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Structural Changes within the Service Sector Employment in EU – Convergence or Divergence?

INTRODUCTION

Service sector constitutes in modern economies a great part of their activities. This remark is valid among others for global production, value added, economic units or employment. In the most developed countries the service sector generates about 80 per cent of value added and engages approximately the same or just a little bit smaller part of employees. Moreover the role of the sector is still growing as it was pointed out in the classical three-sectoral theories by Fisher [1935], Clark [1940], Fourastié [1969] and the others.

That is the basic reason for taking into consideration some differences between EU countries specified by the service sector development. These differences can help to explain many problems of socio-economic development within the integration process such as a productivity gap, differences in rate of economic growth, levels of GDP and economic cycles, problems of unemployment, wage differences, “brain drain” phenomena and so on. All the problems are strictly connected with the service sector, which is often treated as a low-efficient, with slowly growing labour productivity, low usage of capital, and suffering the “cost disease” [see e.g.: Fuchs, 1968; Baumol, 1967]. On the other hand, many modern economists claim that all the traditional features of the service sectors are no longer valid [see e.g.: Klodt, 1995].

Moreover, the comparisons between countries put the question about the future. Are the structural differences to diminish or are they long-lasting and even deepening? Are the countries more and more specialised in one group of service delivering because of their special resources and abilities (comparative advantages) or is the international cooperation growing more into inner-service exchange? The answer to the question has a lot of implication for the future of integration processes within EU. More diversified structure of production and employment between countries is a factor of asymmetric shocks and makes it more difficult to introduce some advanced instruments of integration. It can thus deepen an income gap. In the contrary, convergence of economic structures is a source of positive correlation of economic cycles and reflects wider convergence of social welfare [see e.g. Frankel, 2004; Fidrmuc, 2003].

The main thesis verified in the paper is to assess whether the inner structure of service sector is converging or diverging among the EU countries. A special attention was paid to Poland as a relatively poorly developed country within EU, with strong structural problems, still transforming its economy to the modern challenges.

In the literature as well as in some statistical approaches there is a widely accepted definition of the service sector as the activities within the G-U sections of the Statistical Classification of Economic Activities in the European Community – NACE, Rev. 2 (2008) (in the previous version Rev.1.1 NACE the service sector was specified as the G-Q sections). However, there appear a lot of difficulties concerning the real impact of the services on the economy as service activities, functions and jobs can be found in any field of the economy. In this context there are created some new proposals of sectoral classifications e.g. the matrix by Normann-Ramirez [1991] or dual classification of activities by Rogoziński [2003]. Unfortunately this kind of models still takes only conceptual form and rather indicate some problems than solve them. Nevertheless, the specified above range of the service sector as G-U sections is widely used for practical reasons resulting from the data accessibility.

As the service sector still becomes more and more important for the whole economy and as it covers very heterogenic activities it is important to investigate its inner structure. That dimension constitutes today a serious task for researchers as it is impossible to treat the service sector as a “black box” any more. Which activities are the most dynamic in the sense of productivity, employment growth and share of production? The direction of changes between different kinds of service activities’ shares in the economy is the modern dimension of the service sector development.

There are a lot of classifications of the service activities basing on different criteria and taking different attitudes. One of them is the classification specifying: classical (traditional) services, financial and business services and welfare services used by OECD and adopted by many researchers [e.g. Kłosiński, 1997]. The classical services covers: trade, transport, accommodation and food activities. Although they are still growing, it is expected that their role in the economy structure is relatively decreasing. On the contrary, the financial and business services are the most dynamic part of the service sector and are constituted by: information and communication, financial and insurance, real estate, professional and administrative activities. Their development is connected with the expansion of the knowledge-based model of economy. The third kind of services is connected with the highest level of the welfare state and is typical for the richest societies and covers: public activities, education, healthcare, arts, entertainment and recreation. This classification is used in the paper to assess changes in the structure of employment within the service sector taking place in the EU countries.

METHODOLOGY AND DATA

The analysis held in the study was based on statistical data on employment by economic activity, extracted from Eurostat database. The data cover period 2000–2010 and describe individually 27 EU countries as well as all the countries as a whole group and a group of EU-15, created by the countries which were the EU members between year 2004. Employment in the service sector is structured into three groups of activities: classical, financial and business, and welfare as mentioned above. However, as there took place a serious change of statistical classification (from NACE Rev. 1.1 to NACE Rev. 2) the level of employment within these three service groups is not directly compared between 2007 and 2008. As the change in classification was driven by the most modern tendencies, it highlights directions of structural transformation. It reflects the shift from classical to financial and business services and is observed in every country. That is why it shouldn't be a source of strong bias when discussing the question of convergence/divergence processes between the EU countries.

To answer the question about character of structural changes between the EU countries there was used a method of statistical analysis of structures (SAS) presented by Kukuła [1996], based on the measure of difference:

$$S = \frac{\sum_{i=1}^k |\alpha_i - \beta_i|}{2}$$

where:

α, β – the analysed structures of two objects (e.g. countries),

i ($i = 1, \dots, k$) – elements of the analysed structures (e.g. 3 elements of employment in the service sector structure: classical, financial and business, welfare services).

The range of the measure is from 0 to 1 and the higher is the value, the bigger structural differences appear.

The whole procedure of research covers few steps, proposed by Kukuła [1996]:

1. In the first stage there are counted measures of structural differentiation (s_i) between the analysed countries in every period. This is the base to conclude about appearance of the structural convergence.
2. The second stage helps to describe how the structural changes proceed in every country. There are used the dynamic (chain) measures of structural changes for every country (v_i). Their average level (v) reflects the speed of structural transformation.
3. As the changes are often very chaotic, in the third stage there is assessed the level of monotony of structural changes in every country. The monotony measure can be counted as:

$$\eta = \frac{v_{m,0}}{\sum_{t=0}^{m-1} v_{t,t+1}},$$

where:

$v_{m,0}$ – is a structural differentiation between the last and the basic period,

$v_{t,t+1}$ – is a chain measure of structural differentiation.

4. The fourth step is connected with the measure of disturbance of convergence between the countries (A and B):

$$z = \frac{2}{\eta_A + \eta_B}.$$

5. The last phase allows to count the time distance between structures in compared countries:

$$l = \frac{z s_n}{v_A + v_B},$$

where:

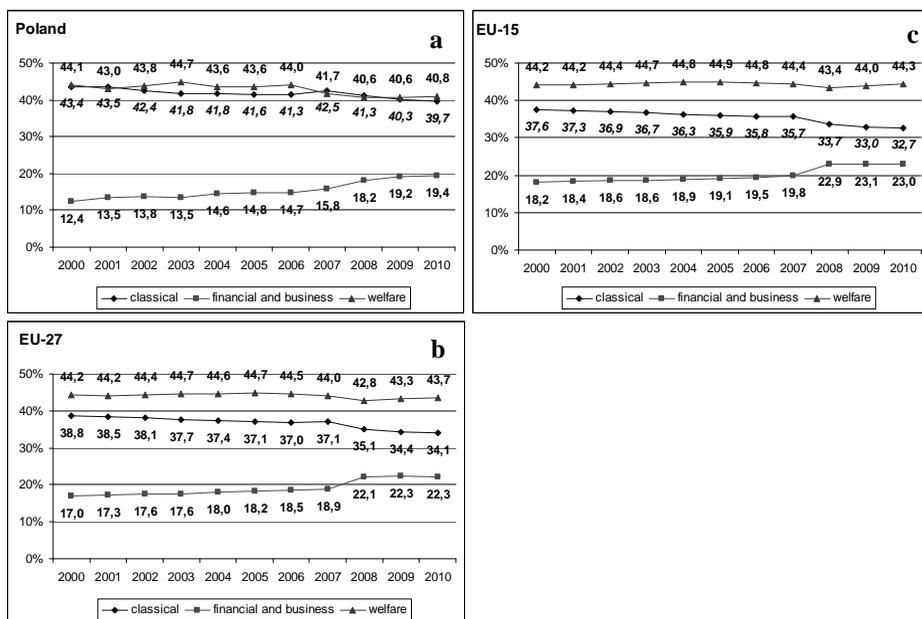
s_n – is a final structural differentiation observed between two objects (countries) A and B.

The above described procedure not only allows to conclude about divergence or convergence but also helps to estimate the distance between countries. It cannot be treated as prediction of the time of real convergence as it is based just on the extrapolation of past tendencies. However, it is a useful method to compare different countries achievements and perspectives for future. It could also be a base to formulate some indices for socio-economic policy.

DISCUSSION OF RESULTS

At the beginning it is useful to take a look at the structure of employment in the service sector of the EU countries, and Poland among them. As presented at the chart 1 (a-c), there is a considerable structural distance between Poland and EU-27 as well as EU-15 in shares of financial and business services in the service employment. The gap seems to diminish through time, however, Polish financial and business services in 2010 still accounts for about 3–4 percentage points lower share than in the comparable groups of countries. This is due to the strong and growing advantage of Polish classical services, although the traditional services in all countries are playing smaller and smaller role. While in EU-27 and EU-15 the role of the welfare services is rather stable, in Poland there is observed a decreasing share of the welfare services. These differences

indicate the structural weakness of the Polish service sector, which is still based on the classical services such as trade or transport, with small share of the most modern services. Taking into account that the whole service sector share in employment in Poland is still lower than in the most developed countries, it gives us rather unfavourable picture for Poland.



Classical services:

for period 2008–2010: wholesale and retail trade, transport, accommodation and food service activities,

for period 2000–2007: wholesale and retail trade; hotels and restaurants; transport

Financial and business services:

for period 2008–2010: information and communication, financial and insurance activities, real estate activities, professional, scientific and technical activities, administrative and support service activities,

for period 2000–2007: financial intermediation, real estate

Welfare services:

for period 2008–2010: public administration, defense, education, human health and social work activities, arts, entertainment and recreation, other service activities, activities of household and extra-territorial organizations and bodies,

for period 2000–2007: public administration and community services, activities of households; extra-territorial organizations

Chart 1. Changes in structure of employment in the service sectors of Poland (a), EU-27 (b) and EU-15 (c)

Source: own presentation based on Eurostat data for period 2008–2010: Employment by economic activity, at NUTS levels 1 and 2 (1 000) (NACE Rev.2) [lfst_r_lfe2en2] (extracted on 11.04.2012) and for period 2000–2007: Employment by economic activity, at NUTS levels 1 and 2 (1 000) (1999–2009, NACE Rev.1.1) [lfst_r_lfe2en1] (extracted on 11.04.2012).

Similar observations can be made comparing UE-27 to EU-15. The first group slightly increased the difference of share of classical services in employment to the other, although both tendencies were decreasing. As to share of financial and business services both tendencies were increasing, however the gap diminished. The difference has appeared with time in the share of welfare services. It seems that the structural differences within the “new” and the “old” EU-members are rather deepening in the case of different kinds of service employment.

Looking at the structural differences between individual countries it seems that the convergence process appear. The average measure of differentiation for pairs of countries in 2000 year achieved level 0,0821, while in 2010 decreased to 0,0775 in 2010. However, the standard deviation increased its value and so the variability rose from 51,01% in 2000 to 68,73%. The results show that although there is a general tendency to structural convergence, there are some countries that increase their development gap in a positive or a negative way. Some countries are really successful in their transformation to the most modern challenges – quickly adapt new patterns of conducting a business and focus their activities on the most innovative areas. On the other hand, some countries face serious problems in defeating their structural circle of poverty and backwardness. However, the majority of countries are more and more similar.

Detailed investigation of structural development in the individual countries reveals some interesting points (see table 1). Generally, the highest speed of transformation is characteristic for the lower developed countries, such as the Baltic republics, Cyprus and Malta or Romania. Simultaneously, less intensive changes are observed in the highly developed economies such as Finland, France, Germany, Sweden. However, the pattern is broken by Luxembourg, which was the country with the fastest changes in the structure of employment within service sector during period 2000–2010.

Table 1. Main characteristics of structural changes in employment in the service sector in 2000–2010 in EU

Average speed of structural changes <0,1>		Monotony of structural changes <0,1>		Structural differentiation between 2010 and 2000 <0,1>	
1		2		3	
Luxembourg	0,0195	Germany	0,8845	Luxembourg	0,1343
Lithuania	0,0190	Italy	0,8102	Lithuania	0,0953
Estonia	0,0171	EU-27	0,7650	Latvia	0,0899
Latvia	0,0165	EU-15	0,7545	Romania	0,0852
Cyprus	0,0162	Sweden	0,7436	Bulgaria	0,0828
Malta	0,0161	Finland	0,7211	Ireland	0,0780
Romania	0,0148	United Kingdom	0,7114	Slovakia	0,0741
Slovakia	0,0130	Spain	0,6986	Estonia	0,0736
Bulgaria	0,0128	Austria	0,6903	Cyprus	0,0727

1		2		3	
Ireland	0,0122	Luxembourg	0,6887	Spain	0,0725
Slovenia	0,0122	Bulgaria	0,6477	Italy	0,0723
Czech Republic	0,0120	Ireland	0,6388	Slovenia	0,0712
Poland	0,0110	Poland	0,6362	Malta	0,0704
Hungary	0,0109	Portugal	0,6132	Poland	0,0697
Spain	0,0104	Slovenia	0,5841	Czech Republic	0,0689
Greece	0,0101	Belgium	0,5806	Germany	0,0673
Portugal	0,0096	Romania	0,5769	Austria	0,0641
Denmark	0,0093	Czech Republic	0,5744	United Kingdom	0,0621
Austria	0,0093	Slovakia	0,5706	Hungary	0,0614
Belgium	0,0089	Hungary	0,5663	Sweden	0,0597
Italy	0,0089	Greece	0,5606	Portugal	0,0591
United Kingdom	0,0087	Latvia	0,5443	Greece	0,0567
Netherlands	0,0086	France	0,5309	UE-27	0,0524
Sweden	0,0080	Netherlands	0,5307	Belgium	0,0517
Germany	0,0076	Lithuania	0,5019	Finland	0,0500
France	0,0070	Denmark	0,4715	UE-15	0,0492
EU-27	0,0069	Cyprus	0,4494	Netherlands	0,0456
Finland	0,0069	Malta	0,4363	Denmark	0,0438
EU-15	0,0065	Estonia	0,4295	France	0,0374

Source: own research based on data from Eurostat (see chart 1).

While the higher developed the country is, the slower changes are observed, the opposite statement is true for the monotony of structural changes. The most directed, consistent structural transformation takes place in the highly developed countries like Germany, Italy, Sweden, Finland, UK. In a contrary, changes are chaotic especially in Estonia, Malta or Cyprus. It induces that although there is very dynamic movement of labour, the results in the final structure adjustments are much poorer. Moreover, the situation creates a strong social insecurity and serious problems with adopting new requirements by employees. It could than result in structural unemployment and increasing social inequalities.

Comparing the last year to the basic one, it can be perceived that the final structure of employment in the service sector has changed the most in Luxembourg, Lithuania, Latvia, Romania and Bulgaria. It means that the mentioned countries made a biggest progress and their efforts were the most successful. The least changes were observed in France, Denmark and Netherlands. This rank suggests that the poorer countries quickly limit the structural gap. As to Poland, it is situated in the half of all ranks, gaining average results in changing its structure.

As the previous results suggest that there could be observed a convergence of structure at least within some groups of countries, it is useful to investigate the changes for Poland. As shown in table 2 Polish structure of employment in services rather diverge to the common for EU patterns. Structural differentiation to the whole group EU-27 as well as to EU-15 has risen between years 2000 and 2010. The tendency to divergence is also shown by the positive sign of a parameter of linear tendency of differentiation measure.

Table 2. Characteristics of differentiation and convergence processes between Polish structure of employment in the service sector and the other EU countries in a period 2000–2010

Poland versus:	Structural differentiation in 2000	Structural differentiation in 2010	Parameters of linear tendency of differentiation measure		Time distance
			a	R ²	
EU-27	0,0466	0,0569	0,0015	0,4912	divergence
EU-15	0,0583	0,0708	0,0019	0,5224	divergence
Belgium	0,0867	0,1017	0,0026	0,5883	divergence
Bulgaria	0,0573	0,0770	0,0023	0,5661	divergence
Czech Republic	0,0278	0,0169	-0,0005	0,0325	1,22
Denmark	0,1085	0,1100	0,0004	0,0207	divergence
Germany	0,0732	0,0814	0,0015	0,4493	divergence
Estonia	0,0396	0,0133	-0,0018	0,3736	0,89
Ireland	0,0729	0,0529	-0,0011	0,2001	3,59
Greece	0,0644	0,0431	-0,0028	0,6475	3,42
Spain	0,0609	0,0147	-0,0041	0,8326	1,03
France	0,1016	0,1023	0,0009	0,1981	divergence
Italy	0,0377	0,0403	0,0013	0,1703	divergence
Cyprus	0,0809	0,0210	-0,0052	0,8048	1,43
Latvia	0,0210	0,0145	-0,0019	0,2621	0,90
Lithuania	0,0658	0,0244	-0,0047	0,6608	1,43
Luxembourg	0,1129	0,2104	0,0109	0,938	divergence
Hungary	0,0054	0,0110	0,0002	0,0775	divergence
Malta	0,0197	0,0062	-0,0031	0,5688	0,42
Netherlands	0,0944	0,0936	0,001	0,1402	(8,20)
Austria	0,0525	0,0341	-0,002	0,5262	2,54
Portugal	0,0140	0,0233	0,0003	0,057	divergence
Romania	0,0548	0,0637	0,0001	0,002	divergence
Slovenia	0,0336	0,0263	-0,0003	0,0152	1,86
Slovakia	0,0328	0,0116	-0,0027	0,62	0,80
Finland	0,0940	0,0924	0,0003	0,0204	(7,61)
Sweden	0,1345	0,1277	-0,00004	0,0006	9,75
United Kingdom	0,0880	0,0971	0,0022	0,3669	divergence

Source: own research based on data from Eurostat (see chart 1).

However, there are some countries to which Poland has more and more similar structures of service employment. It is in the cases where structural differentiation between 2010 and 2000 has decreased and “a” parameter has a negative sign. These cases make it possible to estimate a time distance between the structures. For the longest time – about 10 years – Poland has to continue its development to converge the structure to Sweden. The results are due to the similar directions of all structural tendencies (decrease in classical and welfare services and increase in financial and business services), which are deeper in Poland. It is not a big distance taking into consideration that Sweden is one of the best developed modern economies. However, it must be remembered that Sweden has definitely more mature economy and institutions with strong market foundations supported by state. In Poland the lack of structural policy of state could be reflected by low monotony of changes. It could be concluded then, that reasonable state intervention and support for the most innovative branches is a good advice for Poland.

There could be made one more remark. The convergence is observed mainly between Poland and the other “new” members’ economies. Considering the “old” members only Ireland, Greece, Spain, Austria and Sweden as for now are the achievable models for Poland. The results for Netherlands and Finland are ambiguous as the differentiation between 2000 and 2010 has decreased but the tendency sign is positive. The “old” members are mainly facing other structural processes than Poland – (1) they are experiencing other directions of changes, that could be a result of growing service specialization within EU or (2) the strength of the tendencies is much bigger than in Poland.

Both explanations are not favourable for Poland. The first brings a threat for Poland to become a source of cheap labour engaged in very traditional, technologically not-advanced services, with low value added. Moreover, the highly qualified, educated part of society could then migrate to the other EU countries in search for better job and life standard, what brings an obvious cost for the economy as well as in a social sphere. The second possibility is connected with a lost in competitiveness and with a threat of sustainable marginalization of Polish economy, which is always just copying models of development. Although strong social efforts to adapt to new economic structure and inevitable social costs and sacrifices, this option puts Polish citizens in a position of “ever-poorer followers”.

FINAL CONCLUSIONS

Summing up, it should be stated that modern trends in structural changes in employment within service sectors are connected with a decrease in a share of classical services and an increase in a role of financial and business ones. This

pattern is adopted by all European Union countries, however, the speed and monotony of changes are deeply diversified.

Generally, the structural differences within EU countries are diminishing. Unfortunately, there are countries or groups of countries that are more and more diversified than the others. Moreover, the discussed structures rather diverge between “new” and “old” EU members. It is not favourable situation from the point of view of future integration processes within EU. The structural differences can create a serious barrier for synchronising economic cycles and using common instruments of economic policy. It can result in Europe of two GDP levels, facing diversified developmental problems within both groups of countries.

Taking the case of Poland it could be concluded that the convergence appears mainly with the other “new” member states or rather less developed countries. The strong barrier for the convergence processes is low monotony of changes. It reflects a lack of appropriate structural policy. The positive influence of state intervention directed at the most modern and innovative branches are pointed out by many authors [e.g. Karpiński, 2008]. Unfortunately, in Poland, as in many other catching up countries, the high speed of structural transformation doesn't find state support and results in serious social costs made by the chaos and insecurity. It is a big challenge for politicians to create and adapt supporting institutions and solutions, but it seems to be a necessity. In other case Polish economy could be marginalised and stick in a position of a passive resources supplier, not a value creator.

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Summary

The study deals with the problems of structural changes in employment within the service sector. The research covers European Union in a period 2000–2010. The classification of services into classical, financial and business, and welfare is adopted. The structural changes are investigated under the question about the convergence or divergence between EU countries. A special attention is paid to Poland.

Zmiany struktury zatrudnienia w sektorze usług w UE – konwergencja czy dywergencja?

Streszczenie

W opracowaniu analizie poddano problemy zmian struktury zatrudnienia w ramach sektora usług. Badania dotyczą państw Unii Europejskiej w okresie 2000–2010. Wykorzystano klasyfikację usług na grupy usług klasycznych, usług finansowo-biznesowych i usług dobrobytu. Analizy prowadzono w kontekście weryfikacji występowania konwergencji lub procesów dywergencji pomiędzy państwami UE. Szczególną uwagę skierowano na polską gospodarkę.