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INDUSTRIAL STRUCTURE AND CHANGE IN THE EUROPEAN UNION: COMPARATIVE ANALYSIS AND IMPLICATIONS FOR TRANSITION ECONOMIES*

96 - 04

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1. INTRODUCTION

The process of transformation in Central and Eastern European (CEE) countries is a multi-dimentional force that is changing Europe in a fundamental way. The economic gravity center shifts to the East (Petrakos 1996a), a new environment for economic relations is created and new regional spheres of economic influence and cooperation are rising. Flows of labor and capital, despite various shorts of barriers, cross in the East-West borders following the predictions of a simple neoclassical model (Petrakos 1995a), while merchandise flows are for the time being unbalanced and of a rather inter-industry type (Landesmann 1995, Petrakos 1995b). Obviously, the new opportunities for economic relations that are created interact with, and depend to a large extend, on the emerging productive structure of the CEE countries, jointly outlining the conditions for growth and prosperity.

At this point, and given the achievements and difficulties of the first five years of transformation, a number of important questions have to be addressed regarding the type of the on-going European integration, its implications for CEE countries industrial structure, the policies that it requires and the pattern of trade and specialization that will rise from this process.

Existing experience in international trade and development shows that the type, speed and degree of a country's integration with the international economy is highly interelated with the structure of its productive base and especially the structure of industry. For CEE countries, this means that a successful restructuring of their industrial base will positively affect the type of external ralations, that is, the terms, the volume and the sectoral composition of trade and will allow for a more balanced and beneficial participation in international markets. On the contrary, a weak and collapsing industrial structure will imply a dependent, unequal and unbalanced type of economic integration.

Although the prospect of integration of CEE countries with the EU is a moving force in these countries and provides policy makers and citizens with a vision that is necessary to overcome the hardships of the transition period, one question that is rarely addressed concerns the type and the effects of integration. Yet, the experience shows that this process is highly selective (Amin et.al. 1992, Camagni

1992). Adjucency to, proximity and cultural affinity with the European core often provide a favorable ground to economic entities that test their strength in the new international environment, while lack of them may turn out to be a serious disadvantage. Unavoidably, some CEE regions and countries will experience a relatively deeper, wider and more balanced type of integration, while some others will end up with a selective and unequal one (Baldwin 1994). The later ones, run a danger to be left with weak and shrinking industrial bases and see their prospects for convergence to western standards of living to evaporate, as they gradually form the new European periphery.

The accumulated experience of Southern European countries shows that the process of integration among basically unequal partners may be associated, at least in the short and medium term, with severe structural adjustments, economic recession and de-industrialization (Petrakos and Zikos 1996). In countries with a strong protection past record, lacking export oriented industries and dominated by inward looking ones, the penetration of domestic markets by the larger and more efficient Western European firms will cause domestic production to concentrate in non-tradeable goods and services. This type of defensive adjustment to new international conditions has already appeared in many CEE countries under the - partially misleading - term of 'tertiarization'.

Another similarity of the transition economies with the Southern European countries and another issue of concern, is the fact that in international markets they are confronted with two groups and types of competitors. On the one hand are the advanced industrial countries, competing in markets of high-tech, R&D, human capital intensive and differentiated products and on the other hand the low labor cost countries, competing in markets of labor and matterial intensive or standardized-technology products. The difficulty of this situation is that it sets to CEE countries a serious dillema with long lasting implications. They have to make a strategic decision, choosing the market in which they have (or expect to develop) competitive advantages and then implement, using the international experience, the necessary industrial and trade policies to secure their sustainability. There is no doubt that this choice - made consciously or imposed by market dynamics - will change, perhaps dramatically, the economic structure of CEE countries.

Change, however, in the form of 'creative destruction' is taking place everywhere. The structure of the EU economy is changing over time (and often painfully) driven by technological progress, changes in demand and the incresingly more competitive international environment. The economic and industrial structure of the EU is important for CEE countries for two reasons. First the EU economy has been relatively open and exposed to international market conditions for a long period of time. In that sense, its structure and characteristics represent for CEE countries a short of a long-term dynamic equilibrium path and a target to be achieved. Second, EU is by geography and history expected to be the major trading partner of CEE countries with all the elements of competition and cooperation that this relation implies. In that respect it is important to understand the structure of EU industry and the policies that suport it, in order to make the necessary comparisons and an early evaluation of the on-going East-West European integration process.

2. THE SECTORAL COMPOSITION OF GDP IN THE EU AND THE CEE COUNTRIES

In Tables 1 and 2 we present information about the structure of GDP in the EU and the CEE countries by sector respectively. A comparison of these two tables reveals some important characteristics that need to be evaluated.

First of all, from all the EU countries the 'peripheral' ones (Greece, Portugal, Spain and Ireland) have a greater dependence on the primary sector than the EU average, without however (with the exception of Greece), showing a significant divergence from it. Greece is a unique case of structurally lagging behind country with a share of primary sector equal to 17% of GDP, which is more than six times the EU average. This high dependence on the primary sector is unavoidably followed with one of the lowest shares of secondary and tertiary sectors in GDP in the EU. Therefore a first conclusion from the Table is that from the spectrum of GDP structures in the EU, Greece is an outlier with a very high dependence on the primary sector. A second conclusion is that in general, the countries with the

higher shares of GDP in secondary sector are those that also have the higher shares in the tertiary sector.

TABLE 1
Level and Structure of GDP by sector in the EU countries (1993)

COUNTRY	GDP (million US$)	GNP per capita (in US$)	Distribution of GDP (%)		
			Agriculture	Industry	Services, etc.
Greece	63240	7390	18	32	50
Portugal	85665	9130[b]	6[a]	36[a]	58[a]
Ireland	478582	13000	8	10	82
Spain	819038	13590	4[a]	34[a]	62[a]
U.K.	991,386	18060	2	33	65
Italy	309227	19840	3	32	65
Netherlands	210576	20950	4	28	68
Belgium	1251689	21650	2[a]	30[a]	68[a]
France	1910760	22490	3	29	69
Germany	117587	23560	1	38	61
Denmark	42962	26730	4	27	69

Source: EUROSTAT (1995) Statistical Yearbook 1995 and
World Bank (1995a) World Development Report 1995
a: composition of Gross Value Added in current prices by sector in 1992
b: recent revision of 1993 data from $7890 to $9130

Second, examining the data in Table 2, we see a general pattern of structural change in transition economies with common characteristics the reduction of the share of the secondary sector and the increase of the share of the tertiary sector. The only exemption from this process is FYROM - and we also suspect New Yugoslavia - in which the process of economic reform has not started yet. With respect to the GDP share of primary sector in transition countries the pattern is mixed. Albania, Romania, FYROM, Slovakia and Croatia have seen their GDP shares of agriculture to increase - in various rates - in the 1990-1994 period, Bulgaria experienced an initial decline but then a slight increase, the Czech Republic and Slovenia have more or less constant shares and Hungary and Poland have declining shares of agriculture in GDP. In general it can be stated that the direction of change of the primary's sector share in GDP is affected by the severeness of the industrial restructuring process. The greater the decline of the industrial share in GDP the higher the possibility for the share of primary sector to increase, as the return to land is the last resort for displaced labor to avoid open unemployment. A corollary of this statement is that the more advanced transition economies (with the stronger industrial bases) have experienced low and stable or declining shares of primary sector in GDP, while the less advanced transition economies have experienced higher and often increasing shares.

TABLE 2
Level and Structure of GDP by sector in CEE countries

COUNTRIES	GDP (million US$)	GNP per capita (in US$)	Distribution of GDP (%)		
			Agriculture	Industry	Services, etc.
Albania					
1985	2408		27,9	34,9	37,2
1990	2170		28,0	32,7	39,3
1992			40,1	18,2	41,7
1993	692	340	41,3	16,9	47,0
1994			41,1	16,4	42,5
Bulgaria					
1985	32273		11,9	62,5	25,6
1990	7368		17,7	51,3	31,0
1992	10847		13,9	44,7	41,4
1993	10369	1140	12,2	35,8	52,0
1994			12,7	34,4	53,0
Croatia					
1990			9,2	11,8	11,3
1992			11,8	28,1	64,1
1993			11,5	30,0	58,5
1994			11,3	30,0	58,7
Czech Republic					
1992	26187		6,0	61,0	33,0
1993	31613	2710	6,0	40,0	54,0
FYROM					
1990			15,0	43,0	42,0
1992			18,0	45,0	37,0
1993	1704	820	17,0	40,0	43,0
1994			15,6	50,3	34,1
Hungary					
1985			16,1	41,2	42,7
1990	21078		12,5	32,7	54,8
1992	33056		6,6	30,2	63,3
1993	35218		5,6	28,4	66,0
1994	38099		6,5	32,7	60,8
Poland					
1985	69226		14,5	51,0	34,4
1990	77943		8,9	57,2	33,9
1992	83823		6,4	41,6	52,0
1993	85853	2260	6,3	38,6	55,1
1994			5,8	37,8	56,5
Romania					
1985	47687		14,0	60,0	26,0
1990	27617		18,3	56,3	25,4
1992	24438		18,9	49,1	32,0
1993	25969	1140	20,5	39,9	39,6
1994			19,6	39,0	41,3
Slovak Republic					
1985	11859		6,4	61,6	32,0
1990	13568		7,4	59,1	33,5
1992	9958		6,2	44,7	49,1
1993	11076	1950	6,6	43,5	49,9
1994			7,7	36,0	56,3
Slovenia					
1990	17304		5,3	39,6	55,2
1992	10655		5,7	40,7	53,5
1993	10337		5,6	36,0	58,3
1994			5,3	33,8	61,0

Source: World Bank (1995a) World Development Report 1995 and
World Bank (1995b) Trends in Developing Economies 1995.

Third, comparing the information of Tables 1 and 2 we realize that, with the exemption of Albania which is an extreme for Europe case of undeveloped country, the GDP structures of a number of transition economies such as the Czech Republic, Poland, Slovenia and the Slovak Republic approach in 1994 the GDP structure of the EU in a sense that they have a low dependence from agriculture. Other however countries such as Bulgaria, Romania, FYROM and partially Croatia approach the structure of Greece, having a significantly greater dependence from agriculture. This indicates perhaps a north-south divide in CEE countries, with the Balkan countries having a less advanced economic structure than the Central European ones.

Forth, again with the exemption of Albania (which is practically faced with a collapsing industrial base) but also Croatia, Hungary and Slovenia, the rest of the CEE countries have a GDP share of industry greater than the EU average, indicating that the process of industrial restructuring has not been completed yet. Taking the superiority of the Western European industry, especially in R&D and capital intensive sectors, for granted (Landesmann 1995), one would expect that import penetration at least in the foreseeable future will further reduce the industrial share in most CEE countries bellow the EU share.

Finaly, the relatively lower than the EU average shares of the tertiary sector in the transition economies also reveal a similar picture, in a sense that a certain amount of resources is still employed in industry by virtue of various protection schemes and devices that serve 'national interests' and as a buffer to unemployment until a sustainable strategy of industrial development is formulated and implemented. Although the increase of the GDP share of the tertiary sector in CEE countries is very impressive, its composition is by no means similar to that of the average EU country. Instead of a strong presence of banking, financial and business services highly interacting with industry, as well as activities related to culture, amenity, civilization and leisure or personal services, one would more commonly meet in CEE countries a tertiary sector dominated by non-tradable activities such as retail trade and an overmaned public sector. Although there are certain and important differences, this reminds some aspects of the internationalization-tertiarization process in Southern Europe and especially in Greece, which is the weaker part of it.

3. THE STRUCTURE OF THE ENTERPRISE SECTOR IN THE EUROPEAN UNION AND THE CEE COUNTRIES.

In this section we examine the structure of the enterprise sector, that is the non-agricultural sector, in the EU foccusing in the sectoral and size composition of firms, employment and productivity, their geographical composition and their demographic evolution. Although we are paying a special attention to industry, our approach is comparative and allows us to examine the relative importance of each main sector of economic activity. Then on the basis of available data for the structure of the enterprise sector in CEE countries and attempt to draw some conclusions from the comparison.

Tables 3 and Table 3A (in the Appendix) give a classification of EU enterprises by size-class and sector of activity. Table 3 provides information at a higher level of agregation, while Table 3A provides more detailed information. Overall, there are over 14 million firms in the EU, distributed in various size-classes and sectors. There are over 13 million micro enterprises employing 0-9 persons[1], close to one million small ones employing 10-99 persons, 67 thousand enterprises of medium size employing 100-499 persons and 12 thousand large enterprises employing over 500 persons[2]. There are over 1,7 million industrial firms (NACE 1-4), close to 1,9 million firms in the construction sector (NACE 5), more than 6 million firms operating in the distribution sector (NACE 6) and almost 4,5 million firms operating in the service -except distribution- sector (NACE 7-9).

[1] The size-class '0' includes all personal firms, that is the enterprises with no other employee except the owner.

[2] The definitions of micro, small, medium and large size-classes are the official ones in the EU and may vary from the ones used at the national level. For example in Greece, due to the very small by European standards size of enterprises, large firms are considered those employing over 50 employees. In that perspective the more detailed categorization of the Appendix Tables is more appropriate for cross-country comparisons.

TABLE 3

Number of enterprises in the EU by employment size-class and sector of activity, 1990

Sector	Total	MICRO 0-9	SMALL 10-99	MEDIUM 100-499	LARGE 500+
All	14238504	13204099	954334	67732	12339
Industry	1763556	1404928	321134	31040	6453
Construction	1899158	1759141	133995	5384	639
Distribution	6088065	5779240	291852	15187	1785
Rest of services	4487725	4260789	207353	16121	3462

Source : Table 3A

TABLE 4

Size-class distribution of enterprises in the EU by sector of activity, 1990

Sector	Total	MICRO 0-9	SMALL 10-99	MEDIUM 100-499	LARGE 500+
All	100,00%	92,74%	6,70%	0,48%	0,09%
Industry	100,00%	79,66%	18,21%	1,76%	0,37%
Construction	100,00%	92,63%	7,06%	0,28%	0,03%
Distribution	100,00%	94,93%	4,79%	0,25%	0,03%
Rest of services	100,00%	94,94%	4,62%	0,36%	0,08%

Source : Table 3

Tables 4 and 4A present the size-class distribution of enterprises in the EU by sector of activity in two levels of aggregation. The striking characteristic of this distribution is that the overwelming majority of firms are of very small and small size. Over 92% of units are micro firms, over 6% are small firms and less than 1% are medium and large firms. In the more detailed level of aggregation we see that more than 50% of the EU firms are personal business with no employees at all. At the sectoral level the only important differentiation of this pattern apears in industry, which seems to depend less than any other sector on micro enterprises and more on larger sizes.

TABLE 5

Sectoral distribution of enterprises in the EU by size-class, 1990

Sector	Total	MICRO 0-9	SMALL 10-99	MEDIUM 100-499	LARGE 500+
All	100,00%	100,00%	100,00%	100,00%	100,00%
Industry	12,39%	10,64%	33,65%	45,83%	52,30%
Construction	13,34%	13,32%	14,04%	7,95%	5,18%
Distribution	42,76%	43,77%	30,58%	22,42%	14,47%
Rest of services	31,52%	32,27%	21,73%	23,80%	28,06%

Source : Table 3

Tables 5 and 5A show the sectoral distribution of EU enterprises by size-class in two levels of aggregation. We observe that from the total number of enterprises the largest share is taken by distribution (42%) and service activities (31%), while the smaller share is taken by industry (12%). However as we move from smaller to larger size-classes, this picture changes, as the relative weight of industry progresively increases and the relative weight of the other sectors, in general, decreases. Thus, the share of industry in each size-class starts from a low 10% in the micro units, increases to 33% in the small firms and becomes 45% and 52% of the medium and large firms respectively. In general, industry has a stronger representation in the medium and large classes, distribution has the highest share in the micro and small classes, construction appears to have the smoother size-class distribution from all other sectors and services appear to have a short of binominal distribution with high shares in the two extreme size-classes of micro and large enterprises.

TABLE 6

Number of persons employed in the EU by employment size-class and sector of activity, 1990

Sector	Total	MICRO 0-9	SMALL 10-99	MEDIUM 100-499	LARGE 500+
All	92071601	29085849	23185801	13687783	26112169
Industry	31648380	4061935	8422457	6315790	12848199
Construction	8869575	3877085	3062080	1009311	921099
Distribution	25970723	13353860	6655437	3035363	2926062
Rest of services	25582923	7792968	5045827	3327320	9416810

Source : Table 6A

TABLE 7

Size-class distribution of employment in the EU by sector, 1990

Sector	Total	MICRO 0-9	SMALL 10-99	MEDIUM 100-499	LARGE 500+
All	100,00%	31,59%	25,18%	14,87%	28,36%
Industry	100,00%	12,83%	26,61%	19,96%	40,60%
Construction	100,00%	43,71%	34,52%	11,38%	10,38%
Distribution	100,00%	51,42%	25,63%	11,69%	11,27%
Rest of services	100,00%	30,46%	19,72%	13,01%	36,81%

Source : Table 6

Tables 6 and 6A provide information about the number of employees in the EU by size-class and sector of activity in two levels of aggregation. We see that in 1990 there were about 92 million persons employed in the EU enterprises. From this number, 29 million were occupied in micro firms, 23 million in small firms, 13 million in medium size firms and 26 million in large firms. Looking at the size-class composition of employment in Tables 7 and 7A we see that micro firms occupy about 31% of total employment (of which 10% comes from personal business with 0 employment), small firms occupy 25% of total employment, medium size firms occupy about 15% and large firms occupy about 26% of

employment. The micro size-class has the higher share of employment while the medium size class has the lower. The industrial sector has the smaller share of employment in micro firms (12%) and the larger share in large firms (40%), while for the distribution sector with 51% employment in micro firms and 11% in large firms the oposite is the case. The employment in the construction sector is more concentrated in micro and small firms and less in the medium and large firms exhibiting a similar but smoother patern with the distribution sector. Finally the employment in the service sector is concentrated in the micro size-class (under the influence of small specialized service firms) and the large size-class (under the influence of large banking and finance firms).

TABLE 8
Sectoral distribution of employment in the EU by size-class, 1990

Sector	Total	MICRO 0-9	SMALL 10-99	MEDIUM 100-499	LARGE 500+
All	100,00%	100,00%	100,00%	100,00%	100,00%
Industry	34,37%	13,97%	36,33%	46,14%	49,20%
Construction	9,63%	13,33%	13,21%	7,37%	3,53%
Distribution	28,21%	45,91%	28,70%	22,18%	11,21%
Rest of services	27,79%	26,79%	21,76%	24,31%	36,06%

Source : Table 6

Finally looking at the sectoral distribution of employment in Tables 8 and 8A we observe that overall in the EU the largest employer is the industrial sector with 34% of total employment followed by the distribution (28%) and service sector (27%) that have very similar shares. In the micro firms the dominant sector is distribution followed by services, in the small size firms the dominant sector is industry followed by distribution and in the medium and large size firms the dominant sector is again industry followed by services. Overal industry has the strongest representation in the medium and large firms, distribution in the small firms, while services have a strong representation in the very small and large units.

TABLE 9

Average size of enterprises in the EU by size-class and sector, 1990

Sector	Total	MICRO 0-9	SMALL 10-99	MEDIUM 100-499	LARGE 500+
All	6,47	2,20	24,30	202,09	2116,23
Industry	17,95	2,89	26,23	203,47	1991,04
Construction	4,67	2,20	22,85	187,46	1441,47
Distribution	4,27	2,31	22,80	199,87	1639,25
Rest of services	5,70	1,83	24,33	206,40	2720,05

Source : Table 3, 6

Tables 9 and 9A provide information about the average size of enterprises in the EU by size-class and sector. Overall the average size of European enterprises is 6,47 employees per firm with significant variations among sectors. Industry as expected from previous analysis has by far the largest average size with 17.95 employees per unit, followed by services with 5,70 employees. Construction and distribution have the smallest average size with 4,67 and 4,27 employees respectively. Industry has the largest average size in all size categories with the exception of large firms where services have the largest average size. It is worth noting that for the micro and small size-classes and at least the four smaller classes 1-9, 10-19, 20-49 and 50-99 of Table 9A the average size is much closer to the lower limit of the class than the higher, indicating a skewed distribution of employment within each group. This means that in the smaller size-classes, firms are not evenly or normally distributed. On the contrary the majority of them have a size that is close to the lower limit of each class. However, as we move from smaller to larger class-sizes, this situation changes and the large size classes 100-199, 200-249 and 250-499 of Table 9A seem to have a more or less normal distribution in a sense that the average value is very close to the mean value of the distribution.

TABLE 10

Turnover in the EU by employment size-class and sector of activity, 1990

(million ECU)

Sector	Total	MICRO 0-9	SMALL 10-99	MEDIUM 100-499	LARGE 500+
All	10543251	2512612	2836081	2096864	3097694
Industry	4167773	372472	835459	776381	2183458
Construction	590625	197938	213842	90883	87962
Distribution	4334154	1362127	1388857	987450	595721
Rest of services	1450701	580076	397924	242148	230553

Source: EC(1994)

TABLE 11

Average productivity of labor in EU enterprises by size-class and sector, 1990 (thousand ECU)

Sector	Total	MICRO 0-9	SMALL 10-99	MEDIUM 100-499	LARGE 500+
All	114,51	86,39	122,32	153,19	118,63
Industry	131,69	91,70	99,19	122,93	169,94
Construction	66,59	51,05	69,84	90,04	95,50
Distribution	166,89	102,00	208,68	325,32	203,59
Rest of services	56,71	74,44	78,86	72,78	24,48

Source : Table 6, 10

In Tables 10 and 10A we have information about the turnover of EU enterprises by size-class categories and sector of activity for 1990 in two levels of aggregation and in Tables 11 and 11A we have calculated using the information of Tables 10, 10A, 6 and 6A the average productivity of labor in the EU by size-class and sector in 1990. We observe that the average productivity of labor, measured as the ratio of turnover to employment, is 114,510 ecu and that at the sectoral level the highest productivity is recorded in the distribution sector and the lowest in the service sector. Industry has the second highest productivity. Overall from available information and in an aggregate level, productivity in EU seems to increase with

size up to the medium size class and then decrease. This however is observed only in the distribution and service sectors while indusrty and construction have over size continuously increasing productivity of labor. This indication of higher productivity in industry however, should not be interpreted as continuously increasing returns of scale since larger sizes also tend to be associated with higher cost of labor and organization.

TABLE 12

Share of each country in EU number of enterprises and employment , 1990

Countries	Total		Industry		Services	
	Enterprises %	Employment %	Enterprises %	Employment %	Enterprises %	Employment %
Germany	14,8	23,2	16,7	28,0	15,3	20,8
The UK	17,2	20,9	16,7	18,6	14,7	22,7
Italy	21,5	15,7	21,8	15,7	23,1	15,9
France	13,9	15,5	11,8	14,8	14,1	15,8
Spain	17,0	10,5	16,0	9,1	17,8	10,6
Belgium	3,5	3,0	2,6	2,6	3,7	3,4
Portugal	4,2	3,0	5,3	3,6	3,8	2,5
Denmark	1,8	1,8	2,1	1,7	1,8	1,9
Lux.	0,1	0,2	0,1	0,1	0,1	0,2
Others	5,9	6,2	6,9	5,9	5,5	6,2

Source : EC (1994)

Table 12 presents the national/geographical distribution of of EU enterprises and employment. It is interesting to observe that although Italy has the overall larger share of EU enterprises with 21.5%, Germany with 23.2% has the larger share of total employment. UK is second in both the number of enterprises and the number of employees with shares of 17.2% and 20.9% respectively. France takes the fifth position with respect to its share in the total number of EU firms with 13.9% and the fourth position with respect to its share in total EU employment with 15.5%. Spain, the last one of the large EU countries, is third with respect to the number of enterprises with 17.0 of the EU total and fifth with respect to its shere of total employment with 10.5% of total. The other seven countries of the

EU (Belgium, Denmark, Greece, Ireland, Luxembourg, Netherland and Portugal) are of smaller size and their combined share of enterprises and employment is restricted to 15.5% and 14.4% respectively. This implies that the five larger economies of the EU posess the 84.5% of EU enterprises and the 85.6% of EU employment.

In industry a similar geographical composition is observed, with Italy taking again the higher share of EU enterprises and Germany taking the higher share of employment. UK ranks again second in both measures, while the industrial shares of France and Spain are very similar (but a little lower) with those in total employment. Finally in services (as a whole including distribution) Italy maintains its first place in the number of firms with 23.1% of the EU total, while Spain takes the second place with 17,8% of the total. In terms of employment however, it is UK that takes the first place with 22,7% of the EU employment in services while Germany comes second with 20.8%. The share of the other countries in the number of units and employment in the service sector is more or less similar to their share in total EU employment.

TABLE 13

Share of micro, small, medium and large enterprises by country , 1990

size-class	micro 1 - 9		small 10 - 99		medium 100 - 499		large 500 +	
Countries	Enterprises %	Employment %	Enterprises %	Employment %	Enterprises %	Employment %	Enterprises %	Employment %
Germany	82,0	15,9	16,7	28,7	1,2	18,2	0,2	37,2
The U.K.	92,5	27.1	6,8	22,1	0,6	17,1	0,1	33,8
Italy	91,3	42,5	8,3	26,6	0,4	11,3	0,1	19,7
France	83,6	22,0	15,0	28,0	1,2	16,3	0,2	33,7
Spain	84,4	29,2	14,8	36,1	0,7	14,6	0,1	20,1
Belgium	84,2	16,9	14,4	28,8	1,2	19,1	0,3	35,3
Portugal	86,1	24,3	12,8	35,4	0,9	19,5	0,1	20,8
Denmark	80,8	28,3	17,8	34,8	1,2	17,3	0,2	19,7
Lux.	78,1	15.1	19,6	33,7	2,0	25,8	0.3	25,4

Source : EC (1994)

Table 13 provides information about the national/geographical size-class distribution of enterprises and employment. Italy appears to be the country with the higher concentration of employment in micro units, while Spain, Portugal and Denmark have the higher concentrations of employment in small firms. Luxembourg has the higher concentration of employment in medium size units while Germany, Belgium, UK and France have the higher shares of employment in large firms. Italy, Spain, Portugal and Denmark have the lower share of employment in the large firms.

TABLE 14

Average employment in enterprises with one employee or more , 1990

Countries	Total	Industry	Construction	Distribution	Rest of services
Germany	13	36	11	7	9
The U.K	8	20	3	8	8
Italy	7	18	7	4	13
France	15	33	10	9	15
Spain	10	17	10	6	10
Belgium	13	32	8	7	15
Portugal	9	20	8	5	11
Denmark	15	31	11	12	11
Luxembourg	15	51	20	8	17
Netherland	18	49	15	12	18

Source : EC (1994)

Table 14 provides information by country about the average size of enterprises with one employee or more. Netherlands, Luxemburg, Denmark, France, Germany, and Belgium (in that order) have overall the larger average firm size. In industry, Luxembourg, Netherland, Germany, France and Belgium (in that order) have the larger average firm size. In distribution Denmark and Netherlands have the larger firms, while in services Netherlands, Luxembourg, Belgium anf France have the larger firms. This information combined with previous analysis tends to indicate that, with the possible exception of UK, there is a North-South or a core-periphery divide in EU with respect to national industrial structures. Overall the countries of the 'core' (that include Netherlands, Luxembourg, Germany, France,

Denmark and Belgium) have larger firms with an average size that ranges from 13 to 18 employees per firm, while the countries of the 'periphery' (that include Spain, Italy and Portugal) have smaller firms with an average size that ranges from 7 to 10 employees per firm. If one adds to the countries of the 'periphery' Greece which has the most fragmented production base in Europe with average industrial firm size of about 5 employees per firm (Petrakos and Zikos 1996), then the intra-EU divide becomes more apparent.

TABLE 15

Weight of size-class in the whole economy of EU12, U.S.A and Japan *

	Number of enterprises			
size-class	micro 1 - 9 %	small 10 - 99 %	medium and large over 100 %	Total
EU12	84,7	14,1	1,2	6744024
U.S.A	77,1	20,5	2,4	5044808
Japan	70,4	26,9	2,7	1706926

size-class 0 is excluded in all cases

* 1990 for EU12 and U.S.A , 1991 for Japan

Source : EC (1994)

TABLE 16

Average size of enterprises with one employee or more, by main sector for EU12 and U.S.A , 1990

Sector	EU12	U.S.A
Industry	26,6	55,5
Construction	7,6	8,8
Distribution	7,6	16,7
Rest of services	13,9	16,9
Total	12,3	18,4

Source : EC (1994)

Tables 15 and 16 provide an international perspective comparing the industrial size structure of EU, USA and Japan. The comparison reveals that EU has a less concentrated industrial structure than USA and Japan with a larger share of micro and small enterprises and a smaller share of medium and large ones. As a result the average size of EU enterprise is much smaller than that of USA and one would expect also Japan (for which there are no available information). Especially in industry the average size of EU firms is half that of the USA firms and perhaps even lower than the Japanese ones. Although national characteristics may explain a large part of the variations in firm size, another likely explanation could be the size of the markets. USA and Japanese firms have been always operating in a large, single and homogeneous domestic market, while EU firms until recently were faced with a highly fragmented and heterogeneous market structure.

In terms of demographic evolution, the most important characteristic of the EU market is its high mobility. Although in the 1986-1991 period the stock of enterprises increased, in the last period 1990-1991 there was a slow-down in the growth rate or even a reduction of the stock. In terms of size, micro and small units, record the higher death but also the higher birth rates, being on balance the ones with the higher growth rates in most countries. In a sectoral level, the lower birth rate was recorded in manufacturing, while the higher in business services that exhibited the stronger overall growth rate. Finally, over-time enterprise deaths take a significant toll. Only 50% of new enterprises are still alive after 5 years of operation. The highest survival rates are recorded in business services while the lower in distribution (EC 1994).

Table 17
Composition of industrial firms and average employment by size-class in Poland, (1990-1993)

	0-100		101-500		>500		TOTAL	
YEAR	Firms	Average Employment	Firms	Average Employment	Firms	Average Employment	Firms	Average Employment
1990	24,00	2,10	48,40	20,00	27,60	77,90	100,00	100,00
1991	30,10	4,00	48,60	24,10	21,30	71,90	100,00	100,00
1992	35,00	4,90	46,90	25,50	18,10	69,60	100,00	100,00
1993	36,90	5,50	45,70	25,70	17,40	68,80	100,00	100,00

Source: Table 17A

How does the structure of the enterprise sector in the CEE countries compares to that of the EU? Unfortunately, up to this point information is scattered and

heterogeneous, but some general trends can be detected and some observations can be made. First, an extremely high share of firms and employment is still found in the medium and large size group. In Poland for example, in 1993 only 36.9% of the firms and 5.5% of employment are in the 0-100 size class (micro and small firms) compared to about 98% and 39% respectively in the EU. On the contrary, large firms make up 17.4% of the total number of firms and 68.8% of total employment, when in the EU the figures are 0.37% and 40.6% respectively. As a result, the average firm size in Poland is 407 employees per industrial firm, a figure far greater than the 18 employees per firm in the EU (Tables 17 and 17A).

Table 18
Composition of industrial firms by size-class in the Czech Republic, (1990-1993).

	Number of Firms			
YEAR	25-99	100-499	>500	Total
1990	4,48	28,56	66,96	100,00
1991	5,09	41,63	53,29	100,00
1992	27,24	45,78	26,99	100,00
1993	38,34	41,69	19,97	100,00

Source: Table 18A

A similar situation is also found in the Czech Republic in 1993, where 19.9% of industrial firms are large (over 500 employees) (Tables 18 and 18A), the Slovac Republic where 15.2% of industrial firms had in 1994 large size (Tables 19 and 19A) and in Bulgaria where 10.2% of firms had in 1993 large size (Tables 20, and 20A). Keeping in mind that these figures are by far greater than the EU (0.37%) but also the US and Japanese figure, it becomes obvious that the CEE countries still maintain an industrial base highly concentrated in large industrial units that will not be able to successfully adapt to and compete in the new international environment. Under severe social and political presure to preserve employment positions, industry seems to maintain to a large extent the large scale structure developed under central planning mechanisms and CMEA relations that, however, does not allow for flexibility, inovative behavior and all those characteristics that become essential in modern international markets.

Second, a motion of convergence towards EU and international industrial patterns has been initiated in CEE countries that, although in early stages, tends to change the industrial structure in a significant way. In Poland, for example, the

share of small industrial firms has increased from 24% in 1990 to 36.9% in 1993, while the share of large firms has declined from 27.6% to 17.4% in the same period (Table 17). This has occured because the number of small firms has increased by 1023 and the number of large firms has decreased by 522 in the 1989-1993 period. This shift away from large firms that either close or reduce employment, has costed Poland about 1 million employment positions, lost almost entirely in the large sector (Table 17A). In the 1990-1993 period, the small sector has created a net of 75 thousand new jobs, the medium size sector has lost about 20 thousand and the large sector has lost close to 1 million. As a result, the average size of firms in Poland has decreased from 594 employees in 1990 to 407 in 1993 (Table 17A).

Table 19
Composition of industrial firms by size-class in the Slovak Republic, (1989-1994)

	Number of Firms			
YEAR	25-99	100-499	>500	Total
1989	0,00	3,80	96,20	100,00
1990	0,00	38,97	61,03	100,00
1991	0,00	65,67	34,33	100,00
1992	27,64	48,11	24,25	100,00
1993	36,10	46,32	17,58	100,00
1994	41,82	42,98	15,20	100,00

Source: Table 19A

TABLE 20
Composition of the state enterprises by sector of activity and size-class in Bulgaria, (1993)

Sector	0-100	101-500	>500	Total
Industry	52,87	36,85	10,28	100,00
Construction	69,11	28,28	2,61	100,00
Trade	86,74	12,63	0,63	100,00
Rest of services	81.37	15,66	2,97	100,00
Total	75,24	20,57	4,19	100,00

Source: Table 20A

Similar trends are also found in the other CEE countries. Evidence from the Czech republic (Table 18) shows that the share of the large industrial firms has declined from 66.9% in 1990 to 19.9% in 1993, while the share of small firms (25-99) has increased from 4.4% to 38.3% in the same period. These trends are due to the increase of the number of the small firms by more tham 1,100 (from 46 to 1,150) and the reduction of the number of the large firms by 66 (from 687 to 621) (Table 18A). Similarily, in the Slovak Republic the share of the large firms has declined

from 24.2% in 1992 to 15.2% in 1994 and the share of small firms has increased from 27.6% to 41.8% in the same period (Table 19).

Third, since the new industrial firms are small in size and the old ones large, the rule is, that, by and large the small firms are private and profitale while the large ones state-owned and loosers (Lapornick 1995). Although small firms are the fastest growing ones, their majority are not industrial but service and distribution firms (Mikelka et.al. 1995). Also, the majority of the private firms are very small in size. Totev and Dimitrov (1995) report that only 10% of the private firms employ more than 5 persons, while 90% of them employ 1-5 persons.

Overall, the size distribution of industrial firms in CEE countries is characterized by an extreme domination of large mostly state firms, but also a markable trend to become more balanced over time, with the reduction of the share of large state firms and the increase of the share of small private ones. Given the significant divergence of existing industrial structure from that of the EU, the expectation is that the contraction trend of the large firms will continue in the future (regardless of ownership) and that this trend will be an additional source of unemployment and social friction. This indicates that the recent success in stabilization policies may not be a sufficient condition for growth and development in the long run, to the extend that the size structure of industry remains to a large extent artificially concentrated in large units, that will be difficult to adapt to the new conditions of the international markets that require flexibility and internal structures that do not resist innovation and change. Moreover, the small firm sector that is growing spontaneously, does not have much in common with its counterpart in dynamic SMEs regions in the EU (Petrakos 1996b), as it totally lacks the institutional support and the organizational ellements that generate efficiency at the small scale. Although the scale of the problem may not be so obvious now, there is a real danger in the near future (in a more 'open' stage of transformation) that CEE countries will be found with a dual industrial structure (a declining large sector and a saturated small one) unable to generate growth and development.

4. THE INDUSTRIAL STRUCTURE OF THE EU AND THE CEE COUNTRIES

TABLE 21

Industrial employment and change in the EU12 by sector 1985 , 1990

(in thousand)

NACE	Sector	Employment					
				Composition			
		1985	1990	1985	1990	Change	% Change
22	Production of metals	1028	836	4,70%	3,68%	-192	-18,68%
24	Non-metalic mineral products	999	1040	4,56%	4,58%	41	4,10%
25	Chemical industry	1689	1787	7,71%	7,87%	98	5,80%
31	Manufacture of metal articles	1974	2211	9,02%	9,74%	237	12,01%
32	Mechanical engineering	2293	2412	10,47%	10,63%	119	5,19%
34	Electrical engineering	2682	2752	12,25%	12,13%	70	2,61%
35	Motor vehicle	1865	1904	8,52%	8,39%	39	2,09%
36	Other means of transport	850	777	3,88%	3,42%	-73	-8,59%
37	Instrument engineering	318	334	1,45%	1,47%	16	5,03%
41 /42	Food, drink, and tobacco	2275	2432	10,39%	10,72%	157	6,90%
43	Textile industry	1290	1145	5,89%	5,04%	-145	-11,24%
44	Leather and leather goods	111	113	0,51%	0,50%	2	1,80%
45	Footwear and clothing industry	1223	1166	5,59%	5,14%	-57	-4,66%
46	Timber and wooden furniture	790	926	3,61%	4,08%	136	17,22%
47	Paper and paper products	1335	1480	6,10%	6,52%	145	10,86%
48	Rubber and plastics	946	1139	4,32%	5,02%	193	20,40%
49	Other manufacturing industries	225	242	1,03%	1,07%	17	7,56%
Total		21893	22696	100,00%	100,00%	803	3,67%

Source : EUROSTAT (1990, 1993)

Table 21 provides information on NACE 2-digit EU industrial employment for 1985 and 1990. The examination of this data reveals that different sectors have a different weight in industrial employment and also different performance in the 1985-1990 period. The greater contributors to EU industrial employment are -in this order- the sectors 34 (electrical engineering) with 12.13% of EU industrial employment, 32 (mechanical engineering) with 10.63%, 41/42 (food, drink and tobacco) with 10.72%, 31 (metal articles) with 9.74% and 35 (motor vehicles) with 8.39% of total employment in 1990. From these sectors that occupy over 51% of industrial employment, only 31, 32 and 41/42 showed some dynamism and grew

with a higher than average rate in the 1985-1990 period. In the same period the worse performing sectors were 22 (production of metals) that lost 18.68% of its employment, 43 (textiles) that lost 11.24% of its employment, 36 (other means of transportation) that lost 8.59% of its employment and 45 (footwear and clothing) that lost 4.66% of its employment. A number of sectors such as 34, 35 and 44 (leather) were virtualy stagnant in the same period. The sectors with the better performance are 48 (rubber and plastic) with a growth rate of 20.40%, 46 (Timber and wood) with a growth rate of 17.22%, 31 (metal manufacturing) with 12.01% and 47 (paper and paper products) with 10.86%.

How does this structure compares with the industrial structure of the CEE countries in the post 1989 period? The pattern does not seem to be uniform in all countries and depends mostly on the ability of different sectors to adapt to the new conditions as well as the sectoral policies followed. The basic common characteristic that can be found at a first glance, is the large drop of industrial output in the post-1989 period. The 1989 level of industrial output was equal to 58% of the 1989 level in the Czech Republic (Buchticova and Klacek 1995), 64% in the Slovak Republic (Mikelka et.al. 1995), 57% in Poland (Statistical Yearbook of Poland 1994) and 48% in Bulgaria (Totev and Dimitrov 1995).

Examining the sectoral composition of industry, the pattern varies. In the Czech Republic, for example, no major shifts are observed in the share of different industrial sectors in the 1989-1993 period. The food sector remains the largest, with a decreased however share in output. In general, it seems that the energy sector has increased its share in total industrial output in 1993, sectors that are characterized to a large extent as non-tradeables (printing, publishing, wood) and heavy industries (oil, chemicals, plastic, ruber) maintained or improved their share, while light industry (food, textile, clothing, leather) ended up in 1993 with a smaller share of industrial output[3]. In the case of Poland also similar trends are observed. The food sector is in 1993 the largest industrial sector, the energy sector has increased in 1993 its share in industrial output, which is also the case for non-tradeable sectors. On the other hand, light industry (with the exception of food) and heavy industry (with the exception of energy) ended up with smaller shares of

[3] Own estimations from the data base provided by Buchticova and Klacek (1995) Appendix.

industrial output[4]. In Bulgaria, the energy sector has also increased its share in industrial output in 1994. The food industry has maintained its share, the non-tradeables have increased it slightly, while capital intensive sectors, such as mechanical and electrical engineering, have experienced a significant decline in their share of industrial output (Totev 1996). On the other hand, in Romania and Slovenia heavy industry and the capital-intensive sectors have experienced the greater decline in output, while the light industry has in general fared better (Lapornik 1995, Totev 1996).

From these trends, some points deserve further analysis and consideration. First, it seems that sectors exposed more to international competition fared in general worse. On the other hand the energy sector that is heavily subsidized and the sensitive, in terms of employment, sectors that are less exposed to restructuring forces, maintained in most cases their shares of output. This may be an indication that in a number of sectors, the process of restructuring is slower than average and that solutions (usually painful) to the problems of efficient organization of production have been postponed for the future. Second, the sectoral performance of industry in CEE countries seems to indicate that two distinct groups of countries are formed. On the one hand, countries like the Czech Republic and Poland have experienced a pattern of industrial change where, in general, the sectors of heavy industry performed better than the light industry. On the other hand, in countries like Romania, Slovenia and (partly) Bulgaria the pattern is the inverse, with light industry performing, in general, better than heavy industry. This may be explained on the basis of policies of protectionism and industrial rescues undertaken by the state, mostly concerning the sensitive in terms of employment large scale capital-intensive sectors, that in some countries were stronger than others. It may also be explained by the fact that some countries are found in the post-1989 period to be better endowned with capital (labor), developing in this way a comparative advantage in capital-intensive (labor-intensive) sectors. This is in line with reports of strong inter-industry trade between CEEC and EU and a move away from capital intensive export sectors that is more drammatic in the case of countries like Bulgaria and Romania (Landesmann 1995). Finally, in all countries industrial output has declined in the

[4] Own estimates on the basis of industrial statistics data for Poland

post-1989 period more than industrial employment[5], a trend reminding that the social and political cost of restructuring could not be ignored, but also indicating that in the future, competitive positions in the new international setting will be harder to achive through productivity gains and more likely to achieve through wage cuts. This overmaning of industry may also operate in the long-run as a presure resisting the introduction of capital-intensive or knowledge-intensive technologies in the production process, letting CEEC to slide further towards an LDC type of specialization in the international markets.

5. INDUSTRIAL POLICIES IN THE EUROPEAN UNION: IMPLICATIONS FOR TRANSITION ECONOMIES.

In the 1980s the competitive position of EU industry has declined.The growth of extra-EU exports of manufactured products has been relatively modest (+0,5% on average between 1982 and 1990) while the growth of extra-EU imports of manufactured products has been very high (+6,7% on average) for the same period (CEC 1991). Although EU is the world's larger exporter and importer, it is clear that its market share in world trade is threatened on the one hand by the new industrial countries of S.W. Asia that base their comparative advantage on low labor cost, and on the other, by the gap in electronics and information technologies that still exists between European and USA or Japanese firms.

The difficulties of EU industry have a sectoral, geographical and size dimension. In general the traditional industrial sectors, the old industrial region and the larger enterprises have the worse performance and have been affeced more from industrial decline. Especially the large enterprises, not only failed to increse employment, but they have actually reduced work positions in recent years (CEC 1993). Table 22 shows that the top-100 in terms of turnover EU industrial and service firms have lost in 1992 more than 5% of their work positions in 1990. These difficulties are related to the increasingly evident signs of crisis that have appeared in the 1980s in the "fordistic" system of mass production but also the

[5] In Bulgaria industrial employment was in 1993 equal to 59% of the 1989 levels, while industrial output equal to 48%. In Poland industrial employment was in 1993 equal to 81% of the 1989 employment level, while output equal to 57%. In the Czech Republic, industrial employment was in 1993 equal to 73% of the 1989 level, while industrial output equal to 58%. In Slovenia manufacturing employment in 1993 was equal to 74% of the 1986 level, while manufacturing output was equal to 63% of the 1986 level.

incresing penetration of European market by low cost products of LDCs and NICs.

TABLE 22
Europe's largest manufacturing and services groups in 1990, 1992 by turnover

		Employees	
Groups	1990	1992	% Change
top 10	2534192	2515750	-0,73%
top 20	4261406	4034002	-5,34%
top 50	8091475	7645684	-5,51%
top 100	11860559	11244571	-5,19%

Source: CEC (1993)

The operation of the 'fordistic' system at world level has been based on economies of scale, vertical division of labor, on-line production of standardized commodities and large and stable markets. It has also been supported by Keynsian-type economic and social policies in order to maintain and regulate the level of aggregate demand and by large non-militant labor unions that negotiated wage levels in exchange for normal and peaceful conditions in workplaces. These conditions however have changed to a large extent in the 1980s. A number of important factors, such as the growing instability of demand, the changing tastes towards personalized products, the new technologies that allow product differentiation and flexibility in product design at low cost, the shift in competition from price to quality, and the need for quality control at all stages of production, have contributed to these changes. Also, the continuously shrinking life-cycle of new products and the pressure to minimize inventory stocks through "just-in-time" delivery practices have reduced the importance of economies of scale, favoring the operation of SMEs with various forms of horizontal firm relations and subcontracting practices.

In addition, there is an increasing evidence that external economies of scale in manufacturing, have a localized character and accrue from the spatial clustering of firms operating within the same industry irrespectively of the size of the host urban area. These developments are very significant and have a strong potential to change the geography of production since they open for the first time the possibilities of self-sustained and indigenous development for peripheral regions.

As a result of these trends, new areas of growth and development have been created in the 1980s, some of them away from the traditional industrial center of Europe. These include (a) the new industrial districts of "flexible specialization" that are based on SMEs (Goodman et.al.1989, Pyke et.al.1990), (b) the regions that have developed technopoles, tecnological and science parks (Gibb 1985, Hall and Markusen 1988, Monck et.al.1988) and (c) the large metropolitan regions that have benefited from the incresing tetriarization of economic activity (CEC 1992).

Under the new environment created by these developments, but also the Single European Market (SEM) and the new GATT, it should not be surprising that the industrial policy of EU is under continuous discussion, debate and change. The more interesting questions set in this debate are first, whether we realy need any industrial policy and if yes, of what type, with what means and at what level. The basic divide in this debate is basically between the advocates of neoclassical and the new classical school on the one hand, arguing that markets by their nature always work efficiently and as a result the only policy needed is market liberalization, and all the others on the other hand, arguing that market efficiency (which is not always given, especially in RDT) is not the issue and industrial policy is necessary in a world where comparative advantages and specializations are not determined by factor endowments but, instead, they are created and actively supported in international markets. Even in the extreme version of the arguments, both sides agree that some short of industrial policy is necessary. The first side proposes a policy of market liberalization and indirect stimulus to industry through the improvement of the macroeconomic environment, while the second side focuses more on direct interventions in the conditions prevailing in industrial structures and markets.

At the European Commission level, the emphasis has never been on whether or not industrial policy is necessary, but rather on what type of industrial policy is necessary. The policies that have been implemented concern (a) industrial sectors in crisis, (b) rising industrial sectors, a careful mix of (c) competition and (d) RTD or 'excellence' policies and finally (e) policies for the creation of European information and communications networks.

At the national and the regional level different countries have emphasized on a different mix of 'hard' and 'soft' policies depending on the specific needs of the economies. The most commonly met measures include (a) infrastructure development (from telecomunications and roads to industrial areas and

technology parks), (b) investment incentives in the form of grants, low interest loans and tax deductions, usually structured progressively in order to assist peripheral regions, (c) a host of measures in support of SMEs ranging from financial assistance to the creation of business inovation centers (BICs), cooperation networks and mechanisms for technology transfer, disemination of information and operational support to small firms, (d) special incentives to attract foreign capital and especially multinational corporations, considered as a source of positive externalities for the local or national economy and (e) competition policy.

Finally at the firm and industry level the most comonly met policies are those of (a) product differentiation, (b) introduction of new technologies, (c) introduction of new products and activities that take firms out of highly congested markets, (d) retraining labor force in order to facilitate a shift in production line or technology and (e) local or global alliances, horizontial or vertical networks of enterprises and mergers.

Perhaps unavoidably, some of these policies are directly or indirectly in conflict, while some others need better coordination at the different levels of implementation. For example, while the competition policies aim to restrict the power of large enterprises and their market share in order to avoid oligopolistic or monopolistic market structures, the RTD or 'excellence' policies eventually support the large firms as the European 'champions' in the battle for world markets against the USA or Japanese firms. A similar conflict of goals exist also among the RTD policies and the policies for SMEs that in practice end up supporting firms at the oposite end of the size spectrum.

The evaluation of these policies is not an easy task and largely depends on the geographical level of implementation and the objectives set. The more successful policies, especially at the regional level appear to be those in support of SMEs, with more celebrated example the regions of 'flexible specialization' in Italy and those basing local development on the creation of various types of techno-poles in the tradition of Sophia-Antipolis, Monpelier, Torino or Cambridge. For the effectiveness of the other policies there is mixed evidence that obviously depends on the evaluation criteria and method. The sad fact however is that, despite over

10 years of implementation, neither the competitivenes of EU has improved significantly in world markets, nor intra-EU convergence has been promoted.

6. CONCLUSIONS

To sumarize, it is important to compare the economic and industrial structure of CEE countries to that of the EU, that is becoming their major trading partner. This is even more important at this early stage of the transition period that is still influenced by the remainings (actual and conceptual) of the large scale state enterprises of the past. From the 14 million enterprises in the EU the overwelming majority (92%) are of a very small size and employ almost 1/3 of total employment. Large enterprises on the other hand, represent less than 0.1% of the total number of firms but provide almost 30% of the total employment positions. This high dispersion of activities, that is more pronounced in the service than the industrial sector, has been maintained for decades despite the alledged importance of economies of scale. Small and micro firms are an important ingredient of the economic structure of the EU, they have not been eliminated by competition and economies of scale and cannot be overlooked or be considered as a residual of the past. On the other hand, and despite the difficulties they face, in almost all sectors one finds large enterprises with an often multinational activity that compete in international markets and apparently enjoy economies of scale.

This type of industrial organization that is present in most sectors, is very different from the most celebrated textbook-types of market structures. The coexistence of small and large firms in a single European market is an indication that efficiency is not derived only from economies of scale and therefore can be achieved under certain conditions (Petrakos 1996b) by firms of different sizes including the very small ones. It is also an indication that competition has shifted from price to quality, that markets and products are highly differentiated, and that strategic responses to market changes include cooperation practices and alliances that reach firms of all sizes.

The comparison of the EU and the CEEC is also useful, as it allows for a first evaluation and the formulation of some hypotheses concerning the impact of the

transition process on the industrial structure of the CEE countries. In addition the study of the EU experience, provides information on available policy means, existing trade-offs and dillemas from implementation. Although the usefulness of these information for policy purposes is limited by institutional, political and cultural differences, they are still important to the extent that they can be associated with the on-going process of integration between these two separated for decades regions of Europe.

In that respect, the industrial structures of the new partners, but also the policies available to each one, will be a significant determinant of the type of relations that will prevail in the future. Although trade relations are not a zero-sum game but by definition are mutually beneficial, a serious question arrises about the *type* of these relations and the *allocation* of benefits. Here the existing, but also the emerging industrial structures will play an important function to the extent that they maintain in operation or destruct sectors of critical importance. Perhaps the real long-term danger for CEE economies in this process is, that an intersectoral H-O type of specialization and trade based on labor cost differentials will minimize their chances to develop advantages in new technologies and specialized markets, producing a new geographical West-East divide of the European space, that will come to complement or replace the existing North-South one.

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6. APPENDIX

TABLE 1A

Number of enterprises in the EU by employment size-class and sector of activity, 1990

NACE	Total	0	1-9	10-19	20-49	50-99	100-199	200-249	250-499	500+
All	14238504	7494480	5709619	555578	309549	89207	42631	9249	15852	12339
1	18816	8581	6738	1073	983	494	303	104	203	337
2	145249	34822	68747	20210	11616	4366	2492	583	1196	1215
3	493897	167344	203540	52677	40883	14884	7336	1658	2883	2693
4	1105594	371547	543609	98631	57395	17922	9032	2049	3201	2208
5	1899158	865608	893533	80945	42865	10185	3679	703	1002	639
6	6088065	3160423	2618817	182970	87953	20929	9897	1995	3295	1785
7	782844	497477	234794	25971	16452	4518	1946	419	683	583
8	2118898	1426581	587113	55971	30840	9117	4527	1012	1881	1857
9	1585983	962097	552727	37129	20562	6793	3419	725	1509	1022

Source : EC (1994)

Divisions of NACE

1 Energy and water
2 Extraction and processing of non-energy-producing minerals and derived products; chemical industry
3 Metal manufacture; mechanical, electrical and instrument engineering
4 Other manufacturing industries
5 Building and civil engineering
6 Distributives trades, hotels,catering,repairs
7 Transport and communication
8 Banking and finance, insurance, business services, renting
9 Other services

TABLE 2A

Size-class distribution of enterprises in the EU by sector, 1990

NACE	Total	0	1-9	10-19	20-49	50-99	100-199	200-249	250-499	500+
All	100,00%	52,64%	40,10%	3,90%	2,17%	0,63%	0,30%	0,06%	0,11%	0,09%
1	100,00%	45,60%	35,81%	5,70%	5,22%	2,63%	1,61%	0,55%	1,08%	1,79%
2	100,00%	23,97%	47,33%	13,91%	8,00%	3,01%	1,72%	0,40%	0,82%	0,84%
3	100,00%	33,88%	41,21%	10,67%	8,28%	3,01%	1,49%	0,34%	0,58%	0,55%
4	100,00%	33,61%	49,17%	8,92%	5,19%	1,62%	0,82%	0,19%	0,29%	0,20%
5	100,00%	45,58%	47,05%	4,26%	2,26%	0,54%	0,19%	0,04%	0,05%	0,03%
6	100,00%	51,91%	43,02%	3,01%	1,44%	0,34%	0,16%	0,03%	0,05%	0,03%
7	100,00%	63,55%	29,99%	3,32%	2,10%	0,58%	0,25%	0,05%	0,09%	0,07%
8	100,00%	67,33%	27,71%	2,64%	1,46%	0,43%	0,21%	0,05%	0,09%	0,09%
9	100,00%	60,66%	34,85%	2,34%	1,30%	0,43%	0,22%	0,05%	0,10%	0,06%

Source : Table 1A

Divisions of NACE

1 Energy and water
2 Extraction and processing of non-energy-producing minerals and derived products; chemical industry
3 Metal manufacture; mechanical, electrical and instrument engineering
4 Other manufacturing industries
5 Building and civil engineering
6 Distributives trades, hotels,catering repairs
7 Transport and communication
8 Banking and finance, insurance, business services, renting
9 Other services

TABLE 3A

Sectoral distribution of enterprises in the EU by size-class, 1990

NACE	Total	0	1-9	10-19	20-49	50-99	100-199	200-249	250-499	500+
All	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%
1	0,13%	0,11%	0,12%	0,19%	0,32%	0,55%	0,71%	1,12%	1,28%	2,73%
2	1,02%	0,46%	1,20%	3,64%	3,75%	4,89%	5,85%	6,30%	7,54%	9,85%
3	3,47%	2,23%	3,56%	9,48%	13,21%	16,68%	17,21%	17,93%	18,19%	21,83%
4	7,76%	4,96%	9,52%	17,75%	18,54%	20,09%	21,19%	22,15%	20,19%	17,89%
5	13,34%	11,55%	15,65%	14,57%	13,85%	11,42%	8,63%	7,60%	6,32%	5,18%
6	42,76%	42,17%	45,87%	32,93%	28,41%	23,46%	23,22%	21,57%	20,79%	14,47%
7	5,50%	6,64%	4,11%	4,67%	5,31%	5,06%	4,56%	4,53%	4,31%	4,72%
8	14,88%	19,04%	10,28%	10,07%	9,96%	10,22%	10,62%	10,94%	11,87%	15,05%
9	11,14%	12,84%	9,68%	6,68%	6,64%	7,61%	8,02%	7,84%	9,52%	8,28%

Source : Table 1A

Divisions of NACE

1 Energy and water
2 Extraction and processing of non-energy-producing minerals and derived products; chemical industry
3 Metal manufacture; mechanical, electrical and instrument engineering
4 Other manufacturing industries
5 Building and civil engineering
6 Distributives trades, hotels,catering,repairs
7 Transport and communication
8 Banking and finance, insurance, business services, renting
9 Other services

TABLE 4A

Number of persons employed in the EU by employment size-class and sector of activity, 1990

NACE	Total	0	1-9	10-19	20-49	50-99	100-199	200-249	250-499	500+
All	92071601	8900478	2E+07	7599255	9338793	6247753	6102854	2072336	5512593	2,6E+07
1	1667522	9673	24857	13770	28510	32427	44422	23727	73975	1416160
2	4536012	48320	282691	282965	355881	303972	353115	130587	421431	2357051
3	12706557	226700	913727	740290	1243498	1039841	1037116	371365	1008070	6125951
4	12738289	455691	2100276	1368187	1752202	1260914	1276408	461516	1114058	2949037
5	8869575	1025329	2851756	1094939	1265534	701607	504355	156721	348235	921099
6	25970723	3744368	9609492	2527119	2656274	1472044	1465883	445444	1124036	2926062
7	7264172	593132	776752	359774	501006	317975	285849	93848	242599	4093237
8	11905356	1690471	2268923	766307	941407	656238	664708	228263	670131	4018908
9	6413395	1106793	1356897	445904	594481	462735	470999	160865	510058	1304665

Source : EC (1994)

Divisions of NACE

1 Energy and water
2 Extraction and processing of non-energy-producing minerals and derived products; chemical industry
3 Metal manufacture; mechanical, electrical and instrument engineering
4 Other manufacturing industries
5 Building and civil engineering
6 Distributives trades, hotels,catering,repairs
7 Transport and communication
8 Banking and finance, insurance, business services, renting
9 Other services

TABLE 5A

Size-class distribution of employment in the EU by sector, 1990

NACE	Total	0	1-9	10-19	20-49	50-99	100-199	200-249	250-499	500+
All	100,00%	9,67%	21,92%	8,25%	10,14%	6,79%	6,63%	2,25%	5,99%	28,36%
1	100,00%	0,58%	1,49%	0,83%	1,71%	1,94%	2,66%	1,42%	4,44%	84,93%
2	100,00%	1,07%	6,23%	6,24%	7,85%	6,70%	7,78%	2,88%	9,29%	51,96%
3	100,00%	1,78%	7,19%	5,83%	9,79%	8,18%	8,16%	2,92%	7,93%	48,21%
4	100,00%	3,58%	16,49%	10,74%	13,76%	9,90%	10,02%	3,62%	8,75%	23,15%
5	100,00%	11,56%	32,15%	12,34%	14,27%	7,91%	5,69%	1,77%	3,93%	10,38%
6	100,00%	14,42%	37,00%	9,73%	10,23%	5,67%	5,64%	1,72%	4,33%	11,27%
7	100,00%	8,17%	10,69%	4,95%	6,90%	4,38%	3,94%	1,29%	3,34%	56,35%
8	100,00%	14,20%	19,06%	6,44%	7,91%	5,51%	5,58%	1,92%	5,63%	33,76%
9	100,00%	17,26%	21,16%	6,95%	9,27%	7,22%	7,34%	2,51%	7,95%	20,34%

Source : Table 4A

Divisions of NACE

1 Energy and water
2 Extraction and processing of non-energy-producing minerals and derived products; chemical industry
3 Metal manufacture; mechanical, electrical and instrument engineering
4 Other manufacturing industries
5 Building and civil engineering
6 Distributives trades, hotels,catering,repairs
7 Transport and communication
8 Banking and finance, insurance, business services, renting
9 Other services

TABLE 6A

Sectoral distribution of employment in the EU by size-class, 1990

NACE	Total	0	1-9	10-19	20-49	50-99	100-199	200-249	250-499	500+
All	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%
1	1,81%	0,11%	0,12%	0,18%	0,31%	0,52%	0,73%	1,14%	1,34%	5,42%
2	4,93%	0,54%	1,40%	3,72%	3,81%	4,87%	5,79%	6,30%	7,64%	9,03%
3	13,80%	2,55%	4,53%	9,74%	13,32%	16,64%	16,99%	17,92%	18,29%	23,46%
4	13,84%	5,12%	10,40%	18,00%	18,76%	20,18%	20,91%	22,27%	20,21%	11,29%
5	9,63%	11,52%	14,13%	14,41%	13,55%	11,23%	8,26%	7,56%	6,32%	3,53%
6	28,21%	42,07%	47,61%	33,25%	28,44%	23,56%	24,02%	21,49%	20,39%	11,21%
7	7,89%	6,66%	3,85%	4,73%	5,36%	5,09%	4,68%	4,53%	4,40%	15,68%
8	12,93%	18,99%	11,24%	10,08%	10,08%	10,50%	10,89%	11,01%	12,16%	15,39%
9	6,97%	12,44%	6,72%	5,87%	6,37%	7,41%	7,72%	7,76%	9,25%	5,00%

Source : Table 4A

Divisions of NACE

1 Energy and water
2 Extraction and processing of non-energy-producing minerals and derived products; chemical industry
3 Metal manufacture; mechanical, electrical and instrument engineering
4 Other manufacturing industries
5 Building and civil engineering
6 Distributives trades, hotels,catering,repairs
7 Transport and communication
8 Banking and finance, insurance, business services, renting
9 Other services

TABLE 7A

Average size of enterprises in the EU by size-class and sector, 1990

NACE	Total	0	1-9	10-19	20-49	50-99	100-199	200-249	250-499	500+
All	6,47	1,19	3,54	13,68	30,17	70,04	143,16	224,06	347,75	2116,23
1	88,62	1,13	3,69	12,83	29,00	65,64	146,61	228,14	364,41	4202,26
2	31,23	1,39	4,11	14,00	30,64	69,62	141,70	223,99	352,37	1939,96
3	25,73	1,35	4,49	14,05	30,42	69,86	141,37	223,98	349,66	2274,77
4	11,52	1,23	3,86	13,87	30,53	70,36	141,32	225,24	348,03	1335,61
5	4,67	1,18	3,19	13,53	29,52	68,89	137,09	222,93	347,54	1441,47
6	4,27	1,18	3,67	13,81	30,20	70,34	148,11	223,28	341,13	1639,25
7	9,28	1,19	3,31	13,85	30,45	70,38	146,89	223,98	355,20	7020,99
8	5,62	1,18	3,86	13,69	30,53	71,98	146,83	225,56	356,26	2164,19
9	4,04	1,15	2,45	12,01	28,91	68,12	137,76	221,88	338,01	1276,58

Source : Tables 1A, 4A

Divisions of NACE

1 Energy and water
2 Extraction and processing of non-energy-producing minerals and derived products; chemical industry
3 Metal manufacture; mechanical, electrical and instrument engineering
4 Other manufacturing industries
5 Building and civil engineering
6 Distributives trades, hotels,catering,repairs
7 Transport and communication
8 Banking and finance, insurance, business services, renting
9 Other services

TABLE 8A

Turnover in the EU by employment size-class and sector of activity, 1990

(million ECU)

NACE	Total	0	1-9	10-19	20-49	50-99	100-199	200-249	250-499	500+
All	10543251	681729	1830883	818236	1208893	808952	970947	296022	829895	3097694
1	633238	49009	14503	1846	7532	10729	10095	6888	14288	518349
2	772626	25912	31016	32409	47206	44138	54606	23611	77531	436196
3	1389687	14545	68330	51932	112225	99221	85901	39988	108123	809421
4	1372222	20308	148849	103829	184245	140147	148309	60166	146875	419492
5	590625	41606	156332	70233	89939	53670	40412	15280	35191	87962
6	4334154	271409	1090718	432821	599316	356720	496604	122944	367902	595721
7	391141	32270	75994	31124	53429	32833	42490	7083	20468	95449
8	808688	192621	183269	77998	89453	54183	76335	13164	37705	83960
9	250872	34049	61873	16044	25549	17311	16194	6897	21812	51144

Source : EC (1994)

Divisions of NACE

1 Energy and water
2 Extraction and processing of non-energy-producing minerals and derived products; chemical industry
3 Metal manufacture; mechanical, electrical and instrument engineering
4 Other manufacturing industries
5 Building and civil engineering
6 Distributives trades, hotels,catering,repairs
7 Transport and communication
8 Banking and finance, insurance, business services, renting
9 Other services

TABLE 9A

Average productivity of labor in EU enterprises by size-class and sector, 1990

(thousand ECU)

NACE	Total	0	1-9	10-19	20-49	50-99	100-199	200-249	250-499	500+
All	114,51	76,59	90,70	107,67	129,45	129,48	159,10	142,84	150,55	118,63
1	379,75	5066,58	583,46	134,06	264,19	330,87	227,25	290,30	193,15	366,02
2	170,33	536,26	109,72	114,53	132,65	145,20	154,64	180,81	183,97	185,06
3	109,37	64,16	74,78	70,15	90,25	95,42	82,83	107,68	107,26	132,13
4	107,72	44,57	70,87	75,89	105,15	111,15	116,19	130,37	131,84	142,25
5	66,59	40,58	54,82	64,14	71,07	76,50	80,13	97,50	101,06	95,50
6	166,89	72,48	113,50	171,27	225,62	242,33	338,77	276,00	327,30	203,59
7	53,85	54,41	97,84	86,51	106,64	103,26	148,64	75,47	84,37	23,32
8	67,93	113,95	80,77	101,78	95,02	82,57	114,84	57,67	56,27	20,89
9	39,12	30,76	45,60	35,98	42,98	37,41	34,38	42,87	42,76	39,20

Source : Tables 4A, 8A

Divisions of NACE

1 Energy and water
2 Extraction and processing of non-energy-producing minerals and derived products; chemical industry
3 Metal manufacture; mechanical, electrical and instrument engineering
4 Other manufacturing industries
5 Building and civil engineering
6 Distributives trades, hotels,catering,repairs
7 Transport and communication
8 Banking and finance, insurance, business services, renting
9 Other services

Table 17A
Number of industrial firms, average employment and average firm size by size-class in Poland, (1990-1993)

	0-100			101-500			>500			Total		
YEAR	Firms	Average Employment	Average Firm Size	Firms	Average Employment	Average Firm Size	Firms	Average Employment	Average Firm Size	Firms	Average Employment	Average Firm Size
1990	1480	76936	52	2985	732720	245	1702	2853944	1677	6167	3663600	594
1991	2122	132460	62	3426	798072	233	1501	2380969	1586	7049	3311500	470
1992	2374	143016	60	3181	744269	234	1228	2031415	1655	6783	2918700	430
1993	2503	151784	61	3100	709243	229	1180	1898674	1608	6784	2759700	407

Source: Statistical Yearbook of Poland (1993) and own calculations

Table 18A
Number of industrial firms by size-class in the Czech Republic, (1990-1993).

	Number of Firms			
YEAR	25-99	100-499	>500	Total
1990	46	293	687	1026
1991	65	532	681	1278
1992	658	1106	652	2416
1993	1192	1296	621	3109

Source: Buchtikova and Klacek (1995) and own calculations

Table 19A
Number of industrial firms by size-class in the Slovak Republic, (1989-1994)

	Number of Firms			
YEAR	25-99	100-499	>500	Total
1989	-	6	152	158
1990	-	152	238	390
1991	-	394	206	600
1992	285	496	250	1031
1993	466	598	227	1291
1994	608	625	221	1454

Source: Mikelka et.al. (1995) and own calculations

TABLE 20A
Number of the state enterprises by sector of activity and size-class in Bulgaria, (1993)

Sector	0-100	101-500	>500	Total
Industry	1743	1215	339	3297
Construction	689	282	26	997
Trade	1792	261	13	2066
Rest of services	7443	1432	272	9147
Total	11667	3190	650	15507

Source: Totev and Dimitrov (1995) and own calculations

ΣΗΜΕΙΩΣΗ: Τα άρθρα της Σειράς Ερευνητικών Εργασιών διατίθενται σε περιορισμένο αριθμό αντιτύπων, με σκοπό την προώθηση του επιστημονικού διαλόγου και την διατύπωση κριτικών σκέψεων ή απόψεων. Συνεπώς, δεν θα πρέπει να αναφέρονται σε δημοσιεύσεις, χωρίς την έγκριση των συγγραφέων. Για πληροφορίες σχετικά με την δημοσίευση επιστημονικών άρθρων και την απόκτηση αντιτύπων της Σειράς, απευθυνθείτε στην Γραμματεία του Τμήματος Μηχανικών Χωροταξίας και Περιφερειακής Ανάπτυξης, Πεδίον Άρεως, Βόλος 38334, τηλ. (0421) 62017, fax (0421) 63793

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ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ
ΤΜΗΜΑ ΜΗΧΑΝΙΚΩΝ ΧΩΡΟΤΑΞΙΑΣ ΚΑΙ
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