GDP and its limits as criteria of eligibility for structural funds

Report for The Greens/EFA group at the European Parliament

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1. Limitations of GDP as an indicator

The usefulness of GDP is limited by two factors :

- the concept itself, which considers the production of value in market terms only, ignores social purposes and environmental impacts of production, and puts on an equal footing "positive" and "negative" production – i.e. aimed at countering the negative effects of other production for example. Moreover, GDP only takes "merchandised" production into account at prices reflecting social balances of powers. Activities belonging to the domestic sphere are not considered, while such activities also exist within the merchant sphere (e.g. the fact of eating, whether at home or in a restaurant). Therefore, a growth in GDP may result in an equal or a lower final satisfaction, since it can also bring about environmental damage and social stress. In addition, the transformation of GDP into disposable income for the population remains unknown, as does *a fortiori* its distribution among the different social classes.

- two main spatial biases:
  - a part of the GDP produced in one place can generate income consumed in another place (possibly abroad), so that it is erroneous to liken GDP/inhab. to standard of living indicators. Moreover, it is not always easy to decide, when it comes to international comparisons, whether GDP should be calculated at exchange rates – in a perspective of international competitiveness of economies – or in purchasing power parity – thus rather targeting standard of living ?
  - calculating the GDP/inhab. of a statistical unit implicitly means considering that the producers of the value in a place are residents of that very place. This is certainly not true at NUTS 3 level, which very often separates big urban centres and their employment basis – and, at that level, the values have thus to be recalculated in collections of NUTS 3 units approximating these employment basins. However, even regarding NUTS 2 units as requested in the present study, this question is raised for city-regions such as Brussels-Capital, Hamburg, Bremen, or Berlin, and is harder to solve because the NUTS 2 units around the central city are too large to be merged with it.

Combining the above-mentioned remarks leads to cases that can vary a lot in relation to a similar level of GDP/inhab. in a given statistical unit:

- **case 1: the employment basin does not go beyond the limits of the statistical unit, and the balance of income transfers between the country where the statistical unit is located and the rest of the world is weak**: the GDP/inhab. allows then a fairly *correct* assessment of the disposable income per inhabitant ("income" is here the sum of final consumption and operating profit).

- **case 2: the employment basin largely goes beyond the limits of the statistical unit, even at NUTS 2 level, and the balance of income transfers between the country in which the statistical unit is located and the rest of the world is weak** (Brussels-Capital): the GDP/inhab. is then a *bad* indicator of the disposable income per inhabitant, and should be recalculated within a new statistical unit in order to better adapt the limit of the employment basin(s). For instance, the index of the GDP/inhab. in the Brussels-Capital Region is equal to 194 in comparison to the Belgian average, while the index of the income (on the basis of tax revenue) per inhabitant is 83. At NUTS 3 level, the correction is quite easy (e.g summing GDP as well as inhabitants of Hamburg and nearby Kreise), but sometimes more difficult at

NUTS 2 level, where territorial units may be too large and represent quite different economic realities. It would be necessary to add GDP and populations of Hamburg, the Regierungsbezirk (NUTS 2), Lüneburg, and the whole Land of Schleswig-Holstein. Not to mention, of course, the problems linked to a calculation concerning entities overlapping the limits of territorial units that are not only administrative and statistical but truly political (the Länder in Germany, the Regions in Belgium). Consequently, a statistical redivision of the European space based on new NUTS 3 and NUTS 2 units, more homogeneous in terms of population, would avoid separating the centres of the metropolises from the rest of their employment basins. Those units could be created by recomposing and regrouping existing NUTS 3 units, allowing a statistical continuity. Only some NUTS 3 statistical units would have to be subdivided in France, e.g. on the basis of the division into subprefectures of some large departments (such as the Nord or the Low-Rhine). We have done this exercise in another work and can make the results available[1].

- **the limits of the statistical units match those of the main employment basins or go beyond them, but the balance of transfers between the country where the statistical unit is located and the rest of the world is strong** (e.g. around 40% of the GDP in Ireland). In this case the GDP/inhab. is also a *bad* indicator of disposable income and welfare.

2. The Greens/EFA group's request for alternative indicator(s) in the framework of the preparation of the next programme period of cohesion and structural funds (2013-2010)

Given those considerations, the Greens/EFA's request to go beyond the sole GDP/inhab. to determine the level of convergence of regions and the regions in need of aid (e.g. a level of less than 75% or less than 90% of the EU average) is thus fully justified.

More precisely we were asked to analyze the possibility to replace GDP/inhab. by an indicator combining it with one or more others such as: Gini coefficient to measure income dispersal, the share of persons at risk of poverty (after social transfers), the share of households with very low employment level, and the share of those suffering from acute material deprivation. We recall that we are looking for using more than the GDP/inhab. for determining the eligibility of regions to the structural funds, and not discussing in-depth the meaning of GDP from a societal point of view.

The aim of the request is examined in the present report. We first notice that the four additional indicators proposed are related to the population living in the considered statistical unit, contrary to GDP/inhab., which divides the result of the activity of people working in the statistical unit by a denominator concerning those who live in it. From the sole point of view of the rigor of the spatial analysis, the proposed composite indicators would thus not be fully coherent, and the above remarks as to the interest of creating new statistical units remain valid, even if probably a bit less important.

1 See ESPON 2006 project 3.4.3 MAUP.

Adding other social indicators (or even environmental indicators) to the GDP/inhab. in order to have a more social vision of the GDP can, in addition, lead to difficulties in interpretation, as in any classification that combines indicators of different natures[2]. Moreover, this would leave a fundamental political question unsolved: is the (implicit) objective to produce everywhere (within one country for example) a similar (high) level of GDP per inhabitant? Or is the objective to ensure a spatial equalization of income, whatever the place where the production takes place ? Should, for example, a region hosting a great number of pensioners living on social transfers necessarily be productive and competitive ? Beyond this political issue, the question arises whether GDP, income and social welfare, or even environmental quality indicators, should be gathered into one indicator, or if they are to be considered as different dimensions that should be handled separately in decision-makers' political options.

3. Choice and availability of indicators

In order to better answer the request of the present contract, we will from the start extend its object. In addition ***to critically analysing the additional indicators proposed in the study request,*** we will also examine ***all economic, social, and environmental indicators that are easily available at NUTS 2 level and might provide information on the territorial development***, in an economic and social cohesion approach. We will classify them in five categories : economy, physical wellness (health), social questions, education, and environment. As for the additional indicators initially proposed, they will be critically examined in the section "material well-being" for the Gini coefficient and the share of persons facing material deprivation, and in the section "social fragility" for the share of those risking poverty after social transfers and the share of households with very low employment intensity.

In addition to ***critically analysing*** those indicators and their significativity in terms of cohesion, we have examined, for those which were easily available at NUTS 2 level, their level of correlation (at least on EU scale; some correlations could be different if observed between the regions of one country[3]). Doing so will allow us to improve our critique and help eliminate or keep certain indicators (either because they are redundant, or, on the contrary, because their statistical independence shows the interest to take into account different dimensions of economic and social phenomena (Table 1 and Figure 1).

2 How could for instance a composite indicator be politically interpreted, whose evolution would remain stable in that it includes an increasing GDP/inhab. (supposedly favourable "sense") and growing social disparities (supposedly unfavourable "sense"), or even would get better because of the weight of the GPD component, but at the cost of worsened social conditions?

3 One could imagine, by way of a hypothesis, a strong statistical link in the EU between GDP/inhab. and the part of young people in higher education, as a result of strong variations in GDP/inhab. between the most and the least developed countries. Inversely, in some UE countries, young people from the poorest regions could be more desirous to graduate because they consider diplomas as springboards to find a job, or even to emigrate to the wealthiest parts of their country, while in richer areas access to employment is easier, even without a high school diploma.

Table 1. Correlation coefficients between the different basic indicators.

		Econ.	Material wellbeing			Health			Social vulnerability							Education and access to information technologies					Envir.
		GDP/inh. (pps)	Disposable income	Material deprivation	Migratory rate (b)	Female life expectancy	Male life expectancy	Child mortality (a)	Unemployment rate	Jobless young people out of education (c)	Population in poverty after transfers	Index of Human Poverty (HPI)	Young people unemployment rates (e)	Long lasting unemployment rates	Human development Index (HDI)	Low education level (women)	Low education level (men)	High education level (women)	High education level (men)	internet_use (f)	Concentration of particles (d)
Economy	GDP/inh in pps	1	0,80	-0,60	0,15	0,50	0,59	-0,46	-0,27	-0,43	-0,43	-0,18	-0,30	-0,32	0,74	-0,07	-0,08	0,43	0,66	0,56	-0,01
Material wellbeing	Disposable income	0,80	1	-0,78	0,23	0,72	0,81	-0,60	-0,24	-0,43	-0,39	-0,13	-0,28	-0,30	0,91	0,02	-0,02	0,35	0,62	0,66	-0,15
	Material deprivation	-0,60	-0,78	1	-0,27	-0,73	-0,75	0,75	0,15	0,52	0,43	0,04	0,25	0,22	-0,79	-0,08	-0,09	-0,33	-0,47	-0,62	0,28
	Migratory rate (b)	0,15	0,23	-0,27	1	0,37	0,35	-0,30	-0,09	-0,11	-0,11	0,25	-0,01	-0,14	0,15	0,29	0,30	0,02	0,04	-0,06	-0,19
Health	Female life expectancy	0,50	0,72	-0,73	0,37	1	0,88	-0,72	-0,02	-0,26	-0,27	0,19	-0,01	-0,11	0,67	0,28	0,31	0,18	0,29	0,30	-0,27
	Male life expectancy	0,59	0,81	-0,75	0,35	0,88	1	-0,65	-0,13	-0,28	-0,23	0,12	-0,11	-0,22	0,78	0,28	0,26	0,20	0,42	0,39	-0,29
	Child mortality (a)	-0,46	-0,60	0,75	-0,30	-0,72	-0,65	1	0,08	0,38	0,41	-0,01	0,13	0,11	-0,60	-0,08	-0,14	-0,21	-0,26	-0,35	0,22
Social vulnerability	Unemployment rate	-0,27	-0,24	0,15	-0,09	-0,02	-0,13	0,08	1	0,63	0,63	0,39	0,81	0,91	-0,25	0,25	0,30	-0,06	-0,19	-0,29	0,00
	Jobless young people out of education ©	-0,43	-0,43	0,52	-0,11	-0,26	-0,28	0,38	0,63	1	0,72	0,49	0,72	0,67	-0,47	0,36	0,38	-0,25	-0,44	-0,54	-0,09
	Population in poverty after transfers	-0,43	-0,39	0,43	-0,11	-0,27	-0,23	0,41	0,63	0,72	1	0,49	0,65	0,58	-0,39	0,35	0,34	-0,14	-0,27	-0,50	-0,18
	Index of Human Poverty (HPI)	-0,18	-0,13	0,04	0,25	0,19	0,12	-0,01	0,39	0,49	0,49	1	0,53	0,38	-0,31	0,94	0,96	-0,26	-0,40	-0,56	-0,29
	Young people unemployment rates €	-0,30	-0,28	0,25	-0,01	-0,01	-0,11	0,13	0,81	0,72	0,65	0,53	1	0,71	-0,33	0,43	0,48	-0,06	-0,29	-0,45	-0,08
	Long lasting unemployment rates	-0,32	-0,30	0,22	-0,14	-0,11	-0,22	0,11	0,91	0,67	0,58	0,38	0,71	1	-0,32	0,24	0,28	-0,17	-0,27	-0,34	0,06
	Human development Index (HDI)	0,74	0,91	-0,79	0,15	0,67	0,78	-0,60	-0,25	-0,47	-0,39	-0,31	-0,33	-0,32	1	-0,17	-0,18	0,58	0,78	0,78	-0,16
Education and access to information technologies	Low education level (women)	-0,07	0,02	-0,08	0,29	0,28	0,28	-0,08	0,25	0,36	0,35	0,94	0,43	0,24	-0,17	1	0,96	-0,29	-0,33	-0,44	-0,32
	Low education level (men)	-0,08	-0,02	-0,09	0,30	0,31	0,26	-0,14	0,30	0,38	0,34	0,96	0,48	0,28	-0,18	0,96	1	-0,19	-0,33	-0,46	-0,34
	High education level (women)	0,43	0,35	-0,33	0,02	0,18	0,20	-0,21	-0,06	-0,25	-0,14	-0,26	-0,06	-0,17	0,58	-0,29	-0,19	1	0,79	0,55	-0,07
	High education level (men)	0,66	0,62	-0,47	0,04	0,29	0,42	-0,26	-0,19	-0,44	-0,27	-0,40	-0,29	-0,27	0,78	-0,33	-0,33	0,79	1	0,69	0,07
	Internet_use (f)	0,56	0,66	-0,62	-0,06	0,30	0,39	-0,35	-0,29	-0,54	-0,50	-0,56	-0,45	-0,34	0,78	-0,44	-0,46	0,55	0,69	1	0,06
Environment	Concentration of particles (d)	-0,01	-0,15	0,28	-0,19	-0,27	-0,29	0,22	0,00	-0,09	-0,18	-0,29	-0,08	0,06	-0,16	-0,32	-0,34	-0,07	0,07	0,06	1

Data of 2007 except : (a) 2006-2007, (b) 2001-2007, (c) 2006-2008, (d) 2009, (e) 2008, (f) 2010

Fig. 1. Main correlations between indicators.

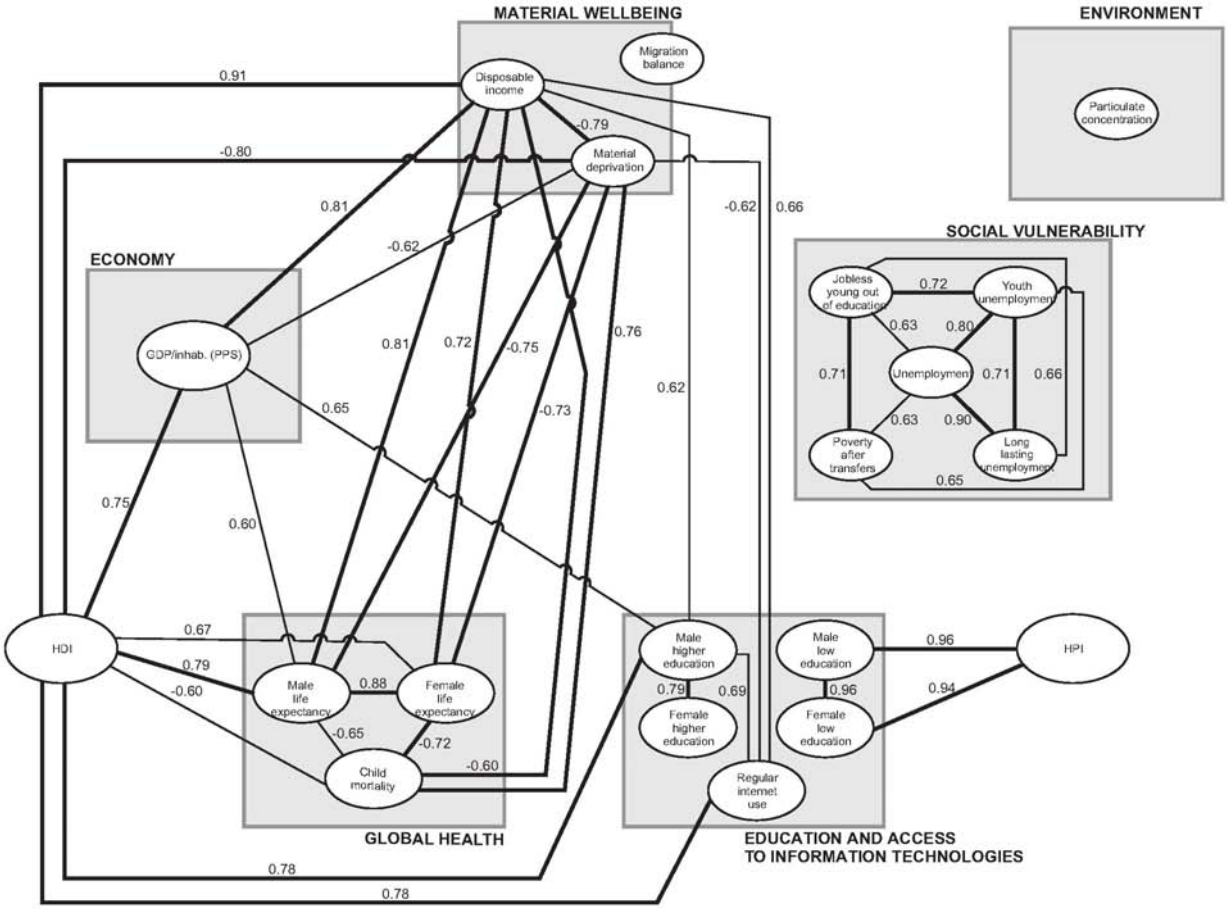
Next to the block "economy", the five other blocks define "values" which can be considered as being on an equal footing as economy. The heavy or thin lines define the most significant correlations between indicators, either inside or between blocks. The analysis of these correlations helps us to choose the most interesting indicators, among the available ones.

As an example, higher education and access to internet levels are much more linked to economic development, but also to material wellbeing than it is (negatively) for low education levels.

It is also important to take the most discriminant indicators. For instance, concerning global health, male and female life expectancy are well correlated and could both be used as global indicators for this issue. But examining more in-depth the two indicators shows that male life expectancy has a larger deviation between regions than female life expectancy ; therefore we prefer to use male life expectancy instead of female or an average of both, as this indicator will be more discriminant, reflecting the higher sensibility of men to differences in health provisions.

The lack of correlation between social vulnerability and the other blocks show that this dimension is independent from the others (mainly because the indicators are computed inside national logics), and has thus to be politically considered as "something else", requiring other kinds of politics than these organised around the objectives of the structural funds.

On the same manner, environmental policies have to be considered as "something else" (and more yet because the indicators are bad at the regional level). This conclusion doesn't mean that the environmental impacts and qualities of the projects should not be taken into account when considering the attribution of the funds inside the eligible regions.



a. The economic situation

GDP/inhab. (fig. 2) – Despite the basic remarks above, it does not seem possible at this stage to do without this indicator, first, by lack of another global economic indicator, and second, because of its « universal » use by political authorities. Anyway, one cannot forget that its significance is particularly untrustworthy in the NUTS 2 units listed in the footnote[4] in the absence of a new breakdown of territorial units through recomposing NUTS 3 units. We have chosen to work with GDP at purchasing power parity rather than at exchange rates, since the final objective of this exercise is to measure global welfare rather than levels of competitiveness in the world economy.
It is essential to keep in mind, however, that purchasing power parities are calculated at national and not regional levels. In this connection, calculating parity on a regional scale would be an interesting request to present to EUROSTAT.

4 In Belgium : BE10 (Brussels-Capital),and inversely BE24 (Flemish Brabant) and BE31 (Walloon Brabant) ;
In the Czech Republic : CZ01 (Prague), and inversely CZ02 (Stredni Cechy) ;
In Germany: DE30 (Berlin), and inversely DE41 (Brandenburg-Nordost) and DE42 (Brandenburg-Südwest);
DE50 (Bremen), and inversely DE92 (Hannover), DE93 (Lüneburg), DE94 (Weser-Ems);
DE60 (Hamburg), and inversely DE93 (Lüneburg) and DEF0 (Schleswig-Holstein);
LU00 (Gd.Duchy of Luxembourg), and inversely BE34 (Luxembourg), DEB2 (Trier) and FR41 (Lorraine);
AT13 (Wien), and inversely AT12 (Niederösterreich);
SK01 (Bratislava), and inversely SK02 (Zapadne Slovensko);
UKI1 (Inner London) and UKI2 (Outer London), and inversely UKH2 (Bedfordshire and Hertfordshire), UKH3 (Essex), UKJ1 (Berks, Buckinghamshire and Oxfordshire), UKJ2 (Surrey, East and West Sussex) and UKJ4 (Kent).

Fig. 2. Relative levels of GDP by inhabitant

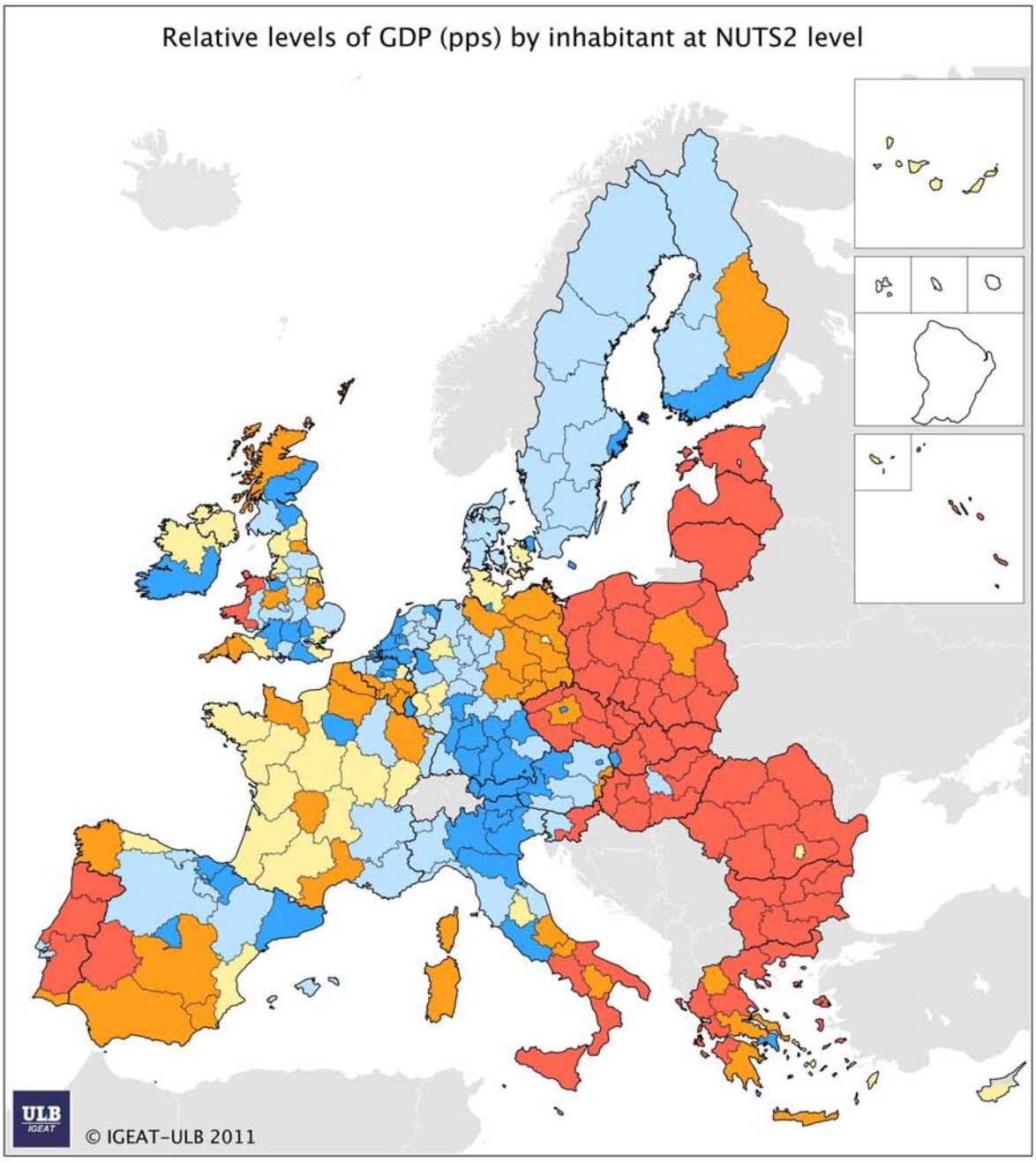
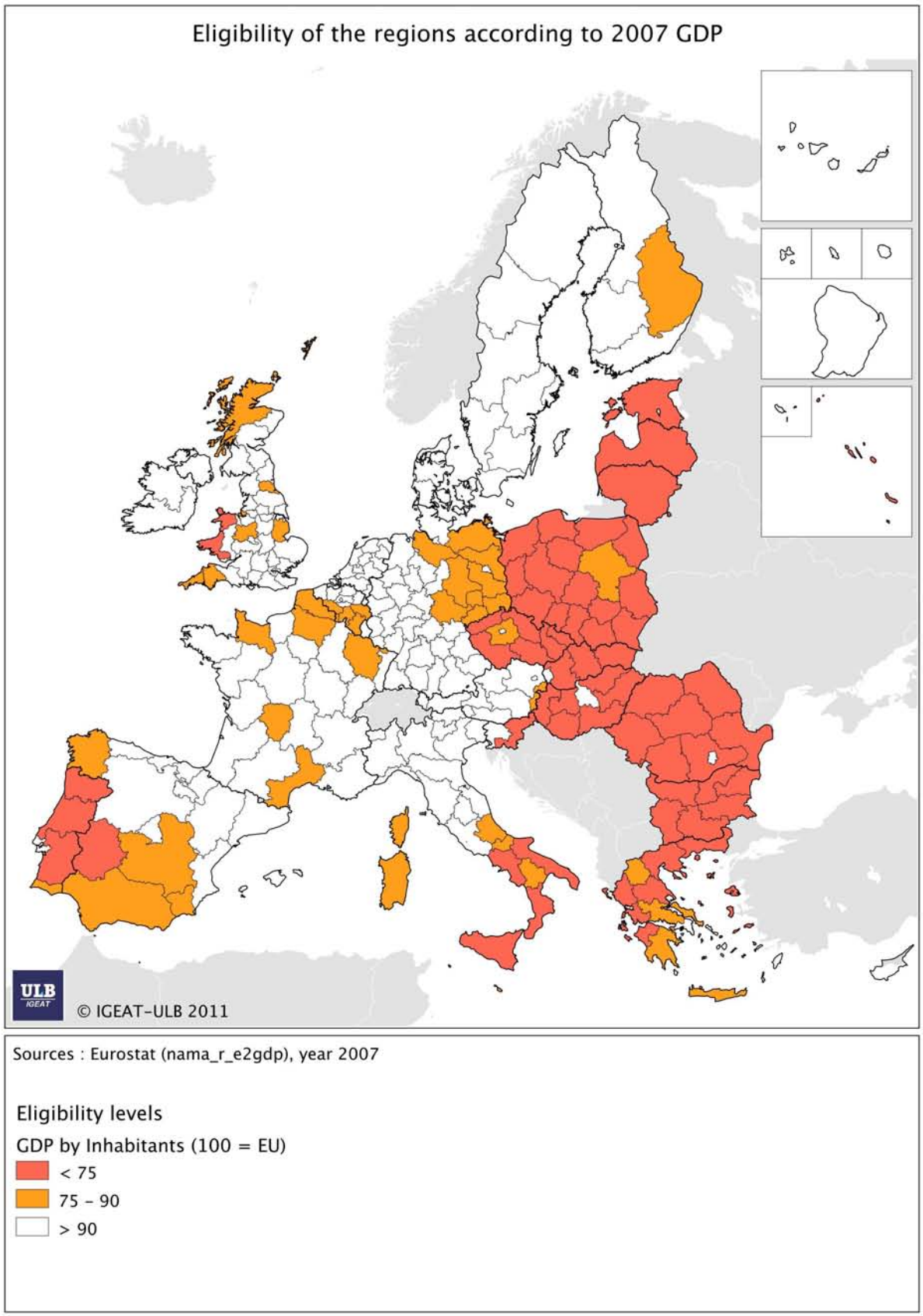


Fig. 3. Present eligibility of the regions (on the basis of the current criteria – GDP/inhab. levels of less than 75 % and 90 % of the EU average and the 2007 GDP levels).



Despite its weaknesses, this indicator obviously reflects the main structures of the European space, between a "centre" concentrating the highest economic command functions and the main part of production, and a periphery, where high level command functions and insertion in world networks are definitely lower. The periphery covers the new EU members, Greece, the south of Italy, the south of Spain, and Portugal. The core of the centre extends from Britain to the north of Italy, along the Rhine axis, with the Ile-de-France slightly apart. In other places, some capital-regions present GDP levels similar to those of central areas, like Madrid (as well as Catalonia and the Basque Country), Rome, Athens, Stockholm, or Helsinki. The high levels of some capital-regions should however be put into perspective, as we will see below, in view of the small size of the corresponding NUTS 2 area, far from covering their employment basin (Brussels-Capital Region, Vienna, Bratislava, Prague, etc.). Eastern (Dublin) and southern Ireland have for years enjoyed very high GDP levels, but this is to be put into perspective due the high share of income transfers to outside the national territory.

Conclusions – Despite its theoretical weaknesses and sensitivity to some statistical breakdown, it is not possible to do without the GDP/inhab. index, but it will have to be complemented.

b. Material welfare of citizens and social inequalities in income distribution

Adjusted income per inhab. available after social transfers (fig. 3 and 4) – This indicator not only takes into account income transfers expressed in monetary terms, but also transfers « in nature », such as health care and education delivery, etc. available for free or at low prices. It is adapted to household size. This indicator seems *a priori* the most appropriate to reflect available material resources of resident populations, since it takes into account both the transfers linked to commuting between NUTS 2 units and social transfers. The geographical correlation between this indicator and the GDP/inhab. indicator is obviously strong (r=0,80) since it expresses the differences in economic development between European countries. It is, however, interesting, especially on intra-national scales, to analyze the positive and negative deviations between the distribution of GDP/inhab. and that of disposable income.

It appears necessary to evaluate not only the average level of disposable income, but also, in a social cohesion approach, its distribution among the different social classes. It is true that in big metropolitan areas benefiting from globalization, average income may be high. Nevertheless, a large part of the population is excluded from this prosperity since growth is generally boosted by highly qualified activities, whereas those areas receive numerous low qualified populations, mainly immigrants, who can therefore face high underemployment rates.

Gini coefficient – The Gini coefficient is a global indicator of inequality in income distribution. It

measures the gap between real and uniform income distribution. This indicator is not available at regional level and is not even calculated on an annual coherent basis on national scales. It is often calculated on tax revenues, which do not correspond to the total revenues (notably in cases where the poor are not required to fill in income tax forms). In addition, the Gini index suffers from the fact that one and the same value of this indicator can represent both an inequality against the most deprived and a more equitable income distribution within the most well off classes (less « very rich » among « rich » people). **It, therefore, appears both practically impossible and scientifically non pertinent to use the Gini coefficient as an indicator combined to GDP/inhab**.

The part of households at risk of material deprivation– This indicator measures the percentage of the population deprived of the possibility to achieve at least 4 out of the 9 following items : ability to face unexpected expenses, ability to pay for a one week annual holiday away from home, existence of arrears on bills (mortgage or rent payments, utility bills, or hire purchase instalments or other loan payments), capacity to have a meal with meat, chicken or fish every second day, capacity to keep the home adequately warm, ability to afford a washing machine, colour TV, telephone or car.. This indicator, not based on exhaustive statistical sources, but on the SILC enquiry, is, in theory, more interesting than the Gini coefficient, since it measures inequalities affecting the poorest populations. It nevertheless poses some problems. First because it is not available at regional level in several countries (UK, Germany, France). Fortunately, in the latter countries the average national value of this indicator is low, so that in a first step we could apply this value to the different NUTS 2 regions of those countries. But, on the other hand, the values published for this indicator raise questions as to the reliability of the indicator : is it really believable that Extremadura, one of the most deprived areas of Spain, enjoys a very low material deprivation indicator, equal to that of The Netherlands, and lower than the French or German average, while inversely high values are observed in the south of Italy? ***This is why we remain sceptical about the reliability of this indicator***.

This indicator is however well correlated with disposable income after social transfers (r = -0,79), or even -0,62 with the GDP/inhab., but this correlation is of course strongly linked to the substantial inequalities between the former EU countries and the new Members.

Conclusions – Since it is not possible to calculate a Gini coefficient on a regional basis and on the basis of the whole disposable income (not only tax revenues), and given the uncertainty regarding the reliability of the material deprivation index (for which, moreover, there are holes in the regional coverage which are difficult to fill through the SILC enquiry in its current form), we have to reject these indicators. At this stage, it is unfortunately impossible to take into account social inequalities in income distribution. We will however come back to this issue in the next point, devoted to employment and social situation. At this stage net adjusted disposable income per inhabitant seems the best (and sufficient) indicator of the "material well-being" dimension[5].

5 It has been proposed to use migratory balances as indirect indicator of the economic development and population well-being, supposing negative balances reveal a situation judged by emigrants less favourable than that of the regions of immigration. Those migratory balances can be estimated as the difference between population growth and natural balance. Yet, the correlation coefficient between migratory balances and disposable income after social transfers is low (r = 0,23), and even lower – not significant – with the GDP/inhab. (r = 0,15). What is more, those low rates are explained almost exclusively by the frequency of negative migratory movements at the NUTS 2 level in regions of Central-Eastern European countries. This is due to the fact that migratory movements reflect less and less (if they ever did, as the neoclassical theory argues) a so-called rationality in worker mobility only based on job market access and wage differentials. The causes of migration are multiple and complex in a life cycle, from social advancement or job search in wealthy areas (or in less wealthy ones, such as extra-European immigration in Mediterranean agricultural areas), to retirement migration toward sunny areas. A rich region in a poor country can be more attractive than a more prosperous region with a poor environment in a rich country. The wealthiest French region, Ile-de-France,

c. Social and employment situation (social « fragilization »)

We will examine here the other two of the indicators proposed in the study request:

- ***persons at risk of poverty after social transfers ;***
- ***share of households with low employment intensity.***

In addition, the following indicators reflecting the job market situation are available:

- ***global unemployment rate ;***
- ***long lasting unemployment rate ;***
- ***young people aged 15-24 not in work, education or training, average 2006-2008;***
- ***young people's unemployment rate.***

Population at risk of poverty after social transfers – This indicator can appear as a measure of social inequalities faced by the poorest, and a possible alternative to the Gini coefficient. Even though it is based on SILC just as the indicator of material deprivation, it offers the advantage of being available everywhere at NUTS 2 level. But its definition is based on a national reference, as it considers the part of the population whose adjusted (to household size) disposable income is inferior to 60% of the national median. This reference to a national situation obviously explains the relatively weak correlation between this indicator and the GDP/inhab. (r = -0.46) or the disposable income after social transfers (r = - 0.40).

Percentage of households with low employment intensity – This indicator is also built from the SILC database. Based on surveys, it is unfortunately not always available nor reliable at NUTS 2 disaggregation level. ***This is why it is not provided as aggregated values at NUTS 2 level by Eurostat.***

*
* *

The table showing correlations between indicators (table 1, fig. 1) reveals that the ***population at risk of poverty after social transfers is correlated with other social indicators related to the lack of employment opportunities, easily available and based on exhaustive information rather than on surveys*** (r correlation coefficients from 0.63 to 0.90 depending on the (un)employment indicator used). This table also shows that, if the indicators of this group are strongly correlated with each other, they are less with material well-being or economic situation indicators.
Indeed, the employment situation is not – and is less and less – directly linked to economic prosperity, which can depend on activities which do not correspond to the qualification profile of a large part of the local workforce, like in big metropolitan areas. In addition, unemployment rates, which as such represent a social problem even beyond their impact on individuals' and households' income, can also be influenced by a range of factors such as population age structure, even within the active population. We thus have to investigate the different available indicators to deal with this problematic issue and examine how it is linked with the risk of poverty after social transfers.

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remains attractive to foreigners and young adults (for studies and career start), but its migration balance has become negative as a result of the departure of populations of other age classes. Examples are numerous that lead not to use migration movements as development and social cohesion indicators, even if the economic and social problems in some regions are expressed in the long- or medium-term persistence of negative migratory balances (the French Nord-Pas-de-Calais, the east of Germany, of peripheral areas of Central-Eastern Europe, etc.).

As “population risking poverty after social transfers” is an indicator which is calculated in relation to national median values, its correlation with the indicators of lack of jobs shows clearly that, even if formal definitions of unemployment rates are homogenized in European statistics, they in fact depend on national job access conditions and on unemployment benefits (level and duration). So, neither the indicator of population at risk of poverty nor unemployment or lack of jobs indicators are well correlated with the level of GDP/inhab. (r between – 0.32 and – 0.46) or the level of income after transfers (r between -0.25 and -0.43).

Conclusions – “Social fragilization” can only be expressed by a synthetic indicator. The high level of correlation between the five above-mentioned indicators (four indicators of unemployment and poverty after social transfers) leads us to merge them into a synthetic indicator “social and employment situation in the most vulnerable populations”, although one must not forget that it mostly refers to national rather than European frameworks, even if formal statistical definitions are identical for the different EU countries as far as the four unemployment indicators are concerned. This strong “national” bias has nevertheless a political significance, for instance in terms of choice between more national competitiveness-oriented policies or more intra-national social cohesion-oriented policies.

d. Health

We think it is legitimate to add to the previously proposed indicators one or another indicator reflecting the population’s “global health”.

Life expectancy at birth (i.e. average number of years a generation lives in the current mortality conditions at each age) is the most global indicator of population health. It reflects the sanitary, environmental, nutritional, etc. living conditions of a population, and is available for males, females, and the average of both. We will only retain male life expectancy at birth, because the correlations of this indicator with economic (GDP/inhab.) and material well-being indicators (income after social transfers) are higher for men than for women (respectively 0.60 vs. 0.51, and 0.81 vs. 0.72; it is worth noting that these correlations are higher for income after transfers than for GDP/inhab.). Since male life expectancy is lower, this also reflects a higher sensitivity of the improvement of male life expectancy as a reaction to the economic, social, or even environmental conditions. In this way, the variation coefficient (mean distance to the mean, i.e. standard deviation, expressed as a percentage of the mean; non weighted) of female life expectancy between European NUTS 2 regions amounts to 2.8% vs. 4.2% for men. ***For this reason, we opt for Male life expectancy at birth because this indicator is the most discriminating which can be used to reflect a situation of global health development.***

Infant mortality rate – Since this rate is very low in developed countries, it is an indicator of medical conditions regarding childbirth or prenatal care rather than a global health indicator. In addition, its small variations can reflect different conditions, according to countries or even regions, of stillbirth registration (as well as the “access” to abortion of foeti recognized as deformed in prenatal tests, or even the quality or efficiency of these tests).

Infant mortality rate, female life expectancy and male life expectancy are of course very much correlated (r = 0.65 between Infant mortality rate and Male life expectancy; 0.72 between Infant mortality rate and Female life expectancy; 0.88 between Male and Female life expectancy). We could thus calculate a synthetic health indicator taking into account these three indicators, but for pre-described reasons we'd rather avoid as much as possible synthetic indicators when they are not indispensable. Moreover, in order not to multiply the number of indicators, and since the correlation between Male life expectancy is better with GDP/inhab. and disposable income (r = respectively 0.60 and 0.81) than for Female life expectancy (r = 0.51 and 0.72) and Infant mortality rates (r = -0.47 and -0.60), we think that male life expectancy rate at birth is a sufficient and satisfying indicator of global health conditions.

Conclusions – As best indicator of global health we will retain Male life expectancy at birth.

e. Education and access to information (« quality » of human capital)

These issues seem important to judge the situation of European regions in terms of territorial cohesion. They can reflect the quality of human capital in the economic development, but also have a social value independent from economic considerations. The following indicators will be examined:

Percentage of 25-64 year-old male population with a high level of graduation – This indicator is pretty well correlated with GDP/inhab. and disposable income after transfers. As for life expectancy, we consider male rather than female population, because here also correlations are more discriminating when one considers men rather than women (the correlation between high levels of female and male education is moreover not very high : r = 0.79). This probably results from the recent trend of higher shares of women attending higher education than men, and maybe also from differential migration effects according to sex.

Percentage of 25-64 year-old population with a low level of graduation – Here, on the contrary no difference is observed according to sex. The correlation between male and female population is 0.96. This indicator, unlike the previous one, is not much correlated with GDP/inhab. nor with income after transfers. It is first of all an indicator of social deprivation, and its strongest correlations are with young people's unemployment rate (r = 0.46) and unemployed young people (r = 0.38). We thus propose not to take it into account, since this field is already covered by the five retained for the section "employment and social situation".

Percentage of population using internet at least once a week – This indicator shows a quite good correlation with high male graduation level (r = 0.69), level of income after transfers (r = 0.66) and level of GDP/inhab. (r = 0.57).

Conclusions – In this section we will opt for the share of Male population with a high level of education and of those who regularly use internet, which we will merge in one index, based on

the average of standardized values of these two indicators. As such, this index will reflect the "quality" of human capital for high quality economic development rather than the basic educational deprivation of a part of the population.

f. The environmental dimension

We prefer not to take this dimension into account at the regional level. Indeed, one can wonder if it is preferable to equalize emission levels on a state's territory at the level of the national average, or to have regions where emissions are higher and other ones where they are lower. The objective should obviously be to reduce the global volume of emissions, at national if not European level. It is thus difficult to assert the relevance of indicators at NUTS 2 level. Moreover, these relevant indicators are inexistent as far as our territorial cohesion approach is concerned, except maybe some particle emissions about which the proposed figures seem quite doubtful, probably in relation to measurement points and their location in regional territories. Furthermore, it is difficult to know what could give access to any eligibility : bad environmental performances (for improving the situation) or good ones (for encouraging the best practices ; but better environmental performances could also be only linked to the industrial structure – or even to the dismantling of polluting industries, leading to a strong economic crisis). It seems a better solution – as the Greens/EFA group proposes it itself – to link the eligibility conditions to other criteria, but to require that the received funds are used to "environmental-friendly" projects.

Conclusions – This dimension is excluded for determining the criteria of regional eligibility.

g. Excluded composite indices

These composite indices are used in the reports on economic, social and territorial Cohesion. We will not retain them because they mix basic indicators of different natures, while we rather use indicators reflecting clearly each of those dimensions.

Human development index (HDI) – This indicator combines two indicators related to the « quality » of human capital (internet access and high education) and two related in our understanding to social fragilization (low education and long-lasting unemployment). Meanwhile, we have seen that these two dimensions are quite independent of each other. Indeed, male high education only has a r = -0.34 correlation with low education, r = -0.30 with long-lasting unemployment. Similarly, internet access is better correlated to male high education (r = 0.51) than low education (r = -0,37) and long-lasting unemployment (r = -0.22). Variations in HDI are therefore difficult to interpret. Moreover, HDI is very much correlated with income after transfers (r = 0.91), making this indicator redundant while income is easier to interpret.

Human poverty index (HPI) – This indicator is based on the proportion of persons with low levels

of education, the probability to be dead at 65 (both measures values in reference to the European mean), long term unemployment (*de facto* largely national reference indicator), and the percentage of population at risk of poverty (national reference indicator). This indicator combines thus three indicators of social "fragilization" and one global health indicator. In fact, it directly mirrors low education (r = 0.96), since its correlation is less strong, if not inexistent, with the other three components, making interpretation uneasy. We thus choose to eliminate it.

h. General conclusion as to indicators' selection

Among the four indicators initially proposed to « complement » GDP/inhab., it seems that only the share of population at risk of poverty after social transfers should be retained, because of its theoretical relevance and easily available data. Meanwhile, it is essential to keep in mind the national rather than the European reference of its values and to integrate it into a more global indicator of social fragility. None of the indicators initially requested for this study thus seems adequate for the task.

Consequently, in order to meet the spirit of the request , we propose to retain, in addition to the economic development indicator (GDP/inhab.), which cannot be ignored despite its weaknesses :

- ***a material well-being indicator*** : adjusted disposable income after social transfers;
- ***a global health indicator :*** male life expectancy at birth ;
- ***a social « fragilization » indicator :*** the score of the first component of a principal component analysis taking into account 5 basic indicators, knowing that the national component is strong in this global indicator ;
- ***a « quality of human capital » indicator,*** taking into account internet access and male high education level

For each of these four indicators, we will examine its geography and the differences to GDP/inhab. (adjusted income level after transfers for the health indicator). To do so, we will consider the regions that would change categories if one took the same share of EU population for classification as that represented by the regions with, respectively, less than 75%, 90%, 100%, and 120% of the GDP/inhab. The threshold of below 75% of the average GPD/inhab. represents 24.3% of the EU population (French DOM excepted), and the threshold of 90% 38.3%[6] . We will consider that these are thresholds of respectively "maximal eligibility" or "restricted eligibility" for structural aid in favour of cohesion.

In the last section we will calculate synthetic indicators taking into consideration all above-mentioned dimensions, however with a specific statute for social fragility, due to its mainly national reference (GDP + 3 + social fragility). The results will be compared with the results of a ranking based only on GDP. They will result in a political scenario about regions as potential losers or winners in structural funds eligibility, on the basis of identical shares of EU population living in eligible regions.

6 50% of EU population live in regions below the GDP/inhab. level 100, 73.4% in those below level 120 .

Finally, we propose a simpler indicator combining just GDP/inhab. and adjusted disposable income after social transfers (GDP + 1). Even though this indicator lacks some of the information contained in the most sophisticated GDP + 3 indicator, it has the merit of simplicity.

4. Impact of alternative indicators on the eligibility of EU Regions

a. Material well-being vs. economic development

At first sight, Figure 4 shows the same centre-periphery structure as the one expressed by the GDP/inhab. distribution. However, a closer reading reveals interesting differences: first, a reduction in the very high GDP/inhab. levels in capital-regions. The latter generate income redistribution toward their whole national territories, and their employment basins can overlap the limits of their statistical area. This appears clearly from the orange/red colour areas in Figure 5 corresponding to those capital-regions (Paris, Madrid, Lisbon, Brussels, Randstad Holland, Frankfurt, Munich, Stockholm, Helsinki, Prague, Warsaw, Vienna, Bratislava, Bucharest, Sofia, Stockholm, Athens, etc.). Those transfers contribute thus to equalize the intra-national development levels. The low relative income observed in eastern and southern Ireland reflects the exceptional weight of income exports from this country. There are also probably income exports from Romania and Bulgaria, as well as from Estonia and Latvia, but this issue should be examined more in depth.

Which would be the impact of taking into account the adjusted disposable income after transfers rather than GDP in terms of structural aid, if one considers the latter would be channelled to those areas representing the same population volumes than those with a GDP level below 75% of the EU average, or possibly, to a lesser extent, below 90% of the average (Figure 6) ?

Maximal aid would go on benefiting the new Central-Eastern European members, but with the essential difference that their capital-regions would also meet eligibility requirements. Aid allocation would also continue to Greece, southern Italy (though less than when considering GDP), Portugal – with Lisbon and the Algarve becoming moderately or broadly eligible. In Spain moderate eligibility would be expanded to Old Castilla and the Valencia region. In Northwestern Europe, a part of old industrialization areas, which benefit from moderate eligibility when GDP is taken into account, would lose this advantage given the high income transfers they are allocated (Nord-Pas-de-Calais, Lorraine, Liège, Chemnitz, the old British industrial basins). This would also be true of the German Regierungsbezirke nearby Hamburg or Berlin facing periurbanization.

Fig. 4. Net adjusted disposable income of private households (PPCS), 2007.

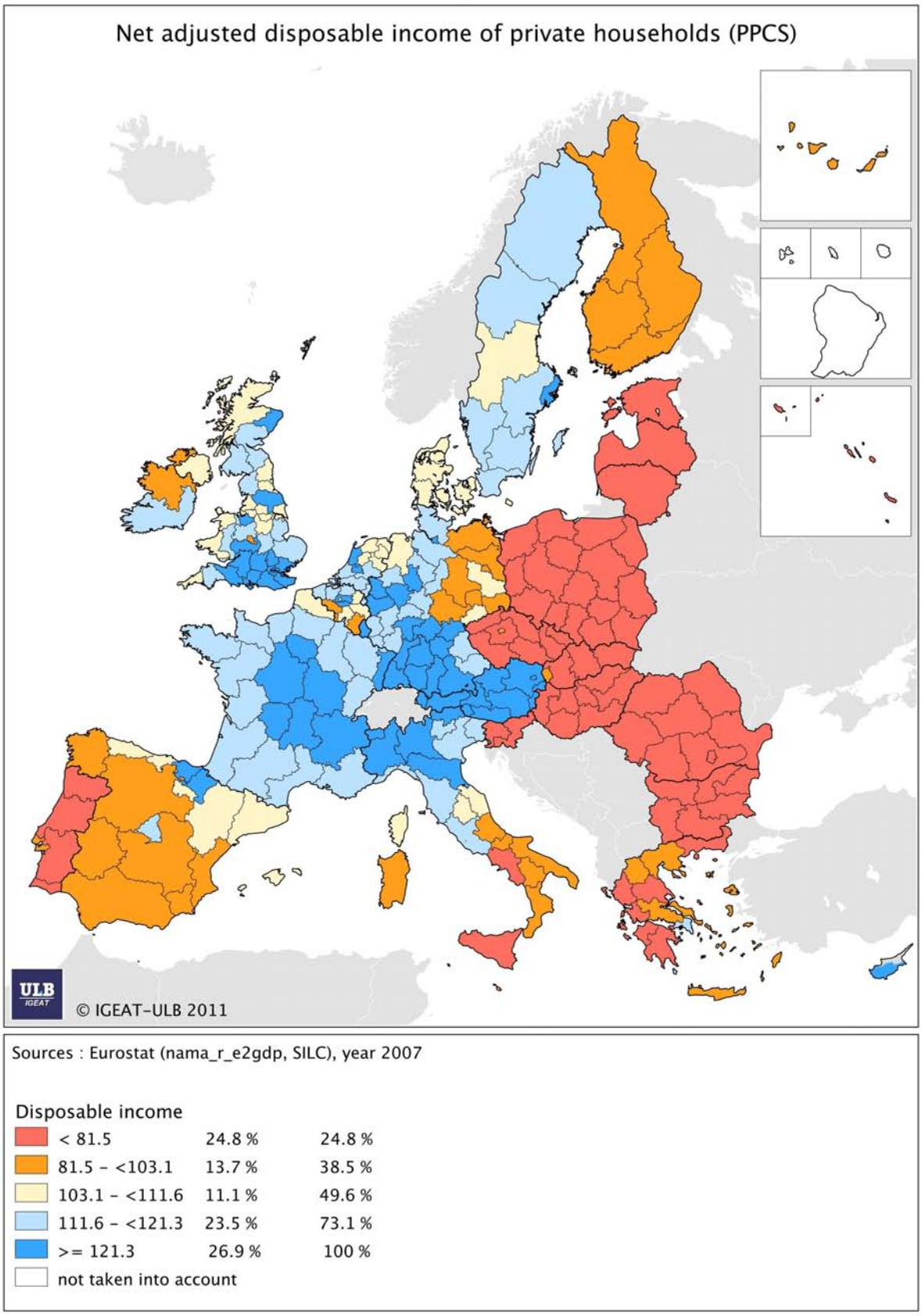


Fig. 5. Ratio between relative levels of net disposable income and GDP/inhab. (pps).

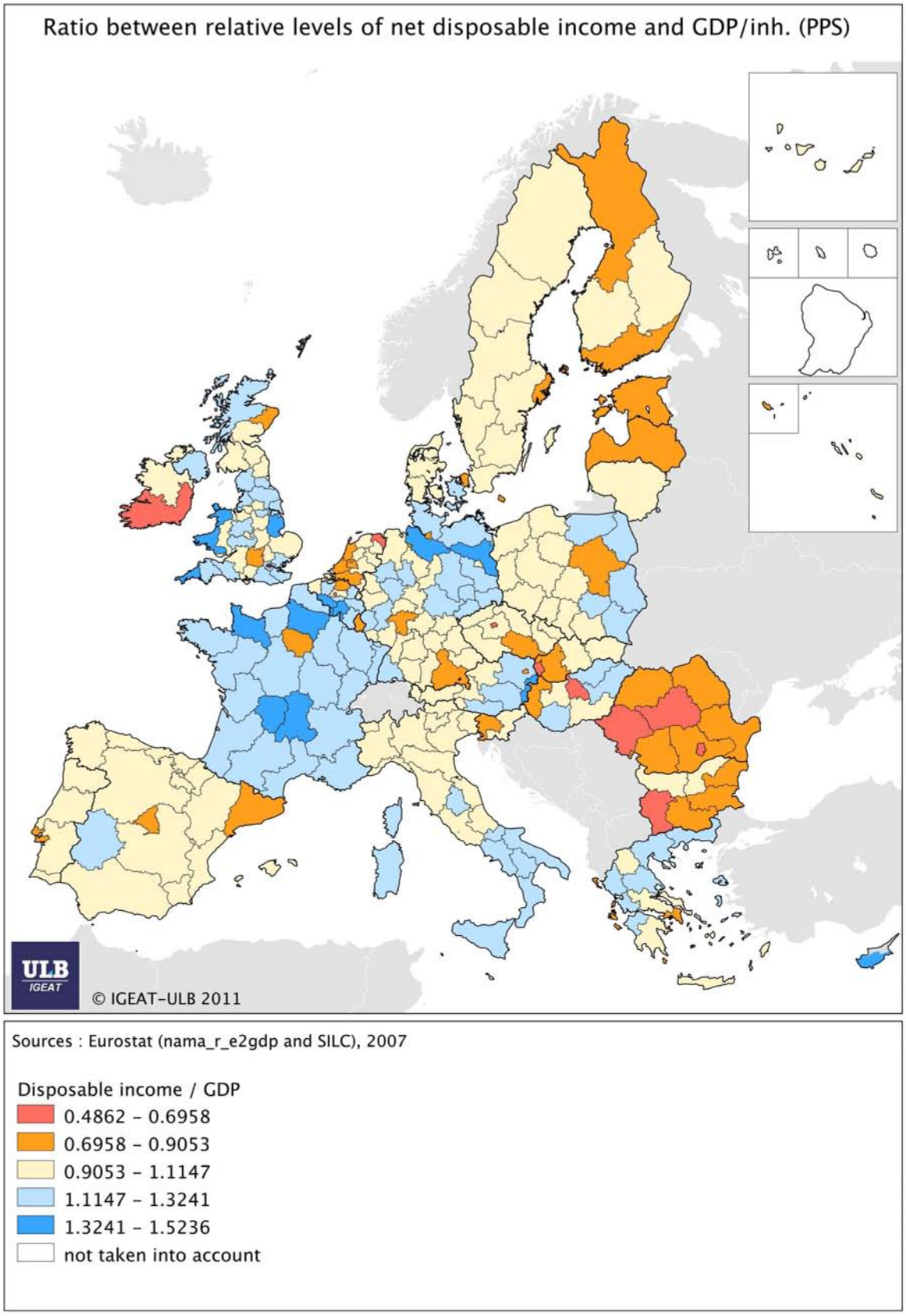
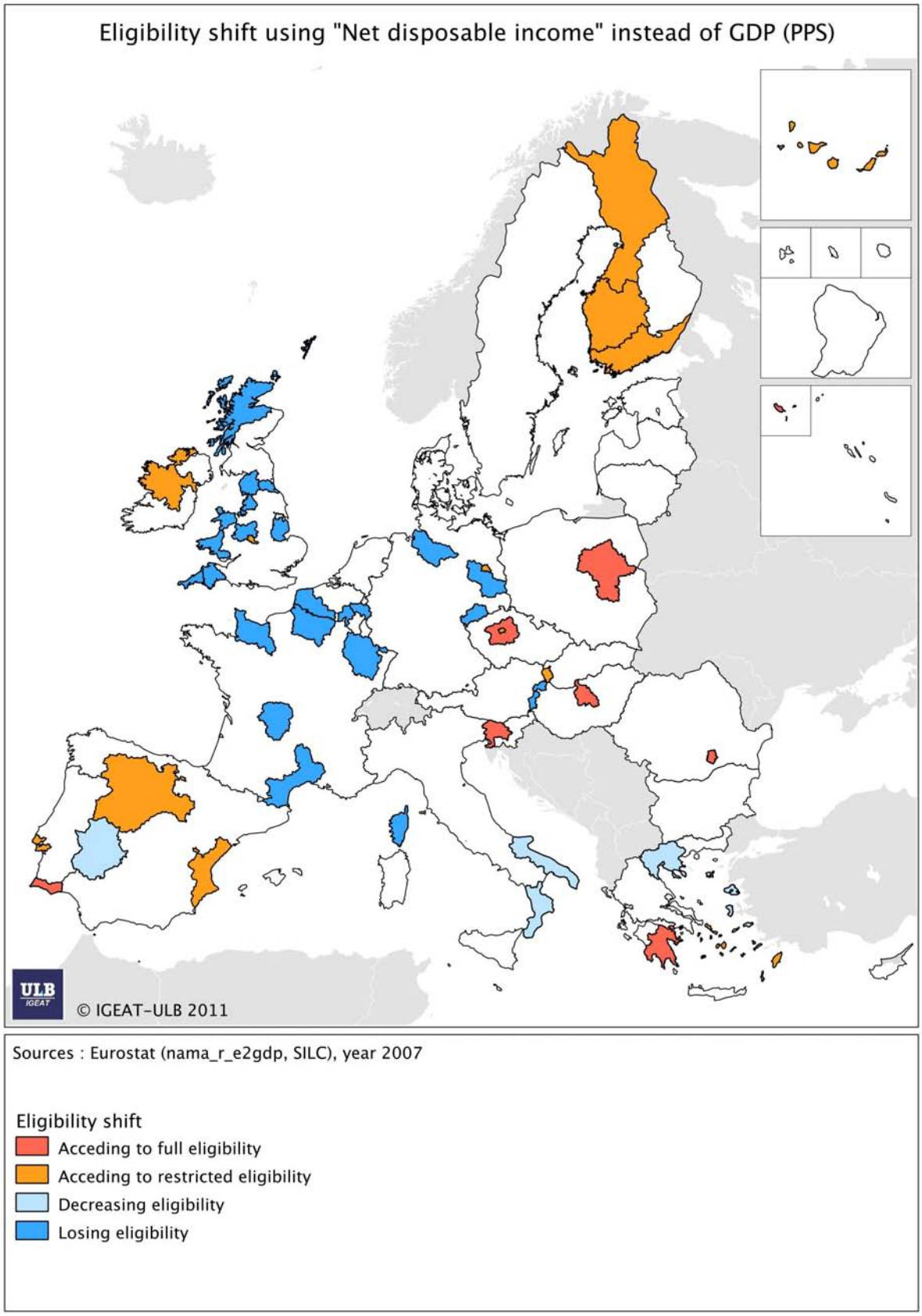


Fig. 6. Change in eligibility using "Net adjusted disposable income" instead of GDP (pps)".



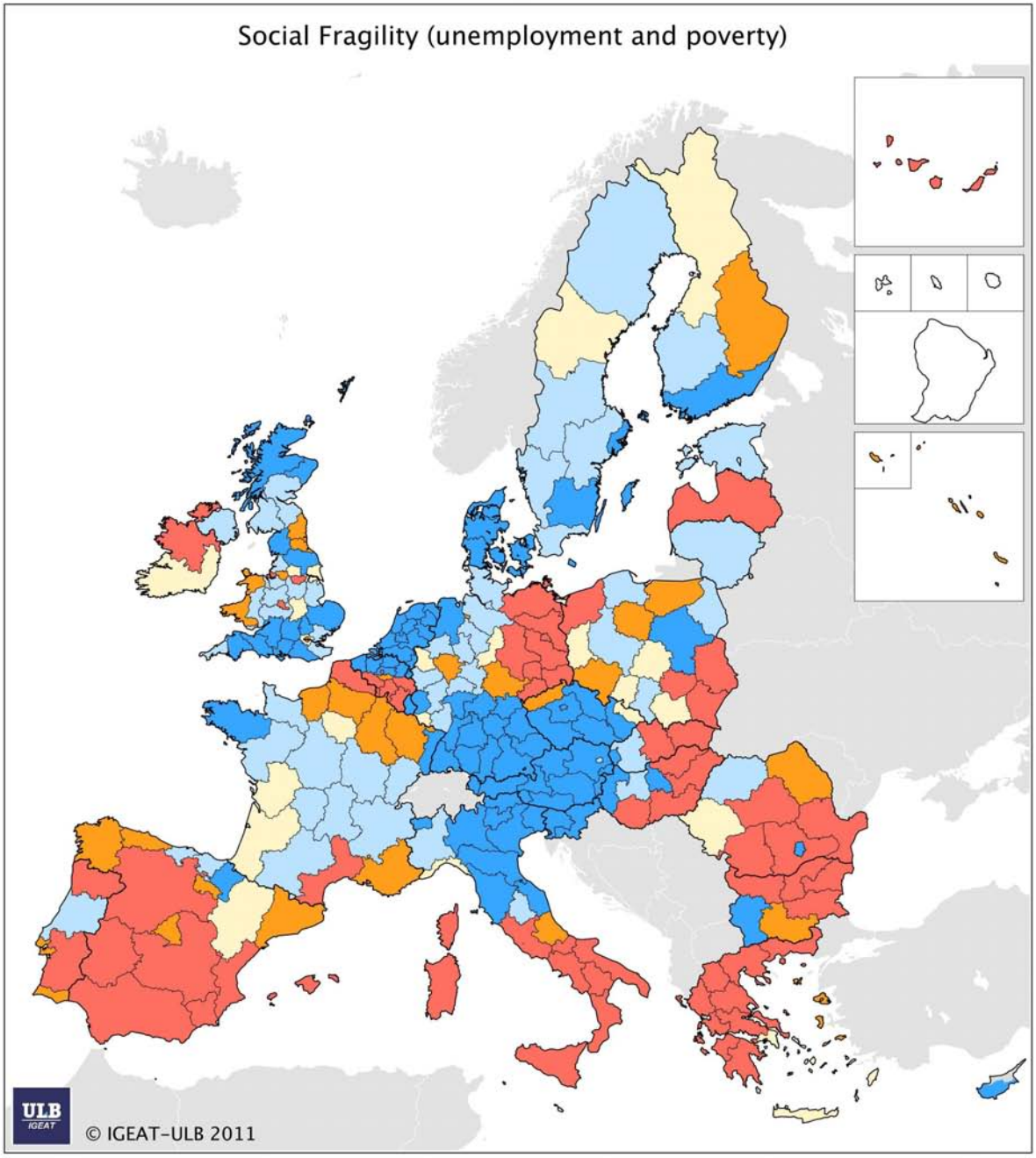
b. « Social fragilization» vs. economic development

It is worth recalling that this indicator is very much influenced by its reference to national rather than European situations (diversity of national conditions on the job market, poverty situations with reference to a national median), and for this reason highlights internal dualities (Figure 7): the urban regions of old industrialization vs. southern Britain; Flemish vs. Walloon Region in Belgium; north and north east vs. the rest of the country in France, with strong social polarization on the Mediterranean coast ; north vs. south in Italy ; eastern Germany vs. old Länder in Germany, but also north vs. south of the country ; east vs. north west in Hungary.

In the old EU members, capital-regions generally present social fragilization indices that are much worse than might be expected from their economic development (London, Brussels-Capital, Ile-de-France, Rome, Berlin). Indeed, they concentrate pockets of poverty as a result of the concentration of immigrants and because their driving economic activities mostly require high qualifications. In reaction to this situation, some of those areas could be targeted for specific aid aimed at urban social policies, whatever their GDP levels. Inversely, in the new member States, the difference in development between capitals and the rest of the national territories as well as the dynamism of the former are such that social fragility is reduced in capitals compared with the rest of the national territories concentrating rural poverty (Warsaw vs. the rest of Poland; Bratislava vs. eastern Slovakia; Budapest vs. the rest of Hungary; Bucharest vs. the rest of Romania; Sofia vs. the rest of Bulgaria).

Because of the national reference of the social fragility indicator, a comparison with GDP/inhab. does not seem relevant.

Fig.7. Social fragility (unemployment and poverty).



c. Global health vs. economic development

The worst levels of global health, but also the highest differences between male and female life expectancy levels, are observed in the new Central-Eastern European members (Figure 8). Contrary to Sweden, Finland performs badly, and so do eastern Germany and the areas of old industrialization (in Britain, and from Nord-Pas-de-Calais to Ruhr). In France, a difference persists between a northern crescent presenting high mortality rates (and simultaneously the highest fertility) and the rest of the country. In Belgium, the Flemish Region contrasts with Wallonia. Mediterranean countries (notably Italy and Spain) generally perform better in terms of life expectancy rates, which are higher than might be expected from their level of economic and material development (Figure 9).

Fig. 8. Male life expectancy at birth

The differences of male life expectancy are so big inside the worst category that we have divided the first class into two subclasses (dark red and red).

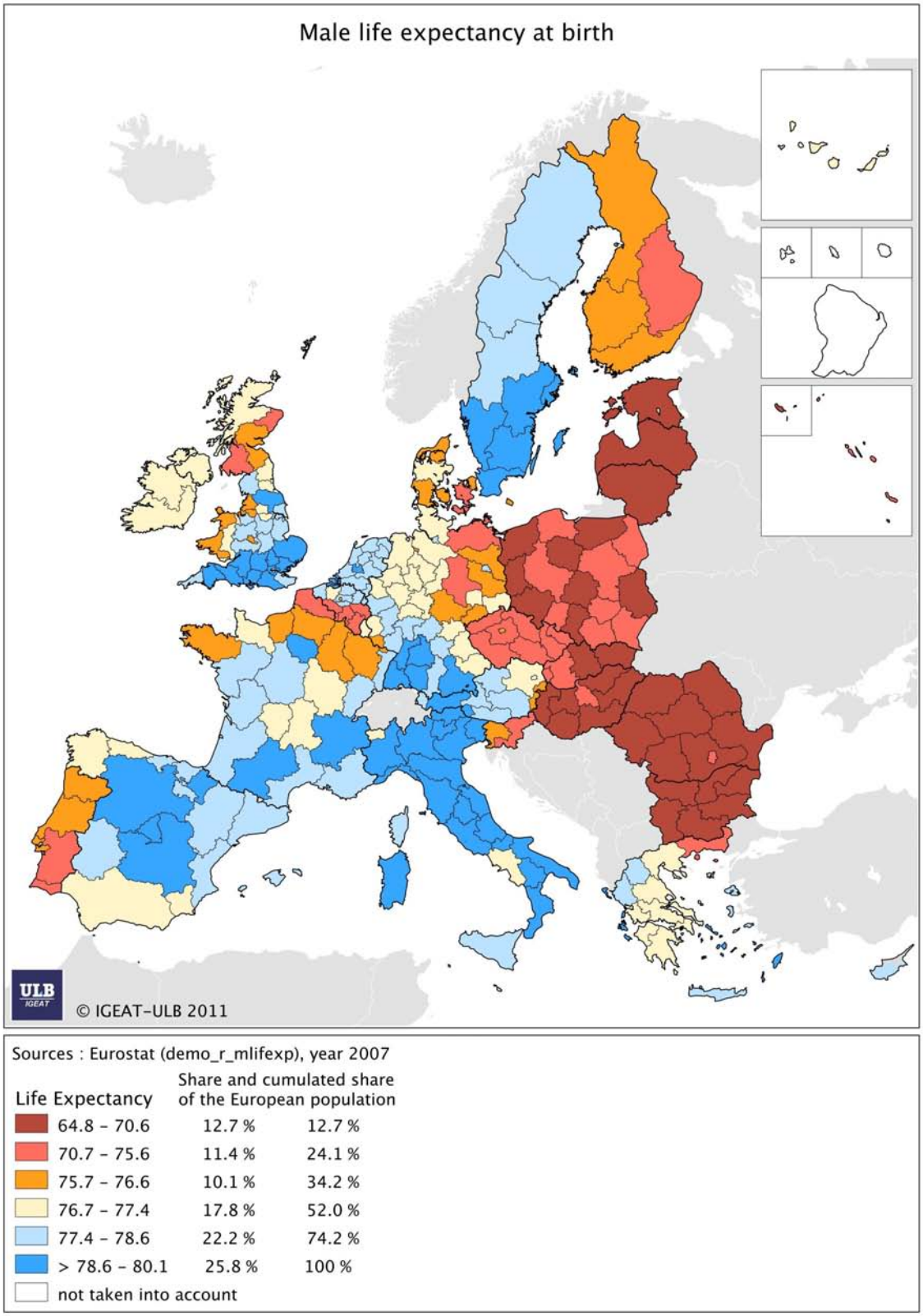
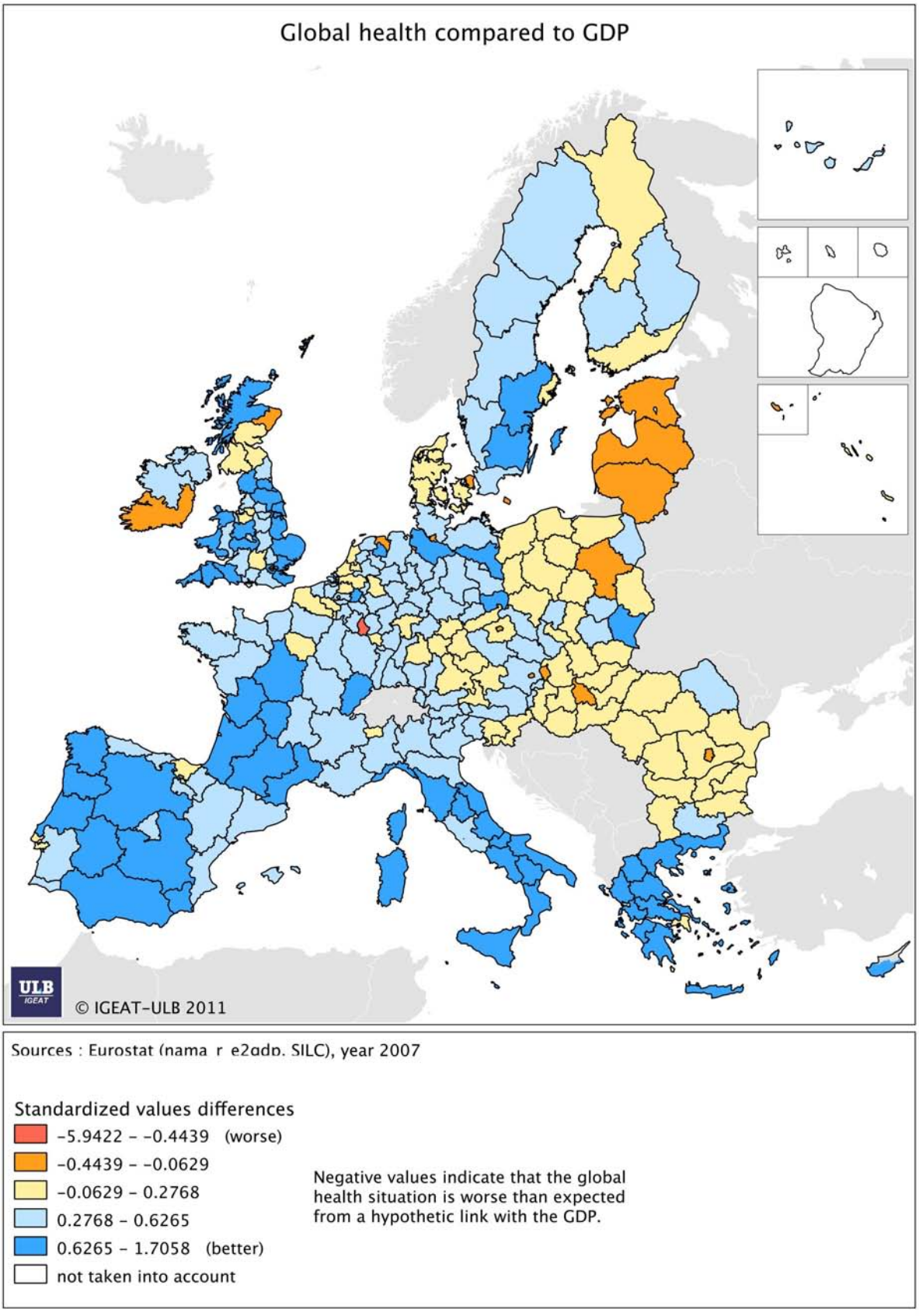


Fig.9. Male life expectancy at birth compared to GDP



d. « Quality of human capital and of access to ICT » vs. economic development

The quality of human capital and of ICT access (Fig. 10) seems to be the worst in the new EU members (except in capitals, and with the notable exception of Estonia), with however Mediterranean countries not far behind (even the most prosperous areas like the north of Italy).

If one compares the relative position of EU regions in terms of quality of human capital and access to ICT in comparison to their position in terms of GDP, the handicap of northern Italy (and to a lesser extent Austria and northern Spain) is obvious (Figure 11). This is the result of economic prosperity largely based on the development of small and medium industrial firms' networks requiring limited high qualification levels but building on learning-by-doing and implementing relatively limited R&D. Such situations should require particular attention, since this type of industrial economy is likely to face strong competition with peripheral countries such as China, where it is difficult to go up technological value chains because of the relative weakness of human capital. It is also worth noting that in Ireland, where the fast catching-up in terms of GDP was partly based on the development of high technology industrial sectors, though in low-level production segments, the human capital qualitative level is lower than expected from GDP levels, but more in accordance with the level of adjusted disposable income, i.e. taking into account massive income exports.

Fig. 10. Mean value of internet use and male high education.

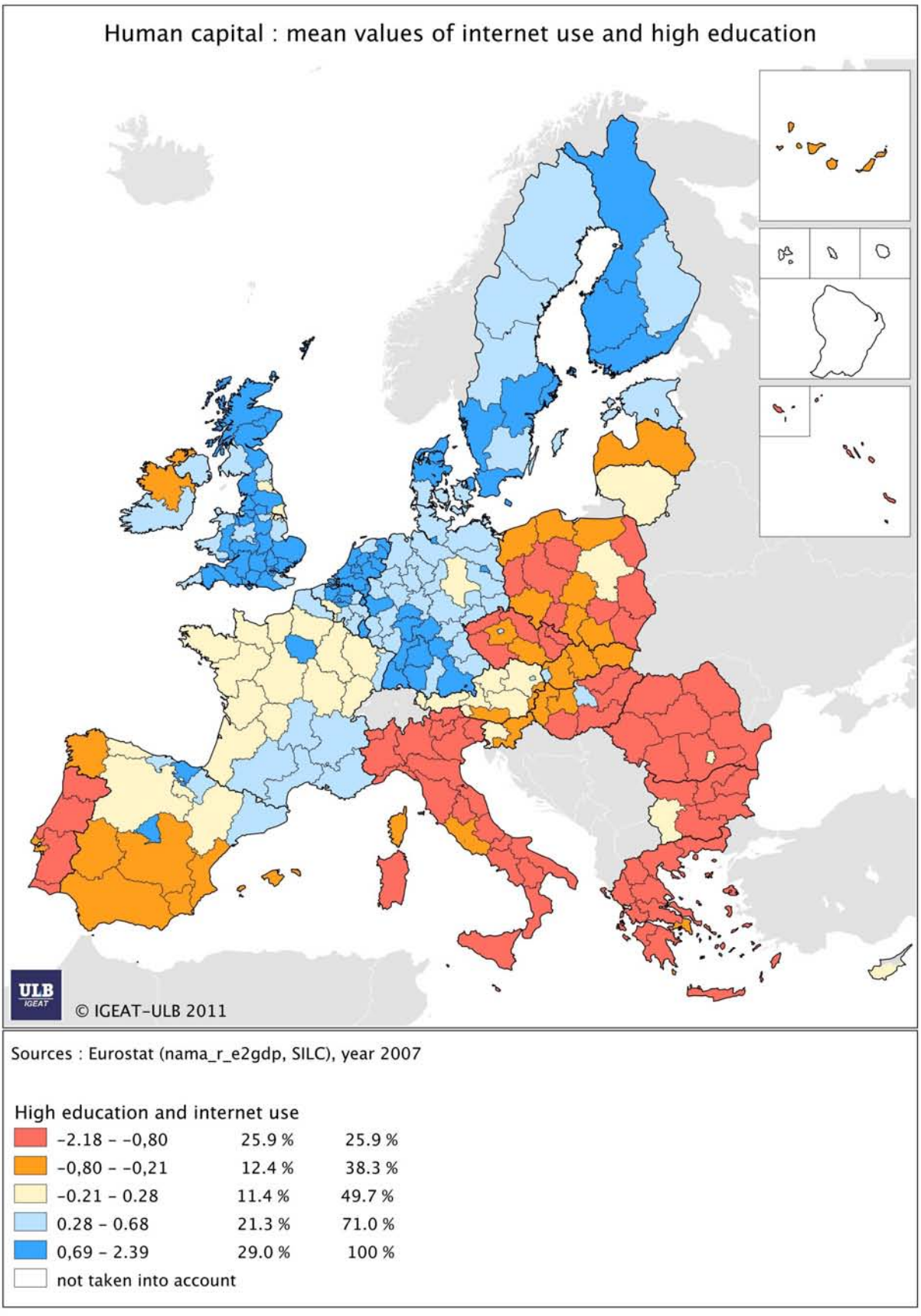
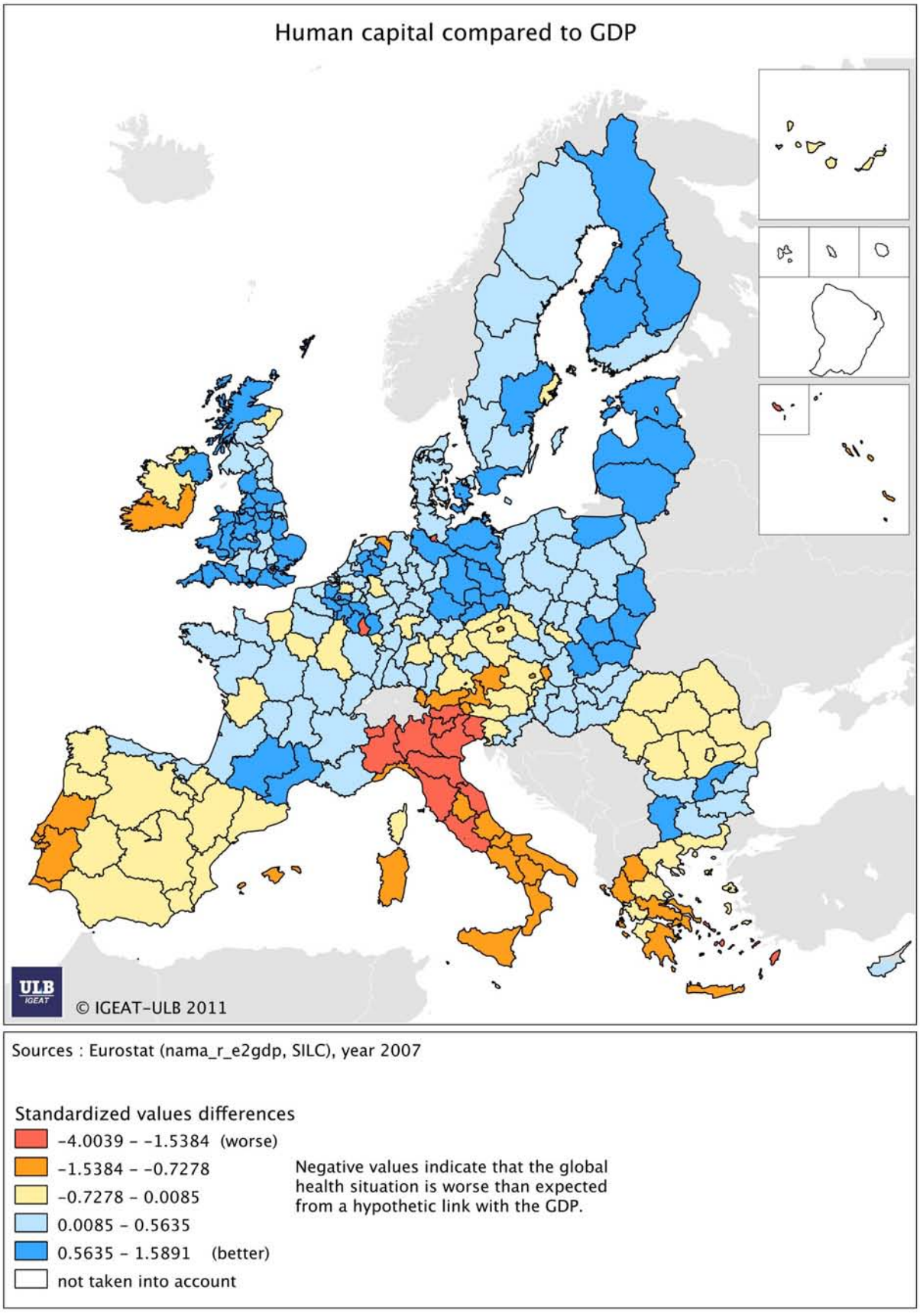


Fig. 11. Gap between Human capital and GDP

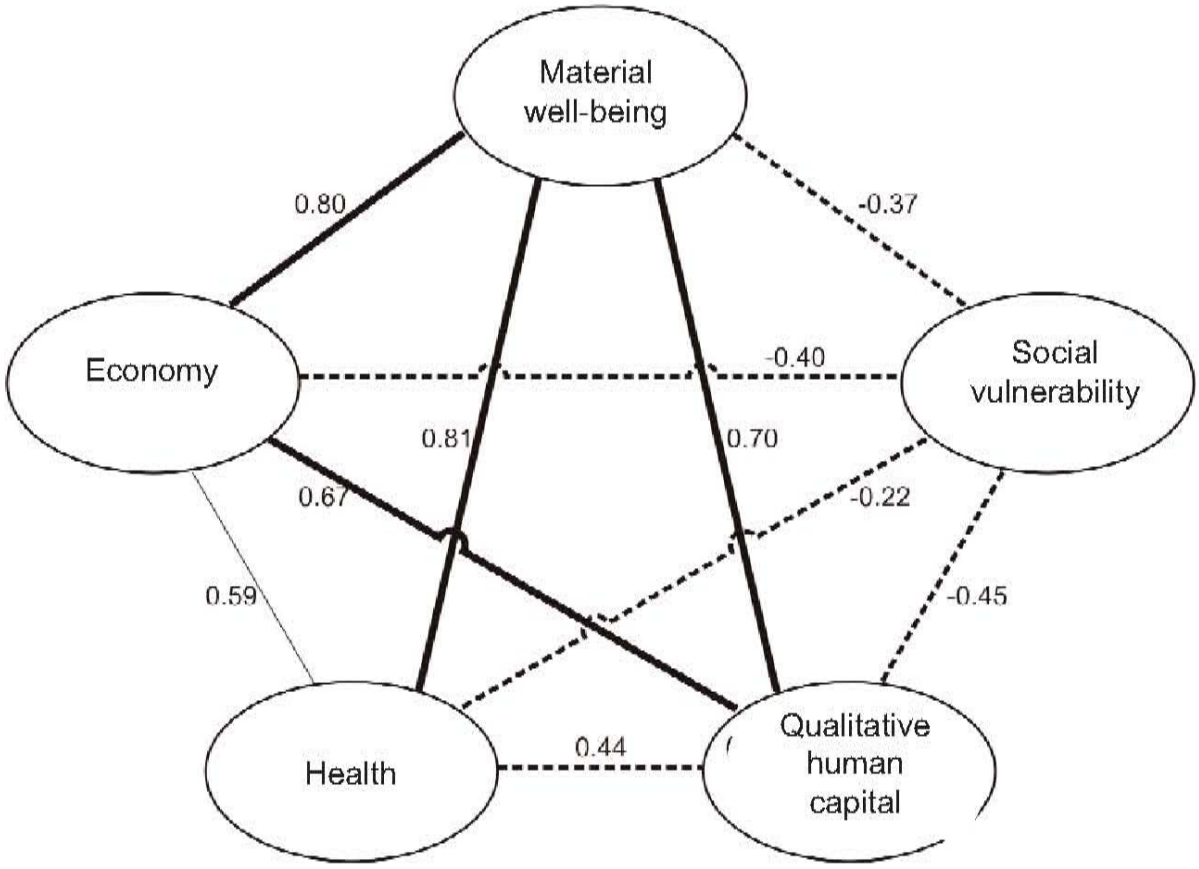


5. Proposals for a synthetic index of economic, social and territorial cohesion

	Economy	Material well-being	Global health	Social fragilization	Human capital
Economic indicator	1,00	**0,80**	**0,59**	-0,40	**0,67**
Material well-being indicator	**0,80**	1,00	**0,81**	-0,37	**0,70**
Global health indicator	**0,59**	**0,81**	1,00	-0,22	0,44
Social fragilization indicator	-0,40	-0,37	-0,22	1,00	-0,45
Human capital quality and access to information technologies indicator	**0,67**	**0,70**	0,44	-0,45	1,00

Table 2. Correlation coefficients between the different synthetic indicators.

Fig. 12. Schema of the main correlations between indicators.



The table and the figure confirm the scientific relevance to consider social vulnerability as an independent variable, using it as a separate indicator, for other kinds of politics, and to propose either a consolidated GDP + 3 (= + material well-being, health and human capital), or even a simplified GDP + 1 index (= + material well-being) for determining eligibility to regional structural funds.

a. First solution : GDP + 4

The scores of regions on the 5 dimensions (thus including social vulnerability) can be submitted to a principal components analysis highlighting the main underlying dimensions.

The first component of this analysis shows 65% of the total variance, the second 17%, i.e. 83% for the first two components. The 5 dimensions are well correlated to the first axis (in other words, they are well « synthesized» by the first axis), with coefficients between 0.78 and 0.94 (except social fragilization with 0.55, however well correlated with – and largely contributing to forming the second axis (0.77). All this expresses a certain independency of this variable compared with the other dimensions, notably explained by the impact of national frameworks and by the fact that large prosperous metropolitan areas can also be places of social fragility.

b. Second – preferable – solution : GDP + 3 (on the basis of PCA scores) and « social fragility »

In view of the relative independence of the « social fragility » variable and its reference tospecific national systems we think it is preferable to build a synthetic indicator of eligibility for regional funds taking into account only the 4 other dimensions – economy, material well-being, global health and human capital -, and to consider the indicator of social fragility separately. This could for example lead to eligibility for specific aid to fight social polarization, justified by a strengthening of intra-national cohesion and benefiting certain metropolitan areas faced with acute social issues despite their prosperity.

In this case, the principal component analysis limited to the four retained dimensions presents 75% of the variance on the first axis and 15% on the second, with very high levels of correlation for these 4 dimensions on the first axis (from 0.80 to 0.96 – Figure 13a). ***It is thus quite acceptable to determine the regions' eligibility for structural funds on the basis of the scores on the first axis, coupled with specific social aid to areas that do not meet general eligibility requirements, but are socially fragilized*** (the regions with the worst scores at thresholds of 23.8% and 38.1% of EU population, corresponding to the current eligibility thresholds of 75 and 90% of the GDP/inhab. - Figure 13b).

Fig 13a: The position of the variables on the first two axes of the principal component analysis without the social fragility indicator.

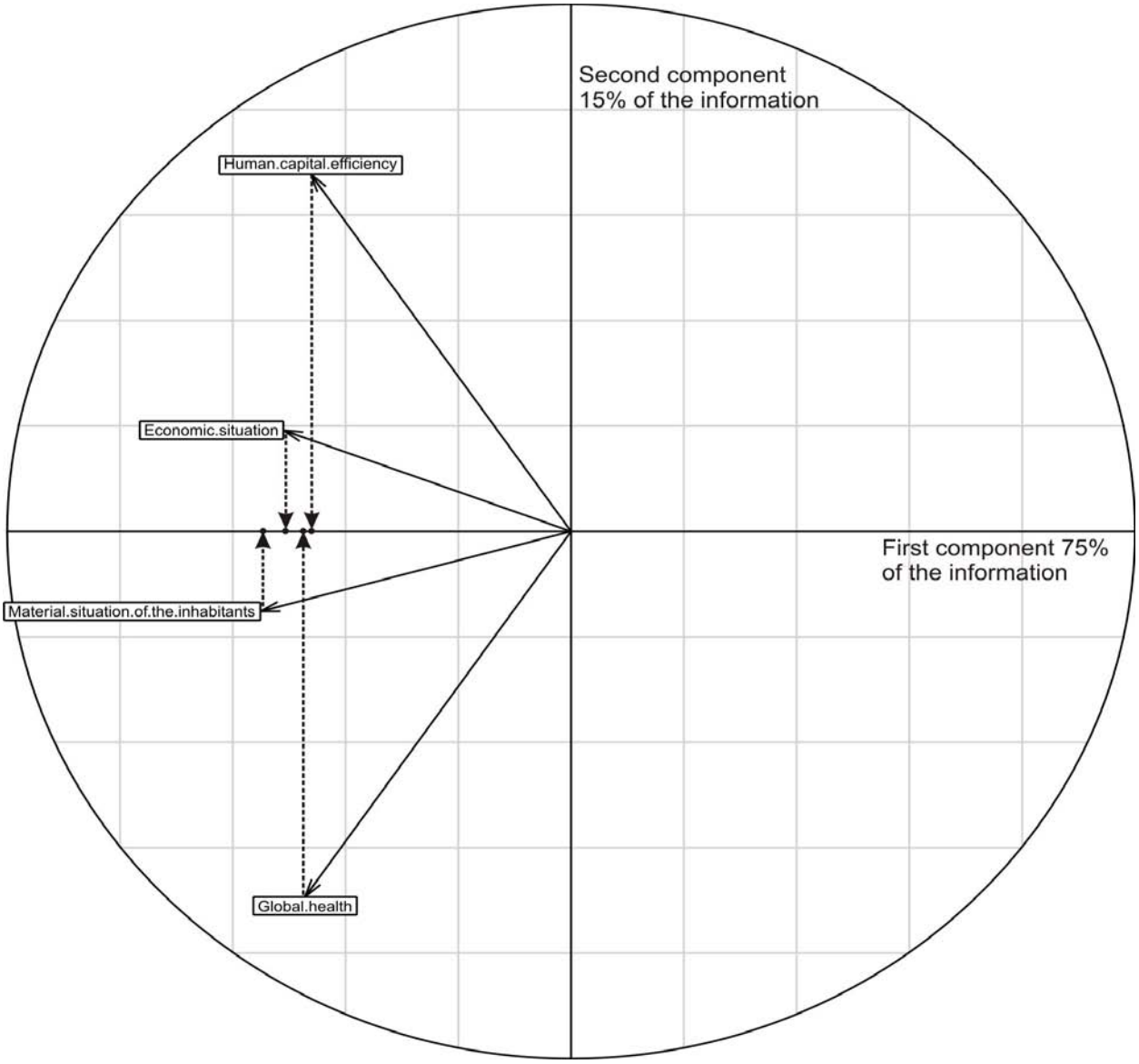
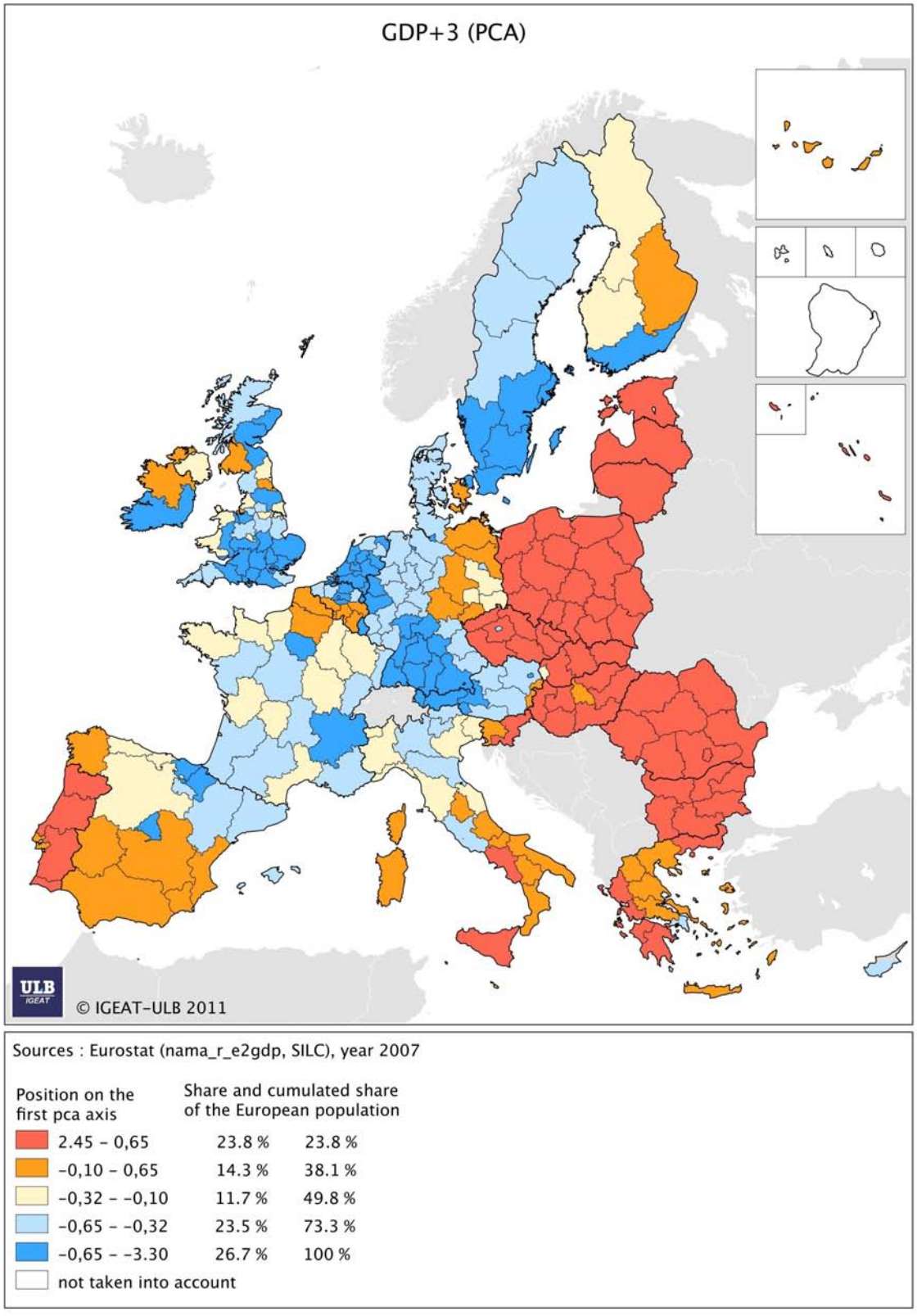


Fig. 13b. Scores of the regions on the first axis of the principal components analysis (on the basis of 4 dimensions, GDP + 3, = without social fragility)

except DOM. (The colours correspond to the same thresholds of proportion in the total EU population as those based on GDP/inhab. levels below 75%, 90%, 100%, 120 % and above 120 % of the EU population)

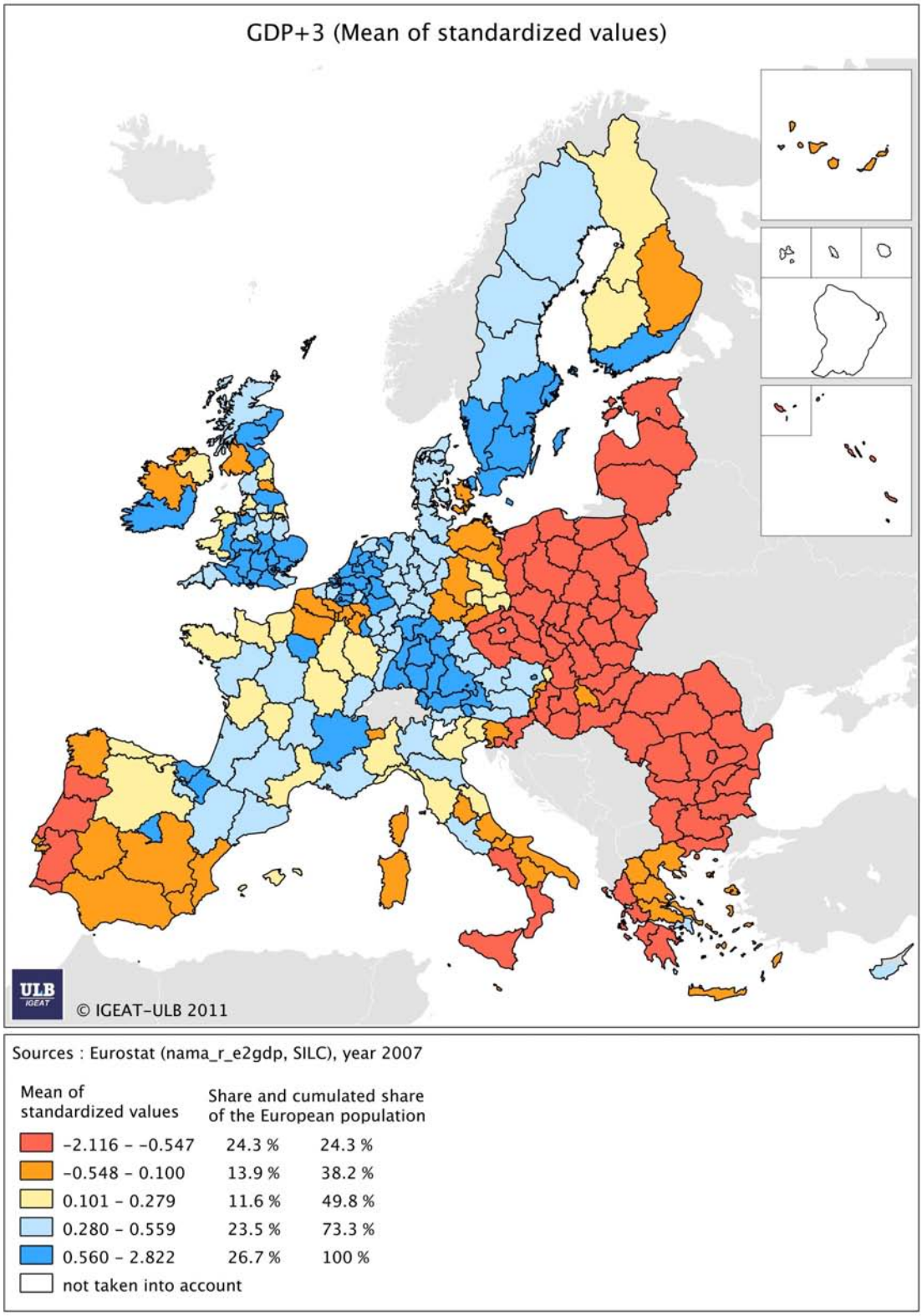


c. Second solution bis : PIB + 3 (preferable and easier to understand) and « social fragility »

The above proposal is the most correct from a « scientific » point of view. Meanwhile, ***one could consider it would be politically difficult to build a system of aid allocation based on criteria determined from a principal components analysis, which would be misunderstood by the general public***. Since the four indicators (GDP/inhab. + adjusted disposable income + global health + quality of human capital and access to information technologies) are strongly correlated to the first axis of the PCA, one could preferably establish a standardized average, i.e. the average of the scores obtained for each region, using as scores for each indicator not the absolute level compared to the EU average, but the standardised value, i.e. for each region the value corresponding to dividing the difference between the region's value and the European mean by the standard deviation of the indicator across all European regions, in order to take into account the differences between indicators in their level of variation across the regions (Figure 14).

Fig. 14. Eligibility of the regions according to the GDP+3 (Mean of standardized values, excl. French DOM), = without social fragility

(The colours correspond to the same thresholds of proportion in the total EU population as those based on GDP/inhab. levels below 75%, 90%, 100%, 120 % and above 120 % of the EU population).



6. Conclusions

a. Using GDP+3 instead of GDP

One can compare the modifications a shift to a GDP + 3 criterion would induce in terms of eligibility, if we take the hypothesis of a similar share of population living in eligible areas (Fig.15 and 16). We have added the areas which, though they do not meet eligibility requirements, might become eligible for specific aid aimed at reducing social gaps and serious deprivation situations on the job market (= social fragility). Helping those areas is obviously a political option in favour of social cohesion, and it should be determined whether this decision falls under community or national competence.

Overall, the areas losing eligibility – fully or partly - (and, inversely, those acceding to or gaining eligibility) using GDP + 3 instead of GDP represent 5.9% of the EU population (let us recall that potentially aided areas – fully or partly – represent 38.2% of this population). In terms of absolute population volume (Table 3 at the end of the document, see also table 4 for reductions in percentage of national population), losses or reduction in eligibility level would mainly concern three big countries : France, United Kingdom, and Germany (including a part of eastern Germany – in Sachsen and the south of Brandenburg), where internal transfers largely benefit the least prosperous areas. Areas of old industrialization in Wallonia and northern France would retain their restricted eligibility level, except the Lorraine.

The main beneficiaries of the new criteria would be the metropolitan areas of the new members from central-eastern Europe, acceding to full eligibility, due to transfers that weaken their position compared to the position in terms of GDP which is more concentrated in these metropolitan areas than income and weak global health or even human capital levels (Warsaw area, central Bohemia around Prague, Budapest, Bucharest). The areas of Valence in Spain and Lisbon in Portugal would become partly eligible.

If, in addition a specific system was implemented to support richer areas faced with social polarization/fragility and acute difficulties, at least in some population segments on the job market, several metropolitan areas of older EU members (London, Birmingham, Manchester, Brussels, Rome, Barcelone, Madrid, etc.), as well as the French Mediterranean coast and Sachsen ought to be taken into account.

Fig. 15. Eligibility of the regions according to the GPD + 3 (Mean of standardized values) + Social fragility.

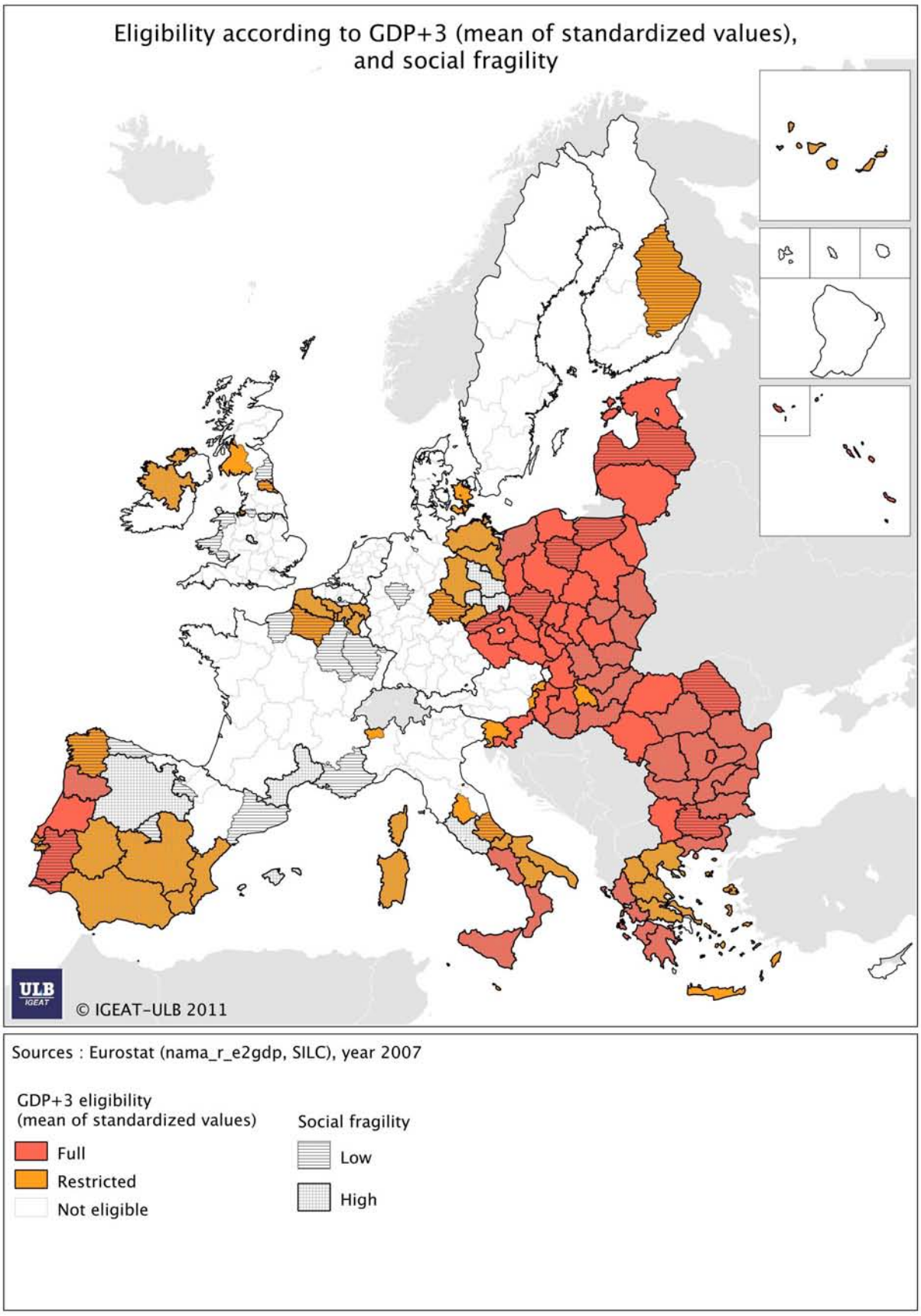
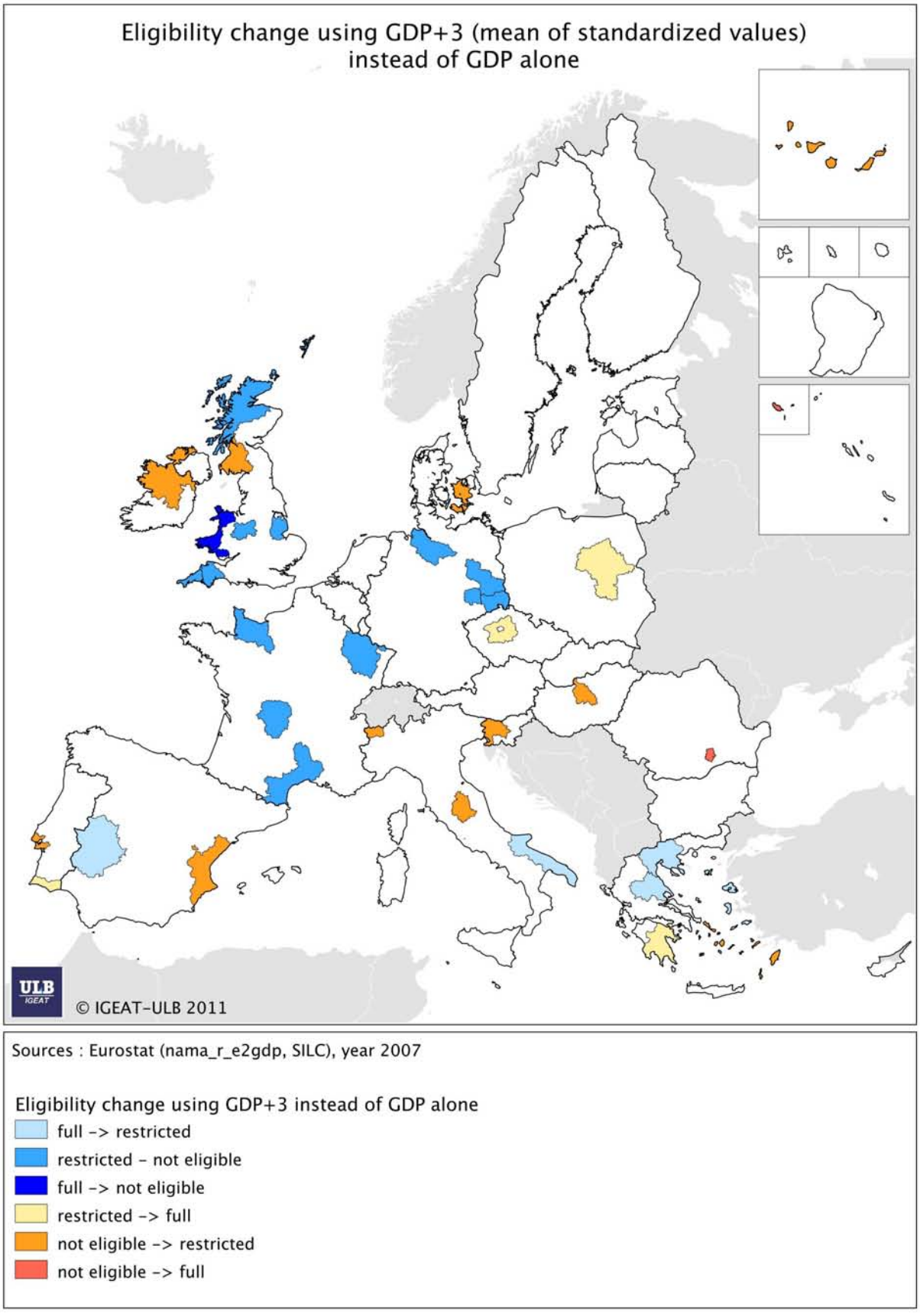


Fig. 16. Changes of eligibility using GDP+3 (Mean of standardized values) instead of GDP



b. Using GDP+1 instead of GDP

If GDP+3 is judged too complex and GDP+1 preferable – i.e. taking into account the average of GDP/inhab. and mean adjusted disposable income, both criteria represented as compared to a EU mean equal to 100, the conclusions would be identical, even if less areas would shift category by comparison to using GDP alone (Fig. 17, 18 and 19 and Tables 5 & 6). Once again, the « losers » would be the 3 big countries (Germany and UK to a lesser extent, France). Less central eastern European metropolitan areas would gain more eligibility, as one doesn't take into account their quite bad global health and even human capital situation.

Fig. 17. Eligibility using GDP+1

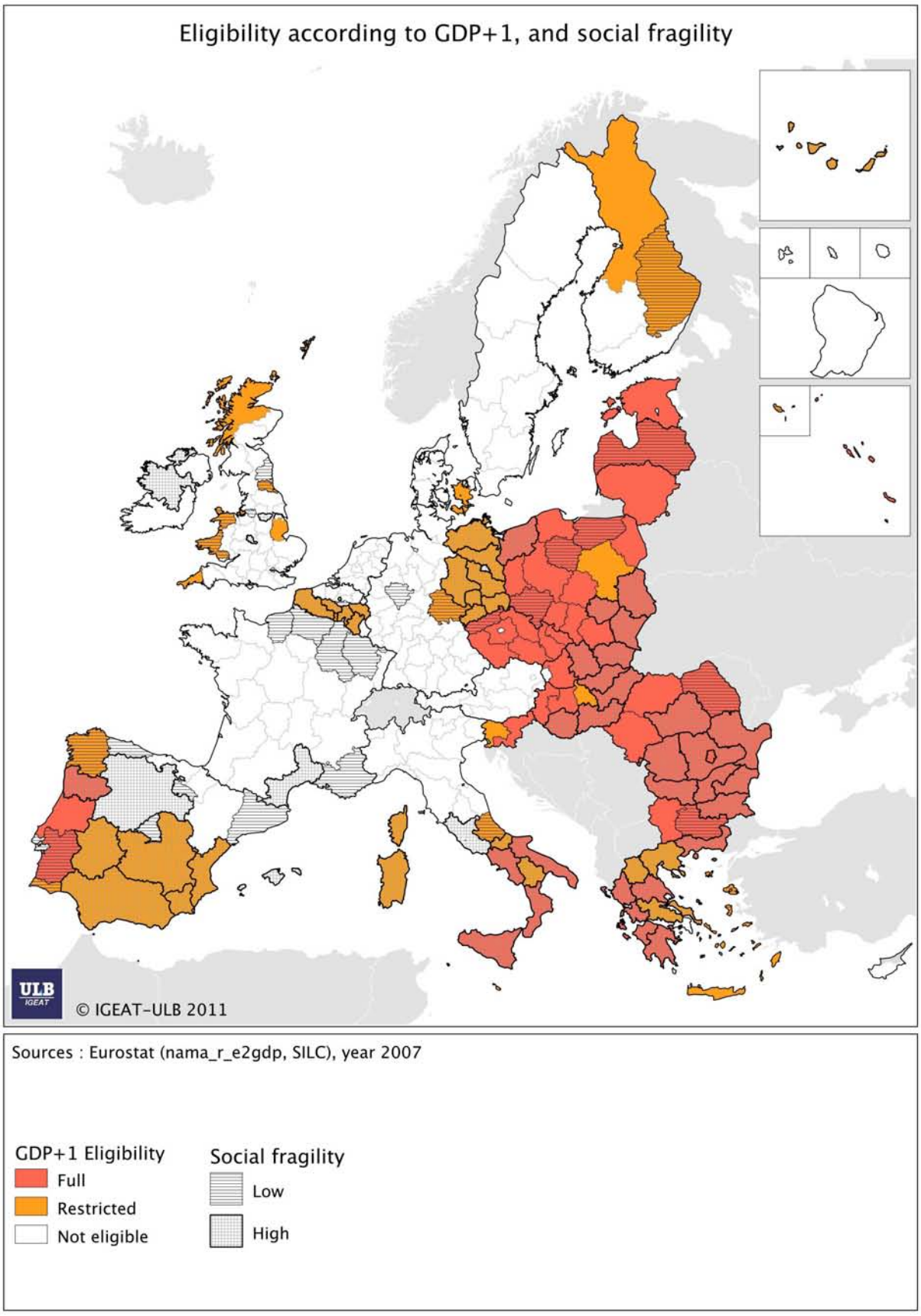


Fig. 18. Changes of eligibility using GDP+1 (Mean of standardized values) instead of GDP

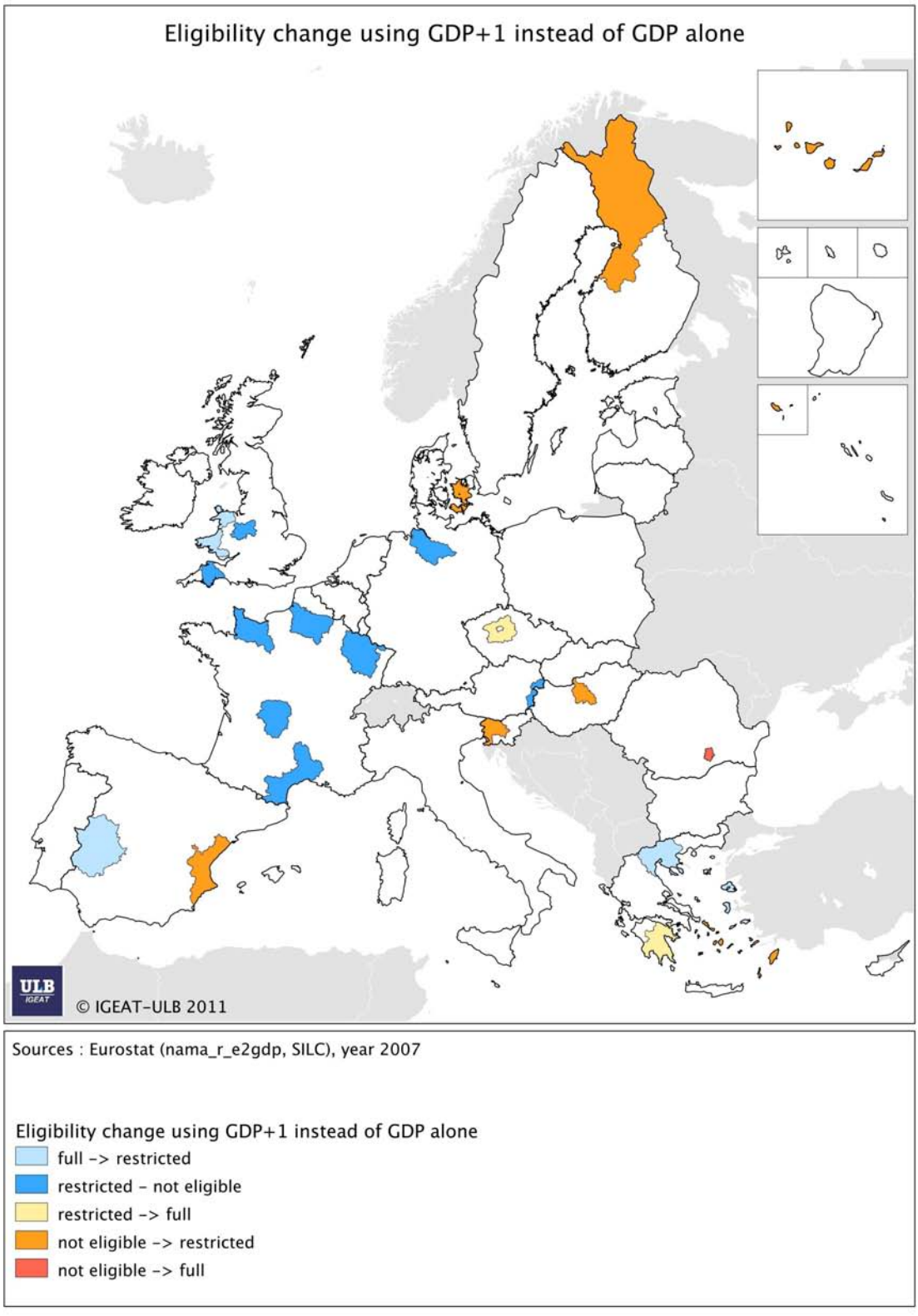
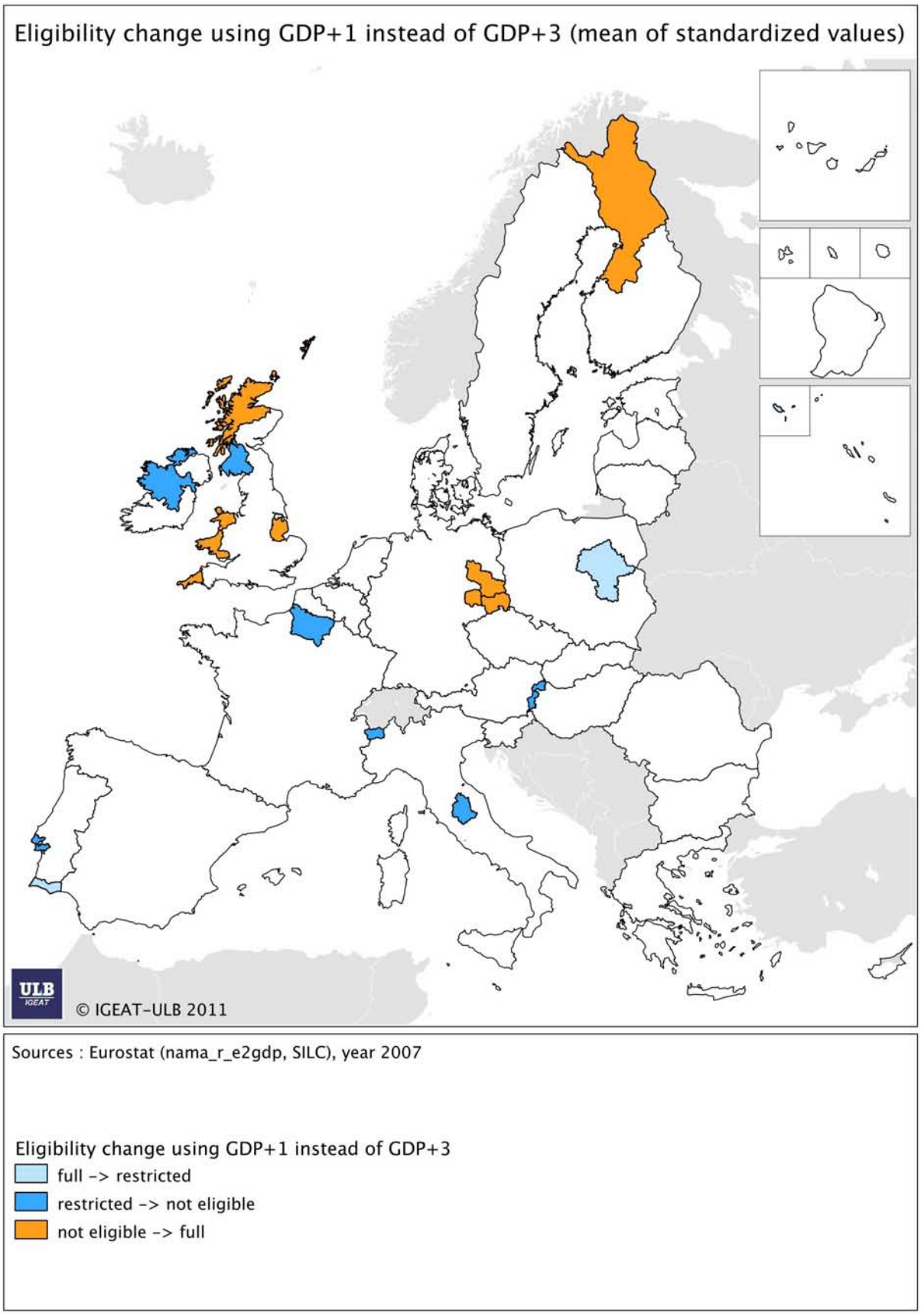


Fig. 19. Changes of eligibility using GDP+1 (Mean of standardized values) instead of GDP+3



	Non eligible according to both rankings	Non eligible and loosing eligibility	**Non eligible**	*of which in situation of potential social frailty*	Restricted eligibility according to both rankings	Restricted eligibility and gaining eligibility	Restricted eligibility and loosing eligibility	**Restricted eligibility**	Fully eligible according to both rankings	Fully eligible and gaining eligibility	**Fully eligible**	**Country**	**Loosing eligibility, partially or fully**	**Gaining eligibility, partially or fully**	**Gains – losses of eligibility**
Austria	1,6		**1,6**		0,1			**0,1**				**1,7**			
Belgium	1,5		**1,5**	0,3	0,6			**0,6**				**2,1**			
Bulgaria									1,6		**1,6**	**1,6**			
Cyprus	0,2		**0,2**									**0,2**			
Czech Rep.	0,2		**0,2**						1,6	0,2	**1,9**	**2,1**		**0,2**	**0,2**
Germany	13,7	1,2	**14,8**	2,8	1,9			**1,9**				**16,7**	**1,2**		**-1,2**
Denmark	0,9		**0,9**			0,2		**0,2**				**1,1**		**0,2**	**0,2**
Estonia									0,3		**0,3**	**0,3**			
Spain	4,6		**4,6**	3,7	2,8	1,4	0,2	**4,5**				**9,0**	**0,2**	**1,4**	**1,2**
Finland	0,9		**0,9**		0,1			**0,1**				**1,1**			
France	9,8	1,4	**11,3**	2,9	1,3			**1,3**				**12,5**	**1,4**		**-1,4**
Greece	0,8		**0,8**		0,3	0,1	0,6	**0,9**	0,4	0,1	**0,5**	**2,3**	**0,6**	**0,2**	**-0,4**
Hungary						0,6		**0,6**	1,5		**1,5**	**2,0**		**0,6**	**0,6**
Ireland	0,6		**0,6**			0,2		**0,2**				**0,9**		**0,2**	**0,2**
Italy	7,6		**7,6**	1,1	0,8	0,2	0,8	**1,8**	2,6		**2,6**	**12,0**	**0,8**	**0,2**	**-0,6**
Lithuania									0,7		**0,7**	**0,7**			
Luxembourg	0,1		**0,1**									**0,1**			
Latvia									0,5		**0,5**	**0,5**			
Malta					0,1			**0,1**				**0,1**			
Netherlands	3,3		**3,3**									**3,3**			
Poland									6,7	1,1	**7,7**	**7,7**		**1,1**	**1,1**
Portugal						0,6		**0,6**	1,5	0,1	**1,6**	**2,2**		**0,7**	**0,7**
Romania									3,9	0,5	**4,4**	**4,4**		**0,5**	**0,5**
Sweden	1,9		**1,9**									**1,9**			
Slovenia						0,2		**0,2**	0,2		**0,2**	**0,4**		**0,2**	**0,2**
Slovakia	0,1		**0,1**						1,0		**1,0**	**1,1**			
United Kingdom	9,7	1,7	**11,4**	2,6	0,5	0,5		**1,0**				**12,3**	**1,7**	**0,5**	**-1,2**
	57,6	4,3	**61,9**	13,3	8,4	3,9	1,6	**13,9**	22,3	2,0	**24,3**	**100,0**	**5,9**	**5,9**	**0,0**

Table 3. Comparison by country between the populations of areas eligible on the basis of GDP + 3 rather than GDP ranking, in % of the total EU population (except DOM).

	Non eligible according to both rankings	Non eligible and loosing eligibility	**Non eligible**	*of which in situation of potential social frailty*	Restricted eligibility according to both rankings	Restricted eligibility and gaining eligibility	Restricted eligibility and loosing eligibility	**Restricted eligibility**	Fully eligible according to both rankings	Fully eligible and gaining eligibility	**Fully eligible**	**Country**	**Loosing eligibility, partially or fully**	**Gaining eligibility, partially or fully**	**Gains – losses of eligibility**
Austria	96,4		**96,4**		3,6			**3,6**				**100,0**			
Belgium	71,0		**71,0**	13,1	29,0			**29,0**				**100,0**			
Bulgaria									100,0		**100,0**	**100,0**			
Cyprus	100,0		**100,0**									**100,0**			
Czech Rep.	11,5		**11,5**						77,0	11,5	**88,5**	**100,0**		**11,5**	**11,5**
Germany	81,8	7,1	**88,9**	16,5	11,1			**11,1**				**100,0**	**7,1**		**-7,1**
Denmark	84,7		**84,7**			15,3		**15,3**				**100,0**		**15,3**	**15,3**
Estonia									100,0		**100,0**	**100,0**			
Spain	50,7		**50,7**	40,5	31,4	15,5	2,4	**49,3**				**100,0**	**2,4**	**15,5**	**13,1**
Finland	87,9		**87,9**		12,1			**12,1**				**100,0**			
France	78,5	11,5	**89,9**	23,3	10,1			**10,1**				**100,0**	**11,5**		**-11,5**
Greece	36,3		**36,3**		12,8	2,7	25,7	**41,2**	17,3	5,3	**22,6**	**100,0**	**25,7**	**8,0**	**-17,7**
Hungary						28,4		**28,4**	71,6		**71,6**	**100,0**		**28,4**	**28,4**
Ireland	73,6		**73,6**			26,4		**26,4**				**100,0**		**26,4**	**26,4**
Italy	63,2		**63,2**	9,3	6,6	1,7	6,8	**15,1**	21,7		**21,7**	**100,0**	**6,8**	**1,7**	**-5,2**
Lithuania									100,0		**100,0**	**100,0**			
Luxembourg	100,0		**100,0**									**100,0**			
Latvia									100,0		**100,0**	**100,0**			
Malta					100,0			**100,0**				**100,0**			
Netherlands	100,0		**100,0**									**100,0**			
Poland									86,4	13,6	**100,0**	**100,0**		**13,6**	**13,6**
Portugal						26,4		**26,4**	67,1	6,5	**73,6**	**100,0**		**32,9**	**32,9**
Romania									89,7	10,3	**100,0**	**100,0**		**10,3**	**10,3**
Sweden	100,0		**100,0**									**100,0**			
Slovenia						46,3		**46,3**	53,7		**53,7**	**100,0**		**46,3**	**46,3**
Slovakia	11,0		**11,0**						89,0		**89,0**	**100,0**			
United Kingdom	78,7	13,4	**92,1**	20,9	4,1	3,7		**7,9**				**100,0**	**13,4**	**3,7**	**-9,7**
	57,6	4,3	**61,9**	13,3	8,4	3,9	1,6	**13,9**	22,3	2,0	**24,3**	**100,0**	**5,9**	**5,9**	**0,0**

Table 4. Comparison by country between the populations of areas eligible on the basis of GDP + 3 rather than GDP ranking, in % of the national populations (except DOM).

	Non eligible according to both rankings	Non eligible and loosing eligibility	**Non eligible**	*of which in situation of potential social frailty*	Restricted eligibility according to both rankings	Restricted eligibility and gaining eligibility	Restricted eligibility and loosing eligibility	**Restricted eligibility**	Fully eligible according to both rankings	Fully eligible and gaining eligibility	**Fully eligible**	**Country**	**Loosing eligibility, partially or fully**	**Gaining eligibility, partially or fully**	**Gains – losses of eligibility**
Austria	1,6	0,1	**1,7**									**1,7**	**0,1**		**-0,1**
Belgium	1,5		**1,5**	0,3	0,6			**0,6**				**2,1**			
Bulgaria									1,6		**1,6**	**1,6**			
Cyprus	0,2		**0,2**									**0,2**			
Czech Rep.	0,2		**0,2**						1,6	0,2	**1,9**	**2,1**		**0,2**	**0,2**
Germany	13,7	0,4	**14,0**	1,6	2,7			**2,7**				**16,7**	**0,4**		**-0,4**
Denmark	0,9		**0,9**			0,2		**0,2**				**1,1**		**0,2**	**0,2**
Estonia									0,3		**0,3**	**0,3**			
Spain	4,6		**4,6**	3,6	2,8	1,4	0,2	**4,4**				**9,0**	**0,2**	**1,4**	**1,2**
Finland	0,8		**0,8**		0,1	0,1		**0,3**				**1,1**		**0,1**	**0,1**
France	9,6	2,1	**11,7**	3,0	0,9			**0,9**				**12,5**	**2,1**		**-2,1**
Greece	0,8		**0,8**		0,3	0,1	0,4	**0,8**	0,5	0,1	**0,7**	**2,3**	**0,4**	**0,2**	**-0,3**
Hungary						0,6		**0,6**	1,5		**1,5**	**2,0**		**0,6**	**0,6**
Ireland	0,9		**0,9**	0,2								**0,9**			
Italy	7,8		**7,8**	1,1	0,8			**0,8**	3,4		**3,4**	**12,0**			
Lithuania									0,7		**0,7**	**0,7**			
Luxembourg	0,1		**0,1**									**0,1**			
Latvia									0,5		**0,5**	**0,5**			
Malta					0,1			**0,1**				**0,1**			
Netherlands	3,3		**3,3**									**3,3**			
Poland					1,1			**1,1**	6,7		**6,7**	**7,7**			
Portugal	0,6		**0,6**	0,6	0,1	0,1		**0,1**	1,5		**1,5**	**2,2**		**0,1**	**0,1**
Romania									3,9	0,5	**4,4**	**4,4**		**0,5**	**0,5**
Sweden	1,9		**1,9**									**1,9**			
Slovenia						0,2		**0,2**	0,2		**0,2**	**0,4**		**0,2**	**0,2**
Slovakia	0,1		**0,1**						1,0		**1,0**	**1,1**			
United Kingdom	10,2	0,9	**11,1**	2,2	0,9		0,4	**1,2**				**12,3**	**1,3**		**-1,3**
	58,7	3,4	**62,1**	12,6	10,3	2,6	1,0	**13,9**	23,3	0,8	**24,0**	**100**	**4,4**	**3,4**	**-1,1**

Table 5. Comparison by country between the populations of areas eligible on the basis of GDP + 1 rather than GDP ranking, in % of total EU population (except DOM).

	Non eligible according to both rankings	Non eligible and loosing eligibility	**Non eligible**	*of which in situation of potential social frailty*	Restricted eligibility according to both rankings	Restricted eligibility and gaining eligibility	Restricted eligibility and loosing eligibility	**Restricted eligibility**	Fully eligible according to both rankings	Fully eligible and gaining eligibility	**Fully eligible**	**Country**	**Loosing eligibility, partially or fully**	**Gaining eligibility, partially or fully**	**Gains – losses of eligibility**
Austria	96,4	3,6	**100,0**									**100,0**	**3,6**		**-3,6**
Belgium	71,0		**71,0**	14,0	29,0			**29,0**				**100,0**			
Bulgaria									100,0		**100,0**	**100,0**			
Cyprus	100,0		**100,0**									**100,0**			
Czech Rep.	11,5		**11,5**						77,0	11,5	**88,5**	**100,0**		**11,5**	**11,5**
Germany	81,8	2,1	**83,9**	9,6	16,1			**16,1**				**100,0**	**2,1**		**-2,1**
Denmark	84,7		**84,7**			15,3		**15,3**				**100,0**		**15,3**	**15,3**
Estonia									100,0		**100,0**	**100,0**			
Spain	50,9		**50,9**	39,9	31,4	15,3	2,4	**49,1**				**100,0**	**2,4**	**15,3**	**12,9**
Finland	75,7		**75,7**		12,1	12,1		**24,3**				**100,0**		**12,1**	**12,1**
France	76,5	16,4	**93,0**	23,9	7,0			**7,0**				**100,0**	**16,4**		**-16,4**
Greece	36,1		**36,1**		13,2	2,6	18,9	**34,8**	23,8	5,3	**29,1**	**100,0**	**18,9**	**7,9**	**-11,0**
Hungary						28,4		**28,4**	71,6		**71,6**	**100,0**		**28,4**	**28,4**
Ireland	100,0		**100,0**	23,0								**100,0**			
Italy	64,9		**64,9**	9,2	6,6			**6,6**	28,5		**28,5**	**100,0**			
Lithuania			**0,0**						100,0		**100,0**	**100,0**			
Luxembourg	100,0		**100,0**									**100,0**			
Latvia									100,0		**100,0**	**100,0**			
Malta					100,0			**100,0**				**100,0**			
Netherlands	100,0		**100,0**									**100,0**			
Poland					13,6			**13,6**	86,4		**86,4**	**100,0**			
Portugal	26,4		**26,4**	27,8	4,2	2,3		**6,5**	67,1		**67,1**	**100,0**		**2,3**	**2,3**
Romania									89,7	10,3	**100,0**	**100,0**		**10,3**	**10,3**
Sweden	100,0		**100,0**									**100,0**			
Slovenia			**0,0**			46,3		**46,3**	53,7		**53,7**	**100,0**		**46,3**	**46,3**
Slovakia	11,0		**11,0**						89,0		**89,0**	**100,0**			
United Kingdom	82,5	7,5	**90,0**	17,9	6,9		3,1	**10,0**				**100,0**	**10,6**		**-10,6**
	58,7	3,4	**62,1**	12,6	10,3	2,6	1,0	**13,9**	23,3	0,8	**24,0**	**100,0**	**4,4**	**3,4**	**-1,1**

Table 6. Comparison by country between the populations of areas eligible on the basis of GDP + 1 rather than GDP ranking, in % of the national populations (except DOM).

Annex 1. NUTS 1, 2 and 3 levels in the member states.

	NUTS 1		NUTS 2		NUTS 3	
BE	Gewesten / Régions	3	Provincies / Provinces	11	Arrondissementen / Arrondissements	44
BG	Rajoni	2	Rajoni za planirane	6	Oblasti	28
CZ	Území	1	Oblasti	8	Kraje	14
DK	-	1	Regioner	5	Landsdeler	11
DE	Länder	16	Regierungsbezirke	39	Kreise	429
EE	-	1	-	1	Groups of Maakond	5
IE	-	1	Regions	2	Regional Authority Regions	8
GR	Groups of development regions	4	Periferies	13	Nomoi	51
ES	Agrupacion de comunidades Autonomas	7	Comunidades y ciudades Autonomas	19	Provincias + islas + Ceuta, Melilla	59
FR	Z.E.A.T + DOM	9	Régions + DOM	26	Départements + DOM	100
IT	Gruppi di regioni	5	Regioni	21	Provincie	107
CY	-	1	-	1	-	1
LV	-	1	-	1	Reģioni	6
LT	-	1	-	1	Apskritys	10
LU	-	1	-	1	-	1
HU	Statisztikai nagyrégiók	3	Tervezési-statisztikai régiók	7	Megyék + Budapest	20
MT	-	1	-	1	Gzejjer	2
NL	Landsdelen	4	Provincies	12	COROP regio's	40
AT	Gruppen von Bundesländern	3	Bundesländer	9	Gruppen von politischen Bezirken	35
PL	Regiony	6	Województwa	16	Podregiony	66
PT	Continente + Regioes autonomas	3	Comissaoes de Coordenaçao regional + Regioes autonomas	7	Grupos de Concelhos	30
RO	Macroregiuni	4	Regiuni	8	Judet + Bucuresti	42
SI	-	1	Kohezijske regije	2	Statistične regije	12
SK	-	1	Oblasti	4	Kraje	8
FI	Manner-Suomi, Ahvenanmaa/ Fasta Finland, Åland	2	Suuralueet / Storområden	5	Maakunnat / Landskap	20
SE	Grupper av riksområden	3	Riksområden	8	Län	21
UK	Government OHce Regions; Country	12	Counties (some grouped); Inner and Outer London; Groups of unitary authorities	37	Upper tier authorities or groups of lower tier authorities (unitary authorities or districts)	133
EU-27		97		271		1303

Annex 2. Comparison between statistical NUTS 2 regions eligible at 75% or 90% of the EU average GDP (respectively 24,3 % and 38,3 % of the cumulated share of EU population) and those likely to accede eligibility according to PIB+3 criteria (standardized averages).

REGIONS FULLY ELIGIBLE ACCORDING TO THE GDP + 3		
Fully eligible regions according to both GDP and GDP + 3		
BG31 Severozapaden	HU31 Észak-Magyarország	PL61 Kujawsko-Pomorskie
BG32 Severen tsentralen	HU32 Észak-Alföld	PL62 Warmińsko-Mazurskie
BG33 Severoiztochen	HU33 Dél-Alföld	PL63 Pomorskie
BG34 Yugoiztochen	ITF3 Campania	PT11 Norte
BG41 Yugozapaden	ITF6 Calabria	PT16 Centro (P)
BG42 Yuzhen tsentralen	ITG1 Sicilia	PT18 Alentejo
CZ03 Jihozápad	LT00 Lietuva	PT20 Região Autónoma dos Açores
CZ04 Severozápad	LV00 Latvija	RO11 Nord-Vest
CZ05 Severovýchod	PL11 Łódzkie	RO12 Centru
CZ06 Jihovýchod	PL21 Małopolskie	RO21 Nord-Est
CZ07 Střední Morava	PL22 Śląskie	RO22 Sud-Est
CZ08 Moravskoslezsko	PL31 Lubelskie	RO31 Sud - Muntenia
EE00 Eesti	PL32 Podkarpackie	RO41 Sud-Vest Oltenia
GR11 Anatoliki Makedonia, Thraki	PL33 Świętokrzyskie	RO42 Vest
GR21 Ipeiros	PL34 Podlaskie	SI01 Vzhodna Slovenija
GR22 Ionia Nisia	PL41 Wielkopolskie	SK02 Západné Slovensko
GR23 Dytiki Ellada	PL42 Zachodniopomorskie	SK03 Stredné Slovensko
HU21 Közép-Dunántúl	PL43 Lubuskie	SK04 Východné Slovensko
HU22 Nyugat-Dunántúl	PL51 Dolnośląskie	
HU23 Dél-Dunántúl	PL52 Opolskie	
Regions partly eligible according to GDP but fully eligible according to GDP + 3		
CZ02 Střední Čechy	PL12 Mazowieckie	PT15 Algarve
GR25 Peloponnisos		
Regions not eligible according to GDP but fully eligible according to GDP + 3		
RO32 Bucureşti - Ilfov	PT30 Região Autónoma da Madeira	
REGIONS WITH RESTRICTED ELIGIBILITY ACCORDING TO GDP + 3		
Regions fully eligible according to GDP but with restricted eligibility according to GDP + 3		
ES43 Extremadura	GR12 Kentriki Makedonia	GR41 Voreio Aigaio
ITF4 Puglia	GR14 Thessalia	
Regions with restricted eligibility according to both GDP and GDP + 3		
AT11 Burgenland (A)	ES11 Galicia	GR43 Kriti
BE32 Prov, Hainaut	ES42 Castilla-La Mancha	ITF1 Abruzzo
BE33 Prov, Liège	ES61 Andalucía	ITF2 Molise
BE34 Prov, Luxembourg (B)	ES62 Región de Murcia	ITF5 Basilicata
BE35 Prov, Namur	FI13 Itä-Suomi	ITG2 Sardegna
DE41 Brandenburg - Nordost	FR22 Picardie	MT00 Malta
DE80 Mecklenburg-Vorpommern	FR30 Nord - Pas-de-Calais	UKC1 Tees Valley and Durham
DED1 Chemnitz	FR83 Corse	UKD5 Merseyside
DEE0 Sachsen-Anhalt	GR13 Dytiki Makedonia	
DEG0 Thüringen	GR24 Sterea Ellada	
Regions not eligible according to GDP but gaining restricted eligibility according to GDP + 3		
DK02 Sjælland	GR42 Notio Aigaio	PT17 Lisboa
ES52 Comunidad Valenciana	HU10 Közép-Magyarország	SI02 Zahodna Slovenija
ES63 Ciudad Autónoma de Ceuta	IE01 Border, Midland and Western	UKM3 South Western Scotland
ES64 Ciudad Autónoma de Melilla	ITC2 Valle d'Aosta/Vallée d'Aoste	

ES70 Canarias	ITE2 Umbria	
REGIONS NOT ELIGIBLE ACCORDING TO GDP + 3 (* = specific situation of social vulnerability)		
Regions fully eligible according to GDP but losing eligibility according to GDP + 3		
UKL1 West Wales and The Valleys *		
Regions with restricted eligibility according to GDP but losing eligibility according to GDP + 3		
DE42 Brandenburg – Südwest *	FR63 Limousin	UKK3 Cornwall and Isles of Scilly
DE93 Lüneburg	FR81 Languedoc-Roussillon *	UKK4 Devon
DED2 Dresden *	UKD1 Cumbria	UKM6 Highlands and Islands
DED3 Leipzig *	UKD4 Lancashire	
FR25 Basse-Normandie *	UKF3 Lincolnshire	
FR41 Lorraine *	UKG2 Shropshire and Staffordshire	
Regions not eligible according to GDP and GDP + 3		
AT12 Niederösterreich	DK01 Hovedstaden	NL11 Groningen
AT13 Wien	DK03 Syddanmark	NL12 Friesland (NL)
AT21 Kärnten	DK04 Midtjylland	NL13 Drenthe
AT22 Steiermark	DK05 Nordjylland	NL21 Overijssel
AT31 Oberösterreich	ES12 Principado de Asturias *	NL22 Gelderland
AT32 Salzburg	ES13 Cantabria	NL23 Flevoland
AT33 Tirol	ES21 País Vasco	NL31 Utrecht
AT34 Vorarlberg	ES22 Comunidad Foral de Navarra	NL32 Noord-Holland
BE10 Région de Bruxelles-Capitale *	ES23 La Rioja *	NL33 Zuid-Holland
BE21 Prov, Antwerpen	ES24 Aragón	NL34 Zeeland
BE22 Prov, Limburg (B)	ES30 Comunidad de Madrid *	NL41 Noord-Brabant
BE23 Prov, Oost-Vlaanderen	ES41 Castilla y León *	NL42 Limburg (NL)
BE24 Prov, Vlaams-Brabant	ES51 Cataluña *	SE11 Stockholm
BE25 Prov, West-Vlaanderen	ES53 Illes Balears *	SE12 Östra Mellansverige
BE31 Prov, Brabant Wallon *	FI18 Etelä-Suomi	SE21 Småland med öarna
CY00 Κύπρος / Kıbrıs	FI19 Länsi-Suomi	SE22 Sydsverige
CZ01 Praha	FI1A Pohjois-Suomi	SE23 Västsverige
DE11 Stuttgart	FI20 Åland	SE31 Norra Mellansverige
DE12 Karlsruhe	FR10 Île de France	SE32 Mellersta Norrland
DE13 Freiburg	FR21 Champagne-Ardenne *	SE33 Övre Norrland
DE14 Tübingen	FR23 Haute-Normandie *	SK01 Bratislavský kraj
DE21 Oberbayern	FR24 Centre	UKC2 Northumberland and Tyne and Wear *
DE22 Niederbayern	FR26 Bourgogne	UKD2 Cheshire
DE23 Oberpfalz	FR42 Alsace	UKD3 Greater Manchester *
DE24 Oberfranken	FR43 Franche-Comté	UKE1 East Yorkshire and Northern Lincolnshire
DE25 Mittelfranken	FR51 Pays de la Loire	UKE2 North Yorkshire
DE26 Unterfranken	FR52 Bretagne	UKE3 South Yorkshire *
DE27 Schwaben	FR53 Poitou-Charentes	UKE4 West Yorkshire
DE30 Berlin *	FR61 Aquitaine	UKF1 Derbyshire and Nottinghamshire
DE50 Bremen *	FR62 Midi-Pyrénées	UKF2 Leicestershire, Rutland and Northamptonshire
DE60 Hamburg	FR71 Rhône-Alpes	UKG1 Herefordshire, Worcestershire and Warwick
DE71 Darmstadt	FR72 Auvergne	UKG3 West Midlands *
DE72 Gießen	FR82 Provence-Alpes-Côte d'Azur *	UKH1 East Anglia
DE73 Kassel	GR30 Attiki	UKH2 Bedfordshire and Hertfordshire
DE91 Braunschweig	IE02 Southern and Eastern	UKH3 Essex
DE92 Hannover	ITC1 Piemonte	UKI1 Inner London *
DE94 Weser-Ems	ITC3 Liguria	UKI2 Outer London
DEA1 Düsseldorf	ITC4 Lombardia	UKJ1 Berkshire, Buckinghamshire and Oxfordshire
DEA2 Köln	ITD1 Provincia Autonoma Bolzano/Bozen	UKJ2 Surrey, East and West Sussex
DEA3 Münster	ITD2 Provincia Autonoma Trento	UKJ3 Hampshire and Isle of Wight
DEA4 Detmold	ITD3 Veneto	UKJ4 Kent
DEA5 Arnsberg *	ITD4 Friuli-Venezia Giulia	UKK1 Gloucestershire, Wiltshire and Bristol/Bath area
DEB1 Koblenz	ITD5 Emilia-Romagna	UKK2 Dorset and Somerset
DEB2 Trier	ITE1 Toscana	UKL2 East Wales
DEB3 Rheinhessen-Pfalz	ITE3 Marche	UKM2 Eastern Scotland
DEC0 Saarland	ITE4 Lazio *	UKM5 North Eastern Scotland
DEF0 Schleswig-Holstein	LU00 Luxembourg (Grand-Duché)	UKN0 Northern Ireland