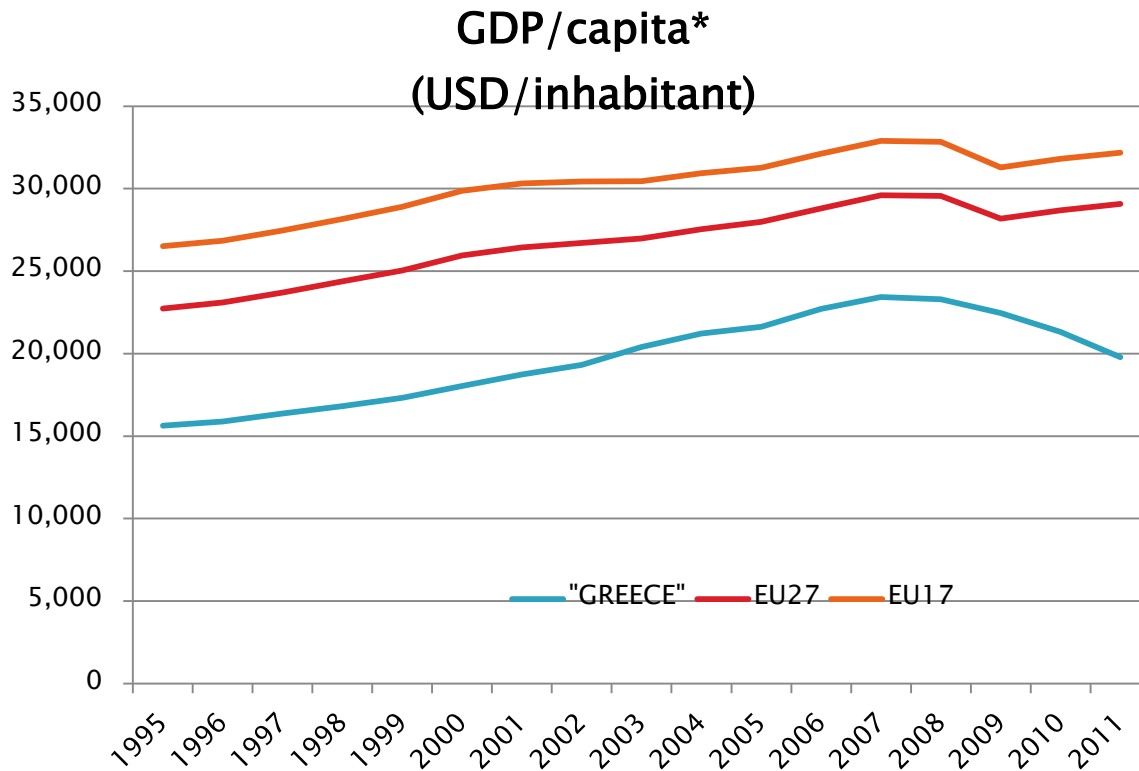
Source: Analyses on regional convergence studies was taken from the article Goletsis, Y., Chletsos, M., Measurement of development and regional disparities in Greek periphery: A multivariate approach, Socio-economic Planning Sciences, 2011, Vol. 45 (4), pp. 174–183

5. EMPIRICAL ANALYSIS

- Regional (intra-country) and Country (Greece compared to the EU-15 and EU-27) convergence are tested, taking into account GDP/capita and unemployment (the latter because regional GDP data is always published with time lags)
- The analysis is constrained by the unavailability of data both at regional and at country level:
 - At the regional level, GDP data are only available up to 2009 for the Greek regions. EU27 and EU15 data are only available after 1995
 - Unemployment rate for Greece is only available from 2000 onwards from Eurostat
- Convergence in terms of GDP is tested for the period 1995–2009
- Convergence in terms of unemployment rate is tested for the period 2000–2011
- The analysis is based on:
 - Sigma convergence: Coefficient of variation = Standard deviation/mean
 - Beta convergence: $\log (y_{it}/y_{i, t-1}) = a - \beta \log (y_{i, t-1}) + u_{it}$

5. EMPIRICAL ANALYSIS GREECE/EU

Country Convergence to EU average in terms of GDP



GDP/capit a growth rate	GREECE	EU27	Eurozone
1996	1,6%	1,7%	1,3%
1997	3,0%	2,6%	2,3%
1998	2,8%	2,8%	2,6%
1999	3,0%	2,8%	2,6%
2000	4,1%	3,6%	3,4%
2001	3,9%	1,9%	1,5%
2002	3,1%	1,0%	0,4%
2003	5,6%	1,0%	0,1%
2004	4,0%	2,1%	1,6%
2005	1,9%	1,6%	1,1%
2006	5,1%	2,9%	2,7%
2007	3,1%	2,8%	2,4%
2008	-0,6%	-0,1%	-0,2%
2009	-3,5%	-4,6%	-4,7%
2010	-5,2%	1,8%	1,7%
2011	-7,1%	1,4%	1,1%

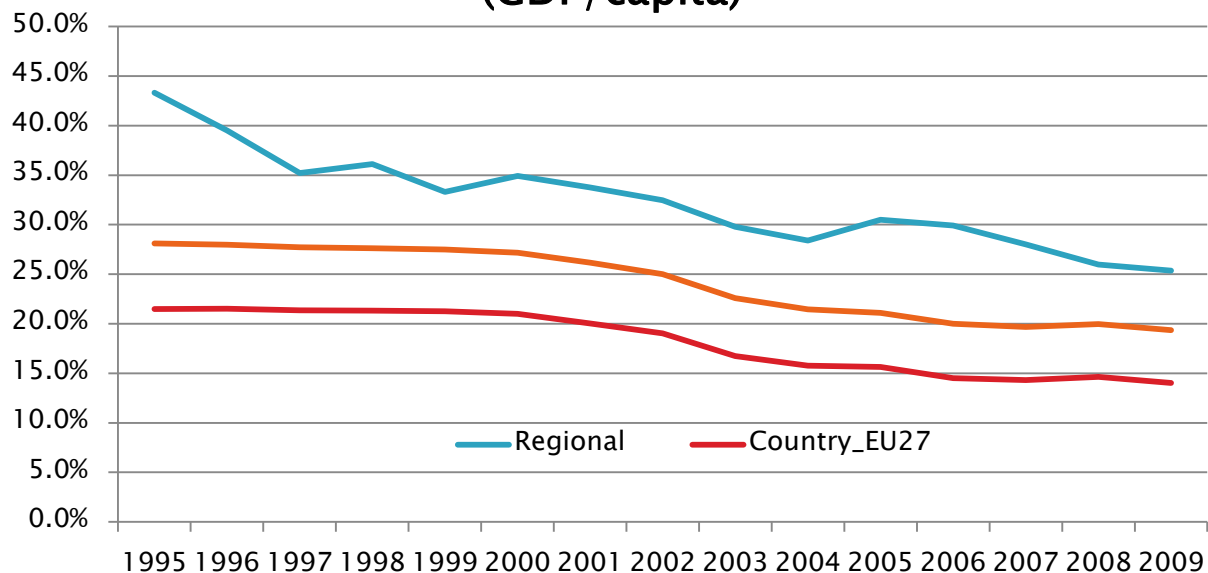
*GDP in constant prices/constant exchange rates
Source: OECD

- In terms of simple σ -convergence in the period 1995–2009, Greece has been converging to EU average in terms of GDP/capita
- Significant divergence is observed after 2009, when the financial crisis started. GDP is steadily decreasing (circa 6% on average in the last two years), compared to the EU

EMPIRICAL ANALYSIS

Regional convergence in terms of GDP

COEFFICIENT OF VARIATION (GDP/capita)

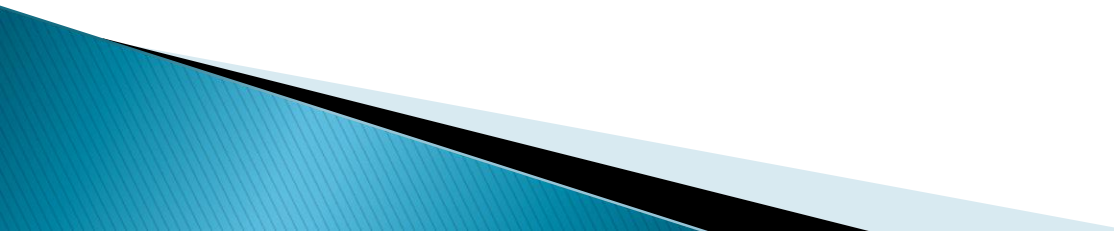


	COEFFICIENT OF VARIATION		
	GREECE_EU27	GREECE_EU17	REGIONAL
1995	21,5%	28,1%	43,3%
1996	21,5%	28,0%	39,5%
1997	21,4%	27,7%	35,2%
1998	21,3%	27,6%	36,1%
1999	21,3%	27,5%	33,3%
2000	21,0%	27,2%	34,9%
2001	20,0%	26,2%	33,8%
2002	19,0%	25,0%	32,5%
2003	16,8%	22,6%	29,8%
2004	15,8%	21,5%	28,4%
2005	15,6%	21,1%	30,5%
2006	14,5%	20,0%	29,9%
2007	14,3%	19,7%	28,0%
2008	14,6%	20,0%	26,0%
2009	14,0%	19,4%	25,4%

*GDP in constant prices/constant exchange rates
Source: OECD

- Evidence of regional convergence in the period 1995–2009, in accordance with the convergence of Greece to EU
- However, the pattern is not smooth at the regional level, there is evidence of divergence in specific years (1998, 2000, 2005)

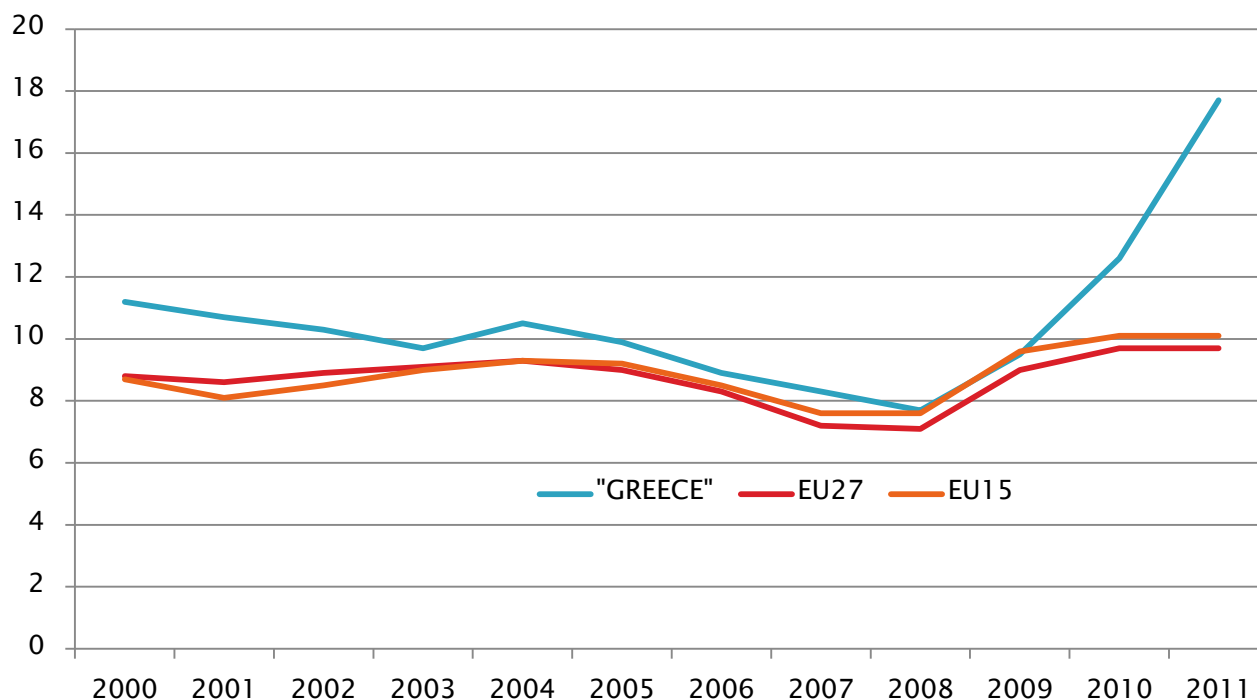
The recent crisis: an opportunity to measure trends

- ▶ There is no regional GDP data available for the last three years
 - ▶ Unemployment is used as a proxy to GDP decline to test intra-country convergence
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6. EMPIRICAL ANALYSIS

Country Convergence to EU average in terms of Unemployment rate

UNEMPLOYMENT RATE (%)



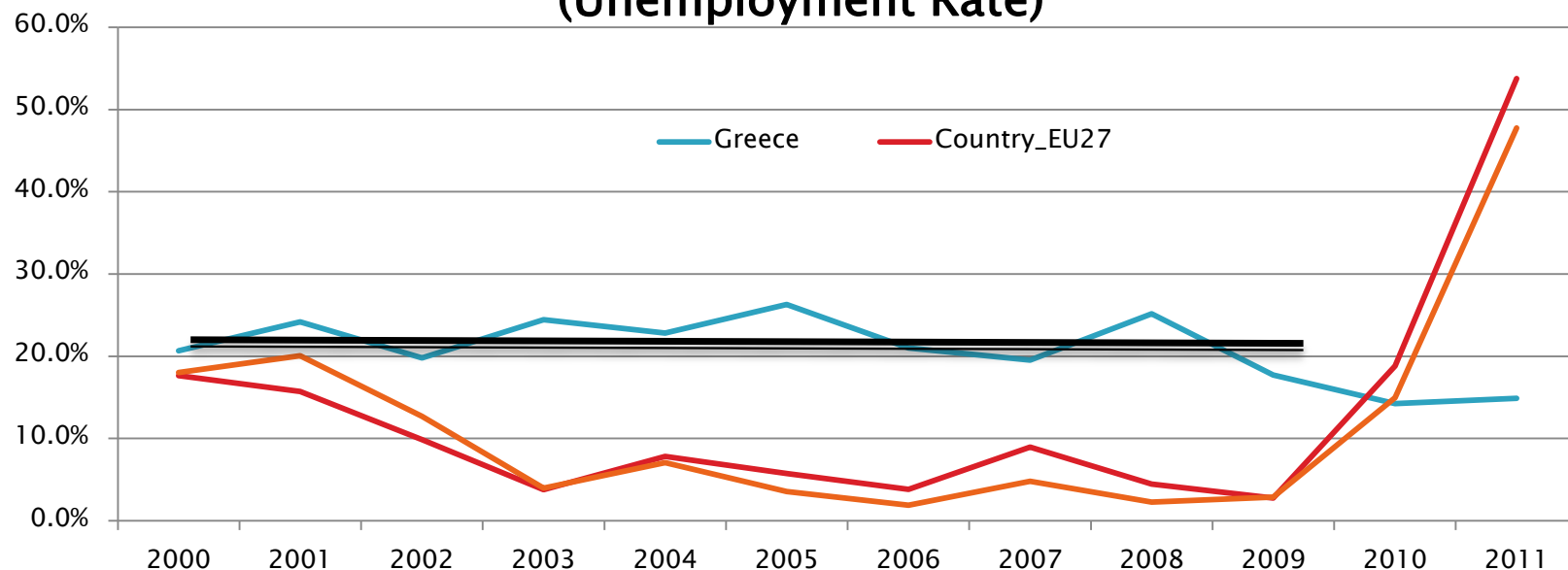
Source: Eurostat

- Greece annual unemployment rate is converging to the EU average up until 2009
- Significant divergence from 2009 onwards with annual unemployment in Greece in 2011 almost double compared to EU average

6. EMPIRICAL ANALYSIS

Regional convergence in terms of Unemployment Rate

COEFFICIENT OF VARIATION (Unemployment Rate)



	REGIONAL	COUNTRY_EU27	COUNTRY_EU15
2000-2009	EVIDENCE OF CONVERGENCE	CONVERGENCE	CONVERGENCE
2009-2011	CONVERGENCE	DIVERGENCE	DIVERGENCE

- In the period 2000–2009, there is weak evidence of regional convergence, in accordance with Greece convergence to the EU. Evidence is provided by the statistically significant negative coefficient of the trend line in 2000–2009
- After 2009, as country strongly diverges from EU, there is evidence of regional convergence
- The exclusion from the model of regions–outliers (West Macedonia, Sterea Ellada) leads to weak divergence from EU average in the period 2000–2009

6. CONCLUSIONS

- There are significant constraints for both academic research and evidence-based policy as statistical data are produced with gaps and occasionally not at all
- Greece converged to the EU in the period 1995–2009 in nominal terms
- Using σ -convergence and in broad agreement with the literature Greece has converged to the EU;
- Regions do not demonstrate convergence patterns in the period 2004–2009, in terms of GDP/capita, signaling higher inequalities as income level improves. There is only evidence of intra-country convergence accompanying the inter-country convergence in selective years during the period of growth
- At times of decline (or unemployment growth) there is evidence that there is convergence within the country.
- Greece as a whole, as well as Greek regions individually, continue their past pattern of episodic growth.
- This leads to the assumption that through the period of growth neither the country as a whole nor individual regions transformed their productive capacity (capabilities) in such a way that they can ensure economic sustainability (cross the barrier from low-labour cost to knowledge-society triggered competitiveness)

7. SUGGESTIONS FOR FURTHER RESEARCH

- σ -convergence is insufficient to evidence clear patterns between Greek regions
- One needs to test alternative clusters using the EU groups (convergence/competitiveness); groups based on their dependence on international economic trends (share of GDP dependence on tourism); differentiation of the two regions around the main cities versus the rest etc.
- Introduce more complex econometric analysis to take regional endowments into consideration
- Introduce conditional beta convergence, in case clusters indicate clear patterns