doi: 10.15414/raae.2012.15.02.29-38

Acta oeconomica et informatica 2
Nitra, Slovaca Universitas Agriculturae Nitriae, 2012, s. 29–38

MAPPING AREAS FOR POLICY EVALUATION: AN ANALYSIS OF RURAL HUNGARY

MAPOVANIE OBLASTÍ PRE HODNOTENIE POLITÍK: ANALÝZA RURÁLNEHO MAĎARSKA

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The paper provides an analysis of the effect of the EU membership on the agricultural and rural counties of Hungary, paying particular attention to the introduction of the CAP and Cohesion Policy. Moving from the mixed case study approach introduced for the evaluation of Rural Development policies, Hungarian rural areas are mapped using multivariate statistical methodologies (principal components analysis and cluster analysis) on a set of relevant variables periodically updated and available at a disaggregated level. Comparing the Hungarian rural counties in 2003 and 2007, a divergence between the expected objectives of the EU membership and the actual outcome emerges, with rural areas by far the worse off. Marginalization increased in lagging behind counties, such as Nógrád, confirming the presence of winning and losing regions as a result of the enlargement. Moreover, this study highlights the limits imposed by lacking national statistical sources on the quality of statistical analysis, and on the possibilities to undertake further evaluations of the EU accession experiences.

Key words: agricultural and RD policy evaluation, transition, policy targeting, EU enlargement

Over the last decade, policy monitoring and evaluation surged to the attention of the European agenda, according to the internal and external challenges the European Union (EU) had to face:

- the effects of the current international financial crisis, which deeply affected the EU economies;
- the possible enlargement to the economic and political instable Western Balkans: Albania, Bosnia and Herzegovina, Croatia, the Former Yugoslav Republic of Macedonia, Montenegro and Serbia, and Kosovo under UNSC Resolution 1244/99, all showing a lower level of development in comparison with EU average;
- the evaluation of the Common Agricultural Policy (CAP) and Cohesion policy after the historical Eastern enlargements to ten countries from Central and Eastern Europe.

In particular, the "return to Europe" of the new member States (NMSs) was characterized by the troubled heritage of 20 years of outstanding transition: lower GDP per capita; higher share of the agricultural sector on the economy in comparison with the EU average; increase in regional inequality (Lackerbauer, 2004), mainly driven by the persisting backwardness of agricultural and rural areas. The EU membership offered them opportunities as well as challenges, given the typology and intensity of interventions required to catch up. At the same time, a redistribution of the EU budget from former beneficiaries to the NMSs was introduced to finance the Cohesion policy and the CAP, because at the time of the EU membership, all the regions of the NMSs belonged to the Convergence area, being their GDP p.c. lower than 75 % of EU average. Several discussions among the former EU members accompanied the current programming period budget, and claims for policy-renationalization in sensitive sectors, also caused by the fear of losing a large amount of the EU funds (Viesti et al., 2004). Therefore, in order to gather support for prosecution of the enlargement strategy, the European Commission awaited successful results from the evaluation of the first five years of EU membership (EC, 2009). However, these results did not happen, particularly in countries where the agricultural sector still plays an important role and drives the process of internal divergence within the EU (Monasterolo, 2008).

Considerable progress was made in assessing the impact of policies on agricultural and rural areas, and numerous indicators were introduced to evaluate the CAP and Rural Development Policies (RDPs) and their contribution to the convergence. Despite this, deficiencies remained in institutional planning and implementing abilities, together with an insufficient level of targeting policies and payments (Mantino, 2010). Amongst other reasons, previous analysis (Monasterolo, 2010) on several case studies from Central and Eastern European States (CEEs) highlighted a limited knowledge on the local reality in the areas for which the intervention was prescribed. The characteristics of the most backward areas were insufficiently analysed and addressed by the policies enacted (Csáki, 2009), and limited data availability and accountability at a sub-regional level presented an obstacle. This is particularly the case of the agricultural and rural areas in the NMSs, where the highest percentage of poverty is located (Bertolini et al., 2008): there the policies introduced barely addressed the specific problems of the composite European reality (Csáki et al., 2010).

Material and methods

Objective of the paper

Previous evaluations of RDPs introduction into EU rural areas such as the experience of Emilia Romagna, one of the most advanced EU regions in planning regional and rural policies for convergence and development, evidenced the importance of mapping the territory. This statistical technique is useful in identifying rural areas and their evolving characteristics, and therefore in drafting better policies addressing the needs of a specific territory. Mapping allows us to introduce new modes of classification, focused on the regional and local reality, which

doi: 10.15414/raae.2012.15.02.29-38

can contribute towards the increase of the policy effectiveness, decrease of the resource dispersion (economic, physical, human), and reaching efficient results in the medium to long term.

Therefore, the objective of this paper is to:

- provide an updated overview of the methodologies used for the identification of rural areas, and to introduce an improved methodology;
- assess the transition path for agricultural and rural development in Hungary and the need for change; compare it with the answers offered by the European membership (pre-accession instruments, cohesion programs and the peculiarities of CAP introduction).
- contribute to the evaluation of the EU membership. Looking at the mixed case study approach (Terluin et al., 2011) as an evaluation alternative, changes occurred before (2003) and after (2007) the EU membership are mapped at the county level in Hungary, using multivariate statistics. The specific area's structural, dynamic socio-economic and agricultural characteristics are considered when selecting relevant variables;
- understand whether the implementation of these reforms reveals a persistent discrepancy with the goal of eliminating regional inequality, a stated objective of the European policy of cohesion (Article 158 of the Treaty establishing the European Community).

Contextualization

In search for a shared definition of rurality

Rural Development (RD) was not a priority in the EU policies for a long time, and remained overshadowed by strong CAP price support. From 1975 onwards, since the first structured interventions in the EU for mountainous and disadvantages areas were enacted, rural areas were provided partial, insufficiently funded and scarcely coordinated provisions. Only after Agenda 2000, RD was endowed with its own Fund, and become the second CAP pillar. RD policy monitoring and evaluation gained importance, and several indicators were introduced. However, the improvement in availability and comparability of relevant statistics proceeded at a much slower pace.

Several attempts were made by sociologists and economists to define rurality, focusing on the determinants of localization of economic activities. Examples can be found in the theory of growth poles (Perroux, 1955), the centre--periphery model (Friedman, 1972), the cumulative causation (Kaldor, 1970) and, more recently, the new economic geography (Krugman, 1991). All these approaches view rural areas as dependent, or residual from urban ones (Bertolini et al., 2008). Every European country has its own definition of rurality, influenced by the national perception of the elements that characterize rural areas, and affected by the difficulties in providing reliable disaggregated data.

Internationally, the most used methodology was proposed by OECD (OECD, 1994; 2005), which classifies regions (NUTS3 level) in three groups – Predominantly Urban (PU), Intermediate Rural (IR), and Predominantly Rural (PR) – according to three criteria which mainly rely on population density. Appealing features of this classification method are the simplicity in its application, in interpreting the results and their comparability between States. Its application presents several limits: according to the OECD classification (which is also adopted by the EU), PR represent 54 % of the territory (reaching 91 % together with IR), and 19 % of the population (EC, 2009). Then, OECD classification doesn't consider the historical and developmental characteristics of different regions (i.e. productive structure, specialization, etc), nor the natural influence of the presence of mountainous areas, deserts, and semi-Nordic areas on population density. Finally, it doesn't catch the heterogeneous development pattern: within the same country it is possible to identify winning (rich) or losing (poorer), agricultural based (agriculture plays still a main role in rural areas, EC, 2008) or services-oriented rural regions (Bertolini, 2009). In order to overcome these limitations, with the growing availability of indicators at sub-regional level new contributions were proposed. Based on the results of two Italian projects (the National Atlas of Rural Areas by CAIRE and Ministry of Agriculture, and the territorial agricultural systems by CNR-RAISA), a new geographical analysis of agricultural systems and rural areas was introduced by Anania and Tarsitanio in 1995, then applied to Emilia Romagna (Boccafogli et al., 1998), and used for drafting the Italian Regional Plan for Rural Development 2000 – 2006. It consists of 49 indicators available at the municipality level, divided into 4 groups and analysed through multivariate analysis:

- indicators of the structure of the economy;
- indicators of the structure of agriculture;
- indicators of the demographic structure;
- indicators of the dynamic changes.

The main advantage is represented by the possibility to identify disparities and similarities between rural areas (which emerge as a part of the dynamic changes in the economic system) belonging to the same Province, Region or Nation, and to monitor their evolution over the years.

Recently, an adjusted definition of rurality was provided by Bertolini and Montanari in 2008: it considers population density, but also introduces the concept of adjusted density 100 ab.km^{-2} (calculated as total population – population belonging to the main inhabited centre of the area in km^2) and the role of occupation in agriculture on the national average at the NUTS3 level. This approach allows us to understand if the population of a region is gathered in one town or is more equally distributed; the relevance of the primary sector on the regional and rural economy; to correct the overestimation of rurality in countries presenting few large urban centres (i.e. Ireland, Slovenia) produced by the OECD methodology.

Also, the EU has developed a revised rural-urban typology (EUROSTAT, 2010) to avoid the spatial problem represented by NUTS3 regions that are too small (<500 km^2), and the size-discrepancies between LAU2 and NUTS3. It follows OECD methodology in that it is centred on population density (population grid) and it can easily be reproduced in countries outside the EU for comparability. It is composed of a two-step approach to identifying population in urban areas:

1. population density threshold (300 ab.km^{-2}) for grid cells of 1 km^2;
2. a minimum size threshold (5 000 ab.) applied to grouped grid cells above the density threshold.

Results are, so far, not very satisfactory: this methodology classifies 68 % of EU 27 population as living in urban areas and 32 % in rural ones (5 % points higher than the original OECD definition).

Hungarian agricultural and rural areas in transition toward the EU

Hungary has been selected for a case study due to its diffused rurality (96 % of the territory according to the OECD is rural and

doi: 10.15414/raae.2012.15.02.29-38

58 % prevalently rural) and the historical role played by agriculture, both under the Austro-Hungarian Empire and under the Socialist system. At that time, agriculture was integrated into the planned economy and considered dependent from the cities, which were invested in heavy industrialization plans.

Hungarian agriculture was a "bright spot" in the declining Communist economic system. The country was an important producer and exporter of agri-food products. The agricultural sector was the second largest contributor to the State budget in 1980; it received a low level of public support in comparison with the other ex-satellite States, and offered subsistence to thousands of farmers. The sector was also interested in the introduction of embryonic forms of market (following Lange's market socialism), which determined the full functioning of the collective system, i.e. exchange channels which allowed some private products to be sold on the public market, moving away from simple self-consumption of overproduction (Kornai, 1986). Agriculture, including processing, trade and other industrial activities on large farms, produced 17 % of GDP and employed about the same percentage of the labour force. However, since the 1990s these proportions fell, reaching 3.7 % and 4.5 % respectively in 2008 (Table 1). Nor could agriculture oppose the evident default of a system based on distorted incentives, which characterized the years of the Soviet Union (Anderson et al., 2008), affecting rural regions the most: 45 % of unemployed people lived in villages, especially in the undeveloped Eastern parts of the country. They were mainly unskilled labour previously employed in the cooperative farms and in big state companies.

The transition path toward a market economy was characterized by declining investments and productivity (some indicators were calculated in a different way before the system change, i.e. MNP for GDP, and data accountability was scarce) also due to the end of soft budget constraint (Kornai, 1980) and the disruption of the terms of trade for producers, which was caused by the loss of the former common market (Macours et al., 2000). Moreover, inequality in living conditions spread, leaving a winner and two losers: the capital and the main cities belonging to the first group, and rural areas and Eastern peripheries to the second (Iara et al., 2003).

Looking for the optimal and successful transition path (EBRD, 1997; WB, 1997), two main approaches emerged: big bang versus gradualism (Sachs et al., 1994; Roland, 2000). According to the relevant literature (Csáki et al, 2004; Liefert et al., 2002; Swinnen, 2006), reform of the agricultural systems of the transition economies has involved four main elements: market liberalization, farm restructuring, change in upstream and downstream operations, and the creation of market-friendly infrastructures. Market liberalization could foster farm restructuring, introducing new profit opportunities for farmers. Reformed supply and distribution chains could ameliorate the productive performance of participants to the food chain. Finally, modern institutions and services could help introducing clear property rights, enforcing contracts, and solving disputes.

Figure 1 Hungarian Regions
Source: KSH
Obrázok 1 Regióny Maďarska
Zdroj: KSH

Supporters of the shock therapy (the big bang approach promoted by the World Bank) asserted that the success of the reforms was deeply influenced by its timing. Therefore, all the necessary interventions had to be introduced at the same – and for the shortest – time. In the CEEs, these reforms were introduced at a different pace, and with different results, as evidenced by the World Bank (WB, 2002) which marked Hungary as the 'best reforming performer' with 8.8 points up to 10, followed by the Czech Republic and Estonia. However, this result wasn't confirmed over the years: even by 2003, right before gaining EU membership, several problems remained unsolved (Table 1). After an initial fall, the share of agriculture in GDP reached 4.3 %, while investments showed contrasting trend, rising to 6.1 % of GDP in 2003, and then declining. Today, 83 % of 9 303 000 hectares which constitute Hungary is used for agriculture, and the sector still maintained a relevant role in recent years, in comparison with EU 15 countries. In 2008, the agricultural population (all persons depending for their livelihood on agriculture, hunting, fishing, or forestry, FAO) accounted for 10.1 % of the total population of circa 10 million people, and 4.5 % of the total workforce was employed in the agricultural sector (Table 1).

The main agricultural areas of the country are Western Transdanubia, Northern and Southern Great Plains (Figure 1). In 2008, arable land covered about 6 m hectares, with 1.1 m hectares in permanent pasture. Production is concentrated in three sectors: arable crops (cereals, maize, soft wheat) and oil seeds; horticulture; animal breeding. All these sectors have been influenced by the change in agricultural policy during the

Table 1 Share of agricultural and agri-food industry on the Hungarian economy

Years (1)	Share of agriculture in (2)			Share of food industry in (3)		
	employment (4)	GDP (5)	investments (6)	employment (4)	GDP (5)	investments (6)
2003	5.5	4.3	6.1	3.9	2.7	3.6
2007	4.7	3.4	3.7	3.4	2.0	3.2
2008	4.5	3.7	4.7	3.3	1.9	2.5

Source: own elaborations on KSH data Zdroj: vlastné spracovanie údajov KSH

Tabuľka 1 Podiel poľnohospodárskeho a potravinárskeho priemyslu na maďarskej ekonomike
(1) roky, (2) podiel poľnohospodárstva na, (3) podiel potravinárstva na, (4) zamestnanosť, (5) HDP, (6) investácie

doi: 10.15414/raae.2012.15.02.29-38

Table 2 Number of animals (thousand) and land area used by categories (thousand hectares), 1990 – 2005

	Arable land (1)	Agricultural area (2)	Productive land (3)	Uncultivated land (4)	Cattle (5)	Pigs (6)	Horses (7)	Sheep (8)
1990	4 712.8	6 473.1	8 235.7	1 067.5	1 637	8 457	76	1 865
2000	4 499.8	5 853.9	7 715.5	1 587.5	805	4 834	75	1 129
2005	4 513.2	5 863.9	7 734.8	1 568.6	723	4 059	67	1 397

Source: own elaborations on KSH data Zdroj: vlastné spracovanie údajov KSH

Tabuľka 2 Počty zvierat (v tisícoch kusov) a výmera pôdy podľa kategórie pôdy v tisícoch hektárov, 1990 – 2005
(1) orná pôda, (2) poľnohospodárska pôda, (3) produktívna pôda, (4) necultivovaná pôda, (5) hovädzí dobytok, (6) prasatá, (7) kone, (8) ovce

transition period, and achieved very different results: while crop cultivations increased notably, horticulture and animal breeding (especially pigs) dropped (Table 2).

A new identification of rural areas for better policy evaluation

Paragraph 2 shows the characteristics, and limits, of the methodologies used for the identification of rural areas. According to the application of the OECD classification to Hungary, just one county (Budapest) can be classified as PU, while 47 % of the territory emerges as PR. Different results are obtained applying the Adjusted Rurality methodology, where three counties are classified as PU (Budapest, Pest, Komárom Esztergom) and just 28 % of the territory as PR.

Therefore, this approach is applied to get two maps of Hungary. A group of 43 socio-economic-demographic and agricultural variables, which are available periodically at a county level (NUTS3) for the years 2003 and 2007, are used. The level of disaggregation NUTS3 – which doesn't allow us to mark the internal distribution of the phenomena analysed, and the presence of polycentrism – was chosen due to the lack of data at the municipality level. The variables were listed according to their relevance in shaping the evolving trend of rural areas, coherently with the EU Common Monitoring and Evaluation Framework (CMEF), with the last findings on the determinants of wealth gaps among the EU regions (EC High-Level Policy Roundtable on Human Capital in Cities and Regions), and with the new CAP visions (i.e. diversification and environment sustainability). Six variables relevant to agricultural productivity and quality of life – topography; youth unemployment rate; long term unemployment rate; number of patents; private and public funds invested in R&D; people in top business positions – were included.

The variables were listed in four groups in order to ease the interpretation of results:

1. economic and supply structure: they offer an image of the economic and productive system of the area, paying particular attention to the employment structure;
2. structural indicators for agriculture, considering the productive characteristics of the sector;
3. socio-demographic structure, to monitor the evolution of the population bearing in mind its age structure and cultural characteristics;
4. economic dynamism: indicators reflecting the dynamism of the productive system. It facilitates the analysis of the fluxes of the structural components in the agricultural sector and in the employment structure, within the national macroeconomic framework.

Principal components analysis (PCA) was applied to the selected variables. PCA is a methodology belonging to multivariate statistics which doesn't require strong assumptions on the model. Therefore, it is able to work in situations were available data and their quality are far from optimal. Moreover, it has been widely used for similar analyses (Cannata, 1998; Fanfani et al. 1999; Bogdanov, 2007; Monasterolo et al., 2010). With PCA a group of p indicators, obtained on a group of n statistical units, is transformed into a smaller group of variables, which are still able to explain a high percentage of the original data variability, to avoid important loss of information (Mazzocchi, 2008). While at the beginning of the process the indicators are highly correlated, the transformed variables we obtain (principal components, PCs), which are a linear combination of the original indicators, are uncorrelated. The PCs are computed on the correlation matrix, in order to avoid the distorting influence of different measurement units (and hence different variance scales) across indicators. The values of the components are obtained from the component matrix (components are not rotated) and the scores of every statistical unit (county) are computed for each component.

The k principal component scores of the selected components ($k < p$) comes from the following linear combinations, expressed as a matrix:

$$Y = XA \quad (1)$$

where:

- Y – the nxk matrix, containing the scores of the n statistical units in the k components
- A – the vector matrix pxk of the normalized coefficients
- X – the nxp matrix of the standardized data

The scores of the Y matrix are then used in the cluster analysis (CA) to maximize homogeneity within clusters and heterogeneity between clusters (SPSS automatically provide standardized values, which are used in the cluster analysis). This approach allows us to identify and group areas with similar features, and describe them through the PCs values.

Application of the principal components analysis and cluster analysis to rural Hungarian counties in 2003

The sample is composed of the 17 PR and IR counties. A principal component analysis (PCA) was conducted on the 46 variables. An initial analysis was run to obtain eigenvalues for each component in the data. Five components had eigenvalues above 1 (Kayser's selection criterion), and the scree plot showed inflexions that would justify retaining either 3 or 5 components. Given the sample size, and the convergence of the scree plot and Kaiser's criterion on five components, the latter number of components was retained in the final analysis. These components explain 75.2 % of the original variance, in line with the Guttman-Kaiser criterion, which suggests PCs explaining 70 – 80 % of cumulative variance.

PC1 – rurality (28 %)

This component gathers the main features of Hungarian rural areas. Positive values are associated with the presence of recipients of social support, dependency ratio, employment in public administration (PA) and in the primary sector; presence of a young population and university students; all the

doi: 10.15414/raae.2012.15.02.29-38

unemployment indexes; presence of small farms. Coherently, negative values are shown for GDP p.c. and net earnings on the national average; employment rate; the role of secondary sector on employment and GDP; labour productivity in agriculture.

PC2 – agricultural development (16 %)

Positive values are associated overall with the primary sector: its role on GDP and employment (full-time mainly); the presence of larger farms and younger farmers; cereals, maize and pig breeding among the activities; land price and R&D expenditures. Negative values are shown in labour productivity in agriculture; population density and immigration rates; all unemployment indices, in particular long term unemployment.

PC3 – economic development (14 %)

This gathers the developmental features of rural areas: positive values are recorded for population density and population change; GDP p.c. and average earnings; employment in services, value of industrial production and university students. Instead, negative values are associated with long term unemployment; aging index; presence of older farmers; employment in the public administration (PA).

PC4 – emerging rural diversification (10 %)

This identifies areas with natural and agricultural assets (positive land price, cereals and maize, forests and livestock), and a tendency toward economic diversification (presence of tourist accommodations, employment in services, part-time work in agriculture), but persisting unemployment and low salaries.

PC5 – touristic vocation (7 %)

Positive values underline the role of natural attractions (forests, pastures, accommodation, and temporary immigration) and the primary sector in the economy (agricultural and labour productivity in agriculture). Negative values are recorded for long term unemployment, employment in the PA, presence of recipients of social support, average farm size.

The next step was the application of cluster analysis to the 5 PCs. A two-step process was adopted. First, Ward's hierarchical method was applied and a dendogram showing the nesting process was obtained. As hierarchical methods often present problems with data containing a high level of error, the final clustering was obtained by applying non-hierarchical method, the *k-means algorithm*, where *k* stands for the number of clusters chosen to start the process. In fact, this method is faster and more reliable when working with large databases. All the individual observations are assigned to the nearer cluster seed, and the researcher needs to set the initial seeds and specify the number of clusters. Furthermore, reallocation is allowed for in each iteration step.

5 clusters were finally identified:

1 – Deep rurality

This includes two counties (Borsod-Abaúj-Zemplén, Szabolcs-Szatmár-Bereg) located at the North-Eastern border of Hungary. In former Communist period they were invested in heavy industrialization, but due to the unsolved structural problems during transition they now show high unemployment rates (+30 %, youth unemployment +50 %), presence of recipients of social support and employment in PA (+60 % and +20 %), low GDP p.c. (-30 %), in comparison with the national average. The secondary sector still plays a relevant role (thanks to the delocalization of multinational companies i.e. GE and Borsch, mainly in the food industry, manufacturing, chemical and metallurgy), while agriculture is lagging behind (farm size is the half of the national average, as full-time work in agriculture).

Figure 2 Hungarian rural Counties, 2003
Source: KSH
Legend: cluster 1: Borsod-Abaúj-Szemplén, Szabolcs-Szatmár-Bereg; cluster 2: Somogy, Tolna, Baranya; cluster 3: Fejér, Veszprém, Zala, Vas, Győr-Moson-Sopron; cluster 4: Békés, Csongrád, Bács-Kiskun, Jász-Nagykun-Szolnok, Hajdú-Bihar; cluster 5: Heves, Nógrád

Obrázok 2 Vidiecke župy Maďarska 2003
Zdroj: KSH

2 – Potential rurality

This identifies the Southern Transdanubia Region (Baranya, Somogy, Tolna), characterized by a positive PC2 due to the role of the primary sector (9 % of GDP, +20 %), with maize as main cultivation (+40 %); high natural endowments (Lake Balaton, vineyards); good services, infrastructures, and investments, which contribute to economic diversification and tourism (positive PC4 and 5, +30 % accommodation).

3 – Manufacturing sector

This is composed of five counties belonging to Western and Central Transdanubia, with good productive performance and living standards above the national average (+25 % GDP, -80 % long term unemployment). It specializes in manufacturing activities (machine industry, textiles and foods, +30 % value of industrial production), also due to the several foreign companies, especially from Austria and Germany, which invested in the area during transition (Audi, Renault, General Electrics). Moreover, it is rich in historical and natural endowments, which helps diversification (positive PC4 and 5).

4 – Agricultural activity

Composed again of five counties, located in Northern and Southern Great Plain, this is characterized by the role of the primary sector (+30 % on GDP and +22 % of employment in agriculture) and the presence of natural attractions (i.e. the famous Puszta, flood plains, spa water). In this cluster, Debrecen, the second largest Hungarian city and an important national research and university centre (+20 % expenditures in R&D), is located. These features were not able to contribute effectively to area development (-10 % GDP and net earnings, -20 % labour productivity in agriculture).

5 – The backwardness cluster includes Heves and Nógrád (Northern Hungary)

It shows negative values for all the PCs, highlighting problems in the economic (-20 % GDP), social (+20 % recipients of social support, +40 % long term unemployment) and agricultural (prevalence of small farms and old farmers) sectors, which were unsolved and even worsened during the

doi: 10.15414/raae.2012.15.02.29-38

transition period. These counties were characterized by the presence of mining and chemistry industries, already declining before the system change: now the value of industrial production is twice as low as the national average, and expenditures in R&D and request for patents reach one third of the national average.

Application of Principal Components Analysis and Cluster Analysis to Hungarian rural counties in 2007

In order to understand the changes that occurred in Hungary with European membership, I repeated the same process (PCA and CA) using the same 46 variables on 2007 data, after the end of the first programming period 2004 – 2006 for NMSs.

5 PCs were again identified, explaining 74 % of the original variance:

PC1 – rurality (26 %)

This first component shares the same features of PC1 in 2003, but it shows worse results. Positive values are associated with the presence of recipients of social support; dependency ratio; all the unemployment indices; employment in agriculture and the role of PA. Coherently, negative values are associated to GDP p.c., net earnings and employment rate.

PC2 – age structure (15 %)

Positive values are associated with the presence of young population (youth index, university students, youth unemployment), population change and with the value of industrial production, while negative values are associated with the role of the primary sector on employment and GDP, presence of older farmers and the index of ageing.

PC3 – agricultural productivity (14 %)

This component gathers the performance indices for agriculture. Positive values are associated with occupation (mainly the presence of younger farmers), agricultural productivity, cereals and maize production; investments in R&D and patents, temporary immigration, which show the role of external investments in agriculture in less favoured areas (negative land price).

PC4 – declining agriculture (10 %)

Positive values are recorded for crops, family farming, land price, tourist accommodation and employment in PA. On the other hand, negative values are associated with farm size, farmers' age and full-time work in agriculture, agricultural and labour productivity; relevance of the secondary sector and investments.

PC5 – rural diversification (9 %)

this component is characterized by natural attractions (forests, pastures) and tourism (accommodation, employment and role of the tertiary sector on GDP), positive immigration indices, with part-time and older farmers prevailing in agriculture. Negative values are associated with the secondary sector and the value of industrial production.

Applying the *k-means*, after running the analysis with Ward's method, five clusters were again identified. They differ from the analysis provided for 2003 in composition and values:

1 – Lagging rurality

It gathers three counties located in North-Eastern Hungary which share the features of declining rurality: high rate of recipients of social support (+50 %), high unemployment (+30 %), GDP and net earnings lower than the national average (-15 %), positive demographic balance. Low productive agriculture is mainly conduced at the family level (negative PC3 and positive PC4), with the prevalence of industrial crops.

2 – Agricultural vocation

This is composed of four counties, mainly in Southern Great Plain, showing agricultural vocation (+30 % contribution of primary sector on GDP and +23 % employment, larger farm size, young farmers), high rate of expenditures in R&D (+30 %) and patents (+20 %). The natural attractions could be better exploited for diversification, creating tourism facilities.

3 – Industrial areas

Fejér and Győr-Moson-Sopron, in Central and North-Western Hungary, are the most developed of the counties examined. In fact, they have a high GDP, net earnings and population density (+30 %, +10 % and +20 % respectively), the lowest unemployment rate (-50 %) and employment in PA, a dynamic population. The economy is driven by the secondary sector (highest value of industrial production), while agriculture is conducted in a productive way (larger farms, high labour productivity).

4 – The backward cluster

is composed of just one county, Nógrád, located in Northern Hungary, presenting characteristics of deep rurality and low development perspectives. GDP p.c. is 60 % lower than the national average, long term unemployment and finances spent on social support are high (30 %). Industrial production is still declining, and investments are lagging behind, and no diversification (i.e. tourism) is offered.

5 – Diversification

This is the largest cluster, composed of seven counties on the Southern and Western Hungarian borders. The rich natural, historical, wellness (medicinal and thermal waters) sites and the eco-tourism infrastructure are an important source of attractiveness of this flat and green area, where agriculture is dominantly composed of crops and vineyards, and conducted in quite a productive way. In fact, GDP p.c. and permanent immigration are above the national average, while unemployment indices are considerably low. Apart from the tertiary sector, industry also has a good role in the economy of the area, in the energy, telecommunications and food industry sectors (PannonPower, SMT, Elcoteq, Sió).

Figure 3 Hungarian rural Counties, 2007
Source: KSH
Legend: cluster 1: Borsod-Abaúj-Szemplén, Szabolcs-Szatmár-Bereg, Hajdú-Bihar; cluster 2: Békés, Csongrád, Bács-Kiskun, Jász-Nagykun-Szolnok; cluster 3: Fejér, Győr-Moson-Sopron; cluster 4: Nógrád; cluster 5: Heves, Vas, Zala, Veszprém, Somogy, Tolna, Baranya

Obrázok 3 Vidiecke župy Maďarska, 2007
Zdroj: KSH

Table 3 Variation 2007/2003 (%) for selected variables

	GDP p.c. (1)	Net earnings (2)	Recipients of social support (3)	Long term unemp. (4)	Empl. Rate (5)	Empl. primary sector (6)	Empl. secondary sector (7)	Primary sector on GDP (8)	Secondary Sector on GDP (9)	Part time agri. (10)	Accomodation s (11)
Fejér	0.6	1.4	44.9	47.9	-3.4	109.2	1.5	-7.2	10.0	1.8	-2.3
Veszprém	-4.0	-0.7	51.6	47.9	-0.2	117.4	-3.9	14.5	2.7	6.3	-11.6
Gyor-Moson-Sopron	-6.1	1.8	68.2	40.5	2.2	17.5	-1.7	-17.7	10.1	16.3	-0.7
Vas	-11.8	2.2	83.5	40.5	-4.0	89.6	-7.7	66.3	-14.0	13.9	24.3
Zala	-13.9	-0.2	115.5	40.5	5.3	122.0	-14.8	-6.2	-8.3	19.0	2.9
Baranya	-4.1	2.4	25.5	23.4	0.4	8.0	0.9	-8.3	-0.3	12.8	-2.1
Borsod-Abaúj-Zemplén	3.7	1.3	19.7	31.0	1.4	102.2	2.4	-22.2	15.4	3.7	-3.4
Heves	-2.3	2.1	42.1	31.0	-2.3	32.1	1.0	-34.4	11.6	4.6	5.7
Nógrád	-16.9	-0.8	43.4	31.0	-3.7	189.5	-4.2	-16.4	-3.4	4.1	-35.0
Szabolcs-Szatmár-Bereg	-7.1	-0.5	38.8	111.9	-0.7	16.8	-4.7	-11.6	5.8	2.7	-42.3
Somogy	-12.1	1.2	75.2	23.4	-10.4	70.0	-5.3	0.2	-7.9	14.3	-7.7
Tolna	-2.7	1.4	62.0	23.4	-4.1	55.2	2.2	1.5	12.6	7.5	-0.2
Hajdú-Bihar	-7.1	1.0	40.4	111.9	-2.9	32.1	-11.4	7.6	-17.2	10.1	4.6
Jász-Nagykun-Szolnok	-2.1	0.0	65.8	111.9	0.2	113.1	-7.4	20.2	3.7	14.2	4.7
Bács-Kiskun	-3.1	-0.5	73.3	35.6	-2.2	21.2	-9.7	-14.2	4.8	5.5	-26.7
Békés	-6.8	-0.7	59.2	35.6	5.5	30.6	-12.9	21.1	-3.1	13.8	0.6
Csongrád	-4.9	0.9	77.0	35.6	7.9	17.5	-12.3	11.9	5.1	10.2	0.8

Source: own elaborations Zdroj: vlastné spracovanie

Tabuľka 3 Indexová zmena 2007/2003 v % pre vybrané premenné

(1) HDP na obyvateľa, (2) čisté príjmy, (3) príjemcovia sociálnej podpory, (4) dlhodobo nezamestnaní, (5) miera zamestnanosti, (6) zamestanosť v primárnom sektore, (7) zamestnanosť v sekundárnom sektore, (8) HDP na primárny sektor, (9) HDP na sekundárny sektor, (10) čiastočný úväzok v poľnohospodárstve, (11) ubytovania

doi: 10.15414/raae.2012.15.02.29-38

doi: 10.15414/raae.2012.15.02.29-38

Results and discussion

Did it succeed? A glance at the 2003 and 2007 results

Analysis of the changes that occurred in the Hungarian rural counties between 2003 and 2007 presented in this paper follows a previous one conducted on all twenty counties, including the urban ones (Monasterolo et al., 2011). Analysis conducted on the whole Hungarian territory evidenced the following changes between 2003 and 2007:

- a decrease in the importance of the components linked to: economic development (positive values recorded for population density and GDP p.c., net earnings, university education, employment in services);
- an increased social and industrial decline (positive values for unemployment, recipients of social support, and high employment rate in the public administration);
- increased role of agriculture (full-time employment in the primary sector, small farms).

At the same time, the CA showed:

- the move from the secondary sector to agriculture in some counties (Zala and Győr-Moson-Sopron), without improvements in the economic performance and living conditions;
- diffusion of phenomenon of marginalization in the counties that are already lagging behind (Nógrád, Szabolcs--Szatmár-Bereg).

Therefore, this analysis confirmed the presence of winning and losing regions from the enlargement: the former group is represented by Budapest (able to attract initiatives in the tertiary sector and finance) and the Western border (a specialized centre for industrial production), while in the Eastern peripheries the socio-economic situation worsened, together with agricultural productivity after the land reform.

The PCA and CA analysis made on Hungarian prevalently and intermediate rural counties shows, partially, similar results. In fact, between 2003 and 2007:

- greater importance is held in the component of rurality (recipients of social support, dependency ratio, employment in PA and in the primary sector; unemployment; small farms);
- the only component related to economic performance in 2003 (population density and population change; GDP p.c. and net earnings; employment in services, value of industrial production and university students) disappears in 2007;
- a greater role is played by agriculture, with both positive (agricultural productivity) and negative (stagnant agriculture) features;
- components of economic diversification have a residual importance.

Cluster analysis in 2003 highlighted the role of rurality, both in its positive (C.2 Potential rurality) and negative features (C.1 Rurality, C.5 Backwardness). Moreover, a clear distinction emerged between counties characterized by agricultural (C.4 Agricultural activity) and manufacturing activities (C.3 Manufacturing sector). On the other hand, cluster analysis on 2007 evidenced the features of declining rurality (C.1 Declining rural area, C.4 Backward), and the decision to diversify activity (C.5 Diversification) in several counties previously concerned with manufacturing and agriculture (ex. C.3 and C.4).

The counties of Vezprém (Central Transdanubia Region), Vas and Zala (Western Transdanubia Region), for example, in 2003 belonged to cluster 3, characterized by manufacturing activities and the secondary sector. But in 2007 the role of the secondary sector in GDP and employment decreased (-7 %, -9 %), as well as GDP p.c. (-10 %), while employment in the primary sector, its contribution to GDP and agricultural productivity increased (+ 111 %, +22 %, +57 %). The number of recipients of social support doubled, and the long-term unemployment rate increased by 42 %.

The county of Heves, included in the cluster Backwardness with Nógrád in 2003, in 2007 joins the cluster Diversification: land price doubled, the amount of tourism accommodations increased (+6 %, +5.7 %), as well as temporary immigration (+28 %) and employment in the primary sector (+32 %), but not its role on GDP (-34 %). Investments in R&D grew by 55 % and the value of industrial production increased by 88 %.

In the same period, the county of Hajdú Bihar moved from the Agricultural activity cluster to the Declining rural area cluster. The number of recipients of social support and long-term unemployment increased (+40 %, +112 %) while GDP p.c and employment rate decreased (-7 %, -3 %). Employment in the primary sector and in PA increased (+32 %, +3 %), as well as part-time agriculture (+10 %) and average farm size (+22 %). Employment in the secondary sector and its role on GDP dropped (-11 %, -17 %).

Finally, Nógrád confirmed in 2007 its position as a most lagging behind county: GDP p.c and employment in the secondary sector decreased (-17 %, -4.2 %), while the number of recipients of social support, ageing index and long term unemployment increased (+43.4 %, +12 % and +31 %).

Some variables play a very important role in the characterization of clusters and their description, both for the years 2003 and 2007, and they are mainly linked to employment, living conditions, and to the primary sector (Table 3).

Conclusions

In this paper, Hungarian rural counties are identified through the application of the Adjusted Rurality methodology, in order to overcome some of the problems left unsolved by the OECD methodology. Ten Hungarian counties up to twenty are classified as intermediate rural, and the remaining seven as predominantly rural. Principal components analysis (PCA) was computed on a controlled dataset of 46 variables to understand the underlying features of the IR and PR areas. The results of the PCA were later utilized in the cluster analysis (CA), which resulted in groups of counties that are homogeneous within themselves and heterogeneous among themselves. The operation was repeated for two years, 2003 and 2007, in order to catch the changes that occurred in Hungarian rural counties after the EU enlargement in 2004, and to provide a preliminary evaluation of EU membership for the country. Five principal components and five clusters were identified both in 2003 and 2007, but presented different characteristics.

This analysis highlights the developmental features that characterize Hungarian rural counties in the long transition path, and their evolution during the introduction of required costly (from a budgetary and social perspective) reforms, CAP and RD policies. The enlargement did not maintain its growth and convergence promises. Negative trends even accentuated, as did the increase in poverty, marginalization, social exclusion, unemployment and subsistence agriculture. Therefore, as already suggested by CSÁKI et al., 2010, the EU cohesion and CAP disbursements were not able to set a strong foundation for the structural transformation required in agricultural and rural areas, decreasing the internal divergence and development gap.

doi: 10.15414/raae.2012.15.02.29-38

The previous study on all the Hungarian counties for the same period 2003 – 2007 evidenced the decline of the industrial sector and an increased role of agriculture. The analysis conducted just on rural counties partially confirms it: the declining role of industry is true also on the Western border (Vas, Zala, Veszprém), previously characterized by growing secondary and tertiary sectors, and low productive agriculture is expanding, particularly in Eastern Hungary (i.e. Hajdú-Bihar). At the same time, natural and cultural attractiveness of Southern counties could be better valorised, also due to the presence of young and skilled people, and the increased role of the tertiary sector. Then, marginalization increased in the already worse off counties located in the Northern Great Plain and Northern Hungary (Nógrád county in particular).

A serious limitation for the policy impact analysis is represented in the persistent poor statistics. Accountable, disaggregated, and periodically updated data on farm performance, on socio-economic trends and new CAP objectives, together with easier access to information from the national paying agencies at the regional and sub-regional level would contribute to assessment of the role (if any) of an EU value added. Given these statistical limitations, future RD policy evaluations could return better results if conducted using the 'mixed approach' methodology, integrating quantitative analysis into case-study approach. Analysis of data through multivariate methodologies offers results that are easy to be read and to be interpreted by policy makers involved in policy drafting and implementation, and by project managers. In this way, it is possible to overcome the complexity of interpretation of the rural development measures and indicators proposed by the EU (DG Agri counts more than 150 indicators to assess rural development). This point fulfils the need recognized by the EC institutions to better communicate and disseminate results from RD monitoring and evaluation, and for the introduction of more targeted policies. Finally, the methodology applied here helps to understand the developmental characteristics of current EU candidate and pre-candidate countries from Western Balkans, and to avoid the "knowledge gap" (and consequent budget ineffectiveness) experienced during the previous enlargement.

Súhrn

Článok sa zaoberá analýzou efektov členstva v EÚ na poľnohospodárske a vidiecke okresy Maďarska, s dôrazom na zavedenie spoločnej poľnohospodárskej politiky a kohéznej politiky EÚ. Maďarské vidiecke oblasti sú v práci mapované použitím viacrozmernej štatistickej metodológie (analýza hlavných komponentov a zhluková analýza) s využitím relevantných premenných, periodicky aktualizovaných a dostupných na dezagregovanej úrovni. Porovnané boli maďarské vidiecke okresy v rokoch 2003 a 2007. Identifikované boli rozdiely medzi očakávanými cieľmi členstva v EÚ a dosiahnutými výstupmi vidieckych okresov ktorým sa darilo najmenej. Marginálne postavenie zaostávajúcich okresov sa prehĺbilo, napríklad v okrese Nógrád. Potvrdila sa existencia získavajúcich okresov a okresov strácajúcich v dôsledku vstupu Maďarska do EÚ. Článok zdôrazňuje limity kvality štatistickej analýzy v dôsledku chýbajúcich zdrojov v národnej štatistike a možné ďalšie hodnotenie skúseností so vstupom do EÚ.

Kľúčové slová: hodnotenie poľnohospodárskej politiky a politiky rozvoja vidieka, transformácia, cielenie politiky, rozšírenie EÚ

The author gratefully thanks Francesco Pagliacci, Prof. Mario Mazzocchi and Prof. Roberto Fanfani for their useful comments and review of the paper.

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Acta oeconomica et informatica 2
Nitra, Slovaca Universitas Agriculturae Nitriae, 2012, s. 38–42

NON-GOVERNMENTAL ORGANIZATIONS IN RURAL AREAS – A CASE STUDY OF WIR ASSOCIATION

MIMOVLÁDNE ORGANIZÁCIE VO VIDIECKYCH OBLASTIACH – PRÍPADOVÁ ŠTÚDIA ASOCIÁCIE WIR

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Non-governmental organizations usually operate in cities. This tendency results from the fact that the larger the population, the easier it is for organizations to find members. It is also influenced by accumulation of social problems in urban areas, which those organizations may attempt to solve. It does not mean, however, that rural areas lack active people who want to work towards common good. This article describes Polish non-urban organizations and presents a unique initiative called WIR Association (wir = whirl), which has gathered local administration, non-governmental organizations as well as entrepreneurs.

Key words: activity barriers, associations, bureaucracy, European funds, Leader Plus, local action group

Non-governmental organizations (NGO) in Poland started growing dynamically after 1989, though some of them existed much earlier (such as the Polish Red Cross). NGOs reflect the existence of civil society and people's belief in their ability to co-create social reality. The NGO category (referred to as creators of the so-called '3rd sector of economy') usually includes associations and foundations, but it may also encompass a variety of relations or e.g. social cooperatives. The activities of Polish NGOs are regulated by a few legal acts, mainly 1) The Association Act, which states that an association is a voluntary, autonomous and lasting organization operating on a non-profit basis whose activities mostly include civil, non-profit work of their members; 2) The Foundation Act, which regulates the establishment and operations of foundations; they may be founded by either a natural or a legal person; 3) The common Good and Voluntary Work Act, which states that an NGO cannot be an enterprise operating in a public finance domain for profit.

When listing the basic characteristics of NGOs, it must be remembered that:

1. It cannot be founded by a governmental entity (it can be established by a natural person or market entities).
2. It focuses on non-profit goals (although it may run business activity).
3. It is, as a rule, financed from non-public funds.

Polish NGOs usually focus their activities on sport and recreation (38 %), education and up-bringing (12.8 %), culture and art (12.7 %) and social help and care (11.2 %); generally speaking, they operate in the services sphere. Vast majority of organizations face a few problems: lack of funds to support their activity (the average budget of an NGO is approx. 4 861 € (20 000 PLN; 1 PLN = 0.243 €) and 11 – 12 % of NGOs operate without any resources); insufficient activity of their members or shortage of volunteers; and excessive bureaucracy. Nonetheless – as already stated – the number of NGOs is growing each year. Their professionalism increases as well, which is visible in the cooperation between them and local authorities: in 2003, 68 % of communes co-financed NGOs; in 2009 – it came up to 86 %.