THE SPATIAL DISTRIBUTION OF LABOUR INTENSIVE INDUSTRIES IN THE EU [†]

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Abstract: This paper analyses the delocalisation processes in EU-27 by exploring the industry location, specialization and countries competitiveness. The analysis is based on NACE data, Division 15-37 for EU countries and results from a survey of 756 EU enterprises.

We studied the structural adjustment of the industrial composition and the spatial distribution of the labour intensive industries over time. We found that the delocalisation process leads to specific spatial location of Labour intensive sector and countries clustering by different manufacture sectors. The potential benefits for the different participants in the delocalisation process are discussed. Possible future scenarios and prospects are foreseen.

Key words: Labour intensive industries; Delocalisation processes; Regional specialisation; Manufacture composition.

JEL codes: F14, P52, R12

1. Introduction

Most theoretical works relate economic growth with convergence processes. The opponents of the theory of convergence follow Myrdal's (1957) thesis, which is based on the understanding that growth is a process which leads to cumulating spatial economic differences. They suggested a reconsideration of conclusions for convergence processes in the EU because they were formulated without including countries from EU South, mainly developing countries for which the convergence process is not typical (Armstrong, 1995).

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These two different approaches lead a lot of economists to share the understanding of the dualistic nature of the development of the EU, (differences in the economic development of the centre and the periphery). Mack and Jacobson (1996) sustain the vision that these processes depend on the spatial specialization which concerns the degree of technological processing – the centrally located EU regions (core regions) have a tendency to specialize and export to the periphery highly technologically processed manufactured goods, while the periphery specializes in the production of low technologically. Going further it is maintained that the location of the industries with constant return of scale (mainly low technological processing industries/labour intensive industries) is a result of the distribution of those which have an increasing return of scale (high technology processing industries). The location of the labour intensive industries (LII) finds its expression mainly through the delocalisation processes defined by Kalogeris and Labrianidis (2007) as "…..spatial restructuring of industry at a national, regional or global scale".

The purpose of this study is to provide an analysis of the economic drivers for the manufacture composition changes by sectors in the EU countries. These changes can throw more light on the delocalisation process since both sectors' and countries' specificity have an important and interrelated influence on the typical characteristics of this process, (Kalogeris and Labrianidis, 2007). The first question that the study puts forward is what the patterns of change of the industrial structure across EU countries are. The second is to what extent these changes can be attributed to the delocalisation of the LII.

The study is organized in the following way. First the structural adjustment of the industrial composition that takes place with the intensifying of the delocalisation processes within EU countries is observed. Various economic indicators are used to present a picture of economic evolution and structural changes over time. The analysis of the country performance indicators is enriched by juxtaposing of the results with these obtained from a fieldwork study in 756 enterprises investigated under the elaboration of the MOVE Project within five EU countries: Bulgaria, Estonia, Greece, Poland and

UK. The patterns of concentration and specialisation as well as the changing in the trade structure and the competitive advantages of the EU countries by LII are related to the delocalisation processes. Finally some conclusions are drawn.

There are two questions that arose when elaborating the study: how to assess the delocalisation processes and what will the concept of "labour intensive industries" be. Usually delocalisation processes are related to FDI reallocation and outsourcing, (Kalogeris and Labrianidis, 2007); however the study faced serious difficulties to find, at the investigated level (manufacture branches by EU countries – NACE classification, Division from 15-37), FDI data that can be used for this specific research. One fully agrees with the statement "There is no broad and accurate database which can directly tackle the reallocation aspect of FDI" by countries and industrial sectors, (Rojec and Damijan, 2006). This is why the process of delocalisation of the LII has been researched by using indicators such as the coefficient of location and specialisation, the index of revealed comparative advantages (RCA), intra industry trade, etc. These indicators are comprehensive since the study is limited mainly to the second and third analytical dimensions of the delocalisation process (*'the sector with its given technologies and markets'* – manufacture branches and *'the environment with its unique institutions, civil society, history and policies* – national and regional level) – see Kalogeris and Labrianidis, (2007).

The next issue that we have to specify when elaborating the study is the concept of "labour intensive industries". There is no common understanding of which manufacturing branches can be specified as "labour intensive". There are bunches of classifications some of which differ a lot from the industries (manufacturing branches) recognised as "labour intensive". When specifying the classification we consider the following circumstances. In the first place, as already mentioned, this particular study deals mainly with the second and third analytical dimensions relating delocalisation processes to the patterns of changing of the share of the industrial sectors by countries; changes that are mainly linked with the distribution of industries traditionally recognised as labour intensive – textile, clothing, leather and footwear industries. This is proved by the

implementation of cluster analysis, which outlines that countries clustered by industrial branches depend on the participation of traditionally recognised labour intensive manufacturing branches. An additional advantage of using this concept is the statement made by Guerrieri (1998) that for the traditional LII "subcontracting has been often preferred by Western European firms as a more flexible device than FDI".[1]

In order to obtain a more distinctive picture of industrial composition changes a specific classification of the manufacture branches by sectors is used. This classification groups the manufacturing branches according to the OECD (1987) classification and also uses the categories for the scale return branches proposed by Pratten (1988).[2]

2. Dynamics, regional specialization and concentration of LII

The Dynamic of LII

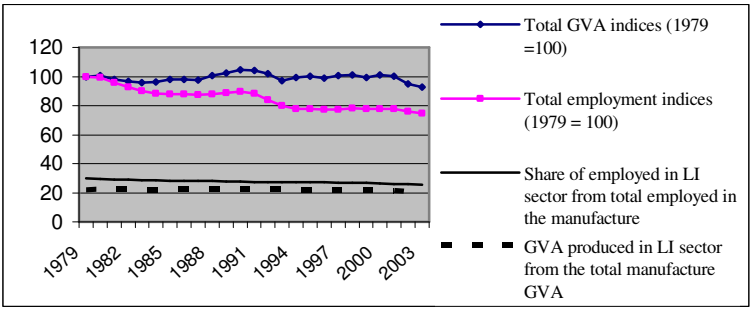
The dynamic of EU-15 employment in the manufacturing sector is showing a steady decline that began in the late 70-ties when a long-lasting tendency of decreasing the share of the secondary (manufacture) sector from the total gross value added (GVA) started, Chart 1. The smoothening of the decline of the GVA in given periods can be attributed to the positive effect of delocalising activities with low labour productivity – the decline in those employed in the labour intensive industries (Labour intensive sector) is sharper than for manufacturing as a whole, (see the changes of the shares of the GVA and employed in the labour intensive sector, Chart 1). The negative

[1] This way the problem with the lack of FDI information is at least partly avoided.

[2] See the five groups (sectors) – "Labour intensive"; "Resource intensive"; branches with "Different factor intensity" (different economic of scale); branches related with "Increasing economic of scales" and "Science intensive branches", Table 1. Eurostat data for manufacture branches NACE classification, Division from 15-37 (not included NACE Division 23: Manufacture of coke; refined petroleum).

evolution of those employed in the labour intensive sector runs parallel with a steady increase in the import of this sector for the EU-15. Falk and Wolfmayer, (2005) find that the increase of the import is due to outsourcing activities of EU-15 in low wage countries as well as that this "import from low wage countries has a statistically significant (negative) impact on employment in EU countries…". Further they outlined that this relation is valid only for the LII. The results of the field survey fully support such explanation. There is a very strong correlation between these two questions: "does your company give subcontracting" and "the higher labour cost of production". This finding supports the understanding that changes of the manufacture employment composition by different sectors can be attributed to the delocalisation processes.

Chart 1. EU-15 manufacturing's dynamic and share of labour intensive sector



Sources: Groningen Growth and Development Centre, 60-Industry Database.

* *For Labour intensive sector, see Table 1.*

For the period after 1991 the first step of massive delocalisation of labour intensive activities from the EU-15 started with shifting part of the production processes to Central European Countries. Looking at the most recent data of employment composition in the EU-27 it appears that the Baltic countries as well as Bulgaria and Romania are showing a tendency to increase the share of GVA and employment in the labour intensive sector in the last several years. The decline of those employed in the labour intensive sector in the Visegrád countries (Central European new member states) for the last several

years is higher than the decline in the EU-15. So the expectation that joining the EU will have a prolonged positive impact on these industries for the Central European countries remains unjustified. The increase in the labour cost in the Central European countries has led to losing the position that was gained at the beginning of the 90's. This is confirmed by the MOVE project field survey as well, 52 per cent of the companies from the field survey that answered the question "how labour costs influenced the decision to delocalise", considered that their decision was influenced by labour cost. According to these figures one can state that labour costs do play a significant part as a motivator in the delocalisation process; so the loss of low-labour-cost advantage will result in a decrease in the potential for undertaking delocalisation activities in LII.

Regional specialisation and concentration of LII

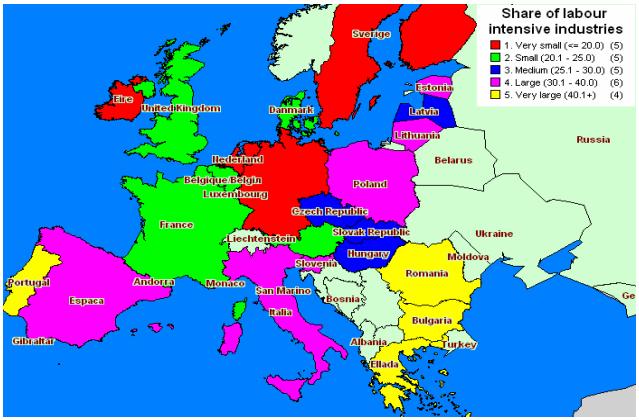
The interest in analysing the concentration (location) of manufacturing production by industries is stimulated by the integration processes in Europe, where the empirical evidence outlined that industries concentration is geographically clustered, (Krugman, 1991). This is valid specifically for the LII, whose distribution within the EU-15 and later within the EU-27 countries is an example of the concentration in given countries that have a similar geographical location.

The employment data analysis revealed a number of important observations with respect to the process of location and specialization as well as to the type of structural adjustment under way, Table 1 and Table 2. The concentration ratios (CRn, n – number of branches) which measure the share of employment in the largest three or five manufacture branches show a modest but clearly expressed process of specialization in the EU countries. The Krugman indexes measuring relative concentration and specialization are higher for the labour intensive branches and less developed countries, mainly the new member states (NMS); the

indexes increase in the period 1995-2004.[3] There is a clearly expressed process of specialisation in the less developed countries due to an increase in the share of the Labour intensive sector, a process which leads to a divergence in the industrial structures of EU countries.

The Krugman indexes revealed a process of concentration of industries where the delocalisation is easy for realizing – in the so called "Mobile Schumpeter's industries", Table 1 and Table 2. Mobile Schumpeter's industries are the industries where a geographical separation of R&D and production is technically feasible without substantial losses of synergy effects, (Klodt, 1991). The industries where higher increases in the indexes are observed are: Clothing apparel; Electrical machinery; Furniture and manufacture n.e.c. and the Leather and footwear industry.

Map 1. Share of Labour intensive sector



Source: Eurostat

[3] The Krugman index measures the relative concentration and specialisation, while the Herfindal index is estimating the absolute concentration and specialization, (Totev, 2008). As new member states (NMS) all countries that joined the EU after 2004 are considered – Malta is not included. In the EU-15 Luxemburg is not included.

The most significant increase is in the index of relative concentration of the Labour intensive sector, whose level was also the highest for 2004 (0.26). Next is the Science intensive sector (0.23), Table 1. Concerning the countries' specialization it can be definitely outlined that the specialization in Labour intensive sector is negatively related with the countries' level of economic development; countries with different shares of this sector have different levels of economic development and specific spatial location within Europe, Map 1.

3. Patterns of industrial structural changes

Analysis of the SSD (sum of square differences) indexes

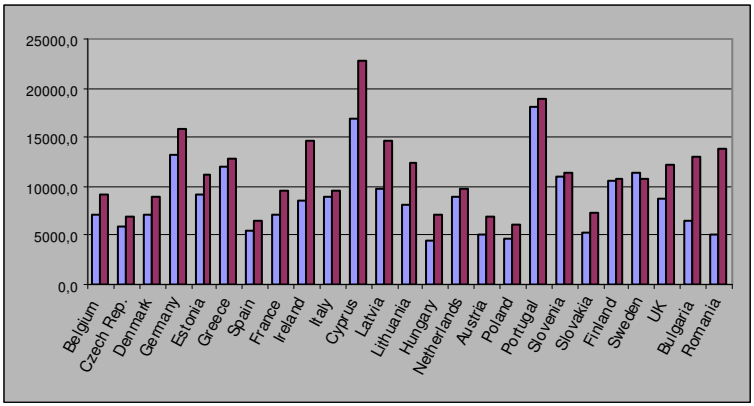
A more detailed picture concerning the industrial changes of the EU countries can be observed by estimating the SSD indexes, Table 3.[4] A number of notable features distinguish the changes in the industrial structure. The first observation is that the NMS have quite a similar structure in 1995, which is close to one of the well industrialized EU-15 countries, Table 3 (see the column 'three countries with closer structure 1995'). Secondly a well expressed process of diverging of the industrial structures within countries is observed, Chart 2. This is valid mainly for the less developed NMS.

When using the classification presented in Table 1 it is noticeable that in the last ten years part of the NMS approximate the structure of less developed EU-15 countries, while the other part of the NMS remain close to the structure of the more advanced EU-15 countries, Table 3 (see the columns with the 'three countries with closest structures 2004')**.** The three Central European countries, the Czech Republic, Hungary and Slovakia, have the closest manufacturing composition to the EU average for 2004. Since the higher changes of the structure are indicative of intensive structural adaptation, it

[4] $SSD_t = \sum_i^n (a_{it} - b_{it})^2$ where [a, b] is a pair of countries, i = 1, … 21 is the number of industries; t are time periods, Table 3.

appears that the newcomers Bulgaria and Romania are undergoing such a process, Table 3 (see the first two columns).

Chart 2. Sum of SSD by countries (1995 - blue columns, 2004 - red columns) *



Sources: Own calculation based of SSD results.

** Note: The sum of SSD for given country with all other investigated countries. When estimating the sum of SSD by countries is used the five group classification, see Table 1.*

This adaptation is realised mainly by undertaking subcontracting in the labour intensive sector. One can prove it by observing the extreme increase in intra industry trade of the LII with the main EU countries which provide subcontracting, (Italy and Germany).[5] The field survey supports this finding; 50 per cent of the export of companies from the footwear and clothing industries is oriented to two-three main countries. These structural changes, due to the fact that less developed countries like Bulgaria and Romania can realise competitive advantages in LII, lead to an approximation of the structures of Bulgaria and Romania to those of Greece and Portugal, Table 3 (see the column with the 'three countries with closest structures 2004').

[5] UNCTAD/WTO data, http://www.intracen.org/countries/

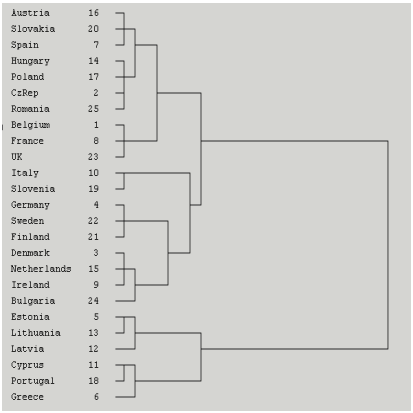
Cluster analysis

In order to specify the countries distribution by groups with similar industrial structures cluster analysis was applied, (Huberthy, 1994). The following parameters have been used for that purpose: [6]

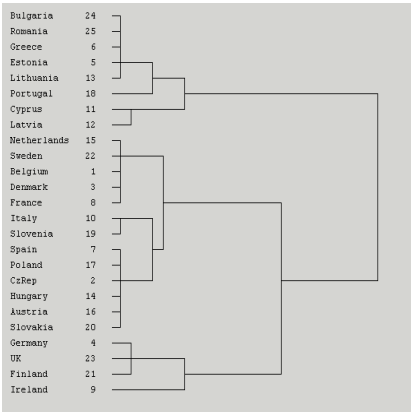
- Relative concentration measured by using the Krugman indexes, Table 1 (five sectors);
- Share of the LI sector in the total manufacture employment, Table 2;
- SSD indexes between given country and the EU-27 average, Table 3;
- The ranks of the SSD indexes between given country and the EU-27 average.

The conducted cluster analysis for 1995 divides European countries in two main clusters – see Employment Dendogram 1995.

Employment Dendogram 1995



Employment Dendogram 2004



Sources: Eurostat and own calculations

[6] The Discriminant analysis (Huberthy 1994) shows that higher predictor ability what concerns the industrial composition have the chosen parameters.

The first includes Greece, Portugal, Latvia, Lithuania and Estonia – countries that mainly undertake subcontracting up until 1995. One can see the results of the structural adaptation in these countries influenced to a certain extent and from the delocalisation process – they have a much higher industrial specialisation and larger shares of those employed in the labour intensive sector, Table 2.

The Herfindal indexes calculated over the separate labour intensive branches for this cluster have an average value of 0,6 while for the other cluster it is 0,3. The SSD indexes show that the structure of employment for the countries in this cluster is quite different than the typical composition in EU-15 as well as in EU-27.

The larger cluster (rest of the countries) is far from homogenous. There are countries giving subcontracting as well as countries not actively involved in the delocalisation process. The differences in this cluster rise significantly with the industrial structural adjustment over time, influenced by the changes of the involvement of the countries in the delocalisation process in the last decade. This forms a new picture of division in 2004.

The analysis for 2004 specifies three clusters.[7] The group of Greece, Portugal, Latvia, Lithuania and Estonia is joined by Bulgaria and Romania. Bulgaria and Romania have undergone quite serious changes in their industrial structures as can be seen from the SSD indexes for 1995 and 2004, Table 3 (see the first two columns); changes that in this particular case are the result of delocalisation processes – the outcomes of the field survey analysis definitely outline that the development of the labour intensive sector entirely depends on undertaking subcontracting. A clear indication of the potential to undertake subcontracting in the labour intensive sector is the share of companies that have a second layer subcontracting relationship with a company located in the same area. The results of

[7] In Cyprus the manufacturing sector does not play the same important role in development as for the economies in the other countries. This is why the conclusions and generalization based on the estimated variables will not have the same validation for Cyprus.

the Move project field survey do confirm this thesis; 45 per cent of Bulgarian firms have a second layer subcontractor in the country, significantly higher than in Poland and Estonia.

One can see a new cluster formed of the four countries with the lowest shares of LII in 2004 – Germany, Finland, UK, and Ireland. These countries have undergone a moderate structural change mainly by increasing their positive specialisation in the branches with increasing economies of scale and the science intensive sector, Table 1.

The third cluster positioned between the above two does not have a homogenous structure. On the one hand there are countries, which do not form a clearly distinctive sub-cluster – Belgium, Denmark, France, Netherlands and Sweden. The share of employment in the labour intensive sector in these countries did not change much during 1995-2004 (this means no intensive participation in the delocalisation processes). This can be confirmed from the field survey as well – the countries from this cluster are presented by less than one to six per cent as main markets/customers.

On the other side of this cluster one can find both the EU-15 and NMS. The EU-15 countries from this group are Italy, Spain and Austria. Italy and Spain have high shares of labour intensive sector and it can be expected that their role as countries providing subcontracting will remain unchanged in the future. Austria also plays a certain role in the delocalisation processes, which can be attributed to the proximity of the country to the South Eastern European countries. The NMS (Czech Republic, Hungary, Poland, Slovenia and Slovakia) within this group of the cluster had less or more exhausted their delocalisation potential as countries undertaking subcontracting in the Labour intensive sector.

One can maintain that there is a different tendency for the NMS. Some of them approximate the EU-15 average structure, while the others approach the structure of the less developed EU 15 countries, Table 3 (see the columns 'three countries with closer structure'). Bohle and Greskovits (2005) also noted these different tendencies for the NMS, "the accelerating eastward migration of trans-national light industries from West European (and nowadays even Visegrád

countries) locations transformed some of the Baltic states, Romania, and Bulgaria into the textiles and garment sweatshops of the EU". On the other pole they place the Visegrád states that approach the structure even of the well developed EU-15 countries.

The SSD indexes and the Cluster analyses revealed:

Labour-intensive industries are found to be relatively dispersed over the area of the EU-27 in 1995. However a clear tendency of relocation and concentration is observed in 2004 compared with 1995, Table 1 and Table 2. The changing of the industrial structures is intensively influenced by the delocalisation processes; the changes are leading to a general divergence of the industrial structures of the EU countries, Chart 2. These changes lead to countries clustering by industrial structure in the EU space. Countries belonging to the same clusters tend to converge their industrial structures. This clustering depends to a great extent on the nature of countries involvement in the delocalisation process.

Bulgaria and Romania will continue to play a significant role in the receiving sector (countries that undertake subcontracting in the labour intensive sector) of the delocalisation process; the other typical 'receivers' -- Lithuania, Latvia and Estonia are expected to exhaust their potential in the near future; indicative of this are the changes in the share of the Labour intensive sector and trade indicators for the last 4-5 years;

Undoubtedly there still is a delocalisation potential for the UK and Germany but it cannot be expected to be as intense as it was in the last decade. The UK has a higher potential since the share of the Labour intensive sector is higher compared to that of Germany.

In the course of time Czech Republic, Hungary, Poland, Slovenia and Slovakia can be expected to move their activities to so called triangular relations in the delocalisation process, whereby the orders come from developed EU-15 countries and are executed by 2nd layer subcontractors in other countries. The role of the above mentioned NMS in this process is mainly to be responsible for logistics, (Labrianidis, 2001). Finally Italy and Spain will retain their leading position as countries providing subcontracting.

4. Trade competitiveness and delocalisation processes

All theoretical approaches predict increasing specialisation as a result of trade liberalisation and EU enlargement leading to significant changes in the EU countries competitive advantages, (CEC, 2003).[8] Intra industry trade between developed EU-15 countries and less developed NMS, especially in the typical LII like footwear, clothing and textiles can be attributed to the delocalisation processes and more specifically to outsourcing activities, (Falk and Wolfmayer, 2005). The intensifying of the vertical intra industry trade is a clear indicator of intensifying delocalisation activity, (Hoekman and Djankov 1996). The fieldwork analysis under the MOVE Project definitely outlines the interrelation of subcontracting and the intensifying of intra industry trade. The estimated Spearman's rank correlation coefficients are statistically significant and approximately high (around 0.5) for the relations between involvement in delocalisation and the purchasing of intermediate products, the position in the production chain and receiving orders because of low cost, as well as for the position in the production chain and subcontracting of labour intensive products.[9]

Looking at the trade performance of EU countries with labour intensive products some important observation can be drawn, Table 4. In general a process of losing revealed comparative advantages (RCA) in the EU countries is observed. This is valid for the EU-15 countries as well as for the NMS. Secondly the intensity of losing position in labour intensive products is higher for the NMS compared to that of the EU-15. Finally if we relate the RCA coefficients to the Rank specialization indexes of the EU countries it appears that there are obvious relations between the group of countries that forms different clusters according to their industrial structure and their specialization. In other words one can state that there exists a clear relationship between industrial composition and trade performance.

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[8] UNCTAD/WTO data, http://www.intracen.org/countries/

[9] Results from the field survey provided in the framework of the MOVE Project. The coefficients are estimated for the clothing and footwear industries.

Cluster analysis of trade competitiveness

As an indicator of the successful restructuring of the industry one can use the conformity between the production structure and the export structure, (Landesmann, 1996). This is especially valid for small countries, which are supposed to have open economies and for which it is expected that the composition of production should reflect the composition of exports. An adjustment of the production structure to the trade structure can also be expected mainly within NMS.

When comparing the Employment Dendogram for 2004 with the Trade Dendogram 2003 (specified by the indicators for RCA and trade specialization, Table 4 (see the columns 1, 2, 3 and 7, 8, 9), one can see that there is an almost full overlap between the Employment cluster (Bulgaria, Romania, Lithuania, Latvia, Estonia, Portugal, and Greece) and the corresponding Trade cluster (see Dendogram figures below).

The only discrepancy here is that according to the characteristics of trade specialization Italy is in this cluster too. This cluster can be characterized as one of the countries most involved in the export of labour intensive products – High labour intensive cluster from the Trade Dendogram.

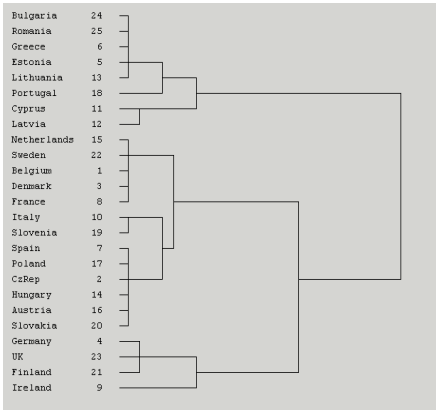
On the other extreme are those countries where the export of labour intensive products is less covered. These are Sweden, Finland and Ireland – Low labour intensive cluster from the Trade Dendogram. The corresponding cluster from the Employment Dendogram includes Finland, Ireland but also the UK and Germany. The last two countries did not fall into the corresponding Trade cluster because as was mentioned before the production structure is expected to mirror the trade structure but this is valid mainly for the small countries.

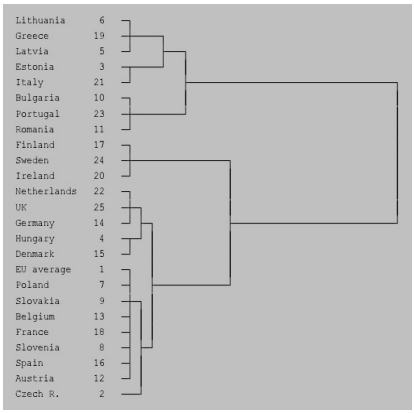
In between these clusters there is one that is not homogenous. It can be divided into two sub-clusters. The first is close to the High labour intensive countries, so this cluster can be defined as the High to medium labour intensive cluster from the Trade Dendogram. This cluster includes Poland, Slovakia, Belgium, France, Slovenia Spain, Austria and Czech Republic. The export of labour intensive products plays a certain role in these countries and most of them are involved

in the delocalisation process in both sides – i.e. providing and undertaking subcontracting.

The other sub-cluster from this group includes the Netherlands, UK, Germany, Hungary and Denmark. This cluster can be specified as the Low to medium labour intensive cluster from the Trade Dendogram. For these countries the export of labour intensive products is declining and they are closer to the group of Low labour intensive cluster.

Employment Dendogram 2004 **Trade Dendogram 2003**





Sources: Eurostat and own calculations *Sources: UNCTAD/WTO data*

The analysis of trade competitiveness and the delocalisation processes revealed:

The differences between the Trade and Employment Dendogram concerning the forming of clusters decrease in the course of time. If one compares the same Dendograms it can be noticed that in 1995 there is a quite different picture within them. It shows that the structural adjustment processes are calming down. One cannot expect such intensive delocalisation processes in the near future as were observed in the last decade. The formed clusters are also not expected to undergo significant changes in the future. Verification

for this is the tight similarity between the Trade cluster and Employment cluster in 2005. This was not observed in 1995.

Intra industry is usually related to trade relations within developed countries. The intensity of the delocalisation process changes somehow this understanding because in the last decades the vertical intra industry trade has increased significantly between well developed and less developed countries. Hoekman and Djankov (1996) stress the roll of vertical intra industry exchange between Western European countries and NMS, when NMS get inputs from the European Union (EU-15) suppliers that are then used in the production of goods that are later exported to the EU-15. So concerning labour intensive products the delocalisation process somehow revised the understanding that intra industry is typical for trade relations mainly within developed countries.

5. Summary

In the short term perspective within the EU some intensification in the delocalisation activity in the labour intensive sector cannot be expected. Intensive delocalisation such as that observed in the last decade in Europe now can be expected to shift to countries outside the EU. The patterns of delocalisation of certain activities within EU countries will continue. However the countries that give and undertake subcontracting will differ by industries; from now on growing differences in industrial composition according to the share of the labour intensive branches can be expected. It is also expected that the delocalisation process especially for the Central European NMS will not be based mainly on using the factor of low labour cost, (Faust, Voskamp and Wittke, 2004). There appears to remain some scope for the further delocalisation of the LII, which will be related to the future specialisation and location of LII to a few countries on the EU periphery – Bulgaria and Romania.

EU-15 countries will maintain their position in LII. This is not so obvious for lagging NMS that developed their trade specialisation later under subcontracting relations, relations that as a rule are not stable and long lasting. Conditions can change rapidly if the

countries manage to catch up in their development to middle income EU countries. This will mean higher labour costs and losing competitiveness in the labour intensive sector. That can create problems mainly to lagging regions in these countries where labour intensive activities are mainly delocalised, (Totev and Sariiski, 2005). No matter that the delocalisation process cannot be accepted as negative for the lagging NMS. At this stage this is possibly the alternative to economic growth and to solving social problems.

Baltic countries will keep their competitive advantages in the short run while for most Central European countries one can maintain that they already are not attractive for the delocalising labour intensive activities. The comparison of the industrial structure and export structure reveals that the delocalisation possibilities are exhausted for these countries. The increase in labour costs in the Central European NMS leads to them losing the position that they gained in the beginning of the 90's. Very probably the Central European countries will become oriented to triangular relations in the delocalisation process, (Labrianidis, 2001).

Following the new geographical economic theory concerning the location after-effects and the results of cluster analysis it can be expected that the delocalisation processes may have a certain negative impact on a few EU-15 countries. These countries appear to be Portugal and Greece which have similar industrial structures to Bulgaria and Romania.

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Table 1. Relative and absolute concentration indexes

Five groups of branches (five sectors)	*Years*		*1995*				*2004*			
	Concentration index		***Relative***		***Absolute***		***Relative***		***Absolute***	
	NACE (15-37)*	***Branches***	***Branches indexes***	***Sectors indexes***	***Branches indexes***	***Sectors indexes***	***Branches indexes***	***Sectors indexes***	***Branches indexes***	***Sectors indexes***
Labour intensive sector	*DB (17)*	*Man. of textile*	*0,43*	***0,20***	*0,09*	***0,21***	*0,45*	***0,26***	*0,09*	***0,20***
	DB (18)	*Wearing apparel*	*0,60*		*0,09*		*0,86*		*0,10*	
	DC (19)	*Footwear*	*0,71*		*0,13*		*0,86*		*0,15*	
	DN (36)	*Furniture*	*0,24*		*0,09*		*0,30*		*0,09*	
	DJ (28)	*Fabricated metals*	*0,22*		*0,12*		*0,18*		*0,11*	
	DN(37)	*Recycling*	*0,51*		*0,13*		*0,44*		*0,12*	
Resource intensive sector	*DA (15, 16)*	*Food & beverages*	*0,23*	***0,14***	*0,09*	***0,20***	*0,24*	***0,11***	*0,09*	***0,21***
	DD (20)	*Woods & wood prod.*	*0,33*		*0,08*		*0,37*		*0,07*	
	DE (21)	*Paper & paper prod*	*0,26*		*0,10*		*0,22*		*0,09*	
	DI (26)	*Non-metallic production*	*0,21*		*0,09*		*0,25*		*0,09*	
	DJ (27)	*Man. of basic met.*	*0,37*		*0,09*		*0,25*		*0,10*	
Branches with Different factor intensity	*DK (29)*	*Manuf. of machinery*	*0,25*	***0,14***	*0,12*	***0,23***	*0,30*	***0,18***	*0,13*	***0,24***
	DL (31)	*Electrical mach.*	*0,26*		*0,14*		*0,33*		*0,13*	
	DL (33)	*Medical & optical*	*0,39*		*0,16*		*0,37*		*0,15*	
The sector of branches with Increasing Economic of Scale	*DE (22)*	*Publishing; print.*	*0,35*	***0,20***	*0,11*	***0,24***	*0,30*	***0,21***	*0,11*	***0,24***
	DG (24)	*Manuf. of chemicals*	*0,20*		*0,11*		*0,30*		*0,12*	
	DH(25)	*Rubber & plastic*	*0,24*		*0,13*		*0,18*		*0,11*	
	DM (34)	*Motor vehicle*	*0,46*		*0,18*		*0,47*		*0,19*	
	DM (35)	*Transport equip.*	*0,31*		*0,10*		*0,35*		*0,11*	
Science intensive sector	*DL (30)*	*Office mach;computers*	*0,50*	***0,24***	*0,14*	***0,24***	*0,60*	***0,23***	*0,13*	***0,23***
	DL (32)	*Communication equip.*	*0,36*		*0,10*		*0,41*		*0,10*	

** Estimated on the base of NACE classification, Division from 15-37 (not included NACE Division 23: Manufacture of coke; refined petroleum).Sources:Eurostat*

Table 2. Relative specialization indexes and Share of employment of LII from total manufacture

Country	Relative_95	Relative_G95*	Relative_04	Relative_G04*	Share – 95*	Share – 04*
Belgium	0,30	0,18	0,34	0,21	23,7	22,7
Cz. Rep.	0,30	0,21	0,25	0,11	31,0	27,1
Denmark	0,36	0,12	0,36	0,17	21,5	20,2
Germany	0,39	0,28	0,39	0,29	18,1	16,9
Estonia	0,58	0,40	0,55	0,43	38,2	39,0
Greece	0,57	0,47	0,58	0,49	42,1	40,5
Spain	0,22	0,19	0,21	0,19	29,5	30,8
France	0,24	0,11	0,27	0,15	23,8	21,6
Ireland	0,48	0,21	0,61	0,28	18,2	11,9
Italy	0,28	0,26	0,30	0,26	38,5	37,1
Cyprus	0,69	0,59	0,64	0,54	43,9	25,3
Latvia	0,60	0,34	0,70	0,45	25,6	28,1
Lithuania	0,58	0,38	0,68	0,48	32,1	38,3
Hungary	0,33	0,14	0,27	0,14	28,5	25,4
Netherlands	0,37	0,19	0,36	0,18	19,6	19,6
Austria	0,27	0,16	0,26	0,17	27,2	23,4
Poland	0,29	0,20	0,29	0,24	29,3	30,6
Portugal	0,58	0,47	0,57	0,47	49,2	48,6
Slovenia	0,35	0,26	0,32	0,26	38,8	36,4
Slovakia	0,28	0,14	0,32	0,15	27,1	26,6
Finland	0,45	0,31	0,46	0,31	15,2	16,6
Sweden	0,39	0,24	0,37	0,17	14,7	17,8
UK	0,22	0,14	0,26	0,18	24,1	21,2
Bulgaria	0,43	0,23	0,56	0,40	27,4	42,5
Romania	0,38	0,22	0,56	0,38	31,7	44,5

** Estimated on the base of the five groups of branches – sectors, (Labour int.; Resource int.; Branches with different factor intensity; Branches with increasing economic of scale and Science intensive branches – see Table 1). Sources: Eurostat*

Table 3. SSD indexes and some derivative indicators estimated on the basis of five sectors -- see Table 2

	SSD Same country 1995-2004 * (for all branches)	SSD Same country 1995-2004	SSD Country 1995 - EU (1995)	SSD Country 2004 - EU 2004	The three countries with closer structure 1995 (ordered by similarity)	The three countries with closer structure 2004 (ordered by similarity)
Belgium	11,7	4,9	85,3	117,7	France, Netherlands, Spain	France, Netherlands , UK
Czech R.	55,2	47,3	100,3	34,4	Romania, Slovakia, Austria	Slovakia, Hungary, Austria
Denmark	15,5	7,3	47,3	82,3	France, Sweden, Netherlands	Sweden, Austria, Check R.
Germany	2,5	3,6	188,3	219,1	Czech R., Sweden, UK	Sweden, UK, Denmark
Estonia	74,1	1,1	348,3	399,4	Greece, Lithuania, Cyprus	Lithuania, Greece, Bulgaria
Greece	6,4	5,9	478,5	488,7	Cyprus, Estonia, Portugal	Lithuania, Estonia, Bulgaria
Spain	21,4	8,2	92,4	69,8	Poland, Belgium, Hungary	Poland, Belgium, Check R.
France	9,5	11,5	39,7	70,5	UK, Netherlands, Belgium	Netherlands, UK, Belgium
Ireland	57,1	54,6	135,6	307,6	Sweden, Netherlands, Finland	Finland, Sweden, Netherlands
Italy	16,2	5,4	190,5	167,7	Slovenia, Romania, Czech R.	Slovenia, Romania, Check R.
Cyprus	328,5	574,1	740,6	985,4	Greece, Estonia, Portugal	Latvia, Lithuania, Poland
Latvia	105,1	28,7	369,5	602,7	Lithuania, Poland , Bulgaria	Cyprus, Lithuania, Poland
Lithuania	162,2	66,6	311,8	491,0	Estonia, Bulgaria, Poland	Estonia, Greece, Bulgaria
Hungary	65,9	35,8	38,5	54,7	Austria, Poland , Slovakia	Check R., Slovakia, Austria
Netherlands	4,3	1,0	106,9	91,5	France, Belgium, UK	France, Sweden, UK
Austria	13,7	25,2	69,2	72,7	Hungary, Slovakia, Poland	Slovakia, Hungary, Czech R.
Poland	62,8	11,8	72,9	97,2	Romania, Austria, Hungary	Spain , Austria, Czech R.
Portugal	21,4	1,4	704,6	690,1	Greece, Estonia, Cyprus	Romania, Bulgaria, Estonia
Slovenia	8,5	10,2	233,1	181,7	Italy, Czech R., Hungary	Italy, Check R., Slovakia
Slovakia	32,8	9,1	55,4	68,6	Austria, Hungary, Czech R.	Check R., Austria, Hungary
Finland	33,3	19,5	252,0	215,3	Ireland, Sweden, Netherlands	Ireland, Denmark, Austria
Sweden	25,5	18,7	192,0	107,2	Netherlands, Ireland , Denmark	Netherlands, Denmark , France
UK	24,7	29,2	68,1	123,5	France, Netherlands, Denmark	France, Netherlands, Sweden
Bulgaria	266,7	303,1	174,9	441,4	Austria, Poland , Slovakia	Romania, Estonia, Portugal
Romania	173,7	222,4	88,6	434,0	Czech R., Poland , Hungary	Portugal, Bulgaria, Estonia
EU-27	**6,9**	**1,8**	**0,0**	**0,0**	Hungary, France, Denmark	Czech R., Hungary, Slovakia

** Estimated on the base of NACE classification, Division from 15-37(not included NACE Division 23), Sources: Eurostat*

Table 4. EU-27 Revealed Comparative Advantage and Rank specialisation indexes[10]

	RCA – (1999-2003)			RCA (1999-2003) minus (1996-2000)			Rank specialization index (1999-2003)			Rank specialization index (1999-2003) minus (1996-2000)		
	Textiles	Clothing	Footwear and Leather	Textiles	Clothing	Footwear and Leather	Textiles	Clothing	Footwear and Leather	Textiles	Clothing	Footwear and Leather
	1	2	3	4	5	6	7	8	9	10	11	12
EU average	0,98	1,35	1,41	-0,27	-0,31	-0,11	49	72	54	-1	-4	-3
Cyprus	0,89	0,82	0,34	-2,01	-1,41	n.a.	45	75	82	n.a.	-36	-49
Czech R.	1,32	0,43	0,36	-0,31	-0,25	-0,34	31	89	79	-1	-9	-9
Estonia	1,52	1,44	1,26	-0,22	-0,27	-0,24	27	60	42	2	-3	-2
Hungary	0,5	0,99	0,84	0,03	-0,41	-0,46	78	66	57	0	-5	-14
Latvia	2,09	2,44	0,31	-0,14	-0,54	-0,08	19	46	84	-2	-8	-1
Lithuania	1,64	3,31	0,46	-0,51	-0,64	-0,64	25	35	75	-5	-4	-22
Poland	0,84	1,14	0,86	-0,18	-0,8	-0,36	47	62	55	-4	-12	-7
Slovenia	1,19	0,78	1,11	-0,13	-0,66	-0,39	36	77	45	-1	-17	-6
Slovakia	0,85	0,95	1,72	-0,26	-0,78	-0,34	46	68	36	-7	-13	-1
Bulgaria	1,32	6,14	2,89	0,18	0,69	-0,3	30	27	21	7	-2	2
Romania	3,40	8,61	6,62	n.a.	n.a.	n.a.	9	1	7	n.a.	n.a.	n.a.
Austria	0,84	0,47	1,06	-0,12	-0,11	-0,22	48	86	46	-2	0	-1
Belgium	1,08	0,63	0,74	-0,28	-0,02	-0,13	37	82	62	-3	0	-1
Germany	0,7	0,41	0,35	-0,13	0	-0,05	58	93	80	-6	-1	2
Denmark	0,69	1,07	0,59	-0,09	-0,11	-0,06	60	64	71	-4	2	1
Spain	0,92	0,67	1,51	-0,1	0,12	-0,42	43	81	38	2	7	-2
Finland	0,3	0,13	n.a.	0,03	-0,01	n.a.	93	115	-	5	-3	n.a.
France	0,79	0,58	0,8	-0,09	0,02	0	51	83	60	-1	4	4
Greece	1,83	3,94	0,66	0,09	-1,68	-0,12	23	31	66	5	-7	0
Ireland	0,17	0,12	NA	-0,08	-0,01	n.a.	110	116	-	-9	-2	n.a.
Italy	1,84	1,66	3,67	-0,14	-0,1	-0,73	21	56	16	3	-2	0
Netherland	0,61	0,44	0,5	0,06	0,03	0	68	88	72	7	5	4
Portugal	2,23	3,1	3,95	-0,47	-0,55	-1,5	14	37	14	-1	-3	-1
Sweden	0,38	0,25	n.a.	-0,01	0	n.a.	88	104	n.a.	-4	-1	n.a.
UK	0,56	0,43	0,34	-0,01	0	-0,1	72	90	83	1	1	-4

Source: COMTRADE data and own calculations, http://www.intracen.org/countries

[10] The RCA index measures the country's revealed comparative advantage in exports according to the Balassa formula. The rank specialization index indicates the specialization that the country have in the trade of given product -- Rank 1 indicates that the country has the highest specialization index in the world for the sector under review, in other words the share of the given product of the countries trade is the highest compared with the shares for this product in the other countries.