
PUBLIC TRANSPORTATION OF RURAL COMMUTERS: STUDIES IN HUNGARIAN GEOGRAPHY

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There was an oversupply of labour in the Hungarian agrarian sector at the beginning of the 19th century, which also made this sector employee-release. There are no available accurate data from the time preceding the First World War, but all the evidences refer to the fact that this time unemployment was higher in the agrarian sector than in the industry (DÖVÉNYI Z. – TOLNAI GY. 1993). It can also be realised that in the interwar period there were more unemployed in the agriculture than in other sectors (TÉSTIS R. 2003). From the 1950s the demand for employees in the agrarian sector decreased due to industrialization. There was a general getaway from the sector as a consequence of collectivization and coercive appropriation. Thereby, the village was less able to ensure employment; its function remained a place for living. Masses of people crowded out from the agriculture tried to get a livelihood in the disproportionately improving industrial areas, thus a significant number of village people became daily commuters. The difference in commuting opportunities had a measurable impact on the formulation of settlement network, mainly because the inhabitants who got into a disadvantageous situation intended to move their residence to more advantageous areas (within their bounds of possibilities). Tracing back these events, they were the root cause of that dynamic intermigration which emerged in the county during the 1960s and 1970s. Significant number of people living in the peripheries moved to towns or to villages lying close to towns also to ease commuting. In the decades preceding the full construction of public transportation, beside the investments affecting a significant social-geographical mobility, public transportation differentiated the improvement of settlements to a higher extent than ever before (ERDŐSI F. 1985). This intermigration got moderated in the 1980s, but was still considerable.

After the change of the political system, the more or less formal intention to push the small villages into the background ended, but with the conditions of market economy, the decreasing employment possibilities, and with the closing of bigger economic units (workplaces) in the rural regions, the pressure on the settlement network kept increasing in a certain aspect. The closing of significant companies (previously offering employment) was usual in each sector. The demand for employees of central settlements decreased considerably. The big employer organisations generally dismissed their commuter employees first in order to dispose transportation costs (DÖVÉNYI Z. - TOLNAI GY. 1991).

The agricultural crisis and the abolishment of collectives sharpened the situation of village population; the developing private economies were not able to improve employment significantly. Today, the situation of villages is differentiated by the labour market situation (BELUSZKY P. – SIKOS T. T. 2007). The population of small settlements located far from the major employment centers suffers insurmountable disadvantages as they are not able to attract considerable employers

offering significant employment opportunities and thus provide jobs for only a small percent of their residents. It can mostly be explained with the geographical location of their homes and the lack of travelling possibilities. Corresponding to this, the situational energy deriving from the geographical locations of the settlements, and the ability to overcome the distance hugely determine the spatial mobility of workforce and the regional accommodation ability of the residents interpreted from this view, thus the future of the settlements (regions).

Therefore, the most important factor of commuting (in case of employment opportunity suitable for the worker's demands, skills and abilities) has always been the satisfactory level of transportation connections between settlements, as well as today. Recognising the importance and complexity of this problem (and of course the other settlement formulation effects of village people mobility), geography has always taken an important role in exploration of factors determining opportunities of village traffic facilities, improvement of transport system and daily commuting. In this short paper I would present the most important analyses carried out by Hungarian geographers in this field and the other relevant regional researches.

1. INVESTIGATION ON THE CONNECTION BETWEEN TRANSPORTATION ACCESSIBILITY AND COMMUTING

The researches on the accessibility and geographical location of settlements and the deriving advantages and disadvantages, that is to say situational energies can be linked to the researchers of geography. MENDÖL, T. (1963) summarized and presented in details the questions of traffic location that can be interpreted from the view of settlements (which expresses "*what kind of attributes determine the accessibility of a settlement from other settlements, other regions*" p. 439.) and accessibility. In his imposing work cited above he revealed the interpretation of situational energy (while noting that the name comes from *Cholnoky*), which, according to him, "*always means the advantage of traffic location*", and he mentioned that "*in traffic location characters of the accessibility of a given settlement are summarized*" (p. 458.).

People having a job far from their living places, and thus commuting on a daily basis, firstly calculate with the time spent on traveling and the amount of costs in measuring traffic opportunities. Both of the factors are influenced by the distance to be overcome, the quantitative and qualitative parameters of the available traffic roads, the endowment with traffic engines, and the characteristics of public transportation supply (number of routes, route frequency, road time, etc.). In the analysis of traffic accessibility built up by the listed factors that can be interpreted by the recognition of the population's labour market position, and its impact on socio-economic procedures, the most important role has also devolved on geography (traffic geography), as a

spatial science. ERDŐSI F. (1991) in his fundamentally significant work from the view of domestic communication-geography adjusted and summarized the concepts of traffic exploration, traffic endowment and traffic accessibility. (The interpretation of the concepts has done earlier [1983].) According to the definition of ERDŐSI F. the three components of transportation accessibility and transportation connection are the distance, the transport time and the route frequency. Although, according to his views "accessibility do not appear only as a general range, but also as a special range of individuals depending on their social conditions" (p. 17.). He keeps important to be clear during the analysis of transportation availability that whose accessibility conditions are examined.

With the aim of differentiation of domestic areas that can be viewed as peripheral in terms of transportation, BIBÓ I. and MATTYASOVSKY J. (1950) have already accomplished researches in the 1940s. In their work made as a government and town-planning recommendation, they put the emphasis on the fact that for villages a town with eligible range of functions should be in available distance even in case of repetitive daily cummuting.

The representatives of the geographic researcher laboratory in Szeged (MÉSZÁROS, R. – MRS. DÖBRENTÉ – CSATÁRI, B. 1975; KRAJKÓ, GY. – KAJDÓCSY, K. – MÉSZÁROS, R. 1976; KAJDÓCSY, K. – MÉSZÁROS, R. – CSATÁRI, B. 1979) have reached significant achievements in the measurement of the settlements' geographical location and accessibility and in the development of methodology in the 1970s. During their comprehensive researches they evaluated the transport-geographical location of settlements in the South-Plain and in Southern Transdanubia as economic regions. For the analysis of transport-geographical in light of road and train network they used the number of lines crossing the given settlements, the quality of roads, the number of routes, and the attainability time of settlements being the possible targets of the travel. Moreover, they took into account the ratio of the modification effect of the central settlements transport-geographical situation. As a result of the calculations made by the help of the computer the transport-geographical position of the Southern Transdanubian settlements, classified into qualitative districts. Researchers pointed to the fact that the choosing of factors to be used for the analysis is a really complicated problem. It is hard to decide, which factor in a certain situation with what weight should be taken into consideration.

In 1980 SCHWERTNER J. and PÁLFALVI J. evaluated the traffic accessibility of central settlements. SCHWERTNER J. (1985) examined the disadvantageous settlements in Hungary from the view of public transportation based on the information deriving from the analysis of timetables. Due to the map display of research outcomes settlements in Hungary with "edge-positions" became visible.

In his study TINER T. (1983) analysed the passenger situation of villages in Borsod-Abaúj-Zemplén County. With his research, he discovered the position of the villages in the traffic network of the county, their level of transportation devices endowment, and he analysed in details the traffic connections between settlements standing in different levels of settlement-hierarchy.

During the settlement particular analyses he evaluated the possibility of developing connections between settlements performing central functions and villages in their scope by the presentation of number of routes of common transportation, the travel time, the possibilities of choosing between transportation devices (rail, bus), and from the view of average cost-distance.

The analysis of the alternatives of residents living in villages, who can not find suitable employment opportunities, and their abilities to overcome the distance was given an outstanding notice in the past one and a half decade. During the 1990s more analysis assessed that the chances for employment of people living in rural settlements is rather influenced by the geographical location of living places than by the size of the settlements (FÓTI et al., 1991 and Mrs.DÚS OBÁDOVICS, Cs. 1997). More researches (BÓDI, F. and OBÁDOVICS, Cs. 2000) also reinforce that the employees living in settlements at least 10 km far from important towns and cities suffer disadvantage, because the employers take on the traveling costs less and less, as a factor increasing employee costs.

More studies also dealt with the evaluation of traffic endowment of the regions with tiny village settlement network (ERDŐSI, F. 1985; ERDŐSI, F. - HORVÁTH Cs.-NÉ - KOVÁCS K. 1986). The analyses supporting these works fully evaluated the transportation alternatives and the functions discovering transportation, not exclusively from the view of traffic due to employment. During the examination made in 1986 researchers analysed the quality of road network, rail network and common transportation services with the help of synthetic index calculated with mathematical-statistical methods. The alternatives of transportation were evaluated in between the villages and all of the central settlements.

Transportation endowment can be presented with the comparison of traffic supply and the demand for mobility. Although, the discovery of demand for transportation is a pretty hard task to solve, thus we hardly meet surveys regarding this. In case of some settlements in Heves County, TINER, T. (1985) examined the needs in connection with transportation and transportation habits based on questionnaire surveys among village people living there.

The analysis and evaluation of connection between transportation alternatives and daily commuting was also done in case of a certain microregions of Baranya, and villages in a certain settlement category (KERESZTES, L.L. 2004, 2006a).

2. RESEARCHES ON DEMAND FOR LABOUR, AND ON THE ABILITY TO OVERCOME THE DISTANCE

In the 1960s and 70s the regional differences in production efficiency, the development, and the inequality in advancement effected a significant intermigration. The researches on economic regions, hinterlands, and sphere of centers were given a significant consideration. These examinations covered the whole country. Certain studies (TÓTH J. 1972; TÓTH J. - DÖVÉNYI Z. - SIMON I. 1974; TÓTH J. - MOSOLYGÓ L. - TÁNCZOS-SZABÓ L. 1975) also pointed to the labour-force attraction of central settlements. These surveys evaluated the regional units of production indirectly also through migration. The scientific results of the hinterland-studies of TÓTH J. (1972) were utilized in the researches discovering the transport-geographical position of Southern Transdanubian settlements. BECSEI J., DÖVÉNYI Z. and SIMON I. (1974) analysed the most important tendencies and characteristics of labour movement in the case of Békés County. In the study the effect of transportation situation to commuting were also presented. With his survey, firstly based on the data of the Central Statistical Office, ERDŐSI, F. (1981) discovered the regional system of commuting in Southern Transdanubia, and the system of the hinterlands developed around the central settlements in the region. He evaluated the spread of the given employment centers, their dominance, and the effect of the ability to overcome the distance. The author also mentioned the migration due to the limited possibilities of transportation. Research and presentation of labour attracting areas of Pécs (ERDŐSI F. 1979) was based on the available statistical data, and was done based on the results of a comprehensive (covering all of the commuters) survey (KOVÁCS Á. 1982) made for the assignment of MTA-DTI. In her summing sociographic work examining the development of settlement network in Baranya, and the factors effecting that, she pointed out in details the effect of the changed structure of economic mechanism and demand for labour, and to the migration of workers looking for employment – partly through the presentation of available research results.

The evaluation of the effects of transportation costs to commuting based on calculations remained to economists. Several surveys examined the effect to the commuting of the connection between commuting and transportation costs, the distance between the living place and the possible workplace, and the occurrent compensation by the employers (KÖLLŐ, J. 1997, 2002, KERTESI, G. 2000, BARTUS, T. 2003). KÖLLŐ J. és KERTESI G. (2000) conceptualized a hypothesis, according to which parallel to the economic boom the unemployment rate could not decrease in the villages in the most disadvantageous areas, because the traveling cost is higher considering the

difference between the village and city wages. KÖLLÖ J. (1997) evaluated the possibilities of commuting also through the examination of public transportation alternatives, which results assisted the evaluation of labour market closeness, and in emphasizing its significance.

BARTUS T. (2003) points out in connection with the above mentioned commuting costs that they are inaccurate as the research was carried out at the level of the settlements without any details on the individuals. In his research, Bartus uses individual details and analyzes former hypotheses on the commuting costs based on the results of questionnaires. The most important results of his research: commuting is typically concomitant with the lack of commuting costs whereas providing commuting costs radically lowers the possibility of commuting. The possibility of commuting ranges 20-40% in the case of providing the costs. To phase out the high rate of regional unemployment employers are required to contribute to the expenses.

In his recent study, Köllő J. (2006) applied instrumental variables estimation to provide a more accurate picture on the relationship between rural unemployment and the accessibility of towns by public transport. One of the results of his research is to prove that disparity between the unemployment rates in the different settlements has grown since 1993 depending on whether they are well or poorly provided by public transportation. Therefore, there is an obvious connection between the level of travelling costs and the commuting facilities. In accordance with this, chances of equality are manifested in the qualitative and quantitative features of public transportation, which demands substantially less financial sacrifice from workers (and their employers) commuting long distances.

As far as this county is concerned, the impact of territorial adjustment to the labour market opportunities, mainly the effects of daily commuting (seen in the last century and since the change of regime) and also the territorial adaptation ability at the level of the settlements have been published (Keresztes L.L. 2006b, 2006c).

3. THE PROBLEMS OF PUBLIC TRANSPORT SUSTAINABILITY IN RURAL REGIONS

There are more overall analyses available about the reasons for inefficient operation in the present public transportation system, and the international experiences of its liberalization (for example: PÁLFALVI J. – VAS I. 2002; MARCSA I. 2005), from which it is worth to emphasize the work of MOLNÁR É. (2006). In this study, the relations are summarized between the uneconomic, less inefficient operation, the shortage of services, and the bondage of clientele. Although, it should be noticed that the analysis evaluates the results of public transportation liberalization mainly based

on an economic context, with less attention to significant regional differences can also be noticed in counties and small regions, and to cases, when the public transportation, because of the territorial facilities, really and manageable, can only be maintained as a social service. ERDŐSI F. (2005, and other works) and EHRLICH É. (2000, 2005) also dealt with this concept category in more details.

More overall studies were developed on the problem of maintenance and improvement of public transportation serving exactly the rural regions. Erdősi F. (2000) in his work he presents the change in transportation needs of people living in the country, and he analyses the relation between the advancement of villages and questions of traffic improvement. The author shows the problem of public transportation services of sparsely populated rural regions in details, and the main reasons for inefficiency.

Domestic researches and project efforts were attached to European programs addressed to improve the public transportation service of sparsely populated rural regions. During one of these, practical introduction with experimental attribute was also realized (ARTS CONSORTIUM 2002, analysing in details: FÜLE M.-PRINZ-JANKOVICS T. 2004), and there was such an examination, which could only remained in theory, because of the particularity in domestic juridical environment (TWIST-model, presenting: ERDŐSI F. - GÁL Z. - GIPP C. - VARJÚ V. 2007).

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EMPLOYMENT IN THE SMALL RURAL SETTLEMENTS OF SOUTH-TRANS-DANUBIA

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1. INTRODUCTION AND METHODOLOGY

The determining processes of the settlement network of Hungary are the concentration of the population in settlement ensembles which are at different urbanization levels, and the growing of the number of tiny villages. Less and less people lives in the steadily growing group of tiny villages (settlements with less than 500 heads), which gives one-third of the whole settlement stock, and the demographic composition and social situation of this population show a declining tendency. It is a serious problem in the regions far from the dynamically developing regions of the country. The aim of this short paper is to give an overview of the situation of the Hungarian tiny villages, mainly of the employment conditions in South-Transdanubian small settlements. We mostly use settlement level statistical datas and we analyse the the available literature to display these problems as the most important challenge for the sustainability of these small villages. In connection with this, the importance of the subsistence of villages with low population and the dangers of continuing the present tendencies would be mentioned additionally.

2. EMPLOYMENT SITUATIONS IN SMALL VILLAGES

According to GYÖRGY ENYEDI (1984), *"the settlement network should be regarded as a dynamic system, which passes through an equilibrium line; in reality, the conformation of settlement network is the search for an equilibrium in which the spatial distribution of the population by settlements is optimal from the aspect of the development of productive forces."* (p. 7.). Among the workplaces, working opportunities and the

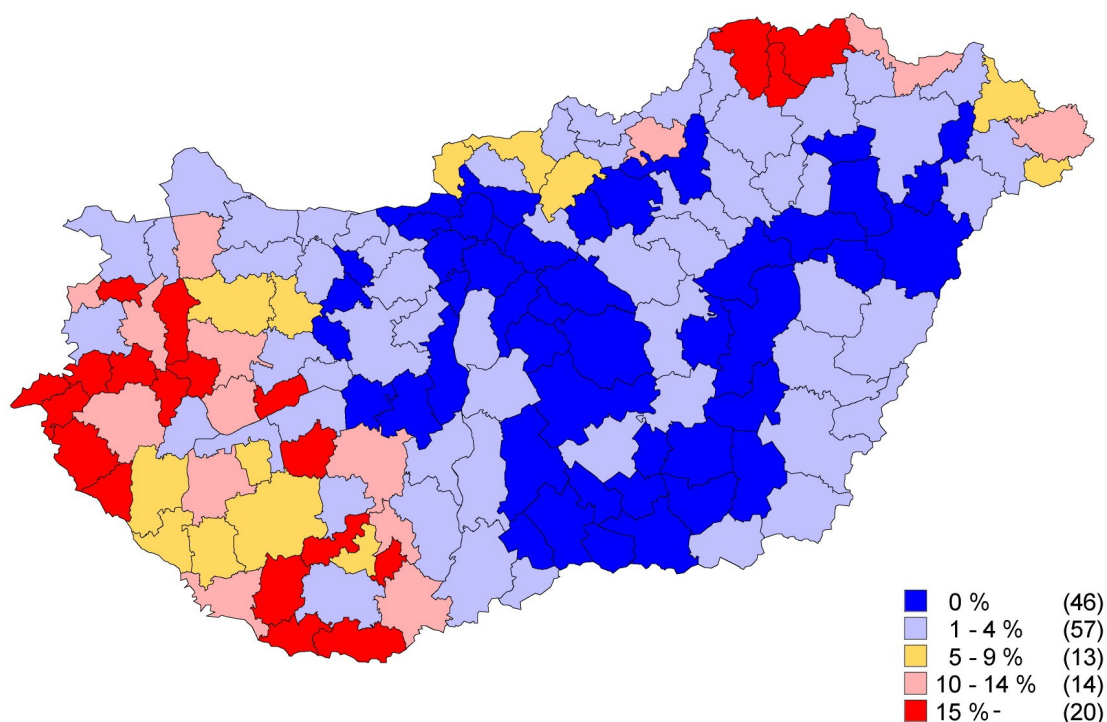
regional concentration of the population there is usually a significant regionally changing deviation. If this regional difference substantially higher than what the regional adaptiveness of the population can conduct efficiently, socio-economic tension would arise. If these tensions (and problems) show remarkable regional concentration, they would assist in the drifting of the affected regions into a disadvantageous situation, and the deepening of their constantly adverse situation.

The settlement structure of Hungarian tiny village regions (*Figure 1.*) is a heritage of centuries. The state of these regions were traditionally disadvantageous, mostly because of the weak agricultural capabilities and the peripheral geographical location. Masses of people living in villages left the agrarian sector because of the effect of the development of the production means, the growing level of industrialization, and the further attributes of the socialist era politics (e.g. collectivization). The integrity of living and working places could hardly be maintained. The settlement network of these regions experienced higher pressure than ever before, which made the changes even more radical. These changes can be seen in the migration and the demographic processes of the settlements. The tension deriving from the difference between the spatial location of the population and the workplaces was eased by the growing level of commutation. After the change of the political system, the more or less formal intention to push the villages with low population into the background ended, but with the conditions of market economy, the decreasing employment possibilities, and with the liquidation of bigger economic units (workplaces) in the rural regions, the pressure on the settlement networks kept increasing (with significant regional differences) from a certain aspect. The appearance of new trends and the differentiation inside the group of tiny villages intensified after the change of the political system (FEKETE, G.É. 2004).

Since the change of the regime, the formulation of the settlement system has been determined mostly by the employment opportunities (BELUSZKY, P. 2003). The settlement system – deriving from its nature – can react only with limited flexibility to the changed circumstances. The growing regional differences between employment and unemployment cause significant social problems today. The areas in crisis are in steady-state condition, particularly the situation of settlements with low population is the most disadvantageous. Small settlements giving home to only a few hundred people, located far from the major employment centers, suffer insurmountable disadvantages as they are not able to attract considerable employers, and thus provide jobs for only a small percent of their residents. It can mostly be explained with the geographical location of their homes, lack of traffic possibilities, the low demand for excess labour force of the major cities located in reachable distance. Corresponding to this, the situational energy deriving from the geographical locations of the settlements, and as it can also be apprehended, the ability to

overcome the distance, which is appraisable from the aspect of the residents hugely determine the spatial mobility of workforce and the regional accommodation ability of the residents interpreted from this view, thus the future of the settlements (regions).

Figure 1. The ratio of the inhabitants of the tiny villages of the total population of the microregions, 2001



Source: MTA RKK

According to the data of the census from 2001, in Hungary, there were 1023 settlements with a population of 500 or less (so one third of the settlements were composed of tiny villages). These settlements gave home to 278 thousand people altogether. Most of the settlements having fewer than 500 people can be found in Baranya (201), Zala (156), Borsod-Abaúj-Zemplén (135) and Vas (130) counties. The overall population of tiny villages is also the highest in Baranya county (52 thousand residents), followed by Zala (35 thousand), Vas (35 thousand) and Borsod-Abaúj-Zemplén.

These small settlements are usually characterized by a considerably older age structure, because of this the demographic indexes are worse, the rate of the working-age population is low, the dependent – rate of the elderly population is high, the ageing index is extremely high (KOVÁCS, T. 2004). There are numerous small settlements with young age structure, mostly the ones with significant Roma minority. The Roma population usually has a different age structure with a higher share of children and youth than the majority population.

The economic activities of the population of the tiny villages are really unbeneficial. From more than a quarter of a million total population only 76 thousand people were employed, so only more than one - quarter of the population. (In the case of the settlements having more than 500 residents this ratio was 36%.) With the knowledge of the fact that the educational level of the people of these villages is lower than the average, and the infrastructure on these villages are underdeveloped, It is easy to see that in the case of most of the small settlements there are few possibilities for the increase in local employment. The dependency of people living in tiny villages is indicated by the fact that 71% of employees were daily commuters (and there were only 70 from the 1023 settlements, in which the number of arriving commuters exceeded the number of commuters to other settlements, even if with only one head).

3. EMPLOYMENT OPPORTUNITIES

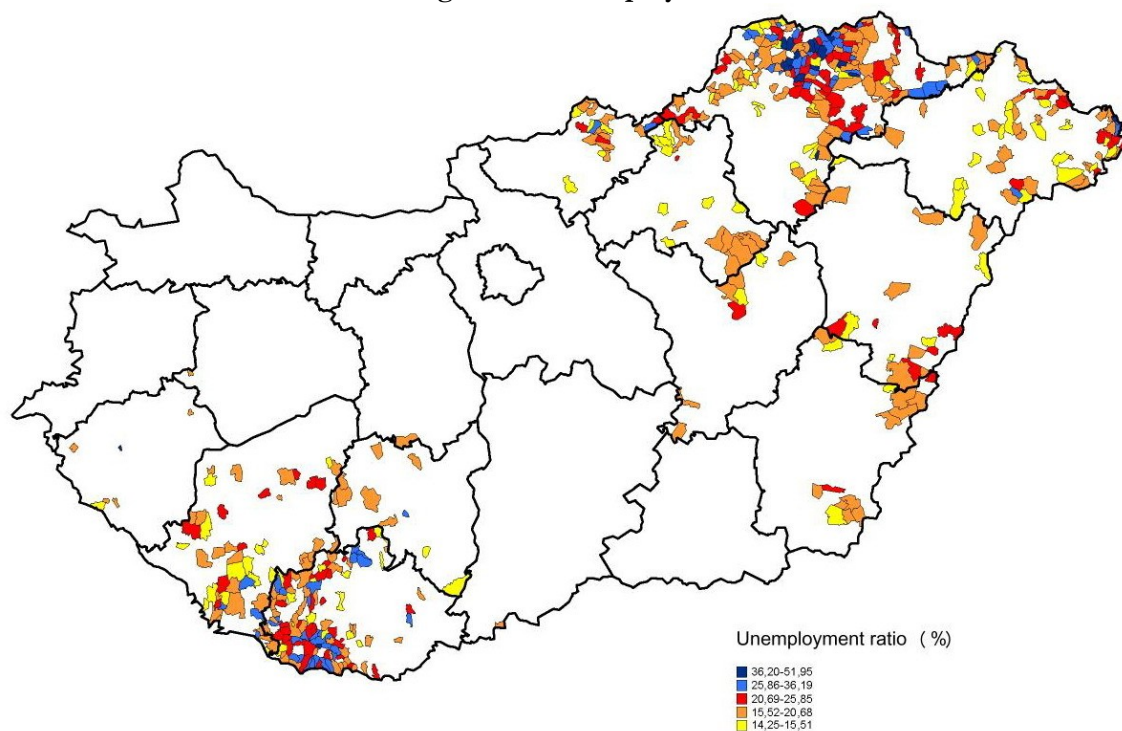
One of the possibilities for the geographical accommodation to the dependent situation of labour market, and for the moderation of the significant regional differences lies in the physical communication and in overcoming the distance. The possibility of employment in other settlements for the population of tiny villages is determined by the economic advancement of the wider surroundings of settlements, and the number of employment opportunities available in a distance easy to reach economically. During the 1990s more analysis assessed that the chances for employment of people living in rural settlements is rather influenced by the geographical location of living places than by the size of the settlements (FÓTI et al., 1991 and DÚSNÉ OBÁDOVICS, Cs. 1997). The effect of the geographical location of living places and the effect of the cost of traveling to the commutation was also the matter of analyses in more cases. The result of a national examination from 1999 (BÓDI, F. and OBÁDOVICS, Cs. 2000) reinforced that the employees living in settlements at least 10 km far from important employment centers suffer disadvantage, because the employers take on the traveling costs less and less. More survey examined the probability of commutation in case of the existence of traveling costs, the effect to the

commutation of the distance between the living place and the possible workplace, and the occurrent compensation by the employers (KÖLLŐ, J. 1997, 2002, KERTESI, G. 2000, BARTUS, T. 2003). According to János Köllő and Gábor Kertesi parallel to the economic boom the unemployment rate could not decrease in the villages in the most disadvantageous areas, because the traveling cost was higher than the difference between the village and city wages.

Consequently, the situation of small settlements is basically determined by the economic conditions of their environment. If we examine the employment conditions of tiny villages in certain counties of the country, we see the confirmation of the above. It is not surprising, deriving from the small size of the settlements, that averagely everywhere there are less than 10 local employment possibilities for 100 residents in settlements in counties (with tiny villages) of the country having less than 500 residents – based on the 2001 census data. Considering this, the economic position of the counties have no particular importance, that is confirmed by the fact that this value is lower in Vas, Zala, and Veszprém counties than in Tolna or Somogy counties having significantly worse position. In case of certain counties we still find considerable differences regarding the employment and demographic situation of tiny villages. In Vas, Zala, Győr-Moson-Sopron and Veszprém countries the number of active employed amounted to more than 30% (37%, 32%, 36%, 31%) of the total population of tiny villages, in contrast with Baranya, Somogy and Tolna counties where these values are 24%, 25% and 26%. The situation is substantially worse in Szabolcs-Szatmár-Bereg (17%) and Borsod-Abaúj-Zemplén (18%) counties (regarding the activity ratio: the ratio of people entered the labourmarket comparing to the total population of the country).

The different employment possibilities of small settlements in different parts of the country located in the typical areas with tiny villages is described by the the location (density) of the 500 settlements in the most disadvantageous situation from an employment aspect (*Figure 2*). Settlements in the most disadvantageous situation are concentrated in the North-Hungarian and South-Transdanubian tiny village regions.

Figure 2. The 500 most disadvantageous settlements according to the ratio of the registered unemployed



Source: Balcsók I. MTA-RKK-ATI

4. SMALL VILLAGES IN SOUTH-TRANSDANUBIA

The South-Transdanubian settlement system is typically tiny village structured, more than half of the settlements (51,38%) are tiny villages with less than 500 residents. Townships of this category are mostly in Baranya county (66,7%), but their ratio is high in Somogy county too (43,27%). 9,4% of the population in this region live in tiny villages, significantly exceeding the national average (2,8%). In some of the small regions, more than 20% of the populations live in settlements having less than 500 residents (in small regions of Pécsvárad, Sásd, Sellye, Siklós, and Tab). The division of Sellye is outstanding from these regions where the ratio of those who live in settlement size mentioned, is approximately 50%.

On these small village areas the road-network is not sufficient, and there are high number of dead-end settlements. The ratio is the highest in Baranya county, where almost one-third of the villages can only be reached from one direction.

It shows the complexity of the settlement network, that in Tolna and External-Somogy, in the neighborhood of Villány hills and in the Mohács Plain the tiny villages are mixed with small and big villages. The number of people living in settlements with less than 500 residents is approximates 100 thousand heads (93 386), so the living place of every tenth South-Transdanubian resident is a tiny village. The population of those townships with less than 2000 residents in the region was together 337 778 heads in 2003.

The present town network has been developed from the relatively sparsely occurrent conglomerations (Bonyhád, Dombóvár, Tamási, Nagyatád, Szigetvár, Marcali, Barcs) with more than a few thousand residents fulfilling elementary town functions. Population most of these towns barely reach 10 thousand heads. The population of settlements (Sásd, Simontornya, Bátaszék, Szentlőrinc, Selye, Bóly, Villány, Harkány) who have gained the rank of a town in the past one and a half decade, are scatter than of the previous. Against the intensive urbanizational processes underwent during the 1990s some of the areas of the region are still lack of towns.

The tiny village nature is also reflected by the average population. In 9 districts (Districts of Pécsvárad, Sásd, Selye, Siklós, Szentlőrinc, Szigetvár, Balatonföldvár, Marcali, and Tab), the population per settlements, even with towns, do not reach 1000 residents. Partly because of the settlement network South-Transdanubia is the least densely populated region. Based on these, it can be said that we can find relatively considerable tiny village areas in the region without settlements offering significant employment possibilities with higher number of population.

The economic output of the region is ranged in the middle in a national comparison. Considering the GDP per capita, the index of Tolna county is the most advantageous, followed by Baranya and Somogy counties. South-Transdanubia's share in the Hungarian GDP is the lowest among the regions: only 7,4%. Among the economic indexes of the counties, there are a sharp areal differencies. It is confirmed by the fact that 18 from the 24 small areas of the region are beneficiaries from a regional developmental aspect (8 in Baranya, 8 in Somogy, and 2 in Tolna).

The outcomes of the South-Transdanubian business activity refer to a less advantageous environment and structure. Analysing the occurrence data of companies by size, based on the 2003 data it can be said that the number of companies in the competition in the region is the lowest in South-Transdanubia both together and inside the different categories of company size.

The activity rate of the region (51,3%) stays behind the national average, and has the least advantageous index among the Transdanubian regions. In South-Transdanubia, in Tolna county the index is equal to the national average, in the other two counties it stays behind that.

There were 57 286 unemployed in the region on 1 January 2005 which means a 14,1% unemployment rate. Significant differences can be observed on county-, especially on small region-level. Tolna has reached the most advantageous change from the counties, which can register the decrease of the number of unemployed people both aggregately and regarding all of its small regions. Conversely, Baranya reached only a lower level of improvement beside extreme differences, while in Somogy, according to the records unemployment rate has increased. The highest unemployment rate in 2004 was in the small regions of the southern periphery (districts of Selye, Barcs and Szigetvár), and in the small regions of Sásd and Tamási. All of the areas are small village areas with relatively many dead-end settlements, bad road-network, and adverse traffic circumstances, thus there are few jobs, and also less possibility for having a job as a commuter, mainly because of the huge distance from the settlements offering employment. Those educational level who live in this area is lower than the region average. Conversely, in the central areas, around the bigger cities, as a result of the more advantageous economic conditions and the settlement of the new companies, the unemployment rate is far under the region average.

5. Employment conditions in the tiny villages of South-Transdanubia

In South-Transdanubia's three counties we found 334 from the country's tiny villages (201 in Baranya, 104 in Somogy, 29 in Tolna). According to the 2001 data, in these settlements the number of the active age population was 59 717, and the number of employed people was 22 234, which indicates a 37,2% employment rate. From the three counties, this value was the lowest in Baranya (35,7%), in Somogy (39,0%) and in Tolna (39,9%) the employment rate of the tiny village population was a bit higher. 68,6% of the active employed living in tiny villages of the three counties were daily commuters, which underlines the importance of the commutation possibility in the formulation of the employment situation in small settlements. The commutation possibility is mainly determined by the distance from the significant employment centers, and the combat of space: traveling abilities. If we try to discover the situational advantages deriving from the geographical location of settlements that can be found near the significant employment centers in the employment data of settlements, the distance would be shown up, which shows the extent of the positive effects of each center (KERESZTES, L.L., 2006). We can analyse with the usage of the available data detailed to settlements, how many possibilities have those who can not find jobs locally for working as commuters, so how can the regional adaptation potentials be regarded by settlements. The population of small settlements having relatively good traffic conditions due to the fact of lying beside the significant cities, and the highways serving the traffic between the important settlements have greater opportunity for the areal accomodation to the opportunities on

the labour market. The significant cities of the region are able to affect their territory positively proportionally to the size of their labour market and the distance. These positive effects beside the traffic corridors can be measured by expansion corresponding to the performance of them. In this respect, South-West and North-Baranya can be regarded as the least advantageous regions. The location of small settlements and the traffic possibilities strongly determines the employment situation of villages, thus their future.

But the question arises, what will happen to those settlements, which stay in the background in terms of traffic openness, and located far from the bigger settlements having competent workforce attraction. About the chance for remanence of small settlement in a disadvantageous nature, lying in peripheral areas, in a bad traffic geographical position, a tense disputation has been proceeded for decades, in which besides the really conventional "pessimistic" researcher opinions (e.g.: KOVÁCS, T., 1980, and 2004) researchers painting a more realistic picture do not manage to give an exact future image either. It is fearful that the situation of these settlements will be farther worse if in the management of companies ensuring public transport the market aspects would more dominate. By these public transport systems organised on a market basis the most important point of view would be always the decrease of losses, even at the cost of the continuous restriction of meeting demands. After such a transformation the passengers of the poorly served small settlements would not be able to promote their interests efficiently. In the present system of the service the conditions of that are formulated neither by taking into consideration the interests of the passengers (MOLNÁR, É., 2006).

6. CONCLUSIONS

As a consequence of the unfavourable employment situation of the tiny villages, possibly the migration of the active and younger population will continue (of course, this process was/is moderated, as in this respect these settlements had enormous losses earlier too). Bigger and bigger portion (even bigger than today's) of the population of the settlements would be inactive groups. Although, this process has its dangers too from several aspects. These dangers can be grouped according to the following:

- According to the present trends, the tiny villages lose their highest educated, most mobile range;
- In the dissident tiny village areas the productivity of the economic organisations carry on decreasing, thus they can restrain their activity too, decreasing the demand for labour;

- By the decrease of the output of the areas getting to be empty, the gross economic product of the country would be poorer;
- In connection with the above, the amount of social costs would also keep raising;
- Due to the low economic activity, the exploitation of the public transport would be permanently decreasing, thus also its offerings, which enhance the dependency on individual automobiles and the crowdedness in the suburban and urban traffic due to the increasing number of cars – eventually, the division of labour between the traffic departments will keep worsening;
- The operating of the settlement public utilities becoming less economical, and the build up of the missing public utilities would farther be harder;
- Because of the social problems, the cultural values of these settlements suffer really serious losses;
- With the concentration of employment into cities, and the decrease of the employment in small regions, the dependency of the peripheral areas keeps increasing, and the already narrow sphere of activities of local governments will decrease.

The determining factor of the competitiveness and progressiveness of the certain regions is the limitation of geographical differences inside the region to a minimum level, and the stop of the expansion of peripheral areas becoming inviable. One of the key elements here is the ensurance of the opportunity of communication between the central and peripheral settlements. The extent of catchment areas (labour market areas too) are not only important from the view of the settlements attracted, but also in the supply of town organisations with the means of production, so with labour force.

During the development of the traffic supply, mainly the public transportation system and the physical elements of the traffic infrastructure, an emphasized attention should be put on the analysis of labour market processes. The questions of the traffic reorganising should not be separated from the analysis of these above questions. On the one hand, the improvement of the areas (through this the formulation of the settlement system) is mostly determined by the accession to working possibilities of the population, on the other hand, the ensurance of the accurate exploitation is also the key question of the public transport maintenance, which strongly depends on the mobility of the daily commuters. It is also crucial to make the state donations available for those organizations or non-profit companies, which are transporting their employees between the settlements.

In the infrastructurally backwarded tiny village settlement system areas the problems can not be cured locally, the solution should be found on a small areal level, and the employment widening projects are feasible to be realized at settlements which can be accessed well from the small settlements in bad situation (TÉSIK, R., 2003). Here, the emphasis is put on the good accessibility (of which basis is the short distance), and on the fact that in the villages situated near these settlements a great number of free employees are available. The traffic opportunities should be made acceptable not only in terms of the central- periphery, but the availability of micro-centres having an important role (hopefully, more and more important) in the employment of certain micro-regions should be ensured at a much higher level than today.

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THE RELATIONSHIP BETWEEN THE IMPROVEMENT OF HUMAN RESOURCE AND HUMAN INFRASTRUCTURE IN SARKAD REGION

TÉSITS RÓBERT - MALATYINSZKI SZILÁRD - KATONA ZOLTÁN

1. INTRODUCTION

Regional roles of communities organized to reach different aims have huge importance in the European Union. According to the EUROSTAT NUTS, regional level corresponds to Level IV. (its newer name is LU (Local Unit) II.) Today, this means the statistical regions in Hungary. Until 1997 the number of regions was 138. According to the decision of the Hungarian Regional Development Council the number of the regions has changed 168 since 1 January 2004 after verification of regions.

Regional level does not fit into the organization and institutional system of regional development. The notion of region and its place in public administration is clearer (LÁSZLÓ M. – MAGAY M. 2005). According to 1996: XXI. Law 5 § h ‘a region is a regional self-organizing unit which can be defined according to the functional relationship-systems among the settlements, the settlements of the region are in intensive relationship and they are next to each other’(CZUPPON V.2005). Then 2198/2003 (IX.1.) government regulation was published which is about the tasks of the improvement of public administration. Its II/2 part refers to regions as: ‘A region is a settlement-group whose settlements border one another; which have got functional relationship with one or possibly more centre(s). A region makes regional allocation of provision possible with the relationship of the member-settlements’ (SZABÓ-KOVÁCS B. 2005).

To react to this process regional development authority associations, provincial development regional associations, multi-functional regional unions have been established. Their role has been strengthening in 2007-2012 budget period because in the applications the type of union which leads to the aim must be presented. The more a project can be embedded to the social-economical processes, the bigger chance of realization the project has. During application, human resource map has a huge importance since a region, which knows what association it wishes to achieve its aims, has bigger chance to get support. The fundamental condition of regional function and effectiveness is that citizens take part in the project actively and committedly. The most important element of regional associations is the initiative coming from below which is able to activate and harmonize the social-economical-cultural relationships (BOKOR B. 1999). The unique characteristic

of the successful regions is the regional identity which means that initiatives have a unique, strong provincialism. In order to gain it strong moral behaviour is essential which leads us from individual interest to common interest (LUKOVICS M. 2004).

However, regions do not have serious natural resource, and they do not have significant economical power, they have deficit from demographical point of view. It is useful to examine what high added activities can provide the basis for the improvement (ARADSZKI J. 1986). It is necessary to explore the quality of current human resource, the causes of its development before planning any knowledge-based activity.

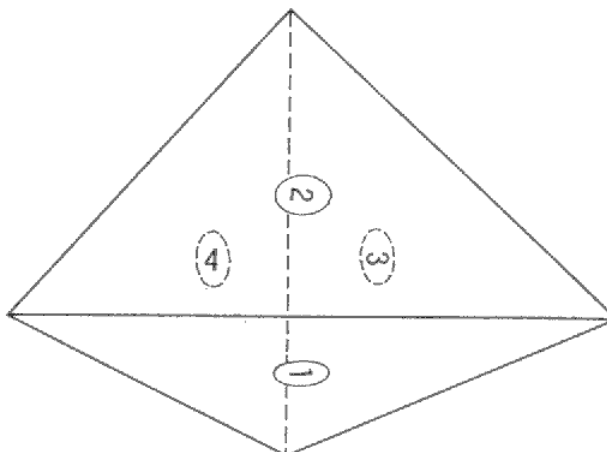
This research introduces Sarkad region as a statistical region. The survey includes the following settlements: Biharugra, Geszt, Körösnagyharsány, Kötegyán, Mezőgyán, Méhkerék, Okány, Sarkad, Sarkadkeresztúr, Újszalonta and Zsadány.

The purpose of the research is to measure the human resource development in the settlements of Sarkad region and the relationship of human resource by the condition and improvement of infrastructure. The importance of human resource has been increased for decades. Because of the decrease of natural resources modern societies have changed from quantity production to quality production. This quality change has brought technological development that connected to the revaluation of human capital. In modern economical and social-geographical theories human resource is not only a quantity element but its key principles are also emphasized.

Distribution of sex and age, biological features are important but knowledge and experience have an outstanding role which also belongs to the notion of human capital. Since the beginning of the industrial revolution the quality of the products are more emphasized than their quantity that has changed the planning, developing and marketing processes. The added value has become higher which needs human potential with a new quality. Most companies do not think that the most important factor of location of industry is the labour-force in great quantity but qualified and innovative human resource being willing to mobility (BECSEI J. 2004).

The thickening point of social, economical, infrastructural and natural space is a settlement. These elements take part in a process, which is sometimes facilitating but in other cases it can be impeding, in various intensity. If each space has the same importance this can be demonstrated as a tetrahedron in space.

Figure 1. A tetrahedron model of a settlement



1 – economical sector, 2 – social sector, 3 – infrastructural sector, 4 – natural sector

Source: (TÓTH J. 1999)

This research examines the possible connecting points between social sector and infrastructural sector on regional level. In social sector we analyzed the cardinal point of human resource, in infrastructural sector mainly human infrastructure was in the focus and their relationship.

Social sector is in strong connection with human resource that can be referred to as: 'human resource is the sum of skills producing values accumulated in the whole population' (GÁSPÁR L. 2000). The value-producing skill of the social sector is necessary for creating tangibles by economical factors and it makes man being able to reach his achievement and improving himself on higher and higher level. The quantity level of human resource is represented by demographical features but its quality level is described with health, educational and economical characteristics.

Infrastructure is divided into two groups. One of them is the technical/line infrastructure and the other is called social/human infrastructure (KÓSZEGFALVY Gy. 2002). Transportation and telecommunication have supposed effect from technical infrastructure. To develop human resource it is necessary to get the suitable information fast. Thus, either we can travel to the necessary source by different types of transportation or we can get the necessary information by using the suitable tele-communicational channel(s). In our opinion, in the area of human infrastructure, the degree of supply in local libraries and the number of computers in public educational institutions have great effect on human resource. Besides the factors mentioned above, the rate of commercial net and population is supposed to influence human resource.

2. HYPOTHESIS AND METHODS

Researchers interpret human resource in a lot of ways. According to the Maastricht Agreement one of the European Union's aims is to improve the quality of life in its member countries. In order to achieve this aim it was necessary to develop social indexes that were able to compare the quality of life in each country and/or region and the tendencies of development. At the beginning the target of the Human Development Index (HDI) was to change the earlier GDP which is not able to measure social manifestations. This index has got great advantages: its structure (rate of literates, GDP/person, rate of estimated life expectancy at birth) and its comparability. HDI has got a lot of critiques, it has been modified several times and its acceptance has been controversial among professionals (HUSZ I. 2001, OBÁDOVICS Cs. 2001). Besides Human Development Index several indexes have been appeared – for instance Index of Sustainable Economical Welfare (ISEW), Growth Process Index (GPI) – in researches but in Hungary the significant part of the concerns focuses on the improvement of GDP. However, GDP does not contain the social and human point of views (GÖRBE A. – NEMCSICSNÉ ZSÓKA Á. 2006).

The common disadvantage of the indexes mentioned above is that they cannot be used on regional level; or if they can be used they must be modified. In order to use them on regional level data are not available – GDP, estimated life expectancy at birth – that can provide the base for making comparison between regions, counties and countries. To overcome this difficulty a huge amount of research have been appeared – factor analysis, clastermaking – that are to measure the status of economy (NEMES NAGY J. 1998, BUZÁS N. 2000). Using them in human-resource examinations has been waiting for solution. The Hungarian adaptation of Quality of Life Index (QLI) is a pioneer initiation (MALCOLM S. 2000). The difference between QLI and HDI is that the former one includes the circumstantial and social factors to measure the quality of life. Hungarian professionals have made a unique life-quality index (ÉMI) using Shooker's social, health, economical and circumstantial indicator, which is able to measure the tendentious changes on regional level (VAMOS A. – FARKAS T. 2004). The first human-resource examination supported by regional indexes was taken in 1998 but this research cannot be used in examinations on settlement level (OBÁDOVICS Cs. - KULCSÁR L. – MOKOS B. 2001). Human resource examination on settlement level is less widespread. One of its causes could be the lack of suitable indexes and data. The other reason can be that the importance of this kind of research is not taken seriously by the professionals of regional development.

The quality and quantity analysis of human resource on company level has been widespread. Economic efficiency and profit have motivated a lot of research. However, local authorities have not had the opportunity to examine their own settlement because either this area was not allowed to be examined or because of the lack of financial and professional background. This research states that there have been a lot of opportunities for professionals provided that they have claim for it and they have realized it.

This survey cannot examine human resource based on Human Development Index because on settlement level GDP index cannot be compared to HDI and the data of estimated life expectancy at birth are not available. On the contrary, the base of our method is Human Development Index (HDI) because by changing some items of the index HDI became able to compare the settlements in Sarkad region.

This research examines a time-cross-section based on statistical data in Sarkad region. Comparing dynamics and time-space is not the aim of this research. According to our hypothesis the following data that are necessary to human-resource development can show the real human-resource situation of the settlements. The development of each settlement can be introduced by ranking the settlements based on data. If this rank is compared to the levels of infrastructural development, we can see which infrastructural factor has the greatest effect on human-infrastructure.

Provided that the analysis of the following factors and indexes is sufficient to explore human-resource on settlement level:

- demography: number of population
 migration
 composition of population
 composition of population based on native language and religion
- health: number of people taking part in health service
 number of people owing free-health-service card
- education: indexes of education
- income indexes: personal income tax
 number of businesses

In most cases data of statistical year 2004 were analyzed, except the numbers of population of demographical data and the data of the composition of population based on native language and religion where the data of the population census in 2001 were used.

Weighted arithmetical mean was used in case of composition of population of demographical data on settlement level, then average-ages were ranked in each settlement. In case of composition of population based on native language and religion bigger communities were examined and native-language and religious communities having only (a) few members were neglected.

We suppose that the state of health of the population is represented by the proportion of the number of people taking part in health service and the whole population. It is likely that some inhabitants had taken part in health provision even several times, however, the fact of health provision shows state of health. There is a GP in every settlement but the level of specialists' health provision is different. This survey neglected the different 'attractions' of the specialists' consultations and the settlements. On the other hand, it is likely that inhabitants of a settlement take the specialist's consultation of another, near settlement into consideration instead of GP's provision in their own settlement.

The other data in health we wanted to analyze was the proportion of people having free-health-service card and the whole population which supposes that a person having such a card lives with disadvantages in his/her health. These two groups of data were ranked in the following way. The higher the number of health provision and the number of people owing free-health-service card were the later rank the settlement got.

In case of education the usual statistical data were used:

- have not finished his/her primary school 10-x
- At least have finished primary school 15-x
- At least have had secondary school leaving exam 18-x
- Have had university/college diploma 25-x

We had the data expressed in percentage. According to these four parameters we ranked the settlements and by using the average of ranks we stated the final rank which puts the settlements into developmental order according to the level of education.

Among indexes measuring the improvement of human-resources we can find data referring to income and economical development many times. In this research, the basis is the level of the personal income tax base per person. We considered that the population of the settlements shows great difference in the rate of population in the age of capacity and employees, too. The other

significant economical factor is the rate of businesses and the number of population. Later, the basis of a further research could be if the financial standing of businesses or net income was defined in relation to educational levels and it would be compared to other factors. But that kind of examination is out of this current research.

On settlement level, the rate of personal income tax base and businesses of population number was ranked. By averages of the previous results we got the final rank of the settlements' economical power. Consequently, we got four rankings about demography, health, education and economical development in Sarkad region. By averaging these rankings we got the final ranking of human-resource development in the settlements.

3. RESULTS

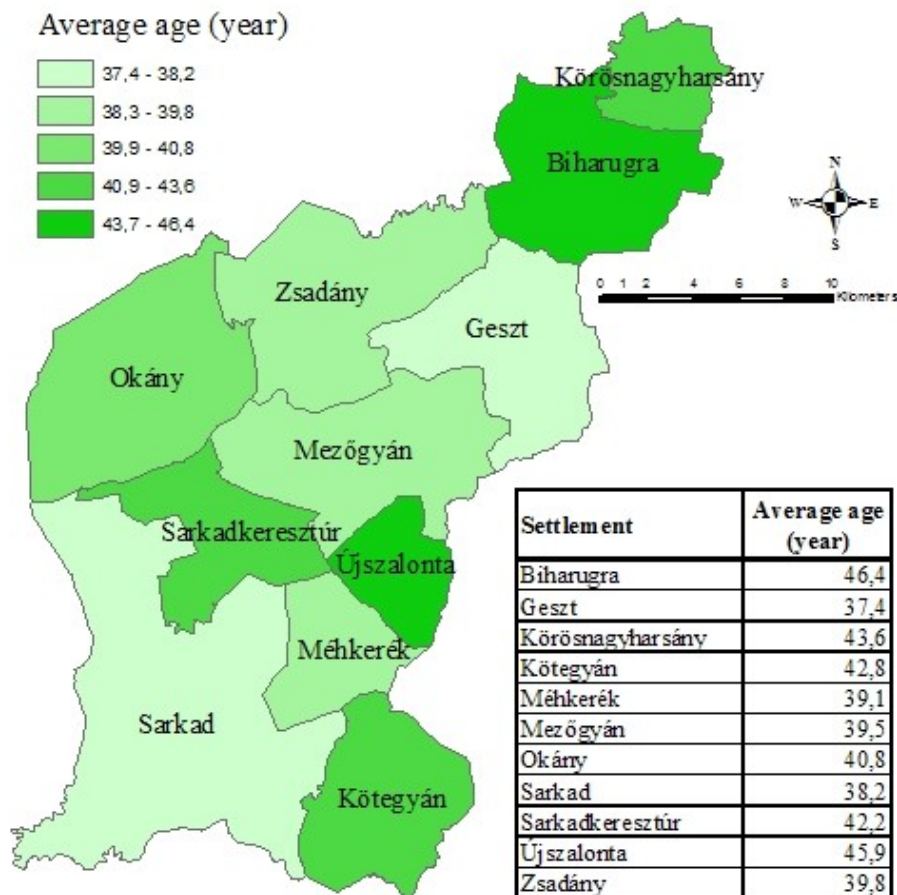
3.1. Number of population and migration

Since World War II negative demographical tendency has been observed – except some years - in the Great Plain. Neither Sarkad region has been an exception (BELUSZKY P. 1981, TÓTH J. 1982). The number of population in each settlement is between one thousand and two thousands, except Sarkad. Méhkerék and Okány also have more than two thousands inhabitants. The centre of the region, Sarkad, has the most inhabitants (10 901 inhabitants) whereas there are only 157 inhabitants in Újszalonta. This later settlement starts losing its functions as inhabitants can get GP care in the near Méhkerék and migration is significant as well (5.73%). Migration spread is negative in Békés County and in Sarkad region, consequently in most settlements. Only in Geszt the number of immigrants is higher than the number of emigrants, however, these inhabitants are supposed to be Romanies. Besides Újszalonta, decrease in population is higher than one percentage in Biharugra, Körösnagyharsány, Kötgyán and Zsadány.

3.2. Composition of population

The average age of inhabitants in Sarkad region represents a great deviation. The highest average age is in Biharugra (46.4 years) while the lowest average age is in Geszt (37.4 years). This 9-year-difference can be explained with the different circumstances and the 20% higher rate of Romany minority. In Romany generations the number of younger is much higher. The average age in Sarkad, Méhkerék and Mezőgyán is lower than 40 years. The difference between the average age and the decrease of population is marked. The more inhabitants leave the settlement the higher the average age is. Consequently, it is likely that more younger leave their settlement, so the average age of older increases.

Figure 2. The average age of inhabitants in Sarkad region (2001)



Source: Zoltán Katona edition based on T-STAR database

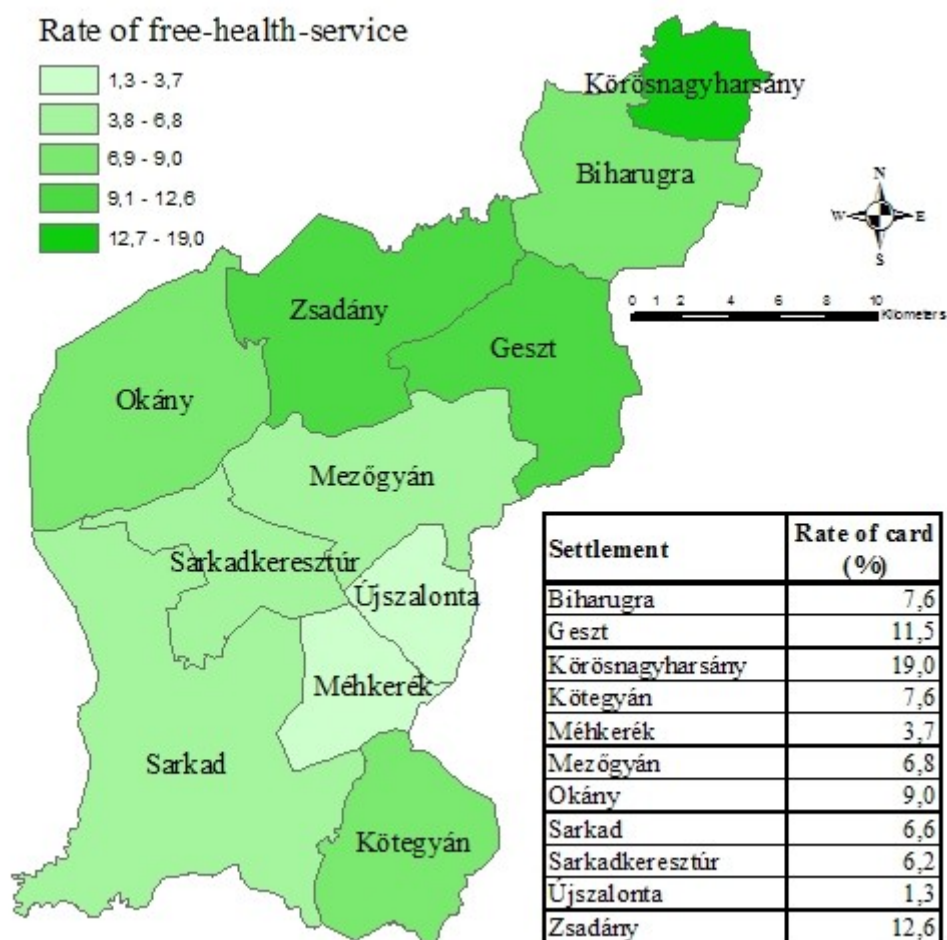
3.3. Composition of population based on native language and religion

In two settlements the rate of having other native language than Hungarian is significant. Whereas in Geszt more than 20% of the inhabitants is Romany, in Méhkerék almost 80% speaks Romanian as their first language. In Kötegyán, Körösnagyharsány, Mezőgyán and Sarkad the percentage of inhabitants speaking Romany reaches almost 5. Composition of religion is different from the mean in Hungary. There are only three settlements (Geszt 10.4%, Méhkerék 24.1%, Sarkad 44.2%) where the number of religious inhabitants is below 50 %. The rate of religious inhabitants is 93.2% in Biharugra and it is 89.9 % in Körösnagyharsány. The dominant religion is the Calvinist with the exception of two settlements. Most people in Geszt are Catholic or Calvinist while in Méhkerék the majority is Baptist because of the high number of inhabitants having Romanian as their mother tongue.

3.4. Health

We classified the state of public health by the number of people taking part in health service and the number of people having free health-service-card. In this region the only settlement where there is no GP surgery is Újszalonta and – without getting any information – altogether two inhabitants have free health-service card. Thus, we ranked this settlement into the last place in the area of public health. From public health's point of view Körösnagyharsány is in the best position as the rate of health provision is 3.2 per person. Most people in all settlements get health provision 7-9 times a year as usual. The highest rate of health provision is in Geszt (10.8) and Mezőgyán (11.3). The data of health provision in the county is not included in these results. The number of people owning free health-service-card is really high in Körösnagyharsány (19.0%) but it is prosperous in Méhkerék (3.7%).

Figure 3. Rate of free-health-service card in Sarkad region (2001)



Source: Zoltán Katona edition based on KSH database

A really high correlation can be seen in the rankings of the two points of view in the area of public health; except Körösnagyharsány which is at the opposite end of the two rankings.

Factors examined above cannot cover and tinge the whole public health. Unfortunately, clearer picture cannot be read based on these data of the settlements. In a future research by interviews it would be useful to explore the motivation of inhabitants about the background of the negative state of public health and establishing prevention with doctors.

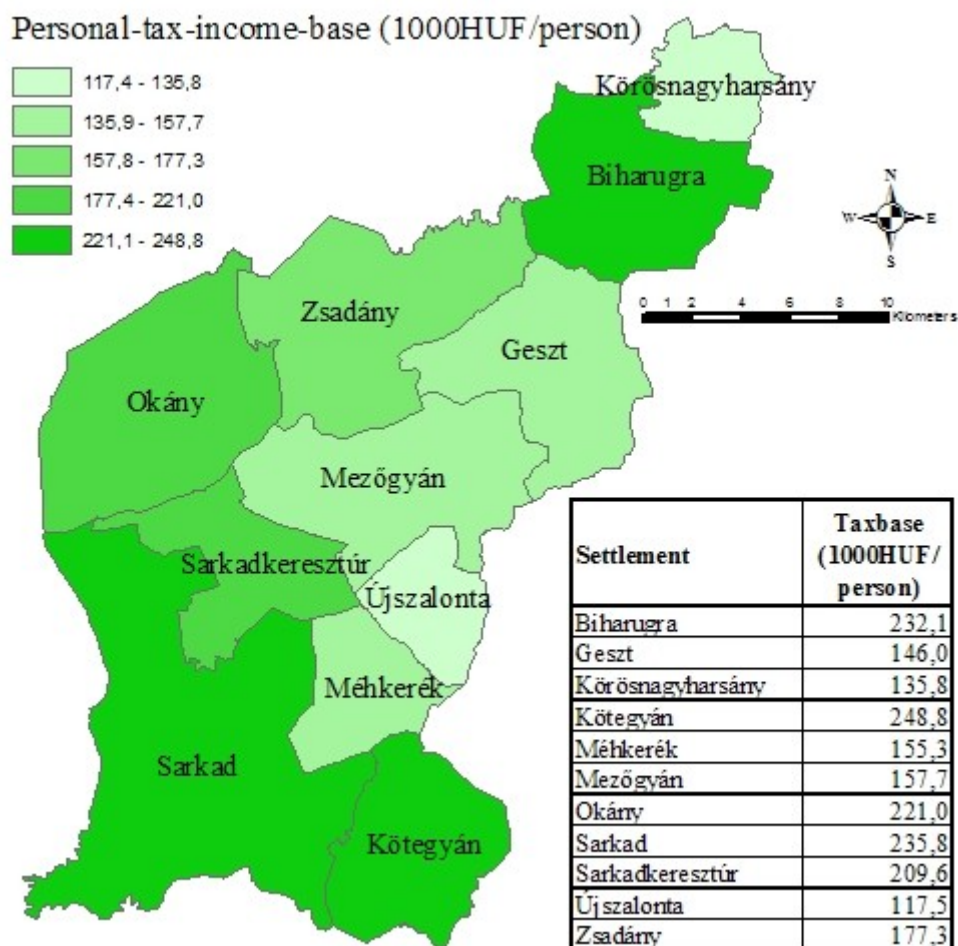
3.5. Education

Great deviation can be seen in the distribution of illiterates in each settlement – people did not finish the first year of primary education in the percentage of the suitable age groups. While 0.2% did not have a primary school certificate in Zsadány, in Okány this number is 4.1%. The results in Sarkadkeresztúr (0.4%), Kötegyán (0.4%) and Biharugra (0.5%) are prosperous. There is no significant difference in the number of people finished eight grades of primary education. Biharugra and Sarkad have a positive outstanding result in the number of people having school-leaving-exam, the former one's rate is 21.1% and the later one's is 19.9%. Sarkad has an outstanding educational function as this is the centre of the region and the only secondary school in Sarkad region is in this little town. The rate of inhabitants having school-leaving-exam is very low in Újszalonta (7%), Mezőgyán (13.7%) and Geszt (14%). The proportion of inhabitants having a diploma is really low, in regional rate it is 3.8%. Moreover, we have to mention that the number of people having diploma is not the highest in Sarkad (4.1%), in the centre of the region but in Biharugra (4.9%). The lowest rate is measured in Körösnagyharsány and Okány with 3-3 percentages. In Újszalonta the number of inhabitants having diploma cannot be measured.

3.6. Number of businesses and profitability

The regional differences in the country can be seen in the life of economy. According to economical indexes Békés County has been among the last ones for decades (NEMES NAGY J. – RUTTKAY É. 1992). The number of live businesses in Sarkad region is really low even if we compare it with the unfavourable level of Békés County. It takes only 3.7 %. Furthermore, this sad data shows other serious differences. The rate of live businesses in Újszalonta is 1.9 %, in Mezőgyán it is 2.2 % and in Geszt it is 2.4 %. The 'highest' data can be found in Sarkad (4.6 %), in Biharugra (4.4 %) and in Geszt (4.2 %). The number of live businesses is lower because this data includes the number of private enterprises and of small family businesses.

Figure 4. Personal-tax-income-base in Sarkad region (1000HUF/person, 2001)



Source: Zoltán Katona edition based on APEH database

The number of employees is low, on regional level the rate is 29.7 %. The highest employment is in Biharugra where the proportion of employees is 42.2 %. The lowest employment is in Méhkerék where every fifth person works on an average. By using these results we examine the amount of personal income tax per employee. In the region the personal income tax base is very small, it does not reach one million HUF in the settlements. In the order of the highest personal income tax base per employee Sarkad and Kőtegyán can be found. The personal income tax base per employee is the lowest in Körsnagyharsány, Geszt and Újszalonta. In Újszalonta only 24 % of the inhabitants pays tax while the amount of monthly tax base per person in 2004 did not reach 47 000 HUF.

4. CONCLUSION

The order of human resource is led by the only town of the region, Sarkad, which won the race by its economical 'force' because in order to promote a settlement to a town rank the settlement has to own secondary educational institutions and their existence supposes the higher level of human resource. The second settlement is Biharugra which is the last one from demographical point of view as the average is 46.4 years. By using this data extensive consequences could not be drawn but in Biharugra education is emphasized and the economical life can be considered lively on local level. We plan the wide research of this settlement in the future.

The educational data are in strong correlation with the final order. The relationship between the demographical order and the human resource order is not significant. Thus, in the future it would be useful to examine the connection of the importance of demography and the order of human resource. Four of the last five settlements in the order (Körösnagyharsány, Újszalonta, Geszt, Mezőgyán) are dead settlements. These are the victims of the Treaty of Trianon. In Geszt you can still find the road which has led to Szalonta and was used by Tisza-family. The results show significant differences between Újszalonta and the other settlements of the region. The average age is really high, Újszalonta is the last one from educational point of view, thus its economical indexes are low. Public health indexes are not published in case of Újszalonta as the inhabitants can get GP's health care in the near Méhkerék. This settlement has got a lot of difficulties.

Settlement	Demography	Public health	Education	Economy	Human resource order
Sarkad	2	3	3	1	1
Biharugra	11	5	1	2	2
Méhkerék	3	1	2	5	3
Kötegyán	8	2	4	3	4
Sarkadkeresztúr	7	2	5	5	5
Okány	6	5	7	4	6
Geszt	1	7	8	8	7
Zsadány	5	7	6	6	7
Körösnagyharsány	9	4	9	7	8
Mezőgyán	4	6	10	9	8
Újszalonta	10	0	11	10	9

The settlements in Sarkad region need human resource improvement. The research had two purposes; firstly trying out a method and secondly exploring human resources in Sarkad region. The exploration was successful, although, besides analysing statistical data empirical research will be needed to include into the process.

The region is situated in Békés County, near the Romanian border. The survey presented that the integration of the region into the county and the commuter belt has not completed. However, the road-system is not suitable and the improvement programmes do not provide solution for these settlements, in order to develop this region the mayors' and the inhabitants' help is necessary. Furthermore, Romanian settlements near the border must have been involved, connecting points must be found in order not to build the same functions separately expensively. To improve regions it is vital that the communities and settlements should use the Slovak and Romanian traditions, and the multi-cultural benefits. There are a lot of possibilities to win a competition to realize these ideas. The extension of the model on regional level and supporting the survey by personal interviews and empirical research are coming soon.

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