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BEYOND NEOCLASSICAL ANALYSIS: A NON-PARAMETRIC APPROACH TO MODEL EU REGIONAL ECONOMIC DYNAMICS†

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ABSTRACT

The aim of this paper is to investigate economic development in EU regions, focusing on spatial aspects involved in convergence matters. Standard neo-classical analysis is centered on convergence tests 'à-la-Barro' , while an alternative approach proposed by Quah (Quah, 1993) suggest the use of transition probabilities matrix to analyze income distribution dynamics. Using data on EU administrative units at NUTS level II and III we constructed this matrix for the period 1995-2006, and further extended the study in order to explore spatial aspects influencing long-run distribution. Results confirm that a convergence process drives regional economic dynamics even if national disparities are still the grater responsible of the non-complete cohesion. With the same data we then constructed some modified matrices comparing different spatially conditioned distributions: according to Rey (2001), non-complete diagonality of those matrices is due to presence of clusters. In the rest of the paper, after a brief introduction, we present the non-parametric approach; results are illustrated in third part while last section is devoted to estimated modified spatial transition matrices. Follow conclusions.

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INTRODUCTION

In last decades interest in growth-related topics and especially on convergence has been increasing, not only at country-aggregate level, but also at regional level. This new academic interest is due to a) increased interest of economists in explaining growth introducing endogenous R&D in standard growth models and b) increased interest of specialists in other fields (such as geography) in analyzing spatial aspects of the development process. As well known in fact, standard neoclassial analysis failed both under theoretical and empirical points of view. Under theoretical aspect, the assumption of Constant Returns to Scale production function appears too much restrictive, and that's way it has been gradually released both by New Growth Theory (NGT) sustainer and New Economic Geography (NEG) researchers. First case is well represented in Aghion and Howitt (1992), Romer (1986) and Lucas (1988), where R&D returns are supposed to be increasing, while in second case scale economies can be due simply to geographical position, allowing for different growth patterns for core and periphery regions as in Krugman (1991). Empirically, neoclassical theory has been strongly supported both at national and regional level by the famous β-test originally proposed by Barro and Sala-i-Martin (1991), but the same authors in the same paper suggested that β-convergence is necessary but not sufficient condition to allow disparities reduction over time (σ-convergence), measured with a decrease in variation indexes. The substantial absence of σ-convergence evidences left the field open to further analysis investigating the convergence process in a way that accounts also for disparities reduction.

In this context Quah (1993) proposed a convergence test based on a transition probabilities matrix constructed using the income distribution data over an interval period. This approach, better known as Markov Chain approach, has been proved to have a great explainatory power because of two main reasons:

- it is focused on the dynamic, saying not only if changes happen in the income distribution, but also in which part of the distribution they did;
- under certain conditions, we can repeat the transition more and more times in order to get an equilibrium distribution.

The convergence test is based on the assumption that, in long-run, the development process leads to disparities reduction, enabling poor regions not only to grow faster, but to grow faster in relative terms (with respect to the average growth), skipping from the left slope of the income distribution to higher income ranges. If such the case, we should note a concentration of observations around the average value in the equilibrium distribution, compared with the initial one. Notice that income, here defined as the per-capita GDP, is a variable naturally

increasing (even in the long run), so necessarily the distribution needs to be standardized in order to avoid possible bias in the estimation of probabilities. Common practice is to suggested by the same Quah (1996), introducing the notions of *nationally conditioned* and *regionally conditioned* distributions: the first is the case in which observations are standardized by their respective national average, while in the second case observations are standardized by their respective neighbors average. What we should be able to note is a more and more emphasized convergence toward the central class; on the contrary, if such a change is not evident, it means that space does not play a specific role.

Curiously, there have been not so much further studies investigating theoretical and empirical aspects linked to the above cited notions including the complete set of European regions even if some very interesting works have been carried out following the idea of Quah (see Quah (1997), Magrini (1999), LeGallo (2004)). The debate has been reopened by Rey (2001), who used the two spatially conditioned distributions to construct a modified transition matrix to compare *regionally* and *nationally conditioned* distributions with standard one. Dividing distribution in parts (usually referred to as **classes**), the new matrix informs us about the probability for an observation located in one part of the regionally (nationally) conditioned distribution to be located in the same (or another) part of the standard one. What we expect is the non-matching of the two distributions, measured as the non-diagonality of the modified transition matrix: this clearly indicates the existence of a clustering process, meaning that geographical location strongly influences the distribution of income across space. In other words, if poor (rich) regions are randomly distributed across the full sample area it means that the so called *neighbors effect* and *country effect* have no relevance; otherwise regions with similar income level tend to be nearly located each other.

Combining those two approaches allows to construct a complete framework about peculiarities of the convergence process that has characterized least decade of European regional growth. First of all, one is able to test in a non conventional way the existence of the that process, even if such a non parametric approach prevents to quantify it (the β estimated in standard regression can be interpreted as the *speed of convergence*); secondly one takes spatial aspects in to account in two different ways:

- analyzing the impact of *country* and *neighbors* effect in determining long-run, equilibrium distribution;
- analyzing the degree of clustering (with neighbors or with regions of the same country) of observed units.

In this work we used data on 250 European NUTS II and 1821 NUTS III administrative units to construct several transition matrices: starting from the standard approach by Quah (1996) we further explored spatial aspects in the way suggested by Rey (2001). Income is measured as the per-capita GDP at 1995 market prices in units of PPS [1]. We found that a convergence process exists at both level even if none of the two cases can be considered a satisfactory evidence of real catch up, and once spatial aspects are accounted for, equilibrium distributions converge not toward the central class but toward a lower income level: as expected, relative higher growth in poorer regions has been not so higher and more and more regions will have an income level lower than the national or neighbors average. Given that regional development is driven by convergence forces but at the same time slowed down by territorial disparities the analysis of spatial relations by mean of comparison of different distributions made we come up with very interesting results: we have found that regions tend to cluster (more with neighboring regions than with regions of the same country), especially those located in central classes of the distribution, which are the main objective of European cohesion policy.

Notice that, as long as this approach has been proposed as an alternative to standard neo-classical analysis, we think it's worthwhile here to recall some standard results on convergence. In particular figure 1 and 2 show a scatter plot of the annual average growth rate on the initial income level (values in log) with the estimated OLS coefficients [2]. The estimated *speed of convergence* is about 2% a year for level II and 1% a year for level III, but in both case this has been not sufficient to make disparities (here measured as the standard deviation) to decrease over time(figure 3).

Figure1: Estimated Convergence Equation at NUTS level II

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[1]Data have been downloaded from REGIO database available on Eurostat website

[2]Coefficients are both significant at 99% significance level and are consistent to heteroschedasticity problems

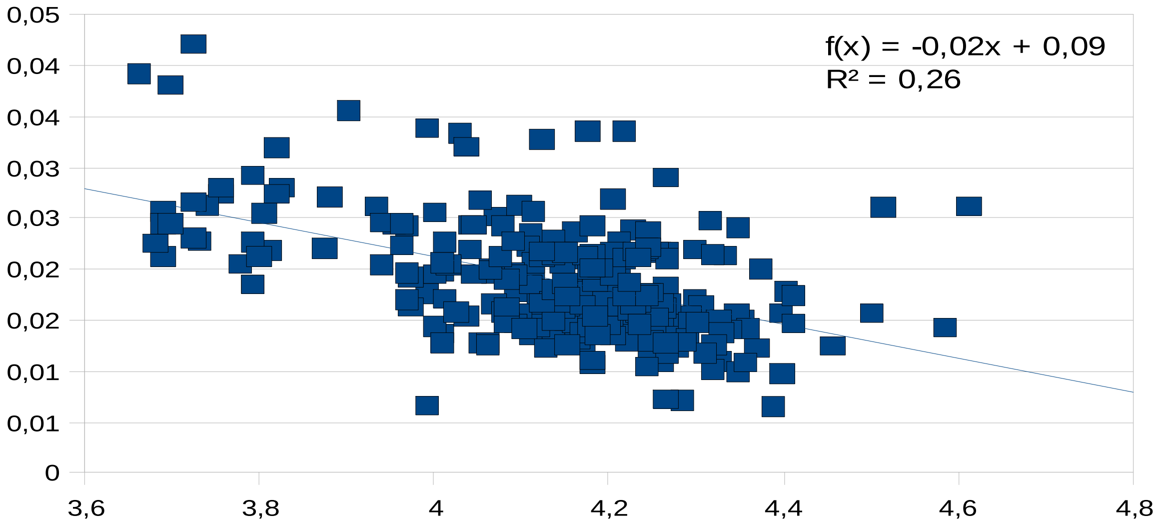


Figure 2: Estimated Convergence Equation at NUTS level III

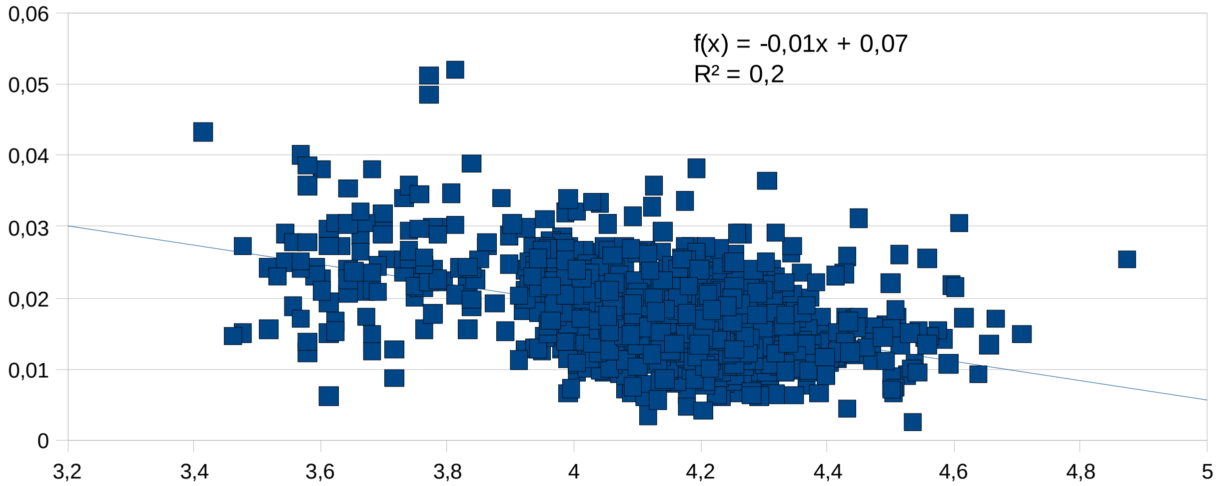
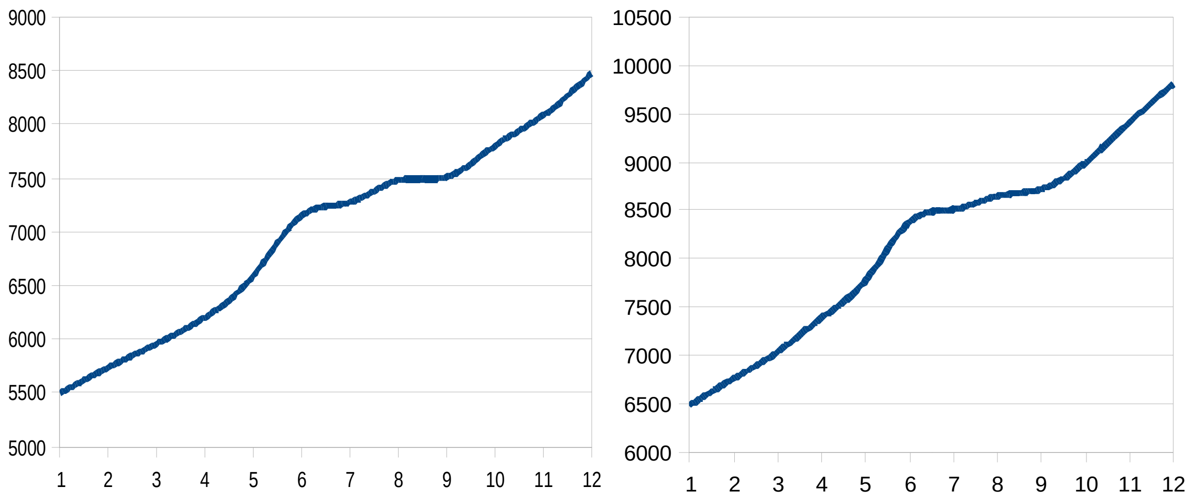


Figure 3Sigma convergence (NUTS II in left plot, NUTS III in right plot)



THE NON PARAMETRIC APPROACH TO CONVERGENCE

As clearly emerge looking at figure 3 neoclassical analysis, to measure disparities reduction, focuses only on the second moment of the income distribution, while the transition probabilities approach considers the evolution of the entire distribution. The idea behind a transition table is that we can divide the distribution in n classes and then construct an $n \cdot n$ matrix A whose elements a_{ij} for $i = 1,2, \dots n$ and $j = 1,2, \dots n$ indicates the number of regions in class i at time t and in class j at times $t + 1$. Clearly elements in the principal diagonal a_{ii} indicate the number of regions that were in class i in the initial period and did not move to another class. A standard transition matrix is in table 1.

classes	1	2	…	C
1	a11	a12	…	a1c
2	a21	a22	…	a2c
…	…	…	…	…
C	ac1	ac2	…	acc

Table 1: Example of a standard transition table

Without lack of informative power, transition matrix can be rewritten in relative terms, dividing each element by the relative row-sum, so that to obtain a new matrix E whose elements e_{ij} indicate the percentage of regions in class i at time t and in class j at time $t + 1$, with respect to the sample of regions initially in class i. Without loss of generality, we can define the belonging classes as *states* and the E matrix elements can be interpreted as probabilities to move from an initial state i to another state j. As long as those probabilities does not depend on time (are stationeries) and there are not *absorptive* states (transition from each of the n states to each other is allowed, directly or not), the matrix can be defined *stochastic* and, thank to stochastic matrices properties, we know that exist a limit of the kind $\exists \lim_{h \to \infty} E^h$. So we can rise to an high power the E matrix and obtain a limit matrix when k satisfies the condition in [1].

1 $$E^k = E^{k+1}$$

Backing to the convergence hypothesis test, let's first define ϕ the vector of observations characterizing income distribution divided by the sample average and M the transition probabilities matrix. It holds that

2 $$\phi_{t+1} = M\phi_t$$

and for each $s > 1$ if $M$is stationary we have

3 $$\phi_{t+s} = M^s \phi_t$$

and, as s goes to infinity,

4 $$\phi_\infty = M\phi_\infty$$

The only problem arising is that the whole argument works under the hypothesis that $M$is stationary, and so usually the matrix is estimated as the average of the transition matrices estimated for each time interval available.

The idea behind spatial transition matrices is quite similar, except for ergodig properties that not hold because of the finite horizon of spatial data. Matrix elements, in the row-standardized form, instead of being considered probabilities to move from class i to class j, can be interpreted as the joint probabilities to be in the class i of the conditioned distribution and in class j of the standard distribution. Instead, using the non-standardized form, a simple index of spatial dependence [5] can be constructed, with values in the range $0 \leq \zeta \leq 1$, lower values indicating spatial randomness and higher values indicating clustering (Rey, 2001),

5 $$\zeta = 1 - \frac{1}{n}\sum_i a_{ii}$$

with n indicating the total number of regions. Reader is noticed that in our study, the entire distribution has been divided in five classes with central class constructed in a way that includes observations between 90% and 110% of the relative average, so that in equilibrium, as long as regions converge to the EU average (100%), we should observe an increase in central class frequencies. Moreover this choice ensures that ergodic properties of transition probabilities matrix hold, so that the equilibrium distribution exists and can be estimated.

EMPIRICS ON DISTRIBUTION DYNAMICS

Following the approach in previous section, we estimated our probabilities matrices in the annual average version, and not so big differences appear. In any case *twin peak* cannot be predicted and, looking at central class, neo-classical hypothesis of lung-run steady-state uniqueness seems to be confirmed, largely coherent with results in figures 1 and 2. Estimated transition matrices in the annual average version are reported in Tab 1: *ergodic* line contains values of the relative frequencies of the equilibrium distribution.

As one can easily see, European regional dynamics are characterized by high persistence in initial belonging class, and this is particularly evident in first classes: here 95% and 93% of regions with an initial income lower than 60% of EU average did not move, and none of them

has been able to skip over the second class (except for some observations at level III). High persistence also characterizes the final class, meaning that no relevant changes happened in extreme slopes of the distribution.

Tab 1: Standard Distribution transition table

LEVEL II

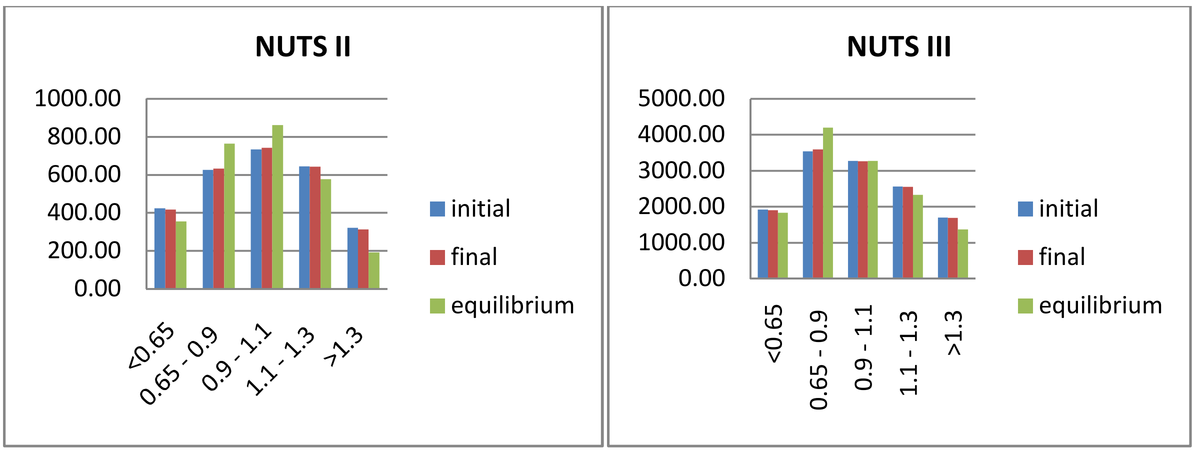
	<0.60	0.650- 0.9	0.9 - 1.1	1.1 - 1.3	>1.3
	0.95518868	0.04481132			
	0.02076677	0.93769968	0.04153355		
t0		0.03678474	0.91961853	0.04359673	
			0.06511628	0.91007752	0.02480620
				0.07476636	0.92523364
Ergodic	0.12912553	0.27813407	0.31353057	0.20969991	0.06950991

LEVEL III

	<0.60	0.60 - 0.9	0.9 - 1.1	1.1 - 1.3	>1.3
	0.9365904366	0.0628898129	0.0005197505		
	0.0273933917	0.9274216323	0.0451849760		
t0	0.0003050641	0.0576571080	0.8816351434	0.0604026846	
		0.0003906250	0.0843750000	0.8777343750	0.0375000000
				0.0635668040	0.9364331960
Ergodic	0.1407122	0.3228078	0.2515914	0.1792132	0.1056753

In order to clear ideas on the distribution dynamics, the values of class frequencies have been plotted together: for each of the n classes, values represent frequencies of initial, final and equilibrium distributions.

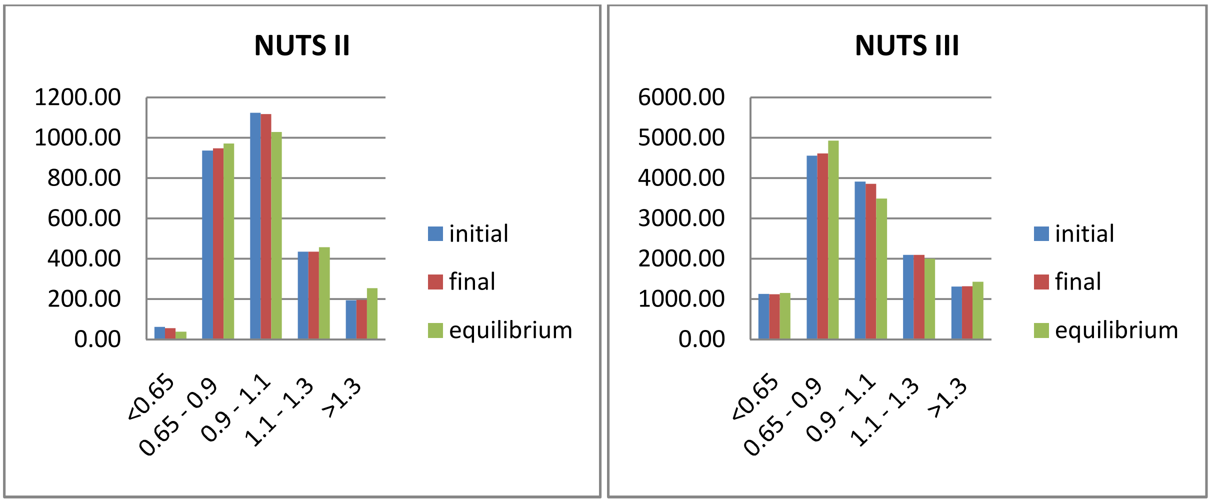
Figure 4: Standard Distribution Dynamic



It is worthwhile to underline that observations in initial and final classes decrease in the long-run, and this justifies convergence evidence even if at level III the long run distribution tend to move toward the second class, not central one. Also at level II second class observations increase in equilibrium, meaning that the convergence evidence is driven mainly by a reduction of relative richness of developed regions rather to a real catch-up of least developed regions.

Things change after introducing space. Accounting for space in convergence process is like to say that the geographical location of a region has some power in determining its growth potential. So we can reasonably expect that, since Europe is a very heterogeneous economic and geographical entity, a convergence process exist at least with respect to country average or to neighbors. This is not completely true :figures 5 and 6 shows that the initial, final and equilibrium distributions of the nationally and regionally conditioned income distribution [3]. What we expected was to find an highest concentration in medium class, with an higher proportion respect to the standard case.

Figure 5: Nationally Conditioned Distribution Dynamic

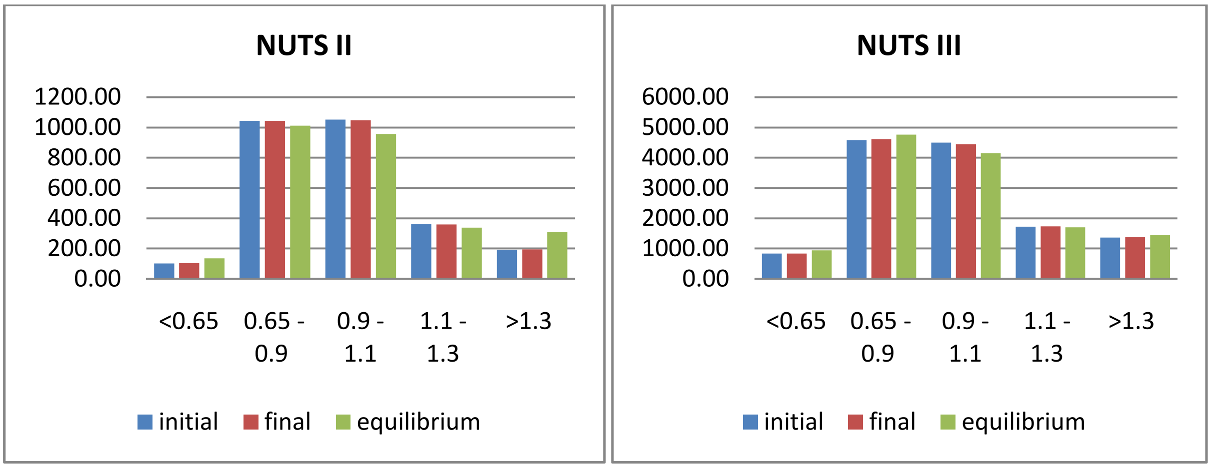


What we found is instead a strong divergence in both cases, but with different evidences. Let us take few lines to deeply analyze them. If considered with respect to the relative national income, regions did not catch-up: on the contrary regions moved from central class partly

[3] Estimated probabilities tables are in appendix

back to second class and mostly to last two classes; this happened both at level II and III and it's a clear indicator of the inverse tendency of national disparities trend with respect to overall disparities in European union. If we consider the distribution of income scaled for the neighbor's average, regions did not make so big movements on the whole, on one side confirming the geographical clustering of the income distribution across space, on the other indicating the existence of cases where regional development may be more competitive than cooperative, given the increase (even if small) of observations in first two classes and the light decrease in third class.

Figure 6: Regionally Conditioned Distribution Dynamic



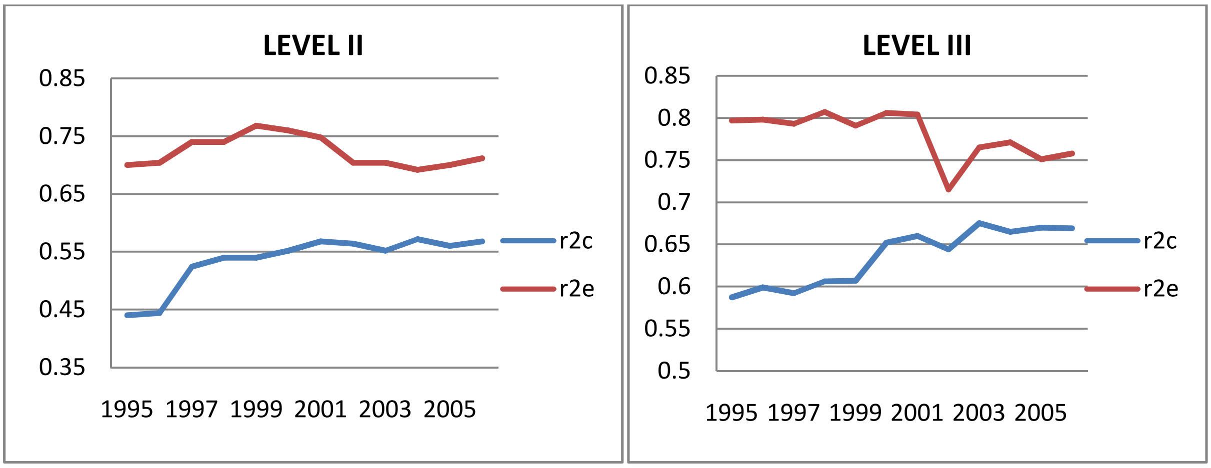
SPATIAL TRANSITION MATRICES

Another, more direct, way to investigate spatial effects is to directly compare two differently spatially conditioned distributions in order to see the degree of correspondence. The idea is that the presence of correspondence indicates spatial randomness and, in this context, the ζ index in [5] developed by Rey (2001) can be taken as a measure of clustering. The interesting thing is that we can compare the regionally conditioned distribution both with the nationally conditioned one and with the standard one: in this case we could be able to observe much more correspondence in first case. Moreover we expect to find much more correspondence at level 2, given that the more spatially disaggregated the data are the more space will matter and them more a clustering process will emerge.

For each time period we estimated this modified transition matrices in order to extract the ζ value. Matrices themselves are not so informative and that is why here we reported just the time path for ζ value in figure 7 and the average matrices in appendix.

Here `r2c` and `r2e` indicate respectively the ζ value computed for the regionally to nationally conditioned distribution matrix and regionally conditioned to standard one matrix. As reader can easily see there is much more correspondence in first case (as expected) while an high clustering degree emerges in the second case, even if no significant changes happened over time in both cases. Unfortunately this index just informs about the clustering degree without saying if some regions tend to cluster more than others and, if such the case, which ones. Although some more rigorous and informative statistics have been developed, also by the same Rey(2001), our purpose here is just to underline some important aspects emerging from table 6.

Figure 7 Clustering index



In order to enter deep inside spatial transition matrix results we're going to first have a look to the matrix values computed as averages of the matrices computed for the different years, and then extract from the matrix necessary information to compute the relative ranking of a region with respect to its country and/or to neighbors, in order to put those rankings into a map from which we should be able to see the area where *clusters*, as defined above, tend to concentrate. Unfortunately the work is still in progress so we are not able to provide all those information for both NUTS levels: the work has been already done for the level 2 and here we're going to present results and will be soon extended to the level III.

What emerges from results of our analysis using level II data is in table 6. In 6.1 a good degree of correspondence can be found in extreme classes, meaning that high spatial clustering is due to regions in central classes, and in particular to second and third classes, where the majority of observations are out of the diagonal in the right side of the matrix, there indicating regions with and income level around or just below their neighbors but higher than their relative national standard. The opposite effect does not appear in fourth class where just

one third of regions show a regional ranking lower than the national one. Similarly to 6.1, in 6.2 lower correspondence can be noted in fourth and third class. This can be partly explained by the low number of observations in extreme slopes of the distribution, but it is still true that the majority of the clustering process in Europe occurred between regions in second and third classes. However here clusters emerge in both directions, meaning that observations are both over and below the principal diagonal. Two most important things clearly emerge:

- Much of the clustering process involves regions in the second class that, by construction, is mostly composed by *Objective1* and *Phasing Out* regions [4];
- At least of regions lacking with respect to EU average are also lacking with respect to their relative country standard.

These two results have very clear and important implications because they force to rethink the role of European and national policies focused on economic and social cohesion. On one hand the effectiveness of European cohesion policy is influenced by territorial elements, while on the other national disparities are still an obstacle to full effectiveness of European actions. Maps help to switch from a simple table to a spatial description of the cluster phenomena, which is more informative for policy analysis. Let's first define:

y_i the per-capita income level in region i,

y_{ni} the average per-capita income level in neighbors of region i,

y_{ci} the average per-capita income level in country region i belongs to;

y_e the average per-capita income level in EU25;

we can write the so called *regionally conditioned distribution* as $\frac{y_i}{y_{ni}}$ and the *nationally conditioned distribution* as $\frac{y_i}{y_{ci}}$. Let us also call *standard distribution* $\frac{y_i}{y_e}$

Now, given a table such the one in 6.2, for each region i it holds that

$\frac{y_i}{y_{ni}} < \frac{y_i}{y_e}$ over the principal diagonal

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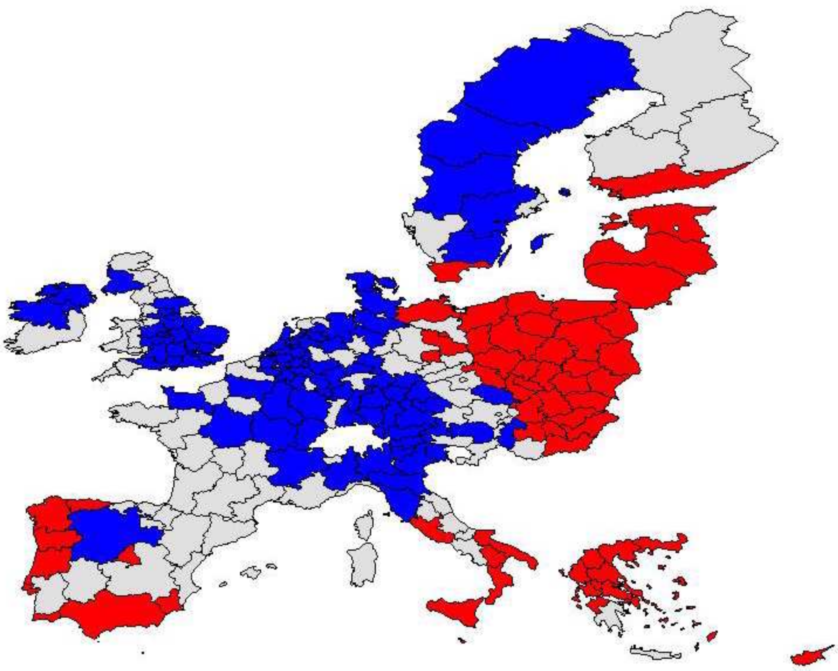
[4]First are defined as regions with per-capita income lower than 75% of EU25 average and seconds are defined as regions with per-capita income greater than 75% of EU25 average but lower than 75% of EU15 average

$\frac{y_i}{y_{ni}} \cong \frac{y_i}{y_e}$ on the principal diagonal

$\frac{y_i}{y_{ni}} > \frac{y_i}{y_e}$ under the principle diagonal.

Since in [5] we defined *clustering degree* as the non diagonality of the matrix we can now state that clusters emerge where a set of regions sharing common neighbors with income significantly lower (or greater) than european average is located. In figure 8 regions in `blue` reflect a cell over the principle diagonal (neighbors income greater than EU average), `gray` reflects diagonality and `red` indicates cells under principle diagonal [5].

Figure 8: Transition from Regionally Conditioned to Standard Distribution



[5]Computed on the base of data for the year 2004. Those printing in black and white should see the red as a dark gray and the blue as a very dark gray.

Clusters of rich regions emerge in north Italy, south Germany, north-east of France, south-west of England, northern Ireland and Benelux, while clusters of poor are Portugal together with southern of Spain, south Italy and islands, eastern Germany and, in general, eastern Europe; but some notes need attention. In fact the general structure of the map in figure 8 reflects the income distribution across space in figure 10 [6], confirming on one side the high correlation between income in region i and average income in neighbors of i, and on the other hand that clusters made of poor (riches) regions are located in a more general framework of poor (riches) regions.

Obviously the same method can be used to analyze table 6.1 and, following the argument, clusters emerge in correspondence of a set of regions sharing common neighbors with an income lower than the national average. This is typically the case of existing national internal disparities. As well as for table 6.2 results of table 6.1 are in figure 9 with regions in `violet` representing a situation in which neighbors income average is over the national standard; the opposite is true for regions in `orange` while `gray` simply indicates the diagonality[7].

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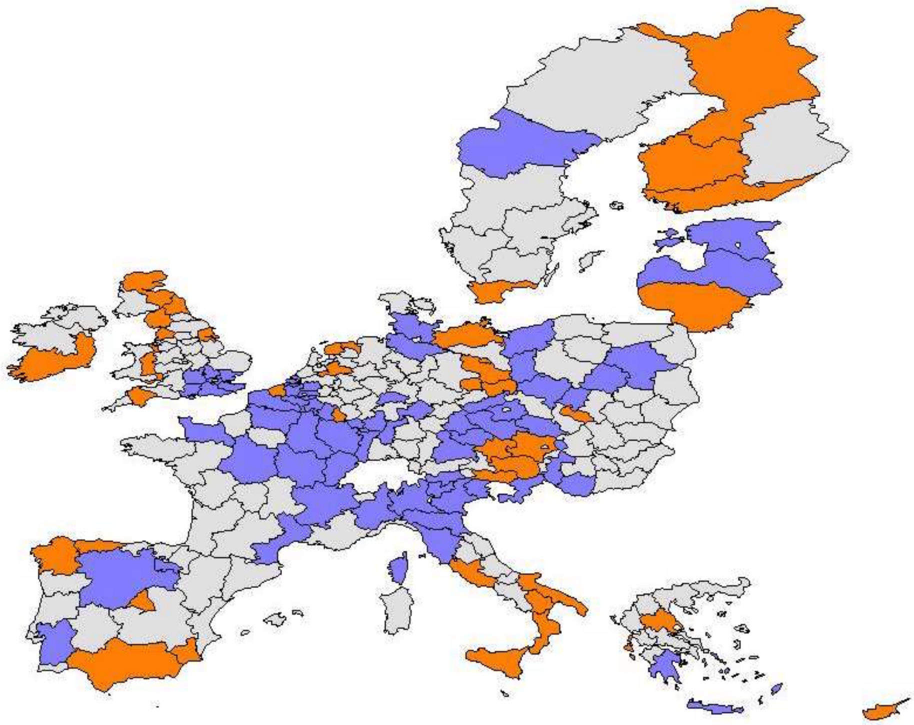
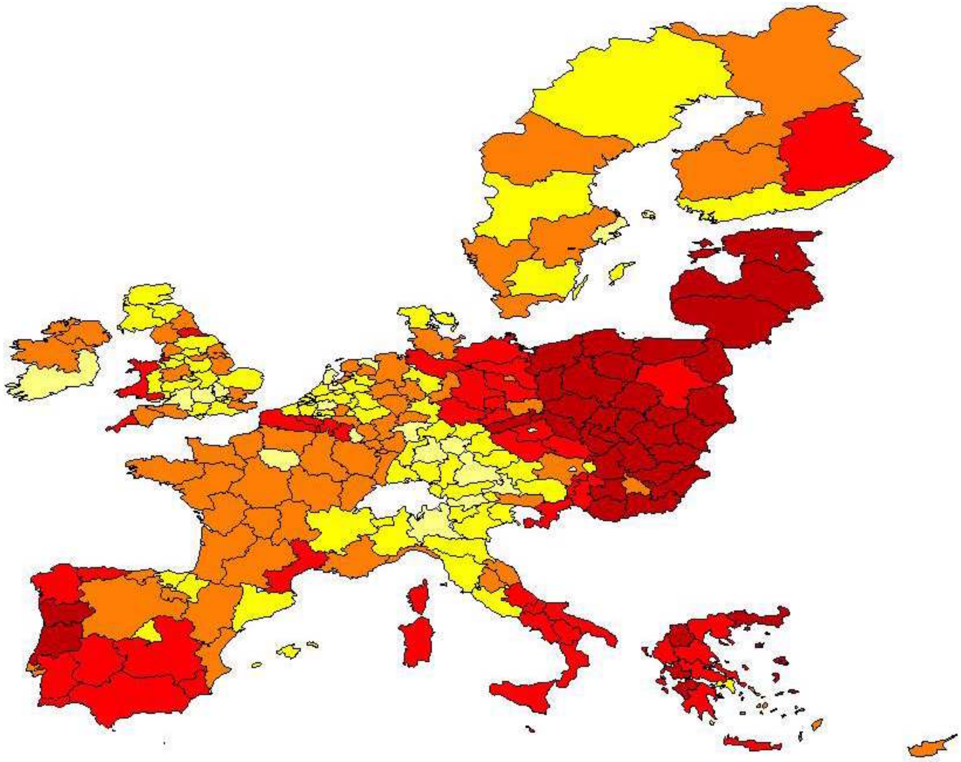
[6]Here strong red, red, orange, yellow and light yellow represents respectively n classes. For those who have printed in black and white, the darker the gray the lower the class.

[7]Those printing in black and white should see orange as a dark gray and violet as a very dark gray.



Again clusters emerge as in previous case but here they have a different meaning. From table 6.1 we have seen much more correspondence and, as a direct consequence we can note much more gray areas in figure 9; this is particularly true for eastern Europe regions. A lower correspondence can be instead found in Italy, Spain and Uk, where there are still strong national internal disparities, and also in France where a cluster of riches can be identified. Notice also the presence of a group of regions in western and central Poland that seem to have an higher neighbors income, even if this does not appear in fig:mappa3.



CONCLUDING REMARKS

In this work we used a non-parametric methodology, suggested by Quah (1993 & 1996) and further developed by Rey (2001) and by the same Quah, to analyze the economic convergence process occurred in European regions from 1995 to 2004. Even if nothing new is the methodology, interesting empirical results emerged, even about spatial aspect of the development process. As in the majority of studies on convergence, a standard regression of annual average growth rate on the initial income confirmed the existence of such a process both at NUTS level II and III even if we found that the speed of convergence slows down in the more disaggregated case. However interregional disparities have increased over the observed period. On the other side we have seen that the equilibrium distribution obtained by the estimated transition probabilities tend to converge toward the EU average only in the NUTS II case, while the majority of observations at level III will reach an equilibrium level which is lower or at least equal to 90% of European standard. Unfortunately, also in the level II case, convergence evidence is due to a decrease of the relative income in yet developed regions, since the number of regions with an income level lower than 90% of EU average has

increased in this ten years and will increase in the long run: this last evidence contradicts the hypothesis of a real catch-up. Things worse once space is accounted for, since regional disparities are persistent also between neighboring units and between units in the same country. This evidence should invite the policy-maker to think about those two most important limit to the convergence process:

- the development process is a mix of cooperative and competitive forces, meaning that growth in one region impacts positively neighbors thanks to spillovers, but at the same time agglomeration economies prevent the equal distribution of growth benefits: in this framework, disparities persistence may be interpreted as the outcome of a disequilibrium in those forces;
- national internal disparities are still a great obstacle, even for developed countries: regional policy should be helped by other instruments acting at a more extended geographical level, together with some other instruments of national policy.

This evidence has been also confirmed by the emerging of clusters, defined as a set of neighboring regions with neighbors income lower (higher) than Eu average (in first case) or national average (in second case). Although this evidence is not based on the distribution dynamics, it informs on the state of arts of economic cohesion: quite clearly this is not a yet completed process, meaning that resources needs to be invested to give to these regions the opportunity to benefit from growth of the whole Europe.

Concluding, the objective of regional policy is reduce disparities, measured as economic distance with respect to European standard. This policy is clearly oriented to least developed regions, that even if have been able to growth faster in relative terms, did not catch up. Clearly those regions, given the less developed economic structures, will continue to growth faster, even in eastern countries, so regional policy should boost this growth and make it higher enough to catch the European average. On the other side this may be not true for least developed regions located on western Europe countries, since they have not the same growth potential and their catch up is mainly slowed down by internal disparities and/or by a low income at country level.

APPENDIX

Table 2: Nationally Conditioned Distribution transition table – level 2

Nationally Conditioned Distribution

	<0.65	0.65 - 0.9	0.9 - 1.1	1.1 - 1.3	>1.3
	0.7258064516	0.2741935484			
	0.0106837607	0.9561965812	0.0331196581		
t0		0.0311387900	0.9564056940	0.0115658363	0.0008896797
			0.0275862069	0.9540229885	0.0183908046
				0.0362694301	0.9637305699
ergodic	0.01376796	0.35316780	0.37408852	0.16638010	0.09259562

Table 3: Regionally Conditioned Distribution transition table – level 2

Regionally conditioned Distribution

	<0.65	0.65 - 0.9	0.9 - 1.1	1.1 - 1.3	>1.3
	0.9207920792	0.0792079208			
	0.0105465005	0.9309683605	0.0584851390		
t0		0.0617283951	0.9088319088	0.0284900285	0.0009496676
			0.0831024931	0.9002770083	0.0166204986
				0.0208333333	0.9791666667
ergodig	0.04901344	0.36776258	0.34804453	0.12285770	0.11232175

Table 4: Nationally Conditioned Distribution transition table – level 3

Nationally Conditioned Distribution

	<0.65	0.65 - 0.9	0.9 - 1.1	1.1 - 1.3	>1.3
	0.9021352313	0.0978647687			
	0.0228170250	0.9273804300	0.0495831505	0.0002193945	
t0		0.0700051099	0.8834951456	0.0462442514	0.0002554931
		0.0004768717	0.0810681927	0.8817358131	0.0367191226
				0.0519480519	0.9480519481
ergodig	0.08835657	0.37893052	0.26847507	0.15406555	0.11017229

Table 5: Regionally Conditioned Distribution transition table – level3

Regionally conditioned Distribution

	<0.65	0.65 - 0.9	0.9 - 1.1	1.1 - 1.3	>1.3
	0.9132530120	0.0867469880			
	0.0172150795	0.9187186751	0.0640662454		
t0		0.0730786317	0.8764993336	0.0501999112	0.0002221235
		0.0005824112	0.1217239371	0.8439138031	0.0337798486
		0.0007331378		0.0395894428	0.9596774194
ergodig	0.07269888	0.36629872	0.31893539	0.13079456	0.11127245

Table 6: comparison of conditioned distributions at level 2

Region to Country transitino (6.1)

	<0.65	0.65 - 0.9	0.9 - 1.1	1.1 - 1.3	>1.3
	2,91	2,03	0,25	4	
	14,83	15,66	20,25	44,083	
t0	5,91	11,58	29,58	48,66	
	2,75	3,41	6,25	20,16	
	2,16	3,5	2,33	8,58	1

Region to Europe transitino (6.2)

	<0.65	0.65 - 0.9	0.9 - 1.1	1.1 - 1.3	>1.3
	4,41	3,33	1,5		
	24	28,5	29,83	12,083	0,4166
t0	7,25	21,66	30,83	28,66	7,33
	2,25	2,58	3,66	14,16	9,91
	0,166	1,33	1,41	3,5	11,16

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