EMPLOYMENT CRISIS IN AGRICULTURE AND THE SPATIAL INEQUALITIES IN HUNGARY

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ABSTRACT

Main objective of the paper is to discover Hungary's rural areas suffering from agricultural employment crisis and to compare them to the spatial inequalities, examining the development possibilities and the adaptability to new economic and social processes. The actuality of this objective has been given by the recent processes in the global, European and Hungarian economy, the growing importance of local development and endogenous resources, the decreasing role of agriculture in total employment, and the general problems of rural areas.

Based on multivariable statistical methods (factorial-, discriminant- and cluster analyses) and the data of 15 years before the EU accession, the selected micro-regions could be reliable separated by the economical state and social situation, the education, and the dependence on the agriculture. It can be stated that the concentrated, long-term agricultural unemployment is in close correlation to territorial inequalities, due to the the unfavorable demographic and educational structure of the labor-force leaving the agriculture, the inadequate local resources, the underdevelopment and the lack of other possibilities of employment common to the identified micro-regions.

INTRODUCTION

The global economic tendencies, the globalization and the spatial restructuring of the European economy have led to the increasing importance of the spatial policy recently. One of the basic consequences of the globalization is the change in the role of territories and localities as well as their increasing value, resulting that the creation of the conditions for development is not merely the governments' responsibility, but also it has become the duty of the settlements and territories due to the emphasis on the endogenous theories and building on the own resources. The endowments and potentials of the territories

have come to the frontline (especially the human capital), which are available for the developments as internal resources and can be activated under appropriate circumstances (Dicken, 2003; Kulcsár, 2008; Swinburn et al., 2004).

Another important element is the strengthening and changing of the expression "countryside", since it has meant a totally different and new dimension of the society and the economy in the developed countries for a while. It is showed by the mass moving to the countryside, by the reducing population of the cities as well as a nicer look and the economic development of the countryside (EDA, 2007; OECD, 2006). In addition, as the major place of the raw material production in agriculture and food industry, the countryside plays important role in the EU's Common Agricultural Policy, as well.

However, the general problems of the rural areas (e.g. depopulation, fewer employment opportunities, increasing social burdens, accessibility to the basic services etc.) cannot be ignored. It is mainly caused by the fact that the importance of agriculture has gradually decreasing in the total employment. As a result of that, the unemployment causes further problems in the rural areas (see OECD, 2006; SERA, 2006).

The changes in the global economy of the past few decades were experienced by Hungary in a special way, since in addition to those changes; it had to face political and economic transition and their consequences (Enyedi, 2004; Nemes Nagy and Németh, 2003). Among those there are the increasing conflict between the cities and the rural areas and generally the arrears of the rural areas and small villages (Bajmóczy et al., 2006).

The local and endogenous resources play especially important role in Hungary as well. Those factors have preferential importance, which contribute to the areas' "*own*" economic-social development. However, for the latter one, the basic necessary conditions are not always available, while the inherited problems greatly influence the spatial differentiation (Faluvégi, 2004).

However, the slow reevaluation of the roles and functions of rural areas can be observed also in Hungary, the promotion of the development of territories at disadvantage with economic and social arrears is very important task according to both own researches and the literature. The controversial problem of the rural policy, namely the difficulties of the agricultural economy, cannot be ignored.

The land use and ownership structure of the agriculture as well as the farming structure have fundamentally changed after the transition. The sector's role in the employment has sharply dropped, which did not affected the rural areas the same way, due to the spatial structure and the change in the spatial characteristics of the economy. The negative effects hit more those rural areas, which have agricultural traditions and unfavourable structure of the human resource and where there are only few towns. The decreasing role of agriculture is accompanied by the crowding out of former agricultural labour of the labour market and the difficulties they face while flowing into other sectors (Bukosza, 2003). This process seems to contribute to the increase in the spatial inequalities.

The global economic tendencies, the globalization, the transition and the changes in the spatial structure impose multiple burdens onto certain rural areas in Hungary. They can be listed up as follows:

- The decreasing role of agriculture in the employment has resulted in a huge labour supply originating from the agriculture, which is expected to continue, according to the predictions (SERA, 2006).
- The social, economic and demographic structure of such a labour force is unfavourable, which makes difficult for them to stream to other sectors.
- Many rural areas have poor ability, or do not even have any, to create and keep high quality and sustainable workplaces.
- In many settlements and micro-regions their own share within the development funds for the local developments is usually missing.

Based on earlier researches and the literature it is supposed that the decrease in the employment role of agriculture, the bad structure of the former agricultural workers, the lack of other jobs, the limited local resources and potentials have caused significant and lasting agricultural unemployment in several rural areas. It is also supposed that the barriers of local developments highly render more difficult to the solution of the problems. Therefore the major aim of the paper is to discover Hungary's rural areas suffering from *agricultural employment crisis* (with high and lasting unemployment rates in agriculture) and to compare them to the spatial inequalities, examining the development possibilities and the adaptability to new processes.

MATERIALS AND METHODS

The main objective was not to show the most up-to-date situation, but rather to concentrate on the changes happened between the 1990 and Hungary's EU accession. Therefore the examinations have been carried out on the basis of the micro-regional system of the last year before the accession, i.e. 2003 (150 spatial development-statistical micro-regions), not taking the data of Budapest into account. Since the changes in the micro-regional structure, happened after the examined period, have not affected significantly the micro-regions that had been defined, the results are valid for the present structure.

The first analysis, based on the data of the census in 1990 and 2001 interpreted by the Central Statistical Office (CSO), has searched for the reason for the reduction in the rate of agricultural employment within the total employment, aggregating the settlement-level data of the two censuses, according to the micro-regional structure valid on 31 December 2003. The territorial distribution of the registered agricultural unemployment (concentrating on its continuity and long-lasting) has been studied based on the registered unemployment rates, taking the database of the Employment Office (EO) into consideration.

For the comparison beetwen the territorial distribution of the registered agricultural unemployment and the economic-social spatial structure of the country, the data of the two census (1990 and 2001) and the micro-regional aggregates of the annual settlement-level data of the CSO T-STAR database have been used.

The paper is based on the processing of secondary information originating from the abovementioned data basis relied on the statistical instruments and the possibilities provided by multivariable statistical methods (factor-, discriminant-, and cluster analysis) and the SPSS program.

RESULTS

The first aim was to state which Hungarian micro-regions have been affected the most unfavourably due to the political-, economical and social transition concerning the agricultural labor force. The followings have been considered in the research:

- Reduction in the rate of agricultural employment (on the basis of the census in 1990. and 2001.),
- Rate of registered agricultural unemployed people in the given year (thereafter: agricultural unemployed) (on the basis of the data of EO between 1990-2003),
- Rate of lasting (registered more than 12 months before) agricultural unemployed (on the basis of the data of EO between 1990-2003).

Combining the three aspects those territories can be defined (as *territories with agricultural employment crisis*) where, on one hand, the rate of agricultural employment decreased significantly (which is not a crisis-sign itself), on the other hand, this decrease has resulted in high, continous and long-lasting agricultural unemployment (Figure 1.).

Figure 1.: Micro-regions suffering from agricultural employment crisis, 2003

Source: own calculation

Concerning the methodological aspect, those micro-regions have been selected which had their indicators from the upper quarter in all the three cases. It is possible that the other sectors could not absorb the agricultural unemployment of the defined micro-regions (because of the lack of jobs nearby, the limited accessibility of the selected areas, or the requirements for more qualified labor force by the other sectors).

As first step, the analysis of the relation between the agricultural unemployment and spatial inequalities (at micro-regional level) has been carried out with factor analysis. In order to do the examination, important indicators have been created on the basis of the literature and other researches. These have been supplemented with two other indicators, namely the Human Development Index (HDI - see Obádovics and Kulcsár, 2003), and the complex indicator referring to the accessibility of the micro-regions (see Faluvégi, 2004).

The eight main factors (Table 1.), as a result of the factor analysis, explain 85,413% of the information content of the original variables (variance). Naming the factors has been carried out based on the basic indicators contained by them and their positive or negative contribution (factor weight) to the factors.

Table 1.: Information content of the factors

Factor	Rotated factors		
	Own value	Deviation (%)	Cumulated deviation (%)
Economic dynamism (F1)	11,46	22,48	22,48
Social status and level of development (F2)	10,63	20,84	43,31
Qualification (F3)	5,57	10,93	54,24
Tourism (F4)	4,41	8,65	62,89
Youthfulness (F5)	3,52	6,90	69,79
Population growth (F6)	3,39	6,64	76,44
Urbanization (F7)	2,83	5,55	81,99
Exposure to agriculture (F8)	1,75	3,42	85,41

Source: own calculation

The spatial differences – based on the factor structure – must be searched in the dynamism of the territories (population- and economic density), in the performance of the local economy, in the load of the social systems, in the human resource (especially education), in the settlement-structure as well as in the subjectivity to agriculture. Based on independent samples T-test and discriminant-analysis it can be stated that the selected 18 micro-regions, suffering from agricultural employment crisis, are in more unfavourable social and economic status compared to the other territories, the qualification of the human resource is poorer and the agriculture clearly has significant role.

The discriminant-analysis has been expanded for the basic data involved in the factor analyis as well. The interpretation of the indicators producing the most important and significant differences as well as the consequences drawn can be found below.

The selected micro-regions have much lower population density than the others, since they are also the least inhabited areas in the country. This result is very important because the population density, as a spatial indicator, has influence on the further tendencies (OECD, 2006).

    While comparing the number and the rate of unemployment and those of the people
getting social payments, it can be stated that the selected areas show significant arrears
compared to the other areas. Regarding the unemployment, the 18 micro-regions have the
worst figures even in absolute terms in Hungary.

    Comparing the lasting and the spatial characteristics of unemployment, the Eastern
and Southern areas with agricultural employment crisis show (Figure 2.) long-lasting
high unemployment rate (in their cases the relation between the small-sized settlements
and the high rate of gipsy population is really strong). The other selected micro-regions
have lasting medium-level rate of unemployment, because they are closer to bigger cit-
ies and transportation routes, or just simply because of the development level of their
regions. The long-lasting unemployment is problematic because it devaluates the human
capital and implies more and more social and economic problems (G. Fekete and Velkey,
2002).

Figure 2.: The lasting and the spatial distribution of unemployment in Hungary, 1990-2002

Lasting low   Medium   Lasting high   □ ■ – Selected micro-regions

Source: based on Obádovics (2004)
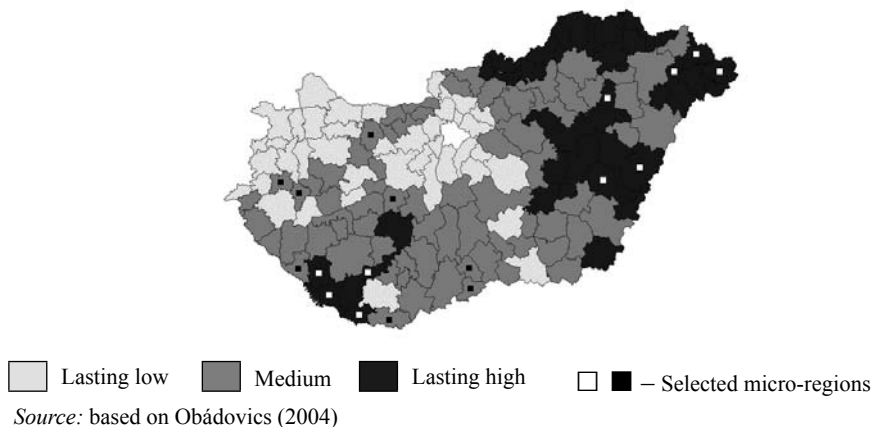
Regarding the qualification of the unemployed people the arrear is significant in the case
of the unemployed people, based on the rate of unemployed with fewer than 8 grades.
The average of the 18 micro-regions is 9.7%, while that of the 131 micro-regions is 6.8%.
Though, it is more important that in the selected group the labour force leaving agricul-
ture shows a much more unfavourable picture, since their qualification was rather poor in
the examined period (Table 2.).

Table 2.: The agricultural unemployment according to qualification in the selected micro-regions (1990-2003, yearly average) (%)

|	Sásd	Sellye	Siklós	Bács-Almás	Zalaszent-grót	János-halom	Enying	Berettyó-újfalu	Polgár
Max. elementary	69,71	67,56	70,36	55,79	60,83	54,05	71,45	61,14	58,20
Secondary school	22,28	23,36	23,60	28,63	26,61	34,73	21,76	29,40	29,02
School leaving exam	7,28	8,57	5,37	7,46	10,73	8,95	6,05	7,29	11,16
Higher education	0,73	0,51	0,67	1,46	1,84	2,27	0,74	2,18	1,62
	Kisbér	Barcs	Csurgó	Szeg-halom	Bakta-lórántháza	Fehér-gyarmat	Vasvár	Vásáros-namény	Nagyatád
Max. elementary	60,17	67,31	67,96	54,49	66,13	59,01	52,23	58,39	60,06
Secondary school	27,95	25,69	23,79	29,56	26,51	30,52	34,03	28,22	29,30
School leaving exam	9,46	6,12	7,60	8,47	6,48	9,58	12,95	12,32	9,09
Higher education	2,41	0,88	0,66	0,81	0,87	0,88	0,79	1,08	1,54

Source: own calculation based on EO data

The unemployment may be caused by the lack of local jobs. Regarding the number of locally employed people, the local enterprises and private enterprises - per 1000 people - it can be stated that in the selected areas there are significantly fewer opportunities to work locally, while, regarding the local employment, the 18 micro-regions are among the least favourable ones in Hungary.

Unemployment and the lack of jobs highlight the importance of links to developed areas and centers and to examine how the labour is able to take jobs in big cities nearby and how much the transportation system allows that. Accessibility is important for the domestic and foreign large-scale companies and SMEs to approach the free, but not too mobile labour force in Hungary. However, at the end of the selected period, the accessibility[1] (Figure 3.) of the selected micro-regions is unfavourable (except the Enying and Kisbér micro-regions due to their proximity to highways), even in absolute terms.

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[1] In the model, compared to the average of the settlements, the accessibility of Budapest has 40, the two closest county- and micro-regional centers have 25-25, and the own value based on the institutional system of the settlements has 10% weight (see *Faluvégi* 2004).

*Figure 3.:* The accessibility of micro-regions in Hungary, 2002
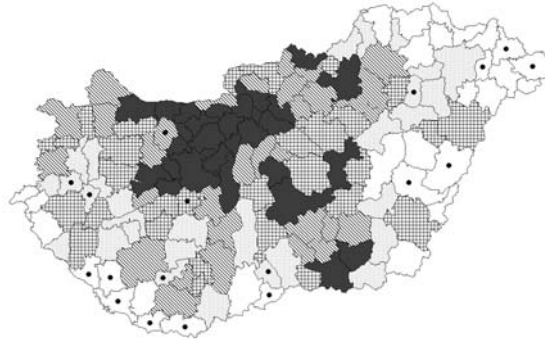
Accessibility cathegories (higher scores mean better accessibility):   ☐ 1,73 - 2,76   ☐ 2,76 - 3,17
▦ 3,17 - 3,47   ▨ 3,47 - 3,94   ■ 3,94 - 5,00   ▲ Selected micro-regions

Source: based on Faluvégi (2004)

It can be seen that the accessibility of cities and centers nearby providing job opportunities for the population in question is limited. The accessibility reduces further the already low job and capital attractiveness. The lack of local employment and the difficult accessibility of job offers outside the area are proven significantly by the higher social burdens, the lower local tax incomes and the lower base of personal income tax of the selected areas compared to the others. From this point of view two unfavourable tendencies must be mentioned. One of them is the decrease in the solvent demand, which prevents further services and jobs. The other problem is that the low local incomes may question the possibility of local developments.

Figure 4.: Territorial distribution of the population's qualification in Hungary, 2001
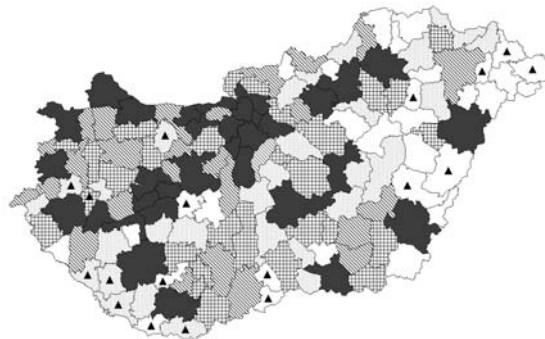
Average number of grades:
☐ 7,80 – 8,20   ☐ 8,21 – 8,44   ▦ 8,45 – 9,09   ▨ 9,10 – 9,46   ■ 9,46 – 10,02
▲ Selected micro-regions.

Source: own work based on date from CSO (census 2001)

According to the literature (e.g. Bartus 2003; Köllő 2006), benefiting from commuting greatly depends on the qualification of the population concerned. In the light of it, it is important to examine the spatial distribution of the qualification (Figure 4.), because, according to former researches (e.g. Fazekas, 2005), the qualification of active population is an important explanatory factor for the spatial distribution of workers employed at both domestic and foreign enterprises. It can be stated that the appearance of the agricultural employment crisis implies the low qualification level of the population concerned.

In several small rural settlements there are hardly any other economic activities but agriculture. Therefore the agriculture and the related activities basically influence their ability of keeping the population (Hamza et al., 2002). To prove this, the examination of migration may provide the necessary answer also in the selected territories. Regarding the yearly average migration between 1990 and 2001, it can be stated that all the selected micro-regions show negative migration except for Vásárosnamény. It can mean that because of the lack of jobs the mobile and qualified labour force leave/have left their former residence, thus weakening the other figures within the education factor.

In the meantime, high rate of people leaving the agricultural sector is from the age-group over 45 years (Table 3.). For this age-group, migration and commuting may be difficulties because of the qualification problem. Thus, the agricultural employment crisis may ruin the demographic conditions of the areas and preventing the settlement of further opportunities and jobs.

Table 3.: The agricultural unemployment according to age groups in the examined micro-regions (1990-2003, yearly average) (%)

Age groups	Sásd	Sellye	Siklós	Bács-Almás	Zalaszent-grót	János-halom	Enying	Berettyó-újfalu	Polgár
15-25	13,12	16,23	13,99	12,99	13,75	11,55	11,66	11,17	19,72
26-35	29,07	28,69	32,09	23,93	24,91	25,92	23,47	27,40	29,11
36-45	34,22	32,27	32,38	33,68	27,88	33,51	30,24	33,82	28,27
46-	23,59	22,81	21,55	29,40	33,46	29,01	34,63	27,61	22,91
	Kisbér	**Barcs**	**Csurgó**	**Szeg-halom**	**Bakta-lórántháza**	**Fehér-gyarmat**	**Vasvár**	**Vásáros-namény**	**Nagyatád**
15-25	11,92	12,53	14,90	11,57	18,74	17,52	14,57	20,28	19,81
26-35	24,72	28,86	31,09	25,05	28,25	28,12	25,67	31,14	30,70
36-45	30,69	33,30	30,56	33,19	34,78	32,52	28,27	30,72	29,29
46-	32,67	25,32	23,44	30,20	18,23	21,84	31,48	17,86	20,20

Source: own calculation based on EO data

At the end of the examined period (2003), the migration balance is differentiated regarding the two gropus. In order to show this, the percentiles and the averages seem to be suitable (Table 4.). The selection – in most cases – implies with stronger migration. In the 18 micro-regions clear outmigration can be experienced, while in the other 131 micro-regions the balance is positive on average.

Table 4.: The balance of migration in the two groups, 2003 (persons/1000 inhabitant)

Groups	Average	Percentiles (%)						
		5	10	25	50	75	90	95
Not selected	0,729	-7,818	-6,396	-3,378	-0,190	2,466	9,442	16,678
Selected	-3,308	-9,899	-7,555	-6,172	-3,449	-0,438	2,626	

Source: own calculation

The difference between the two groups is characteristic, even if we calculate the agricultural enterprises compared to the number of population or to the total number of operating enterprises. The 18 micro-regions are clearly and significantly characterized by the exposure to agriculture. On one hand it is because they are traditionally agricultural areas, on the other hand, it is because the agriculture is a forced line, due to the lack of other opportunities.

Finally, based on discriminant-analysis, the two groups can be best distinguished by the rate of operating agricultural enterprises and the number of registered unemployed people per 1000 inhabitants. It can be definitely stated that agricultural unemployment fundamentally affects the labour market of the selected areas, and the population leaving agriculture basically influences the rate of unemployment.

In the last phase of the research three groups have been created from the selected 18 micro-regions with the help of the examined factors and basic indicators by cluster analysis. The three clusters can be seen on Figure 5.

Figure 5.: Creating clusters from the selected micro-regions

☐ Cluster No. 1.   ▦ Cluster No. 2.   ▨ Cluster No. 3.
Source: own calculation

The areas within Cluster 1 (named as *Rural areas in multiple unfavourable condition suffering from agricultural employment crisis*) are primarily border areas, peripheral territories. Their accessibility is very bad. Their situation is even worsened by the lack of job opportunities and the limited opportunities for commuting. This cluster represents extreme values along with the negative-value-measuring. The high rate of gipsy population and the segregation of poor people are in the background of the demographic tendencies, which could even seem favourable. The increasing social burdens, the lasting high unemployment rate and the lack of jobs are characteristic to the areas, while the agriculture, which is still significant, but not competitive and has bad farm-structure, primarily has social functions. The condition of human resource and the passive behaviour of the people concerned greatly contribute to the problems and prevent the developments. The settlement-structure consisting of small villages enhances the unfavourable processes. The infrastructure of the settlements is not developed. The centers of the areas do not have functions at all, or concentrate all the functions, thus they are not available for the other parts of the areas. The lack of own capital is a real problem for both the individuals and the local governments. In addition, negative factors are the lack of organization within the communities, the lack of collaboration among the development actors and the outflow of the necessary intellectual human capacity.

Cluster No. 2. (named as *Relatively undeveloped rural areas suffering from agricultural employment crisis*) consists of micro-regions from the Great Plain, big agricultural towns and homesteady structure. The settlement-structure and the internal network of transportation greatly contribute to the fact that these areas can be considered as peripheral as the areas in Cluster No. 1. This group of areas lags behind concerning the infrastructure, due to the peripheries and villages, but it does not differ much from the other examined areas. Actually, it is between the two other clusters, by representing average values. The areas of the cluster are traditionally agricultural areas and have favourable conditions for agricultural production (the sector is much more competitive here and is linked to the local processing capacity). There are only some industrial capacities in the centers. In the villages the demographic tendencies are unfavourable. Although, the decreasing role of agriculture in employment and the lack of opportunities outside the sector determine the status of the settlements, which is worsened even further by the bad accessibility. The local developments are prevented by the human resource, the peripheriality and the critical lack of capital, similarly to the other cases. Though the areas of the cluster have developed centers, the selection has been done based on the poor development in their smaller settlements and villages.

The members of Cluster No. 3 are located in developed counties and regions. They are internal peripheries, they are not as developed as their surroundings, it is difficult to access them and they have strong agricultural tradition. They are the least homogenous as they are geographically isolated from each other. They all can be characterized with the high number of commuters. This is due to the centers of their developed surroundings, better conditions of the settlements, which greatly attract the labour force of the micro-regions. The accessibility is the best in this group. In addition, it can be stated that this

cluster is usually represented by the best figures compared to the other clusters. However, despite of the most favourable situation, this group is also characterized by the selective migration, the aging population, the decrease in the number of population (mostly the Western small villages contribute to the decrease). In general, the cluster is internal peripheral group with small villages or with low density. The good accessibility also causes rather outgoing movements (labour, intellectual capital and the outflow of enterprises), and the higher rate of commuting takes away high amount of income from the areas. Though it usually shows more favourable values in the case of local tax revenues than the other clusters, the values are still low. The lack of private/business capital and that of the local governments can also be mentioned. This is one of the most important obstacles of the local developments, in addition to the unfavourable condition of the human resource. The lack of collaboration between the local producers, enterprises and settlements is also a problem.

The three clusters require different development strategies due to their level of development, but the micro-regions of each cluster can be handled relatively homogenously.

DISCUSSION

The transition to market economy and the globalization did not leave the Hungarian spatial structure untouched in the past two decades. Along with the changes, the role of agriculture in the employment has significantly decreased. It can be stated that these changes affected several rural areas unfavourably, and those micro-regions can be defined where the phenomenon can be experienced through the agricultural unemployment.

The areas involved in the examination have strong correlation with the spatial inequalities form the agricultural unemployment aspect. Being aware of the relation with the spatial inequalities and the characteristics of the labour leaving the agriculture, it can be stated that there is no possibility for that labour to get back to the labor market, at least in short terms. It is because there are limited job opportunities, it is difficult to access the workplaces outside the area and the level of qualification and the age structure of the human resource are not sufficient. These factors, however, raise the issue of the development potentials locally. This is really important from the unemployment perspective because in long terms it is the economic development and not the employment- and social policy that can bring real positive results, according to the literature (G. Fekete and Velkey, 2002). However, from that aspect the 18 micro-regions lag behind concerning the necessary local resources (especially the human resource).

Several reasons make articular the importance of agriculture in the rural development in the examined areas. The first reason is the traditional agricultural farming of centuries and the importance of the accumulated knowledge. The loss of such knowledge and experience is a real danger if the role of the sector is decreasing. A further reason is that in these areas agriculture is usually the single one alternative (or chance), providing

living and earning for the population. In this approach, taking advantage of and strengthening the social function of the agriculture are principal task of the developments. This is inevitable also from the large rate of gipsy population aspect.

However, it must be stated that the development of agriculture cannot be the only solution for the areas involved in the examinations. The traditional agricultural approach cannot result the increase in the employment in the rural areas. Regarding the rural policy, the focus must be put on the supplementary measures and programs in addition to agriculture.

The possibility for development outside the agriculture is rather questionable – at least under the current circumstances. The most important obstacle of the developments is its subject, i. e. the human resource. The situation is even more difficult, because of the lack of local jobs and services it is hard to keep the qualified labor force, while its lack keeps away the investments and workplaces also due to the bad accessibility, social burdens and unfavourable demographic tendencies.

From the aspect of job creation, the community-based economic development and the implementation of public utility projects may have important role in the future. In many areas with disadvantageous situation, therefore in the areas selected in this paper, it is almost impossible to develop the economy on market-base. According to international practice and experience (e.g. Leader programs), the solution in such areas is the civil and non-profit-based development, using the tools of community animation.

Based on the conclusions of the research, the social reasons are recommended to be at the first rank while defining the rural development, since it makes the rural development especially important. Human resource always has to play primary role in the rural development, and the actions aiming at the economic growth may get involved only following the abovementioned factor.

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