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Working paper 7

"Europe and its regions in the global trade"

Gilles Van Hamme, IGEAT-ULB

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Europe and its regions in the global trade

Introduction

Globalization is characterized by increasing exchanges across economies of the globe and moreover by a growing integration of these economies. Since the end of the nineties, trade as a share of world GDP has reached unprecedented levels. There are several drivers to the growth of trade of goods and services. First, transnational firms play a central role: they are the main actors of the integration of value chains at global level. Hence, economic exchanges are less and less the exchanges of finished goods and increasingly intra-sector exchanges (CEPII, 2006). The intra-firm trade is estimated at 30% of total world trade. Second, regional integration has largely developed economic exchanges between regional economies through the creation of Custom Union or Free Trade Area. Third, more generally, the liberalization of trade is a major driver of trade growth. Fourth, the new communication technologies as well as the diminishing cost of transports have of course also allowed the development of trade.

Globalization also goes hand in hand with dramatic changes in the world economic geography. The main feature is the global shift from "old developed economies" (the US, the EU and Japan) to Eastern Asia, first of all China. The first objective of this paper is to analyze the position of Europe in this global shift in both trade of goods and services (section 1). But in this first chapter, we also highlight the territorial diversity by highlighting trends at national level.

The second objective is to highlight the huge diversity of European territories in the way they participate to the global economy (section 2). At regional level, we will thus highlight this diversity by showing both the geographical and products specialization of nations and regions in Europe.

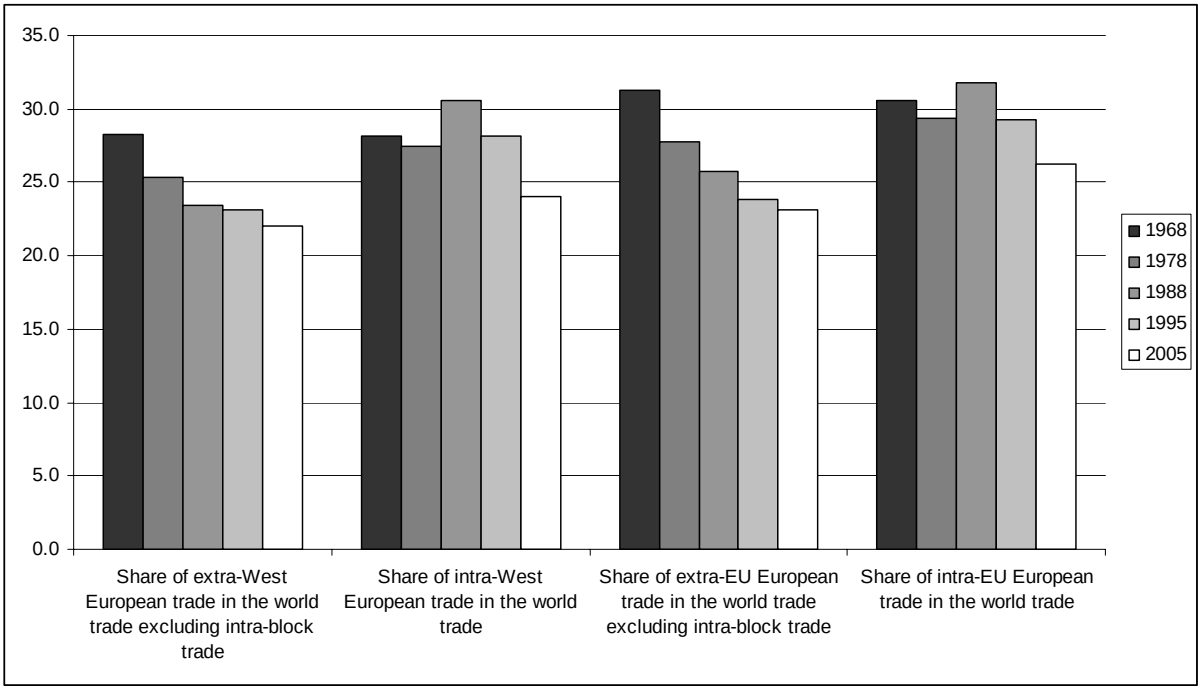
1. Europe in the world trade

1.1. The long term position of Europe in the world trade

While the share of Europe in the world trade seems relatively stable on the long run, this impression is mainly due to high level of intra-European trade. When the intra-European trade is excluded, the decline of Europe in the world trade (excluding all intra-block trade) is evident and regular from the sixties to the recent period, even if East and central Europe is included (**Figure 1**). The share of intra-European trade in the world trade has also declined in the last 20 years.

This decline is in line with the general decline of the position of Europe in the world in terms of population and production (Grasland *et al*., 2007. But still, Europe remains the most important trade area in the world, and also a very integrated one.

Figure 1. Share of Europe in the world trade, distinguishing intra and extra-European trade

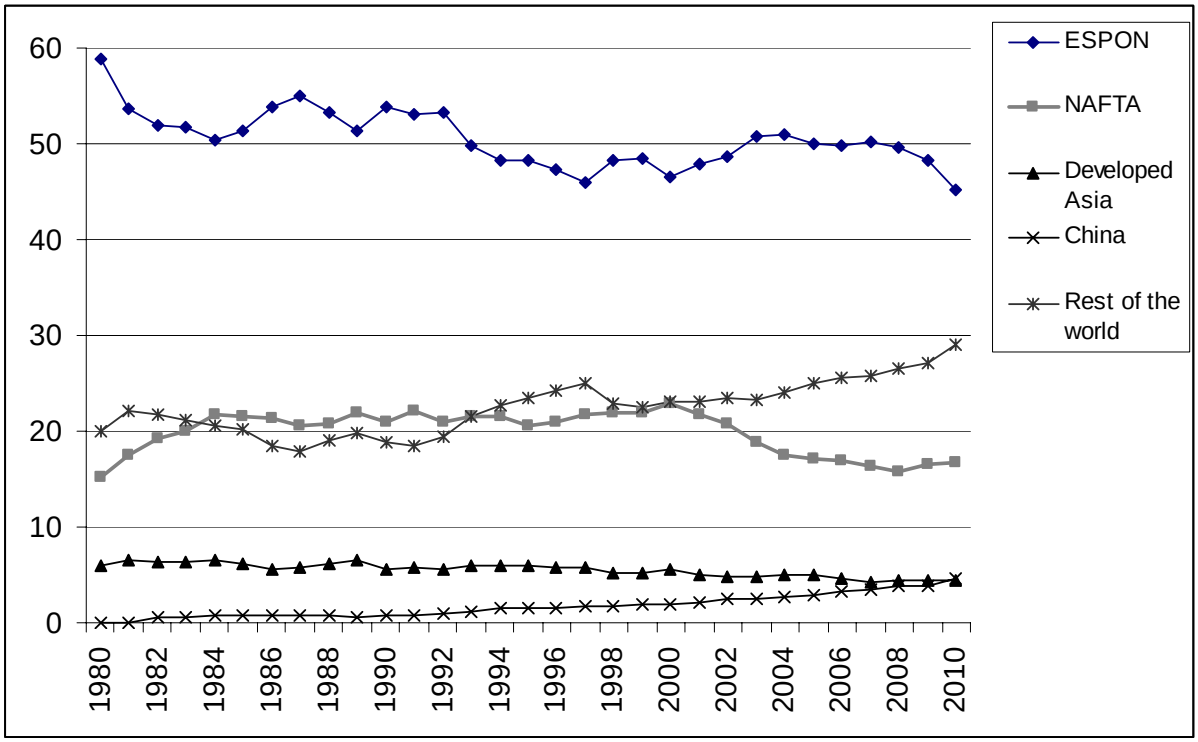


Source: Chelem database of CEPII; personal calculations
Note: EU does not correspond to the political EU for each period but includes the current EU-27 more other West-European countries 5iceland, Switzerland, Norway…), except Baltic countries

As for trade of services, in the long run, EU and associates have declined in the service of trade, as illustrated in **figure 2**: the share of Europe was around 60% of the world trade of services in 1980 and is less than 50% 30 years later. The diminishing weight of Europe is indeed largely due to the development of offshore services activities, closely related to firms located in Europe or Northern America. Anyway, this territory remains by far the first power in trade of services accounting for around 48% of all trade of services in 2009 (UNCTAD, 2010), and EU

alone around 45%. However, when intra-EU trade is excluded, the EU represents around 26.5% of the trade of services in 2008-2009, a stable share until 2004, to be compared with 22% of the NAFTA (24% in 2004) and 5% for China (3.8% in 2004). Also, competitiveness of the EU has remained very high, with a trade balance of services around 7% of all EU trade of services in 2008-2009, while the same figures for NAFTA are 9%, while China and developed Asia keep negative balances for services. Hence, to a certain extent, the declining weight of EU in trade is tempered by stable performances in the trade of services.

Figure 2. The weight of major world regions in the trade of services, 1980 to 2010.



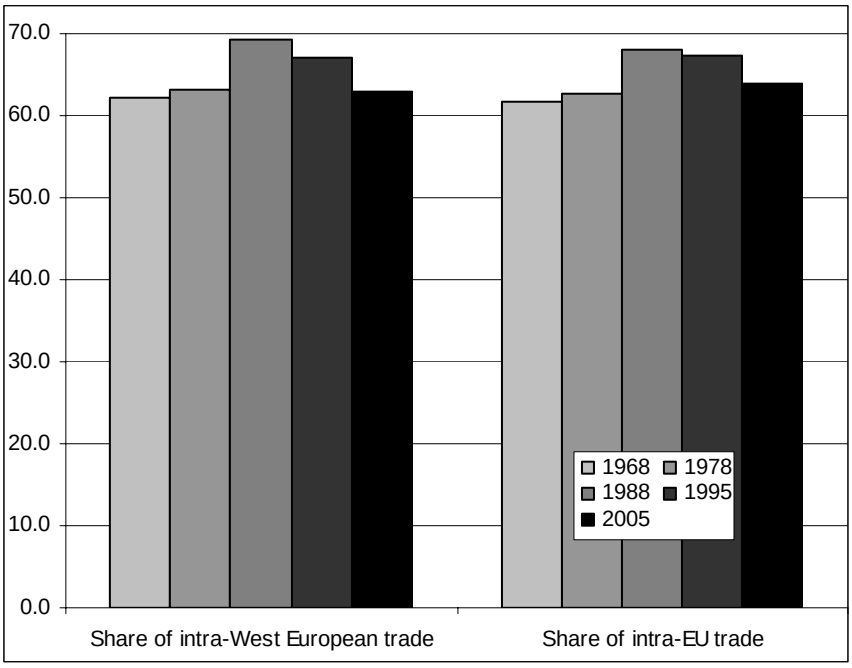
Source: UNCTAD, 2012

1.2. The European integration and the influence of Europe as a trade power

1.2.1. Integration and influence of Europe in the world trade

On the whole period, the integration of the European space has been very high, the intra-trade accounting for around 2/3 of the total European trade (**Figure 3**). However, after decades of growing integration, the share of intra-European trade has declined since the beginning of the 90's, while remaining at a very high level. Even when we control by the size of the economy and the distance, European integration is very strong showing more trade than expected by the model (Zanin, Richard, 2009; Grasland et al., 2007).

Figure 3. The share of intra-European trade from the sixties onwards.



Source: Chelem database of CEPII; personal calculations
Note: EU does not correspond to the political EU for each period but includes the current EU-27 more other West-European countries, except Baltic countries

Outside Europe, despite the fact that Western Europe (or European Union) is the most important area in the world trade, its influence has been declining in nearly all parts of the world, except towards East European countries and ex-USSR. This decline has been dramatic in some regions that constitute the traditional area of influence of Europe, namely the Middle East and to a lesser extent Sub-Saharan Africa. It is also interesting to notice that the weak influence in the most growing areas of Southern and Eastern Asia has been declining as well.

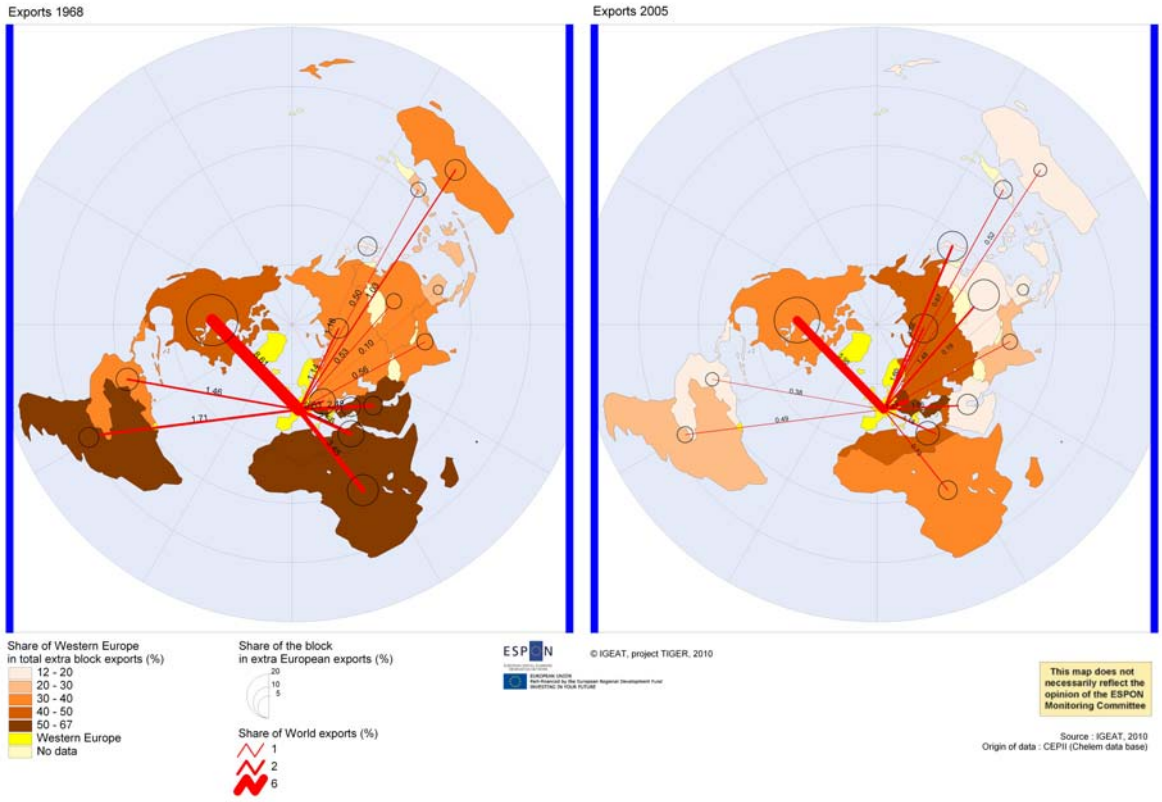
Figure 4 well illustrates the changing geographical pattern of the position of Europe in the world trade. While in 1968, Western Europe was the main partner of many macro-regions in the world, we clearly observe in 2005 the dramatic fall of Europe's influence in the world. But the most important evolution is that Europe's influence has been reduced to the neighbourhood regions towards south (Northern Africa, Eastern European countries and the ex-USSR). This decline has been dramatic in some regions that constitute the traditional area

of influence of Europe, namely the Middle East and to a lesser extent Sub-Saharan Africa. It is also interesting to notice that the weak influence in the most growing areas of Southern and Eastern Asia has been declining as well.

But this is only one side of the story. **Figure 4** also shows (by the size of the circles) the reverse information, that is the importance of the other macro-regions (or blocks) for Europe. The picture is rather different: Northern America, Japan, China are nowadays the main trade partners of Europe (for exports) while the importance of Africa or Latin America for Europe have dramatically decreased.

Hence, the influence of Europe in the world does not correspond at all with the areas that really matter for Europe: while the influence of Europe has been more and more reduced to its direct neighbourhood, the areas that matter for Europe are indeed the other big economic poles.

Figure 4. The exports of Western Europe with the rest of the world in 1968 ad 2005



1.2.2. The European “natural economic region”: an historical perspective

To delimit natural economic regions, we use a specific methodology. We first build a symmetric matrix of trade relations, meaning that we do not distinguish between exports and imports but only look at the intensity of trade relations. We then calculate the intensity of trade relations between pairs of countries relatively to the importance of these countries in terms of trade through a chi². The formula is as follows:

Chi^2 (i,j) = (observed trade relations – expected trade relations)/ (expected trade relations) $^{(1/2)}$

Where
→ observed trade relations are the real amount of trade between countries i and j (exports plus imports
→ expected trade relations only depend on the total trade of countries i and j

For example, between two big trade powers, we expect intense trade relations. If real flows are lower than expected flows, chi^2 is negative and relative trade relations between these countries are considered as weak. The interest of the chi^2 is also that it does not give to much importance on exceptional figures with low volume of trade. Hence, it highlights first intense relations that are significant in terms of volume.

On the basis of the matrix of relative intensity of trade relations, we first group the two countries with the highest values. Then we calculate again the whole matrix and group the two new highest value and so on. The process ends when the highest value is nil or negative. Hence the number of groups is not fixed before.

However, we must be careful when interpreting data since some types may group together countries with high relative intensity of trade flows but still limited compared to others. This is why we also produce the matrix of flows between the group of countries as an important result of the procedure.

In 2007, basically, we can identify three major natural trade regions: the Americas, Europe, Eastern Asia (**Figure 5**). These three regions account for 95% percent of total trade in 2007, with respectively 21, 48 and 28% (**Table 1**). It is important here to underline that the European region is grouped with former USSR only in the last steps of the process, meaning that both regions have a strong internal cohesion but are nearly separate entities. Apart from these regions, the Middle East and Africa appears as a complex patchwork of small natural economic region (Southern Africa and Gulf countries) and external influence. These different regions also have different levels of internal integration, measured as the share of internal trade: the share of internal trade is 78% for the European group, 60% for Asia, 53% for Americas, but only 12% for Southern Africa and 13% for Gulf countries. This largely reflects the size of the groups but also, their economic extraversion, with more peripheral countries showing low level of internal economic integration. Finally, Table 1 also illustrates that though Europe has severely lost its influence in Africa and the Middle East, it is still the main trade partner, in equal terms with the Asian group.

Figures 5 to 8 show "natural economic regions" in 1968, 1986, 1996 and 2007. They indicate among others the evolution of the European region on this 40-years period of time.
In 1968, Europe is no a cohesive area, and the influence of the different European groups go far beyond the traditional limits of Europe. The European core in blue is centred on the 6 founding members of the European Economic Community, plus Switzerland and Austria, and includes also large parts of Africa. The British group includes most former British colonies in Africa and Oceania. A Scandinavian type is also apparent that does not include Finland. Finally, we observe the deep divide between Eastern and Western Europe.
In 1986, Europe is much more cohesive, only divided between the communist countries and the West European ones. The Western group includes large parts of Africa. When looking at trade between these groups in 1986, Europe is still the main trade partner for all the African groups as well as The Middle-East/South Asian group.

In 1996, The European group covers the whole area traditionally defined as Europe, as well as Northern Africa and the Middle East. Finally, the European group is very similar in 2007 but does nearly not include Northern African and Middle Eastern countries.

To synthesize, Europe has become more and more coherent over the time but at the same time more and more limited to its traditional borders. This has been made through two major phases: from extroverted colonial to a cohesive Europe; and then by the inclusion of Eastern Europe into the European group. In the same time, Europe's influence has been more and more restricted to the European neighbourhood, and within the neighbourhood, we observe a shift from Southern and South eastern to eastern neighbourhood after the fall of communism.

Figure 5. The space of privileged trade relations in 1968

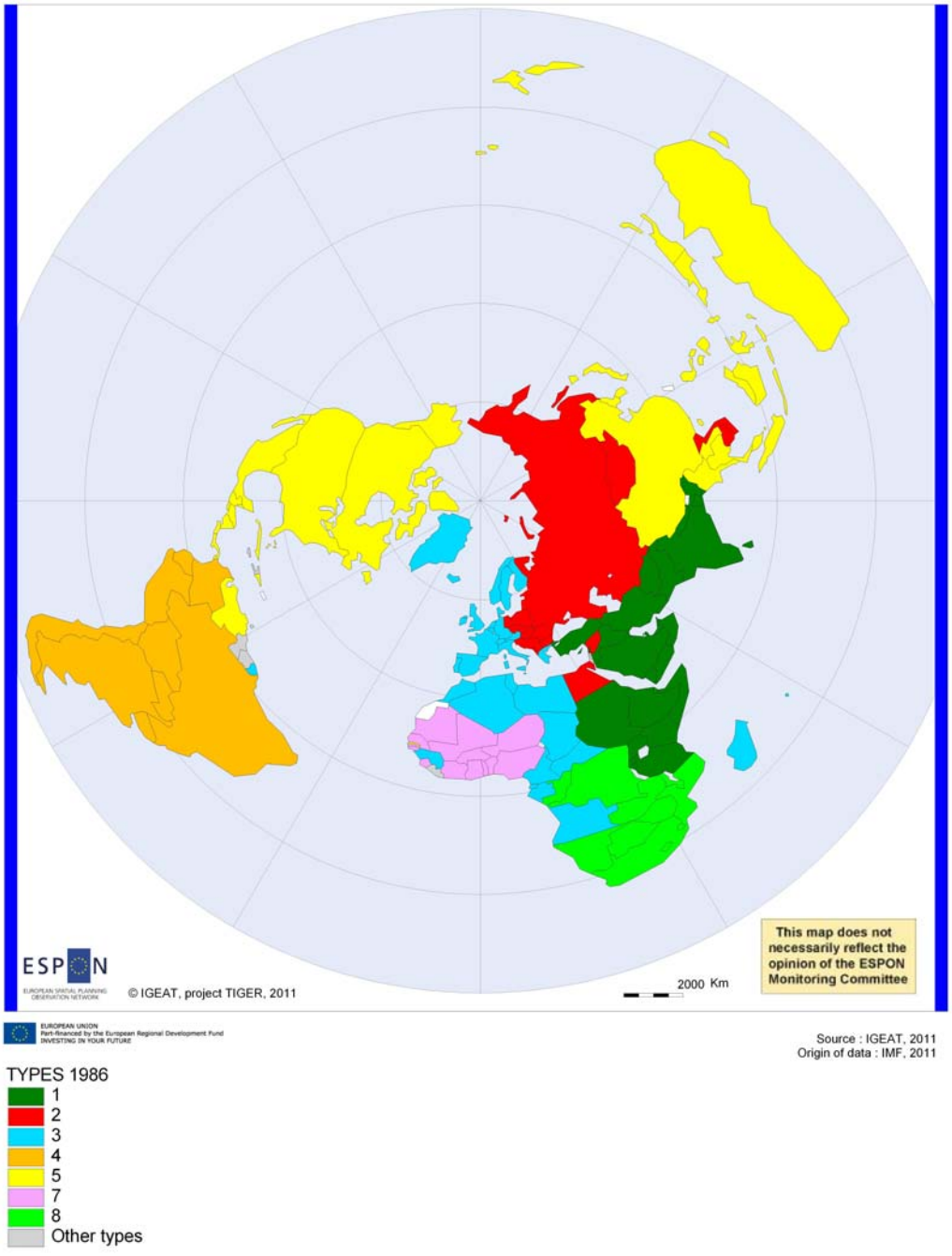


Figure 6. The space of privileged trade relations in 1986

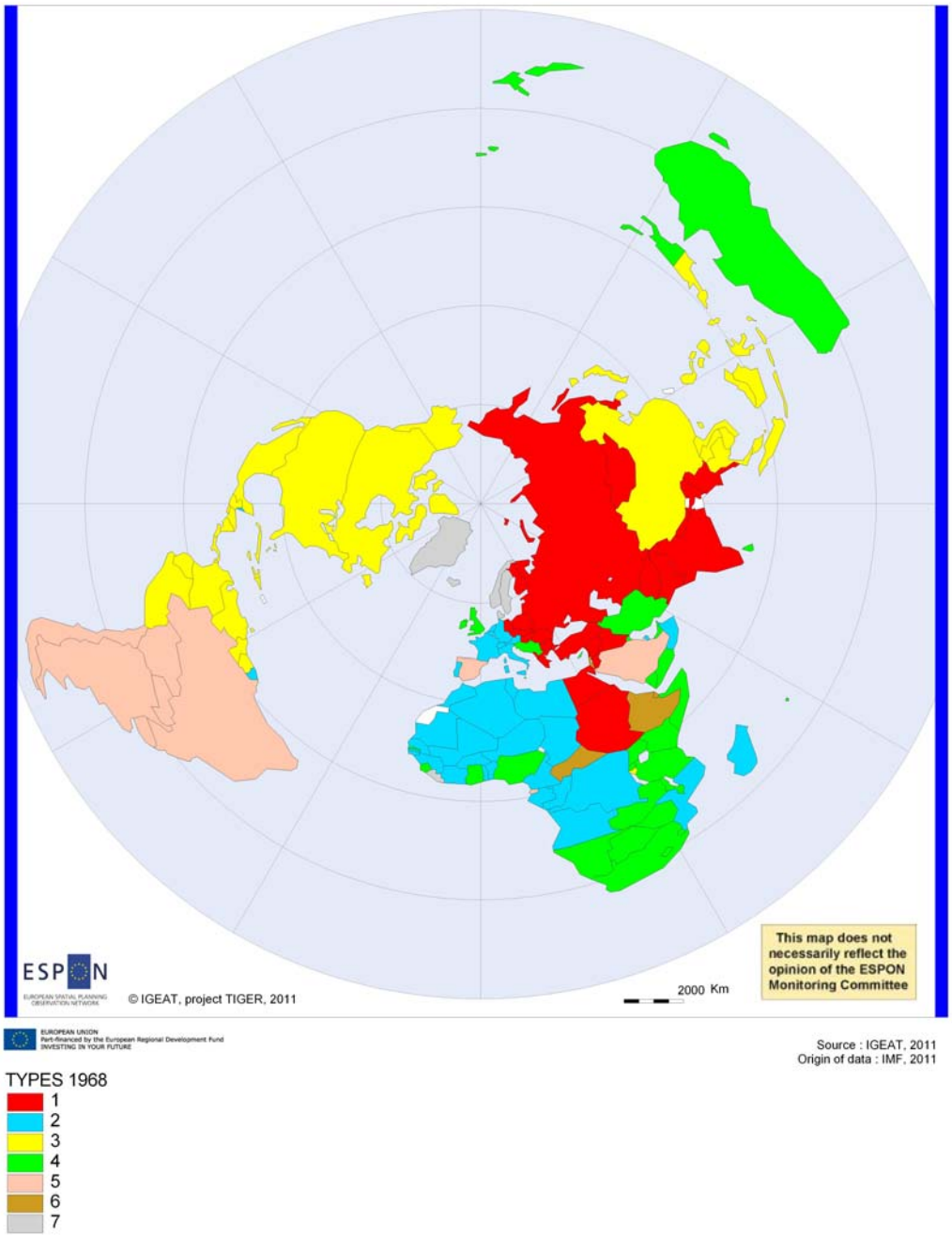


Figure 7. The space of privileged trade relations in 1996

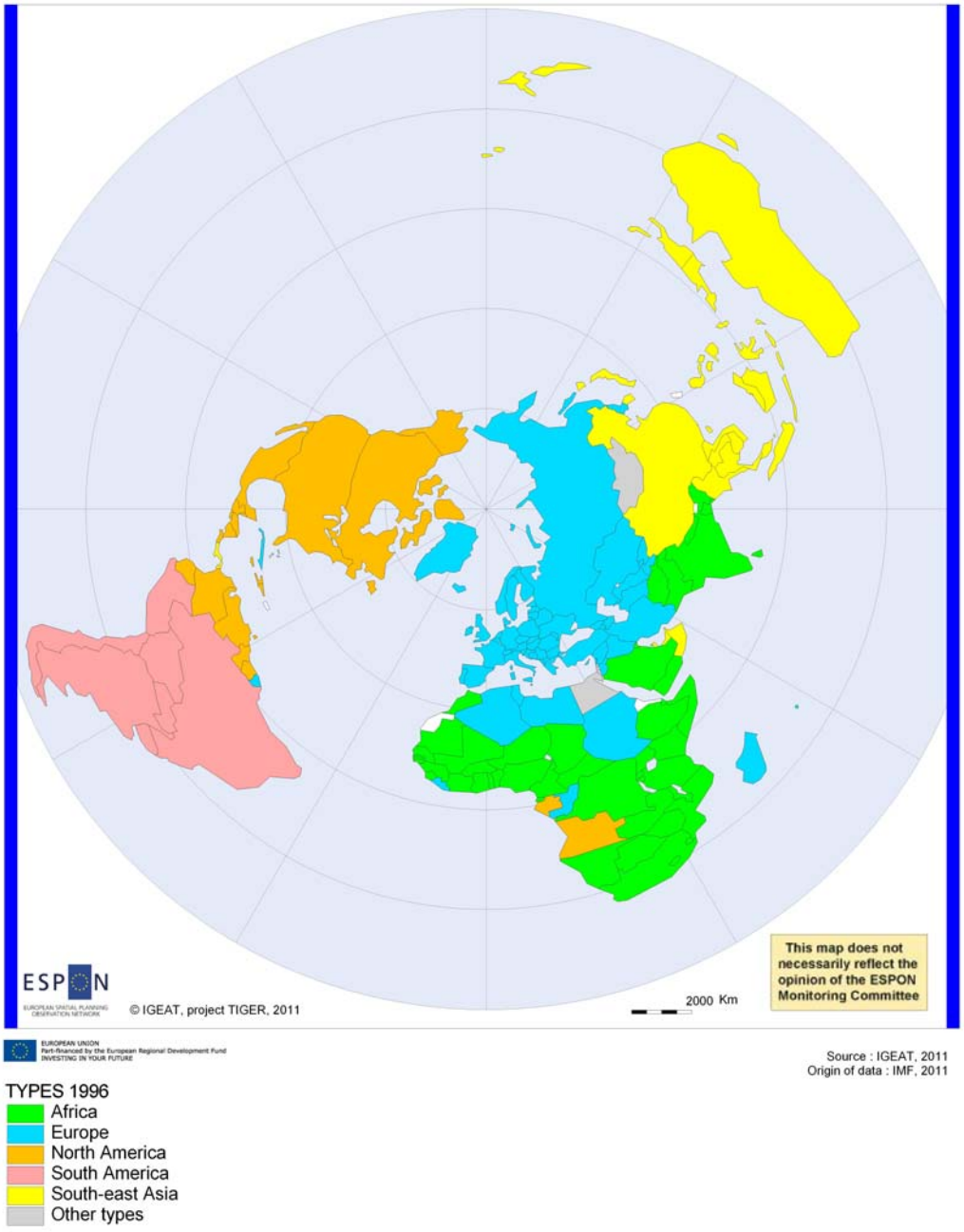
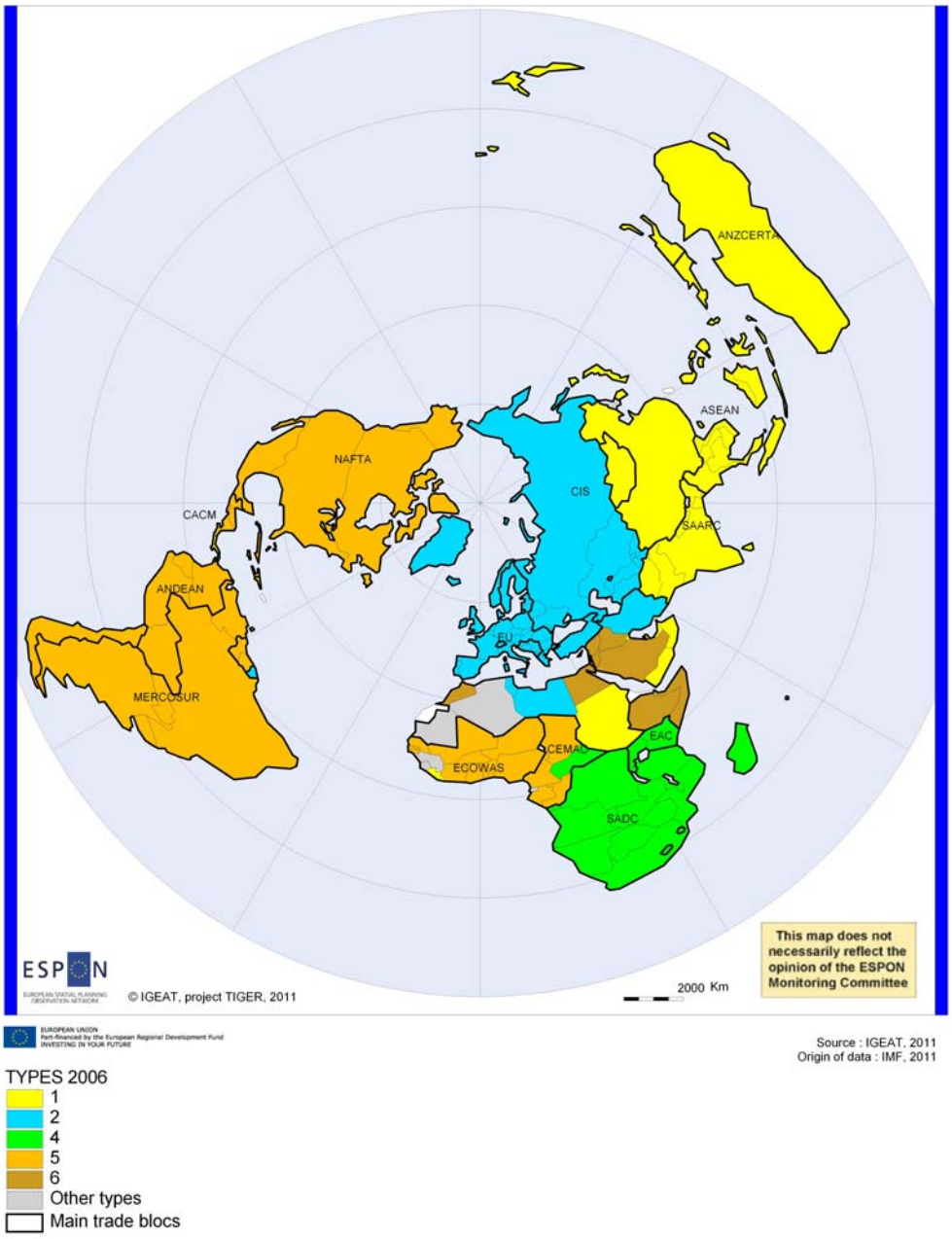


Figure 8. The space of privileged trade relations in 2007 and free trade areas



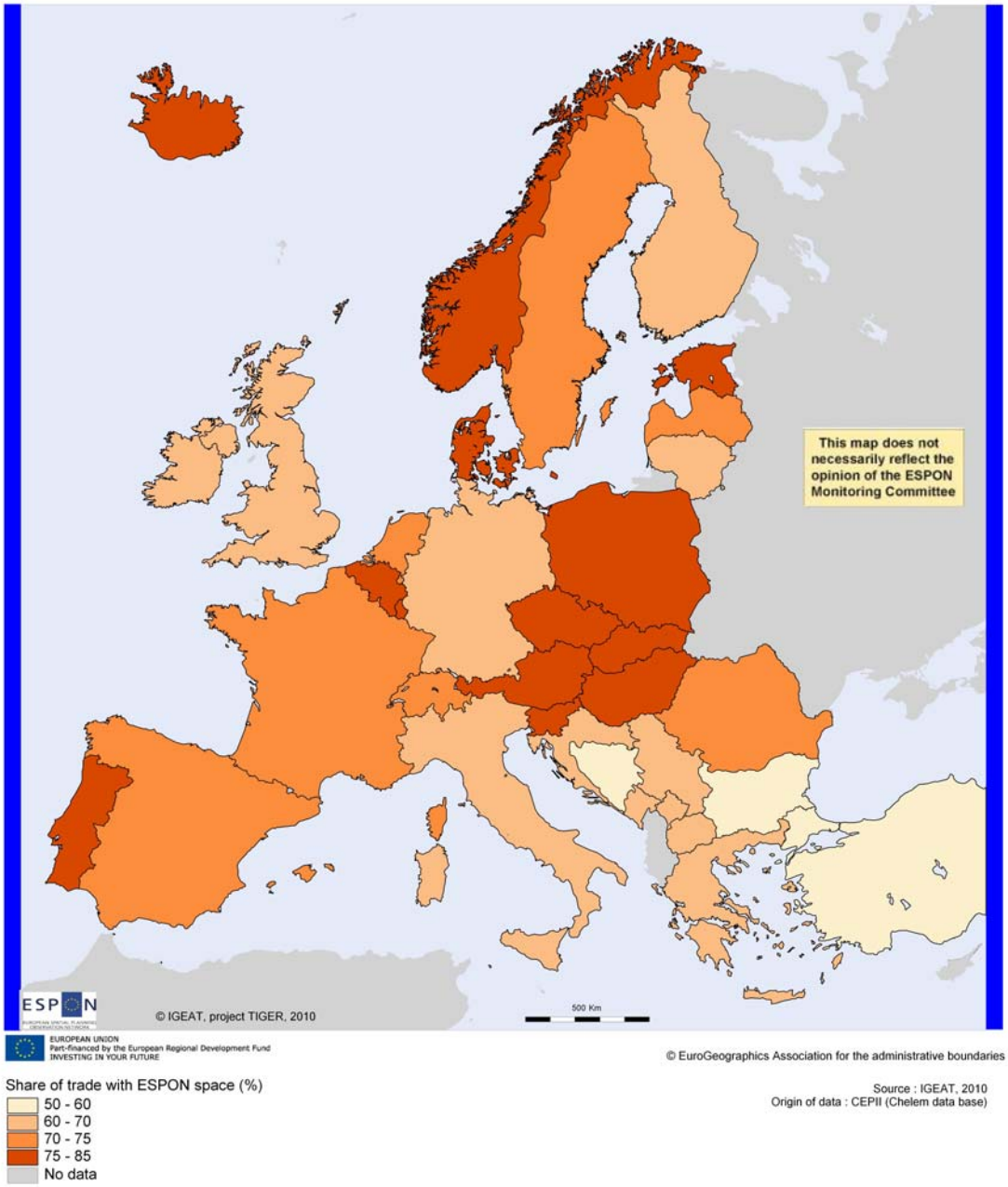
	Asia (1)	Europe (2)	Southern Africa (3)	Americas (5)	Middle East (6)	Other	Total
Asia (1)	16,8	5,3	0,3	4,9	0,7	0,1	27,9
Europe (2)	5,3	37,3	0,3	4,2	0,6	0,2	48,0
Southern Africa (4)	0,3	0,3	0,1	0,2	0,0	0,0	1,0
Americas (5)	4,9	4,2	0,2	11,0	0,3	0,1	20,8
Middle East (6)	0,7	0,6	0,0	0,3	0,3	0,0	2,0
Other	0,1	0,2	0,0	0,1	0,0	0,0	0,4
Total	27,9	48,0	1,0	20,8	2,0	0,4	100,0

Table 1. Trade flows between major groups of countries, as a share of total trade in 2007.

1.3. The geography of trade of European countries

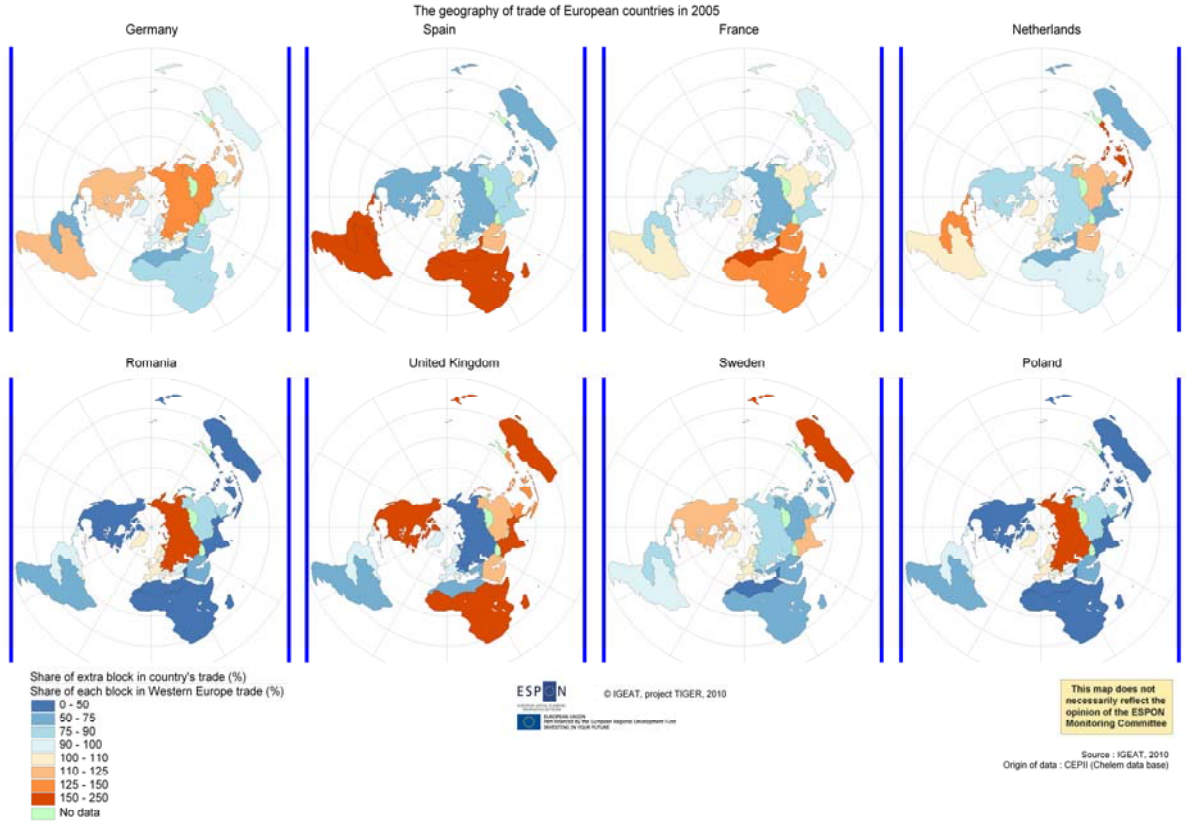
Figure 9 shows how integrated Europe is as far as trade is concerned. To assess this, we only map the share of trade of each country with all ESPON countries. All European countries are making at least 60% of their trade with the ESPON space, except Bulgaria, Bosnia and Turkey. But we observe differences among countries: small countries are the more European in general; Eastern European countries are highly oriented towards Europe; UK is the least integrated nation but Germany and Italy are also characterized by this weaker integration with the rest of Europe.

Figure 9. Trade of European countries with the Espon space in 2005.



If European countries share a high level of integration with EU, they show some important differences in their geography of trade with the rest of the world. This is illustrated on **Figure 10** where each country's trade is compared to EU average: while UK is showing specific relations with commonwealth countries and USA, Eastern countries still have specific relations with ex-USSR, Spain with Africa and Latin America, France with Africa and Middle East… We have two types of explanations to this diverse geographical pattern: the most evident one refers to the historical relations (France and its former colonies; UK and the commonwealth; central and Eastern Europe with ex-USSR; Spain with Latin America…); but we should also underline the importance of technology which allows for example Germany or Sweden to develop specific trade relations with the most growing parts of the world, which for example need German technology in machinery.

Figure 10. The geography of trade of some European countries in 2005

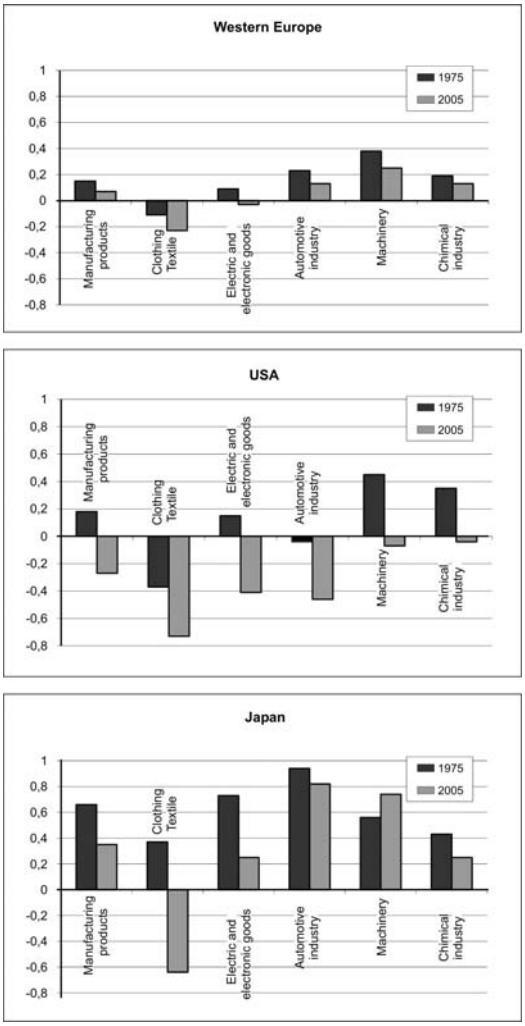


Briefly said, we can say that Europe is an integrated continent while still very differentiated as far as extra-European relations are concerned.

1.4. Europe and European countries in the division of labour

Much has been said the economic decline of Europe and the impact of offshoring in this general trend (DG RegioII, 2009). The initial image of Europe losing the labour-intensive industries has been progressively transformed into the idea that Europe is also losing high technological production and knowledge-based industries (OECD, 2007; Grossman & Rossi-Hansberg, 2008; Baldwin, 2006). It might be true but this should not be overstated. It is certain that Europe, US and Japan decline in relative terms (in share of the world trade) in nearly all segments of production; but this decline is much less pronounced in more technological segments of production which suppose that core areas are more and more specialized in it (CEPII, 2006; Grasland, Van Hamme, 2010). Hence, as illustrated by **Figure 11**, the poles of the so-called triad have deep trade deficits in labour-intensive manufacturing industries while keep positive or less negative balances in the most technological segments. We should notice here the contrast between US and Europe/Japan: while the first has negative balances in all sectors – but less in the most technological ones – Europe and Japan remain positive in medium and high technological segments (automotive, machinery, chemical industries) (Vandermotten *et al.*, 2010).

Figure 11. The trade balance of US, Western Europe and Japan for different sectors, in 1975 and 2005



Source: Chelem database of CEPII; Vandermotten *et al.*, 2010

The stable position of Europe in the world division of trade is confirmed by **figure 12**. To assess how countries evolve in the international division of labour, we ran a Principal Component Analysis on the asymmetry of trade of all countries and all products (around 140 products) for 5 different years[1] (1967, 1977, 1987, 1997, 2007) (see Eurobroadmap, 2010). The three first components of the analysis account for more than 56% of the information, with respectively 39%, 11% and 6%. The first component opposes manufacturing and primary products, while the second opposes most technological to more labour intensive productions within the manufacturing products. Finally, the third component isolates the agro-business industry. When calculating the score of countries on these axes, we can synthesize the position of countries in the international division of labour and the evolution of this position for the different periods. Additional analyses have also shown us that the second axis has an increasing relevance across the times.

Figure 11 thus clearly opposes primary producers (Cameroon is shown as an example) to countries which are the most specialized in manufacturing production (Japan, China…). Within this latter group, the second component opposes the countries specialized (in relative terms) on more technological segments on the upper side (US, Japan…) from those specialized in labour intensive industries such as textile at the bottom (China…). This graph well illustrates the evolving position of countries in the international division of labour as illustrated by the South Korean example: while in 1967, Korea had the more positive balance in primary products, it progressively evolves toward a specialization in labour intensive industries (down and to the right in the graph) before moving up towards more technological productions and reaching the same position than Western Europe in the division of labour around 2007.

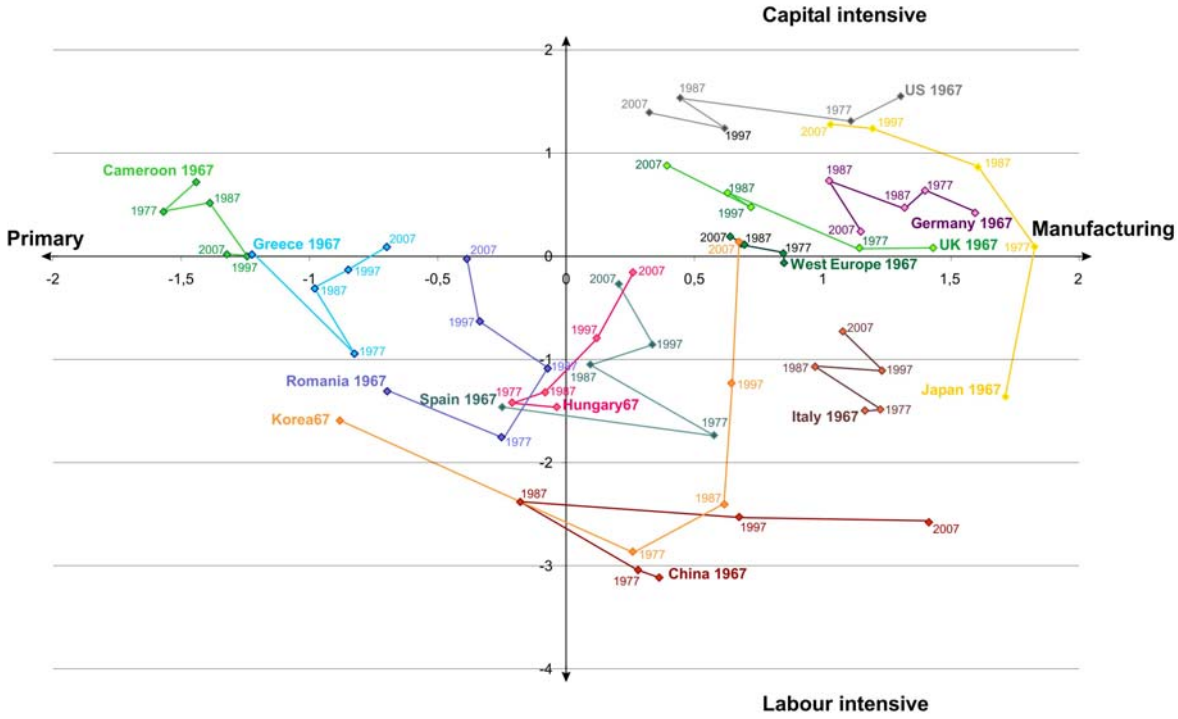
On this basis, what can we say about the position of Europe and European countries? The graph clearly shows the stable position of Western Europe in the international division of labour[2]. However, this stable position hides different trajectories among European countries. In a long term perspective, we can observe a convergence among European countries: countries like Spain and Germany, to take only these examples, are much less different than some decades ago. While less spectacular, the evolution of Spain is similar to the one of South Korea (more labour intensive industries in the first phase and than moving up the value chain). But there are still differences among European countries according to their position and specialization in the world trade: Germany still focuses on manufacturing technological productions, France or Belgium in intermediate segments, South Eastern countries in more labour intensive industries… Some southern countries such as Spain, Greece or Portugal – and to a lesser extent Italy – seem to occupy a difficult position in this division of labour, where they are unable to compete on the most technological productions with North European countries but also on the labour-intensive and/or medium segments with countries where labour is much cheaper (Eastern countries for automotive industry; clothing and textile with Asia..). The evolution of UK is similar to the one of USA with a clear deindustrialization process while these countries remain specialized (in relative terms) in the most technological segments of production.

Finally, it must be noted that the trade of services cannot be included in these types of analysis while accounting for about 20% of the world trade (and a bit more for European countries).

[1] Indeed, for each period, we calculate the asymmetry with a three year-average around the chosen dates.

[2] It does not make sense in this long term perspective to aggregate all ESPON countries, because ex-communist countries largely made part of an integrated and separate system than West European countries.

Figure 12. Europe and European countries in the international division of labour.



1.5. European countries in the trade of services

To position European countries in the global division of labour, we also need to take services into consideration.

First, we distinguish between countries participating to the global economy through exports of goods and services. Central and East European countries are highly specialized in exports of goods and services are still weak in their economic exchanges with the rest of the world (**Figure 13**). In Western Europe, some countries clearly distinguish by their high share of services in their international exchanges: Ireland, the UK, Luxemburg, Denmark, Iceland, Finland and Greece.

Second, within services, we observe different types of specialization (**Figure 14**). In figure 13, we show the index of asymmetry for different types of services: transportation, finance, computer and information, other business services. The three latter have high intensity of knowledge while the first can be considered as a basic service. The maps show very different geographical patterns. We mainly notice very spectacular specializations in computer and information services in Ireland. Financial services are also very concentrated in some countries: the UK, Luxemburg and Switzerland. In contrast, transportation and business services are less concentrated because they include diversified range of specializations.

This information has been synthesized in **Figure 15**, where countries have been classified according to the type of services they sell. For each country, we first calculate the share of the different services in their total exports of services. We then provide a first synthesis through a

principal component analysis. The three first components account for 60% of the total variance (25% for Component 1, 18% for the second and 17% for the third). The first distinguishes services with very high intensity of knowledge: insurance, finance and computer services in contrast to basic services (construction and transportation), while the second more specifically isolates finance services, when not associated to other advanced producer services. The third component highlights specialization in business services as well as royalties and license fees. Finally, we run a hierarchical cluster analysis on the three first components and obtain the classification in 7 types illustrated in **Figure 15**. A first distinction is between countries specialized in high level services (in hot colors) in contrast to the others. Among the former, Luxemburg, Switzerland and the UK distinguish by very high specialization in financial services while Ireland is the first exporter of computer and information services. The other countries (in yellow) have a more diversified range of high level services, and do not reach such high level of competitiveness in very specialized services. In the latter group, Turkey has a very specific profile because it is only specialized in transportation services. The blue group distinguishes by higher specialization in more knowledge intensive services while the green group is even more specialized in basic services, such as construction and transportation.

Third and finally, statistics of services payments do not allow covering long term period as statistics on goods. However, we can assess the evolution between 2000 and 2010, and we observe significant dynamics during this period of time. The leading service economy – the UK – has lost market shares in nearly all types of services (**Figure 16**). In contrast, new member states have all gained market shares, but from a very low initial level. Ireland has also gained market shares in nearly all types of services. Belgium and Sweden has also gained significant market shares. In contrast, France, Italy and Greece have lost market shares in services.

Figure 13. The importance of services in international exchanges, 2010

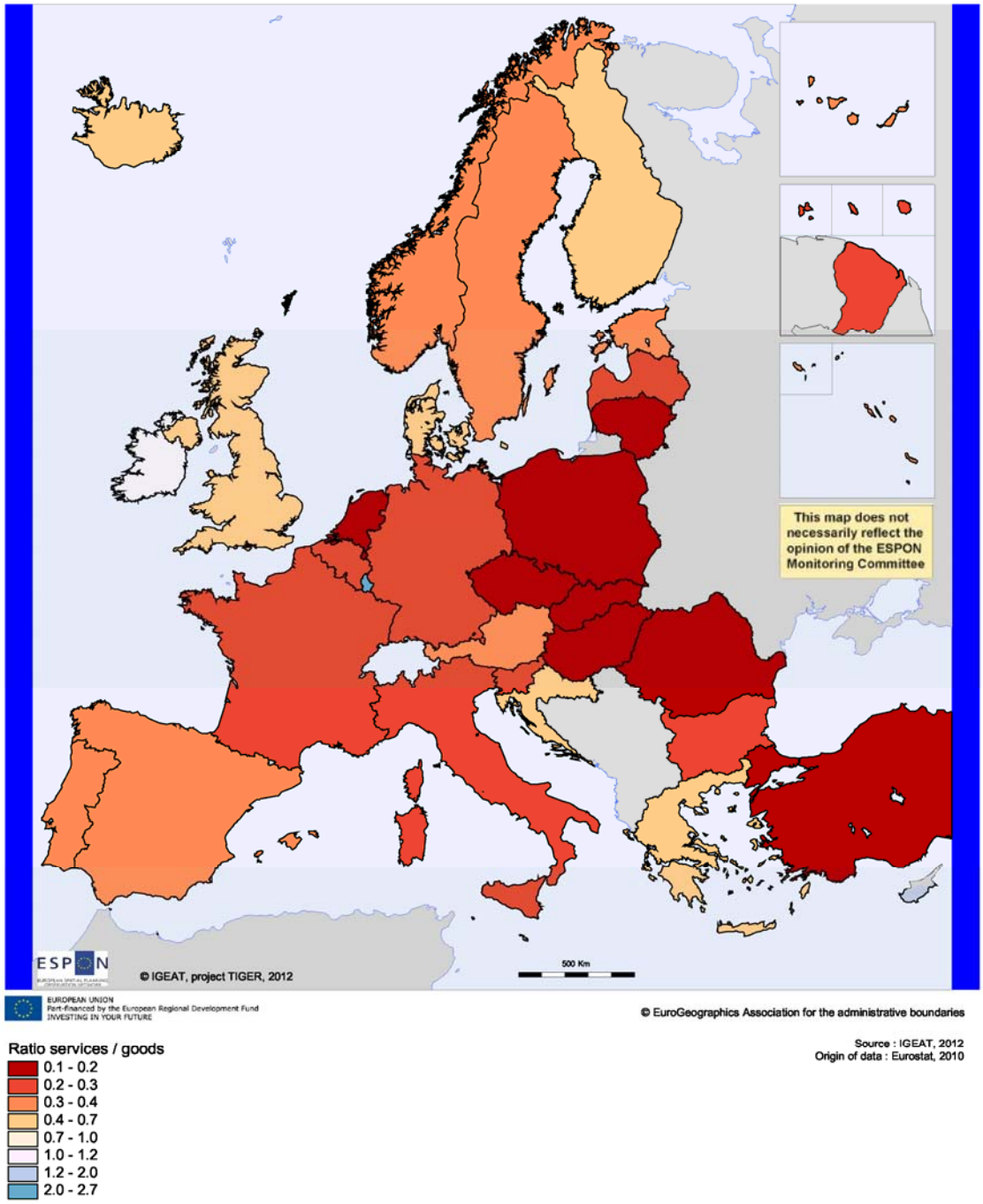
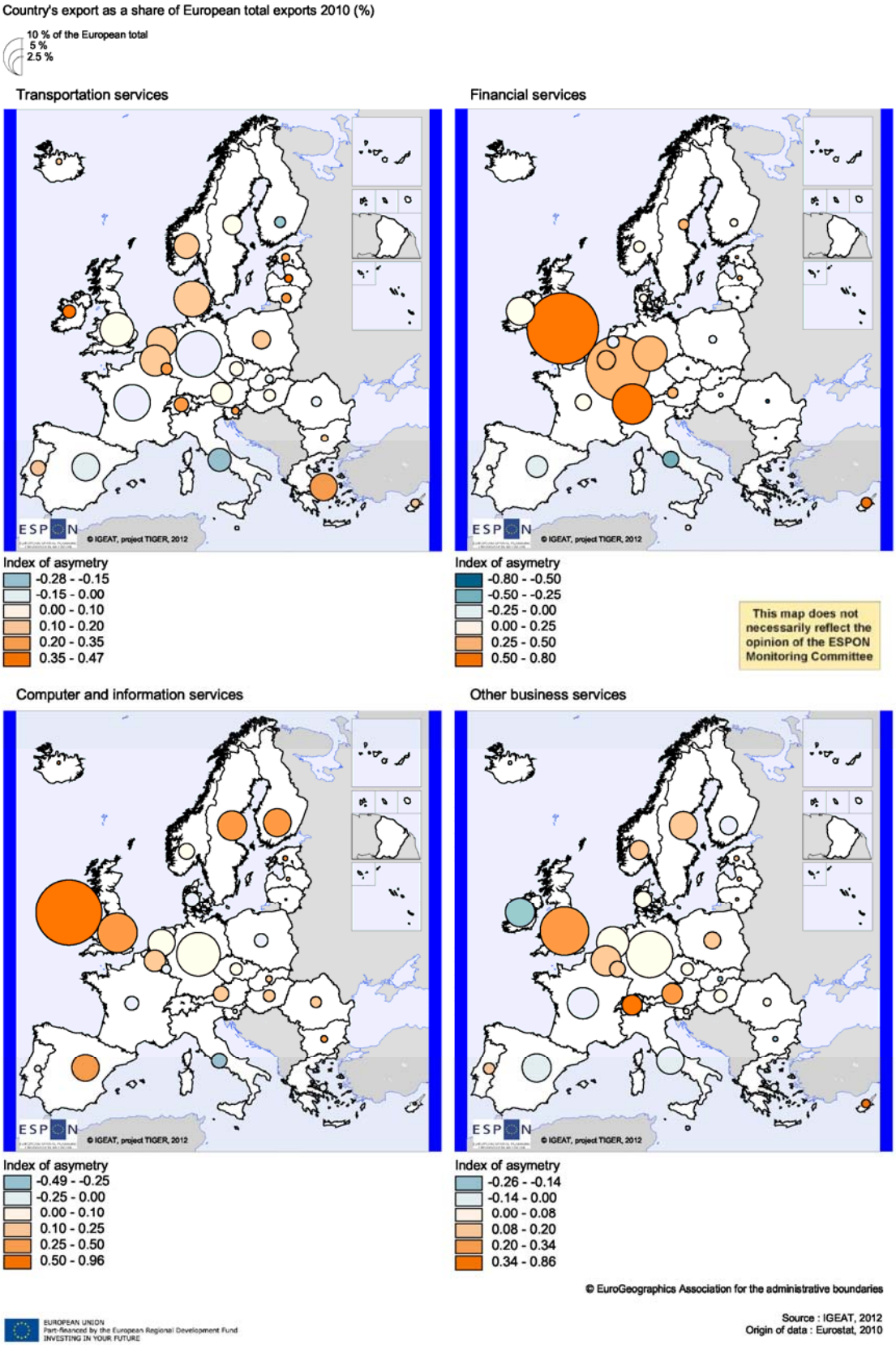
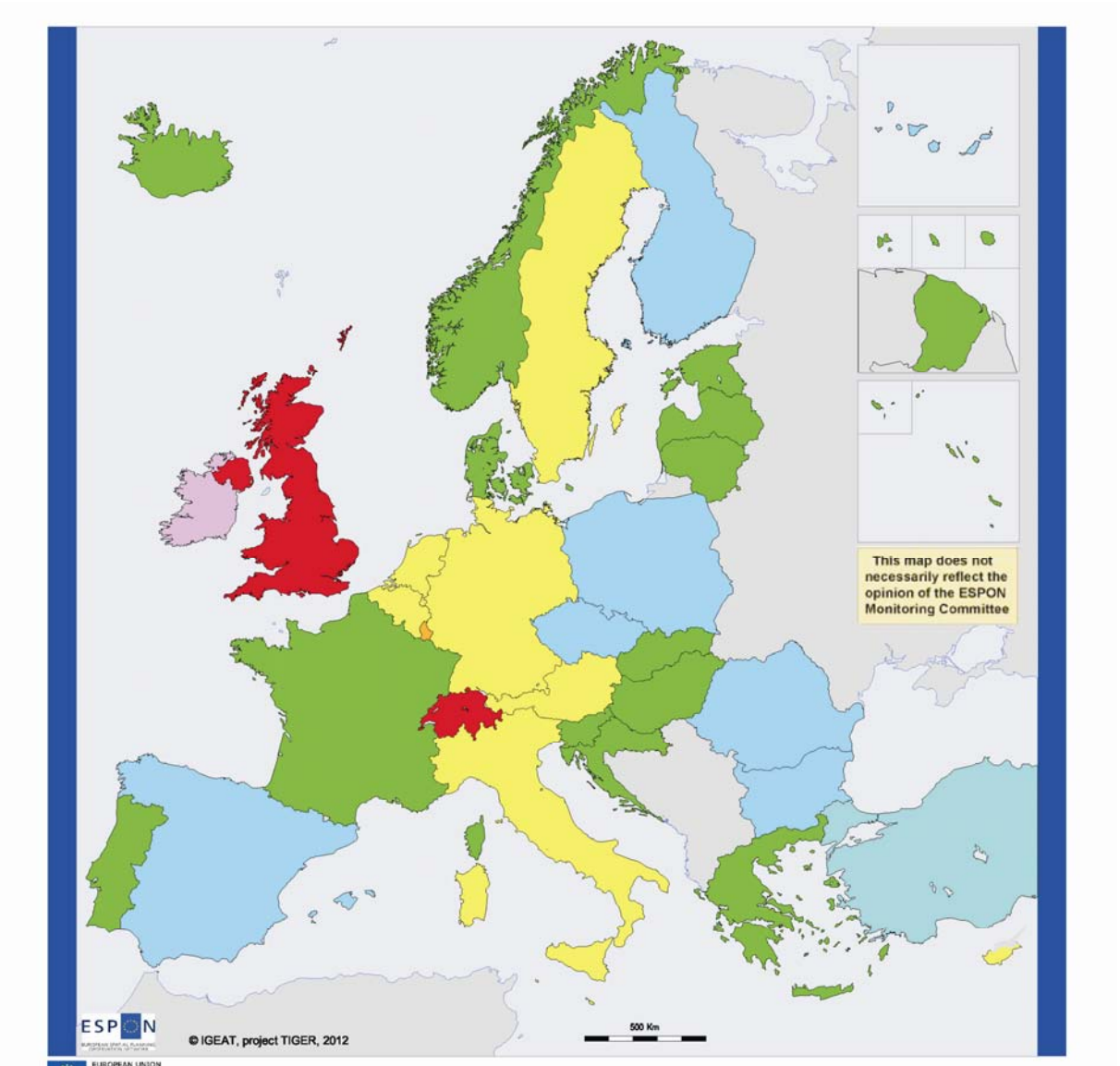


Figure 14. Competitiveness of European countries in different types of services



Note: the index of asymmetry is the ratio between the balance in services and the sum of exports and imports of services: (X-M)/(X+M)

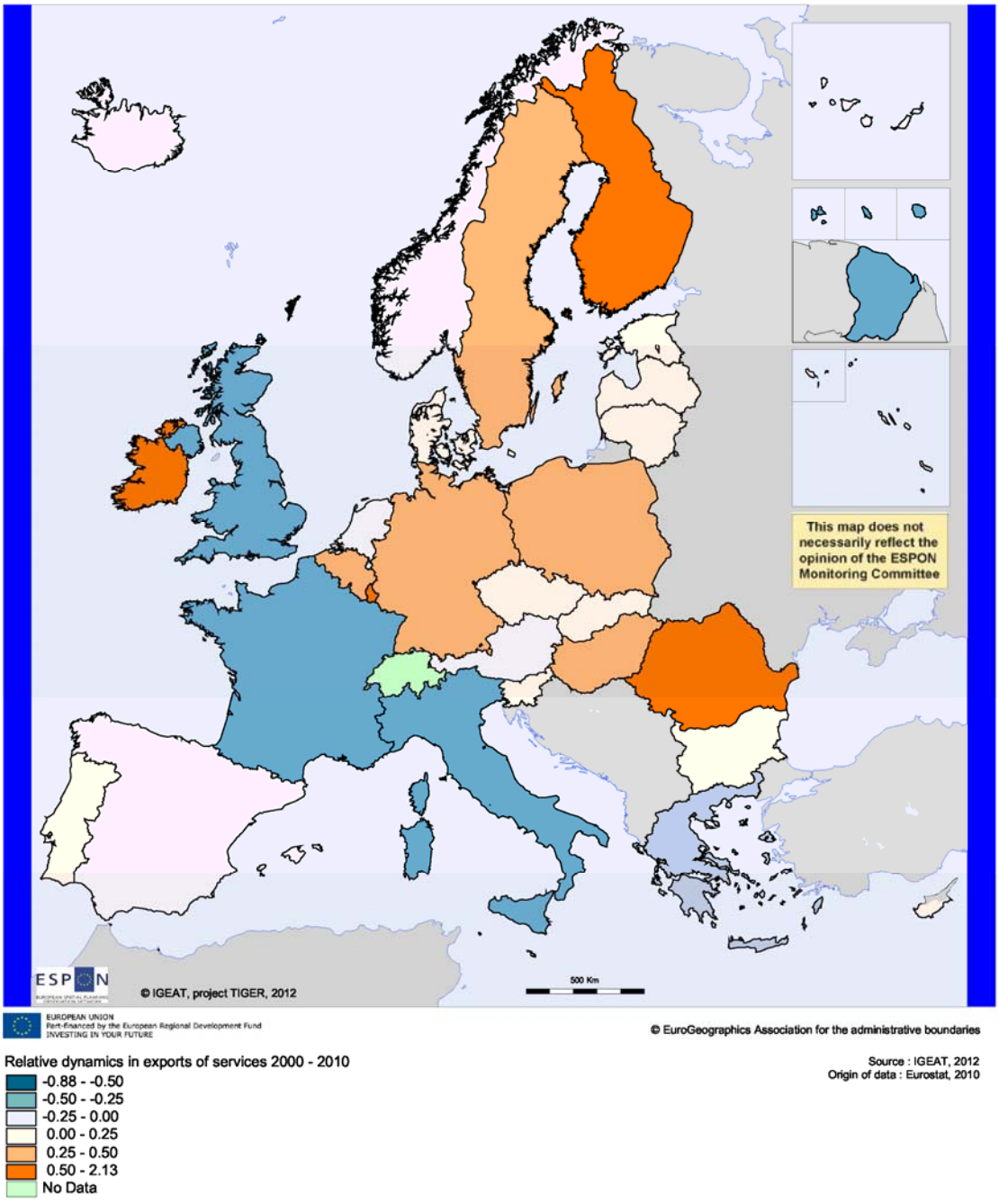
Figure 15. Typology of countries in function of the services sold to the rest of the world, 2010



	Somme	Transportation	Travel	Communication	Construction	Insurance	Finance	Computer and information	Royalties and license fees	Other business services	Personal and cultural services	Government services
Type 1	71185	5,1	0,6	0,8	0,0	10,9	8,4	39,6	2,4	31,4	0,4	0,5
Type 2	212925	13,1	2,2	3,4	0,7	4,7	23,7	4,8	9,8	33,6	2,2	1,8
Type 3	47358	5,4	0,2	4,2	0,7	5,7	64,6	1,2	0,8	13,4	3,2	0,8
Type 4	418525	28,8	2,3	4,4	3,3	2,3	4,1	6,9	9,2	38,1	0,6	2,0
Type 5	111973	28,2	2,8	2,9	5,7	1,3	4,0	11,5	2,7	38,5	1,6	0,7
Type 6	203042	49,2	2,2	3,1	3,3	0,9	2,0	3,3	5,6	27,2	1,9	1,2
Type 7	8697	60,9	0,0	5,5	8,4	5,7	4,3	0,1	0,0	1,2	10,4	3,5
Total	1073706	26,4	2,1	3,6	2,7	3,2	10,5	8,1	7,1	33,4	1,5	1,5

Source : IGEAT, 2012
Origin of data : Eurostat, 2010

Figure 16. Evolution of exports in services, 2000-2010



Note: The indicator is the evolution of the weight of the country in the total exports of services for the whole Europe. It does show whether the country has gained market shares in exports of services compared to the rest of European countries.

X (i,2010) – X (i,2000)

Racine (X (i,2000))

Where X (i, 2000) is the share of country i in all exports of services of European countries

2. European regions in the global trade

Introduction

Globalization has been one of the dominant paradigms in economic geography – and more generally in social sciences – for the last two decades (Peck, 2003). Tough globalization – defined as the growing integration and relations between the different regions and economies of the world – is by nature a spatial process, little is known about the territorial impact of this process at regional and urban scales.

Different theoretical approaches allow dealing with this complex issue.

According to the "new economic geography", very roughly said, we might suppose that economic integration at the global scale potentially reinforces agglomeration economies and specialization at regional/urban scale (Krugman, 1992). While processes at stake and moreover the scale at which these processes operate are not always explicit in "new economic geography" (Martin, Sunley, 1996; Boddy, 1999), we see no reason why theoretical approaches dealing with factors of regional competitiveness would be profoundly reshaped by growing global economic integration. It is true that the increasing trade with the rest of the world is at the same time a potential threat for regions specialized in low technological manufacturing industries which have to compete with low labour cost countries and an opportunity for regions in the highest technological segments because of their increasing markets. Previous studies have nevertheless already shown that this vision is too mechanical and simplistic since, even in some of the most potentially vulnerable regions, regional characteristics have permitted sustained good economic performance (DG Regio, 2008). This raises the very important question of the possible declining significance of sectoral structures as a factor in competitiveness: winning regions are those able to rise or maintain their high position in the value chain and this capacity relies on numerous factors identified by the huge literature on competitiveness (DG Regio, 2003; Martin *et al.*, 2006). According to this perspective, globalization probably does not considerably alter the challenges of territorial development.

In contrast, the network paradigm (Sassen, 2001; Castells, 1996; Beaverstock *et al.*, 2000) starts from the assumption that economic globalization profoundly reshapes the spatial pattern of the economy at regional scale and give decisive advantages to the most connected places through different types of networks (social, economic, transport etc.). Here, the old paradigm of territories and nation-states is replaced by a new paradigm of places, flows and networks. From this point of view, Sassen's 'global city' conception is particularly useful since it proposes a multiscalar perspective: "The massive trends toward spatial dispersion of economic activities at the metropolitan, national and global level, which we associate with globalization, have contributed to a demand for new forms of territorial centralization of top-level management and control operations" (Sassen, 1996). According to this view, (global) cities are not only nodes within a network but they are part of a global process of complementary decentralization and centralization of economic activity at different spatial scales. Such a conception helps us to understand spatial processes of globalization beyond the major nodes, that is to say the global cities. However, it should be kept in mind that, in the context of flexible capitalism that emerges from the eighties, cities – and mainly big cities – have a competitive advantage which should not only be associated with globalization, but also with Marshallian contextual factors such as size of labour pool, the specialization and diversity of inputs this provides as well as technological spillovers. From this perspective also, globalization mainly changes the extent of the international competition not necessarily the decisive factors of competitiveness.

The existing literature provides little systematic evidence on this complex topic of the territorial impact of globalization. We find either a globalization perspective which pays too little attention to territories, at least never in a systematic way and in an empirical perspective, or a regional literature in

which globalization is nothing more than a backdrop (the whole literature on regional competitiveness). Few attempts have been made to provide a more systematic empirical analysis of the territorial/regional impacts of globalization in Europe. The OECD study on "Globalization and regional economies" (OECD, 2007) and the DG REGIO studies (2008, 2009) on regions vulnerable to, and benefiting from globalization and increased trade, are the most notable exceptions. They come to the conclusion that sectoral specialization is not the decisive factor determining regional success in the global economy. Also, even though connections to the rest of the world may be correlated with better economic performance in general, this relationship is far from being empirically demonstrated.

In this section, we provide an empirical contribution to the issue of the territorial impact of globalization at regional scale in the European context by assessing the intensity and nature of the regional participation to the global trade. Hence, we aim at assessing the position of region in the division of labour as well as the geography of its trade.

More precisely, we will try to answer the two following questions:
1 - What is the nature and magnitude of the European regions' integration to the global economy? We attempt here to go beyond the *a priori* position that the regional fate is determined by globalization trends without taking care of the intensity of regional flows with the world outside Europe. We should here keep in mind that the European economy is still a relatively closed economy.
2 – What is the impact of the global economic integration on the economic performance of European regions? By classifying European regions according to the nature and magnitude of the integration to the global economy, we might get a more adequate idea of the potential impacts of globalization on European territories. More precisely, we interrogate whether the growing competition of European region with the extra-European world might affect their performances.

The answers to these questions cannot be achieved only by analysing regional trade but should be combined with other types of data allowing to assess other forms of participation to the global economy that the trade of merchandises. Hence, this working paper is one piece in a global assessment of the regional and cities' participation to the global economy.

After explaining the construction of the matrix of regional trade, we propose to analyse the the geography and structure of regional trade in sections 2 and 3. Section 4 explores the relationship between regional performances and the regional participation to global trade. Finally, in section 5, we explore the potential of more detailed data of regional trade in the case of regional trade of United Kingdom.

2.1. Building the regional trade matrix

Data on regional trade are not collected at the EU level. We have to collect such data from each National institute (see Table 1 for the sources of the data). These data have different levels of precision in terms of geographical divisions, destination and products desegregation.

We end up with a satisfactory division of Europe from the regional point of view. However, we did not succeed in getting data of regional trade for New Member States, except Bulgaria, and for Nordic countries. In some cases, these data do not exist, and in other cases they are too expansive. However, for several countries, we can accept keeping national trade statistics because these countries are relatively small (Baltic countries, Slovakia, Norway…).
As we can conclude from table 1, the scale at which we can work on regional trade is usually large (NUTS1 or 2). We miss data for 8 countries for reason of excessive cost or because these data do not exist. For these countries, we are thus obliged to keep the national level.

To homogenize the regional trade matrix, we proceed in different steps:

1. Products' homogenization: while for most regions, data are available in CTCI-digit 2 this is not the case for all of them, because some countries use national classification of goods (notably Spain, Italy, France…). To solve this problem, we convert all classifications into the sectoral NACE classification (NACE digit-2). More detailed classifications are of course available for some countries but the synthetic matrix keeps the NACE sectoral classification of industries.
2. For each country, data are collected according to different methods. It is of course not possible to completely homogenize the database. However, we opt for adjusting the database to the homogenized national trade data from the COMDAT database of Eurostat. Concretely, for each type of products, we apply the share of each region in imports and exports, to the total volume of exports and imports at national level. The same process has been used for destinations of products. This process ensures a minimal homogenization of the data but the share of each region within a country is still influenced by the way data have been collected.

Despite these efforts, we must underline some limits of the database. First, as already mentioned, intra-national geography of trade is achieved through different methods resulting in a lack of homogeneity. Second, the geography of trade at regional level suffers from several biases which are unequally dealt by the different national statistics. This includes the geographical bias in favour of headquarters. While this bias is for example well corrected in the UK case, it is still significant in a number of countries. It also concerns the harbour bias, notably in the case of re-exports without manufacturing. This bias is visibly present in Belgium or France for example and might result in double counting in regional trade statistics.

While there are numerous limits to the database, we still believe that it gives a good overview of regional trade in both geography and products specialization and offers a unique chance to apprehend more directly the economic relations between the regions and the rest of the world.

The following table gives the availability of regional trade data across ESPON countries (**Table 2**):

Table 2. Data on regional trade across ESPON countries

	Country	NUTS level	Availability	by commodity	by country	year	Main source
AT	Österreich	0	HIGH COST			2007-2009	http://www.statistik.at/web_de/statistiken/aussenhandel/
BE	Belgique-België	1	YES	CTCI digit2	all countries	2007-2009	Regional statistical offices
BG	Bulgaria	2	YES	CTCI digit2	all european countries	2007	NSI (NVulkov@NSI.bg)
CZ	Ceska Republika	2	NO			2008-2009	infoservis@czso.cz
DE	Deutschland	2	YES	CTCI digit2	all countries	2007-2009	https://www-genesis.destatis.de/
DK	Danmark	0	YES	CTCI digit2	all countries	2007-2009	http://www.statistikbanken.dk/statbank5a/
EE	Eesti	0	YES	CTCI digit2	all countries	2007-2009	http://epp.eurostat.ec.europa.eu/
ES	España	2	YES	TARIC 99	all countries	2007-2009	http://aduanas.camaras.org/
FI	Suomi / Finland	2	YES	No product differentiation	World	2007-2009	http://epp.eurostat.ec.europa.eu/
FR	France	2	YES	Specific classification	all countries	2007-2009	http://lekiosque.finances.gouv.fr
GR	Ellada	2	HIGH COST	CTCI digit2	all countries	2007-2009	http://epp.eurostat.ec.europa.eu/
HU	Magyarorszag	2	NO			2007-2009	http://epp.eurostat.ec.europa.eu/
IE	Ireland	0	YES	CTCI digit2	all countries	2007-2009	http://epp.eurostat.ec.europa.eu/
IT	Italia	2	YES	Sezioni Ateco 2007 (119)	all countries	2007-2009	http://www.coeweb.istat.it/
LT	Lietuva	0	YES	CTCI digit2	all countries	2007-2009	http://epp.eurostat.ec.europa.eu/
LU	Luxembourg	0	YES	CTCI digit2	all countries	2007-2009	http://epp.eurostat.ec.europa.eu/
LV	Latvija	0	YES	CTCI digit2	all countries	2007-2009	http://epp.eurostat.ec.europa.eu/
MT	Malta	0	YES	CTCI digit2	all countries	2007-2009	http://epp.eurostat.ec.europa.eu/
NL	Nederland	2	NO			2007-2009	http://epp.eurostat.ec.europa.eu/
PL	Polska	2	NO			2007-2009	http://epp.eurostat.ec.europa.eu/
PT	Portugal	2	YES	CTCI digit2	all countries	2009	http://www.ine.pt
RO	Romania	2	NO			2007-2009	http://epp.eurostat.ec.europa.eu/
SE	Sverige	2	NO			2007-2009	http://epp.eurostat.ec.europa.eu/
SI	Slovenija	0	YES	CTCI digit2	all countries	2007-2009	http://epp.eurostat.ec.europa.eu/
SK	Slovenska Republika	0	YES	CTCI digit2	all countries	2007-2009	http://epp.eurostat.ec.europa.eu/
UK	United Kingdom	1	YES	CTCI digit2	all countries	2007-2009	https://www.uktradeinfo.com/index.cfm
CY	Kypros / Kibris	0	YES	CTCI digit2	all countries	2007-2009	http://epp.eurostat.ec.europa.eu/
NO	Norvège	0	YES			2007-2009	http://statbank.ssb.no/statistikkbanken/
CH	Suisse	1	YES			2007-2009	http://www.ezv.admin.ch/themen/

2.2. The geography of trade of European regions

Economic relations between Europe and the rest of the world are diverse at national scale. Among the factors explaining this national diversity, cultural and historical links (colonial relations), geographical distance, and political factors mainly play at national level and are not supposed to produce regional diversity. In this perspective, regional diversity is supposed to be limited and probably mainly related to the economic structures of the regions. We show here that the geography of trade is nevertheless much differentiated at regional level: regions are more or less open to the rest of the world and show very divergent directions in their trade.

2.2.1. The openness of regions

The economic openness of regions is absolutely central to the understanding of the regional embeddedness in the world of flows. In particular, we may hypothesize that global trends may affect in very different ways regions according to their level of openness to globalization. Of course, a complete assessment of the regional embeddedness in global flows should not be limited to the trade of merchandises. This is why the TIGER project also collects data of different nature to have a more complete picture, notably flows of services and money with the rest of the world and of qualified persons at regional level. This will lead to a more complete picture of cities and regional embeddedness in global flows and will at the end of the day allow classifying regions according to this.

The openness of regions to globalization has been assessed by the ratio between exports and regional GDP **(Figures 17 and 18**). Several issues should be pointed out before analyzing the geography of regional openness in order to be aware of the limits of the data and indicator we use:

- as already noted, regional data are unfortunately not available for most New member States as well as for Nordic countries;
- there are headquarters and "port" biases in the data and some statistics are polluted to some extent by double counting (notably when products enter in ports and are re-exported to other countries). This problem is similar to the one encountered with airflows through hub effects. However, the export data are less affected by this hub effect than imports and are generally considered as better because of a higher concentration of economic actors in exports than imports. This is why we measure openness through exports rather than to trade as a whole;
- Openness rate is measured only for extra-European trade because it avoids values to be affected by the country size (remind interregional trade within a country is not taken into consideration);
- Trade only includes merchandises. No statistics on the trade of services are available at regional level. This is of course decisive to understand why cities such as London or Brussels appear as closed economies in this map. Their participation to the global economy goes through other channels than trade of merchandises. To a certain extent, the geography reflects the unequal deindustrialization process.

That being said, the geography of openness to trade at regional level gives a very instructive picture of regional embeddedness in the flows of merchandises with the rest of the world (**Figure 17 and 18**):

1. when regional data are available, national effects while present are limited. Within each big country, we see clear regional contrasts emerging;
2. All things being equal, regions within small countries are in general more open to extra-European trade (Belgium, Netherland, Ireland, Finland…). We must keep in mind that this is not strictly a size effect, because trade within EU has been excluded from the indicators. In consequence, the distance to the trade partners are similar for example between Belgian or German regions;

3. in some cases, we observe an EU-border effect. Some regions at the border of EU are more open to the extra-EU markets because of the importance of historical links, notably related to the limited distance. For example, the high level of openness to extra-European markets of the Baltic countries can be explained by the political and economic links with Russia within the former USSR. The same is true for Slovenia with former Yugoslavia. However, no such EU border effect is visible for Southern Europe despite the proximity to Northern Africa (Southern Spain, Southern Italy, and Portugal) or to Middle-East in the case of Greece. The weakness of historical links together with the lower level of development these specific extra-EU markets are parts of the explanation;
4. To completely eliminate this border effect, we decide also to calculate an openness rate, excluding the neighbourhood areas. It gives a different picture of the regional embeddedness in global flows, because it eliminates "regional/local flows" taking place at the EU external borders;
5. we already pointed the port effect which is partially due to statistical effect, but also to the functions of ports as major "manufacturing gateways" (Le Havre, Rotterdam, Amsterdam, Antwerp). Big ports do not only re-export to extra-European markets, they are also locations of big factories importing raw materials or spare parts (petroleum refineries, automotive industries etc.);
6. Beyond all these specific factors explaining the regional openness to extra-European markets, it makes no doubt that the regional competitiveness notably in medium and high technological products affects the geography of openness to trade. On the one hand, several regions of Europe are open because of their capacities to be competitive in high technological products: Midi-Pyrenees (Airbus in Toulouse); southern Germany (machinery sold in Eastern Asia for example); Finland (telecommunications). On the other hand, the weak openness to extra-EU markets of Southern Europe partially reflects their weak competitiveness in both technological and more labour intensive industries. In the same way, in Iberia peninsula and in Italy, we observe a clear contrast between the most developed areas (Northern Italy, the Bask country, Catalonia), which are more competitive to extra-EU markets, and the least developed (central Spain, peripheral regions of Portugal, Southern Italy).

The geography of regional openness to trade is thus the result of the combination of national belonging of the regions (related notably to the country's size, and historical links with extra-European markets), of EU border effects, of the presence of important harbours and of competitiveness in medium and high technological goods.

Figure 17. Openness to extra-ESPON trade of European regions, average 2007-2009

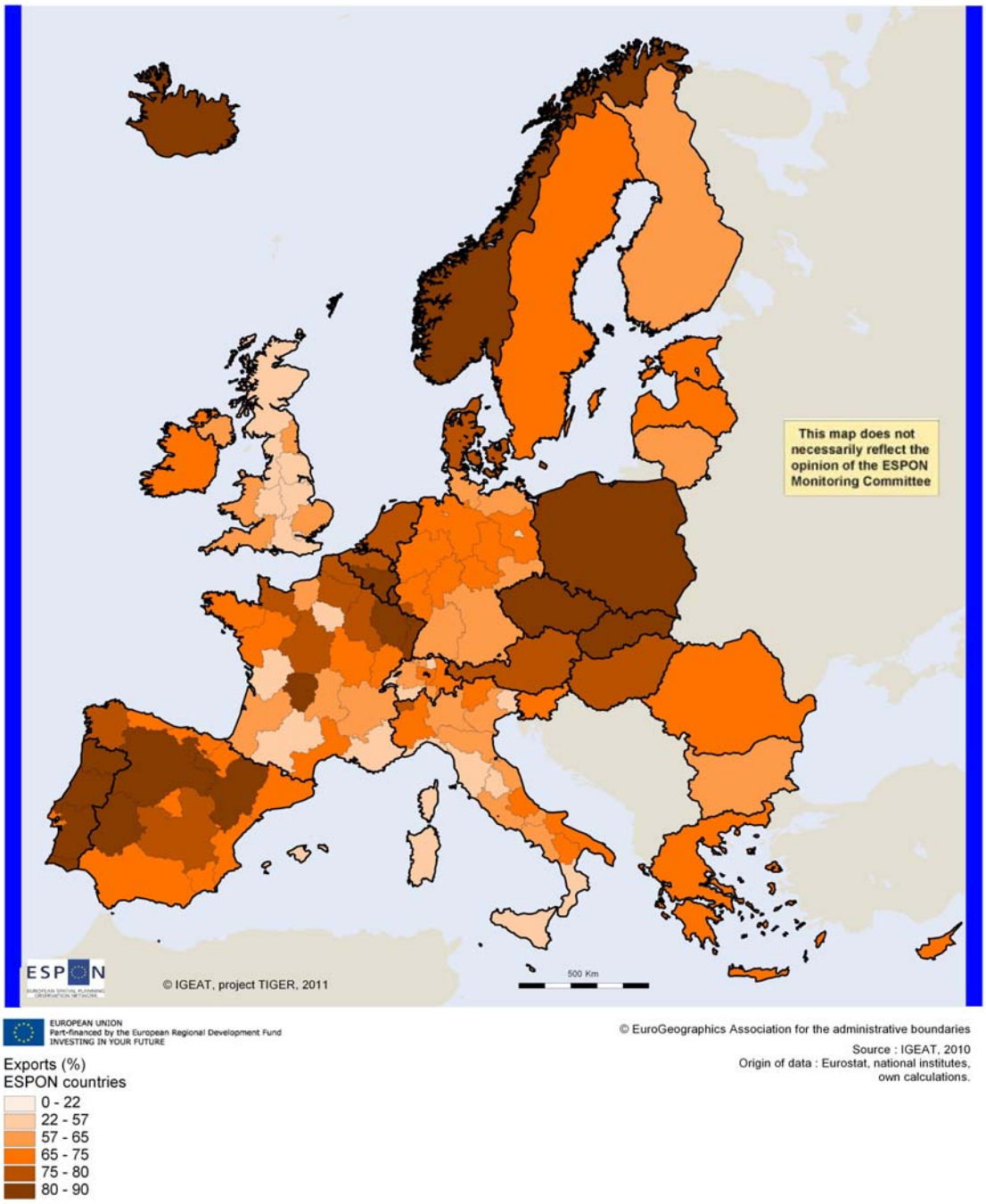
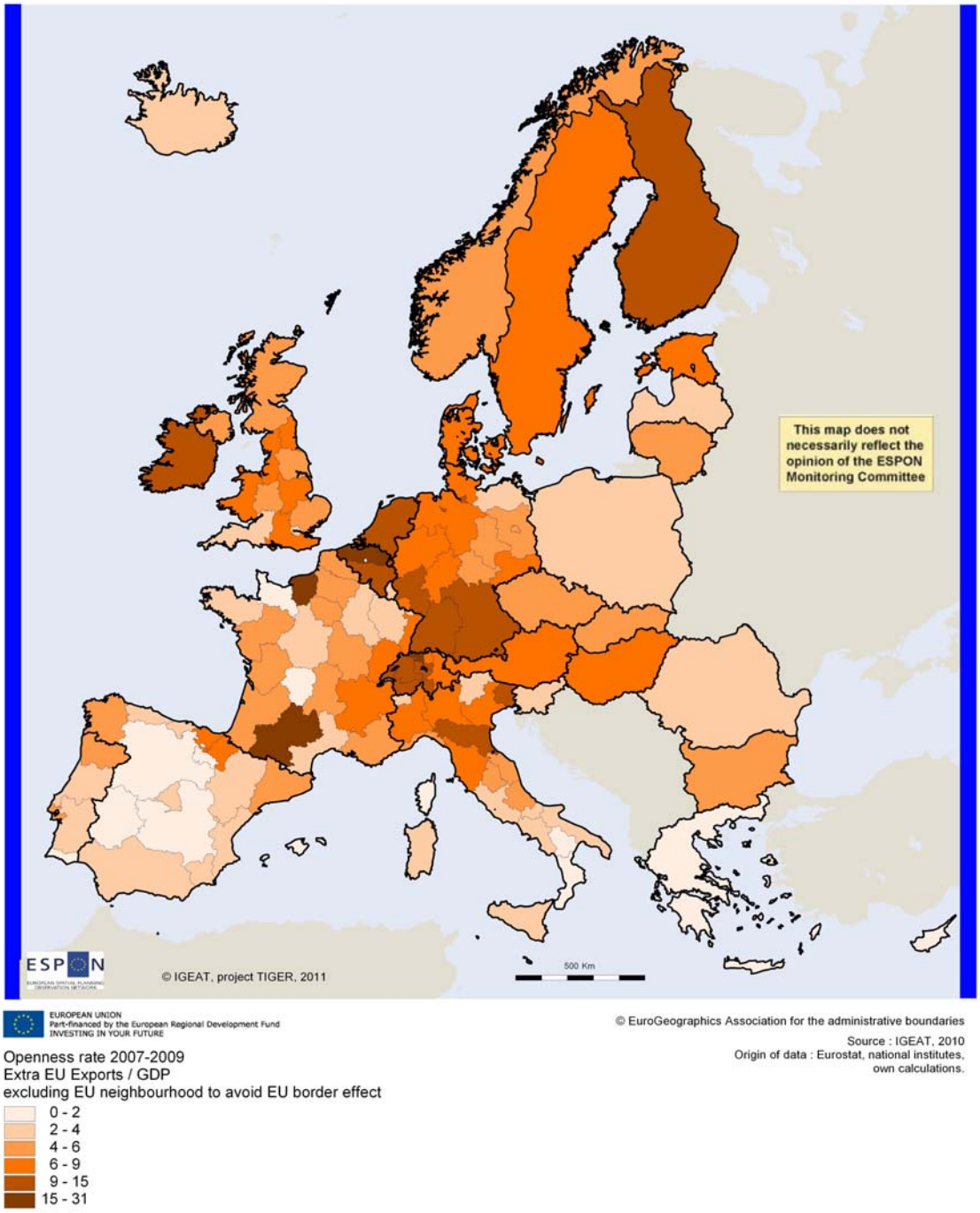


Figure 18. Openness to extra-ESPON and neighbourhood trade of European regions, average 2007-2009



Note: extra-EU and neighbourhood exports exclude all exports within the ESPON space as well as its immediate neighbourhood (Western Balkans, Near East, former-USSR and Northern Africa)

2.2.2. The geography of trade of European regions

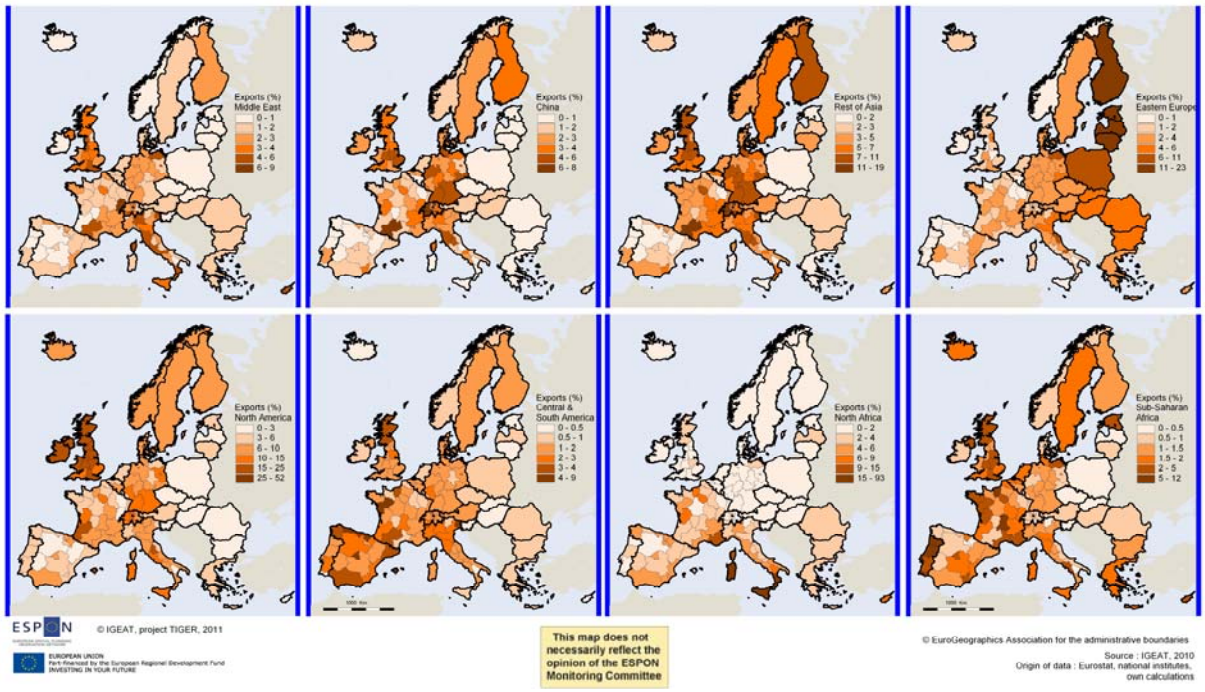
One of the most important features of the geography of trade of European regions is that national effects are limited (**Figure 19**). Of course, these national effects exist: all regions of the British islands have more relations with Northern America than average for example. But, we also observe significant regional differences within each country.

Of course, all regions have European Union and associates as their first partners but the share of EU in exports is weak for Great Britain, or Germany while very high for central-Eastern countries, Benelux, Northern France, Portugal, regions of central Spain, Norway and Iceland. When regional divisions allow to asses this, we can observe the weak Europeanization of metropolitan areas (London, Paris, Madrid, Berlin), except Brussels. This is well known since they constitute major gateways to the rest of the world. But our data concern merchandises, which mean that even for manufacturing goods, metropolitan areas are among the least Europe-oriented regions.

Strong relations with Northern America characterize the British islands as well as Aquitaine (wines), and to a lesser extent, Southern Germany. Notice that relations to China are much weaker in general than with EU and Northern America (average values with Northern America are higher than high values with China). Strong relations with China are to be found in Southern Germany – developing China asks for their machinery –, in Midi-Pyrenees (Airbus), some British regions and Central Italy, probably because of textile/clothing industry. Relations to Middle East are generally of limited importance for European regions. They are nevertheless above the average for Great Britain, due to the strong historical links, many Italian regions, Midi-Pyrenees (Airbus is selling planes to quickly developing Middle East airlines) and Franche-Comté. In some cases, we may suspect the importance of European luxury industry in strong relations with Middle East (Paris, London, Milano and other Italian regions). As far as Africa is concerned, proximity plays an important role to explain trade with Northern Africa while historical links are decisive to explain the geographical pattern with Sub-Saharan Africa: the major colonial powers are still the most important partners in this region (France, Portugal, UK). However, in these countries, we observe significant regional contrasts, the western and southern façade of France having more intense relations with Sub-Saharan Africa. Finally, trade with the former USSR (Eastern Europe on **figure 19**) is

It is very important to notice the weak relations between new member states and the big world economic powers and developing areas. Central and Eastern Europe mainly trades with EU, and to a lesser extent, with its Eastern neighbourhood.

Figure 19. The geography of trade of European regions/nations, 2007-2009.



In order to synthesize this geography, we propose to build a typology of European regions according to the geography of their trade. The initial matrix thus crosses European regions to macro-regions of the world (WUTS 3 revised[3]).

In a first step, we synthesize the geography of trade of European regions by a Principal Component Analysis (PCA). The three first components keep 54% of the variance (respectively 24%, 18% and 12% with eigen values higher than 2 for all three components), while the following components account for much less of the variance, with 6% and an eigen value slightly superior to 1 for the fourth component.

We interpret the three first three components the following way:

- the first component (eigen value = 5.1) clearly opposes Europe-oriented, including former USSR, regions to non European-oriented regions (see **Figure 20.a**);
- the second component (eigen value = 3.8) clearly opposes regions whose trade is oriented towards Western Europe and the other major economic powers (in blue on the map) to those regions trading relatively more to Eastern Europe and/or developing countries (see **Figure 20.b**);
- finally the third component (eigen value = 2.4) opposes regions which mainly trade to Western Europe to those trading with Eastern Europe, former USSR (see **Figure 20.c**) ;

In the second step, we use the three first components in order to classify regions according to their geography of trade. We use ascendant hierarchical classifications with the ward method and decide to weight the three components according to their share of variance in the PCA.

[3] WUTS 3 classification has been built in « Europe in the world » ESPON project and is detailed in WP 2.1. WUTS 3 revised keeps the same divisions but with a more desegregated Europe notably allowing to distinguish between EU, and non EU Eastern European countries.

It results in 10 groups of regions of **figure 20.d**., knowing that types 7 and 9 are very marginal and mainly regroup overseas European regions.

The profile of the different groups is shown on Table 3.

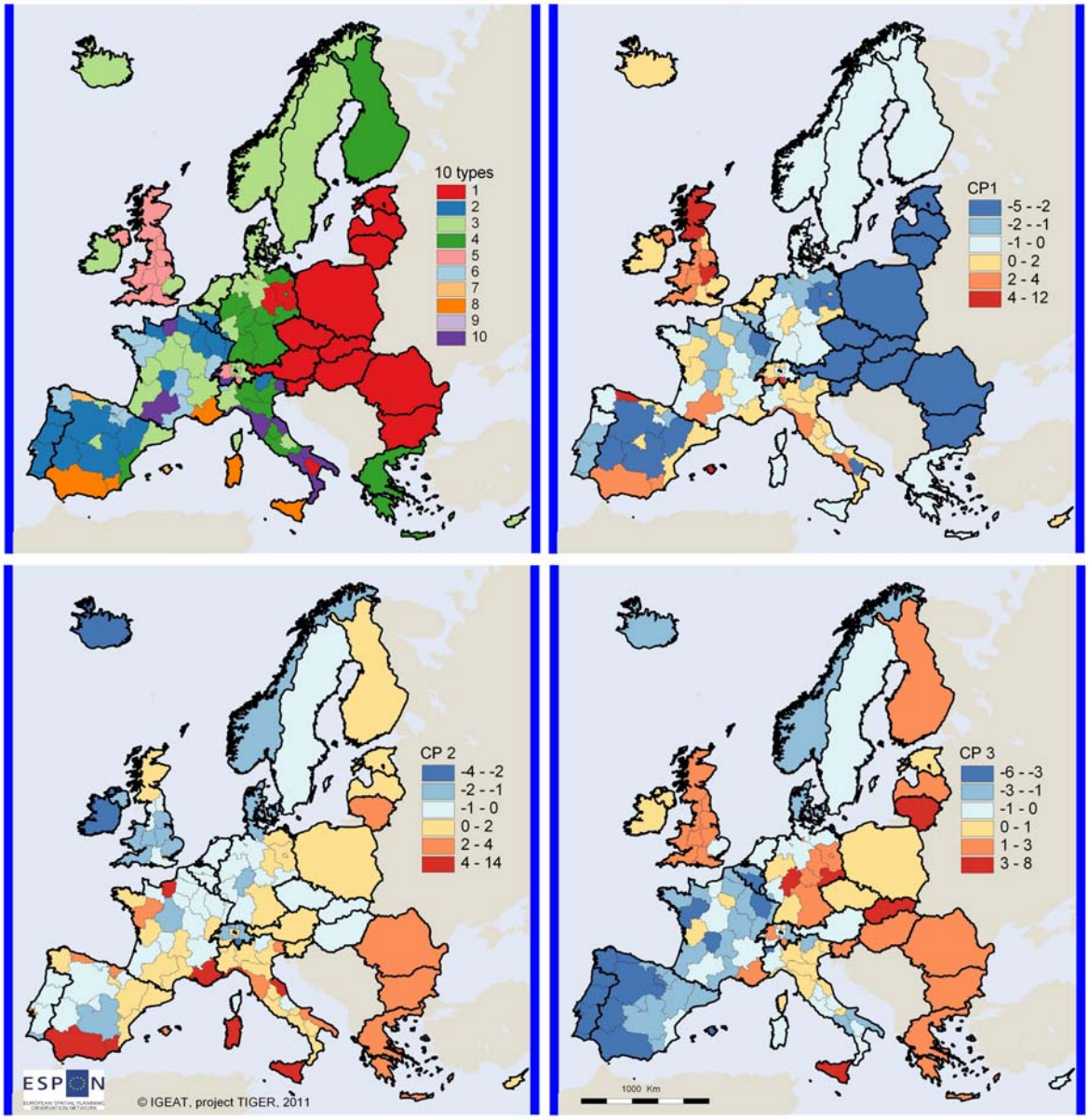
Table 3. The geography of trade of the different types of regions

	EU-27 + 2	Western Europe	Former USSR, except Central Asia	EU Central and Eastern Europe	Western Balkans and Turkey	Northern Africa and SE Mediteranea	Central Asia of former USSR	Middle East	Sub-Saharan Africa	Noerthern America	Central America & Carraibian	Southern America	China
Type 1	76,2	59,1	7,8	17,0	3,0	0,8	0,6	0,6	0,4	2,4	0,2	0,4	2,8
Type 2	82,9	78,1	1,1	4,8	1,1	1,3	0,0	0,7	1,1	4,3	0,3	0,9	2,8
Type 3	70,5	65,5	2,2	5,1	1,1	1,7	0,1	1,4	1,4	7,3	0,7	1,2	4,5
Type 4	66,1	56,0	4,1	10,1	2,1	2,1	0,5	1,7	1,1	6,5	0,5	1,1	5,3
Type 5	55,9	52,2	2,2	3,7	1,5	1,5	0,1	2,1	2,3	12,4	0,8	1,3	7,2
Type 6	70,2	66,1	2,9	4,1	1,1	3,6	0,2	2,1	3,7	4,3	1,2	2,0	2,7
Type 7	49,8	47,8	2,9	2,0	1,4	2,4	0,0	1,9	9,9	9,7	5,0	4,5	3,4
Type 8	37,0	35,0	8,1	2,0	2,5	15,5	1,7	7,6	4,7	5,1	1,2	1,7	2,1
Type 9	38,1	36,8	0,1	1,3	1,3	1,5	0,0	0,6	11,4	6,3	0,2	1,4	9,3
Type 10	55,5	51,2	3,6	4,3	2,0	4,1	0,4	5,1	2,3	7,0	1,1	1,8	4,6
Average	68,5	60,8	3,6	7,7	1,7	2,0	0,3	1,6	1,5	6,6	0,6	1,1	4,5

Note: EU is given for information and is the sum of column 1 and 3. It has not been entered a such in the statistical analysis.

Type 1 mainly regroups EU Eastern European countries whose trade is characterized by the importance of Eastern Europe and former USSR, is near the average for Western Europe and has less than average for all the other parts of the world.
Type 2 regroups mainly Northern France, Walloon, Luxemburg and central regions of the Iberia peninsula. Their trade is highly specific toward Western Europe and is below the average for all other parts of the world.
Type 3 groups regions of Western Europe from many different countries. Its geographical profile is very near the average with a slight orientation toward Western Europe and Northern America.
Type 4 groups together regions from Germany, Italy as well as Finland and Greece. Like the previous type, these regions are similar to the average, but with a trade more oriented toward Eastern European regions, as well as China and Japan.
Type 5 groups together nearly all UK regions, as well as Hamburg, and two Swiss regions. They show weak relations with EU in general, around 55% of their exports, compensated by strong relations with Northern America (12.4% while average is 6.6%) as well as Asian regions. Their trade is thus oriented toward the other poles of the triad and Asian emerging markets.
Type 6 mainly groups together regions of France, the Bask country, Galicia and Lisbon. Their profile is rather West-European, like types 2 and 3, but with specific relations with developing countries, from the neighbourhood (Africa and Middle East) or Latin America.
Types 7 and 9 are very marginal because they group together overseas regions as well as Asturias. They are characterized by weak relations with Europe and specific relations to their overseas neighbours.
Type 8 is the least EU-oriented of all types. These regions have specific relations with former USSR, the Middle East and Africa, that is European neighbourhood. We should remind here that most of these regions are relatively closed to extra-European trade.
Type 10 mainly groups together central and Southern Italian regions with *Midi-Pyrenees* and *Basse-Normandie* in France. They show a rather non European global profile, with mainly specific relations toward Middle-East and Northern Africa.

Figure 20 a to d. The three first components and the typology of the geography of regional trade



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Source : IGEAT, 2010
Origin of data : Eurostat, national institutes, own calculations

2.3. The products specialization of regional trade in Europe

Figures 21 to 25 show examples of the regional trade of European regions for several types of products: labour intensive textile and clothing industry; medium technological automotive industry; chemical goods; machinery; food products. Notice that regional trade includes all international trade, including intra-European and excluding interregional trade within countries. In consequence, there might be a country size effect, which overstate the importance of regions belonging to small countries (Belgian regions for example).

Of course, the products specialization largely reflects the productive specialization of regions. However, the capacity to sell products outside the region – the competitiveness in the strictest sense of the word – also plays a role in explaining the specialization of regions.

Nearly all European regions have a negative balance for textile and clothing, except Northern and central Italy, Flanders, Northern Portugal and Galicia, Lithuania, Romania and Bulgarian regions. While Italy and Flanders have been able to move up in the value chain or keep the control of the value chain, only few areas remain competitive in labour intensive productions, mainly Romania and Bulgaria. This is developed in the clothing case study.

As for machinery, South Germany and NordRhein-Westfalen as well as Northern Italy have a decisive role. Many other European regions have positive balances but with much more limited trade on this category of products. The pattern is somewhat similar for the transport equipment (automotive industry mainly), except for Italy which plays here a much less important role. Also, Central-Eastern European countries have very positive balances with important volume of trade, which was only true for Hungary and Czech Republic in machinery.

Figure 21. Regional trade in textile and clothing industry, 2007-2009

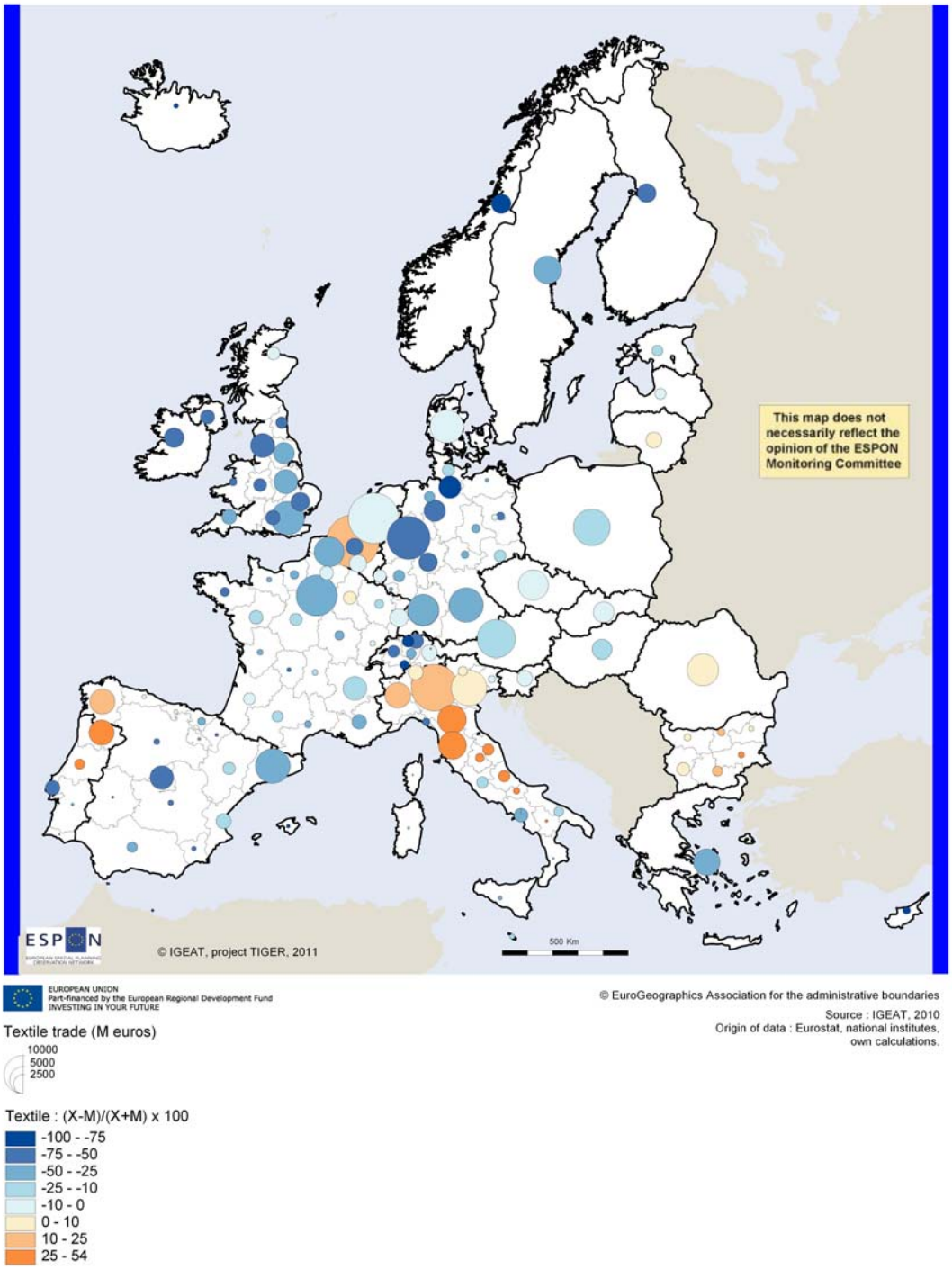


Figure 22. Regional trade in machinery and equipment, 2007-2009

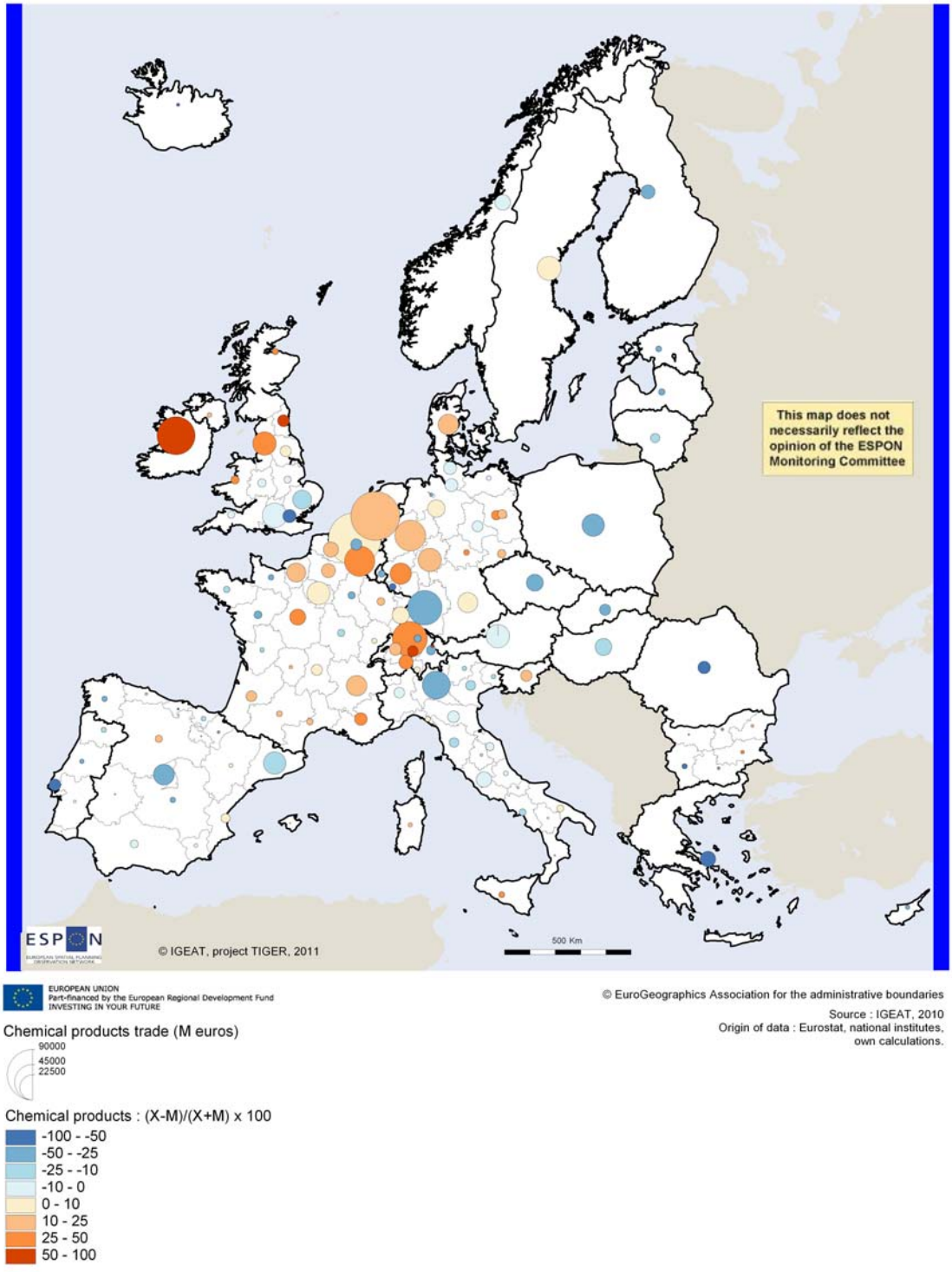


Figure 23. Regional trade in chemical products, 2007-2009

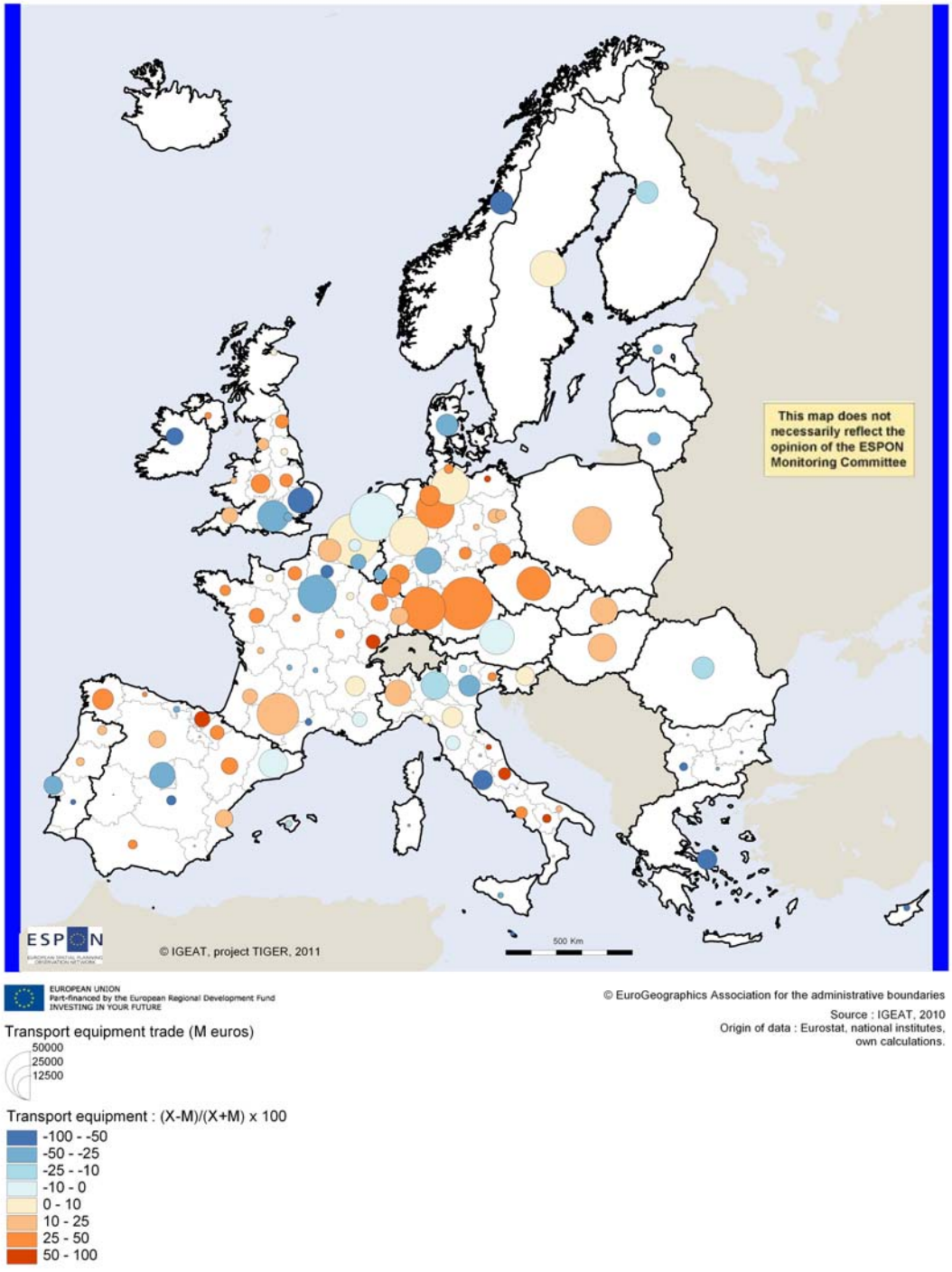


Figure 24. Regional trade in automotive and others means of transport industry, 2007-2009

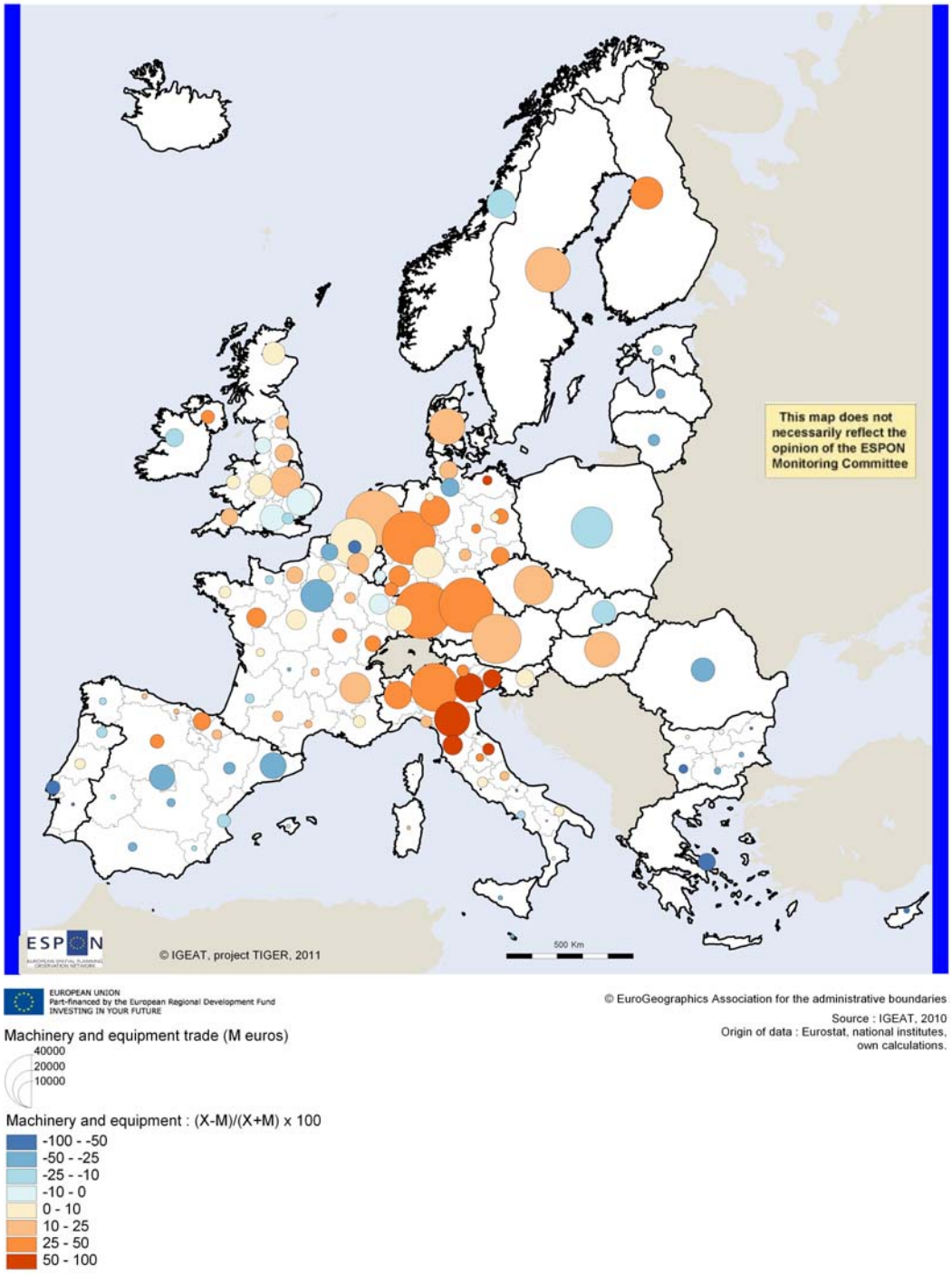
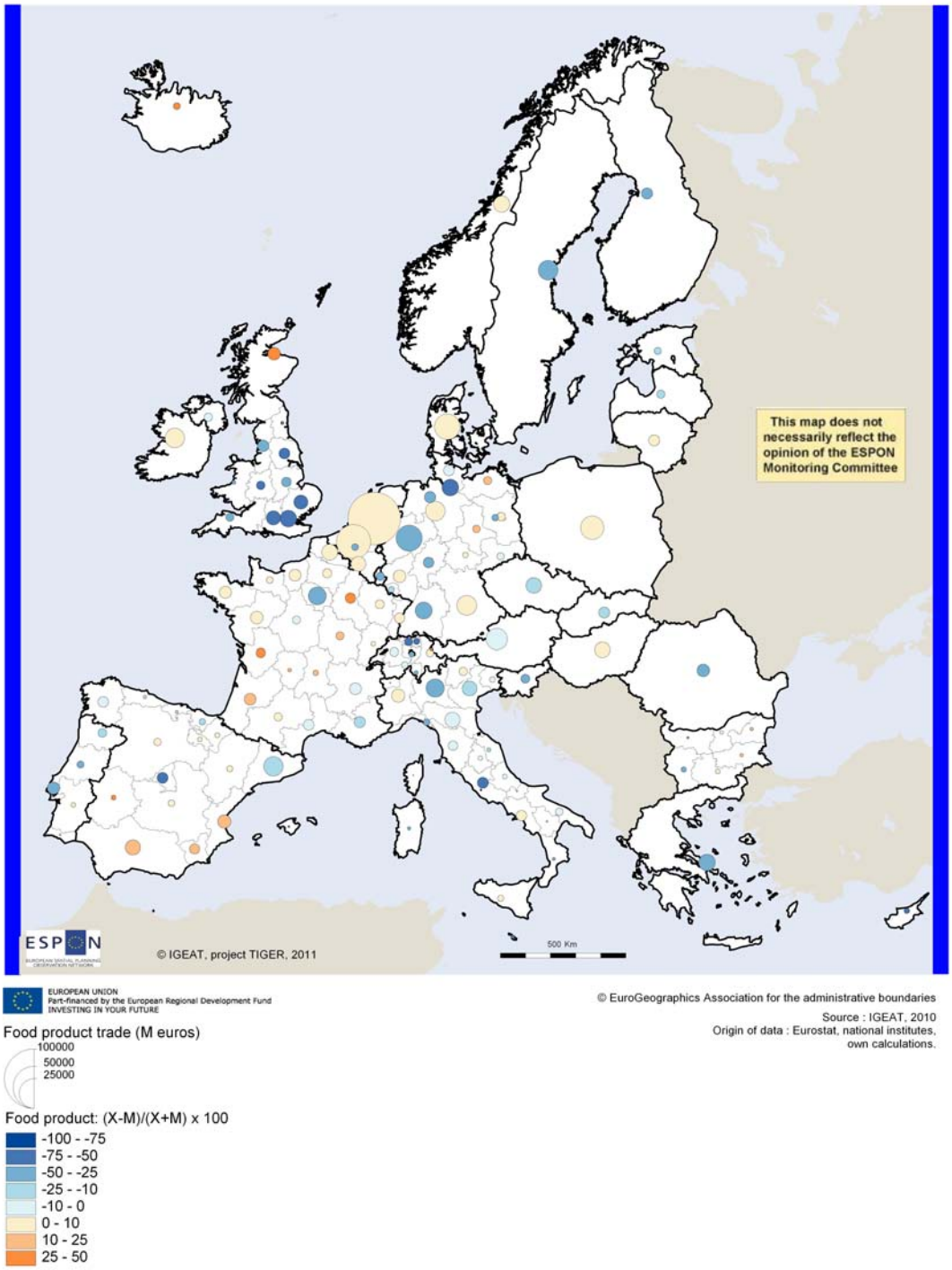


Figure 25. Regional trade in agricultural goods and food industry, 2007-2009

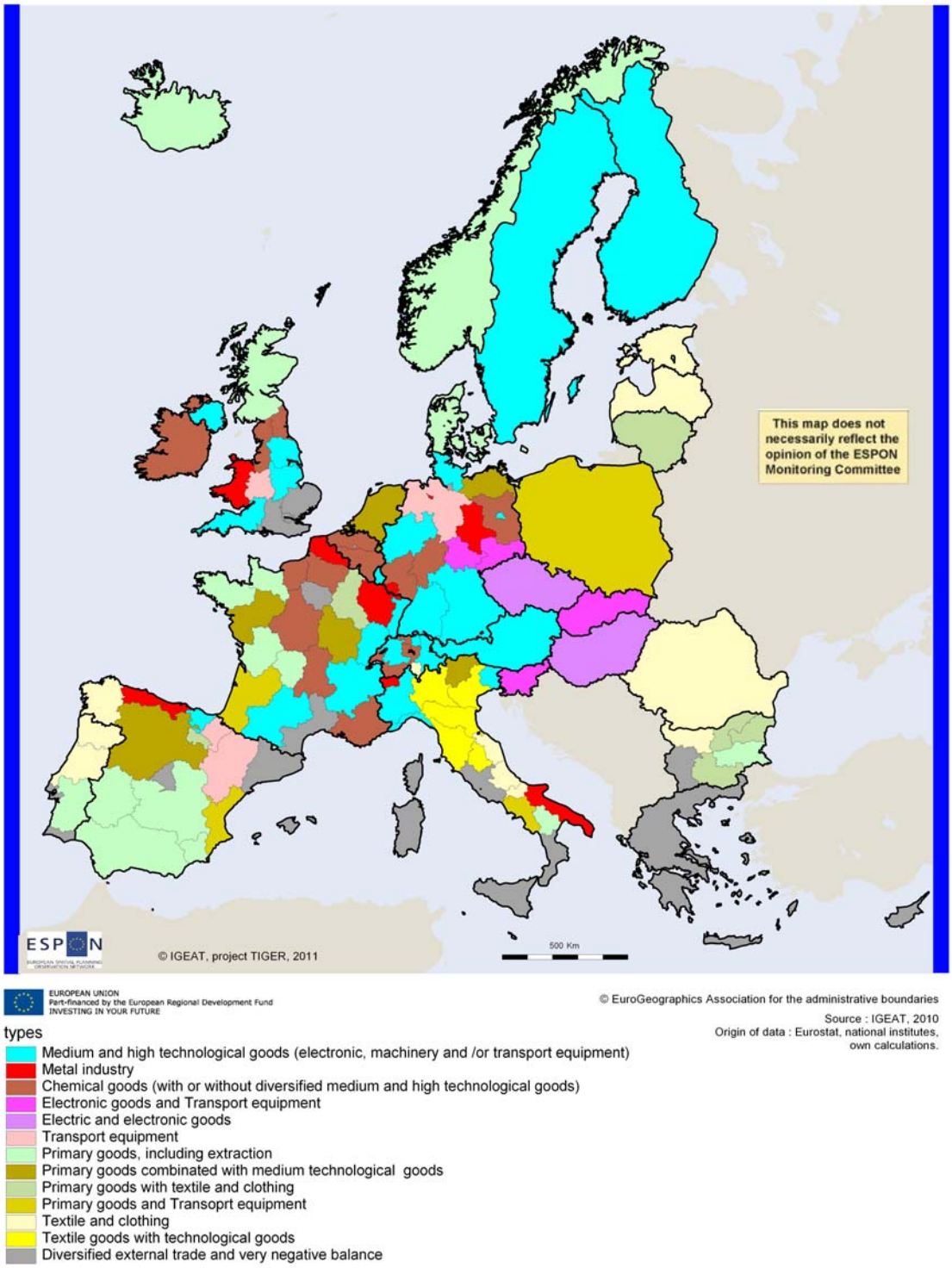


We try to synthesize this information into one typology (**Figure 26**). It is a very difficult task since many different combinations exist in the regional specialization of external trade. Classical hierarchical classifications, even after having reduce the information through Principal Component Analysis, did not get satisfactory results because of this huge diversity and the impossibility of combining different indicators.

We opt for the following method:
1. keeping the most significant sectors (food industry, extraction, textile, chemical and rubber, metal, machinery, electric and electronic goods, Transport equipment)
2. using two different indicators in all major sectors of trade: specialization in exports (the share of a sector in total regional exports), trade asymmetry (ration between Export-imports and exports + imports in each sector). Trade asymmetry informs about the regional competitiveness in the sector while the specialization informs about the significance of this competitiveness.
3. the regional class is determined by a strong specialization (more than European average plus half of the standard deviation) and a positive asymmetry when average is negative or beyond European average when average is positive. This gives a list of sectors for which a region is specialized and competitive.
4. The combination of these sectors (35) gives the initial typology. Some regions are not specialized and/or competitive in any sector. Most of these regions have very negative trade asymmetries (<-20%) suffering from a general competitiveness issue and/or a strong specialization in services, as it is the case for most metropolitan areas. In 4 cases these regions have positive balances (Alsace, Sweden, Slovenia and Flanders). In these cases, we made the specialization rule more flexible and use the average rather than average plus half of standard deviation as the threshold.
5. In a last step, we combine some specializations because they can be interpreted the same way: for example specialization in machinery and electronic goods or machinery and transport equipment has been considered as a specialization in medium and high technological goods etc.

Figure 26 gives the result of this method. As all typologies it must be read with care because it classifies regions where some continuum exists between different types of regions.

Figure 26. Typology of regions according to their specialization and competitiveness in trade of goods



2.4. Exploring the relation between revealed competitiveness and regional trade

We come now to the question of whether the intensity and nature of the integration to global trade affects the economic performances of regions. This is of course a very complex issue that requires data and methods far more sophisticated than those used here. The insufficiencies of the data have already been underlined. Also, the roughness of products desegregation is raising some issues because of the very different technological levels in the classification used here. To take but one example, the sector of electric and electronic equipment (DL) mixes very different types of products from low technological assembling to the most sophisticated optical material. Finally, regional competitiveness is such a complex issue that it is very difficult to isolate specific effects, especially if they are not necessarily the most important ones.

That being said, we find useful to explore this issue and to show whether, when no control variable is used, we find any relationship between regional trade and economic performances of regions. If we find no relationship at all between our export indicators and economic performances at regional level, the probability would be low that regional does have a major impact on regional economic performances. If we find the reverse, than we would need deeper analyses to test whether this impact is solid and how it can be explained.

2.4.1. The geography of trade and regional economic performances

Table 4 suggests a relationship between the level of GDP per inhabitant at regional level and the geographical orientation of trade. In general, we observe that the more the trade is oriented outside Europe and its neighbourhood the more developed the regional economy. In contrast, the share of trade toward non EU partners does not give the same picture: it seems that only long distance trade is related to economic wealth. This result persists when controlling for East or Western region. The significant correlation with components 1 and 2 and GDP per inhabitant tells the same story: the less European and the more oriented toward big developed or emerging markets, the higher the GDP per inhabitant.

This relationship between the geography of trade and regional economic performances tells of course nothing about the direction of the causation: are the most developed regions more oriented toward global partners because of their productive capacities or does the orientation of trade has a direct impact on the level of regional development? It is highly probable that the first relationship is true meaning that very developed regions with high technological know how and highly skilled labour are able to be competitive on very developed and/or emerging distant markets. However, we are not able to confirm or invalidate the second interpretation.

However, by examining the relationship with economic growth rather than GDP per inhabitant we might be able to confirm or not whether a distant trade is correlated to better economic performance in the years 2000. When controlled for East vs. west dummy variable, we observe no correlation between the geography of regional trade and GDP growth in the years 2000. In contrast, the most significant correlation tells that the more oriented toward Europe, the higher the regional growth. But this correlation is weak. This result should not lead to the conclusion that there is no relationship between the geographical orientation of regional trade and economic growth because our estimations suffer from two major methodological problems:

- we use regional trade in 2007 to explain growth between 2001 and 2008;
- we use no control variables for regional competitiveness.

However, we can still draw from this result that the orientation of trade is not a major driver of regional growth.

Table 4. Correlations between the geography of regional trade (2007) and GDP per inhabitant or GDP growth

	GDP per inhabitant in 2007		GDP growth, 2001-2008	
	Not controlled	Controlled for Eastern vs. Western Europe	Not controlled	Controlled for Eastern vs. Western Europe
The share of trade to extra-EU	0,119	-0,054	-0,182	-0,009
The share of trade to extra EU and neighbourhood	0,430	0,377	-0,363	-0,128
The openness to extra-EU	0,011	0,127	0,054	0,074
The openness to extra-EU and neighbourhood	0,182	0,278	-0,099	-0,054
Component 1 (Europe in negative values vs. the rest of the world)	0,484	0,317	-0,449	-0,272
Component 2 (Western Europe and big developed countries in negative values vs. Developing countries)	-0,333	-0,438	0,011	0,154
Component 3 (Eastern versus Western Europe)	-0,119	0,064	0,256	0,184

Correlations significant at 0.01 are in colour.

2.4.2. The structure of trade and regional economic performances

We proceed the same way to uncover the relationship between regional specialization/asymmetry in some types of goods and regional performances. We keep only key sectors as explained in section 3.

The result is that neither specialization in labour intensive or capital intensive sector seems to have a significant impact on GDP per inhabitant or GDP growth (**Table 5**). The same is also true for asymmetry, which can be considered as a good indicator of sectoral competitiveness. In most cases, we observe negative correlation between competitiveness in a sector and GDP growth, even for medium and high technological goods such as machinery.

As explained in section 4.1, these results should be read with caution. However, we find no evidences that competitiveness in general and in key sectors is correlated to better economic performances. One possible explanation is that regional economies specialized and competitive in manufacturing industries suffer from de-industrialization, while regional economies specialized in services despite weak competitiveness in manufacturing still perform better than the others. Indeed, as shown on figure 26, most metropolitan regions suffer from very negative trade balances in goods while their economic performances may be quite good.

Table 5. Partial correlations between the structure of regional trade (2007) and GDP per inhabitant or GDP growth

	Correlation between GDP per inhabitant and		Correlation between GDP growth 2001-2008 and	
	Share of exports	asymmetry	Share of exports	asymmetry
Food industry	-0,26	-0,20	0,04	-0,20
Textile	-0,06	-0,23	0,15	0,00
Chemical industry	-0,04	-0,07	0,03	-0,22
Metal maunfacturing	-0,13	-0,03	0,00	-0,12
Machinery	-0,21	-0,10	-0,31	-0,39
Electric/onic equipment	0,19	-0,14	0,20	-0,16
Transport equipment	-0,18	-0,23	-0,20	-0,39
Total		-0.069		-0.306

All correlations are weighted by total exports and controlled for Eastern or Western regions
Correlations significant at 0.01 are in colour.

2.5. The case of British regional trade

By using more detailed data, we are able to better understand extra-regional trade of British regions. British regional trade data allow crossing the geographical destination and the nature of goods which are traded. They also allow having a temporal perspective, at least for the years 2000.

We use this as a case study to illustrate the possibilities offered by reliable data of regional trade.

The geography of trade of UK regions is mainly characterized by a de-Europeanization process, even if Western Europe remains by far the first economic partner of all UK regions (**Table 6**). Throughout the period between 1996 and 2010, the trade with EU-15 has continually decreased in share of the regional to the profit of other regions. This process has however been unequal across regions: it has been particularly intense in Scotland and Wales which are now the least Europe-oriented regions of UK; London is also characterized by its uneuropean trade while the East is the only region which keeps its share with Western Europe higher than 60%. In the case of London, we can easily interpret the figures by the global character of the London economy, even if we only consider the trade of goods. Hence the most central region and the most peripheral ones in the UK context appears to be the least oriented toward Europe. Northern Ireland differs from Wales and Scotland by high shares of trade toward Western, mainly due to intense relation with the Republic of Ireland.

To understand the de-Europeanization process observed, one needs to separate exports from imports. On the one hand, the decline of exports to Western Europe has been compensated mainly by growing parts of exports toward North America and Eastern Europe. In contrast, the decreasing importance of imports from Western Europe is mainly due to growing imports from New Member States and, to a lesser extent, Asia.

It is however very difficult to interpret regional differences in these general trends.

Table 6. The geography of trade of UK regions, 1996-2010

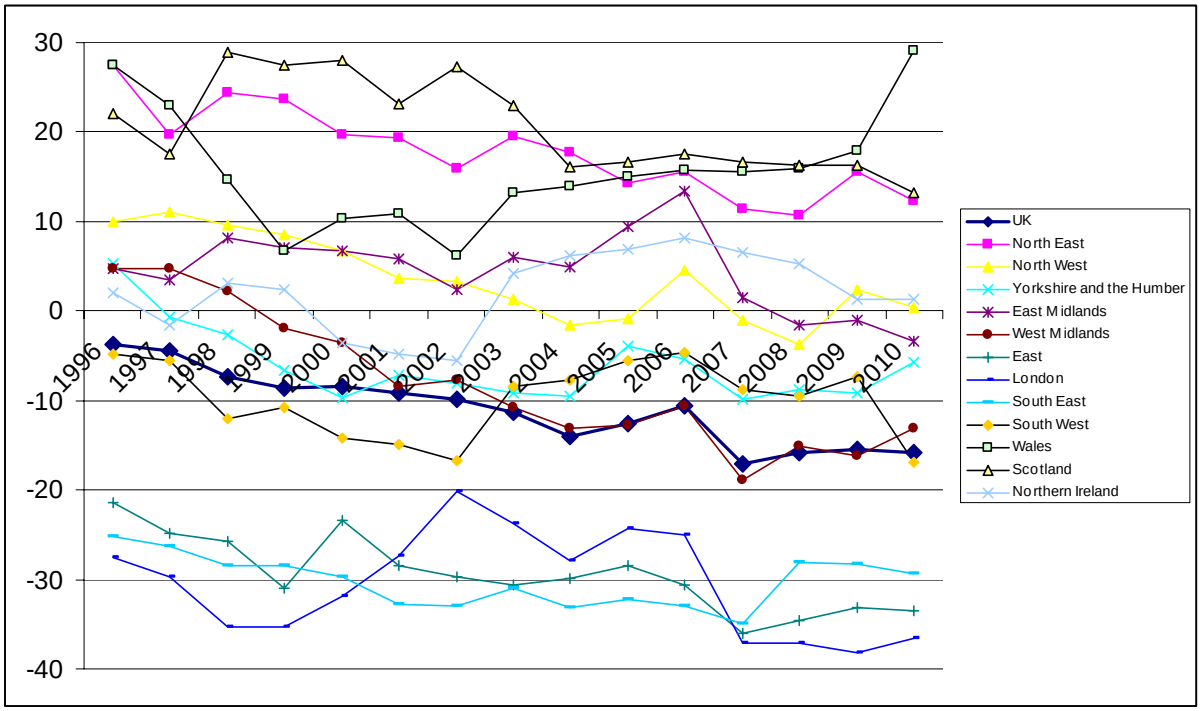
	Western Europe		New member States		Asia and Oceania		North America		Rest of the world	
	1996	2010	1996	2010	1996	2010	1996	2010	1996	2010
North East	67,5	52,2	1,4	2,6	16,0	16,4	8,9	12,4	6,3	16,4
North West	58,3	50,3	1,9	3,3	16,4	19,7	11,3	17,8	12,1	8,8
Yorkshire and the Humber	67,2	53,7	2,0	3,7	14,3	21,2	10,2	10,9	6,3	10,5
East Midlands	58,6	47,2	1,6	3,9	16,8	26,4	15,9	13,9	7,1	8,6
West Midlands	64,8	55,2	1,4	4,1	14,6	19,7	12,3	12,2	6,9	8,8
East	70,0	61,0	1,8	4,8	11,7	13,7	12,0	13,7	4,5	6,8
London	56,9	47,1	2,2	3,2	18,8	20,6	11,7	12,9	10,4	16,2
South East	62,4	52,5	1,5	6,1	15,0	16,2	14,6	13,5	6,5	11,7
South West	56,4	47,2	2,2	2,7	22,3	24,9	15,0	16,9	4,0	8,4
Wales	67,2	41,2	1,4	1,9	10,9	18,3	14,3	23,9	6,2	14,7
Scotland	55,3	38,7	1,4	4,4	19,7	19,7	17,5	18,5	6,1	18,8
Northern Ireland	68,1	58,8	1,7	1,8	9,9	18,7	13,9	13,6	6,4	7,0
Unknown	54,6	77,8	2,6	6,2	11,7	6,2	19,2	6,3	11,9	3,5
Total	60,8	55,1	1,9	4,5	15,6	17,0	13,9	13,2	7,9	10,3

Generally speaking, UK regions have gone through a deterioration of their trade balance, as observed for UK as a whole. We nevertheless can distinguish between Southern England for which trade balances are very negative and stable over the times. It indicates the specialization in services of these regions (**Figure 27**).

In contrast, regions from Northern England have positive or null trade balance but with a deterioration over the time. Main exception to this trend is Wales. This is mainly due to growing competitiveness in extraction, food and machinery industries.

Table 7 confirms this general trend by showing that also in some key medium and high technological type of goods, UK regions have gone through a deterioration of their trade balance. The most significant improvements locate in peripheral regions for Wales (power generating and specialized machinery; scientific instruments), Scotland (scientific instruments and optical goods), as well as Northern Ireland (pharmaceutical products, machinery, and scientific instruments). Two other regions have gone through a major improvement of their competitiveness in pharmaceutical products: London and West Midlands, confirming the metropolitan character of this sector.

Figure 27. The evolution of trade asymmetry in UK regions, 1996-2010



Source: UK regional trade statistics

Table 7. Trade asymmetry in some key medium and high technological goods.

	Medicinal & Pharmaceutical Products		Essential Oils & Perfume Materials; Toilet Preps Etc		Machinery and Transport Equipment		Professional, Scientific & Controlling Ins &		Photographic & Optical Goods, N.E.S.; Watches &	
	1996	2010	1996	2010	1996	2010	1996	2010	1996	2010
North East	95	99	64	44	31	29	-2	2	51	-45
North West	73	35	45	10	27	4	8	18	19	-23
Yorkshire and the Humber	38	21	28	-8	14	6	15	0	21	-4
East Midlands	15	-17	36	20	24	23	0	14	0	-26
West Midlands	-51	16	31	12	18	18	14	-14	-33	-17
East	20	5	34	19	-27	-43	8	-5	7	5
London	-33	19	-1	-41	-30	-33	3	-11	-34	-33
South East	20	-11	26	14	-31	-38	7	1	-52	-7
South West	-3	11	-7	1	-2	-8	11	14	-37	-46
Wales	53	52	50	28	24	51	28	38	42	-9
Scotland	71	46	45	15	19	-2	-14	23	4	36
Northern Ireland	23	44	2	-25	24	37	9	41	56	-16
Unknown	-13	21	19	-11	35	-37	55	-9	59	-45
Total	28	18	25	-2	-2	-16	11	4	-7	-15

Source : UK regional trade statistics

In grey, significant improvement of competitiveness between 1996 and 2010 and positive balance in 2010

Conclusion

What are the main conclusions about the evolution of the position of Europe and European countries in the world trade in a long term perspective?

1) Europe is declining mainly because of a major shift towards Eastern Asia (rather than a shift towards BRIC countries);
2) The declining position of Europe in the world results in a shrinking of its influence, except in some neighbourhood regions;
3) Within the European neighbourhood, we observe a shift of Europe's influence from South to East after the fall of communism and the (re)-integration of Central and eastern European countries within the EU;
4) Europe is an integrated macro-region in terms of trade, mainly trading with itself. This integration has increased in a long term perspective but has declined in the last decade.
5) While constituting an integrated trading area, European countries show rather different geographical pattern according to their trade with the rest of the world, mainly related to the historical links and types of products of the different European countries.
6) The position of Europe is high and stable in the division of labour. Despite the relative decline in nearly all types of production, Europe remain specialized in medium and high technological segments of production
7) While in a long term perspective, there has been a convergence within Europe according to the position in the international division of labour, European countries still occupy very diverse position.

As for European regions, this paper is a unique attempt to assess their participation in global trade. It starts from national statistics of regional trade that have been homogenized by using international statistics of trade.

Several conclusions can be drawn from the analyses made here.
The most important result is the highlighting of the huge diversity in the openness to extra-EU trade as illustrated by figure 1. The figures vary from 0.2% in Corsica to 29% for Flanders. Hence, we can expect global trends to affect in a very differentiated way regional economies across Europe because of this huge variety in the participation to global trade. Of course, participation to global trade is only one way to participate to the global economy and we need other types of data from other sectors to give a more complete picture of the regional participation to the global economy. But still, European regions are still relatively closed to the global economy and many of these regions have indeed very limited relations to the rest of the world.

Beyond this diversity in the regional openness to trade, we must also underline the diversity in the regional geography of trade, synthesized in figure X. The more or less global pattern of regional trade as well as the geographical diversity of trade is related to a number of decisive factors such as the historical relations, largely dependent of the national belonging of the regions, the presence of major hubs, notably ports and most of all the nature/specialization of the regional trade. From this perspective, figure XX synthesizes the goods in which regions are the most specialized and competitive. It highlight a complex regional geography in which the old core/periphery pattern still seems to play a role: in most core regions, the most competitive sectors are chemical goods or machinery/transport or electronic goods while in most peripheral regions light and food industry still dominate the pattern of trade. Finally, to come back to the regional pattern of trade, a number of regions have a global pattern of trade oriented to the most developed or emerging markets because of their competitiveness in medium and high technological goods. In contrast, regions specialized in light industry are generally more oriented toward Europe and/or neighbouring regions. As far as metropolitan regions are concerned, they show a more global geography of trade despite the low level

of competitiveness in most of manufacturing goods. This is in line with the global orientation of their participation to the global economy in general and is probably due to their capacity to be competitive in some very specific highly technological goods, as shown in the case of London in pharmaceutical products.

Hence, we do observe a correlation between the global geography of regional trade and the level of development without being able to identify the direction of causality. Yet, while results suffer from evident methodological issues, we found no evidences that neither better competitiveness nor a more global trade is related to better regional performances. This last result is of course dependent on the focus on goods rather than services and thus would require a more global assessment of the relation between participation to the global economy and economic performances at city/regional level. Only when integrating the different approaches at regional and city level, we may give further evidence of the relationship between the global economy and cities/regional economic performances.

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