

# Annexes

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## **Annex I. WP 2.1.1**

**See PDF “Atlas of Lisbon indicator” in appendix**

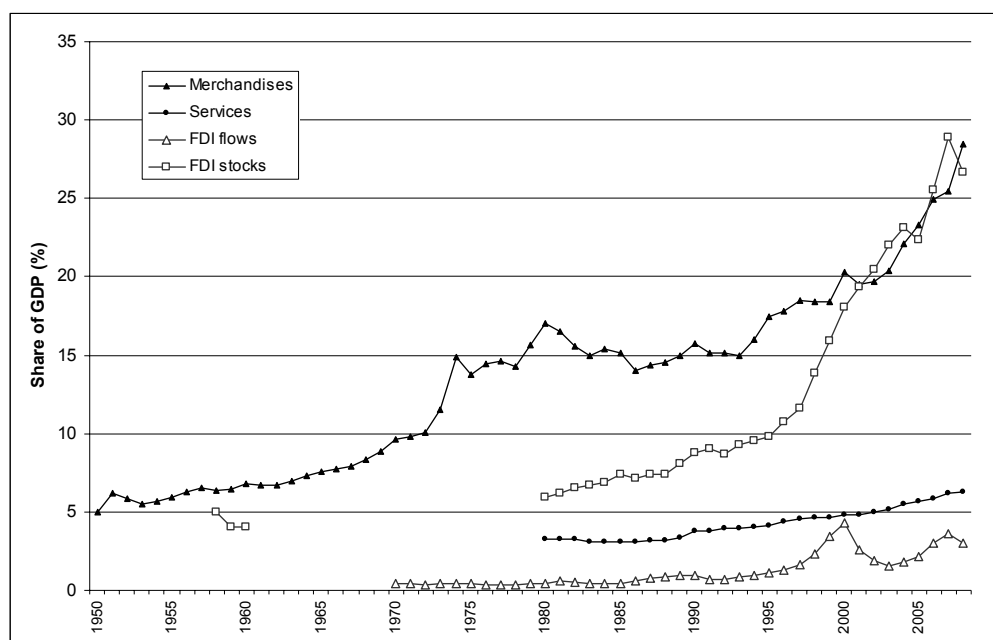
## **Annex II. WP 2.3.1 – Economic flows and networks**

## 1. Facts and figures about world trade

GILLES VAN HAMME, IGEAT

### **Fact 1. A growing intensity of flows**

Globalization is either read as a new or old process. It is indeed an old process because as soon as the sixteenth century, Europe has conquered the world and put in place a division of labour which supposes growing intercontinental trade (Wallerstein, 1980). Also, authors insist on the intensity of a first wave of globalization at the end of the nineteenth century (Chase-Dunn, 1999). We have to wait until the end of the 1990's to reach the intensity of trade, as a ratio to GDP, that was reached in 1913 (Chase-Dunn, 1999; Krugman, 1997). In contrast, until 1990, the growth of trade and FDI across the world has achieved unprecedented levels, finally reaching higher levels than ever before the 2008-2009 world crisis (**Figure 1**).

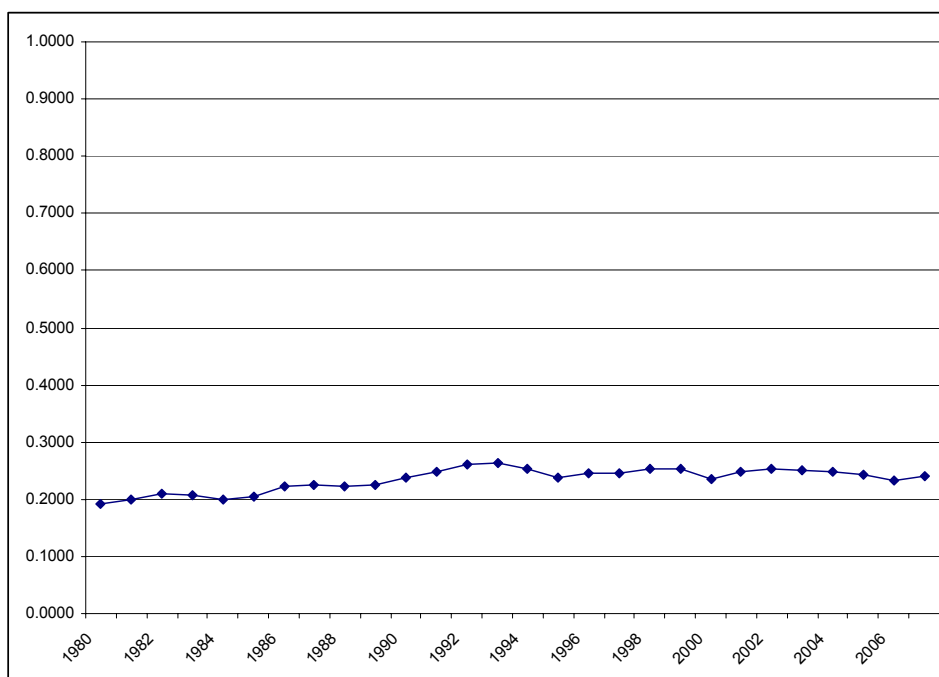


**Figure 1. Share of trade and FDI in world GDP, 1950-2008**

Source: UNCTAD completed by Chase-Dunn (1999)

### **Fact 2. Trade of services has increased but to a limited extent**

The ratio between the merchandises and services trade has increased in the eighties but remain stable afterwards, around 25% (**Figure 2**). This is interesting to notice because the relevance of classical trade analyses are often contested because the supposed increasing part of services. But this growth is indeed moderate.



**Figure 2. Ratio between services and merchandises trade at the world level, 1980-2008**

Source: WTO

### **Fact 3. The increasing importance of intra-sector and intra-industry trade**

In a long term perspective, intra-sector trade has increased much faster than inter-sector trade (CEPII, 2006). This means that a growing part of the world trade is made within the same *filière* or value chain. Transnational Companies are the main driving force in this process, with intra-firm trade accounting for about one third of total world trade. It well illustrates the global strategy of these actors, with an increasing geographical segmentation of value chains from the components to the final products.

### **Fact 4. There is a major geographical shift in world trade from the old core countries toward Eastern Asia.**

There is a shift in world trade from the “old core countries” of Europe, Northern America and Japan toward Eastern Asia, especially China (**Table 1**). While the part of Europe has apparently remained stable, when decomposed in intra and extra-European trade, the share of Europe has declined from 17% in 1970 to 14% in 2005. USA and Canada have declined more dramatically from 20 to 8% of world exports. However, if we consider imports, the decline of USA is much less pronounced, which results in an increasingly negative trade balance (see fact 5).

In Eastern Asia, China has been the most growing country from 1% of world trade in 1980 to 10% in 2009.

Interestingly enough, outside Eastern Asia, the so-called emerging countries have seen their shares in world trade stagnating rather than increasing. This includes the so-called BRIC countries: the share of Brazil has remained around 1% of world trade between 1990 and

2009, the share of India has increased but remained very low at 1.2% of world trade, and the share of Russia evolves from 1.5 to 2.5% between 1994 and 2009, in parallel with the evolution of gas and oil prices.

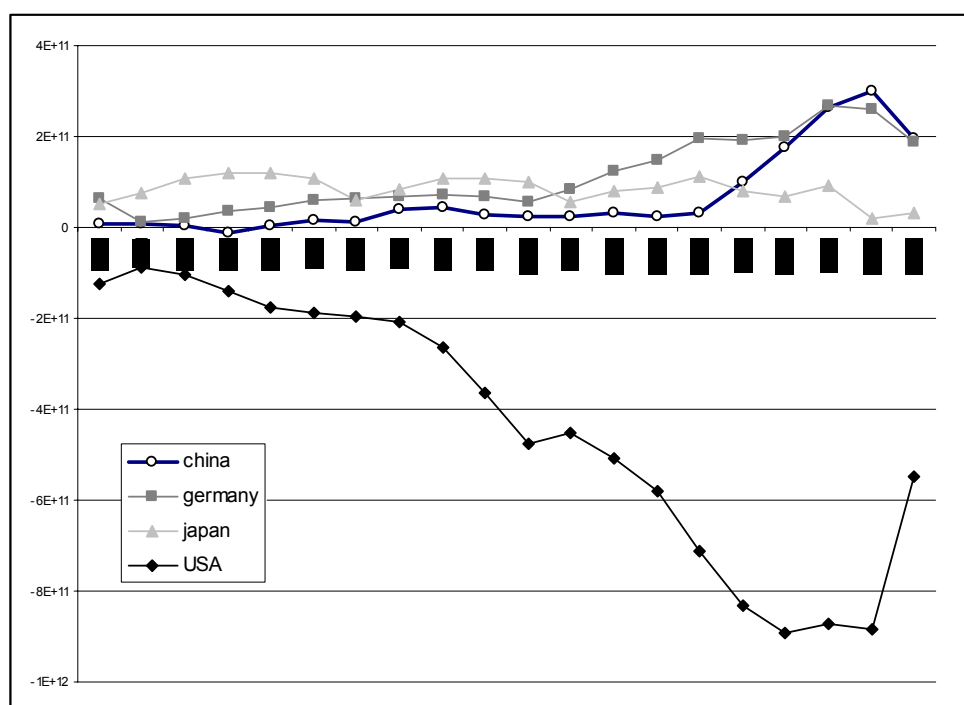
	1950	1960	1970	1980	1990	2000	2005
Northern America (USA, Canada)	21	20	20	15	15	17	8
Western Europe	33	39	42	39	43	38	39
whose intra-	-	-	20	19	24	22	24
whose extra-	-	-	17	15	16	14	14
Japan	1	3	6	7	8	8	6
Africa	7	6	4	5	3	2	3
Asia	12	8	6	8	13	20	21
whose China	1	2	1	1	2	4	7
Latin America	12	8	6	6	4	6	6
Central and Eastern Europe and CIS	6	11	10	8	5	4	7
Middle-East	3	3	4	11	5	4	5

**Table 1. Share of the different parts of the world in exports, 1950-2005**

Source: WTO ; Vandermotten et al., 2010

### Fact 5. The growing imbalances at the world level

Since at least the beginning of the nineties, world trade has been characterized by growing imbalances, especially between eastern Asia and USA (**Figure 3**). USA increasingly absorb surplus from Eastern Asia, especially from China. Moreover, the US trade deficit is financed by the rest of the world, especially East Asian countries, but is also the result of aggressive trade policies in Eastern Asia and low capacities to absorb their own production. For many authors, this imbalance is among causes of the recent crisis (Joshua, 2009; CEPII, 2009).



**Figure 3. Trade balance of China, Japan, Germany and USA**

Source: WTO

**Fact 6. A growing regional integration but with increasing inter-block trade.**

Despite the growing share of intra-regional trade during the two last decades except for USSR, we observe a growing openness to trade of all blocks (Table 2). This means that there is no sign that closed trade blocks are emerging but more that regional integration and inter-block trade are correlated if not interrelated. However, it must also be noted that openness rate of macro-regional economies are still limited (Grasland et al., 2007).

	INTRA-BLOCK trade (%)				Ratio Exports (extra)/GDP by blocks (%)			
	1987	1995	2000	2006	1987	1995	2000	2006
<b>EU-27</b>	63.4	65.5	65.3	66.6	7.5	8.9	8.0	10.9
<b>NAFTA</b>	47.8	45.7	55.4	53.7	3.4	5.2	4.5	4.7
<b>China</b>	0.0	0.0	0.0	0.0	4.6	5.6	6.5	9.9
<b>Japan</b>	0.0	0.0	0.0	0.0	12.3	15.1	15.1	16.2
<b>Middle East and Northern Africa</b>	3.1	5.6	4.0	5.4	13.4	12.7	17.6	20.3
<b>Subsaharian Africa</b>	5.7	10.8	10.2	9.6	8.2	7.5	7.9	11.3
<b>Latin America</b>	14.0	26.8	26.0	24.1	4.3	4.3	4.9	7.8
<b>Rest of Asia (excluding NIC)</b>	10.7	14.0	13.8	18.0	4.2	6.2	6.6	7.4
<b>ex-USSR</b>	0.0	26.9	20.7	19.0	-	6.3	6.9	10.9

**Table 2. Intra-block trade and openness rate of trade blocks, 1987-2006**

Source: Personal calculations on CHELEM-CEPII database

**Fact 7. A persistent international division of labour**

Authors still insist on the persistent division of labour at the world level, but there is a disagreement on whether this can still be read in terms of core/periphery relations. Most important evolutions are the following ones:

- many peripheral countries do sell manufacturing rather than primary products. It results in a "three-stage" division of labour: high technological products in the core; labour intensive manufacturing in the so-called "workshop countries", mainly from Eastern Asia but not only; primary products sellers (Vandermotten, 2010);
- while the share of the so-called core countries in high technological products have declined, they remain highly specialized in these types of exports while having lost their specialization for most of labour intensive exports, notably textile. Trade balances in medium and high technological products remain very positive for Europe and Japan, while less in USA (Grasland, Van Hamme, 2010).

Hence, while there is a quantitative shift in the world trade towards Eastern Asia for nearly all types of products at different degree, "old core countries" remain highly specialized in the most technological segments of production.

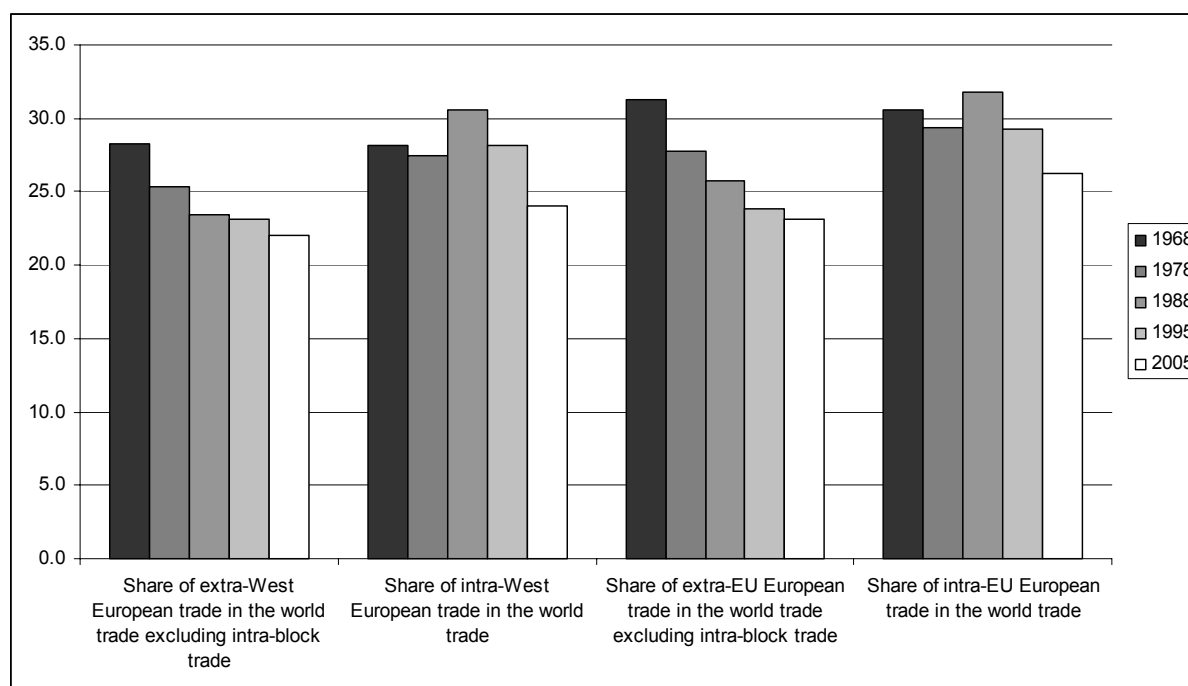
## 2. Europe in the world trade

GILLES VAN HAMME, PABLO MEDINA LOCKHART, IGEAT

### 2.1. 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 4**). 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 4. Share of Europe in the world trade, distinguishing intra and extra-European trade**

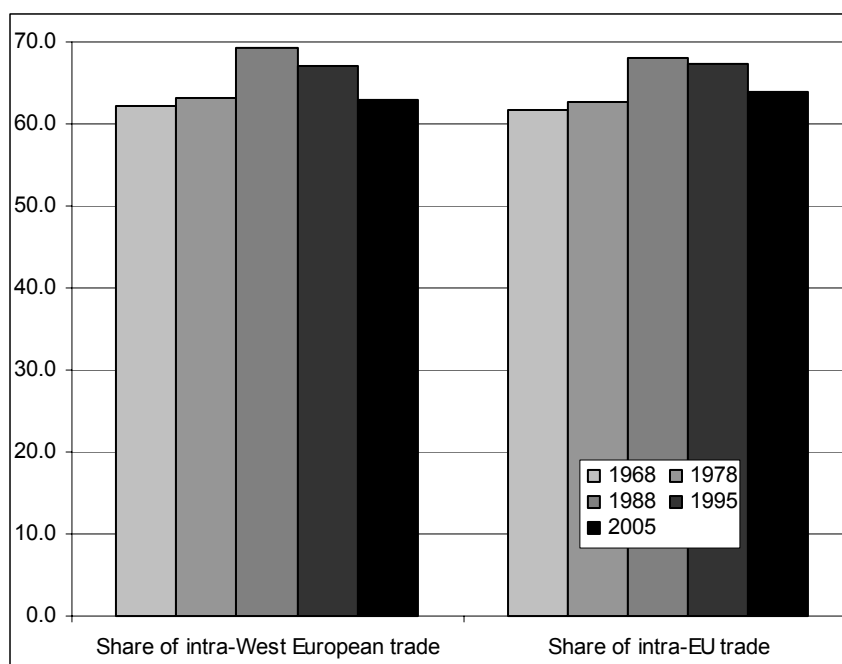
Source: Chelem database of CEPII; personal calculations

**Note:** EU does not correspond to the political EU for each period but includes the current EU-27 more other West-European countries (Iceland, Switzerland, Norway...), except Baltic countries



## 2.2. The geography of trade of Europe and European countries

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 5**). 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 5: The share of intra-European trade from the sixties onwards.**

Source: Chelem database of CEPII; personal calculations

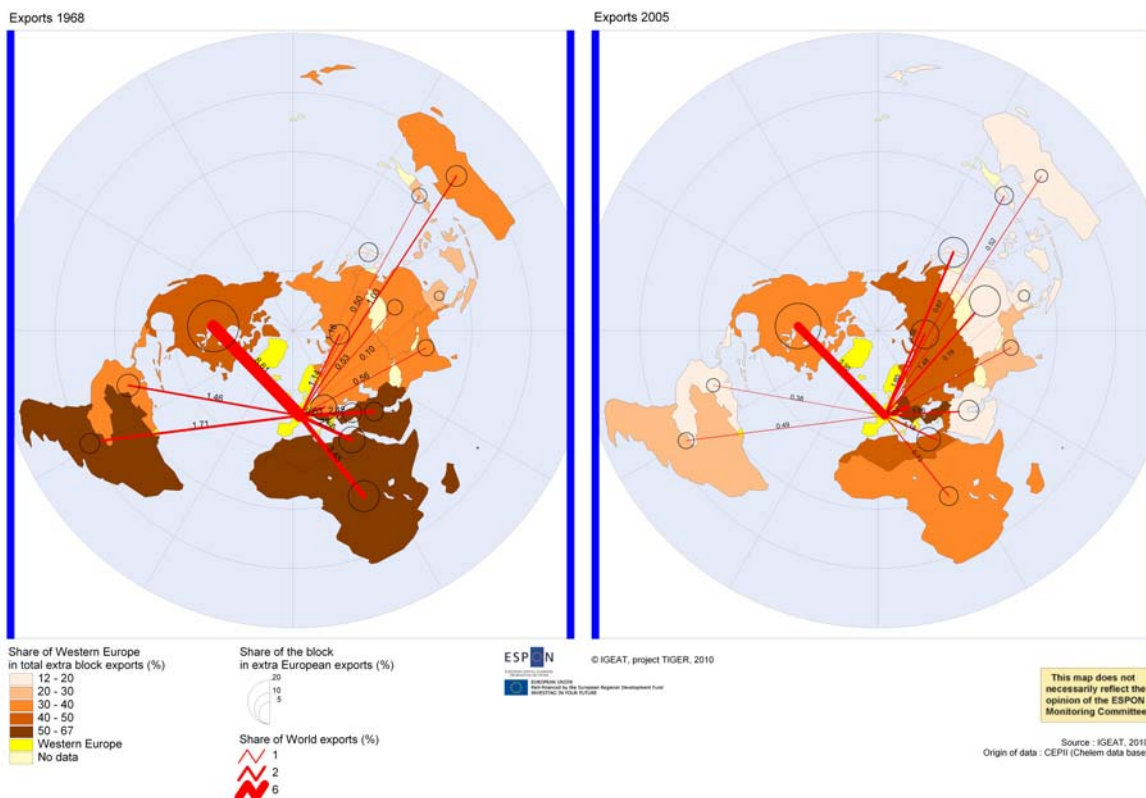
Note: EU does not correspond to the political EU for each period but includes the current EU-27 more other West-European countries, except Baltic countries

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 1** 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. **Map 1** 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.

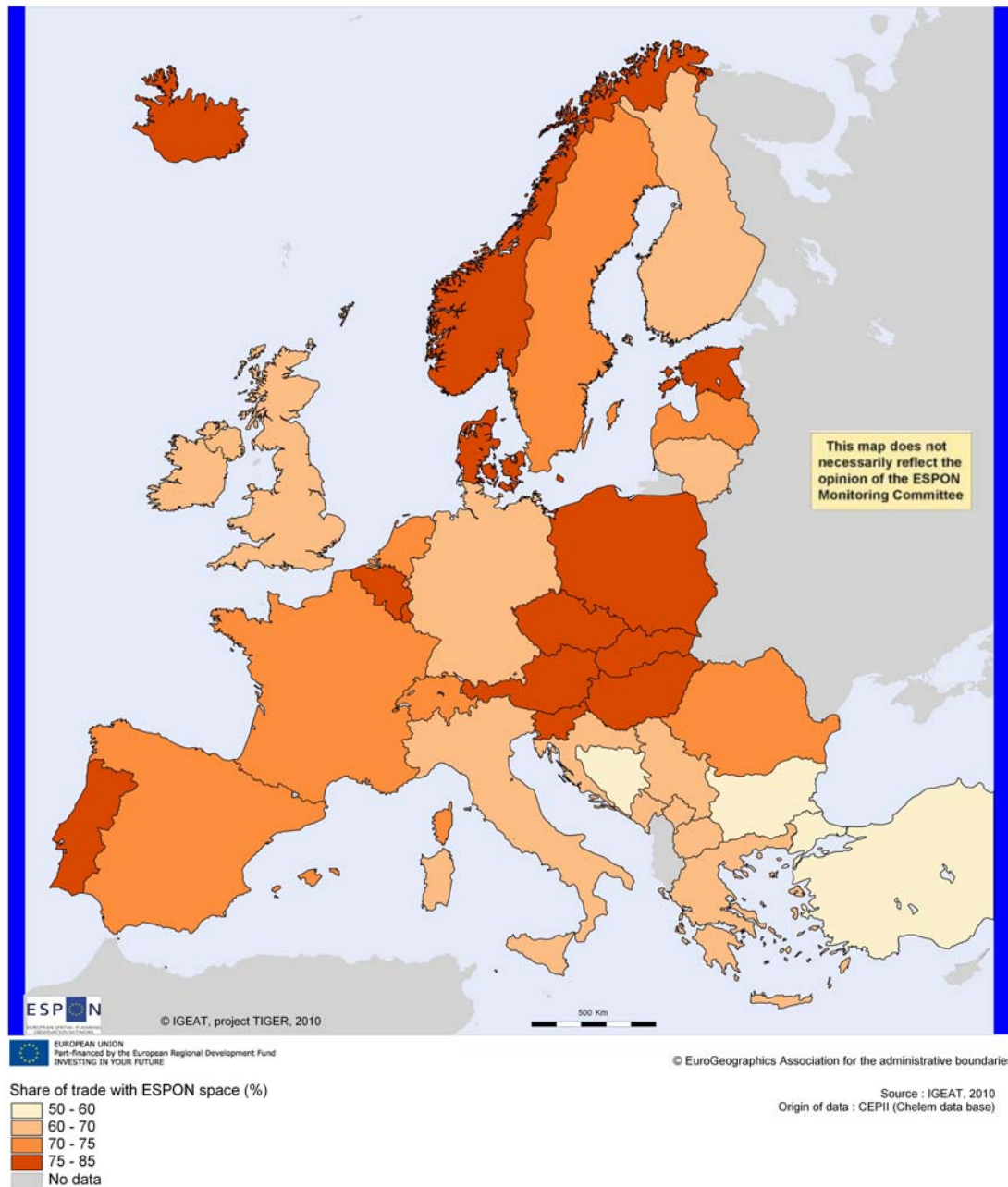
Hence, the influence of Europe in the world does not correspond at all with the areas that really matter for Europe: while the influence of Europe has been more and more reduced to its direct neighbourhood, the areas that matter for Europe are indeed the other big economic poles.



**Map1. The exports of Western Europe with the rest of the world in 1968 ad 2005**

### 2.3 Geography of trade by country

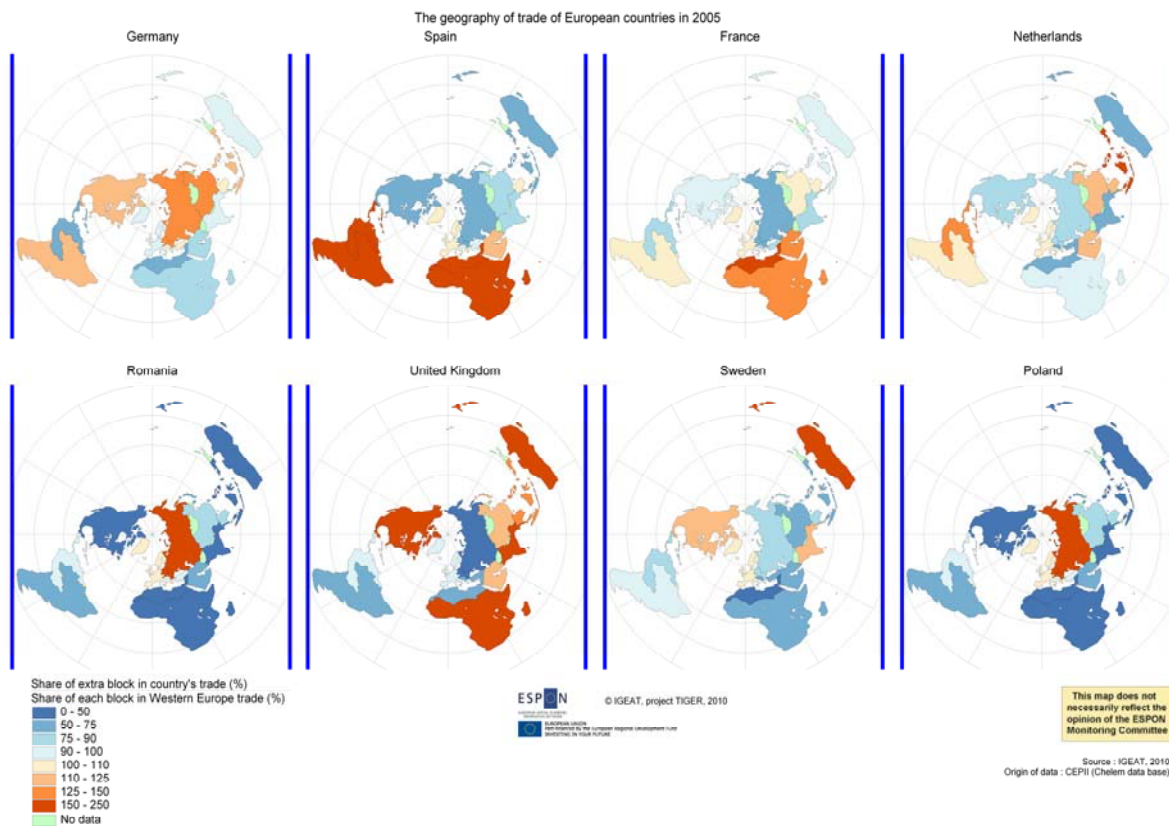
**Map 2** shows how integrated Europe is as far as trade is concerned. To assess this, we only map the share of trade of each country with all ESPON countries. All European countries are making at least 60% of their trade with the ESPON space, except Bulgaria, Bosnia and Turkey. But we observe differences 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.



**Map 2. 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 **map 3** 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.

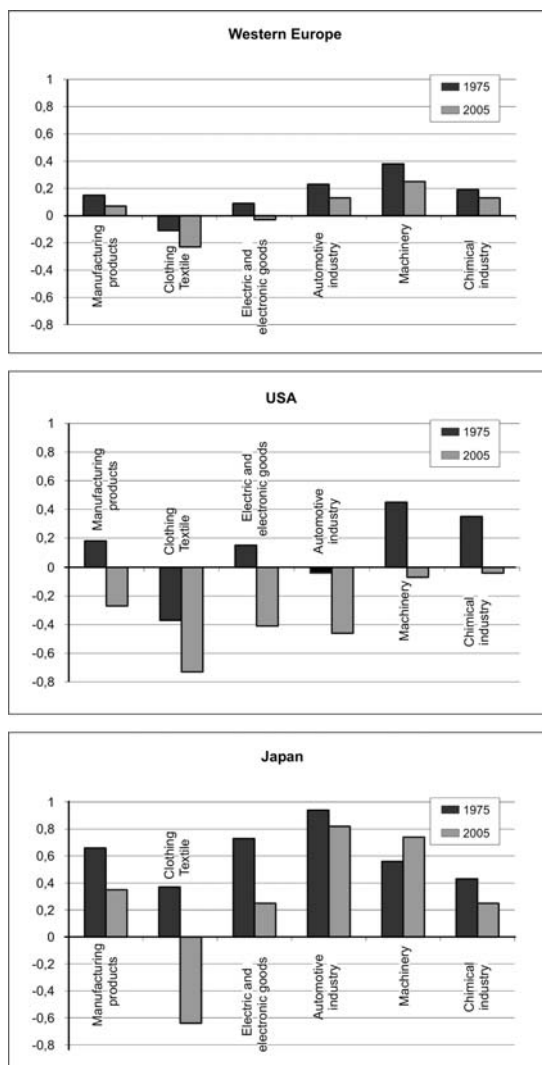


### Map 3. The geography of trade of some European countries in 2005

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

## 2.4 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 6**, 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 6. 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 the **Figure 7**. 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<sup>1</sup> (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 7** 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.

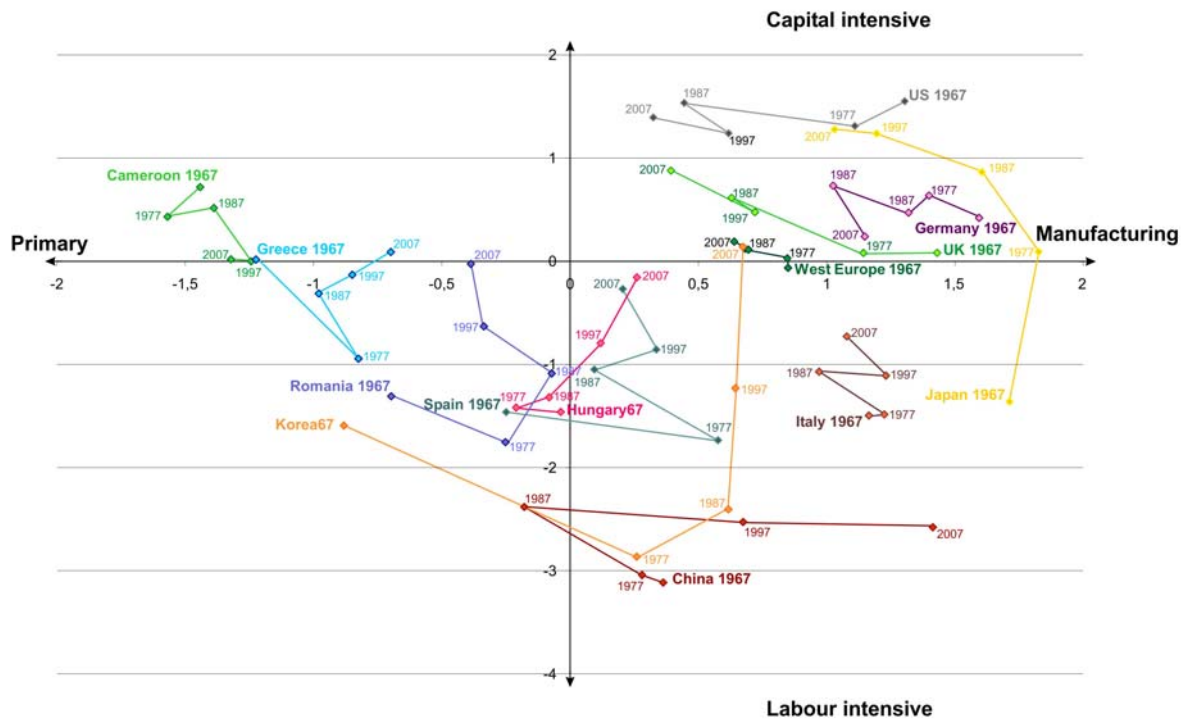
On this basis, what can we say about the position of Europe and European countries? The graph clearly shows the stable position of Western Europe in the international division of labour<sup>2</sup>. However, this stable position hides different trajectories among European countries. In a long term perspective, 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 then 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).

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<sup>1</sup> Indeed, for each period, we calculate the asymmetry with a three year-average around the chosen dates.

<sup>2</sup> 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 7. Europe and European countries in the international division of labour, 1967-2007.**

### Conclusion

What are the main conclusions about the evolution of the position of Europe 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 in the neighbouring East and South;
3. 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.
4. 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.
5. 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
6. 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.



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### 3. Regional trade in Europe (first version)

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Regional trade statistics will enable us to go beyond the sectoral approach by having a more direct approach on the economic links between regions and the rest of the world. We are gathering these statistics through different national sources. FDI regional statistics in value will also be collected.

The final objective is to assess the position of region in the division of labour as well as the geography of its trade.

#### 3.1 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 regions, destination and nature of products.

We end up with a satisfactory division of Europe from the regional point of view. However, until now, we did not succeed in getting data of regional trade for New Member States except Bulgaria and 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 the tables, the scale at which we can work on regional trade is usually large (NUTS1 or 2). We miss data for 8 countries at this stage for reason of excessive cost or because these data do not exist. For smaller countries, we might choose to keep national data, while for others, we will assess regional trade by breaking down detailed national trade with detail regional employment by sector.

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 (notably Spain, Italy, France...). To solve this problem, we convert all classifications into the sectoral NACE classification (NACE digit-2). We can still have more detailed for some products but the general matrix is related to the NACE sectoral classification.
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 data base 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 to the national trade on this product. The same process has been used for destinations of products. This process ensures a minimal homogenization of the data but it is still possible that the share of each region within a country might be influenced by the way data are collected.

The following table gives the availability of regional trade data across ESPON countries:

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

**Table 2. Data on regional trade across ESPON countries**

## 3.2 First results

The results described here are only to give examples of the potentialities of the database. They do not offer a complete and systematic analysis of the regional participation to global trade.

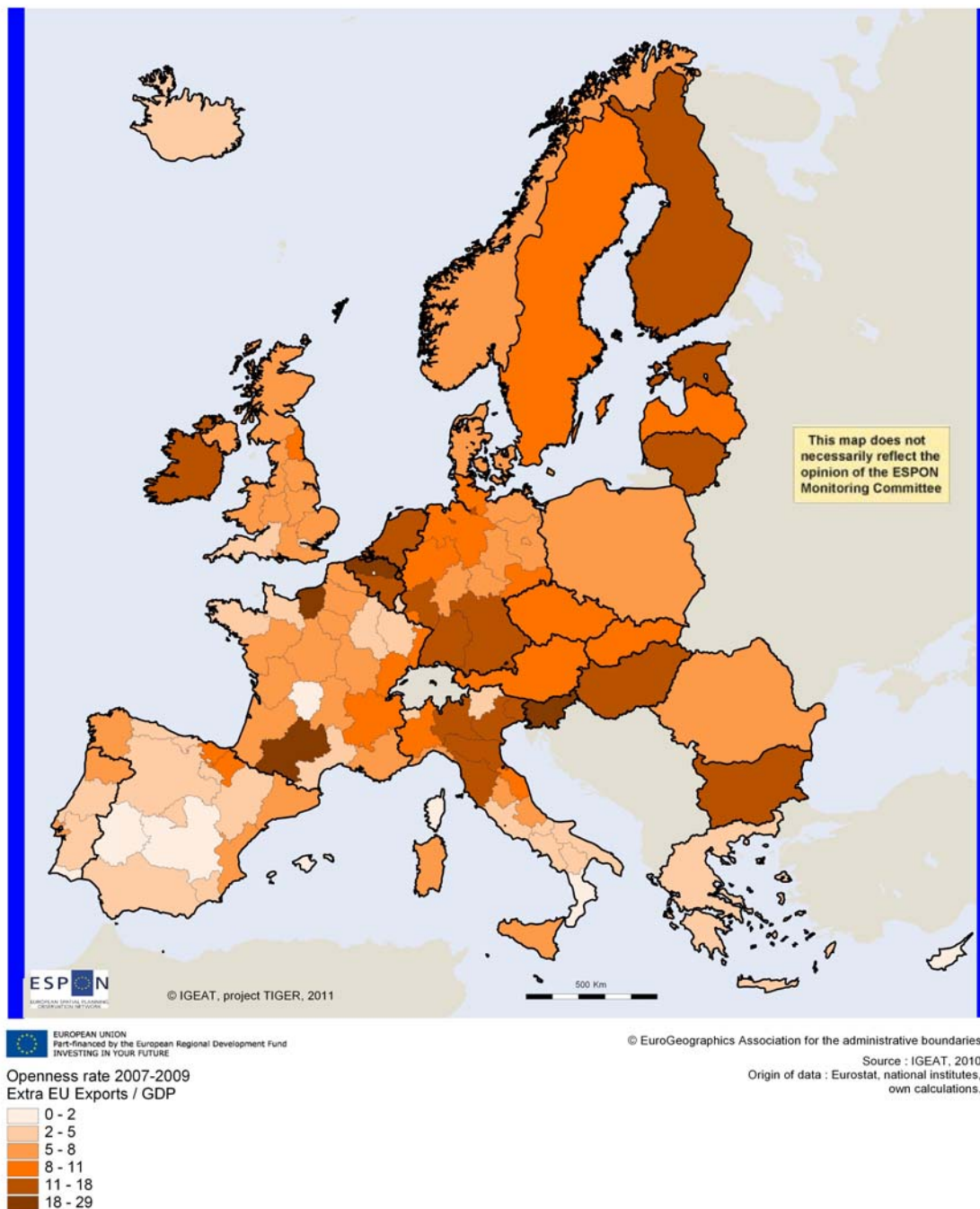
### 3.2.1 The openness of regions

The openness of regions to globalization has been assessed by the ratio between exports and regional GDP (Figure 1). Several issues should be pointed out before analyzing the map:

- as already noted, regional data are not available for most New member States as well as for Northern countries, but further improvement of the matrix are still possible though not certain (Sweden, Norway, Switzerland...);
- there is "port" effect in the data and some statistics are polluted to some extent by double counting (in the big ports and when it is re-exported to other countries). This is the same type of issue than for airflows. However, the export data are less affected by this hub effect, 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 the impact of the size of the countries (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. Their participation to the global economy goes through other channels of course. To a certain extent, the geography reflects the unequal deindustrialization process.

The geography of openness to trade at regional level contains several important elements:

- when regional data are available, national effects while present are limited. Within each big country, we see clear regional patterns emerging;
- regions within small countries are in general more open despite this is not a size effect (Belgium, Netherland, Ireland, Finland...), because only extra-EU is considered;
- in contrast, we observe no EU-border effect. Some regions at the border of EU are more open to extra-EU (historical relation between Baltic countries and Russia; between Slovenia and former Yugoslavia for example) while others are not (Southern Spain, Southern Italy, Greece, Iceland);
- 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);
- several regions of Europe are open because of their capacities to sell competitive high technological products: Midi-Pyrenees (Airbus in Toulouse); southern Germany (machinery sold in Eastern Asia for example); Finland (telecommunications);
- we observe the weak openness to extra-EU of Southern Europe, partially reflecting their weak competitiveness in both technological and more labour intensive industries;
- in Iberia peninsula, we observe a clear contrast between the most developed areas, more open and the least developed, notably central Spain or less urbanized Portuguese regions.



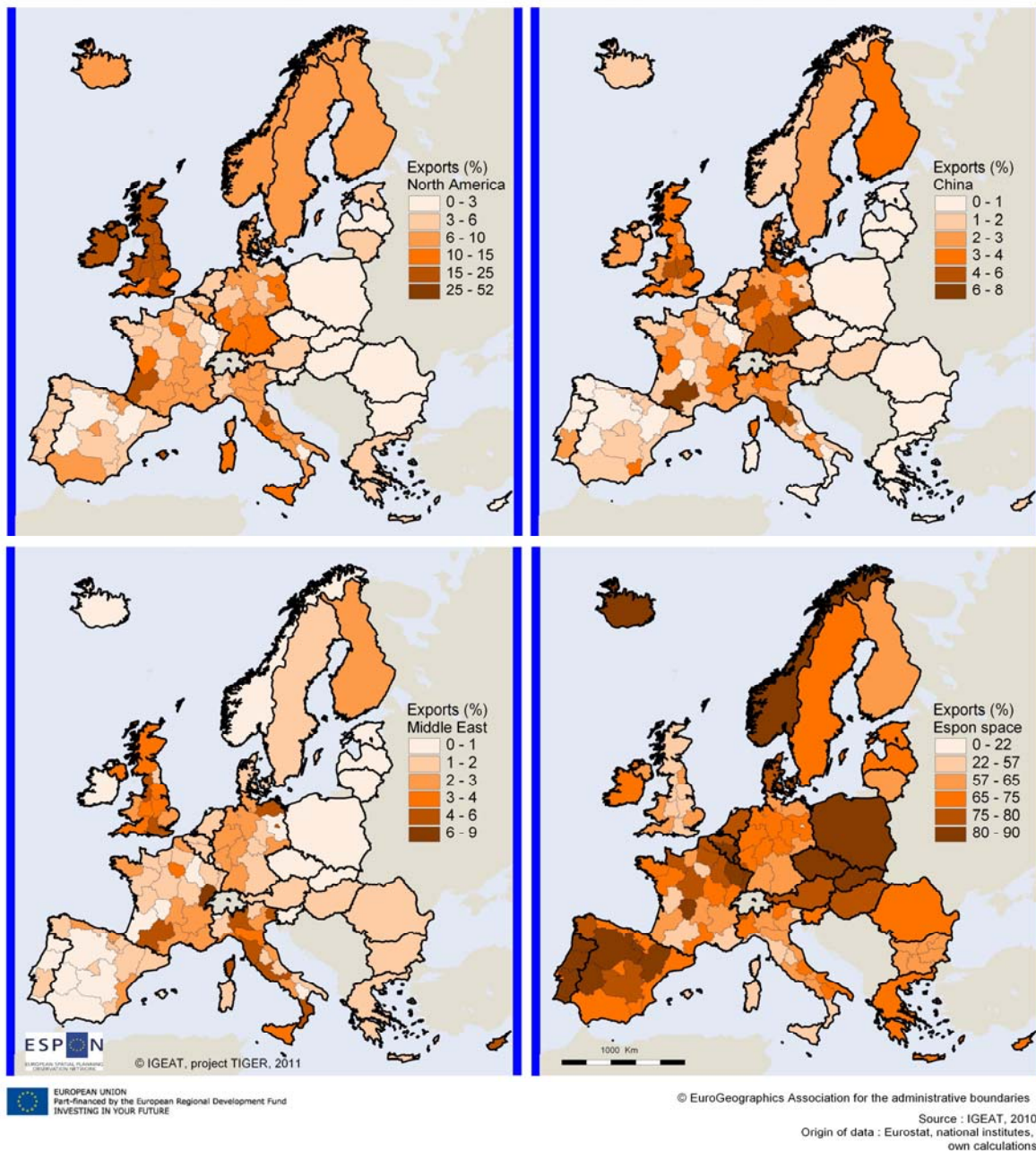
**Figure 1. Openness to trade of European regions, average 2007-2009**

### 3.2.2 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. Of course, these national effects exist: British islands have more relations with Northern America 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 assess 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 products metropolitan areas are among the least European 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. They concern Great Britain for historical reasons, many Italian regions, Midi-Pyrenees (Airbus 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).

It is very important to notice the weak relations between new member states and the big world economic powers and developing areas. Eastern Europe focuses its relations to EU and Eastern neighbourhood.



**Figure 2. The geography of trade of European regions/nations, 2007-2009.**

### 3.2.3 The products specialization of regional trade in Europe

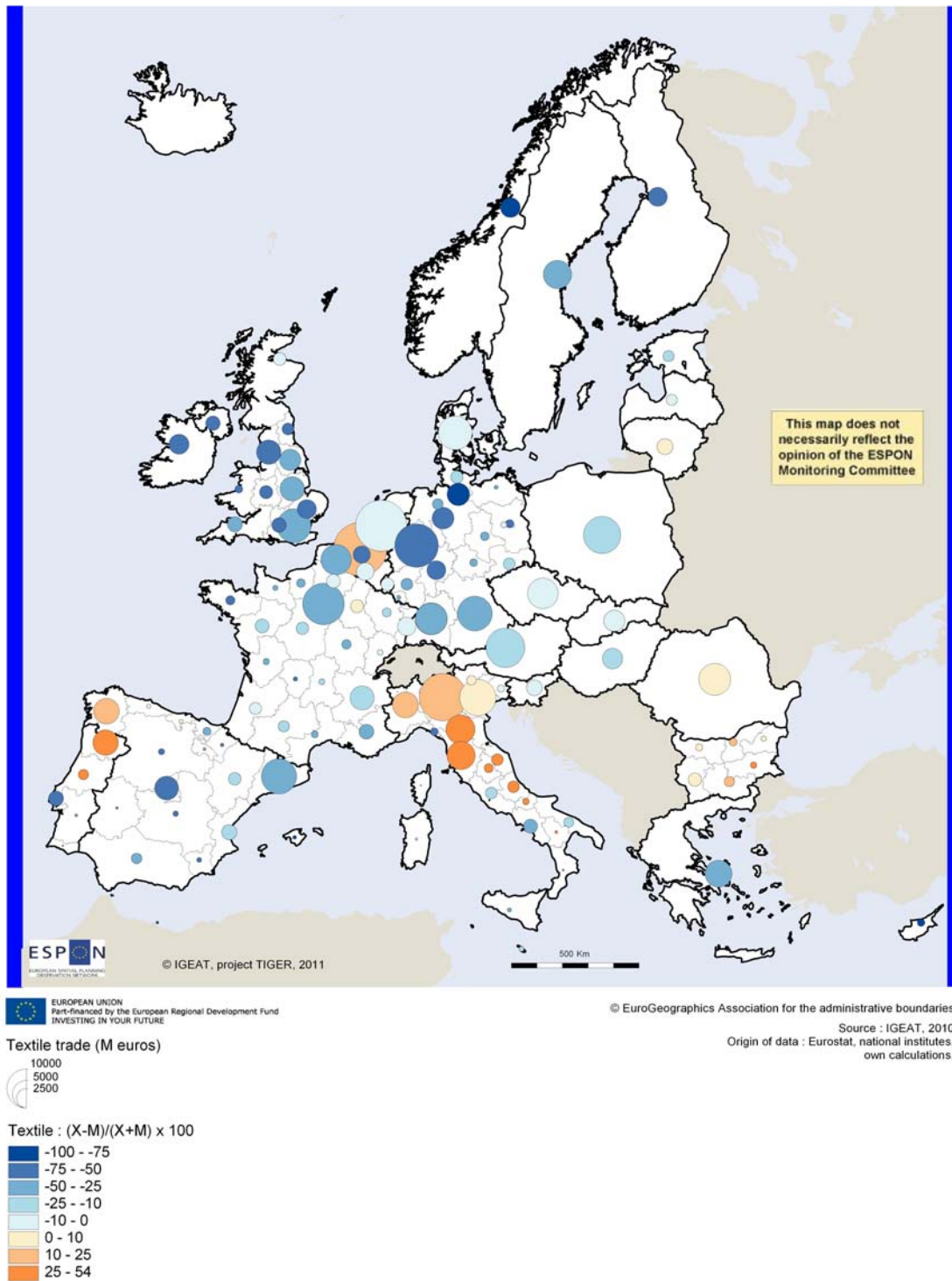
Figures 3 to 5 show examples of the regional trade of European regions for several types of products: labour intensive textile and clothing industry; medium technological automotive industry; machinery. Notice that regional trade includes all international trade, including intra-European and excluding 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 strict terms – also plays a role.

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.

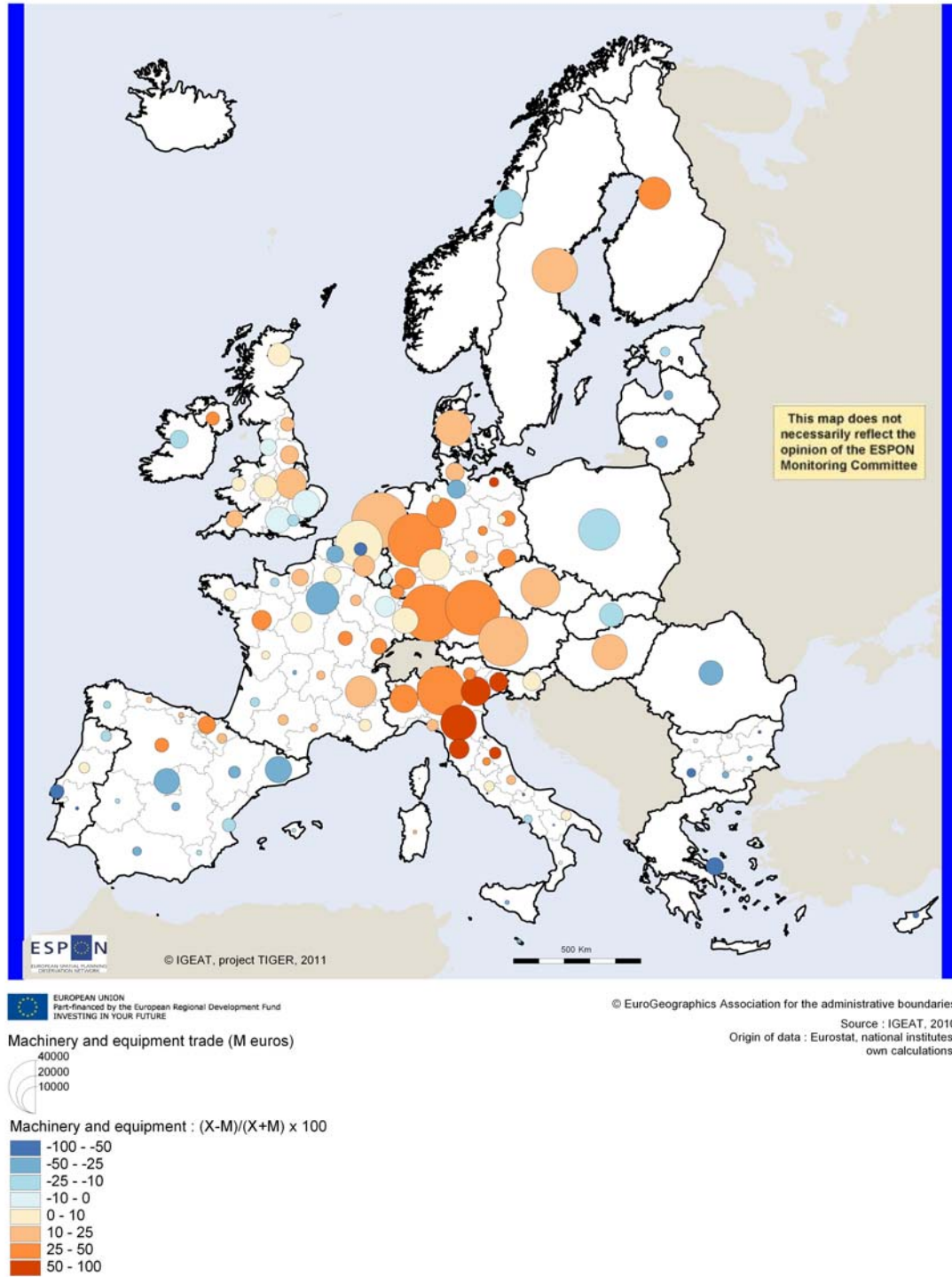
As for machinery, South Germany and NordRhein-Westfalen as well as Northern Italy have a decisive role. Many other European regions have positive balances but with much more limited trade on this category of products. The pattern is somewhat similar for the transport equipment (automotive industry mainly),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



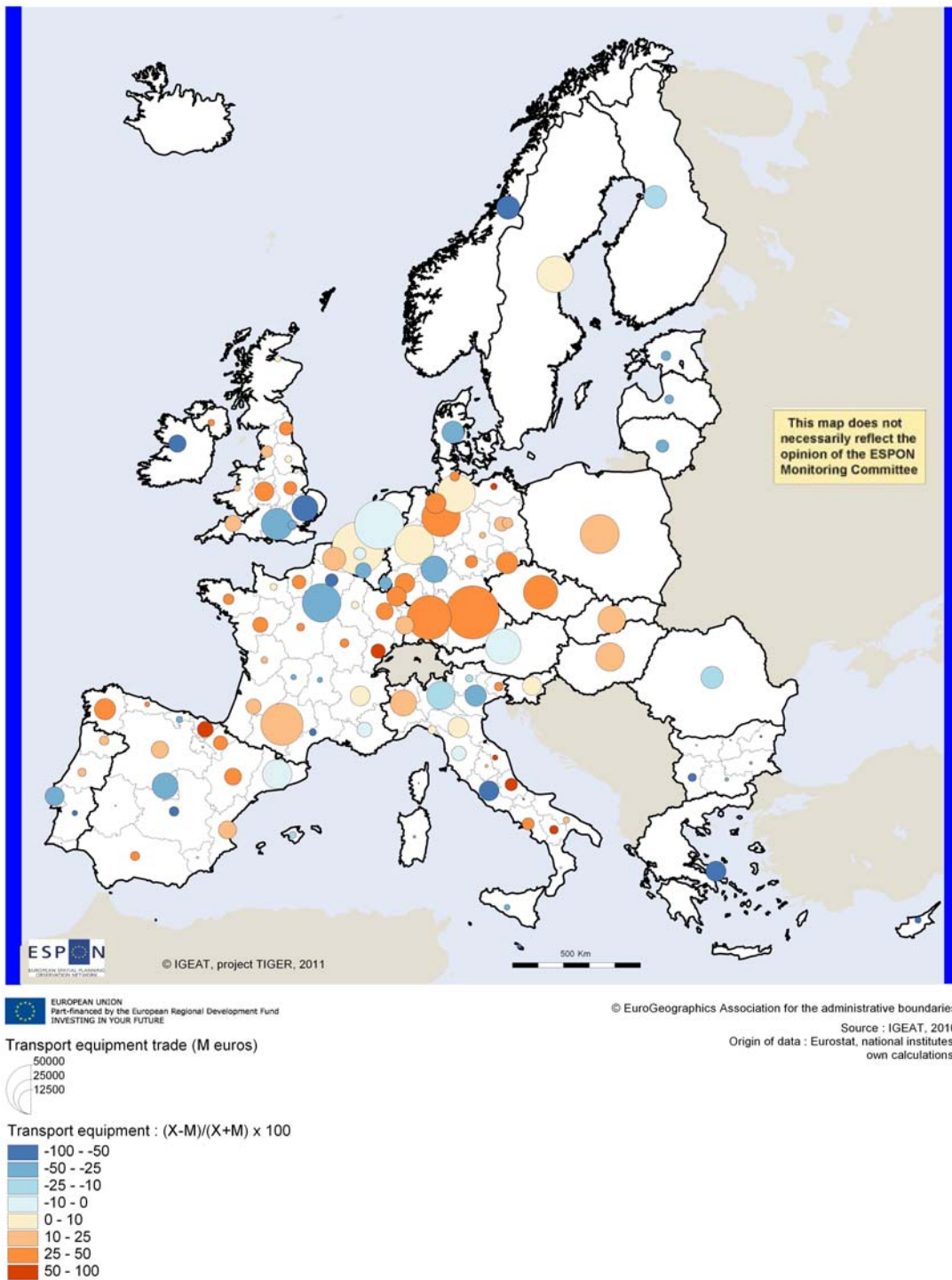


**Figure 3. Regional trade in textile and clothing industry, 2007-2009**





**Figure 4. Regional trade in machinery and equipment, 2007-2009**



**Figure 5. Regional trade in automotive and others means of transport industry, 2007-2009**

### 3.3 Further steps

1. Improving the database. For some countries, we might be able to complete the database. Unfortunately, for most of new member states, this will be impossible because data do not exist.
2. Reinforcing the analysis. We only provide examples here. When the database will be completed, we provide systematic analyses of the all database.
3. Typologies. We will propose classifications of regions according to their openness to trade, to their geography of trade and to their products specialization. This will allow to roughly position European regions in the international division of labour;
4. Finally, more in-depth analysis will be carried out using more detailed data where they are available (United Kingdom, Spain, Italy, France). This will allow to answer to important questions:
  - by crossing products and destinations where possible, we might better understand the regional geography of trade, and notably better understand the relation between the structure of the regional productive system and its capacity to sell outside;
  - the regional impact of the crisis can be assessed through the evolutions between 2007 and 2010;
  - by using detailed data on products, we will be able to better assess the position of regions in the European and international division of labour.

## 4. Global commodity/value chain approach to assess the position of regions in the European and global economy

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### Introduction

The globalization of economic activities and the delocalisation of production is a dynamic process with high complexity leading to a great diversity of organizational forms, network configuration and changes of functions ensuing from the distribution of power – control and rent distribution. The delocalization forms are structured temporally, spatially and by sector, and the diversity of organizational forms and production networks is a result of changing patterns of competition and governance in global contracting (Pickles *et al*, 2006). A complex of factors as world trade policy, branch-specific factors and country/region-specific factors are shaping the current world and EU economic map. The spatial fragmentation of production and services within European regions has been changed significantly and has deepened the integration between OMS and NMS in recent decades. The drive of EU producers to source production and services from CEE countries was mainly attributable to international trade regulations, particularly the outward processing trade regime (OPT) (Smith *et al*, 2005). In addition, factors such as geographical proximity in physical, social and cultural terms, skilled working force and economic traditions influence considerably relocation of industries within Europe (Pickles *et al*, 2006, Roukova *et al*, 2008).

This paper focuses on the position of EU and CEE countries from the prospect of global value chains and production networks and its impact on the division of labour on the cases of two industries – traditional textile and clothing sector and highly fragmented sector of software. The paper attempts to provide an overview on the findings from the literature discussing effects of growing interconnection and interdependence between EU countries and the role of the CEE countries in sustainability and competitiveness of EU economy. It is organized in the following parts: theory and research background and two sections presenting key findings, facts and figures about selected industries.

### 4.1 Theory and research background

The high intensity and diversity in organization of global economic activities connecting spaces, places and people, led to the development of a range of research approaches. The most employed ones are the *Global Commodity Chain (GCC)* and *Global Value Chain (GVC) approach*. Many scholars argue that the distinction between both approaches lie in terms only and do not in their essence. The GVC/GVC approaches are network-based and studying 'the organizational dynamics of global industries' in order to understand where, how and by who value is created and distributed' (Appelbaum and Gereffi, 1994 by Bair, 2006,). Hence, the separation of tasks by value is difficult to be defined with precision because of the high diversification of economic activities coexisting with creation of new ones (Gereffi, 2004). Therefore, more general groups by value of activities are focused by the GVC analysis, which differ by industries. Analysing GCC, Gereffi has underlined the contrast between standardised (mass-production) and differentiated goods as development implicates with notable differences in patterns and trade networks (Gereffi *et al.*, 2003). The production activities - item of delocalisation - are divided by production phases, each of which generates different value. The governance issues prevail in research focus of theoretical and empirical studies. Gereffi has distinguished two ideal types of GCC governance – buyer-

driven (labour-intensive industries) and producer-driven (capital-intensive industries) commodity chains (1994).

GVC approach focuses '*on the structure and dynamics of production and trade networks that connect local and foreign firms*' (Neidik et al, 2006). The organizational structures of global industries are investigated through the identification of the role of each chain participant in value creation and distribution within the chain, where the leading firm controls the access to major resources and rent distribution. The activities may be segregated in phases (or tasks) according to the different value which they generate, and these phases differ by industries. The shift from lower value added activities to higher value added activities is known as industrial upgrading (Gereffi, 1999; Yoruk, 2001; Pickles et al, 2006, Neidik et al, 2006). The upgrading is '*essential to retaining a competitive edge in export industries*' (Gereffi et al, 2003). The upgrading led to an increase of the value-added of exports and better positioning of the economy in the international division of labour. Four types of upgrading are accepted by GVC scholars as they follow: *Product upgrading; Process upgrading; Functional upgrading; Organizational upgrading* (Humphrey et al, 2000, Yoruk, 2001). Product and process upgrading add lower value than functional upgrading, and the latter has much positive effect for an improvement of company's competitiveness. The second important topic of GVC analysis is the governance of the chain, which requires identification of type of networks, functions and coordination between all participants involved in direct or indirect production activities and related networks (Gereffi et al., 2005). Humphrey et al. have defined three key questions for coordination: '*what is to be produced, how it is to be produced and physical product flow: how much is to be produced, when, and how the flow of product along the chain to be handled*' (2002).

The recent contributions to the GVC theory has been extended from the analysis of linear industrial relations to a broader context of local social and economic development and its impact on the position of the companies in the chains (Pickles et al ,2006, Neidik et al, 2006). Studying the global impact on the regions the global production network (GPN) analysis incorporates the main paradigms of GCC/GVC approach and focuses on three key topics: *value* – creation, enhancement and capturing; *power* - corporate, institutional and collective; and *embeddedness* – social, territorial and network; (Dicken, 2003, Pickles et al, 2006). According to the new regionalism, network and territorial embeddedness, which are basic paradigms of the GPN theory, explore the connectivity of new economic actors or activities with the complex local socio-economic environment, which they have entered and where they operate. Dicken stresses that the impact of interaction and interconnectivity between the global/regional production networks and national/ local economies is crucial for the success or failure of particular industries and firms (2003).

It is envisaged that participation in global networks creates development opportunities and advantages for improving company competences and for the development of new capabilities based on learning from foreign buyers. In this process, the role of the lead firm (marketers, branders, manufacturers, and retailers) is of key importance (Gereffi, 1999). However, this option concerns first layer contractor and it is not relevant for many of SME which participate in international production networks as second and third layer subcontractors. Research on the buyer-driven industries suggests that in many cases global buyers discourage, if not obstruct, the development of higher value-added activities by local producers, and the local upgrading opportunities depend on the way chains are governed (Schmitz et al, 2000; Humphrey et al, 2002).

The division of labour within the EU has been changed significantly in recent decades. In 2000 the economic interconnection between OMS and NMS was deepened. The Europeanization challenges have been accompanied by globalization challenges. Many CEE industries and regions experience a competitive pressure from intra-EU origin and extra-EU origin. (Smith et al, 2005, Pickles et al, 2006, Labrianidis et al, 2007). NMS became

preferable sourcing locations for many West-European companies. Key drivers of this sourcing have been outlined - well-qualified and skilled labour force in NMS, lower labour cost and geographical proximity in physical, social and cultural terms (Smith et al, 2005, Pickles et al, 2006, Labrianidis et al, 2007). Both negative and positive features of impact of involvement in international chains are analysed by scholars. From GCC/GVC prospect the EU division of labour of many economic activities is due to the delocalisation of production of low value-added labour-intensive activities from core developed countries to peripheral EU regions. The changes of geography of labour had negative effects of jobs loses in many regions of OMS, and they are related with particular industries at particular period. On other hand the CEE countries succeeded to protect employment through insourcing labour-intensive production during 1990's, despite this insourcing resulted in fragmentation of the local industry, decrease of wages and de-skilling of the labour in the beginning of last decade (Begg et al, 2003). These impacts affected the undeveloped regions of CEE mostly. The general negative implications of the relocation of production for the region are the jeopardy of their exclusion from international chains and networks. This might occur when relocation to more attractive locations become a continuous process. In the second half of 2000s some regions of NMS succeeded to keep or to improve their performance within many European commodity chains. Recently the shrinkage of labour force has been the main concern for many of these regions.

In the context of main objectives of the project next sections present findings from the literature, which consider the answers of the following questions: *What and where is produced? How is produced? and What is the territorial impact?*

#### **4.2 Case study on Computer services and Software**

The globalization of the sector Information and Communication Technologies (ICT) has been unusually intensive in the last decade. ICT application have an economic impact on the increase of gross value added, gross domestic product, labour productivity, production efficiency, and labour cost formation. The globalization has led to creation of new subsectors of production and markets of the sector in the developing economies and to their consumption increase on a world scale. The main factors which influence this sector development in the last couple of years are the global economic crisis, the strong competition and its internal restructuring. The global economic crisis hit the ICT sector and in particular ICT services at a significantly less degree in comparison to many other economic activities. The small reducing of production volume and slower rates of development delay of ICT services are a result from the higher flexibility and innovativeness of the branch. The increased spatial mobility of the services is accompanied by a tendency of products specialization intensification. The ICT services in the EU face up more and more severe competition of the fast-developing economies, which seize whole sub-sectors. The internal restructuring of the sector was imposed by the increasing challenges of the market, for example, the producers of software products and services constantly improve and develop the products variety (open code software, commercial software, combined software products, custom software, package software and others).

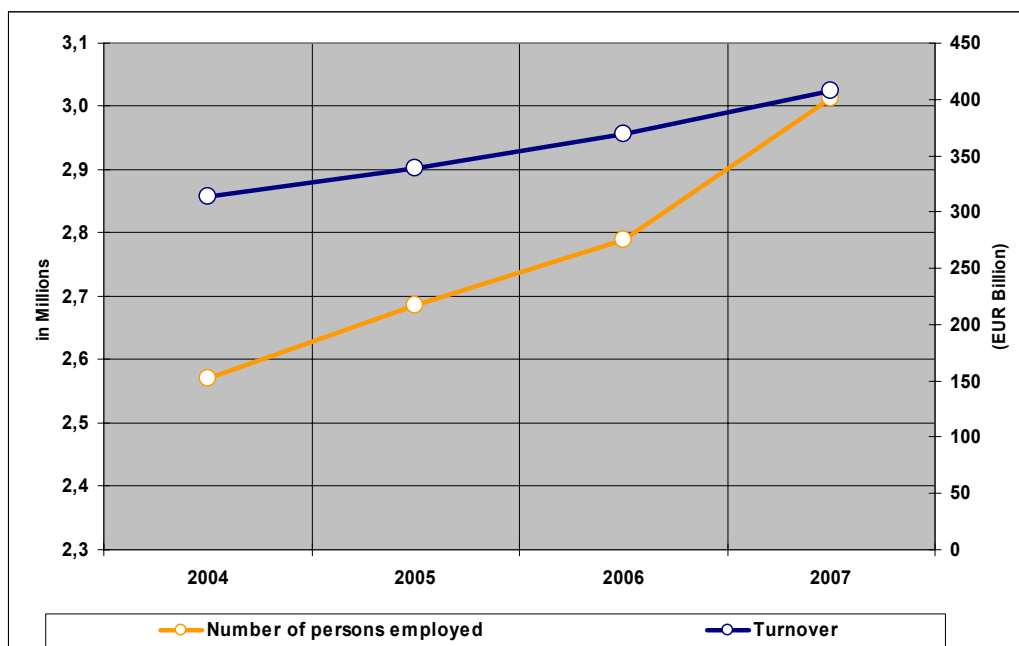
The ICT sector consists of wide range of manufacturing and service activities, producing ICT products and ICT services separately or combined. From this fact emerge the difficulties and limitations of their statistical monitoring and registration. In the methodology, used in OECD studies of ICT services, the object of analysis are five subgroups of sectors, whereas three of them are connected with wholesales activities, the rest are telecommunications and renting of office machinery and equipment. The fifth subgroup is computer and related activities (OECD, 2010). According to the European Classification of Economic Activities, "computer and related activities" (NACE 72) are a branch of business services and it has six subbranches. The 'software and consultancy' are one of these subbranches and it is accounted under the subsection 72.2. The definition 'computer and related activities' is

replaced often by researchers with 'ICT consultancy'. According to the World Trade Organization (WTO) methodology, computer services include services related to hardware and software and data processing. The main objective of this report is the computer services and software.

The statistic classifications are constantly updated, however, they do not succeed to keep in step with the development and diversification of ICT services sector. Especially difficult is to detach the computer services of firms which accomplish a wide range of ICT services, as well as in firms which combine ICT goods production and computer services. It is statistically difficult to value the real parameters of computer services sector in terms of economic performance and employment, because of their "intangible" nature. This problem is more sensitive for national statistics of the NMS.

#### 4.2.1 EU computer services registered significant growth of economic performance and jobs

The European computer services (NACE 72) are presented by 580 000 enterprises with turnover of €407,7 billion and about 3,01 million people employed in 2007 (Fig.1). The software (code 72.2) creates approximately 70 % from the turnover of the sector computer services and related activities. In 2007 the turnover has increased by €95.7 billion and the number of employed – by 442000 in comparison with 2004. Bulgaria and Romania contribute with 79,7 thousand people only to the increase on the employed during 2007.



**Figure 1. Turnover (right scale) and employed persons (left scale) in computer and related services in EU27.** Data source: Eurostat, 2010

Computer services companies account 70% of all firms of the ICT services, and the largest number of them is software companies. SME are 99% (micro and small are 95%) of total number of firms in the branch, and they have 69% of employment, 58% of turnover and one fifth of VA (FWC Sector Competitiveness Studies, 2009).

In EU27 computer services generate €199, 3 billion value added at factor cost and it increased by €45.5 billion in 2007 in comparison with 2004, and Bulgaria and Romania participate with €1.106 billion. Its regional distribution shows that Great Britain generates

30% from VA, Germany – 17%, France – 14%, Italy – 10% (FWC Sector Competitiveness Studies, 2009). NMS participate with 17% from the employed and 5% from VA in the computer services of EU27.

The importance of computer services in EU 27 economy measured as a share of employees to the workforce and its share of national GDP are 1,23% and 2,65% respectively. The countries with shares higher than the average ones of EU27 are Sweden, UK, Ireland, Netherlands and Finland, with shares around the average ones are Germany, France, Italy, Austria and Czech Republic. Spain, Portugal, Greece and the rest of NMS have much lower shares (PAC Report D2, 2009).

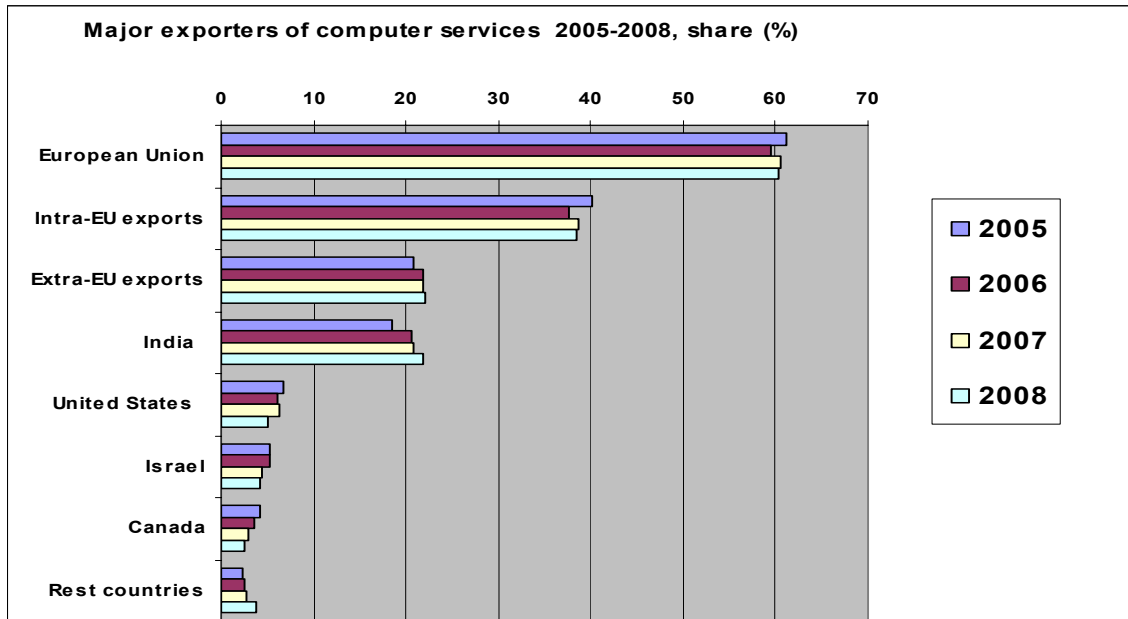
Computer services and software are knowledge intensive high tech services with intensive R&D investments in human resources. In 2007 about 3,01 million people were employed in computer services (fig.1). The studies on the employment in ICT services show that approximately 50% from the employed in the sector work in computer services and software. The regional structure of the EU computer services employment outlines that in the leading countries Great Britain, Germany, France, Italy work more than the half (or 61%) of the employed in the sector and when are added Spain, Netherlands, Sweden and Poland, their share increases to 82%. Although with small percentage from the total employment in the sector, the employment in this field marks significant rise in particular EU countries – Ireland, Romania, etc.

Labour cost is the primary driven force in the geographical shift of production and services. As for the variable “wage adjusted labour productivity” almost all the NMS have values above the average for EU27 (130%), with the exception of Hungary and Estonia which have lower values. This fact contributes to NMS attractiveness as sourcing destinations. On the other hand, presence of highly skilled specialists in these countries cuts the expenses for R&D investments in human resources.

#### **4.2.2 EU was still a leader in the world trade of computer services in 2008**

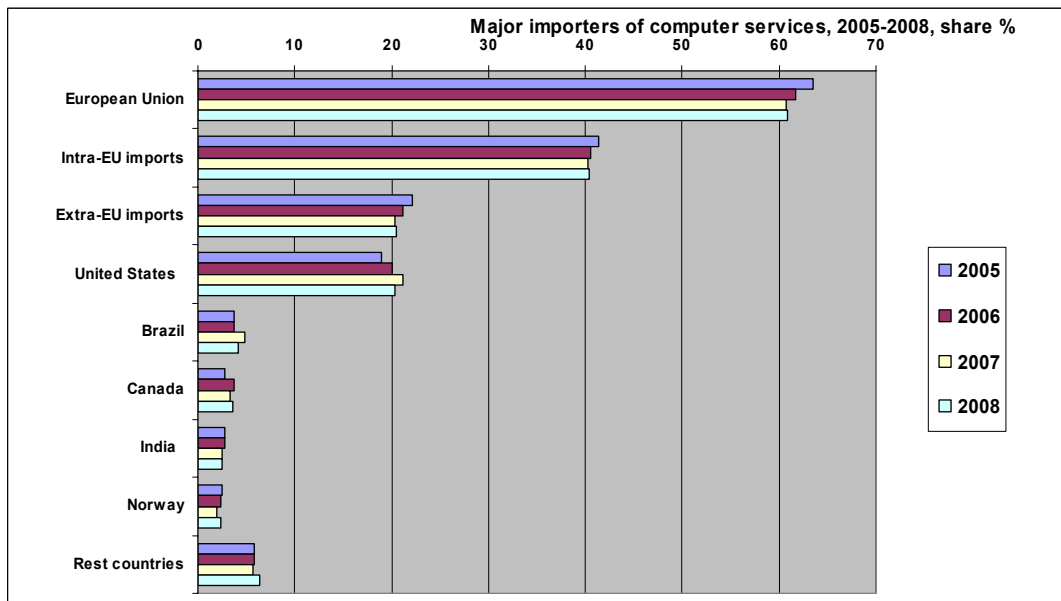
The world trade of computer services marks a growth and in 2008 it reported a turnover of 232.5 billion dollars, as the export is rated at 157.5 billion dollars, and the import – at 75 billion dollars (WTO, 2010). The world structure of computer services trade shows that the main participants of the world market do not change their positions significantly during 2005-2008. EU takes the leading position with share of 60%, as about two thirds of them is due to the intra-EU trade. Till 2008 the absolute values show that computer services export increases in almost all countries, except for the USA where some decrease occurs (fig.2). India, which ranks second world exporter, diminishes the difference with extra-EU export from 2.1 billion dollars in 2004 to 0.2 billion dollars in 2008.





**Figure 2. World export structure of computer services** Source: WTO data, 2010

In the structure of world import insignificant changes are registered in 2004-2008 (fig.3). Hence, the absolute values evidence that import increase for EU is about 1.6 times, for USA, Brazil and Canada – about twice. The lowest is the increase for India – only 0.7.

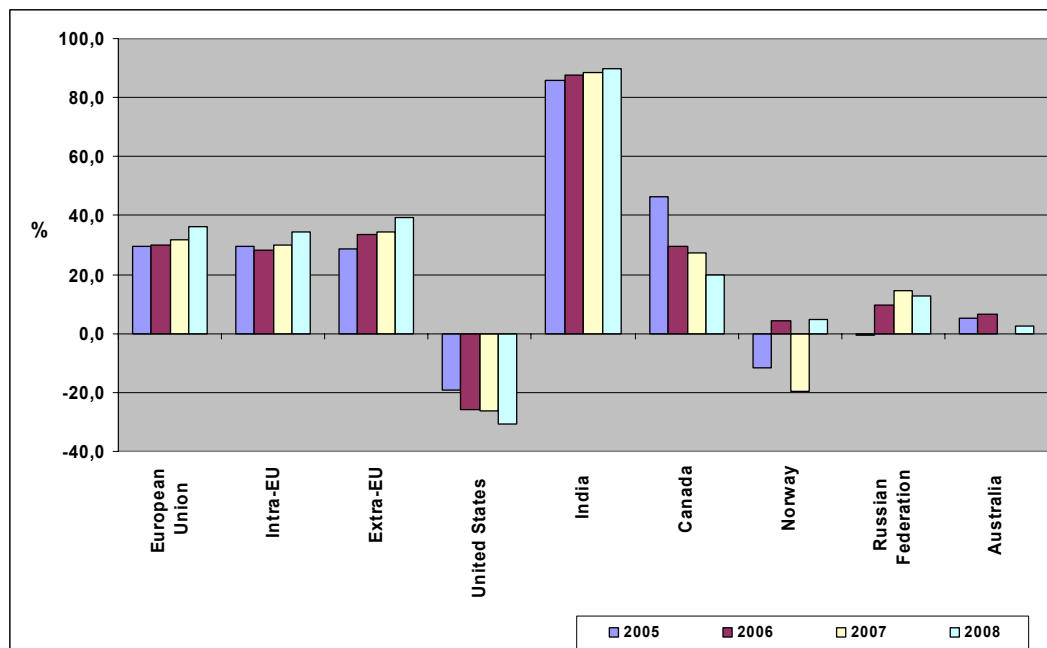


**Figure 3. World import structure of computer services**

Source: WTO data, 2010

The importance of intra-EU trade in terms of value and of weight of computer services confirms the statement of strong integration of the regional European market in the sector. In 2008 the active trade balance of EU 27 increases with 127% (51.6 billion dollars), as intra-EU trade balance grew with 100%, and extra-EU trade balance with 152% compared

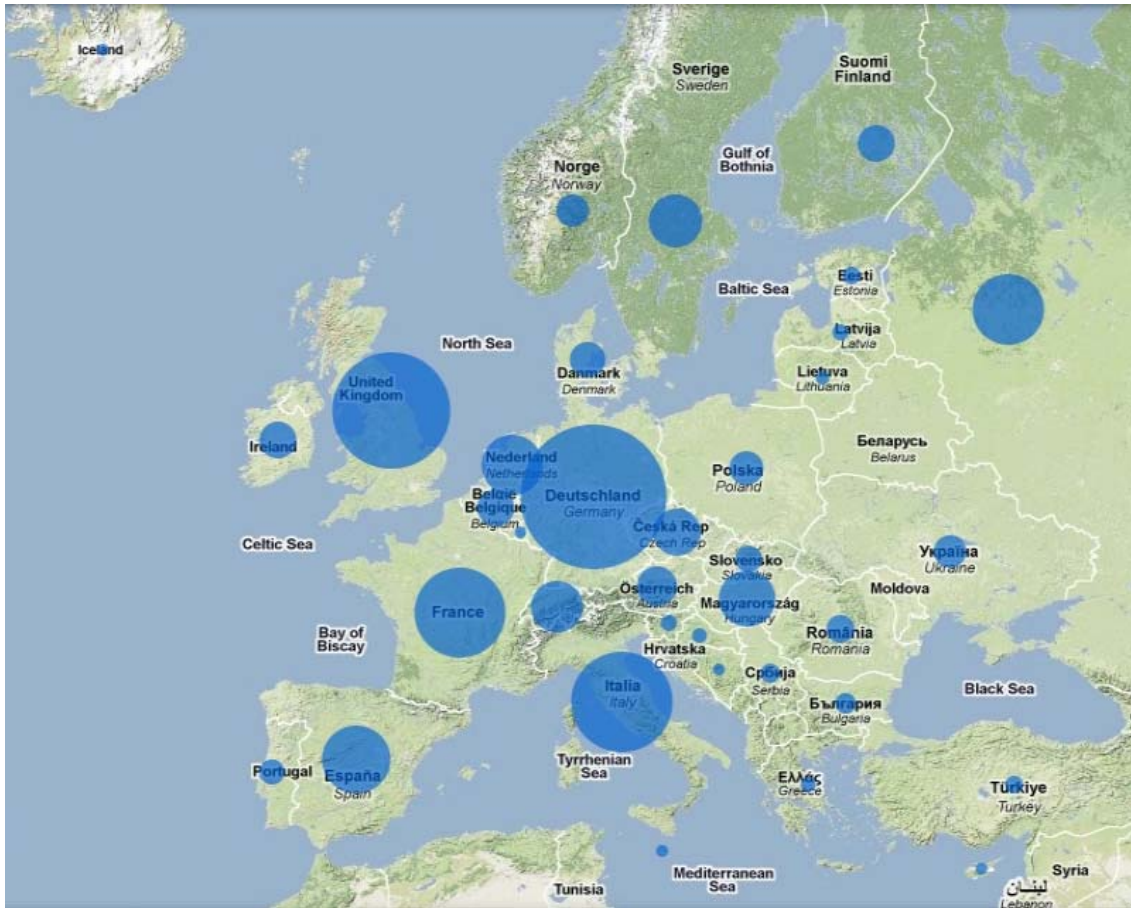
to 2005. The asymmetry of trade of main world regions and countries is presented on figure 4.



**Figure 4. Asymmetry of trade of computer services** Source: WTO data, 2010

#### 4.2.3 Territorial organization: clusters and hubs

Some scholars define the area of regional concentration of ICT services in West Europe as 'blue-banana of Europe'. It includes South UK, BENELUX, and Denmark, the region of Ile-de-France, France and West parts of Germany, North Italy and Spain. ICT services industry has formed clusters around large cities, and powerful TNC are the core of these clusters. Well developed ICT clusters in OMS are KISTA, Stockholm (Sweden), Baden Württemberg (Germany), London, Oxford and Cambridge (UK), the regions of Madrid and Barcelona (Spain), Oulu (Finland). The largest software cluster is the area of Dublin in Ireland (Irish cluster). In recent decade new ICT clusters have been established in the NMS, for instance, in Poland – Masovetzko Voevodstvo, in the Czech Republic - Prague, Hungary - Kozep-Magyarország. In Romania and Bulgaria the most developed regions in terms of computer services are the regions of capital cities (FWC Sector Competitiveness Studies, 2009). The map shows the distribution of employees in IT services in Europe (fig.5).



**Figure 5. Distribution of employees in European IT services in 2009**

Source: European Cluster Observatory, 2010

The recent trends in space organization of some global industries are hubs, which 'are open to the full force of global economy, both positive and negative, in ways that clusters are not. Hubs learn faster and more broadly, but experience the turmoil of globalization more actually than places that are less connected to the global chains.' (Gereffi *et al*, 2004).

The sector is highly labour-price sensitive. It needs R&D protection and data security, political stability and national security (PAC Report D2, 2009). In this context the CEE countries are attractive as sourcing region. Although they have small shares in EU27 software industry, experts have foreseen better growth rate of almost 100% than in OMS in next couple of years ranking NMS attractiveness at the third place after India and China (PAC Report D2, 2009). Hungary was excluded of some of these prognoses because of its fiscal problems

#### 4.2.4 European Software Chains

Two general kinds of software are defined: package software and custom software. The high value added activities are conceptualization and architecture of the product which are implemented mainly in home countries. The lower-value added activities as application development and maintenance, coding, testing, and sales and after sales services are objects of off-shoring. The research on software offshore outsourcing outlines that the trend of more R&D activities is intensified in recent decade. The largest R&D department of SAP Laboratories in CEE countries is in Bulgaria with 500 employees, while this one in Hungary

employs only 50 persons. (Aggarwal *et al*, 2008). The software companies take different positions within the value chain, depending on the production/service tasks they accomplish. The differentiation between particular software production and services is difficult to be recognized in most of the cases because the firms perform a whole set of software activities.

Europe attracts much FDI in the computer services - the biggest investor is the USA, followed by India. China invests in Europe mainly in ICT goods, not in services. EU is a large software services market and that is the reason why USA firms invest in Europe. Large TNC establish hubs for software marketing, maintenance and support in host regions, or close to the markets in order to organize sales and after sales services within the region.. Hewlett Packard established such hubs in Germany and UK, later it lessened the number of employees there and replaced jobs to lower labor cost in countries as Ireland and Bulgaria. The inner EU relocation is due to the big wage gap between labour costs within EU countries.

The recent studies on the Ireland's software industry explain its significant growth with the large amount of FDI from USA origin in the sector. About 90% of software firms are USA ownership, and this means that higher share of the profit goes into the USA. In terms of GVC Ireland implements low value added activities related with the final stages of production and services while the high value added activities remained in the USA. This fact confirms the asymmetry of distribution of value within the chains in which the Irish firms are involved. The low position of Irish firms led to increase of their vulnerability to the global challenges in the sector.

The research on software outsourcing outline that firms are becoming increasingly willing to entrust core activities to their offshore subsidiaries. Since the end of 90s the trend of offshore outsourcing of more R&D activities in the sector is intensified. This mode of relocation implemented by large TCN as HP, IBM, and SAP Laboratories is followed by middle-sized firms in the sector. The largest R&D department of SAP Laboratories in CEE countries is in Bulgaria with 500 employees, while this one in Hungary employs only 50 persons. (Aggarwal *et al*, 2008).

Factors which have an impact on the localization of software are the availability of highly qualified labour force and the options for cost savings. – The sector is highly labour-price sensitive, R&D protection and data security, political stability and national security (PAC Report D2, 2009). In this context the CEE countries are more attractive as sourcing region. Some of the important features of CEE countries are also the growth of their national markets, where public procurements play key role. Although they have small shares in EU27 software industry, experts have foreseen better growth rate of almost 100% than in OMS in next couple of years ranking NMS attractiveness at the third place after India and China ( PAC Report D2, 2009). Hungary was excluded of some of these prognoses because of its fiscal problems after 2009.

The high volume of intra-EU trade is due to the FDI flows and outsourcing/insourcing of production within EU members. The survey<sup>3</sup> of 190 software firms in five European countries (UK, Greece, Poland, Bulgaria and Estonia) has demonstrated that outsourcing/insourcing relations prevailed FDI flows both in OMS and NMS. The UK and Poland showed high extent of involvement in software production networks and chains, followed by Estonia and Bulgaria. Greece had very limited performance on the European map of software industry.

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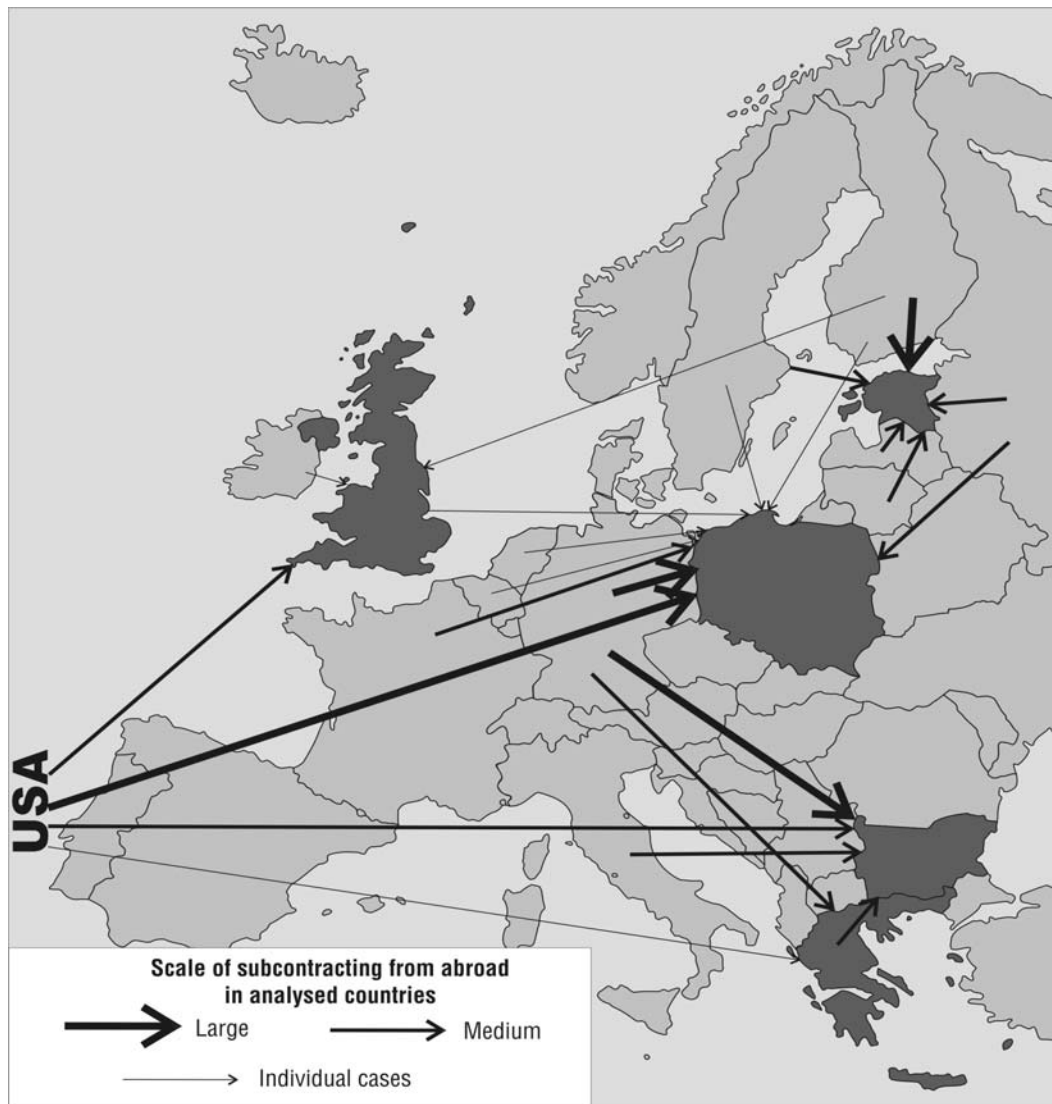
<sup>3</sup> The field survey was implemented in 2005 under project 'Moving Frontiers: Changing Geography of Labour Intensive Industries', funded by 6<sup>th</sup> FP, EC (MOVE project)

FDI were presented by 32 % of all firms. Main FDI flows to the UK, Poland and Bulgaria originated from USA and Germany, and main FDI flows to Estonia were from Sweden and Finland (fig.6). The NMS attracted larger FDI and insourcing in software. UK and Greece were less attractive for FDI, but they outsourced production and had established subsidiaries abroad. Half of UK firms had subsidiaries abroad. The largest share of FDI had Poland, where foreign companies were 66% of interviewed companies. Second was Estonia with 29%. Half of the UK firms outsourced orders abroad (off-shoring outsourcing). This share for Poland, Greece and Estonia ranged from 20% to 25%, and it was only 4% for Bulgarian software firms. There were individual cases of CEE firms which invest abroad. For instance, big Polish firms invested in Russia, Ukraine and Czech Republic, and one Bulgarian firm invested in Vietnam (Guzik *et al.* 2008).

The survey outcomes substantiated that 72% of the firms undertook orders from abroad (insourcing), and this was more relevant to the firms in Bulgaria and Greece, and at a smaller degree - to the firms in UK, Poland and Estonia. Subcontracting from abroad was essential for 98% of Bulgarian firms and 75% of Greek firms. Firms implementing subcontracting orders maintained bigger number of relations with customers (4-5 per firm) (Guzik *et al.* 2008). Thus, they avoided the risk which might follow from suspended relations. Cross-border effect was observed in cases of Poland-Germany, Estonia with Sweden and Finland and Bulgaria-Greece (fig.7)



**Figure 6. FDI flows of analyzed countries** (Guzik *et al.*, 2008)



**Figure7. Subcontracting flows from abroad to analyzed countries** (Guzik *et al.*, 2008)

About 15% of firms had subsidiaries abroad and 20% outsourced tasks abroad. These two forms of organization of production were performed by the UK firms mainly.

Analyzing upgrading impact or shift to higher value added activities, Guzik *et al.* pointed out that there was no different upgrading impact between different modes of delocalisation. More than a half of the companies considered that they upgrade. The upgrading process was a shift from software development to consulting, from simple code writing to implementation of whole projects (Guzik *et al.* 2008).

The participation in the global production networks for two thirds of the firms has led to increasing of their turnover. The biggest share (above 60%) of interviewed firms estimated that the impact of delocalisation was positive in terms of turnover and profits. The growth was more significant in NMS. The firms from Poland and Bulgaria have increased their profits. There were no changes for almost the half of the Greek firms. A few companies reported for slight decrease of turnover and profit due to their involvement in global/regional software chains (Guzik *et al.*, 2008).

An important question is the share of export on subcontracting base, which presents the degree of dependence by foreign buyers. According to the survey data the export consisted of 40% from the software firms' production and 56% from it was on the basis of subcontracting. These proportions differ by countries. Polish firms exported 56% of their production and 66% of it was on the subcontracting base. The UK and Bulgaria exported 34% of their production, but the subcontracting was 56% of the Bulgarian export and 0% of the UK export. Greece and Estonia exported around 25-27% of their production, and Greek export consisted of 81% subcontracting. The subcontracting proportion in the Estonian export is the lowest one – only 33%. The firms reported that about 20% from their production were intermediate products (Guzik *et al*, 2008).

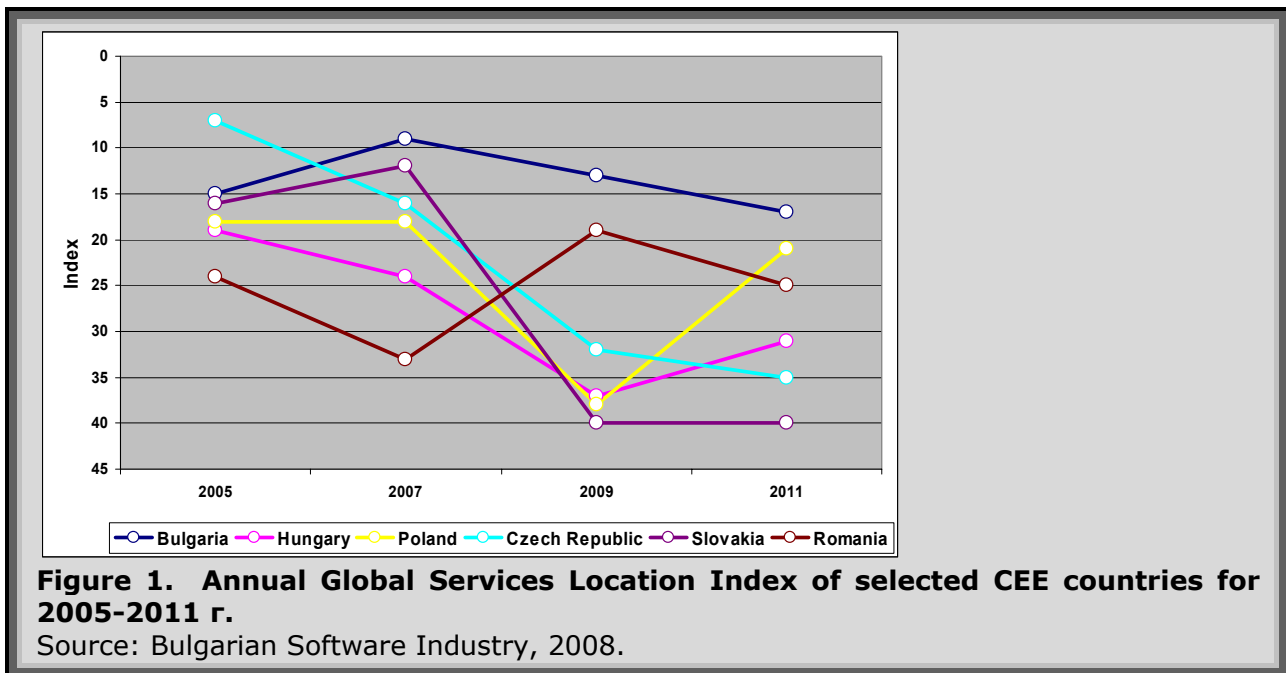
Companies from all five countries estimated that they were preferable partners because of the high-qualified staff, reliability and appropriate technology. Low labour cost was ranked at the fourth place, but it has remained important for one-third of the firms.

Firms from home and host countries have underlined that the sector needs more new markets and growth than cost savings. The delocalisation has not caused a decrease of employment in home countries and Guzik *et al*. have concluded that the process has to be defined not as relocation of activities but as a business extension (2008). India is producing standardized software and it is not a competitor to NMS, which are specialized in custom solutions and software services. NMS are attractive sourcing and market locations of European software, where the most important factors than labour cost are high-qualified labour force, and creativity, reliability and trust. The political and fiscal stability of these countries are important for development of the sector, except Hungary recently.

Recent challenges of globalization/regionalization and its impact on CEE countries require updating of GCC/GVC analyses of software with sufficient details about evolution of forms of delocalisation and their embeddedness effect as well as about employment issues as quality of jobs, working conditions, development of local competences, etc.

#### **Computer services and software in Bulgaria**

IT development is one of the priorities in social-economic development of the country in the last decade. Bulgaria is among the preferable East-European countries for off-shoring of software services. The country ranks eighth in the world on the index absolute number of certified IT specialists and third on relative share at the beginning of 21<sup>st</sup> century. In 2006 Bulgaria for the first time was listed in A. T. Kearney Global Services Location Index. The study includes 40 countries, selected on the basis of corporate input, current remote services activity, and government initiatives to promote the sector. Bulgaria is ranked 15 for 2005, and 17 for 2011. Despite this lowering of position, Bulgaria retains its better indexes in comparison with CEE countries similar in economic development. It leaves behind countries like Poland, Hungary and the Czech Republic, which have already won recognition. The gradual trend of assessment change compared to sharp fluctuations for the rest countries shows a relative stability of this sector.





The comparison of key economic indexes shows a significant growth in the sector development for the period 2000-2007. The number of enterprises in the sector has increased with 54%, and of the employed with 222%. The turnover has increased almost 5 times, and value added at factor cost has risen 8 times (EUROSTAT data). As a consequence from the global financial crisis, in 2008-2009 the sector reported a decrease in turnover and revenues. According to an expert evaluation, in the sector export structure based on destinations the EU share is 74%, and US share is 26%. The software services are more than a half of the export, and the software products are over ¼ from the export of the computer services. The largest investments in the sector were done by Germany (SAP, Software AG, Nemetschek AG) and the USA (HP, IBM, and Tumbleweet).

In 2007 the number of companies operating in software (NACE 72.22) was 275 and 38% of them are off-shore companies. There were 25 local R&D centers of foreign companies and only 15 firms sold their own products abroad. Revenue from software industry accounted for €57 million in 2007 and it increases twice in comparison with revenue in 2001. The prevailing part of Bulgarian firms for software and computer services are small and medium of size and more of them have been set up in 90s, whereas the foreign firms are big – HP (more than 1200 employees), SAP (over 500 employees). According to the national statistics, the number of employees in IT services are 14 800 and the employees in software are 5 600 persons (2009). In this sector there is a large number of temporary employees who are unregistered by the statistics, thus the experts have assessed the real figures with about of 25-30% higher.

**Findings from firm survey 2005.** A survey shows that USA, Germany, Great Britain and Netherlands off-shored the largest orders to Bulgaria. FDI were concentrated in big towns – Sofia, Plovdiv and Varna. The most important reasons of off-shoring to Bulgaria were the highly qualified specialists, their innovative and creative way of thinking, as well as the certified firms having capacity to accomplish big and full-scale projects.

More than half of the firms exported software at 100% subcontracting base. Software firms were dominated by SME, working as second and third layer subcontractors to bigger software firms in the country. The survey showed that 63.8% of the firms were part of international subcontracting networks and 27.6% were part of national subcontracting networks. Firms estimated their own advantages in getting orders from foreign partners ranking the reasons as follows: 1 – Expertise, 2 – Reliability, 3 – Appropriate technology/equipment and 4 – Low labor costs. Continuous improvement of quality and decrease of expenditures were envisaged by firms as a response to the global competition. Due to the foreign orders 62% of firms increased their revenues and profits, and there were no change for 28% of the respondents.

Despite the significant increase of labor costs in the branch during the recent years, the Bulgarian software firms still gain from globalization. Bulgaria is a preferable partner for accomplishment of custom software and software applications, requiring highly qualified expertise and secure reliability. The domestic market of IT services is fast developing.

### 4.3 Case study on Textile and Clothing sector

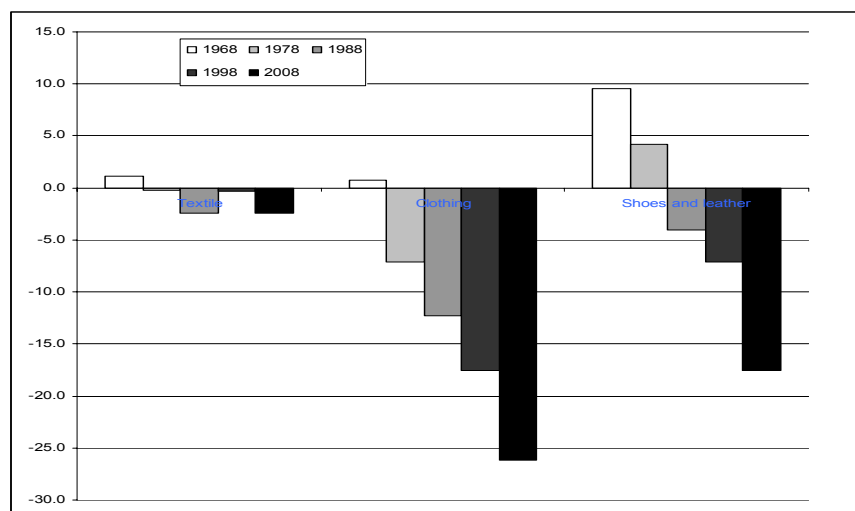
Global challenges which EU textile and clothing (TC) industry faced up became stronger after liberalization of trade in 2005. Quota removal was followed by a range of non-tariff measures taken for protection of European producers against market penetration of big world producers (China, Turkey, India, Pakistan, etc.). The changes in geography of European textile manufacturing dated since 1970s and after 1990s they were intensified by quota restrictions (GATT, MFA, and ATC). Special importance for changes of division of labour in TC industry within EU had the outward processing trade (OPT) and preferential bilateral trade agreements.

The TC sector was between manufacturing sectors affected severely by the global crisis. One of the reasons was the high interconnectivity of the industry globally and at EU level, but the more important one became the national features and parameters of the crisis. EU 27 TC industry has manifested continued decline in terms of economic performance and jobs since 2000. In 2007 about 218, 000 enterprises operated in TC sector, the turnover was accounted of € 197,600 million and there were 2, 370, 000 employed persons. Since 2004 the sector lost half a million jobs until 2007. For the period 2000-2008 the average annual rate of decline of the TC production and employment was between 4.2% and 5.5% respectively. The negative consequence of the global crisis was the registered double digits slump (turnover, number of enterprises and employment, production, orders) of TC in 2009 in comparison with 2008. Since the beginning of 2010 a slight recovery was registered.

In 2008 the EU 27 takes second place in world clothing export with 31% after China and it is a leader with 37% of the world import of clothing. In the EU 27 external trade of TC the shares of textile is 24% and of clothing is 76% of the import and 53% and 47% of the export respectively (2009). Since 2005 the passive trade balance in EU 27 external trade has extended with 24% in 2009 and it has reached € 44, 5 million, where textile participates only with €1, 5 million and clothing has the rest € 43 million. The 'single market' is well presented in EU clothing by high shares of intra-EU trade to the EU27 trade of clothing, where the intra-EU import is 48% and the intra-EU export is 75%.

China is the main supplier of textile and clothing to EU27 with shares of 28% and 45%, respectively. For the period 2005-2009 China has increased its import of textile with 17% and much significant is the increase of 51% for the clothing import. Many other suppliers from Asia as Bangladesh, India, Vietnam and Sri Lanka have also increased their clothing import to EU 27. During the same period the import from the Euro-Mediterranean zone – Turkey, Morocco, Tunisia, has diminished. These trends are due to the removal of trade quota restrictions in 2005 mainly. The decline of textile export of EU27 is measured of 16% in 2009 to 2005. Slight growth of 2% is accounted for extra-EU clothing export (2009/2005). Traditional markets as USA and Japan dropped and they were replaced by growing new markets – U A Emirates, Russia, etc.

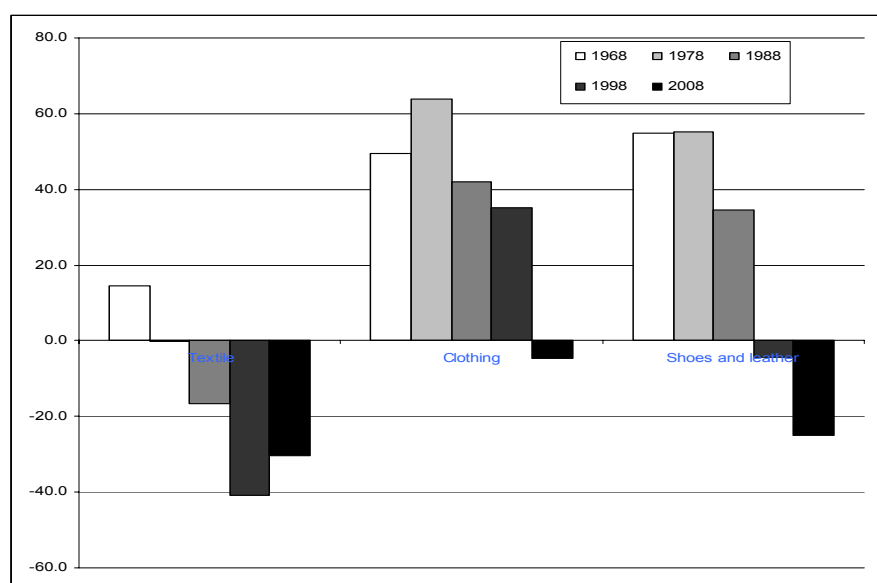
Measuring the asymmetry of trade, the position of Western and CEE countries in textile and clothing trade, it makes no doubt that Western Europe has a more and more negative balance on clothing and shoes, while for textile, the trade remains balanced (fig 8, fig 9). The picture is rather different for Eastern and Central Europe which is slightly positive for clothing in 2008, while more negative for textile. The intensive direct and indirect off-shoring of labour intensive clothing production toward CEE countries explain the more and more negative balances of Western Europe. While the diffusion from core West- European countries has shortly benefited the peripheral CEE countries in the nineties – at least in some countries, the cost of labour made this off-shoring production process rapidly less profitable (on average) for the West-European clothing firms.



**Figure 8. Asymmetry of trade for Western Europe, 1968-2008**

Note: Asymmetry is the ratio between the balance of trade (X-M) and the total trade (X+M) in the sector

Source: CHELEM-CEPII, 2010.

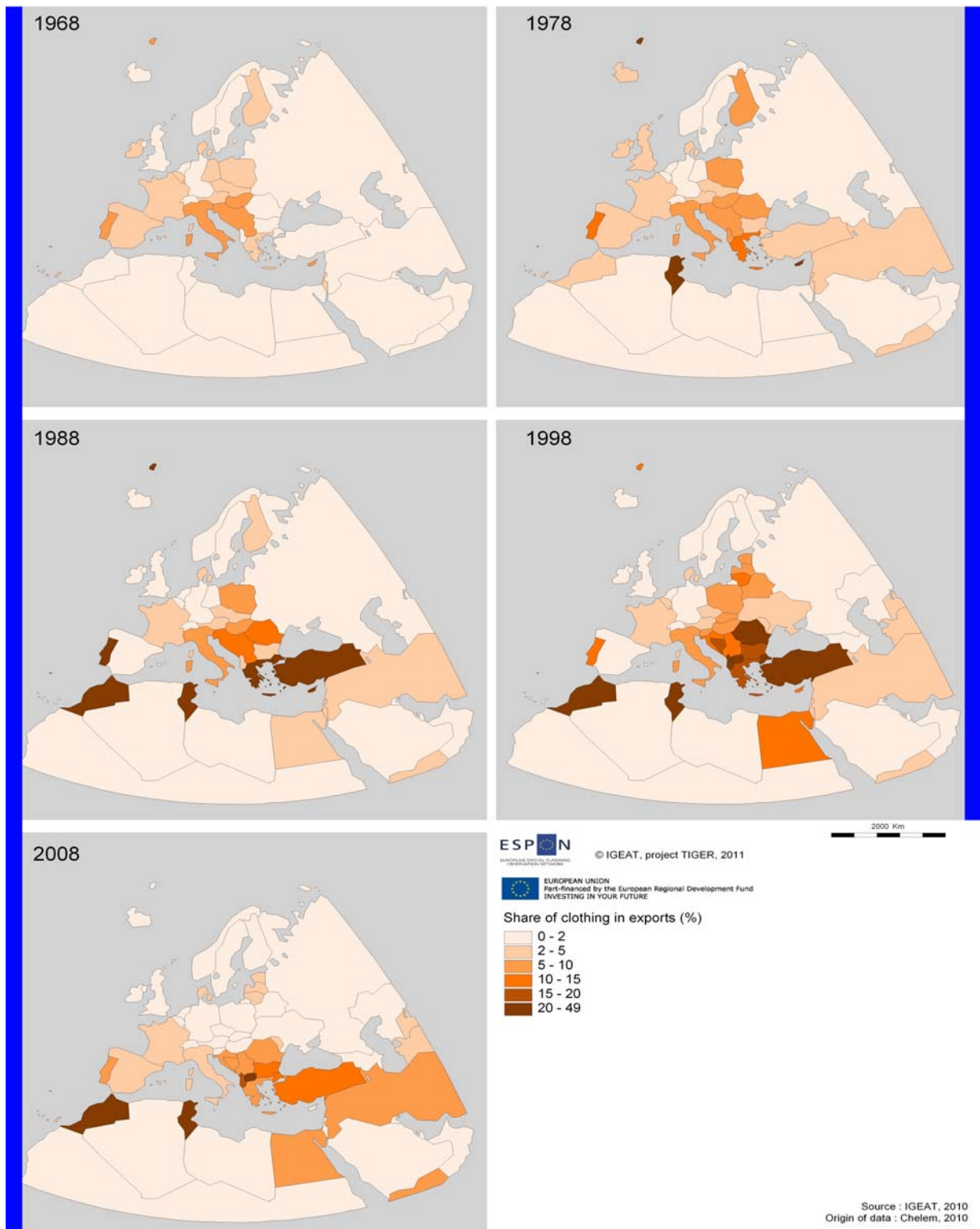


**Figure 9. Asymmetry of trade for Central and Eastern Europe, 1968-2008**

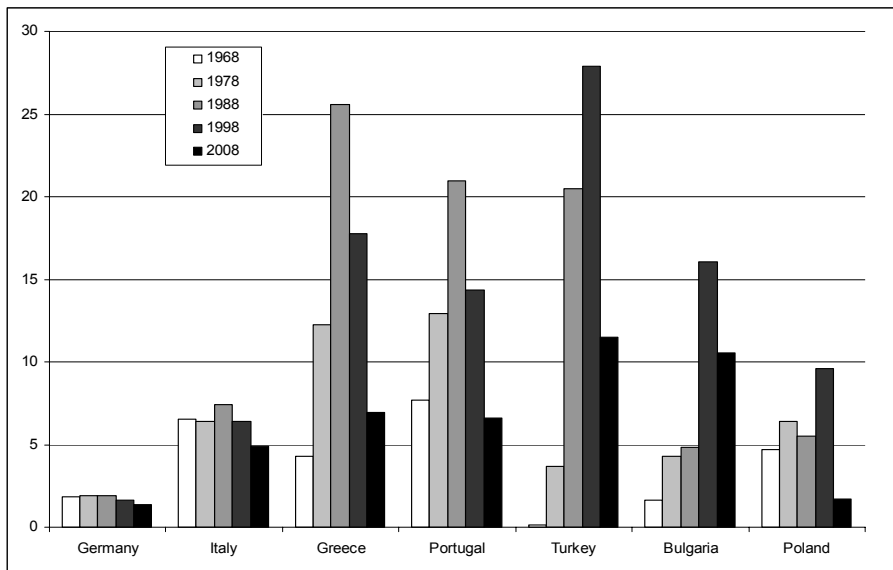
Source: CHELEM-CEPII, 2010.

The process of diffusion toward periphery shows the geographical shift of export specialization in clothing for European countries since 1968 (fig.10). While core countries were already weakly specialized in clothing industry in 1968, Mediterranean countries – except Spain – benefited from a growing specialization in clothing until 1988, after while more peripheral countries of the Euro-Mediterranean space benefited from relocation, notably in the Balkans and in Northern Africa. Morocco, Tunisia, Turkey and some Eastern Europe reach their specialization peak in clothing industry in 1998. But in 2008, all European countries marked a decline in their specialization in this industry in favour of South and East Asian countries.

In this general picture, the position of Italy is atypical. On the whole period, Italy remains specialized and with positive trade balance in the clothing industry, despite a moderate decline since 1998. The dynamic clothing and textile clusters of the so-called third Italy have been able to remain competitive despite high cost of labour. The Italian industry's strategy is the relocation of production activities, while conception, design and trade circuits are still controlled by Italian firms. Also, the Italian industry has favoured high value added and luxury clothing abandoning the mass production.



**Figure 10. Specialization in clothing industry in the Euro-Mediterranean area, 1968-2008**



**Figure 11. Specialization in clothing industry (share of total trade) for selected European countries, 1968-2008**

The clothing specialization does not play a significant role in the total trade of Germany and Italy as they are developed countries (fig. 11). Their indexes of clothing industry specialization decrease slightly in comparison with the sharp drop in the other countries. The slight trend might result from the spatial distribution of clothing production tasks by value. The low-value added clothing production is typical for the rest of the countries – Greece, Turkey, Portugal, Poland, which are more strongly affected by non-EU competitors.

### The regional specialization in textile and clothing industry

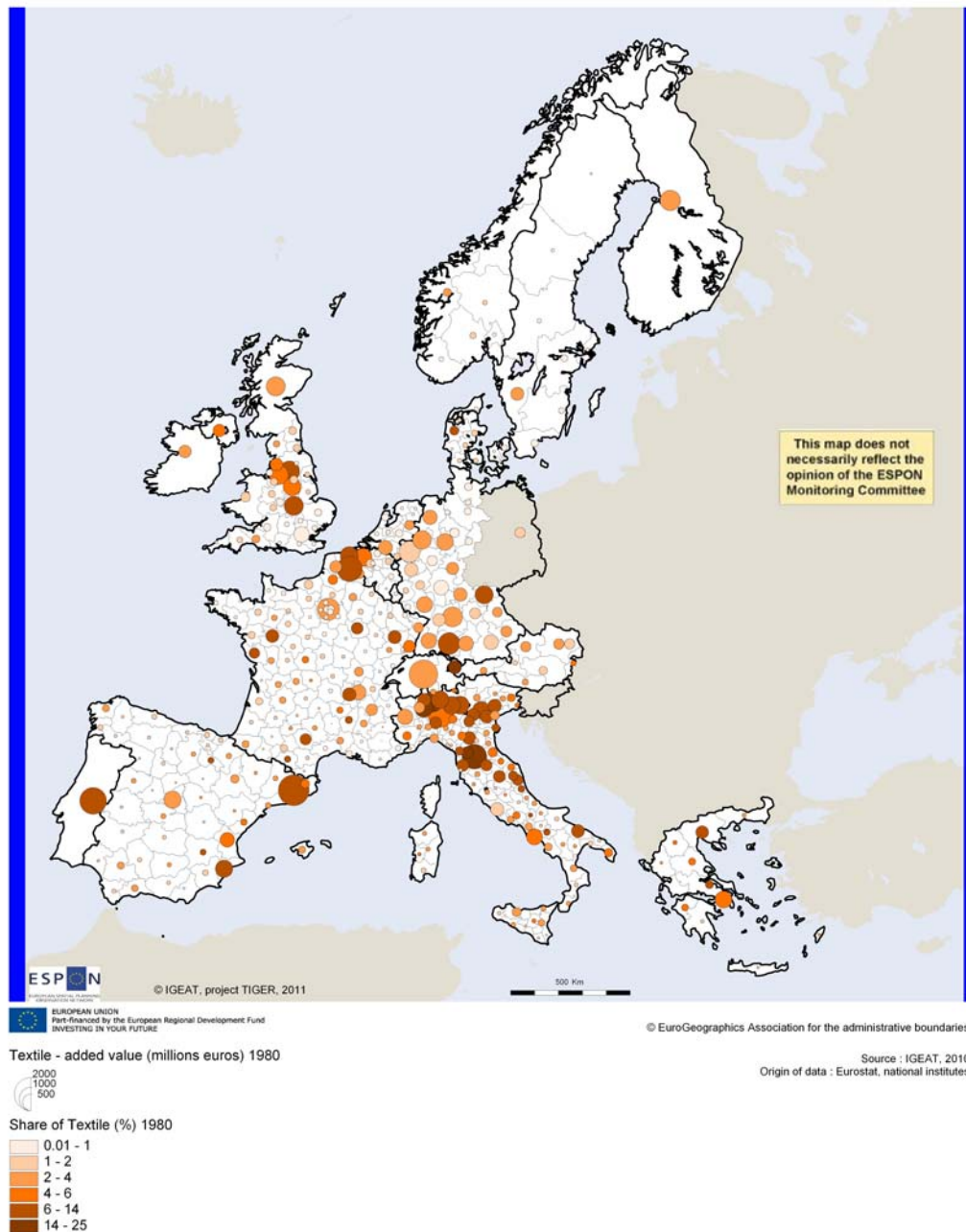
At regional level, textile and clothing production are highly concentrated in some regions (fig.12). The textile/clothing regions are often characterized by dense networks of interconnected small and medium firms in an innovative environment. They constitute typical Marshallian districts: Norte Portugal, Western Flanders, Third Italy districts such as Prato, the Choletais area in France etc. Interestingly enough, in the map of 1980, we still observe old textile industrial regions such as Northern England and Nord-Pas-de-Calais. But these areas have declined more than dynamic Marshallian districts.

Looking at the map of 2004, the picture is rather different than the one on trade because the industry is still highly concentrated in some Western regions, notably in third Italy. We can also notice that some areas, weakly specialized in textile/clothing industry are nevertheless of major importance: this is notably the case for Milano, Paris and London as well as Barcelona, which are big fashion centres.

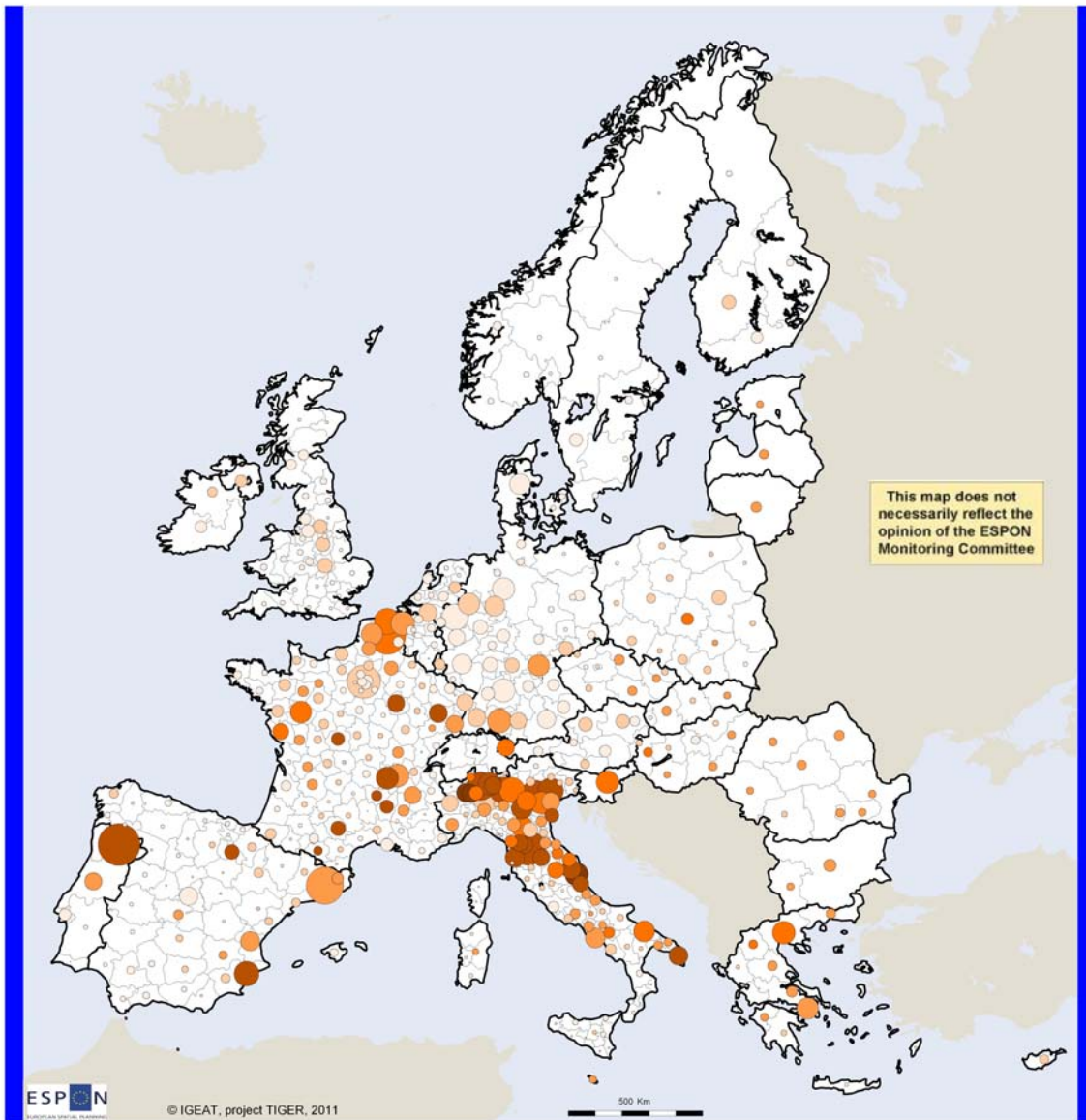
However, it makes also no doubt that the decline of the activity has been very rapid between 1995 and 2004, hitting nearly all regions. The liberalization of trade severely hits the European textile and clothing industry. In such a sectoral crisis context, some Marshallian districts resist better than others but nearly all lost employment and added value in the sector (DG Regio report, 2008). Several regional strategies can be distinguished in this crisis context. Economic diversification is of course the most efficient strategy: the Kortrijk area in Belgium for example has for long diversified its economic structure through a horizontal diversification to other sectors (such as furniture or agro-business) and toward business service activities recently, and textile shift toward higher added value activities through technology upgrading. In the case of Norte Portugal, the diversification and upgrading strategies has limited impact and the region seems to suffer

from an in-between position, unable to compete with other Western regions on technological segments but also unable to compete with Eastern or Asian regions because of higher labour cost.

Although the shrinkage of industry is registered all over the EU, between 1995 and 2004 the decrease of textile and clothing specialization in some regions did not necessarily led to reduction of the absolute value added figures. This is relevant for regions which have succeeded to keep their textile production and high value added activities in clothing relatively stable. Despite massive relocation of clothing production, the industry added value is still concentrated in Western regions, which continue to have control over the value chain.



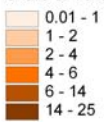




Textile - added value (millions euros) 1995



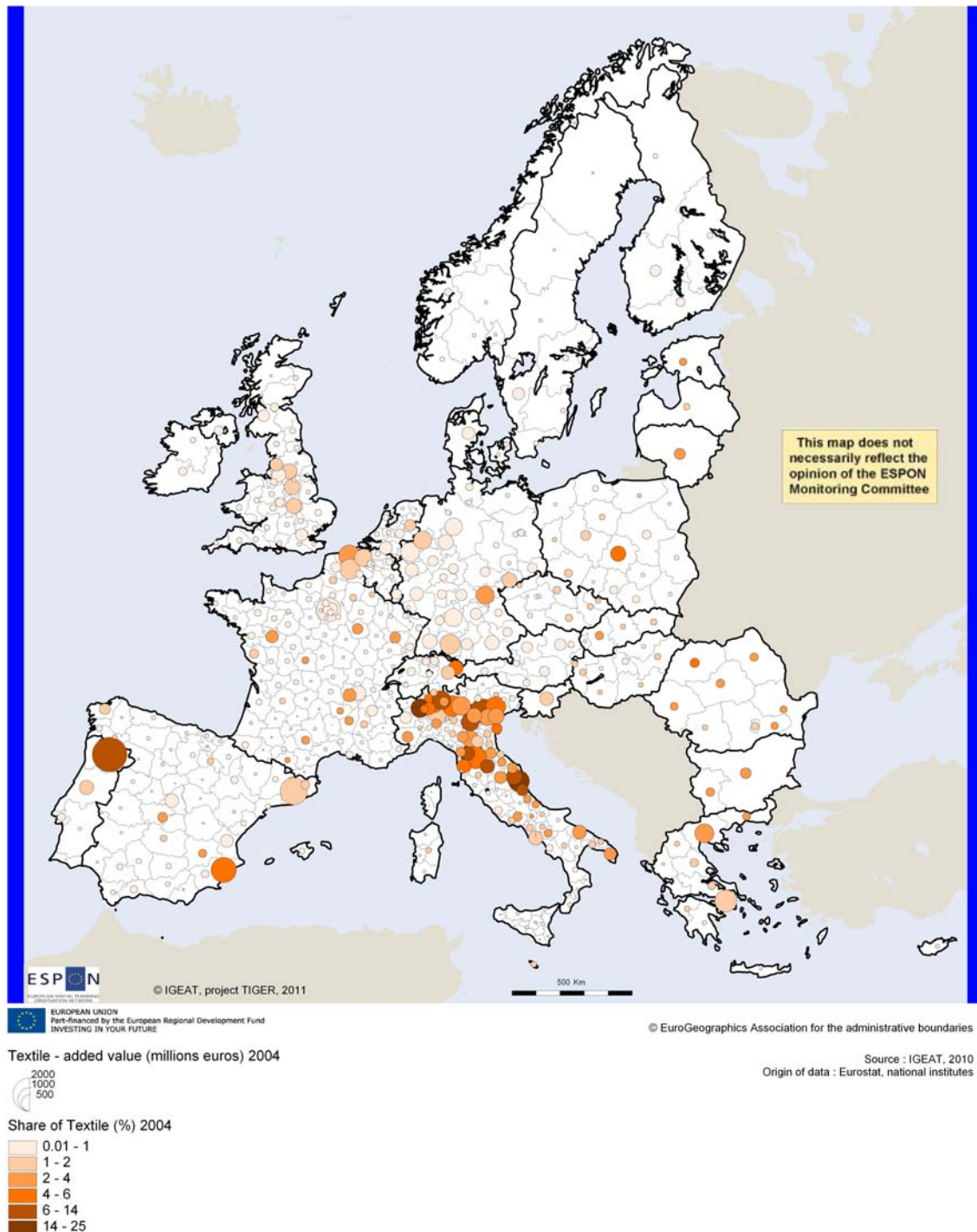
Share of Textile (%) 1995



© EuroGeographics Association for the administrative boundaries

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



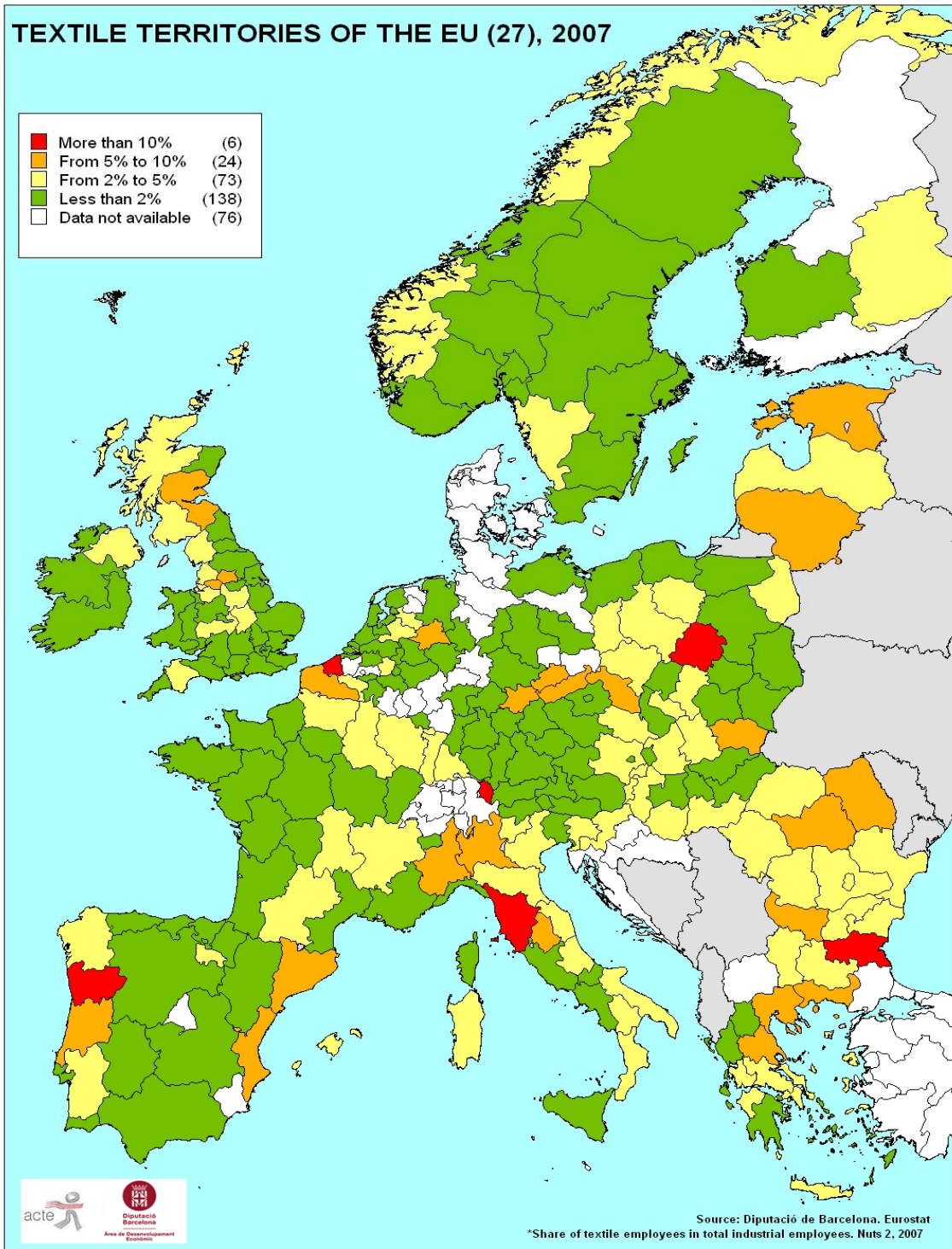


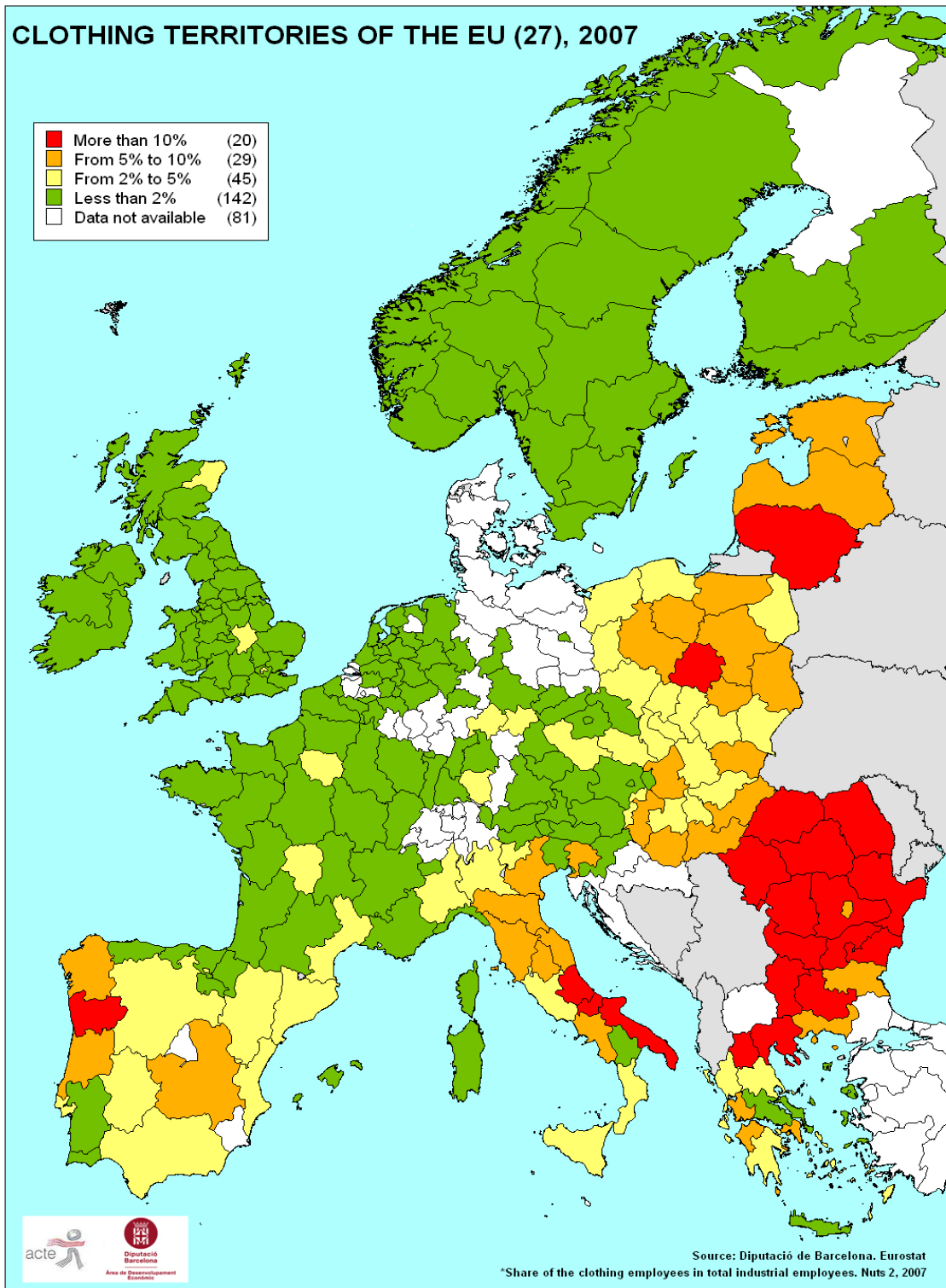
**Figure 12. Added value in textile and clothing industry by region in Europe, 1980-1995-2004**

Note: Added values in 1980 are in current Euros (ECU). You can only compare the relative size of the circle. Added value in 1995 and 2004 are in constant EURO 1995.

The regions specialized in clothing production and with high level of employment in it are more vulnerable to delocalisation of production, because they are less developed and have limited options to respond to global challenges. The delocalisation impact was not only a

decrease of employment but it led to vanishing of the sector in many regions of OMS (Herning-Ikast area in Western Jutland (Denmark), Prato district, etc.). In the spatial distribution of the employed in the EU clothing, Italy and Romania have the highest weight with 19% and 18%, the next are Poland and Bulgaria with 12% and 10% (Eurostat data 2007). The clothing industry as labour-intensive one is more significant in terms of regional employment than the textile industry (fig.13). In 2007 twenty EU regions (NUTS 2) had a share of clothing to manufacturing employment more than 10%. Only six of them were in OMS (North Portugal, North Greece and South-East Italy), and the rest 14 were regions of NMS (almost all regions of Romania and Bulgaria) (fig.13). These NMS regions show higher vulnerability in terms of further relocation of clothing jobs. In EU textile this is relevant for only six regions, and two of them are in NMS.





**Figure 13. The importance of textile and clothing employment for EU 27 regions (2007)**

## **European Clothing Chains**

The high concentration of power within clothing value chains as buyer-driven ones is on the top of the chain, where marketers, branders, manufacturers, and retailers compete with each other. The distribution of value is related with the following groups of activities: high value added activities are design and product development, distribution and marketing; the low value added activities are production activities (from assembly to full package production). The high value added activities require special competences and they have high entry barriers because of the huge concentration of the top of the chain (Gereffi *et al*, 2003). The upgrading options for the most part of companies involved as producers exist within the production activities and functions. European clothing chains show clear separation of tasks between OMS and NMS. The high value added activities remained in OMS and the lower value added jobs were moved to CEE countries. Some European global buyers export some high-value added activities to East Asian countries in recent years, and this is not a practice in relations with NMS.

The main push factor in relocation of clothing production from OMS to CEE countries was OPT, which dated from the beginning of 80s. OPT had significant impact on the EU division of labour continued during the first decade of the 21 c., although it experienced at the end of 90s formally (Smith *et al*, 2005). The OPT support Western buyers to improve their competitiveness through cost savings. The labour costs account above 50% of the production costs in clothing and their diminishing remains an important task. Recent studies outlined that the market imperatives set up factors as high quality of production, short delivery time and labour standards. The countries sourcing clothing production from NMS were Germany, UK, France and Italy mainly.

The widespread form of relocation of production tasks from OMS to NMS is subcontracting. In some labour intensive industries in NMS the share of firms which insourcing production tasks exceeded 80% of all branch companies. CEE firms operating as subcontractors are more often involved in regional rather than global chains and the producer-producer OPT relations prevail over retailer-producer relations in the European labour-intensive industries which restricts firm's ability to obtain knowledge and to upgrade (Pellegrin, 1999; Bair, 2006; Pickles *et al*, 2006).

CEE clothing producers work mainly as subcontractors participating in a lot of regional production networks where they implement distinct by kind and by value production tasks (Pickles, *et al*. 2006, Smith *et al*, 2005). FDI and joint ventures are presented by a few number of CEE firms (Smith, *et al*, 2005, Pickles, *et al*, 2006). Most of the recent operating JVs and FDI in labour intensive branches in CEE are based on previous subcontracting relations (Begg *et al*. 1999; Pickles *et al*. 2006). In this connection, Pellegrin differentiates the 'footloose' off-shoring in the LDCs, such as Mexico, from outsourcing to CEEC (1999). The strong interconnectivity between EU clothing producers might be considered as a competitive advantage of the sector. An advantage of clothing companies in NMS is the enforcement of international social codes and strengthening of state labour regulations.

The cases of downgrading are more often observed than these ones of upgrading, or there was replacement of functional upgrading by process and product upgrading or shift to lower value added activities. The latter could, in some cases, generate better performance in terms of company's sales and profits both in old and new member states (Amighini *et al*. 2003; Pickles *et al*. 2006, Roukova *et al*. 2008). Being 'locked' in subcontracting and thus having limited access to resources, knowledge and freedom of decision-making, CEE companies of many branches have upgraded their products and processes mostly. They have very limited ability to change their functions within particular chain and to take key

positions in the triangular production (Smith et al, 2005). Hence, during the first decade of 21<sup>st</sup> c. some CEE countries succeeded to keep or even improve their performance in clothing commodity chains.

In 2005 a firm level survey<sup>4</sup> of clothing firms in five European countries included 212 firms in NMS and in OMS - 31 firms in Greece and 12 firms in UK. The findings confirmed that the most broadly spread form of international integration was the outsourcing/insourcing (79% of firms) which prevailing FDI (15%) and joint ventures (6%) (Kalantaridis et al. 2008). There were no examples of FDI and joint ventures in Greece and UK, and in Poland they are only 4%. The highest share had Bulgaria with 45% and Estonia with 33%. Insourcing was important for 86% of the Bulgarian firms and for 60% of Polish and of Estonian firms.

The mean of export of total production was higher in NMS than in OMS (for Bulgaria it was 92%, Estonia - 72%, Poland - 63%, Greece - 56% and only for 15% of UK firms). Within Bulgarian, Polish and Estonian firms the mean of export on subcontracting basis from the total export was between 92% and 82%, while for Greece its presence was limited and it was not registered within UK firms (Kalantaridis et al., 2008).

The Bulgarian and Greek interviewed clothing firms are dominated by price-sensitive products, which define their low value position. Greek firms benefit from neighbour countries with lower labour cost and undertook maintenance of production relations with them. It is envisaged as functional upgrading. In Poland the price-sensitive products are important for 61% of respondents and 33% focus on achievement of flexible response. About a half of the Estonian and UK firms focus on the design. Flexibility and delivery time are important for almost one fourth of all firms, except for Bulgaria and Greece.

Kalantaridis et al. underlined that there is no clear relation between higher value added activities and firm performance (2008). Bulgarian firms have declared the most positive assessments in terms of employment and turnover, and it is followed by Estonia and Poland. Companies in UK and Greece have diminished employment, although this has no impact on their turnover.

The interviewed firms in all countries stated that the ageing and the scarcity of labour force in the sector are envisaged as considerable problems. The low value added jobs in clothing are not attractive for the young people even in the undeveloped regions where the job opportunities are very limited.

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<sup>4</sup> The firm level survey was implemented in 2005 under project 'Moving Frontiers: Changing Geography of Labour Intensive Industries', funded by 6<sup>th</sup> FP, EC (MOVE project)

## Clothing Industry in Bulgaria

The internationalization of clothing industry in Bulgaria was developed with higher intensity up to 2008. The Bulgarian producers succeeded in getting orders from European buyers as a result of the shift from Central European countries to the East European. The clothing specialization of neighbor countries Greece and Turkey played key role in relocation of orders. The share of textile and clothing export reached 24% of national export in 2004, where clothing has almost 20%. In 2005 only two European countries were within top ten of clothing suppliers of EU - Bulgaria (2%) and Romania (7%). The employment in clothing sector was diminished with 20% from 2007 to 2009. In 2009 the clothing employment was 110 000 persons and they presented 20,5% of manufacturing employment in the country. Two regions (NUTS 2), South Central and South West regions have 57% of clothing employment countrywide. The regional importance of clothing employment measured as a share to manufacturing employment shows that there are many regions (NUTS 3) where clothing industry is of crucial importance. In 2009 with shares of 54% were Blagoevgrad and Kurdzhaly, and for many others this share accounted above 30% (Smolyan, Rousse, Haskovo, etc.). Since last 20 years the regions, traditional clothing producers, succeeded to preserve and develop the industry, despite the economic transformations and restructuring they have faced.

In 2005 the findings from enterprise survey of 60 clothing firms participating in international commodity chains presented the strong EU orientation of Bulgarian clothing export to EU (above 90%), as the export on subcontracting has the same shares of total firm export (Roukova et al. 2010). These variables stated the high dependence of Bulgarian clothing firms on foreign buyers, although mutual dependence and balanced relations with partners dominate within firms. Trade patterns showed that Bulgaria is preferable sourcing location for Greece (39% of clothing export) and Germany (24%). To Italy were directed 22% of clothing export, Spain and France had 7% each, and UK, Belgium and Sweden had less than 4% each.

Managers of 60% of the interviewed firms defined the international market competition as strong and very strong and considered that their participation in international production networks was due to the skilled working force (84% of firms) mainly, and put the expertise, low costs, reliability and geographical proximity next. Respondents ranked their competitive advantages as it follows: quality of production (78%), delivery time and reliability (65%), and cost efficiency (28%).

Most of the clothing firms defined their position in value chain as intermediate. In fact they are much close to the low end of the chain because of low value added production activities. Firms implement activities in relation with quality improvement, shortening the delivery time and higher value added production activities. Technology equipment was in focus, as 20% of interviewed firms informed that they use cutting age technology. Product and production process upgrading dominates over the functional upgrading. Small numbers of cases are firms which have developed design and new products and have created their own products and brands.

Companies benefited by insourcing, 62% of them have increased employment, 77% - turnover, and 57% - profit. For more than a half of the firms the share of export of total production did not change, and it increased for 40% of firms. Positive impact of EU market development trends - need of small production volumes and short delivery time, was in favour of Bulgarian clothing producers (Roukova et al. 2010).

Bulgarian clothing industry was hit by the global economic crisis; however, it recovers faster than many other manufacturing branches. Staying part of European clothing production, the combination of low labour cost and qualified workers, as well as clothing market stabilization in EU, turn out to be important factors for this sector for overcoming the crisis. However, considering the severe competitiveness in labour cost of some neighbor countries (FYROM, Ukraine), it is a serious threat for the Bulgarian producers.



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## **5. Case study. The automotive industry in Europe: the general trends in the last decades**

PETER WARDA, JIBS  
VAN HAMME GILLES, IGEAT-ULB

In this section the patterns of shift in production are analysed by means of a study of the European automotive industry.

The automotive industry is often seen as the driving sector of production in Europe. It supports over 2 million Europeans with jobs and an additional 10 million individuals employed in related industries. The industry exports of this sector are valued around €70 billion annually, making it a highly important sector in Europe (ACEA, 2010). Automotive transnational companies are among major European Transnational companies, reflecting to a certain extent the specialization in medium and medium-high technological segments of the European economy. Also, Europe, while slowly declining in relative terms, has maintained positive balances and remains highly specialized in the automotive industry.

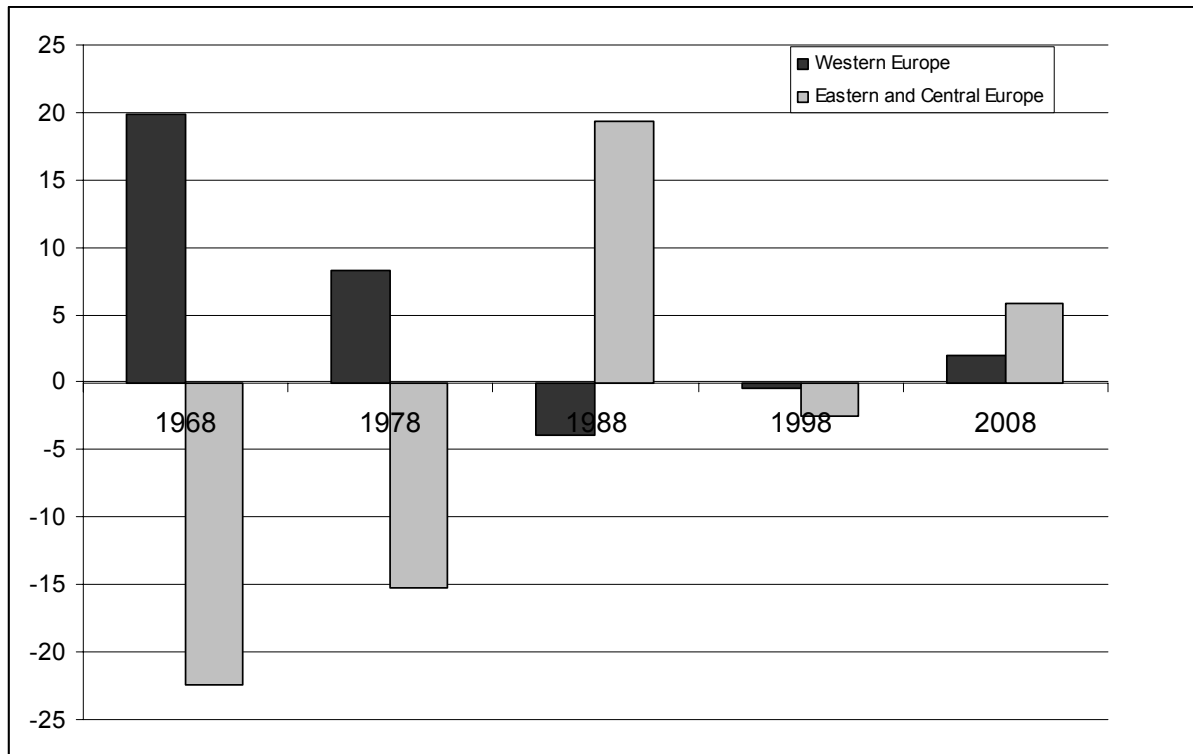
In recent years, the automotive industry in the European Union has suffered hard from the economic crisis and from the increasing competition from global car manufacturers (ACEA, 2010). A direct implication, for the European automotive industry, has been that the automobile production has slowed down drastically. The production plants are being moved overseas, to lower cost countries in Central and Eastern Europe, Asia and Latin America (Jürgens and Krzywdzinski, 2009; Sturgeon and Briesebroeck, 2010).

In this short introduction, we briefly analyze the position of Europe in the world before presenting the spatial in the production and trade of automotive industry within the European space. We finish by the work plan until the final report.

### **5.1 The European automotive industry in world flows**

Figure 1 illustrates the position of Western and Central/Eastern Europe (nowadays belonging to EU) in the automotive trade (automotive assembling and components) from 1968 to 2008, on the base of three-year average figure. As we can observe, Western Europe has a positive balance in the sector nearly throughout the period. We should also notice that Western Europe would have a more positive balance in 2008 if imports from Eastern Europe were not included. As for Eastern Europe, figures before 1990 should be understood in the context of COMECON. After 1998, we observe that the negative balance in 1998 has become highly positive ten years later.

In contrast with what is observed in textile and clothing industry, Europe as a whole has remained specialized in automotive industry. This industry remains highly concentrated in the core countries at global scale (Grasland, Van Hamme, 2010).



**Figure 1. Asymmetry of trade for Western and Eastern Europe, 1968-2008**

Note: Asymmetry is the ratio between the balance of trade (X-M) and the total trade (X+M) in the sector

## 5.2 The evolving spatial pattern of the transport equipment industry

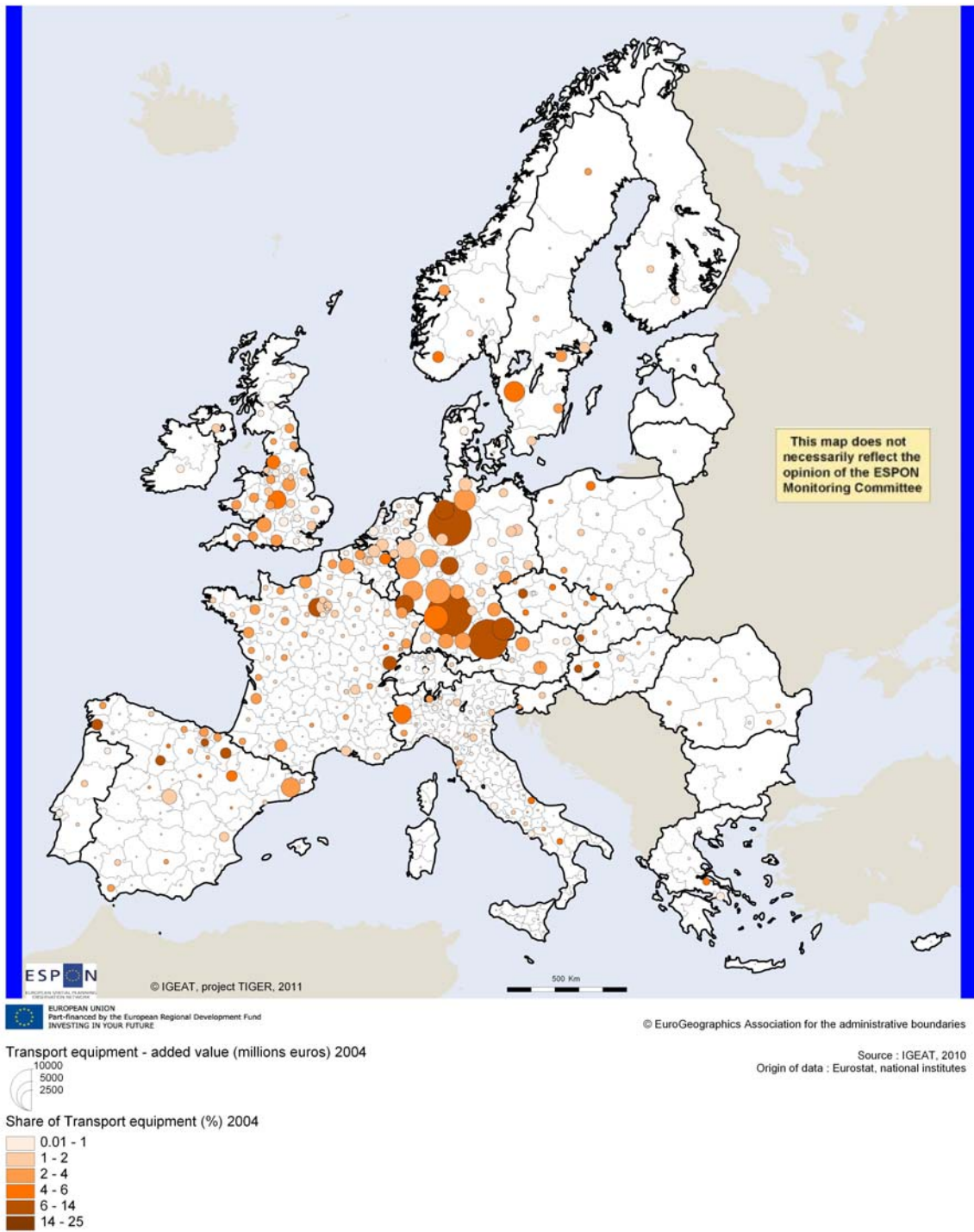
If the European space as a whole has largely maintained its position in the automotive industry, we observed significant shifts of location within the European space. However, we should notice that, within the European space, core countries and regions remain the most specialized in the industry, especially Germany, but also France or Belgium (Figures 2 to 4). We are not able yet to include the consequences of the crisis in this analysis but this will be achieved in the final report if data allow it.

The spatial pattern of the automotive industry is made of different layers but most locations are related to two different types of reasons (Figure 2): historical heritage of original locations, such as Volkswagen in Wolfsburg, Fiat in Torino or Volvo in Goteborg; offshoring processes resulting in new sites of locations. These new sites of locations have privileged different types of regions through the times: urban or port location were favoured before WWII, because the industry still required qualified workforce; because of the standardization processes of production, new locations after WWII have privileged dense rural regions of core countries such as the Parisian basin or North East of Belgium; in the seventies and eighties, the same types of location have been privileged in semi-peripheral countries, for example the Northern Spain; from the 90's onwards, Central-Eastern Europe have benefited most of new investments sometimes on the basis of new green field investments but also through buying factories from the communist period (Skoda for example was bought by Volkswagen). Despite their development, we should notice that Eastern Europe remains relatively marginal in the European automotive industry (Figure 2). However, as illustrated in figure 4, trade balances are very positive in Eastern Europe due to a very extroverted industry. Also, from the eighties onwards, the automotive industry has

become much more flexible looking to exploit small niches of markets through less massive investments. Typically, the British automotive industry benefits from these types of investments, notably from Japanese companies in some old industrial cities.

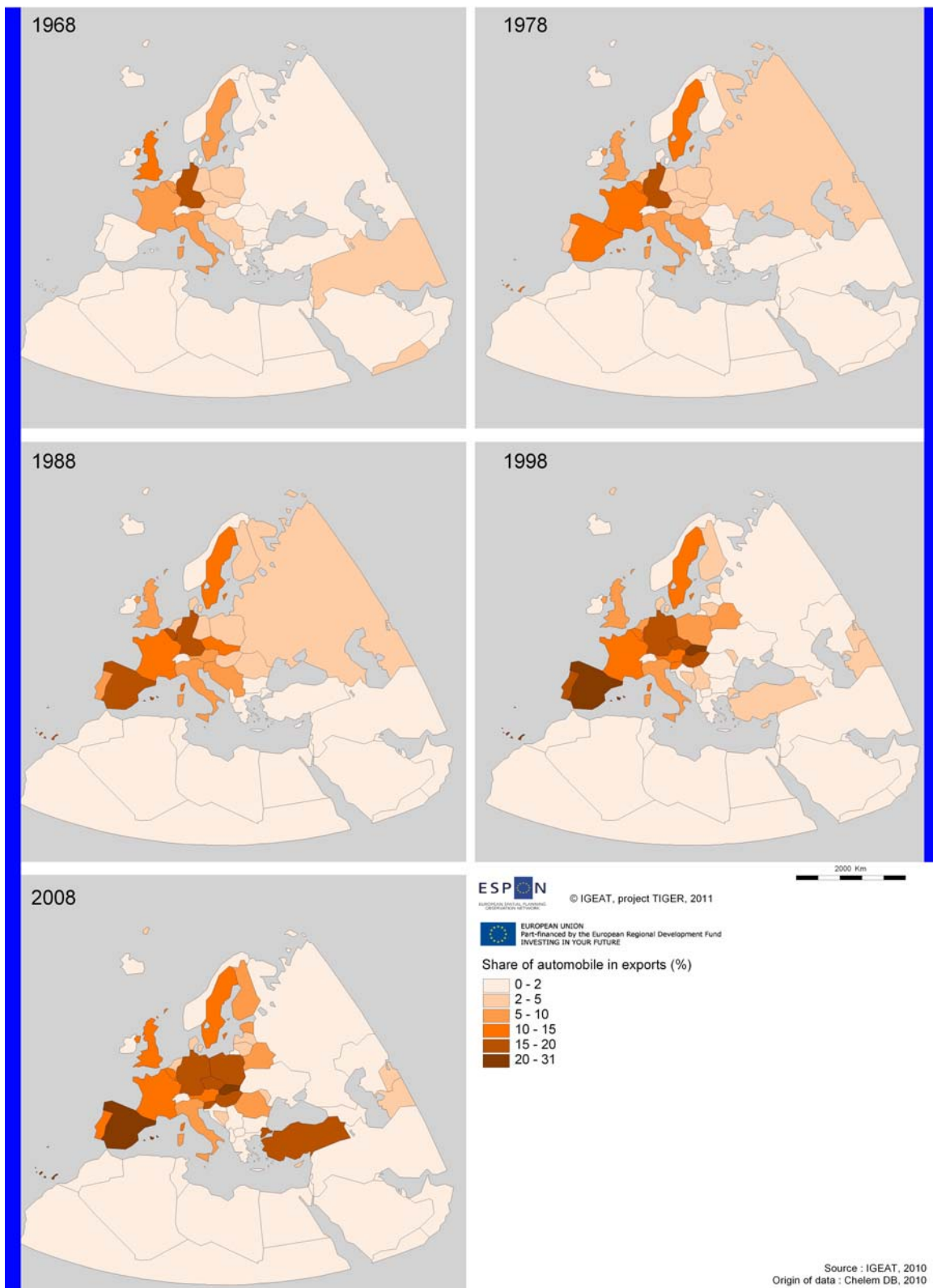
Figure 3 better synthesizes this spatial pattern of off-shoring and diffusion toward semi-peripheral and peripheral spaces in two distinct phases:

- in the first phase there is a diffusion toward Southern Europe, mainly Spain but also Portugal;
- in the second phase from the late nineties onwards, offshoring benefits mostly to the most developed Central-Eastern European countries but also to Turkey.

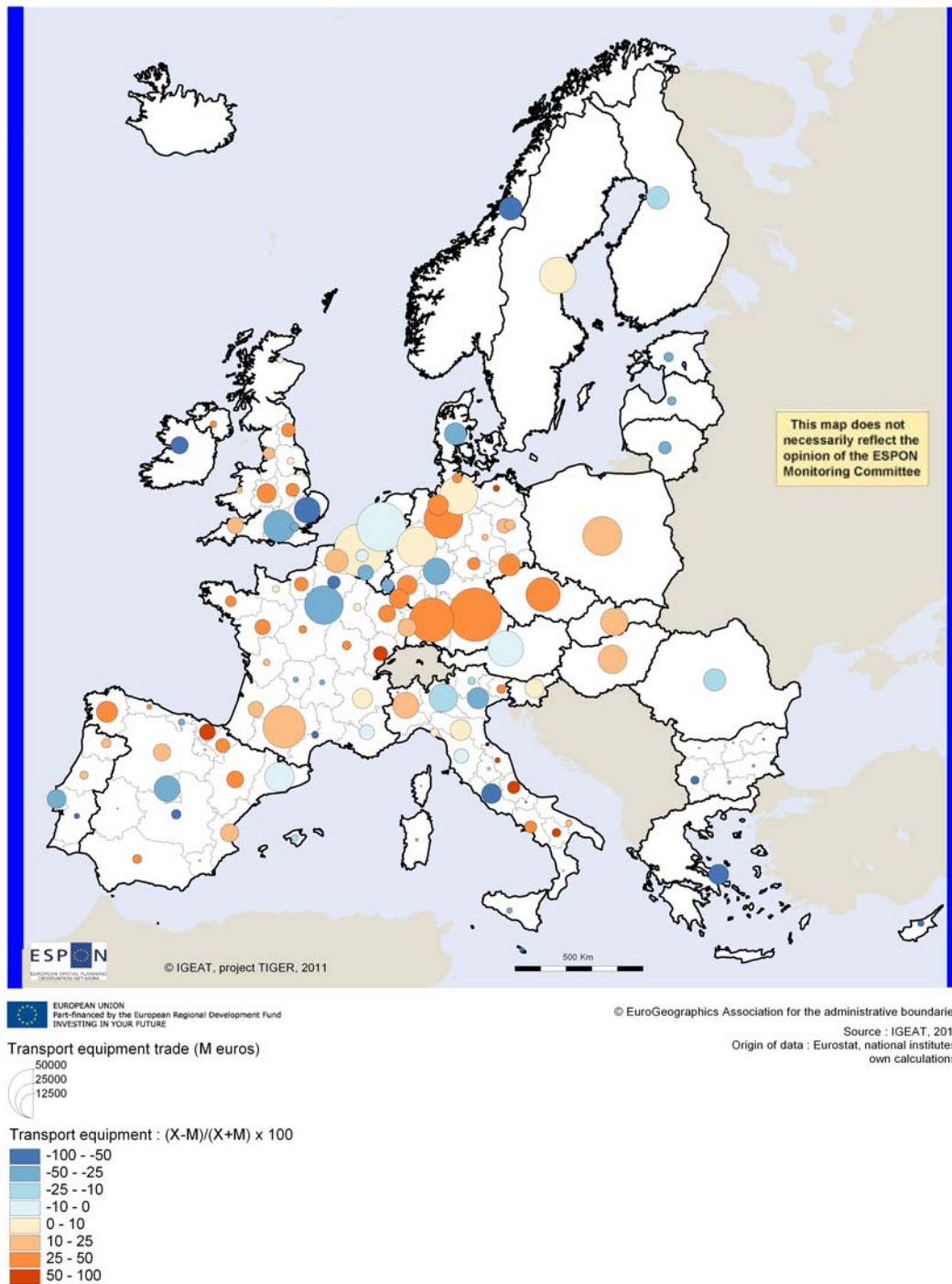


**Figure 2. Added value in automotive industry by region in Europe, 2004**

Note: Added values in 1980 are in current Euros (ECU). You can only compare the relative size of the circle. Added value in 1995 and 2004 are in constant EURO 1995.



**Figure 3. Specialization in automotive industry in the exports of the Euro-Mediterranean area, 1968-2008.**



**Figure 4. Trade asymmetry in transport equipment (including airspace industry) at regional level in Europe, 2007-2009 average.**



### 5.3 Work plan toward the final report (questions to be analysed and answered with subject to change)

The focus will be on outsourcing activities performed as offshoring in the production of physical goods and service activities. Moreover, the outline of the value chains in Europe will also consider other indicators, such as industry localisation, trade flows and employment data.

#### Ownership structure:

- How does the ownership structure look like in the European automotive industry?

→ This question helps us to answer if offshoring motives in the automotive industry in Europe are driven by external (i.e. non-EU) trends in ownership.

#### Value Chains (will cover the majority of the chapter):

- How do the global value chains look like (trends)?
- What is being offshored?
- What are the reasons behind the global integration in this sector?

→ These questions will give indications on what is being relocated, and for what reasons (e.g. due to increased performance, proximity to markets, raw material or low price factor conditions).

#### Localisation:

- Where do the European industries locate?

→ This part will analyse the pattern of movement in the European automotive industry. We will analyse the whereabouts of the new emerging markets in automotive production.

#### Employment dynamics:

- What does the trend look like (on a down-turn or up-turn)?
- How is the average labour performance related to shifts in production?
- Does offshoring activities bring an increase to skills-intensive employments?

→ This is an important issue that needs further discussion since it concerns the future development of one of Europe's most important sectors in manufacturing.

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## **Annex III. WP 2.3.2 – European Cities in Financial Flows**

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## 1. Theoretical Background

As indicated in revised iterations of Sassen's *The Global City* (1991) and *Cities in a World Economy* (1994), as ICT advances, economic integration and the deregulation of financial markets have proceeded, the concept of the 'place boundedness' of global cities has been challenged by an acceleration of flows of finance through global 'circuits'. This has given rise to the financialisation of the world economy (Sassen 2006) recalling Castells (1996) allusion to the emergence of 'hyper-mobile' products and the nodal role of global cities in an informational and networked economy. Castells (1996) describes APS strategies as played out through global circuits in which "there is a face-to-face collective capitalist, made up of financial flows operated by electronic markets" (p.505).

As long ago as 1974, Kindelberger (cited by Lizieri 2009) specified the role of the world's 'international financial centres' (IFCs) as facilitating transfers (flows) of finance in the global economy: "the specialized functions of international payments and foreign lending or borrowing are typically best performed at one central place that is also (in most instances) the specialized center for domestic interregional payment." (p. 6). The increased capacity for almost instantaneous cross-border flows of finance on a worldwide scale is of key relevance for Lisbon agenda priorities to boost the position of the European territory in the world economy however mapping the geography of such flows presents a major challenge.

In their analysis of the phenomenon of globalization, Cochrane and Pain (2000) have pointed to the intensification of international relations. "from the flows of investment finance to the global 'blizzard of 1s and 0s speeding through the air'" which "are taking place outside the control of individual nation states, overlaying traditional state geographical boundaries". The interaction between local and global processes producing global interconnectedness supports Harvey's (1989) notion that 'time-space compression' has a deeper significance than 'time-space convergence'. Communications developments are producing simultaneity across space however advanced telecommunications are not displacing geographical location focusing on cities, as a social and economic organising mechanism. Digitised money and space remain tied together (Budd 1998, 1999). Sassen's 1991 second edition noted a strengthening of cross-border activity and a major growth in and intensity of global financial transactions in spite of a world recession due to the development of 'strategic alliances' between cities, based on their financial markets. According to Sassen, this counterintuitive trend reflects the new positionality of global cities as the products of networks as opposed to the territorial capitals of empires. However Sassen also considers the capacity for changing relative world positions of cities possible in dynamic global financial circuits (2002, 2006). For example Tokyo has lost financial connectivity since the first edition of *The Global City* was published (Sassen 2002). Thus the integration of global financial markets and of the world's major international financial centres (IFCs) is co-constructed, a process described by Amin and Thrift (1992) as a transformation of the international economy and IFCs into 'global interdependencies'. A key question for ESPON research is which European cities are tied up in this process of global financial integration and interdependency.

Cochrane and Pain (2000) have seen the progressive interdependence of local and global spheres of interaction as outcomes of institutional interaction, "A few (world) cities become the nodes of global power, through which financial decision-making flows. Decisions taken in these citadels of power can have dramatic effects for the rest of us as stock markets wax and wane, chasing each other up and down the Nikkei, the NASDAQ, the FTSE and Dow Jones indices." As discussed by Sassen (1994), economic globalization is therefore not simply a product of financial flows but an outcome of the activity of firms and markets (p.347, 2<sup>nd</sup> edition). Financialization of the world economy is both a product of, and productive of, city capital markets. 'Foreign' direct investment in cities therefore now needs to be conceived as intersecting 'global direct and indirect investment' processes according to

Lizieri (2009). Within Europe, the MiFID Directive (Markets in Financial Instruments Directive) and on-going regional consolidation of the stock-exchange industry are facilitating the transnational movement of financial capital from local/domestic to global/cross-borders. However increased institutional complexity associated with the multiplication of strategic alliances (Chapter 5 and 7 of the second edition) are still tying the location of such institutions to global city locations where international financial networks are co-present. The old distinction between Sassen and Castells emphases on places and flows is therefore proving irrelevant. Markets overlap and interact in and through global cities leading to synergistic spatial relations (Pain 2008a).

Thus the agglomeration economies associated with the location of stock exchanges and the clustering of international business services are due to 'commonalities' and 'complementarities' previously recognised in clusters by Porter (1990, 1998). Digitalisation of financial activity and the introduction of electronic trading have not lessened the need for proximity to specialised international skills and market places, as predicted by Bryson and Daniels (1996). Global cities are nodes providing the physical structures and environment for efficiencies, institutional interaction and inter-city flows. Thrift and Leyshon (1994) have applied actor-network theory in attempting to unravel the way in which the global financial system interacts with international financial centres (IFCs). They have stressed the agglomeration economies associated with the need for face-to-face contact in order to develop – trust, relationships, referred to as "flesh and trust" by Amin and Thrift (1992), information exchange and human needs related to "co-presence" (Boden and Molotch 2004). Pryke and Lee (1995) have demonstrated the importance of 'the global' in city clusters in the financial services securities market. Near instantaneous electronic interaction is not a driver of dispersion because of the advantages of organizational competition and co-operation. City clusters are transnational spaces because they allow *inter*-firm relationships as well as being centralities for global intra-firm networks. Porteous (1999) has emphasized the significance of tacit, as opposed to codified, information exchange with clients, competitors, markets and regulators. Nachum has also stressed the importance of proximity to clusters as an ongoing key location factor from a real estate perspective (2000) and Sassen has argued that "state of the art [technological] infrastructure while necessary, is not sufficient" (2001, see also Graham 2002). Research by Pain and Hall (2006) has indicated that as complexity and mobility increase, so has the importance of international clustering not only in Sassen's original global cities but in other 'globalizing' European cities.

Globalizing cities are locations for the headquarters of multiple multinational global and regional HQ command and control functions. The key interactions between financial services and supporting APS networks that lead to major capital flows still take place in offices which are clustered in such cities (COL 2011, Pain and Hall 2006). Budd (1999) has linked the reproduction of agglomeration in cities performing the role of international financial centres to the requirements of global competitive commercial financial markets - economies of size and scale, skills, intelligence and information networks - based on a statistical analysis of London's principal financial market statistics, FOREX, equities and OTC derivatives, reiterating Sassen's earlier 1991 emphasis on the embeddedness of international finance in territorial places. However production and consumption factors are interwoven in the maintenance of global city clusters. The strategic locations for international financial and business services are also the most popular sites of world consumption for elite APS actors whose specialised labour is the critical asset of, and input to, APS production. The location preferences of specialized international labour are now even more important for APS firms than the location of clients (Hall and Pain 2006). Clustering of financial and business services and investment in global city real estate must be recognised as socially as well as technologically and economically driven.

Appadurai (1996) introduced the idea of 'scapes' as a way of understanding the relations that underlie globalization processes. Ethnoscapes involve cross-border flows of people

including transnational workers; technoscapes involve sharing/flows of information and technology; finanscapes involve flows in currency markets, speculation and financial innovation; ideoscapes propagate political messages by states and opposition movements; and mediascapes promote global images. The notion of relations between technoscapes (ICTs and transportation developments), finanscapes (markets), ethnoscapes (labour), and mediascapes (territorial/political strategies) should inform our research. However, what is missing from this post-structuralist account is the recognition that the interplay between 'scapes' has a physical dimension. Material infrastructures, once overlooked as antecedents of the new relational geography of globalization, are intimately enmeshed in spaces of flows (Pain 2010a, Knox and Pain 2010). As Lizieri has noted, real estate, financial and business services are entangled in the construction and the reconstruction of tangible real estate assets which also accommodate international APS clusters and international capital markets (Lizieri 2010).

Real estate services are one of the many increasingly internationally networked APS service providers located in global cities, as shown by Hall and Pain between 2003 and 2006 (2006). The real estate industry facilitates inter-city informational and financial transactions that take place in and through the offices of all APS occupiers. In addition, office markets are not simply a by-product of demand for space from producer services firms, they are an investment asset and store value Lizieri (2009). Lizieri has demonstrated that they have characteristics that tend to reinforce cyclical behaviour and volatility in rents and capital values. Space, office supply, investment and financial markets are interlinked due to functional economic specialisation in financial activity in these cities - ownership of space and the provision of equity and debt for investment and development. New financial instruments interlink international finance and real estate markets in global cities where information and cost inhibitors are also substantially diminished and the development of real estate investment vehicles - investment trusts, funds and real estate securities - since the 1990s have opened up investment opportunities.

Lizieri emphasizes that institutional and private funds and greater use of leveraging and securitisation of debt through CMBSs have facilitated global city markets liquidity, hedging exchange rate risk and creating an international measurement and monitoring system (through firms such as IPD). 'Passive investment' in liquid property assets have produced greater liquidity as small investors no longer require large amounts of capital or property related responsibilities in order to invest. Real Estate Investment Funds (REIF) now consist of tax efficient real estate investment trusts (REITs) and commercial mortgage-backed investments - securities, and real estate derivatives - equity trusts which invest in real estate directly and mortgage trusts which invest primarily in construction loans and mortgages - and private real estate funds. High leveraging by borrowing from banks has become commonplace (Bodie, Kane, Marcus 2001).

Grenadier (1995, 1996) has also sought to explain why urban development is clustered from a real estate perspective. He has examined why developers 'develop into' recessions, despite declining demand and building values. He has shown that development strategies are dependent on 'starting conditions' in the market, demand volatility and construction time. Development 'cascades' with developers rushing to develop simultaneously especially demand volatility is high. Lizieri *et al.* (2000) have produced deeper insights into the interdependencies between real estate development and global city clusters. The scale of property developments demands complex finance and funding arrangements provided by major banks, finance houses and institutional investors. These financial firms are occupiers of space, as owners or as tenants therefore rents and capital values are linked to their profits, strategies and demand for office space. They are investors in offices in financial centres - directly by acquisition for their investment portfolios, indirectly through investments in real estate funds, by holding shares of property companies owning the buildings or by investing in securitized debt products backed by office values. These

investments are substantial parts of their asset base and act as collateral for their business activities.

Occupancy, business, property supply and investment markets are therefore interlocked (Lizieri) bringing global flows of finance into international financial centres and into physical urban infrastructures. The distinction between the funding of real estate development, ownership of real estate as an investment and the occupation of property, has thus become 'fuzzy' through this interlocking of real estate users, finance and markets, and financial flows and places. Innovations resulting in the development of new financial instruments are making property ownership a factor of production and an asset category for financial services, and thus more complicated. Physical city infrastructure can therefore now be regarded as an outcome of the co-professionalization of international finance and real estate investment. Finance is at any one time, partially embedded, not only in commercial offices but in other material global city infrastructures including retail, housing, entertainment, utilities and transportation (see also Rutherford's work on the 'active role' played by telecommunications in establishing the world city network (2005)). Financial and real estate services actors are intimately involved in the production and consumption of global city space world-wide. Development, investment, space and financing markets are thus intertwined and co-produced within global city financial centres, and between them.

Alongside the internationalization of London since UK 'big bang' financial deregulation in 1986, Lizieri and Kutsch (2006) have revealed a marked shift in the global ownership of City of London offices. 144% of the City of London's office space was also found to be owned and occupied by financial firms making occupation is less separated from ownership. While built form is local its construction is now globally driven however the creation of international investment portfolios creates added-value locally. Finance, invests in and develops the material infrastructures of global cities, including high speed Broadband for example. Value spills over into adjacent land and real estate values. It also allows the agglomeration and knowledge flows of other sectors and, through state development levies and taxation and it produces financial flows into pension funds, public services such as transportation, and flows of funds to less developed cities and regions (Structural and state funds). This complexity is not appreciated by rational economic accounts of real estate value in different locations based upon the calculation of yields.

On the one hand, Lizieri *et al.* (2000) have argued that this cross-border integration of property and financial markets and a large unregulated 'shadow financial sector', creates systemic risk as shocks in one area of the property market are transmitted throughout the wider system and that this will be most apparent in the office markets of global city financial centres. For example, there are asymmetries in the relationships between rents and supply in city (London) property markets because the supply of office stock cannot be withdrawn in response to negative demand shocks. Modelling of asymmetric space market responses to employment and supply shocks has become necessary to guide investment (Englund *et al.* (2008), Hendershott *et al.* (2010)). On the other hand, Lizieri also interprets office markets as active in the creation of path dependencies (2010) due to the need to minimize risk associated with volatile office rental and values, linked to the credit cycle and the behaviour of global capital markets. Between 2001 and 2005 nearly three quarters of London sales had an overseas participant, according to Lizieri and Kutsch (2006).

Henneberry and Roberts (2008) express concern that real estate investment reinforces pre-existing cluster dynamics by adopting a low-risk strategy. However their analysis, which attempts to take a cultural economy perspective by interviewing institutional city actors (at IPD) undertaking portfolio benchmarking, fails to take into account the significance of social practices, in other words those of the transnational community that lead to international clustering. As Porter has indicated, market diversity provides agglomeration economies that stimulate further clustering (Porter 1990, 1998). This is found in the most international

clusters which cannot be replicated in all places. Roberts and Henneberry (2007) emphasize that the decision-making process within the real estate industry is far from a quantitative-rational procedure yet they exclude the importance of the “recursive relationship between actors and markets” (294) recognized by Baum *et al.* 2000, from their analysis. Specialized and niche financial and real estate services are not widely available. Commercial and personal decision-making are interdependent - the commercial need to gather in a competitive and flexible global market place and personal remuneration, taxation and lifestyle factors. Global clusters allow “high levels of internationalization in their economy and in their broader social structure” as depicted by Sassen (1994 p154). They have a function likened to ‘the power boxes or valves which connect a house with the greater urban utility network’ in Burghardt’s analysis of ‘gateway’ cities (Burghardt 1971, p.282). A functional differentiation between global city and other national and regional markets is identified in the NW Europe Polynet study, suggesting a functional specialization of real estate markets in such cities which is reflected in real estate pricing, however these reciprocal relations are not taken into account by Henneberry and Roberts (2008).

In consequence, contradicting the predictions of writers such as O’Brien (1992), few authors now assert that global financial integration might annihilate any geographic relevance of space and places, forming a fluid, smooth and uniform world. Yet the specialized literature has seldom described the geography of this financial system in progress. The practices of individual and institutional investors, business actors and policy makers together shape the flows that construct IFCs and the material outcomes of investments that are ‘grounded’ in particular locations (Lizieri 2010). Cities that are open to transnational specialized labour, flows of finance capital, investors and cultural diversity, are producing fixed assets that, transitorily at least, ‘lock down’ value (Lizieri). The effect over time can be cumulative and is principally city user and occupier-led. Raikes and Newton (1994) suggested that financial centres reach a ‘critical mass’ which allows them to growth to be self-sustained.

Nevertheless the global interdependence between financial markets originally noted by Castells (1996 p.104), and the vulnerability of European cities, now heavily reliant on the finance and business service economy, to global financial shocks, leads to a concern as to the volatility of financial investment flows. European regional and city strategies are now strongly founded on rolling back state investment (Brenner 1998, 1999, 2004, Brenner and Theodore 2002). Private RE funds in Europe rose from less than 100 in 1998 to some 650 in 2008 managing assets in excess of EUR300 billion (Lizieri 2009). Property-led development and urban regeneration and so are critically dependent on office rents and capital values (Lizieri 2009, Knox and Pain 2010).

A Corporation of London (2009) analysis of the impact of the US sub-prime crisis which culminated in September/October 2008 radiating world-wide concluded that

“Overall, 2008 proved to be a very challenging year for the European wholesale financial services sector since it had to deal with the fall-out from the financial crisis and the rapidly weakening economy. In addition, it had to continue to adjust to the market and systemic changes arising from the implementation of a number of major regulatory changes, such as the Markets in Financial Instruments Directive (MiFID).” (Guillén, M.F., *The Global Economic & Financial Crisis: A Timeline*, The Lauder Institute, Wharton, University of Pennsylvania and the Federal Reserve of St. Louis, *The Financial Crisis: A Timeline of Events and Policy Actions* p.7).

The short term risk of viral contagion not only affects office markets but property markets, land values and rental levels generally, the circulation of earnings through consumer spending and the functioning of the wider economy. Of longer term significance, regulatory regimes are of key importance in sustaining international business clusters. Clusters cannot

be artificially created but they require support from state regulators and planners (Taylor *et al.* 2003, Pain 2010a).

Territorial policies therefore need to be informed about the ways in which inter-city financial flows and contemporary property markets are *connecting, or disconnecting*, European cities to global finance circuits worldwide. The Eurocities (2009) survey attempted to assess the impacts of the recession in 29 European cities, from 14 EU Member States, including pre-recession economic structures but what can be learnt from this exercise is limited. Most of Europe's top global cities are not included in the survey and inter-city relations at the European and global scales are invisible.

The literature indicates that the ESPON *Tiger* project must address new questions. For example, what is the necessary critical network nodal mass required to generate internationally well-connected APS and finance clusters? In WP3.2.2 we examine which cities in the world and within Europe are the sources and receivers of financial flows constructed by network interactions between financial and real estate agents worldwide, looking across time series data available for the last decade.

## **2. Facts and Figures about Global Service Economy and Real Estate Investment Flows**

Despite the increasing importance of financial flows associated with real estate investment, there is a lack of reliable data on activity in global markets. However recent research by Lizieri illustrates the interaction between international finance and real estate in global cities. Data and observations extracted from Lizieri (2010) on this global-local interaction and the implications of global financial crisis for European city property markets are considered here.

Table 1 shows the top ten cities in the seventh Global Financial Centres Index (GFCI) (Z/Yen, 2010), alongside the top ten cities in the MasterCard Worldwide (2008) survey and the *World According to GaWC* (2008).

Of note, Paris is not ranked in the GFCI top ten despite being ranked sixth by MasterCard and fourth by GaWC. In addition, Lizieri suggests that the high GFCI rankings of Zurich and Geneva are likely to reflect their private fund management status. The GFCI and GaWC rankings for Tokyo reflect Sassen's revision to her 1991 top ranking for the city as one of a 'global city' triad and, as Lizieri suggests, the 1990s bursting of the Japanese asset bubble. Lizieri regards the GFCI top ten ranking of Shenzhen as anomalous and also comments that the GFCI scores of offshore financial centres, such as Hamilton, Bermuda and emerging centres such as Dubai in the full GFCI ranking, exceed their size and/or prominence as global cities. Other than these exceptions, although the exact rankings of cities differ dependent upon the data used, there is a strong correlation between cities ranked highly in terms of their financial activity/connectivity (Master Card and GaWC) and the GFCI ranking. The emergence of a new global city finance-real estate triad – London, New York, Hong Kong – is notable.

	<i>GFCI 7</i>	<i>Master Centres Commerce</i>	<i>Card of GAWC 2008</i>
1	London 775	London 79.2	New York 100
2	New York 775	New York 72.8	London 98.6
3	Hong Kong 739	Tokyo 66.6	Hong Kong 81.3
4	Singapore 733	Singapore 66.2	Paris 77.9
5	Tokyo 692	Hong Kong 63.9	Singapore 74.1
6	Chicago 678	Paris 63.9	Tokyo 72.5
7	Zurich 676	Frankfurt 62.3	Sydney 71.7
8	Geneva 671	Seoul 61.8	Beijing 70.1
9	Sydney 670	Amsterdam 60.1	Shanghai 68.8
10	Shenzen 670	Madrid 58.3	Milan 67.7

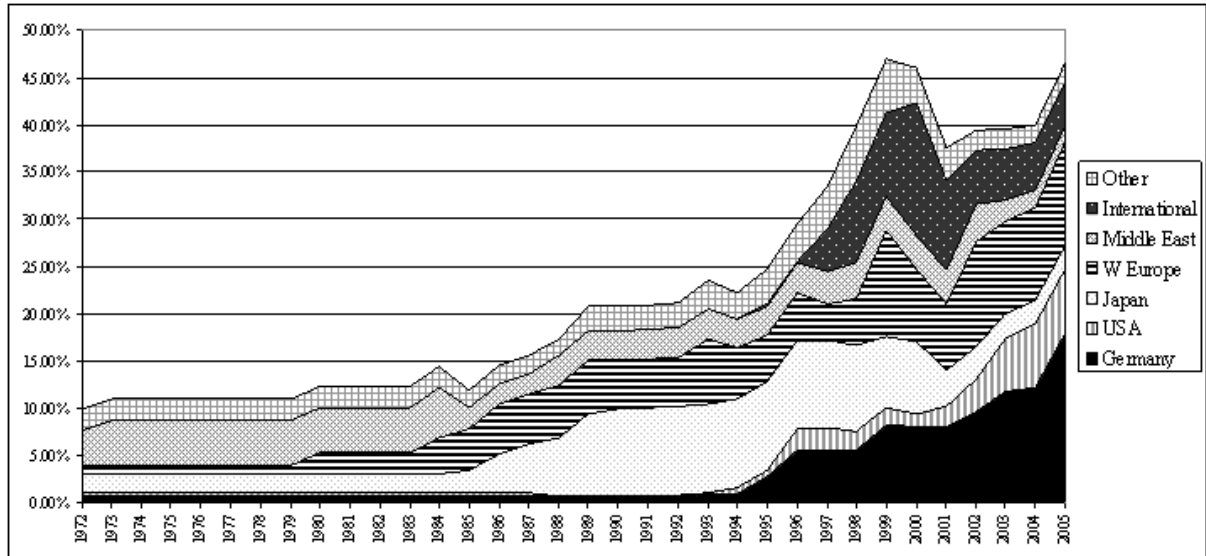
**Table 1. Global City Classifications, Financial Cities. Sources: Z/Yen (2010), MasterCard Worldwide (2008), GaWC (2008)**

Up until the mid-1980s, UK international property ownership was relatively stable at between 10% and 15% (Lizieri and Kutsch 2006). As shown by Lizieri with reference to Figure 1, during the late 1980s international ownership suddenly increased, reaching 25% in the second half of the 1990s and more than 45% in 2005. Lizieri notes that global capital flow increases indicate that London has not been alone in experiencing this internationalization of ownership.

A Property Funds Research (2008) survey of global fund managers has reported that, of 107 funds surveyed with over €1trillion of property assets under management, 38% had 10% or more of their assets spread across more than one continental region. The upsurge in London's real estate internationalization coincided with UK financial deregulation (the 'big bang') when The City of London 'opened up' to foreign direct investment.

The liberalization of economies around the world (associated with globalization more generally) in recent times, suggests a clear interaction between economic globalization, global flows of finance and global city real estate markets.





**Figure 1. Non-domestic office ownership, City of London**

Source: Lizieri & Kutsch (2006) Note: "International" indicates a fund or ownership vehicle that combines capital from owners of different nationalities – for example a Limited Partnership with investors from a number of countries

Lizieri examines Real Capital Analytics (RCA) data for the top 1,000 commercial real estate deals by value in 2007 and 2008 (1,979 deals with a total value of \$527billion) illustrating the concentration of investment activity in certain world cities. Table 2 shows the cities with the most deals for all property and also for offices. By value, nearly half the deals were office acquisitions, with a value of \$257billion. The spatial concentration of the deals is striking, illustrating Sassen's 1991 focus on the 'embeddedness' of global capital. 50.2% of the major deals having taken place in just ten cities and over 40% of deals in just five cities. Office investment is even more concentrated with 55% of the largest deals taking place in ten cities, 44% in five cities.

Strikingly, almost 30% of the deals took place in London and New York ranked highly by MasterCard and GaWC. The high ranking of New York, London, Tokyo, Paris and Singapore for office deals is thus unsurprising however the absence of Hong Kong in this top ten listing seems anomalous. Given its GaWC rank (Table 1), Beijing's appearance in the top ten both for all property types and for office deals is to be expected. The top ranking (first) of Shanghai for investment in all property types is unsurprising however its absence from the top ten for office deals is notable given its GaWC ranking. In both cases, the volume of investment overall reflects China's liberalization since the introduction of the 'open door' policy.

All Property Types

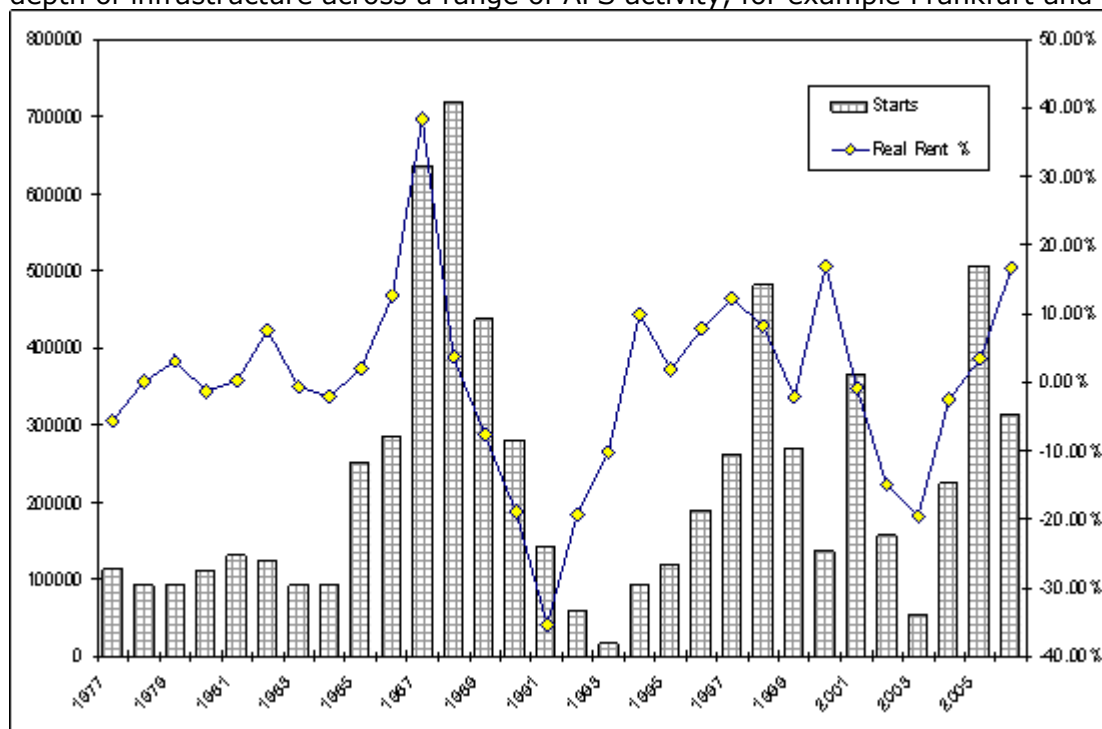
Office Deals

City	Value \$m	(% of total)	City	Value \$m	(% of total)
1• Shanghai	81,483.7	15.5%	1• New York	38,511.8	14.96%
2• New York	45,869.3	8.7%	2• London	37,783.4	14.68%
3• London	44,188.5	8.4%	3• Tokyo	15,589.9	6.06%
4• Tokyo	22,171.7	4.2%	4• Paris	13,073.5	5.08%
5• Singapore	20,654.3	3.9%	5• Singapore	8,406.7	3.27%
6• Paris	13,703.6	2.6%	6• Madrid	6,353.5	2.47%
7• Beijing	13,094.2	2.5%	7• Seoul	5,782.2	2.25%
8• Hong Kong	8,878.5	1.7%	8• Washington	5,770.3	2.24%
9• Washington	7,283.8	1.4%	9• San Francisco	5,282.6	2.05%
10• Madrid	6,896.0	1.3%	10• Beijing	5,031.3	1.95%

**Table 2. Commercial real estate investment by city: 2007-2008**

Source: Lizieri, from RCA data, ©2008 Real Capital Analytics, Inc. All rights reserved

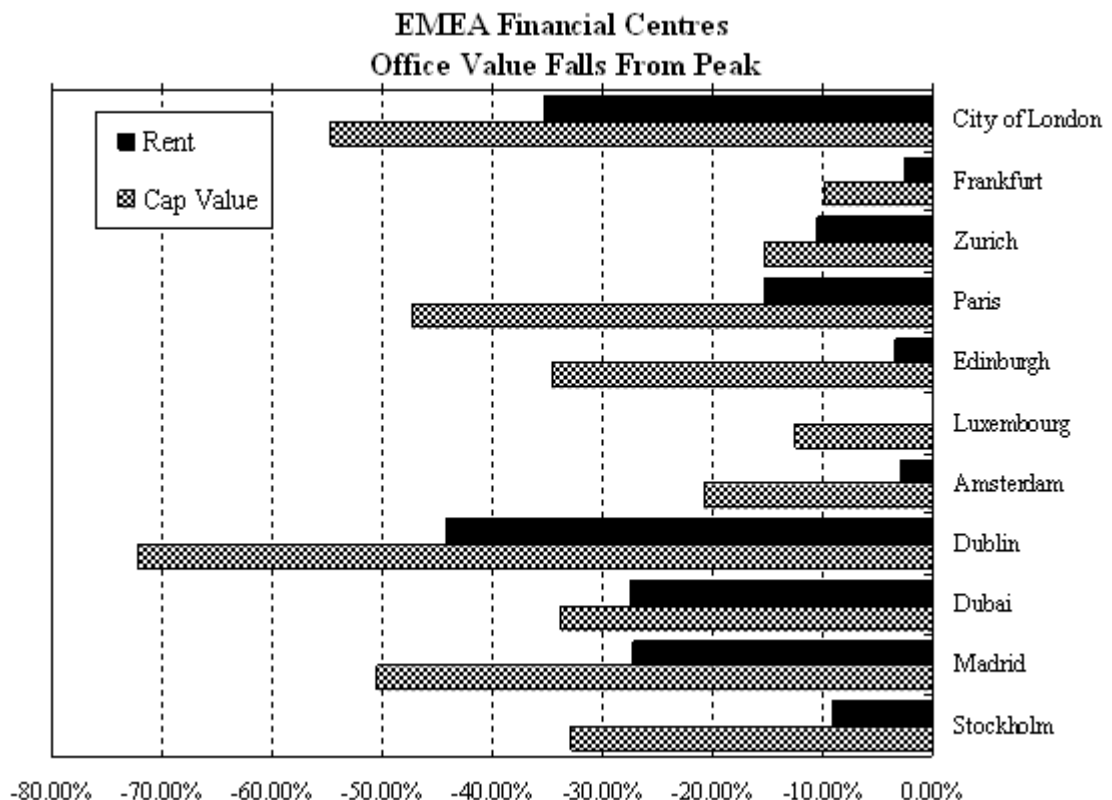
Figure 2 shows fluctuations over time in the intensity of building activity in the City of London with construction starts lagging real rent increases. Lizieri explains how this lag reflects the responses of developers (and lenders) faced with uncertainty and volatility leading to extreme swings in rents and capital values. Research by Grenadier (1995, 1996) suggests that amongst a number of explanatory factors, such swings will be more pronounced in markets with high employment volatility due to a strong APS sectoral economic specialization, shown by GaWC research to be the case in financial centres lacking depth of infrastructure across a range of APS activity, for example Frankfurt and Dublin.



**Figure 2. Office construction and real rents**

Source: Lizieri, from Corporation of London, CBRE, ONS

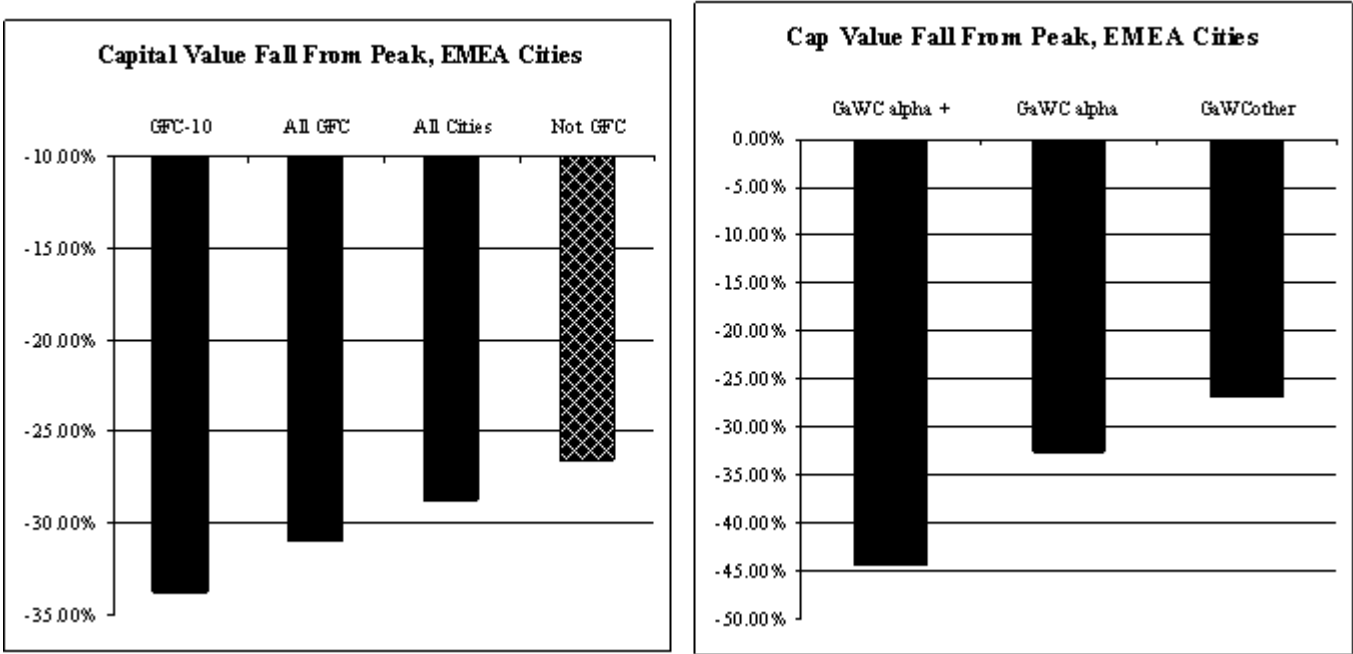
Figure 3 shows changes in office rental and capital values for European cities which are highly ranked in the GFCI as tracked by real estate consultants CB Richard Ellis (CBRE). Falls in value are shown from peak 2005 values to the lowest values at 2009. While timings vary, all of these cities have experienced falls which have been substantial in most instances. Notably in Europe's top ranking global city, London, values dropped early and sharply however lower falls in Frankfurt, Zurich which are less rounded APS centres than London, may reflect a reluctance (or inability for institutional reasons) of appraisers to mark down values. Capital value falls are greater than rental value falls, emphasizing the importance of investment markets and credit in maintaining and bursting asset bubbles, according to Lizieri.



**Figure 3. Office value falls 2005 – 2009**

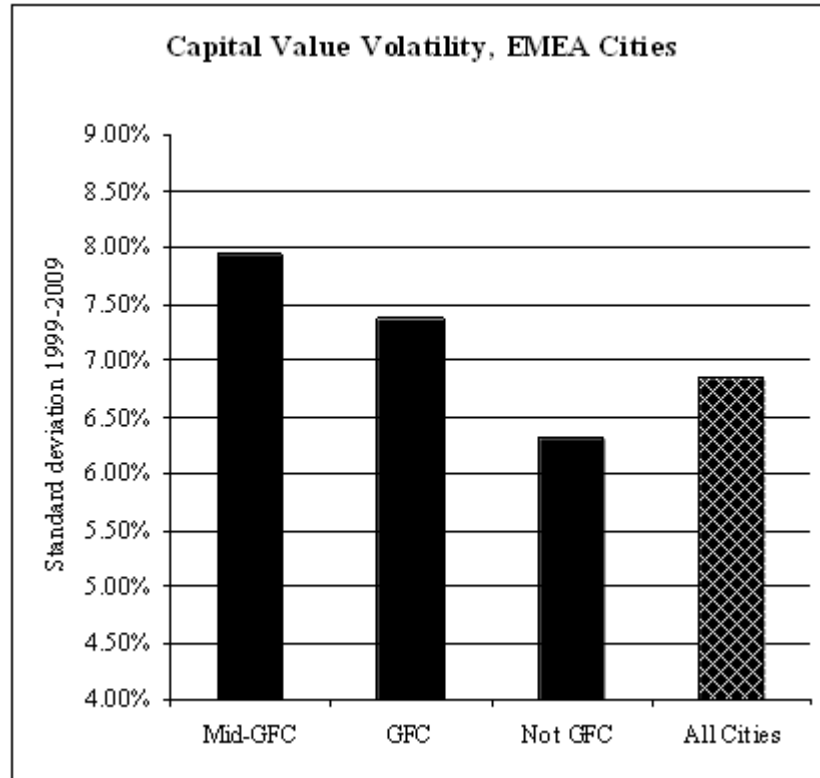
Source: Author, from CBRE data

Figure 4 shows capital value falls reported by CBRE for 64 EMEA (Europe, Middle East and Africa) cities, grouped by type of city. Lizieri notes that the largest falls in value are in financial cities ranked in the top ten by Z/Yen, while unranked cities show lower falls. As striking are the falls arranged by GaWC classification, where GaWC "alpha plus" cities fell fastest (averaging -44%) and GaWC alpha cities as a whole showing sharper falls (-33%) than lower category cities (-27%). The data suggest a correlation between major fluctuations in capital values and the major GaWC international financial centres in the EMEA world region.



**Figure 4. Capital value falls by city type**  
 Source: Author, from CBRE data

Figure 5 examines capital value volatility in office markets by type of city. Offices in IFCs would be expected to have experienced greater increases in value in the first half of the 2000s, and sharper falls in the market correction. This is confirmed by the volatility in annual returns between 2000 and 2009, which is higher in global financial centres however here mid-ranked IFCs exhibit higher volatility than larger cities raising the question whether the critical mass of the largest centres affords them some resilience while smaller centres are more vulnerable to financial shocks. However Lizieri notes that the higher volatility relates to a small number of cities, notably Moscow and Johannesburg.



**Figure 5. Capital value volatility by city type**

Source: Author, from CBRE data

The evidence base afforded by existing data covered by Lizieri on real estate investment (Z/Yen), financial activity (MasterCard) and service network connectivity (GaWC), suggests that important interdependencies exist between investment flows mediated by APS service providers (financial and real estate network agents whose command and control functions are clustered in the world's global cities), city real estate market destinations, and city capital value fluctuations which reflect responses to global financial market swings. WP3.2.2 will examine patterns of real estate investment flows into and out of European cities drawing on available global time-series data and will attempt to establish correlations between in- and out-flow volumes and the territorial structure (WP2.2.2) and the degree of economic specialization (WP3.2.1) of European cities.

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## **Annex IV. WP 2.3.3**

**(see PDF in appendix)**

## **Annex V. WP 2.3.4 – The international flows of students**

YANN RICHARD, CNRS

## 1. Introduction

By addressing the international flows of students, we try to assess the attractiveness of Europe in a context of growing competition between higher education institutions (international rankings, stronger mobility) and countries. There has been a threefold increase of the number of international students since 1975. They were 2 millions in 2001, 3.3 millions in 2009. European countries try to attract students, especially high potential foreign ones, in order to exert a kind of *soft power* at regional or global level. A part of these students are potentially future managers and policy makers in their country of origin. One can set a strong hypothesis: the more the EU is able to attract students from neighbour countries, the more it will be able to spread its own norms and regulations in the neighbourhood on the long run. We then try to answer the following questions: is EU a central area attracting flows of students from all over the world? Is the attractiveness of EU particularly strong in neighbour countries, compare to other attracting regions such as Northern America?

N. Varghese shows the importance of intraregional flows, which are dramatically stronger than inter regional flows. By doing so, he confirms the hypothesis of regionalisation. However, his analysis suffers from several shortcomings. It is focused only on the year 2004. Besides, he proposes odd regional groupings: for example, Northern America and Western Europe are included in the same group. On the contrary, our study will not propose any *a priori* regional groupings. Possible macroregions will appear once the data will be collected and once the maps will be completed. Besides, the study will be based on as long as possible time series collected, in order to show the trends of international flows at the regional level over a rather long period of time. The question is: is there a regionalization or de-regionalization trend? What is the evolution of flows to and from EU? The same method will be applied for inter country flows.

## 2. The flows of international students according to the UNESCO database

In order to make a cartographic representation of international flows of students, we have collected all the relevant data on the Unesco website. This database is quite useful but it suffers from several shortcomings: it provides no useful data for the period before 2001; apparently, it is not complete with many lacking data in certain parts of the world over the last decade; the database is updated slowly (for instance, no information on the total number of foreign students residing in some countries during the most recent years). However, this database cannot be ignored because it is the only harmonized one at global level. For instance, it is more relevant and much more complete than the OECD database which releases data only for the OECD members as destinations of international flows of students (until 2004).

### Objectives:

- To represent the flows of international students in order to check whether they are more regionalized than globalized or the contrary, in various parts of the world.
- To set a typology of countries according to the influence of Europe, especially in neighbour countries: attractiveness of the EU and of the Espon space on the international flows of students.
- To point out possible correlations between the geography of international flows and other qualitative and quantitative variables.

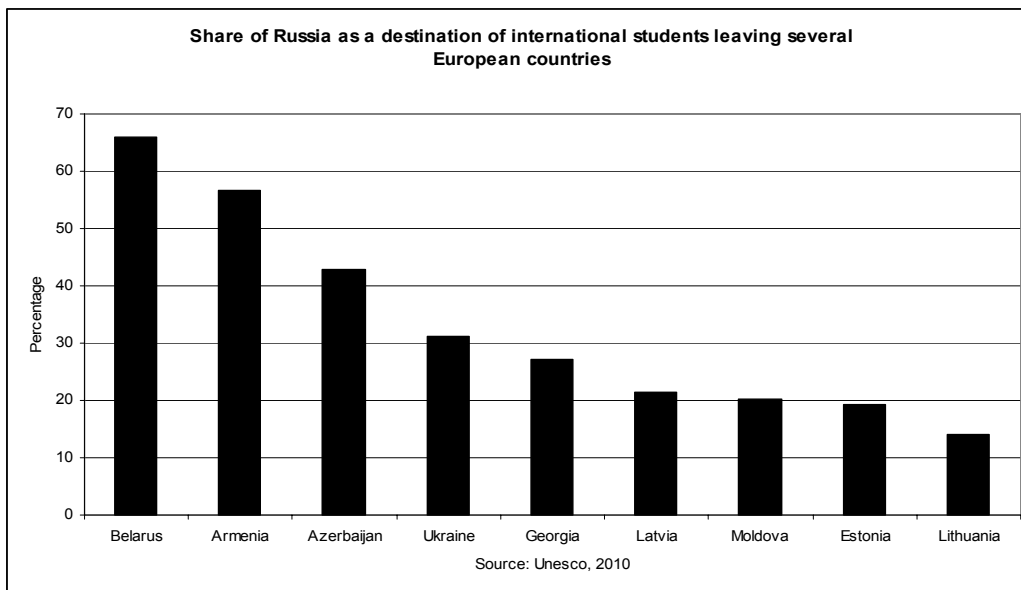
Several O/D matrixes of international flows of students have been prepared: one for the 2001-2003, one for 2004-2005 and one for 2006-2008. Several preliminary maps have been realised up to now:

- Export capacity of student of all the countries in the world: relation between the total number of students in every countries and the number of students exported abroad.
- Attractiveness of the ESPON space upon the international flows of students from all the countries in the world, except the ESPON member countries. Three maps have been realised for the three aforementioned periods. Unhappily, it won't be possible to realize such maps for previous periods. Consequently, it will be difficult to point out trends and evolution in the geography of international flows.
- Destination of international students emigrating from various countries: United States, three emerging economies (China, India, Russia), several neighbour countries (Turkey, Russia, Morocco).

#### Preliminary conclusions:

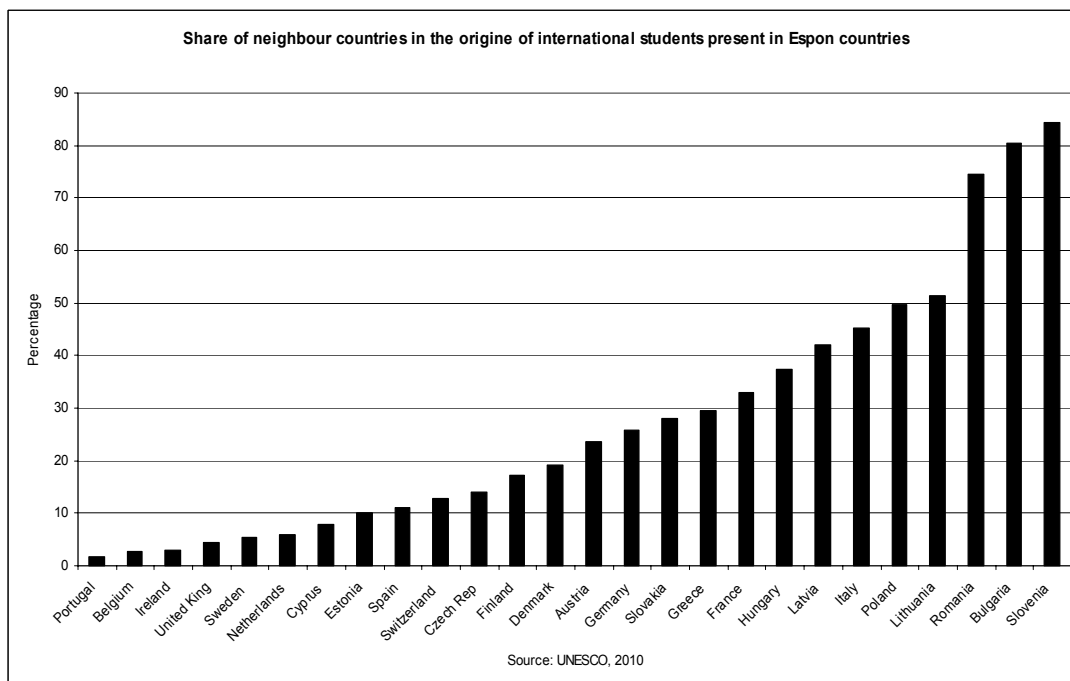
- The Espon space is clearly one the most attracting region in the world for the international flows of students. It concentrates more than 46 % of all the international students in the world in 2006-2008. The most attracting countries in Europe are United Kingdom, France and Germany with more than 46 % of the international students residing in the Espon territory in 2006-2008. The other member countries are far behind: Italy (4.8%), Austria (4.2%)...
- A large part of the international students present in Espon countries come from a European countries. Portugal, France and Greece are the less "europeanized" countries in terms of geographical origin of their international student with 18, 23 and 31 %, before United Kingdom and Spain with 33 and 36 %. Most of the Espon countries are beyond 40%.
- The attraction of Espon universities is not that high in all parts of the world (maps): it is high in many Mediterranean and African countries; it is relatively high in the United States and in various neighbour countries (Western Balkans, Ukraine, Russia); the international students from the Near and Middle East is unevenly attracted by the Espon territory; in more distant regions, the attractiveness of EU is low or very low (South and Eastner Asia, South African countries, various American countries, Central Asia). The geography of attractiveness of Espon has been stable for years with only slight changes.
- As far as the Eastern neighbourhood is concerned, Russia is still significantly attractive for international students, especially those coming from Belarus and Caucasus (Graph 1). The legacy of the Soviet period has not been totally wiped away yet. Russia's so-called near abroad is to certain extent a kind of shared neighbourhood where the Russian influence is still high and where the EU influence increases.

#### **Graph 1**



- The majority of international students emigrating from Espo countries go to Northern America, to another Espo country or to Australia. They rarely go to developing or to neighbour countries. The relations between EU and its neighbourhood are then quite dissymmetric. But the share of the international students coming from the neighbourhood in Espo countries varies a lot (graph 2): it is high or even quite high new EU member countries, it is average and generally low or very low in old member countries of Western Europe.

**Graph 2**



What is the work program in the coming months:

- To draw maps of EU and Espo influence in the world based on a typology of emitting countries. The objective is to point out the countries which emit a lot of international



students (number of emigrating students as a share of the total number of students residing in a considered country) and whose majority of international students go to the Espon territory. The influence of Espon is certainly not based only on the number of students sent to the Espon territory by a considered country because the flow is biased by size effects (size of the country of origin for example). It is the strongest in countries whose export capacity is high (number of emitted students as a share of their number of domestic students) and where the share of Espon as a destination for these international students is also high (Maps 1 and 2).

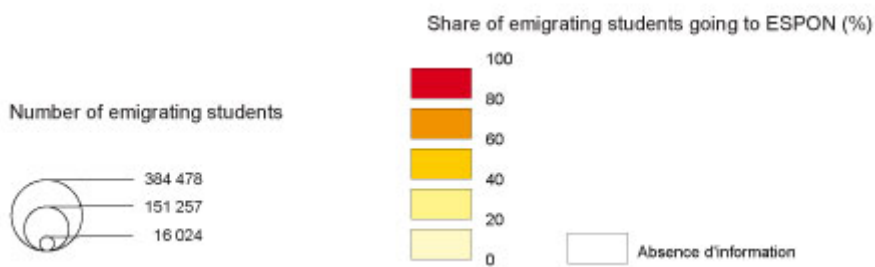
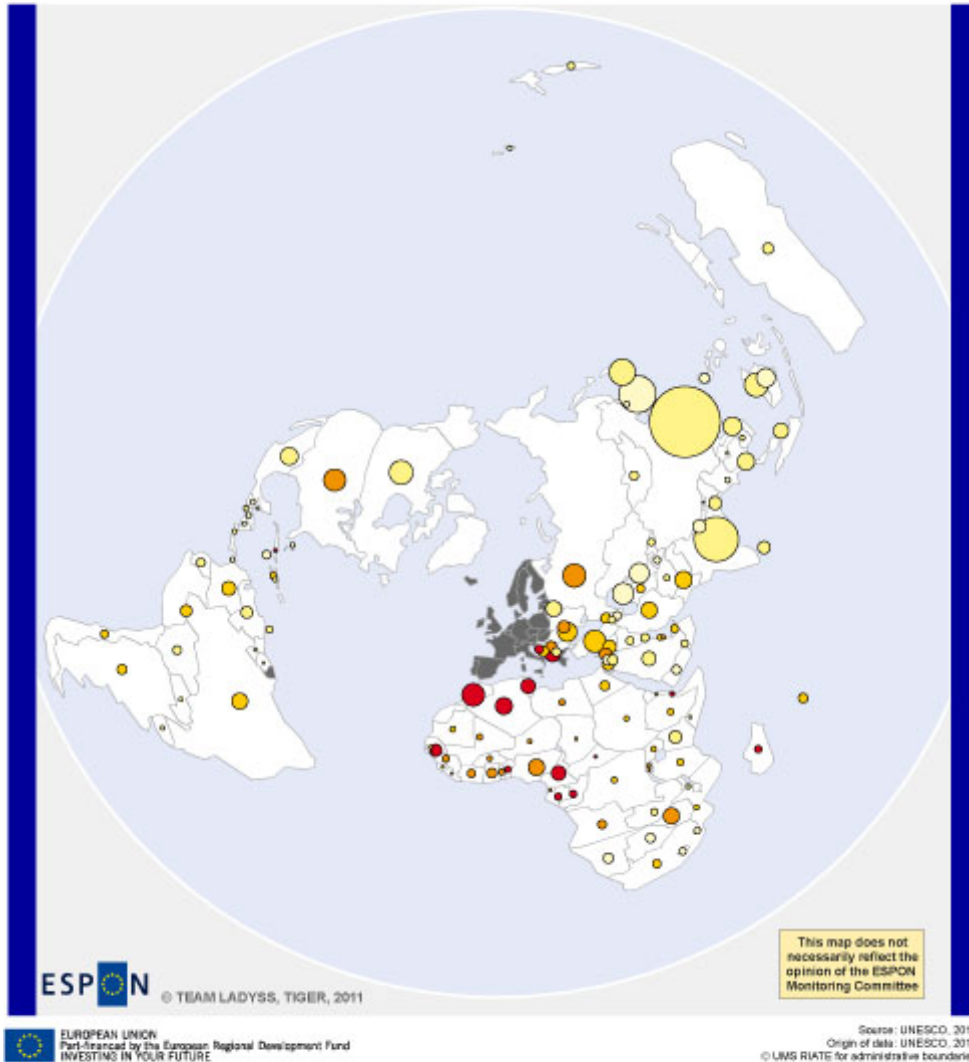
- To compare the attractiveness of the Espon territory and that of other attractive countries such as the United States (Map 3), especially upon neighbour countries. Several questions can be raised: is Espon the most attractive destination in neighbour countries? Is Espon more or less attractive upon its own neighbourhood than the United States on central and Latin America? And the same for Japan and China. When one takes into consideration the destinations of international students leaving six countries, it appears that Espon is not always the most attractive destination. Several situations can be distinguished: Espon is clearly the leading destination of Moroccan students; it is the main destination for Turkish and Russian students, but a significant part of them go to Northern America; Chinese students international flows are clearly Triad based with a relative balance between Eastern Asia, Northern America and Europe; the Indian ones are more attracted by the United States than by European countries.

- To explain the geography of flows of international students with a search for correlations with other quantitative and qualitative variables (languages, former colonial ties, strong political relations, geographical proximity and so on).

- We will also analyse the evolution of flows of international students in the framework of the Erasmus Mundus Programme. According to the data released by this programme, the number of international students coming from neighbour countries in 2004-2009 (yearly average) is relatively low.

# Attractiveness upon foreign students

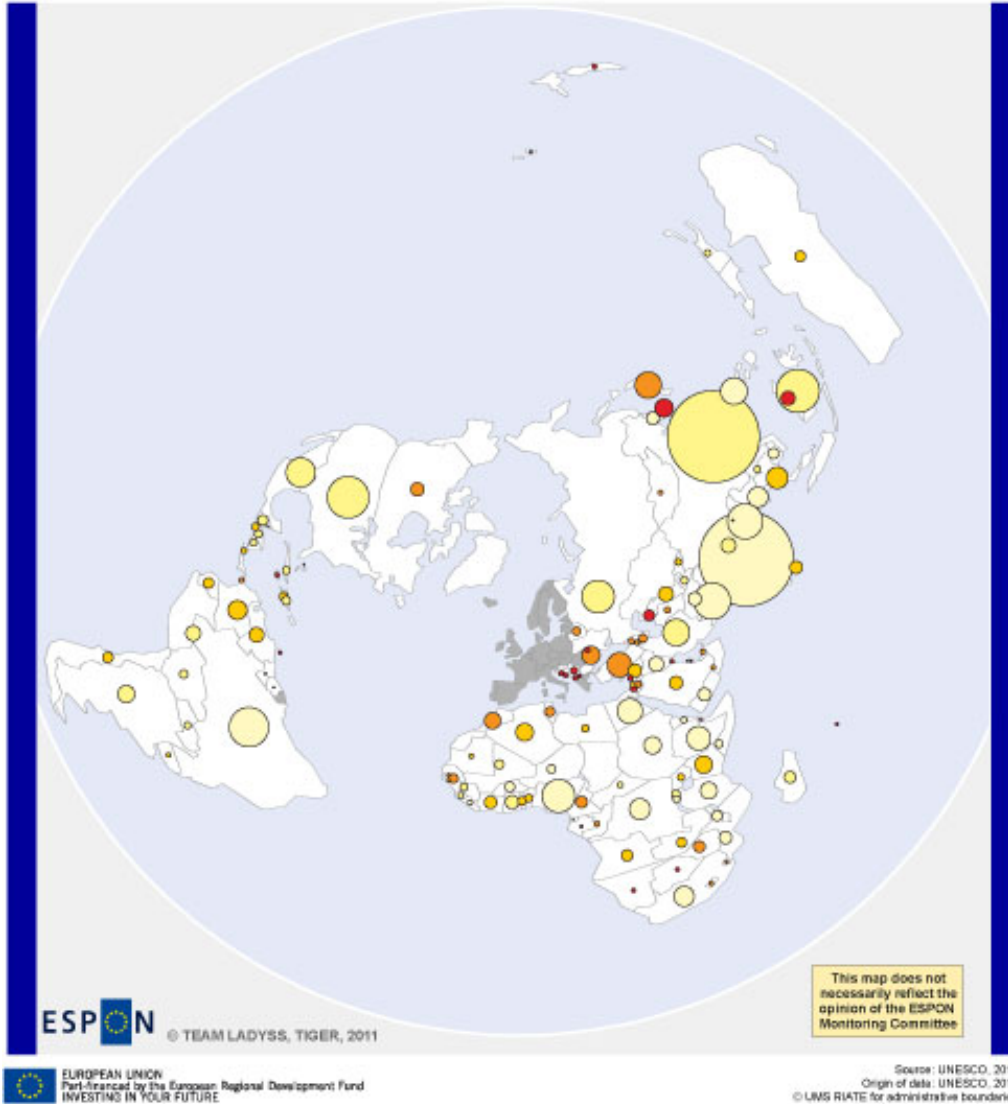
2006 - 2008 Average



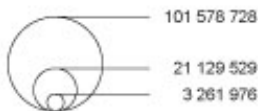
**Map 1. Attractiveness upon foreign students**

# Export capacity of students

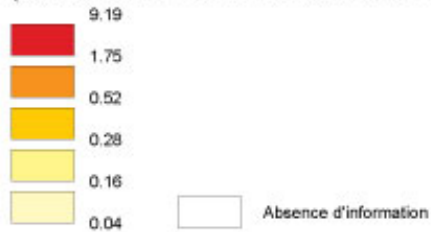
2001 - 2003 Average



Total number of students

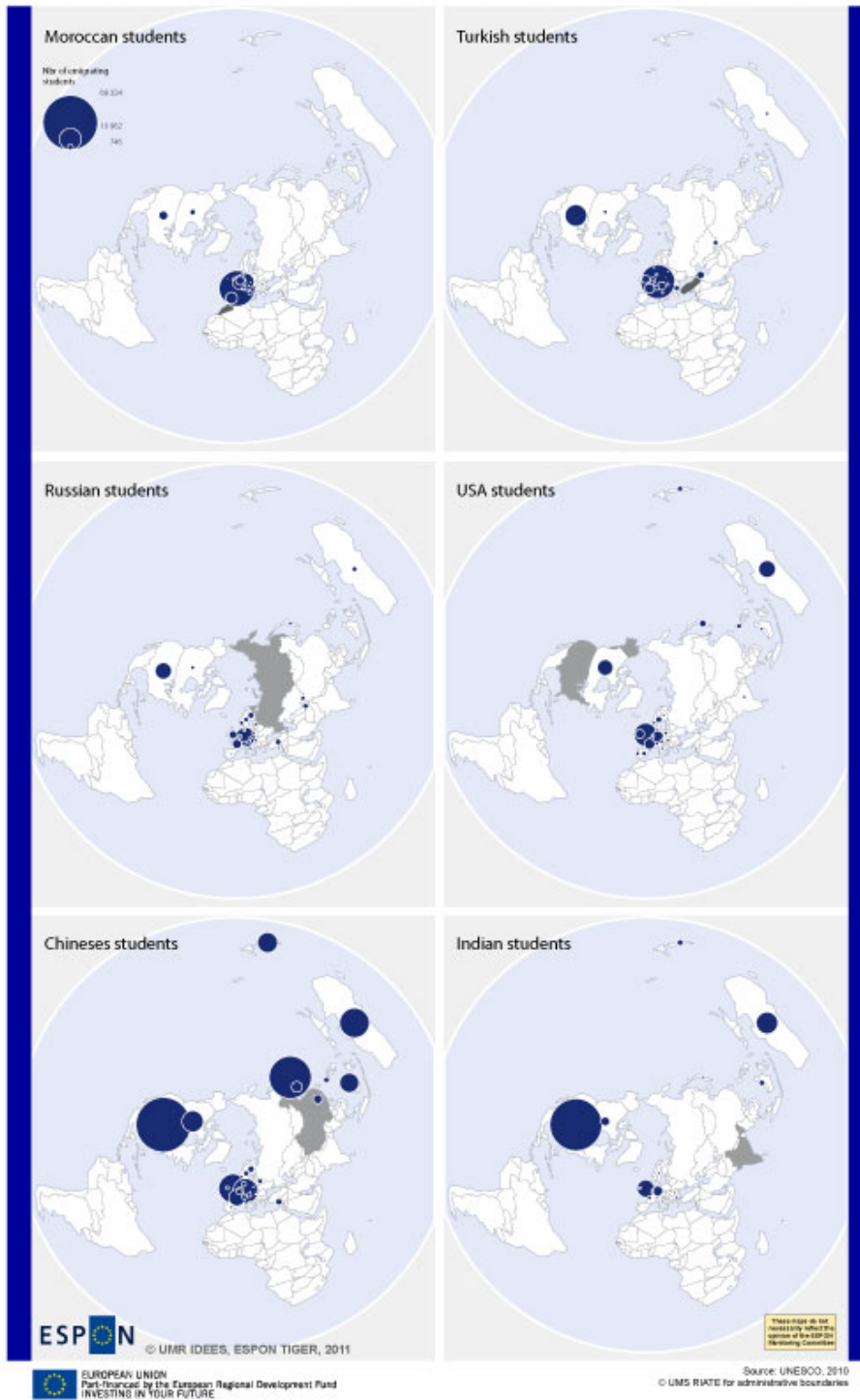


Students going abroad  
(as a share of the total number of students in the county)



**Map 2. Export capacity of students**

# Distribution of emigrating students 2001-03



Map 3. Distribution of emigrating students 2001-2003

## **Annex VI. WP 2.3.5 – Europe in the airflows**

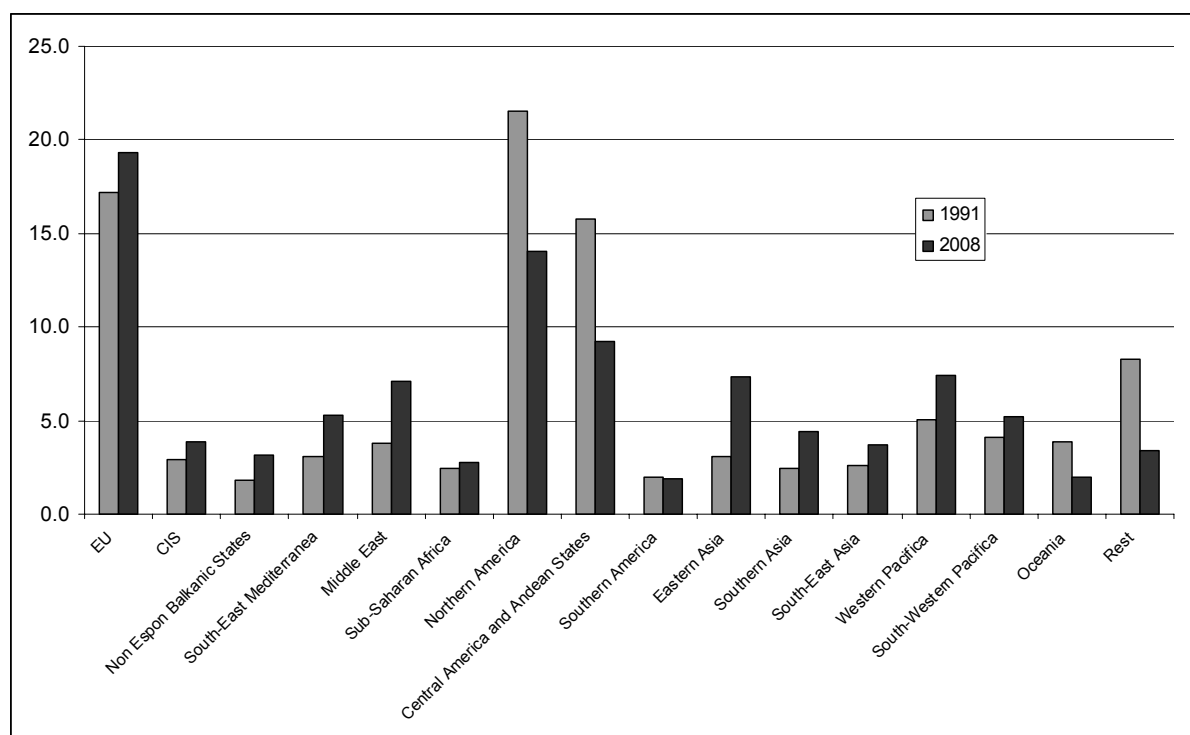
GILLES VAN HAMME, PABLO MEDINA-LOCKHART, IGEAT

This short working paper assesses the position of Europe in the air flows. It is based on supply data, which do not allow identifying the real traveller's destination. This means that statistics give the total supply in seats or flights between two airports. This is important because of the importance of hub strategies implemented by companies.

## 1. The position of Europe in air flows

In 2008, Europe defined by the ESPON area accounts for 46.4% of all airflows when intra-national airflows are excluded. In these flows, intra-European airflows represent 38.7% of all airflows. Indeed, the share of intra-European flows in all European flows is about 83.3% in 2008, a moderate increase since 1991 when this share equals 80.9%.

However, there is something artificial to exclude intra-national airflows and not intra-continental airflows, considering that Europe is a totally free airspace. When intra-continental flows are excluded, Europe only accounts for 19.3% of all intercontinental flows in 2008, while it represents around 17% in 1991 (Graph 1). In 2008, this is more than Northern America, including Mexico, which represents 14% of all airflows, for a similar economic size. Again, we observe the openness of the European space, notably compared to Northern America.



**Graph 1. Share of total intercontinental airflows in number of seats, 1991 to 2008**

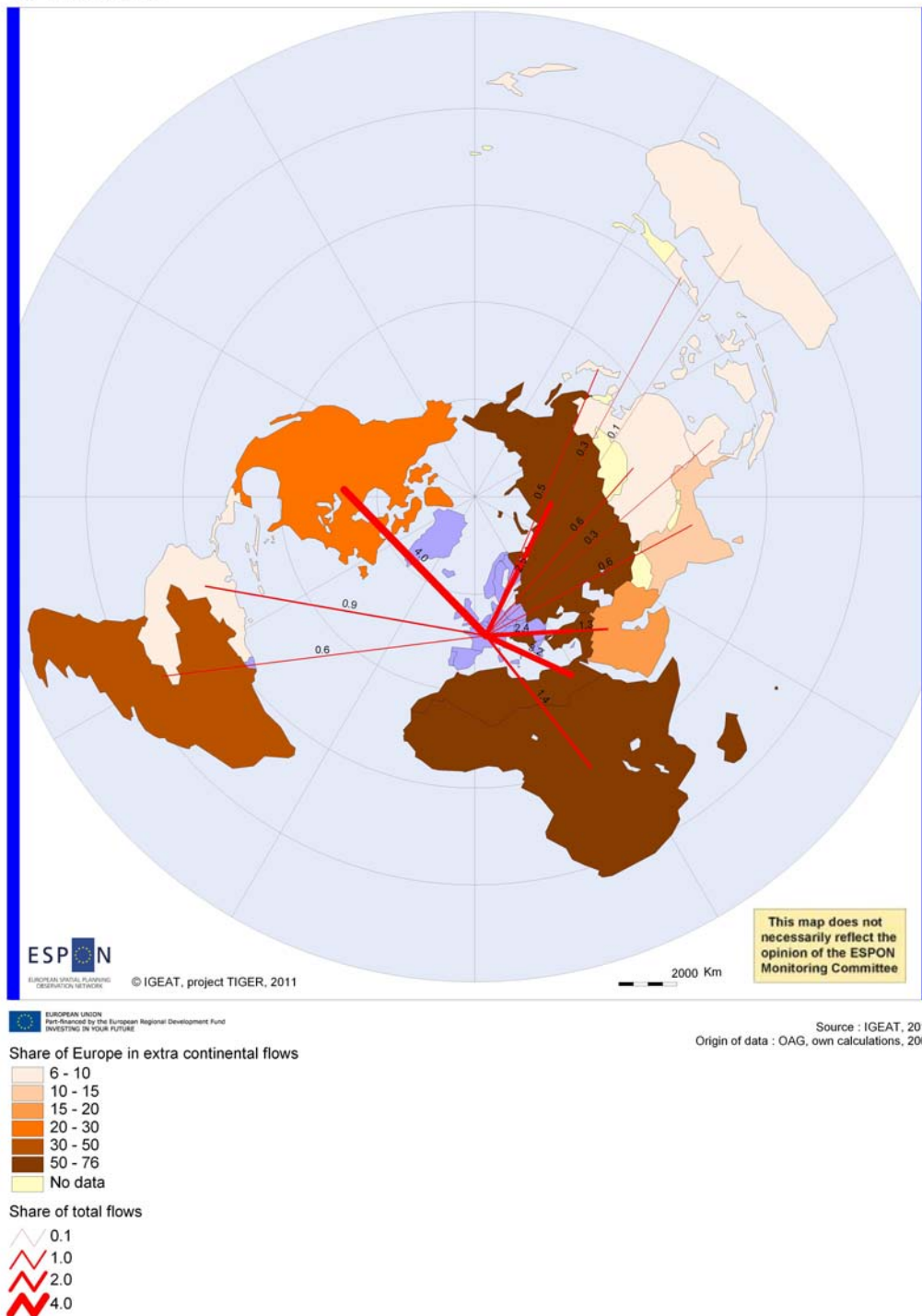
Source: Own calculations on OAG data.

## 2. The geography of airflows for Europe and European countries

Map 1 shows the extra-continental air flows for Europe. The major flows are toward Northern America, followed by the most proximate areas of former USSR, Balkanic States, and Northern Africa/West Middle East. These relations might be of very different nature: flows toward Middle-east and Northern Africa relate to strong historical relations, the share of immigrants – notably from Maghreb and Turkey – and the tourist flows, notably to Morocco, Tunisia, Egypt and Turkey. Interestingly enough, those areas appeared of limited importance as far as trade is concerned, reinforcing thus the hypothesis that the higher importance of these parts of the world for Europe are due to migratory and tourist flows rather than economic relations. In comparison, we make the hypothesis that flows with Northern America – the first partner in terms of trade and investments – are much more related to business travels, and less for other types of motives.

When it comes to the influence of Europe in the world – as measured by the share of Europe in the flows of each macro-region (colors of the map) – the picture is very similar with the one of trade, with the highest influence to be found in neighbourhood regions: ex-USSR, Middle-East and Africa. Concerning the latter, in contrast with the trade influence, Europe is by far still the first destination for extra-Subsaharan flights while the Europe's influence in this part of the world has considerably decreased in terms of trade. The low influence of Europe in the Gulf countries, in Southern and Eastern Asia is also confirmed.

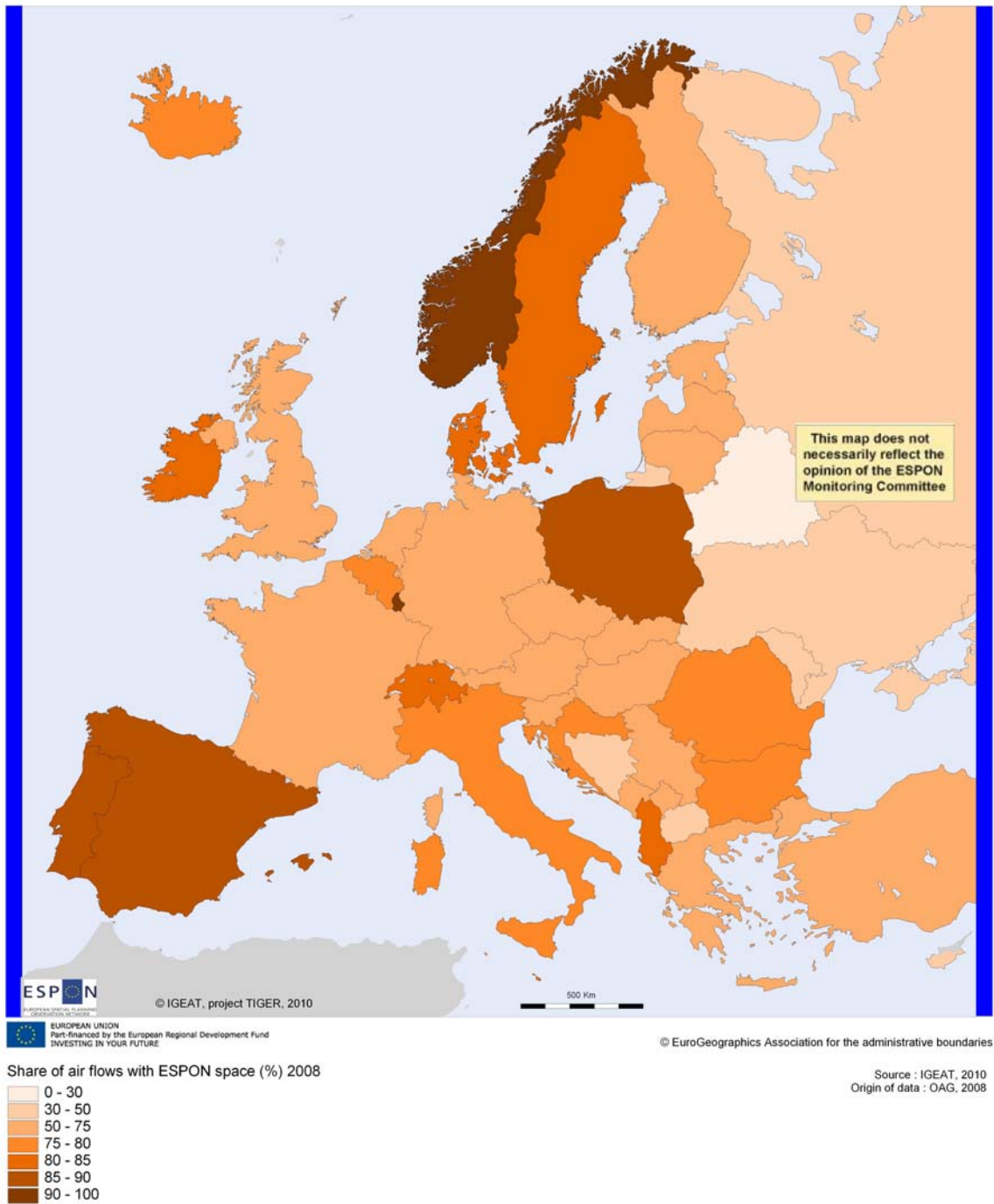
Air flows, 2008



**Map1. Air flows (in seats) of Europe with the rest of Europe, in 2008**

However, this general picture hides major differences between countries. First of all, for all countries, Europe is by far the first destinations in terms of flights. But, some countries are less European than others in the air flows. This is notably the case for countries hosting the major European hubs: Netherland, France, UK and Germany. Once again, we cannot eliminate this hub effect and are therefore unable to know whether in their final destinations the different national citizens travel more or less within Europe.

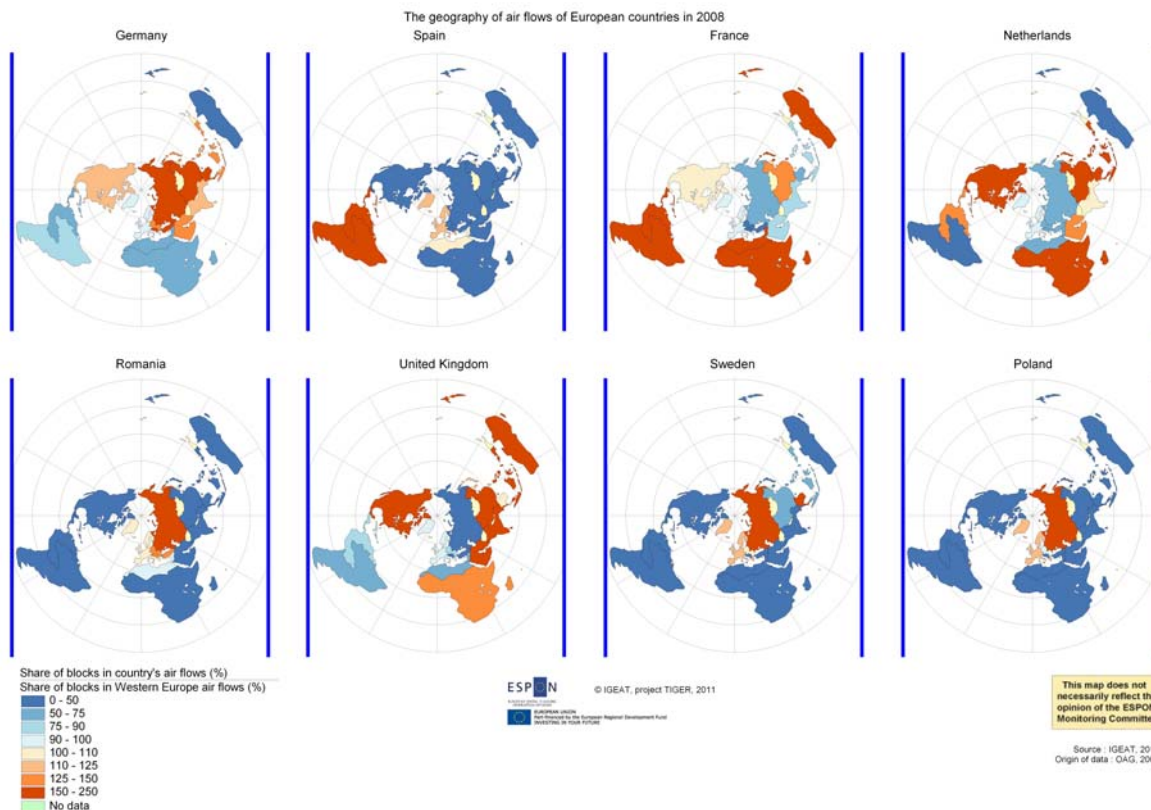




**Map 2. Share of airflows (in seats) with the EspoN space in 2008.**

The extra-continental destinations from selected European countries are showing interesting facts. They largely confirm the geographical specificities of European countries in terms of extra-European relations as observed for trade: the Eastern bias of Germany; the importance of the commonwealth for UK; the importance of Africa for France and of Latin America for Spain; the importance of Eastern Europe and former USSR for Poland or Romania. However, some striking differences appear. The low share of Africa for Spain: while Madrid has a hub function toward South America, this is not the case for Africa where

this function is devoted to Paris or Amsterdam. We may also note the specific relations of France with Oceania.



**Map 3. The geography of airflows of selected European countries in 2008**

## Conclusion

What are the main conclusions about the evolution of the position of Europe in the world of airflows?

1. The position of Europe has been rather stable in the air flows. However, as for trade, its influence is largely limited to neighbourhood areas (former USSR, near Middle-East and Northern Africa). However, we must note that despite the decreasing role of Europe in Sub-Saharan Africa, Europe is still by far the major destination for African flights. Indeed, the geography of airflows is also highly related to historical relations and migratory flows (both are strongly related).
2. Europe is a highly integrated and connected airspace.
3. Countries' extra-European air flows are very differentiated, illustrating the specific historical relations of the different countries, with similar geographical pattern than the one observed with trade.