PROSPECTIVE CONFLICTS DERIVING FROM THE CHANGES IN AGRICULTURAL STRUCTURE IN NORTHERN HUNGARY AFTER THE CONTRY'S EU ACCESSION

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SUMMARY

In Hungary the formation of regional economies has been accompanied by an increase in inequalities between the regions. The Northern Hungarian macro-region is one of the losers in this process. According to official statistics, the role of agriculture and forestry has declined within the regional economies. The author's research results, however, draw attention to the fact that in rural communities or rural micro-regions, the role of agriculture is actually much greater than indicated by statistical averages. New methods developed to analyse agricultural structures allow the initial situation to be recorded, so that the effects of structure improvement measures implemented after EU accession can be reliably investigated. These methods can be applied not only in Northern Hungary, but also in any other macro-region. In the years to come considerable changes can be expected in agricultural structures, which will almost certainly increase the conflicts in the Northern Hungary macro-region, particularly due to the reduction in agricultural job opportunities. The handling of these conflicts will have to be tackled in the framework of the National Development Plan and the National Rural Development Plan.

REGIONAL ECONOMIES IN NORTHERN HUNGARY: DEVELOPMENT AND CHARACTERISTICS

One of the characteristics of the regional spatial processes which began in the 1990s was the attempt of economic area units to become independent. This was true for both the greater units including several counties to be created and the micro-regions. This still lasting process involved two basic endeavours existing parallel to each other. One was the regionalism controlled by central state authorities (the development and institutionalisation of planning and statistical regions backed by regulations, the definition of micro-regions, the organisation of SAPARD micro-regions getting a decentralised apparatus, etc.). The other was the voluntary co-operation between various settlements, which in some cases coincided with the desires of the central government, and in other cases served for attaining a locally important goal, or was used for giving a regional rationale to the local interests of an expansive local government. However differentiated and contradictory this regional organisation may have been, it cannot be denied that it resulted in the first symptoms of regional economies, which will become more clearly defined when local governments become stronger and regional organisations will be eligible for greater independent funds. The showing

up of sources from the Structural Funds is likely to accelerate this process.

The development of regional economies has been accompanied by an increase in the differences between the various regions. The Northern Hungarian macro-region, which consists of Borsod-Abaúj-Zemplén, Heves and Nógrád counties, covers an area of 13 400 km^2, including 603 settlements with a total population of 1.3 million in 2000. The population density of 97/km^2 is on the decrease. In 1995 the GDP per capita was 27 % below the national average; by 2000 this figure has increased to 36 %. In 2001 the rate of participation of the local population in economy was by 10 % lower than the national average, while the rate of unemployment was nearly one and a half times the national average. The economy of the macro-region is dominated by the servicing sector, followed by industry, and then agriculture.

In 1999 agriculture and forestry made up 4.8 % of the gross added value produced by the various sectors of the entire national economy. The analogous figure was similar (5 %) in Northern Hungary. According to official statistics, agriculture and forestry were also losing importance in terms of employment. While 6.7 % of all employees (6.1 % in Northern Hungary) worked in these sectors in 1996, these figures had dropped by 2000 to 4.9 % and 4.5 %, respectively. Unfortunately, official statistical data collection was unable to follow the economic and areal processes in consequence of which people earlier employed in, or living from, agriculture have dropped out of the official records and become inaccessible to statistical data collection. This is clearly confirmed by the data of the General Agricultural Census, which showed that 35.1 % of the entire population of Northern Hungary over the age of 15 were attached to the farms included in the census, and 27.3 % took an active part in farming activities. This draws attention to the fact that agriculture generally plays a greater role in regional economies than is demonstrated by official statistics and, moreover, that in some areas this role may be many times the average.

METHODOLOGICAL ISSUES INVOLVED IN THE ANALYSIS OF AGRICULTURAL STRUCTURES

The differential role of agriculture in regional economies will considerably change after the accession of Hungary to the European Union. These changes will affect not only the magnitude, direction, and input & output relationships of production, but also the agricultural structures. In earlier research (*Fehér, A.* 2000) the agricultural structures were divided into sub-structures, namely land use structure, production (sector) structure, farm (farm size) structure, human resources structure, co-operation and co-ordination structure. In the present study indices are created for each of these sub-structures to determine how closely they are related to the regional economic performance and incomes. The regional economic performance was defined as the added value per capita calculated from the taxable income of the permanent population of the settlements and the pre-tax income of the enterprises, or the annual depreciation figures. The regional incomes were characterised by the taxable income per capita (*Fehér, A.* 2001).

The data of the General Agricultural Census database and the DATASTAR database, which included tax data listed according to settlements, were subdivided into data for rural and non-rural communities.

Settlements were regarded as rural communities when the population density was lower than 120/km^2, the number of inhabitants was less than 5000. and there were no major industries or traffic junctions that gave the settlement a special, non-rural, non-agricultural character. A further criterion was a statement of at least 20 % of the permanent adult population (over 15) in the course of the General Agricultural Census according to which they were attached to a farm.

For the purpose of elimination, the SPSS Base 11.0 statistical programme package, available to Regio Partner Ltd., was used to carry out a principal component analysis on the combined databases of the Northern Hungary and Northern Great Plains regions using relevant variables. This database combination was necessary because, due to the relatively high number of variables, the Northern Hungary database alone would not have met the criterion for the number of data to be 10–15 times the number of variables. The same combined database was also used for the repeated principal component analyses. The aim of the elimination was to calculate indices from the variables with the greatest principal component loadings for the purpose of further analysis. As a result of the elimination, 31 indices were formed, which were then analysed by a further principal component analysis using the per capita added value as a regional economic performance index.

Among the principal components of the added value per capita index that exhibited significant values, those variables which were significant by themselves (i. e. having principal component loadings of more than 0.25 in the case of P = 891), degrees of freedom and $a^2_{ij} \geq r_{5\%}$) were selected from the model (for details see *Sváb, J.* 1979.). The principal component analysis was repeated using the above indices as variables. An unrotated principal component structure was used in the model, and only the values of indices connected with agriculture were included in the results. The values of the communalities (h^2) were above 0.5, and the cumulative eigenvalues (λ) for the five principal components were above 50 %.

PROSPECTIVE CHANGES IN AGRICULTURAL STRUCTURES AND RELATED CONFLICTS

1. The results of the principal component analysis indicate the correlation between the objective variable, i. e. the index of available added value per capita, and the major agricultural structural indices. The results obtained for variables exhibiting the required level of significance are presented in Table 1.

The first and second principal components are most important for the objective variable. The principal component loadings indicate not only the relationship to the objective variable, but also the strength of the correlation between the variables. In the present case it is especially important to stress the following circumstances:

- The ratio of both agricultural and arable land is in a moderately close correlation with the objective variable.
- The moderate correlations between land availability indices (land area per capita and per farm), regional performance, incomes, and diversification indicate that in some farms the fraction of labour which has become 'superfluous' in traditional farming and the possibility of employing family members within the farm had a positive effect on the coming of alternative, non-agricultural activities into being and on their expansion. The correlations also show, however, that the concentration of land does not create new agricultural jobs.

- The supposition that alternative livestock farming and non-agricultural activities were characteristic of farms of over 50 hectares was only confirmed by a correlation of less than medium level.
- The correlation between stocking rate and the keeping of alternative animal species was expressed in the second principal component. It should be mentioned here that the correlation between the ratio of larger farms (with a higher land area per farm) and the regional performance was somewhat below the moderate level.
- A moderate correlation between land availability, stocking rate, and the ratio of commercial farms was revealed by the fourth principal component.

The analysis and the model draw attention to the fact that there is a mutual, synergic relationship between the different sub-structures, or rather between the indices used to describe them. This relationship has an influence on the coherence of agricultural structures, but also affects the functioning of agriculture as a whole and, in a wider sense, that of the regional economy.

Table 1.

Regional economic performances and incomes, and agricultural variables exhibiting a significant correlation to them in the Northern Great Plain and Northern Hungary regions

Variables	Principal components				
	1	2	3	4	5
Available added value per capita (objective variable)	0.82	0.36	NS	NS	NS
Taxable income per capita	0.81	0.36	NS	NS	NS
Ratio of arable land	0.69	NS	NS	NS	NS
Ratio of agricultural land	0.66	NS	NS	NS	NS
Diversification of livestock farming involving the keeping of alternative animal species	0.53	0.31	NS	NS	NS
Aggregated index of non-agricultural diversification	0.52	NS	NS	NS	NS
Agricultural area per capita	0.46	0.64	NS	0.38	NS
Ratio of commercial farms of over 50 hectares	0.29	0.62	NS	0.50	NS
Agricultural area per farm	0.30	0.60	NS	0.52	NS
No. of animals per hectare of arable and grassland	NS	0.51	0.25	0.64	NS
Cumulated eigenvalue (λ), %	20.2	32.1	41.1	49.5	57.3

NS = non-significant

2. Among the indices related to the land use sub-structure the ratio of both agricultural and arable land proved to be significant in the relevant principal component model. Throughout the previous century the area of both agricultural and arable land in Northern Hungary had exhibited a continuous decline, the rate of which had increased since the sixties, with an annual decrease of 0.38 % in the agricultural area and 0.43 % in the area of arable land from 1966 to 2000. As a result, in 2000the total area of agricultural land in Northern Hungary amounted to 788 thousand hectares, including 521 thousand hectares of arable land.

This process is expected to accelerate after the country's EU accession for the following reasons:

- some 50 thousand hectares of permanent fallow are to be found in the macro-region,
- in wet years 15–20 thousand hectares of land are permanently flooded, which makes farming impossible,
- under the terms of the Agricultural Environmental Programme of the National Rural Development Plan, some arable land in this macro-region will have to be reversed into grassland,
- the long-term afforestation foreseen by the Afforestation Conception of Hungary (3) will affect about 100 thousand hectares in the macro-region,
- the agricultural, environment management and afforestation subsidies coming into force after the EU accession will be an incentive to reduce the area of agricultural land, including arable land, even in short term.

Unless adequate measures are taken, these radical changes are likely to cause serious conflicts in some places.

In less-favoured areas (LFA) the changes in land use categories are likely to be more drastic and may cause disturbances in the local economy. The situation is complicated by the fact that in these areas there is a high proportion of small and medium-sized farms, whereas the number of jobs available is already low. Possible ways of handling these conflicts could consist in the creation of jobs related to afforestation and forest management, compensatory allowances for farmers in LFA-s, subsidies for semi-subsistence farms undergoing restructuring, early retirement, farm diversification, and the diversification of the local and regional economies.

3. The production (sector) substructure is substantially influenced by the radical reduction in agricultural production in the macro-region during the nineties. The output of field crop production in natural equivalents has declined by 22.1 % compared with 1960 and by 45.2 % compared with 1980. The reduction in the number of animals kept on livestock farms has amounted to 41.9 % compared with 1960 and to 30.4 % compared with 1980. The stocking rate is critical throughout the macro-region, and it is particularly worrying that the figures are low even for farms having a larger area of land.

Taking into consideration the national base area and reference yield established for Hungary, it is extremely likely that, compared with the 2000 level, there will be a substantial increase in crop production. Unfortunately, not all details of the Single Area Payment Scheme (SAPS) have yet been made public, so it is too early to predict the effect they will have and the conflicts that may arise (6). There can be no doubt that a potential increase in the stock of animals and in the output of animal products will depend only on national payments, provided that EC will respect the Hungarian position.

However, an increase in crop production by itself is likely to produce conflicts due to the need of finding a market for a larger volume of products. Farmers in the macro-region already have problems even in respect of marketing the smaller volume of goods produced at present.

Among the possible solutions of these conflicts, special attention should be paid to the construction of new processing and storage facilities, to the stimulation of the food demand of the local population and by tourists, and to agricultural and non-agricultural

diversification, including the spread of organic farming.

The diversification of activities, both in agriculture and outside it, is still in its infancy. It is good to see that in economically backward areas with a poor agricultural potential the process of diversification has at least begun and even reached a higher level than in areas having better conditions. At the same time it is an unfavourable phenomenon that the level of non-agricultural diversification is extremely low on the smallest farms, which makes their economic situation even more unstable.

4. As regards the farm (and farm-size) sub-structure, it was already obvious from the principal component model that both the ratio of farms with an area greater than 50 hectares and the area of land available per farm had a positive influence on regional economic performance, and thus on regional competitiveness. The farm concentration taking place in the European Union, supported by the Common Agricultural Policy, and the need for regional competitiveness are likely to intensify the process of farm concentration in Northern Hungary, too after Hungary's entry into the Union.

A survey was made of the land area per capita of people taking part in the activities of farms of various sizes, and of the number of people taking part in farm activities per 100 hectares of agricultural land in 2000 in the Northern Hungary macro-region. The results are as follows:

	Farm of size of		
	10.1 – 50 hectares	**50.1 – 100 hectares**	**100.1 – 300 hectares**
Average land area per capita	9.08	28.85	105.89
People taking part in farm activities per 100 hectares of land	11.02	3.47	0.94

The above figures clearly illustrate one of the greatest conflicts which can be expected after Hungary's EU accession, since farm concentration is likely to involve a further substantial reduction in labour required to farm on a unit area of land.

The consequence of this will be an increase in rural unemployment, unless the family members (workers), who cannot be efficiently employed in farming, can be employed in non-agricultural activities on the farm, or in some other sector of the regional economy. The severity of the conflict will probably be worsened by the fact that, in consequence of the disappearance of smaller farms, people previously employed part-time will need to earn their living in full-time jobs. In addition to the measures generally taken to handle such problems (e.g. creation of new jobs, expansion of possibilities for telework, etc.), further steps must also be urgently taken within the farms and regional economies. Farm diversification, organic farming (as a labour-intensive form of farming), and the diversification of the regional economies (creation of local processing capacities, revival of markets, introduction of new sectors and activities) ought to be especially stressed here.

Promising ojectives have been published in two major Hungarian documents, the National Rural Development Plan (3) and the Agricultural and Rural Development Operational Programme of

the National Development Plan[1] (4). The development of organic farming is the subject of the organic farming sub-programme of the Agri-environmental Programme of the National Rural Development Plan, while farm diversification and incentives for the diversification of regional economies belong the targets of the Agricultural and Rural Development Operational Programme. Recommendations for the development of rural economic potential and the improvement in the employment level, the implementation of which could help to resolve the conflicts associated with farm concentration, were laid down in the latter document. One of the priorities formulated in this programme is the assurance of a livelihood for labour having become superfluous in agriculture.

5. Co-operational and co-ordinational sub-structures will play an extremely important part in the handling of conflicts. The terms co-operation and co-ordination have to be understood as follows. Co-operation means the distribution of work between agribusiness and other sectors of the regional economy, and their co-operation based on common interests, including their various forms, and the organisational or institutional framework. Co-ordination means a system of management and control followed and acceptedby the decisive majority of the interested parties, including the basic principles, ways and means, forms and institutional background of such co-ordination.

At present co-operation between farmers in the macro-region is completely unorganised and generally of a low standard. Some of the farms that were previously co-operative farms have become share-holding companies or limited companies and completely lost their co-operative character. Marketing co-operatives have been formed by fruit and vegetable producers, and wine-making co-operatives have been established in wine-growing areas. Despite the fact that the Hungarian legislature[2] and the state subsidies system[3] provide incentives for the formation of co-operatives, no significant progress has been made in this field so far.

With the help of the available database an attempt was made to carry out a survey of the development of economic co-operation in the field of non-agricultural activities, the legal aspects of which have proved rather difficult to follow. It is obvious and logical that local capacities ought to be created where plenty of external sources of raw materials are available, and marketing & profit ought to be increasingly taken into consideration. It was found, however, that (except in the case of timber processing and mixed fodder production) only the ratio of such non-farming activities had increased as were organised for the processing of own raw material. This has negative consequences for co-operation and technological development, automatically leading to the coming of poorly equipped, parallel processing capacities into being, which will be hardly competitive. As a result of this practice, the majority of non-agricultural activities are not intended primarily for production for the market but for subsistence farming, timber and food processing being the only exceptions.

[1] The measures of the Operational Programme are horizontal. This character of theirs makes the estimation of expectable regional effects more difficult.

[2] Ministry of Agriculture and Rural Development Regulation No. 85/2002. (IX.18.) on producers' groups.

[3] Ministry of Agriculture and Rural Development decree No. 3/2003 (I.24.) on subsidies for agricultural and rural development purposes in the 2003 budget, § 82–91.

It is obvious from the above that farmers in Northern Hungary are averse to co-operation, and the views held by their majority give little importance to co-ordinating activities but are dominated by autarkic principles. In practice, the desire to "do it alone" has led to the blind copying of their more successful colleagues. The backwardness and disfunctioning of co-operational and co-ordinational structures can be expected to continue even after the entry of Hungary into the European Union. Progress is likely to take a long time, and to show the farmers positive examples arousing their interest in acquiring new knowledge and skills will be just as important as the provision of the necessary financial and institutional conditions for them.

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ÉSZAK-MAGYARORSZÁGON AZ EU-CSATLAKOZÁS UTÁN

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Magyarországon a regionális gazdaságok kialakulása a területi egyenlőtlenség növekedése mellett ment végbe. Az észak-magyarországi makro-régiót e folyamat vesztesei között tartjuk számon. A hivatalos statisztikák szerint a mező- és erdőgazdálkodás szerepe csökkent a regionális gazdaságokon belül. Kutatási eredményeink azonban arra hívták fel a figyelmet, hogy a vidéki településeken, illetve a vidéki jellegű mikro-régiókban a mezőgazdaság szerepe lényegesen nagyobb annál, mint amit a statisztikai átlagok mutatnak. Az agrárstruktúrák vizsgálatához kifejlesztett új módszereink lehetővé teszik az induló helyzet rögzítését, s az Európai Unióhoz történő csatlakozás után a struktúrajavító intézkedések hatásainak megbízható tanulmányozását. Módszerünk nem csak Észak-Magyarországon, hanem bármely más makro-régióban is alkalmazható. A következő években az agrárstruktúrák várhatóan számottevően változnak, s ezek a vizsgált makro-régióban jelentős – elsősorban a csökkenő agrárfoglalkoztatással összefüggő – konfliktusokat valószínűsítenek. Ezeknek a kezelését a Nemzeti Fejlesztési Terv és a Nemzeti Vidékfejlesztési Terv keretében kell majd megoldani.