THE FEATURES OF THE MACRO LEVEL ABSOLUTE CONCENTRATION OF HUNGARIAN INDUSTRY

LEVENTE KOMAREK

University of Szeged
Institute of Economics and Rural Development
H-6800 Hódmezővásárhely, Andrássy u. 15.
komarek@mgk.u-szeged.hu

ABSTRACT
The re-appreciation of industrial concentration in the European Union and also in Hungary resulted in this issue becoming the focus of my research. In my opinion the industry-related concentration studies and analyses are important since the regional and sector structure changes in industry might induce a number of positive economic processes (increasing efficiency, competitiveness, deepening cooperation), may help considerably the rise of the given area and the whole national economy. Besides the number of positive effects, however, it can also result in some negative effects (e.g. one-sided industrial structure, a deep crisis during recession, industrially depressed areas), all of which may hinder the dynamic development of a region for a shorter or longer time. The present study aims to examine the characteristic changes of the domestic industry in recent years (spatial and structural) were characterized, and to what extent these changes influenced the geographical and sectoral concentration of our present industry.

Keywords: industrial concentration, employee, domestic sales, export sales

INTRODUCTION

During the past few years the geographical location issues of industry came to the forefront both in Hungary and in the European Union. On certain areas of our country different industry structures evolved and various industries became dominant in each region. The spatial location of certain industries was influenced by several social-economical factors (the historical traditions of production, ownership, available labour force and equipment, etc.) (TATAI, 1984; BARTKE, 1987). This was the reason why research again focused on the spatial location and structural change of industry, since Hungarian industry had undergone significant changes.

Our economic relations from one day to the next one became west oriented instead of having eastern orientation. This provided an opportunity that our country can be part of the global market and through that the part of the global economy (ABONYINÉ – KRAJKÓ, 1998; ABONYINÉ – KOMAREK, 2005). Consequently the market conditions, the production and distribution facilities changed, resulting in a completely new situation in the sectors of national economy, which meant new challenges in concentration, especially in the field of spatial concentration. In some sectors of the economy and industry sub-sectors the volume of production declined, the employment structure transformed, the production structure became irrational, the composition more heterogeneous and sometimes sales difficulties occurred. As a result of these changes the examinations in the territorial situation and the structure of industry started again (ANTAL, 1993; BARTA, 2002; BARTKE, 1993; NEMES NAGY, 1997; KISS, 2010; JENEY – SZABÓ, 2001; HORVÁTH, 2002; BODNÁR – HORVÁTH, 2005; BENKŐ-KISS – BODNÁR – KIS – HORVÁTH, 2010; ABONYINÉ – KOMAREK, 2011)

MATERIAL AND METHOD

There are several indexes to measure the territorial differences. Out of the various indexes the Herfindahl index is usually used to determine the spatial concentration of the industrial specialisation of the counties. In my opinion this index is the best for the present the spatial concentration as it exactly reflects the directions of the trends in the industrial sectors.

Concentration measuring:

Herfindahl index (absolute concentration):

$$H_j^S = \sum_i \left(S_{ij}^S\right)^2$$

where:
i = industry
j = county
S_{ij}^S = j county i industry share from j county total export trade

The Herfindahl index value can be between 0 and 1. The higher the value of the absolute concentration is, the higher the level of the absolute specialisation will be.
The data provided by the Central Statistics Office (KSH – Központi Statisztikai Hivatal) were the base for my work. (It would have been useful to examine a smaller unit area (e.g. a micro-region), but relevant statistics were not available.) I used these data to create indexes for making sectoral and spatial comparisons. Accordingly the data involved in the research were the number of employees in industry, domestic sales and export sales.
In case of industrial employees the data of the sites while in case of home and export sales the data of the industrial organisations with a county centre had to be considered. Based on the results I determined which industries had the largest and the lowest industrial concentrations.
The studied time interval is between 2000 and 2008. There were frequent changes in TEÁOR (Standard Classification System of Industrial Activities) numbers; therefore this is the period that allows the comparison and the analysis of data and drawing conclusions.

RESULTS AND CONCLUSIONS

Considering the concentration Hungarian industries by employees in 2000 the largest concentration values appeared in mining, wood and paper products, printing and chemical industry (Table 1).
Mining concentrated mostly in Veszprém County (18,0%) and Borsod-Abaúj-Zemplén County (24,2%). These two counties gave the 42.2% of all the employees of Hungarian mining. Within mining gravel, dolomite, lime stone, kaolin (Cornish stone), perlite and diatomaceous earth can be mentioned. Out of the mining enterprises the following ones must be mentioned: Ruda-Gipsz (Rudabánya), Zemplénkő (Sárospatak), Várhegy-Mészkő (Szalonna), Igrici-Kavics (Miskolc), Ediafilt (Erdőbénye), Perlit '92 (Pálháza), Colas-Északkő (Tarcal), MAL Bauxitbányászati Divízió (Ajka), Tapolcafői Karbonát (Döbrönte), Mangán Bányászat (Úrkút), Bakonyfer (Várpalota), and Basalt-Középkő (Uzsa).
28.8% of the employees in wood and paper production and printing activities concentrated in Budapest, while 23.7% employed in the field of chemical industry in Budapest, 11.6% in Borsod-Abaúj-Zemplén County. In the field of wood and paper production and printing activities the paper industry is outstanding (Dunapack, Budapesti Hullámkartongyár, Csepeli

Papírcsőgyár) and printing industry (Pátria Nyomda), while within the chemical industry it is the pharmaceutical industry (Egis, Richter Gedeon, Sanofi Aventis/Chinoin – Budapest) as well as the plastic production and procession (TVK – Tiszaújváros, Borsodchem – Kazincbarcika).

Table 1. The absolute concentration of Hungarian industrial sectors by employees in five years

Industrial sector	2000	2002	2004	2006	2008
Mining	0.13	0.10	0.09	0.08	0.08
Food, drink and tobacco production	0.06	0.06	0.07	0.07	0.07
Textile, leather goods and footwear production	0.06	0.06	0.06	0.07	0.07
Wood and paper products, printing activities	0.11	0.12	0.11	0.11	0.14
Chemical industry	0.10	0.11	0.11	0.11	0,10
Non-metal mineral products	0.08	0.07	0.07	0.08	0.08
Metallic raw material, metal processing products	0.08	0.08	0.08	0.08	0.08
Engineering	0.07	0.07	0.07	0.07	0.07
Other processing industries	0.07	0.07	0.07	0.08	0.10
Electric energy, gas, steam and water supply	0.07	0.07	0.07	0.07	0.06

Source: authors figures based on KSH data

The situation somewhat changed in 2008, when some industries became winners and some turned to be losers. In that year the highest geographical concentration was found in wood and paper production and printing activities, in chemical industry and other processing industry. The capital has the leading role, 31.6% of the employees are concentrated there. In that industry the rate of concentration increased by 2.8% point. In the field of chemical industry Borsod-Abaúj-Zemplén County must also be mentioned, by 9.8%. From 2000 to 2008 the concentration decreased in case of both counties. (In Budapest by 1.3% point, while in Borsod-Abaúj-Zemplén County by 1.8% point.) The higher index value of other processing industry can also be due to the capital. The concentration of the given industry increased from 15,1% to 24,8% in the period of 2000 to 2008. Other paper and cardboard production, other special machine production and other processing industry can also be mentioned here. The reason for this is that Budapest is the largest consumption centre, also exceeding in export and thus the spatial concentration of shipping activities is justified to some extent. The geographical concentration increased in case of food, drink and tobacco production, leather goods and footwear production as well as wood and paper production and printing, while it fell back in mining and electricity, gas, steam and water supply. Stagnation can be observed in chemical industry, non-metal mineral production, metal raw material and metal processing as well as in engineering. The lowest values can be seen in case of mining in the period between 2000 and 2008. All the same no significant geographical concentration was seen in employment in Hungarian industry during the examined period.

When examining the home sales data it can be observed that in the base year the highest geographical concentration appeared in chemical industry (64.9% - Budapest), wood, paper product and printing, (48.0% - Budapest) and metal raw materials, metal processing products (43.0% - Fejér County) (Table 2). In the capital within the chemical industry the medicine production (Egis, Richter Gedeon, Sanofi Aventis/Chinoin) and plastic products (Plannonplast, Dunaplast, Albuplast), while in case of a wood, paper product and printing paper industry (Dunapack, Budapesti Hullámkartongyár, Csepeli Papírcsőgyár) and printing (Pátria Nyomda) can be mentioned. In Fejér County in the field of metal raw materials and

metal processing products the Alcoa-Köfém Company in Székesfehérvár and ISD Dunaferr from Dunaújváros were outstanding.
The ranking of the absolute concentration of the industries changed in the subject year compared to the base year. In 2008 chemical industry (67.7%-Budapest) and paper product and printing paper industry (54.2% - Budapest) were improving their situation. In addition to these two industries the electricity, gas, steam and water supply (51.9% - Budapest) and mining (71.7% - Budapest and Zala County) came to the forefront, which means that four industries showed the highest geographical concentration. In the field of electricity, gas, steam and water supply ELMŰ, EFT Budapest, Budapesti Power Station, Főgáz, while considering mining MOL (Budapest), Rotary Fúrási Company (Nagykanizsa), and Dolomit (Alsópáhok) can be mentioned.

Table 2. The absolute concentration of Hungarian industrial sectors by domestic sales in five years

Industrial sector	2000	2002	2004	2006	2008
Mining	0,12	0,13	0,15	0,23	0,27
Food, drink and tobacco production	0,09	0,09	0,09	0,09	0,09
Textile, leather goods and footwear production	0,10	0,11	0,10	0,09	0,10
Wood and paper products, printing activities	0,25	0,26	0,24	0,26	0,31
Chemical industry	0,44	0,37	0,38	0,45	0,48
Non-metal mineral products	0,12	0,13	0,13	0,13	0,16
Metallic raw material, metal processing products	0,22	0,18	0,16	0,23	0,17
Engineering	0,14	0,13	0,11	0,13	0,12
Other processing industries	0,10	0,08	0,12	0,10	0,24
Electric energy, gas, steam and water supply	0,11	0,10	0,14	0,20	0,30

Source: authors figures based on KSH data

In the examined period the concentration of certain industries was rather hectic, mostly showing an increase in the tendency. Altogether there were two industries where minor fallback can be experienced (metal raw materials and metal processing products and engineering), and further two industries stagnated (food, drink and tobacco production, textile, leather and footwear production). All the other industries were characteristically increasing, with the highest development in mining, electricity, gas, steam, and water supply.
In case of export sales in 2000 and 2008 the highest geographical concentration is showed in electricity, gas, steam, and water supply, chemical industry and mining.
In 2000 the 98,9% of electricity, gas, steam, and water supply concentrated on the capitol, 70.7% of chemical industry on Budapest (47.0%) and Borsod-Abaúj-Zemplén County (23.7%), and 60,8% of mining on Zala County (37.2%) and Jász-Nagykun-Szolnok County (23.6%) (Table 3.). In the capitol in case of electricity, gas, steam, and water supply it is the electricity industry (EFT Budapest), in case of chemical industry the medicine production (EGIS, Richter Gedeon, Sanofi Aventis/Chinoin) and plastic priduction (Pannonplast), while in Borsod-Abaúj-Zemplén County it is the plastic production and processing industry (TVK – Tiszaújváros, Borsodchem – Kazincbarcika) that can be mentioned. In case of mining in Zala County it is thea Rotary Fúrási Company. (Nagykanizsa), while in Jász-Nagykun-Szolnok County it is the enterprises in pebble mining that are outstanding.
In 2008 98.4% of electricity, gas, steam, and water supply concentrated in the capitol (EFT Budapest), 69.7% of the chemical industry (EGIS, Richter Gedeon, Sanofi Aventis/Chinoin – Budapest, TVK – Tiszaújváros, Borsodchem – Kazincbarcika) is shared between Budapest

(46.7%) and Borsod-Abaúj-Zemplén County (23.0%) while 94.0% of mining concentrated in Budapest again (MOL).
In addition to these three industries metal raw material and metal processing products are also worth mentioning in 2008, which was most significant in Fejér County (47.6%). That was mainly due to ISD Dunaferrnek in Dunaújváros. There were changes in the absolute concentration of the industries in the examined period. There was a fallback in four industries (wood and paper production, printing, chemical industry, engineering, electricity, gas, steam and water supply) from 2000 to 2008, while in case of all the other industries an increase can be observed. Considering absolute concentration the most significant increase was in mining, while the greatest decrease occurred in engineering from 2000 to 2008.

Table 3. The absolute concentration of Hungarian industrial sectors by export sales in five years

Industrial sector	2000	2002	2004	2006	2008
Mining	0,23	0,24	0,16	0,55	0,88
Food, drink and tobacco production	0,09	0,10	0,14	0,17	0,16
Textile, leather goods and footwear production	0,10	0,12	0,16	0,15	0,13
Wood and paper products, printing activities	0,13	0,14	0,12	0,11	0,12
Chemical industry	0,29	0,26	0,27	0,31	0,28
Non-metal mineral products	0,13	0,12	0,12	0,12	0,19
Metallic raw material, metal processing products	0,16	0,15	0,21	0,26	0,25
Engineering	0,19	0,14	0,13	0,14	0,14
Other processing industries	0,10	0,11	0,11	0,16	0,19
Electric energy, gas, steam and water supply	0,98	0,90	0,68	0,35	0,97

Source: authors figures based on KSH data

The new large-scale (mostly) productive investments in Hungarian industry that has recently been completed, and also those that will be established in the future can create a new situation in the regional specialization and sectoral concentration of our industry (e.g. Hamburger Hungária – Dunaújváros, Mercedes-Benz – Kecskemét, Knorr-Bremse – Kecskemét, Audi Hungária Motor – Győr, Linamar Hungary – Orosháza, Csaba Metál – Békéscsaba and Szeghalom).
Therefore, the current industry structure changes and transformations have not been completed. Both the regional and the structural transformation of the industry keep going on, that is the reason why specialization and concentration calculations of the thesis were carried out and the conclusions refer to the time interval mentioned above.

REFERENCES

ABONYI, GYNÉ – KRAJKÓ, GY. (1998): Fejezetek Magyarország gazdaságföldrajzának tanulmányozásához. JATEPress, Szeged. 170. p.
ABONYINÉ PALOTÁS, J. – KOMAREK, L. (2005): Jegyzet Magyarország társadalomföldrajza tanulmányozásához. JATEPress, Szeged. 190. p.
ABONYINÉ PALOTÁS, J. – KOMAREK, L. (2011): Összehasonlító vizsgálatok az ipari beruházások ágazati és területi szerkezetének alakulásáról. Comitatus. 21. évf. 203. sz. pp. 25-33.

ANTAL, Z. (1993): Változások egyes iparágak termelésében és területi elhelyezkedésében. In. Jáki K. (szerk.): Aktuális problémák a földrajztanításban. Magazin Kiadó, Budapest. pp. 101-113.

BARTA, GY. (2002): A magyar ipar területi folyamatai 1945-2000. Dialóg Campus Kiadó, Budapest-Pécs. 272. p.

BARTKE, I. (1987): Az ipar területi hatékonyságnak változási irányai. Közgazdasági Szemle. 4. sz. pp. 420-431.

BARTKE, I. (1993): Restructuring of Hungarian Industry ant its Regional Effects. In. Hajdú Z. (ed.): Society, State Economy and Regional Structure in Transition. Centre for Regional Studies, Pécs. pp. 79-98.

BENKŐ-KISS, Á. – BODNÁR, K. – KIS, K. – HORVÁTH, J. (2010): Preliminary investigation on innovation activity of agricultural ventures in South Great Plain Region in Hungary. Agrár- és Vidékfejlesztési Szemle, vol. 5, (1) supplement. pp. 220-225.

BODNÁR, K. – HORVÁTH, J. (2005): Különböző állattenyésztési ágazatok tőkeszükséglete. In. Jávor A. (szerk.): A mezőgazdaság tőkeszükséglete és hatékonysága. DAC AVK, Debrecen. pp. 97-103.

HORVÁTH, J. (2002): Specializált és diverzifikált ágazati struktúrák a tejtermelésben. In.: JÁVOR, A. – BERDE, CS. (szerk.): Innováció, a tudomány és a gyakorlat egysége az ezredforduló agráriumában. DE-MTK – SZIE-MKTK Debrecen. pp. 197-202.

JENEY, L. – SZABÓ, P. (2001): A magyar ipar változása a koncentrációs és specializációs indexek tükrében az 1990-es években. In. A Magyar Földrajzi Konferencia tudományos közleményei (CD), Szeged.

KISS, É. (2010): Területi szerkezetváltás a magyar iparban 1989 után. Dialóg Campus Kiadó, Budapest-Pécs. 223. p.

NEMES NAGY, J. (1997): Radikális változások a magyar ipar térszerkezetében. 125 éves MFT jubileumi konferenciája. Előadásanyag. Budapest.

TATAI, Z. (1984): Iparunk területi szerkezetének átalakítása. Kossuth Könyvkiadó, Budapest. 250. p.