REGIONAL GROWTH AND DEVELOPMENT IN HUNGARY AND ROMANIA

ILDIKÓ KNEISZ[1]

ABSTRACT - The paper presents how economic structural changes affect a region's economic growth and development. To show this effect is not that easy since changes of economic structure take time, and the result of changes appear shifted in time in the examined regions. Researchers examining reasons of income disparities among countries pay attention to the question how differences of GDP levels and growth rates can be explained by the economic structures. Literature of economic development sets store by explanatory potential of differences in macro-structures in countries within especially for share of agriculture in gross domestic product.

Keywords: regional development, territorial disparities, sectoral analysis, shift-share analysis.

INTRODUCTION

Several studies (e.g. European Commission 2001; European Commission 2004; Petrakos, 2000) confirm that throughout the last decade, the accession countries witnessed increasing regional disparities. In its latest report on economic and social cohesion, the European Commission (2004) finds that economic growth in the CEECs has not been regionally balanced.

Growing empirical evidence (e.g. Bachtler et al. 1999; European Commission 2001; Petrakos, 2000; Resmini, 2002) points to one type of winner and to two types of losers among the accession countries' regions: in this admittedly simplified dichotomy, the metropolitan and urban areas (namely the capital city regions) belong to the former group, the rural and old (declining) industrial areas as well as those in the Eastern peripheries belong to the latter group.

According to Lőcsei (2004), on national and international level, it is confirmed that, since the industrial revolution, between economic state of development and macroeconomic structure – from the point of view of production and employment – is a strong connection. Statically (cross-sectional) and dynamically (time series), it can be set out that by economic development the share of agriculture is decreasing in employment, as well as in economic value added, and the share of industry and services is increasing.

Regions' economy can be traditionally structured into three sectors. In the primary sector (agriculture, hunting, forestry and fishing), the lands as capital goods have basically a determining role; in the secondary sector (industry and manufacture), processing and transformation are stressed on, while the tertiary sector (services) has human resources as function.

In this study, we try to find out whether development differences are caused by regional position or by economic structure. All indicators are calculated at NUTS 2 level. Main indicators are regional GDP and employment in the examined regions of Romania and Hungary and all the sources of indicators are Eurostat electronic and printed database.

Recent development path in Romania is determined by economic-social transformation, new political and economic condition after the change. Economic development is mainly defined, not exactly by sectoral transformations, but by enterprises' competitiveness at micro level (Illés, 2002).

In the 90s, economic growth in Romania has declined to the deepest (in 1990, national economic growth: –7.4%; in 1994, it takes 1%), while stabilization of economic change was hold up by high inflation and foreign debt. Distinct improvement has came around 2000, where in 2001 growth in GDP per capita has reached even 5.7% which was an outcome of quantity flare of economic activities mainly in the trade, merchandise and construction sectors.

[1] Assistant Lecturer, University of Miskolc, Faculty of Economics, Institute of World and Regional Economics, Department of World Economics, H- 3515 Miskolc, Egyetemváros, Hungary.
E-mail: kneisz.ildiko@uni-miskolc.hu

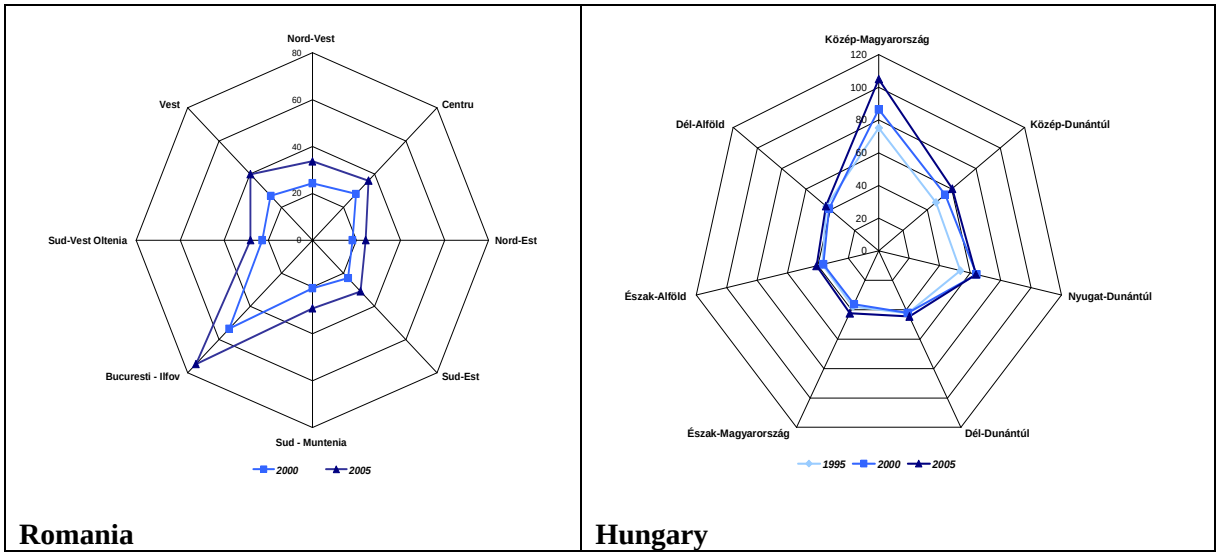

Figure 1. *Regional GDP in EU percentage (1995, 2000, 2005).*
(Source: Own compilation on Eurostat database)

Industrial employment in Romania fell down in the 90s from 34% to 27% until 2000 and rest of the active population turned to self-sufficient agriculture or, a small part of them, to some service branches. Therefore, a strong employment growth in the primary sector took place in Romania, which led to a huge rural population.

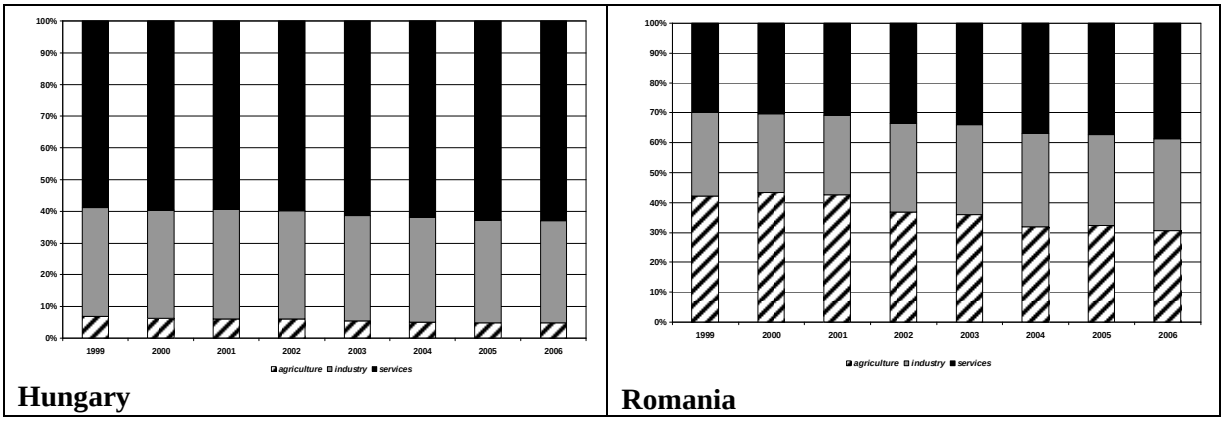

Figure 2. *National employment rates in the examined two countries, 1999-2006 (%).*
(Source: Own compilation on Eurostat database)

Among the Hungarian counties of Pest and Fejér, the number of employees has increased, while Borsod-Abaúj-Zemplén and Baranya are the biggest losers of this decade. In the 90s, the most dramatically job loss occurred in the material branches in Northern Hungary and Southern Great Plain, where, some backwardness is felt until now (Kocziszky, 2006). In the first case, breakdown of heavy industry and mining meant difficulties that were mainly caused by government, which has financed for too long this industry and has forced the necessary structural changes in the regional economy. In the Southern Great Plain, a crisis in agriculture has been a barrier in the development, as this area is one of the most important agricultural centres in Hungary (Kocziszky, 2003).

Table 1. *Regions' ranking by regional real GDP growth between 2001 and 2005 (changes to previous year, %).*

	2000		2001		2002		2003		2004		2005	
1.	Bucuresti - Ilfov	24.7	Vest	8.8	Central Hungary	8.0	Sud-Vest Oltenia	11.1	Sud-Est	15.2	Bucuresti - Ilfov	14.6
2.	Central Transdanubia	9.1	Northern Great Plain	8.5	Centru	7.6	Vest	9.6	Sud - Muntenia	11.7	Central Hungary	8.2
3.	Central Hungary	6.0	Bucuresti - Ilfov	8.4	Nord-Vest	7.1	Central Transdanubia	9.5	Vest	9.7	Nord-Est	3.4
4.	Western Transdanubia	5.6	Nord-Est	8.3	Sud - Muntenia	6.4	Western Transdanubia	9.4	Nord-Vest	8.6	Central Transdanubia	3.0
5.	Northern Great Plain	5.2	Sud - Muntenia	6.2	Vest	6.3	Nord-Vest	8.1	Northern Hungary	8.3	Sud - Muntenia	2.9
6.	Northern Hungary	2.8	Central Hungary	5.5	Nord-Est	5.8	Sud - Muntenia	6.6	Southern Great Plain	7.7	Vest	2.2
7.	Southern Great Plain	2.6	Northern Hungary	5.0	Sud-Est	5.5	Northern Great Plain	5.8	Sud-Vest Oltenia	7.5	Nord-Vest	2.1
8.	Centru	2.2	Nord-Vest	4.8	Western Transdanubia	3.2	Centru	5.6	Central Transdanubia	7.1	Northern Hungary	1.7
9.	Southern Transdanubia	1.1	Southern Transdanubia	4.3	Bucuresti - Ilfov	2.7	Nord-Est	5.5	Bucuresti - Ilfov	6.9	Sud-Est	1.3
10.	Nord-Vest	-0.9	Sud-Est	3.0	Northern Hungary	2.7	Northern Hungary	4.7	Centru	5.3	Centru	1.3
11.	Sud-Vest Oltenia	-1.8	Centru	2.8	Southern Great Plain	2.3	Sud-Est	4.6	Northern Great Plain	5.0	Southern Transdanubia	1.1
12.	Sud-Est	-2.7	Southern Great Plain	2.5	Southern Transdanubia	2.2	Southern Great Plain	2.4	Southern Transdanubia	4.7	Southern Great Plain	1.0
13.	Nord-Est	-2.8	Central Transdanubia	2.1	Northern Great Plain	1.4	Central Hungary	2.1	Nord-Est	4.1	Northern Great Plain	0.3
14.	Sud - Muntenia	-3.9	Sud-Vest Oltenia	1.5	Sud-Vest Oltenia	0.3	Southern Transdanubia	1.8	Central Hungary	4.0	Western Transdanubia	-1.1
15.	Vest	-8.5	Western Transdanubia	-2.8	Central Transdanubia	-1.9	Bucuresti - Ilfov	-1.7	Western Transdanubia	0.9	Sud-Vest Oltenia	-2.4

(Source: Own compilation on Eurostat database)

The higher employment in agriculture is shown in the Romanian regions except for the capital region, Bucharest (no. 80), with a rate under 3%. The highest values are in the Nord-Est (no. 58) and in the Sud-Vest Oltenia (no. 82) regions. A low economic performance, between 22% and 40% in GDP in EU-average, is connected to the high agricultural employment.

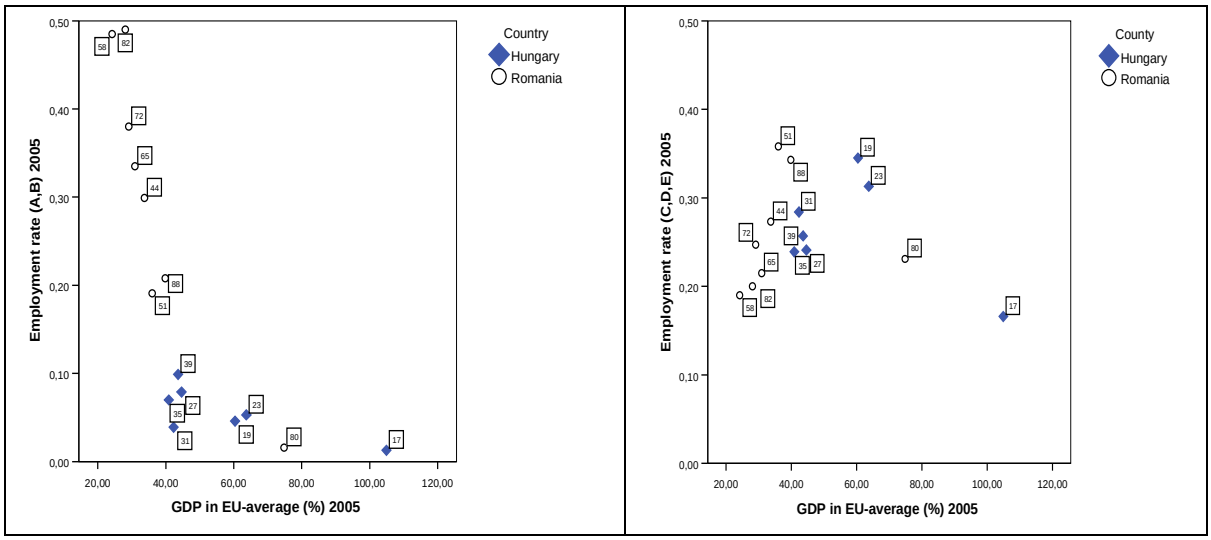

Figure 3. *Regional employment rate compared to regional GDP in selected sectors (2005).*
(Source: Own compilation on Eurostat database)

All Hungarian regions perform above 40% in GDP in EU-average but with a significant lower rate of employment in agriculture. It means that the domestic value added comes in Hungary not from agriculture. Industrial employment is in both counties' regions between 18% and 38%. It is shown that this branches (mining and quarying; electricity, gas and water supply) gives the second larges part of regional employments. In Hungary this high rate appears in Central Transdanubia (nr. 19) and Western Transdanubia (nr. 23) while in Romania the Central region (nr. 51) and Western region (nr. 88).

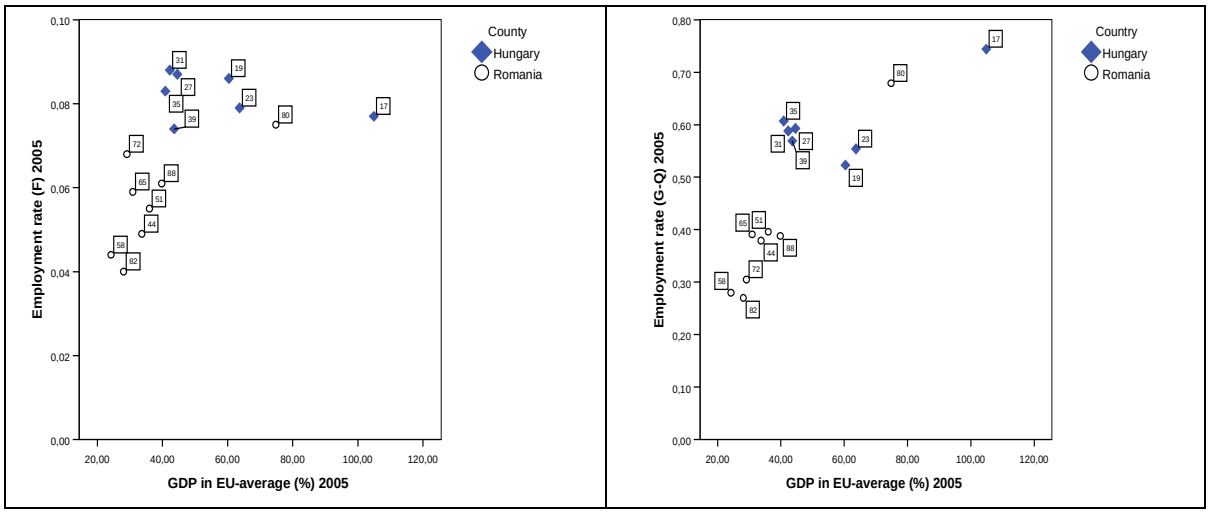

Figure 4. *Regional employment rate compared to regional GDP in selected sectors (2005).*
(Source: Own compilation on Eurostat database)

Disproportion of Hungarian employment structure analysis shows that, in Central Hungary (no. 17), most people work in services as finances, merchandise, tourism and public administration.

Another point of view indicates that the capital city and the biggest cities have the better employment potential, due to the presence of larger companies. The small cities and other settlements have a high rate of micro and small enterprises, which have a lower employment potential.

A connection between employment rate and regional economic performance correlate, in the case of Hungary, only in agriculture, but it is a negative one. Therefore, when agricultural employment declines, economic performance should get even higher, as industrial and service sector value added gets higher.

Table 2. *Correlation between GDP and sectoral[2] employment in Hungary.*

	Units	**Employment rate (A,B) 2005**	**Employment rate (C,D,E) 2005**	**Employment rate (F) 2005**	**Employment rate (G-Q) 2005**
GDP (EU25=100)	n=7	-0.757	-0.451	-0.409	0.710
Sig.	---	0.050	0.309*	0.362*	0.074*

(Source: Own compilation on Eurostat database) * *No sig.*

The analysis of the 8 Romanian regions has shown that the primary and tertiary sectors have strong connection to regional economic performance. In case of agriculture, the same negative correlation appears, but in the service sector the positive relation is typical.

Table 3. *Correlation between GDP and sectoral employment in Romania.*

	Units	**Employment rate (A,B) 2005**	**Employment rate (C,D,E) 2005**	**Employment rate (F) 2005**	**Employment rate (G-Q) 2005**
GDP (EU25=100)	n=8	-0.882	0.113	0.706	0.972
Sig.	---	0.004	0.789*	0.050*	0.000

(Source: Own compilation on Eurostat database) * *No sig.*

METHODOLOGY AND DATA

In case of economic structure, the analysis of the different approaches belongs to different method backgrounds. In most cases, simple and complex quantitative methods are applied. In regional researches, we can use two ways of solving measurement problems. One could be the simplification manner, by selecting one or only a few indicators and analysing them. The other possibility is to choose a wider view and analyse many indicators as a whole (Rechnitzer ed., 1994).

Shift-share analysis is a method of decomposing regional income or employment growth patterns into expected (share) and differential (shift) components. The description of the economy provided by shift-share can be used in the research that explores the reasons for change. It is strictly a descriptive technique. By itself, it cannot be used to elicit the determinant economic trends.

The technique was first applied in the U.S. to calculate employment change from 1939 to 1954 (Dunn, 1960). Its origins date from the 1940's when an economist working for the U.S. Bureau of Labour and Statistics developed the concept of "location shifts" used to measure growth trend differences between the nation and its states (Cramer, 1942). Shift-share is utilized by regional

[2] *Analysed sectors:* A, B (Agriculture, hunting, forestry and fishing); C, D, E (Mining and quarrying; electricity, gas and water supply); F (Construction); G, H, I (Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods; hotels and restaurants; transport, storage and communication); J, K (Financial intermediation; real estate, renting and business activities); L-Q (Public administration and defence, compulsory social security; education; health and social work; other community, social and personal service activities; private households with employed persons).

economists, community planners, and policy analysts to provide quick sketches of the economic landscape of both rural and urban areas.

Shift-share analysis decomposes regional growth into separate and unique factors influencing the prosperity of spatially distinct areas. Most shift-share models are mathematical identities expressing economic upswings (or downturns) as a function of three broad factors: the national growth effect, the industrial mix effect, and the competitive effect. Between any two time periods, the observed change in growth is assumed to be the sum of these three effects or components.

The classic shift-share model is defined as:

$E^{t}_{ij} - E^{t-1}_{ij} = \Delta E_{ij} = NE_{ij} + IM_{ij} + CE_{ij}$
E^{t}_{ij} = Employment (income) in the i^{th} sector in the j^{th} region at time t
NE_{ij} = National Growth Effect
IM_{ij} = Industrial Mix Effect
CE_{ij} = Competitive Effect

National Growth Effect

The national growth effect is the amount that total regional employment would have grown if it grew at precisely the same rate as total employment in the nation as a whole. Implicitly, the model asserts that the industries in a region will grow at approximately the rate of national industries unless the region has a comparative advantage or disadvantage.

Industry Mix

Most regions do not have identical industrial profiles. Some regions are home to a preponderance of slow-growing sectors, while others may specialize in sectors with growth rates that are higher than the national average. The industry mix effect in the shift-share equation tries to capture these regional variations in industrial composition. The industry mix is the amount of growth attributable to differences in the sectoral makeup of the region versus that of the nation.

Both the national growth effect and the industry mix effect are exogenous factors that are determined by national growth rates, not local or regional economic conditions. Together, they comprise the region's expected growth - the growth that would occur in the region if each of the industries grew at the same rate as the nation as a whole.

Competitive Effect

The competitive effect is a "shift" from what would be expected if the region's industry grew at exactly the proportion of national growth and industry mix. Implicit in shift-share analysis is the assumption that regional economies should grow at national growth rates unless there are comparative advantages or disadvantages operating at the regional level.

The growth attributed to the competitive effect is the value that is left after the national growth effect and industry mix are subtracted. This residual is inferred to result from factors that are unique to the region. The competitive effect arises from interregional differences affecting a given area's attractiveness to the activity. These differences develop because of endogenous factors inherent to the region. The competitive effect can be thought of as a measurement of a region's competitive edge or comparative advantage in the production of the goods in the i^{th} industry.

Applicability of shift-share method (Kalocsai and López, 2005):

- Analysis of structure of branches
- Merchandise and market analysis
- Migration analysis
- Analysis of regional growth (neoclassic point of view)
- Forecasting (economic growth, population)
- Regional specialisation
- Demographic analysis

We analysed 15 regions in Hungary and Romania. Hungarian regions are in better situation compared to most of the Romanian regions, which can be confirmed by static indicators. But most of the dynamic indicators prove the significant improvement of the Romanian regions in economic terms.

RESULTS

Four regions – three Hungarian and one Romanian (Southern Great Plain, Southern Transdanubia, Western Transdanubia, Sud-Vest Oltenia) – have an absolutely disadvantaged position, while the unfavourable structural effects are strengthened by the worse employment potentials. It is very interesting that only the Hungarian central region shows lower employment decline among the 15 regions.

Table 4. *Role of local and structural effects in the employment rate changes in Hungarian and Romanian regions (2000-2006).*

	structural > local	**local > structural**
Positive structural and **positive** local factor, **lower employment decline** as the national average		
Positive structural and **negative** local factor, **lower employment decline** as the national average	Centru (RO)	Central Hungary (HU)
Negative structural and **positive** local factor, **lower employment decline** as the national average		Northern Great Plain (HU) Central Transdanubia (HU) Vest (RO) Sud-Est (RO)
Negative structural and **negative** local factor, **lower employment decline** as the national average		
Positive structural and **positive** local factor, **higher employment decline** as the national average		
Positive structural and **negative** local factor, **higher employment decline** as the national average		
Negative structural and **positive** local factor, **higher employment decline** as the national average	Northern Hungary (HU) Bucuresti – Ilfov (RO) Sud – Muntenia (RO) Nord-Est (RO)	Nord-Vest (RO)
Negative structural and **negative** local factor, **higher employment decline** as the national average	Southern Great Plain (HU) Southern Transdanubia (HU) Western Transdanubia (HU) Sud-Vest Oltenia (RO)	

(Source: Own compilation)

Budapest and the Western regions bordering Austria were able to benefit from the transition process and the relocation of manufacturing activity and investment: many new companies, massive inflows of FDI and relatively low unemployment rates can be found in these areas. Generally

speaking, Budapest and Hungary's Western parts are characterised by good infrastructure links (e.g. the M1 motorway), by a dynamically growing private sector activity and by a great number of international joint ventures which act as connections to international networks (Bachtler et al., 1999). While Budapest has attracted basically tertiary activities (mainly financial services), the counties of Győr-Moson-Sopron and Vas have become centres of specialised industrial mass-production (Rechnitzer, 2000).

The Eastern periphery (the counties of Szabolcs-Szatmár-Bereg and Hajdú-Bihar) suffers from a regional crisis in the manufacturing and agricultural industries, which were producing for the Soviet market: three Eastern Hungarian industrial counties account for around 35 per cent of the country's total unqualified and unemployed workers. The employment power of the weak service sector is still far too low to absorb those who lost their jobs due to the systemic change.

Generally, Hungary's Southern, Northern and (North-) Eastern counties have comparatively poor infrastructure connections, small numbers of joint ventures and a very weak private sector (Bachtler et al. 1999). Among other factors, it is the lack of favourable transport connections that makes regions like North-East Hungary and the Great Hungarian Plain far less competitive (Rechnitzer, 2000). Hungary's Southern, Northern and (North-) Eastern border regions are all peripheries, their economic sources and potential are still moderate and limited (Rechnitzer, 2000).

Table 5. *Position in the socialist economy and in the post-socialist transition and EU integration process.*

		Position in the post-socialist transition and EU integration process	
		Good	**Bad**
Position in the socialist economy	**Good**	Positive continuity ('the leaders'), e.g. great urban agglomerations, mainly the capital city	Negative discontinuity, e.g. (old) heavy industry regions facing massive restructuring
	Bad	Positive discontinuity ('the newcomers'), e.g. Western regions, mainly those bordering old EU members like Austria	Negative continuity, e.g. the 'Eastern Wall', i.e. the Eastern peripheries with Ukraine or Romania as neighbours

(Source: Gorzelak, 2000, 135–139)

CONCLUSIONS

I appointed as aims of work the analysis of how economic structural changes could effect a region's economic growth and development. I have chosen two countries' regions to examine, namely Hungary and Romania. All Hungarian regions differ a lot from the Romanian regions' economic performance, but by looking at the dynamically indicators we can recognize an accelerating economic growth in the last 7 years in our neighbourhood. To analyse the effects of structural changes we have a lot of methods, however I chose the shift-share analysis because of its applicability on regional database according to international literature. My calculations proved that in some regions there is a structural effect, but in others the local influence affects more economic performance or employment situations. The dynamic effect of the structural influence has two components. One we can see when in a region's economy some dynamic braches share grows compared to less dynamic branches. But it can happen that – using special local endowments – in the region, located enterprises are altogether more profitable than their branches in national average. In the first case, the advantageous economic structure, while in the other case, the locally dynamic structure's advantages occur (Nemes Nagy, 1987).

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