

## **The effect of the recent economic crisis on the spatial structure of Hungarian industry**

### **Spatial division of industrial performance in Hungary**

A characteristic economic spatial structure has evolved in Hungary following the change of the political system in 1989, with industry developing more rapidly only in parts of the country. The urban agglomeration of Budapest and the Northern Transdanubian region are currently the economically developed areas, while the rest of the country is lagging behind. The regional disparities of industrial production and partially therefore economic development within Hungary (Figure 1) increased continuously until 2008. The causes of these regional differences were obvious. Economic dynamism was primarily a result of foreign direct investment (FDI), and the structure of FDI resulted in a distinct regional configuration: Significant foreign investment was concentrated in Northern Transdanubia, while foreign investment in the tertiary sector was mainly directed towards the capital, Budapest, and its agglomeration. After the slowdown of the world economy in 2001, a moderate sectoral and regional transformation took place and foreign industrial investors also became active in the Northern Hungarian region, namely in Borsod-Abaúj-Zemplén county. (See details about structural and regional change in Hungarian industry: Kiss 2001, Barta 2002, Rédei & Jakobi & Jeney 2002, Kukely 2004, 2008.)

In other parts of the country, the economy developed much less rapidly, resulting in an unresolved dual economy. In other words, two loosely linked economic spheres evolved that are also manifest geographically: one established by means of foreign investment, modern and growing dynamically, and the other, mostly consisting of Hungarian-owned small and medium-sized enterprises, gradually breaking away (Barta 2002, Barabás et al. 2008, Kukely 2008). (This represents the regional average, both sectors comprise “islands”, business organisations, corporate groups and district and municipal economies, which demonstrate quite the opposite, or at least different characteristics.)

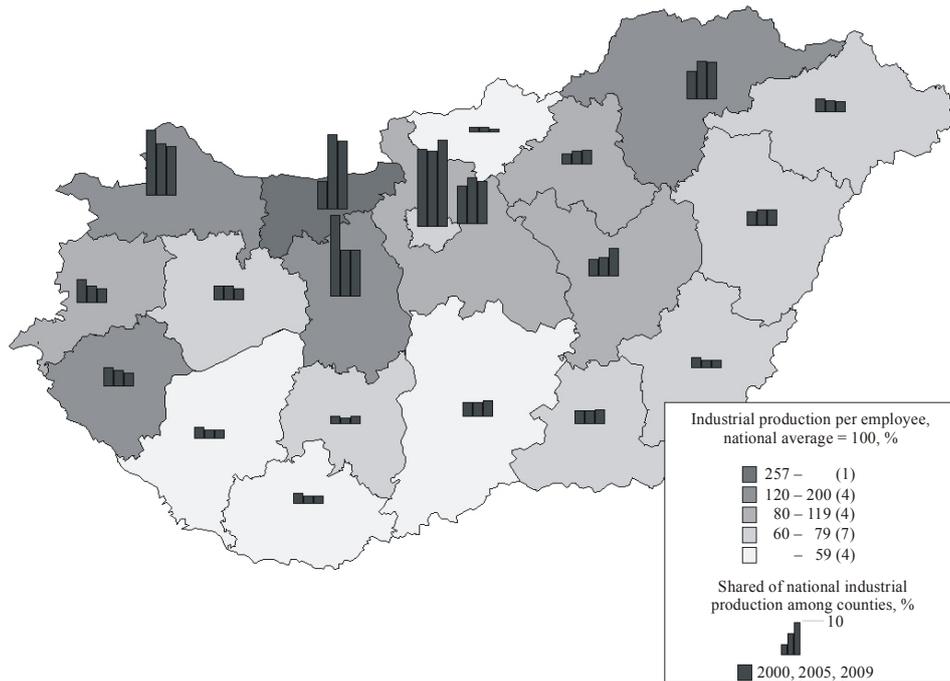
In summary, until 2008, the areas of Northern Transdanubia and Budapest and its agglomeration, i.e. hardly a quarter of the country represent the developed part of the Hungarian economy, which extended to a certain extent towards the north-east, gradually creating a north-south divide.

This was the situation when the economic crisis hit Hungary. Day after day, more mass redundancies in our largest foreign-owned factories were announced. After a few months, the first regional analyses were prepared, partly based on newspaper articles and partly on Hungarian Central Statistical Office reports (KSH 2011), indicating a deep decline in production, exports and the number of employees in precisely those regions, that had been most developed and dynamic until the crisis (Barta 2009, Lócsei 2010,

2011, Fazekas & Ozsvald 2010). Measures to foster intra-regional convergence were adopted. However, this resulted in weakening the stronger regions rather than benefiting the economically backward ones.

Figure 1

*Distribution of industrial production and regional differences in productivity after the change of the millennium*



*Source of data:* HCSO Dissemination database, data of enterprises with more than five employees, by residence. Comment: Productivity (Product value/employee) refers to 2005.

### Questions regarding recent geographical processes

Cautious forecasts indicated in summer 2011, that the crisis had calmed, at least in significant areas, and that the Hungarian economy as a whole also seemed to be working its way out; it was primarily industry that had demonstrated some spectacular dynamism since the autumn of 2010. (Now, in autumn 2011, the downturn is returning, but we presume that the new recovery will take place with similar characteristics.) Therefore, we were eagerly awaiting answers to several questions regarding geographical processes:

- Did the crisis continue to have the same early characteristics as during the second half of 2009 and in 2010? Did the large foreign-owned companies lose further production capacity? What happened to the rest of industry? Moreover, did the intra-regional convergence programmes have an effect, or in other words, was there a continued decrease in regional differences?

- Has a new and lasting spatial structure evolved in Hungarian industry? Could the crisis thus be seen in a positive way, as some sort of “creative destruction”?

We must emphasise that at the time of writing, we are not able to offer reliable answers to these questions as the crisis is far from ending, and also due to a lack of information, especially regarding a comprehensive and detailed database. Data regarding the national economy pertaining to production, export and personnel shifts by the industrial sector is available only after a delay of about two or three months. Furthermore, the subsector breakdown of regional data is not available at all. Corporate data – owing to its uniqueness and consolidation by company headquarters – has to be processed with caution and a critical approach when used in regional analysis.

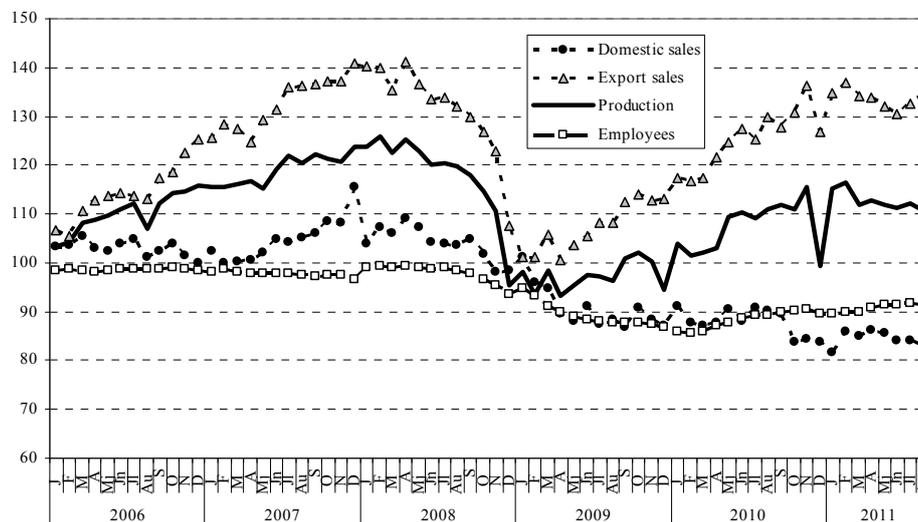
Consequently, this study includes call assessments, based on informational mosaics and assumptions deduced from our previous research. They will be confirmed, or perhaps refuted, by studies published within the next one or two years.

### Short summary of the industrial macro-processes of the crisis

According to the monthly breakdown of data, the hitherto continuously growing industrial production began to decline in May 2008, and the largest downturn was recorded in December 2008. Production then dropped below levels reported at the same period in 2005. However, this low level was not followed by rapid recovery. Only as late as May 2010, were the first signs of significant growth observable, owing to the restocking of inventories and a prospering German economy.

Figure 2

*Change in industrial production, sales and number of industrial employees  
(monthly average of 2005 = 100)*



*Source of data:* HCSO Dissemination database, downloaded on March 4 2011. Regarding production and sales, data are seasonally and by working-day adjusted and relevant to all industrial corporations. The number of employees pertains to corporations with more than four employees (completing at least 60 working hours a month if not full-time employees).

*Industrial performance* differs significantly depending on the markets for which products are intended. *Industrial exports* already began to expand again in the spring of 2009, following the downturn in 2008. *Domestic sales*, however, had not demonstrated any significant growth even before the crisis, since domestic consumption had already been reduced by the government, owing to domestic financial problems. Their decline also began in May 2008, persisting for a much longer period until the end of 2009, without demonstrating any signs of recovery even at present. In other words, the crisis particularly hit companies producing for export; however, the contraction of the domestic market has had a much longer lasting effect. This is clearly related to the existing problems of the dual Hungarian economy, so it depends not only on the worldwide economic crisis.

The number of *industrial employees* declined steadily and now stagnates. The employment situation – already stagnant previously – was briefly and negatively affected by the outbreak of the crisis, and from then on reflected the same absence of growth as the domestic market. The decrease in employment was primarily caused by rising labour costs. The crisis only accelerated this already unfavourable development. In the spring of 2008, approximately 770 000 people were employed in the industrial sectors. By the low point, in February of 2010 this number had decreased by 115 000, which meant a total reduction of 15%. Based on international experience, fluctuations in the number of employees generally occur with a characteristic time lag after economic changes. Research shows that the Hungarian labour market was less elastic at the time of the crisis than those of more developed countries (Köllő 2011). Hungarian companies responded to the crisis by introducing tough adjustment measures, in other words, dismissals and limiting new recruitment, as opposed to softer measures adopted by more developed Western European economies, such as decreasing working hours or reducing salaries. Government policy softened the severe reaction of companies to some degree: Government aid was offered to support job retention, the effect of which should not be overlooked. (According to rough estimates, 80–90 000 Hungarian jobs were preserved partly, or entirely by government assistance; Köllő 2011.)

Regarding the situation of *particular sectors of industry* during the crisis, the segments more strongly connected to the global economy, i.e. predominantly those selling abroad, suffered more. The global financial crisis ended several years of dynamic development of the manufacturing industry, the most important sector of industry and the economy itself (Kukely 2004). The products of automotive and electronics industries are mainly exported and play an important role in the manufacturing industry. Both sectors suffered a serious (40–50%) plunge during 2008–2009. The production of vehicles declined first and most sharply. Of the 115 000 industrial workers that were made redundant between May 2008 and February 2010, most worked in vehicle production in a highly specialised form. Regarding the primary production sector, there was no significant improvement until May 2010. Cutbacks however were not typical in the repair and maintenance subsectors.

- *Light industry* had expanded at less than the average rate in the years before the crisis, and the crisis itself caused only a smooth drop in production. (However, the 2008 crisis, hit the ailing textile industry yet another hard blow.)

- The *food industry* proved to be less sensitive to the economic crisis, partly because of domestic sales and partly because of the inelastic character of its market.
- As part of the *chemical sector*, the Hungarian pharmaceutical industry was not affected, although three-quarters of its production is exported. On the other hand, tyre manufacturing, which had considerably expanded in recent years, being dependent on the vehicle industry suffered serious losses because of the global economic crisis.

A general economic recovery began in the summer of 2010, starting with most of the subsectors of the manufacturing industry (9 out of 13), including the two most significant segments: vehicles and the electronics industries.

### **Regional processes in industry during the crisis**

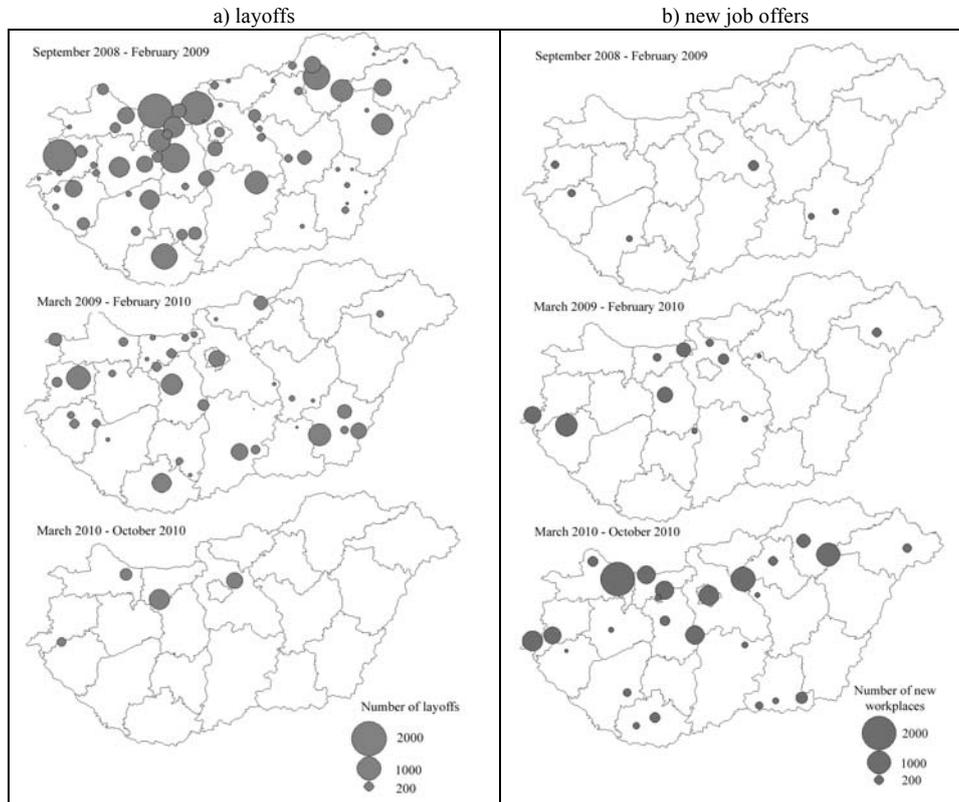
The crisis tore into the Hungarian economy at a dramatic rate, and statistical data collection and evaluation were not able to keep track with it. Due to the scarcity of available data, we turned to a method rarely used until now: media-watch, mostly with reference to crisis-handling strategies employed by industrial enterprises.<sup>1</sup> Most of the media coverage regarding the economic downturn appeared between October 2008 and February 2009. Afterwards, the number of articles on this subject decreased, and from the spring of 2010 onwards, newspapers reported numerous news about corporate growth and new recruitment. Companies announcing group redundancies (meaning at least 50 employees) were mostly large, foreign-owned companies in the automotive and electronics industries. The majority of them were located in the most developed and most dynamic regions, mainly in Northern Transdanubia. It came as highly shocking news when Nokia suppliers laid off 2 300 employees in Komárom with 2 000 people also losing their jobs at the Suzuki Company located in Esztergom. Other towns of the region for example Tatabánya, Székesfehérvár, Szombathely, Sárvár, Győr, Ajka and Veszprém, also lost an appalling number of jobs (Figure 3, Table 1).

From February 2009 onwards, industrial enterprises of the Northern Transdanubian region featured less frequently in the media. However, news of redundancies proliferated – albeit with a much lower intensity – from the eastern part of the country, Northern Hungary and industrial enterprises in the Great Plain region. Those regions did not feature in this news collection where industrial capacity was low and especially where there were no large companies.

Finally, the articles collected suggest that the economy in and around Budapest was hardly affected by the crisis. The reason is that the tertiary sector is dominant in the diversified economy of Budapest and its agglomeration; there are no large manufacturing enterprises in the area. It is rather head offices of large enterprises, modern business services supporting industrial companies and a dense network of small and medium size enterprises that are characteristic of the Budapest region (Lócsei 2010).

<sup>1</sup> H. Lócsei collected media coverage on 204 industrial enterprises between 2008 and 2010; 173 announced redundancies amounted to approximately 400 000 jobs lost.

Figure 3

*Company news referring to redundancies and new job offers (2008–2010)*

*Source of data:* based on media content analysis by H. Lócsei.

Diligent media observers could have gained the impression that the crisis mostly affected foreign-owned large manufacturing companies (at the same time reinforcing some ill feelings towards foreign investment in Hungary), and among them, industries of towns in Northern Transdanubia and there again vehicle electronics industries. Based on the articles published, the public could conclude that the situation looked worse than it actually was in the Northern Transdanubia, since there was hardly any reporting about intended closures, or relocation of factories. This demonstrates that the media coverage did not depict the dimensions and the magnitude of the crisis correctly.

Table 1

*Companies announcing the top 10 redundancies (in 2008 and 2009)\**

Company	Town affected	Redundancy plan, number of employees	Industry	Comment
Foxconn Hungary Gyártó Kft.	Komárom, Debrecen	1 500	electronics	Nokia supplier
Magyar Suzuki Zrt.	Esztergom	1 500	vehicle production	
Elcoteq	Pécs	1 150	electronics	Nokia supplier
Flextronics	Zalaegerszeg, Tab	1 100	electronics	
Jabil Circuit Magyarország Kft.	Tiszaújváros	900	electronics	
DAM 2004.Kft.	Miskolc	878	metallurgy	
Denso Gyártó Magyarország Kft.	Székesfehérvár	800	mechanical industry	automotive supplier
Perlos Precíziós Műanyagipari Kft.	Komárom	750	other	Nokia supplier (they were planning to close down the factory)
Alcoa-Köfém	Mór, Székesfehérvár	735	mechanical industry, metallurgy	
Laird Technologies Kft..	Szombathely	700	electronics	Nokia supplier (they were planning to close down the factory)
Linamar Hungary Nyrt.	Orosháza	700	mechanical industry	automotive supplier

\* The Nokia factory in Komárom should also be included, but the management refused any media contact.

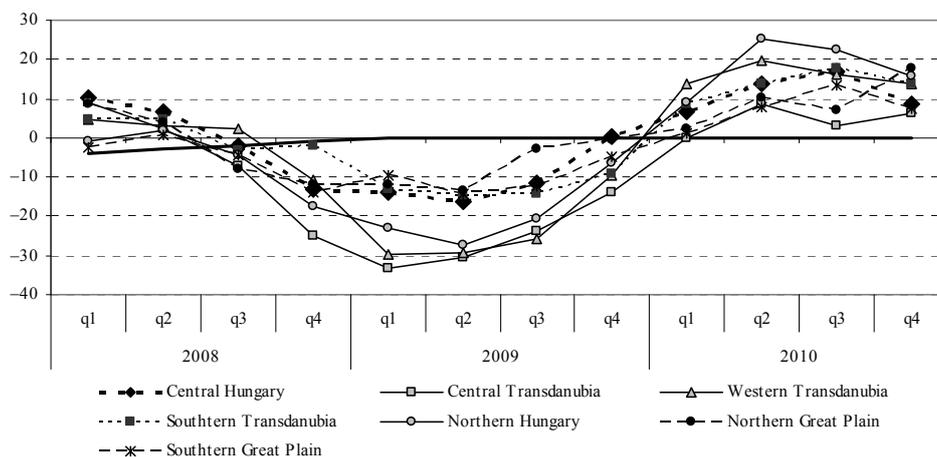
Source of data: based on media watch by H. Lőcsei.

Today we are in the position to test the method of media observation: How sound was the information extracted from the masses of published media articles with reference to the regional processes of downturn and growth of the manufacturing industry?

We can obtain an overview of the regional effects of the recession that began in 2008 by analysing the quarterly regional data of industrial production published by the Central Statistical Office (HCSO) (Figure 4). HCSO data shows that the decline in production in six of the seven regions of the country began in the third quarter of 2008 and in Western Transdanubia a quarter later. There are no significant deviations between the regions regarding the dates of crisis outbreak, its deepening, or the beginning of the recovery. It is a general characteristic of this crisis that it affected all sectors and all regions.

Figure 4

*Regional inequalities in the decline of industrial production – quarterly breakdown  
(compared to the same period of the previous year)*

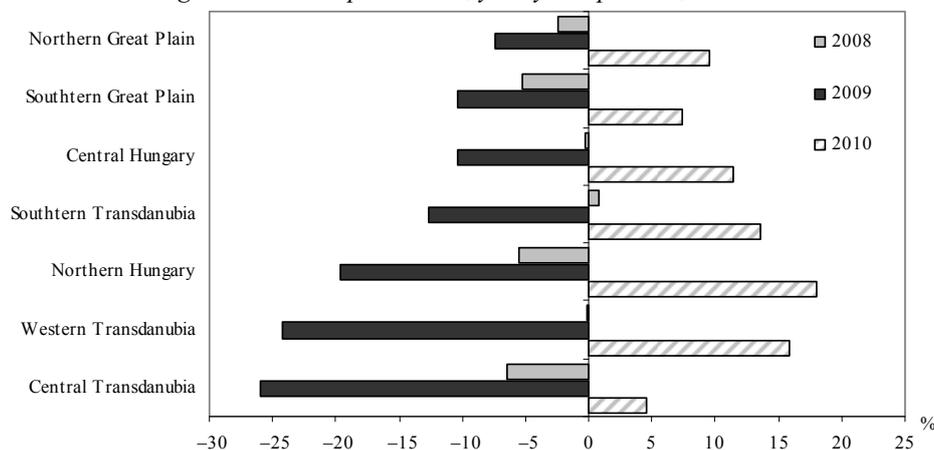


Source of data: HCSO Dissemination database, data of companies with a minimum of 5 employees, by location.

This analysis reveals that to some degree the HCSO statistics contradict the information that derived from the media. According to the HCSO, the most distressing figures regarding manufacturing companies arrived from those regions where the crisis allegedly emerged somewhat later, namely from Western Transdanubia and Central Transdanubia. In reality – and this is an even more important finding – the economic recession hit the manufacturing industry of practically every region almost simultaneously, the difference concerns the degree of downturn. Therefore, the impression that the crisis began in Northern Transdanubia and progressed to the east of the Danube seems not to be supported by the facts. Regarding the intensity of the crisis, the media more or less correctly informed the public: The greatest cutbacks and the most dynamic recovery occurred in Western Transdanubia and the regions of Northern Hungary. The Central Transdanubian region differs in this respect, since the decline was the deepest in this region, and according to HCSO data, recovery is slowest and least intensive. However, it would be worth considering more in depth research into this topic.

The evaluation of annual data (Figure 5) also confirms the difference between media observation and official comprehensive statistical data. In 2008, there was a significant downturn in the manufacturing industry of Northern Hungary and the Southern Great Plain, in addition to that of the Central Transdanubian region and to a similar degree. By 2009, Western Transdanubia had “fallen into line”, however the situation did not deteriorate further in the Southern Great Plain. Data from 2010 showed a recovery in all the regions, with Northern Hungary, Western Transdanubia and Southern Transdanubia leading (the latter was never in a leading position regarding either recession or recovery). Economic expansion was thus experienced simultaneously in the manufacturing industry among the regions, except for the manufacturing industry in the Central Transdanubian region. However, there were not many articles published regarding this “exception”, or its underlying causes.

Figure 5

*Change in industrial production, yearly comparison, 2008–2010*

Data source: HCSO Dissemination database. Data of companies with a minimum of 5 employees by location.

Is the spatial structure of the manufacturing industry changing? We cannot offer a conclusive answer to this question. It is obvious that the substantial foreign participants in the manufacturing industry have not changed, did not shut down their factories, or pull out of the country, and maintained their locations. However, we do not know enough about Hungarian participants: who were the ones able to maintain their supplier status, their market share in Hungary and abroad? It seems as if the sectoral and regional structure of the manufacturing industry has retained its pre-crisis characteristics. However, we do not have a reliable overview of its internal components and anticipated dynamism (prospective investments).

Table 2

*Regional inequalities\* in industrial production, 2000–2010*

Year	Capital and counties (n=20)		Regions (n=7)	
	Relative deviation, %	Concentration index	Relative deviation, %	Concentration index
2000	79.7	0.088	61.8	0.182
2001	72.4	0.084	58.2	0.180
2002	66.1	0.081	54.8	0.178
2003	67.6	0.081	54.7	0.180
2004	70.0	0.081	54.9	0.180
2005	81.2	0.086	59.6	0.186
2006	85.9	0.087	64.7	0.188
2007	87.6	0.088	65.3	0.189
2008	81.2	0.088	58.6	0.186
2009	75.5	0.088	52.1	0.183
2010	70.1	0.086	48.9	0.180

Source: Calculations by H. Lőcsei based on data regarding industrial production and population. (Data of companies with a minimum of 5 employees, by location.)

\* With reference to regional inequality indicators applied, relative (standard) deviation indicates average (squared) deviation of industrial production value projected onto population compared to the national average, while the concentration index specifies the concentration of the production value.

The regional development patterns prevailing earlier were interrupted, but the spatial structure of industry that had established itself by the change of the millennium has not changed fundamentally as a result of the crisis. Concentration and regional inequalities of production have levelled out to some degree (Table 2), however they will probably reappear as a consequence of economic recovery.

### Concluding remarks

The initial crisis has by now ended, at least with regard to the manufacturing industry. According to the HCSO report published in March of 2011, GDP has been increasing since 2010. Industry, and above all the manufacturing industry on the production side and exports on the consumer side play substantial roles in this growth process. The Hungarian manufacturing industry is linked to the German economic recovery. Sectors closely connected to export – production of information technology, electronic and optical products – achieved 20.3% and vehicle production 18.3% of annual growth in 2010. Conversely, the food industry, chiefly producing for domestic markets, experienced a slight downturn; consumption is stagnating at an extremely low level. This suggests that those industries producing for exports will remain the main engine of the economy. This implies a reliance on the primarily foreign-owned companies in Hungary (Kriván 2011).

During the second half of 2010, there were more and more articles published on enterprises implementing new recruitment and new investments (Table 3). It is clearly observable, that vehicle production and electronics are again the dominating factors in towns that had registered growth earlier on; German companies are by far the leading investors.

Table 3

*Manufacturing companies announcing largest new recruitment campaigns,  
September 2009 – October 2010*

Companies	Towns	Projected number of positions	Industry
Mercedes	Kecskemét	2 000	vehicle production
Audi	Győr	1 800	vehicle production
Bosch group	Miskolc, Hatvan, Budapest	1 700	electronics
Jabil Circuit Hungary	Tiszaújváros	1 000	electronics
Flextronics	Zalaegerszeg	900	electronics
General Motors Powertrain	Szentgotthárd	800	vehicle production
Hankook Tire Hungary	Rácalmás	700	rubber industry
Eybl Alpokalja Kft (Car-Inside)	Körmend	600	vehicle production
Ketrax Hungary	Szentgotthárd	600	electronics
Becton Dickinson	Tatabánya	500	pharmaceuticals
Denso Magyarország Kft.	Székesfehérvár	500	mechanical industry
Huawei Technologies Hungary	Pécs, Komárom	500	electronics

*Source:* based on media watch by H. Lőcsei from September 2009 to October 2010.

The economic policy of the present government is full of uncertainties. In the beginning, there seemed to be a focus on industry, but these efforts were not sustained.

The most dynamic large enterprises – especially foreign-owned companies – have been, and still are, subject to extra taxes. However, manufacturing companies were spared (with the exception of the pharmaceutical industry). Hungarian-owned enterprises were promised significant growth opportunities, although up to now we have observed only strong rhetoric and hardly any real actions. Plans have positioned job creation as a priority of economic policy. Despite this, so far only redundancies have risen by a magnitude of hundreds of thousands. Initially, the government emphasised the importance of economic growth, meanwhile, the objective is merely economic stability. Risky economic policy obviously disheartens investors, too. Reduced government funding to support large (and essentially foreign) investments was announced, yet these resources are necessary to generate higher production, to allow the payment of extra taxes, although those sources would be required for investment. At present, we cannot determine to what extent government policy will support or hinder the growth of the manufacturing industry and the continuation or modification of preceding developments.

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