CLASSIFICATION OF THE DEVELOPMENT AREAS OF THE SOUTH TRANSDANUBIAN REGION (HUNGARY)

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ABSTRACT

The Hungarian Government decided on the establishment of the South Transdanubian Economic Development Zone. The identification of the areas formed by clustering settlements of similar features will help better target development goals and funds to the region. The development concepts of the counties (forming the region) were reviewed and each of the 656 settlements of the region were put into categories. The categories were formed according to the county concepts; classification of the space followed all of the area classifications mentioned in them: development goals, priorities, strategic categories or sectoral targets. It has been found that 291 settlements have not been targeted by the county concepts at all. Further 177 ones are classified as deprived areas either because of their peripheral situation or their underdevelopment status by law. 62 settlements are mentioned as ones to be targeted with either economic development programmes or classified as growth zones. The latter category consists of 26 settlements, which are either growth, industrial, innovative or logistic centres according to the development concepts. To the development of rural areas due to shrinking medium sized cities must be addressed. Our review and classification of South Transdanubian Region's settlements adds the value of the multifaceted approach through the application of the county development concepts.

Keywords: planning, settlements; QGIS; classification; spatial heterogeneity JEL codes: R58, O2, R11

INTRODUCTION

The EU's cohesion policy has been widely acknowledged as a major driver of reform for domestic regional policies aimed at supporting regional development. However, there are substantial differences across EU member states in terms of knowledge and institutional settings as well as the objectives and foci of regional policies (*Varjú*, 2021). Hence, the approach, the applied methods and materials to support regional planning vary from country to country. In addition, the developers of a given regional development always update their methods in the light of the newer and newer available data and current development policy priorities.

The Hungarian Government decided on the establishment of the South Transdanubian Economic Development Zone with its Government Decree of 1569/2020 (IX. 4.). The creation of economic development zones enables the historical regions, which form economically and culturally unified areas, to develop as internationally competitive economic units. According to the government's intentions, economic development zones will play a key role in strengthening the economy and in the rapid recovery of its growth after the Covid-19 pandemic.

The classification of the spaces of the South Transdanubian Region brings closer to the targeted and efficient use of financial resources (funds) within the zone by identifying the coverage, heterogeneity and resource absorption capacity of these areas.

The aim of this article is to create a regional mapping of the diverse development areas in order to contribute to forming the South Transdanubian regional economic development zones, which the decision makers can build upon their future plans and development documents.

The article will introduce briefly the main dimensions of the counties' development concepts in order to give a basis for the classification process of development areas. We discuss which areas are targeted with what kind of development goals or classified in any other way as single territories.

With the help of the analysis, it is possible to suggest which categories of space / settlement can be formed, to which the development proposals can be applied, and how the peripheries can be defined. Furthermore, those areas of settlements will be highlighted as neglected peripheries where no specific development goals are targeted, therefore are facing deprivation.

MATERIALS AND METHODS

We would like to contribute to the above mentioned with the results reported in this study by the classification of the development areas of the South Transdanubian Region. For this purpose the development goals, strategic points and priorities named by the development documents of the three counties of the region, and the development areas and other priority areas mentioned in the concepts were the basis of our classification.

The development concepts of Somogy, Baranya and Tolna were reviewed and used to define the categories of development areas for each of the 656 settlements of the South Transdanubian Region. Each settlement was allocated dummy variables of all categories mentioned by name in the counties' development concept, including spatially defined and sectoral areas as well. A cross sectional database of 656 settlements was created which included originally the dummy variables for these categories. In some cases, very rare special development programmes were merged into a single variable. For example, the low number of settlements under innovation, growth, logistics or industry development was merged into a single variable (Gr/ind/log/innov). In the next phase the law-determined classifications of the settlements were also included - only in those counties where the county concept mentioned this classification as part of it. The categories for Complex development and Beneficiary were joined also. In this way, no, single or multiple classes were given to settlements and we showed the spatial pattern of these classes as well as indicated how diverse some of these areas were. The regions' settlement level shape file was downloaded (*data2.openstreetmap.hu*, 2020) and merged with the settlement data file containing the variables of development categories.

The dummy variables used for the classification of settlements are shown in *Table 1*.

Variable name	Long name or target of development	Number of settlements
BKÜK	Balaton Kiemelt Üdülőkörzet	40
KDKT	Közép Duna-menti Kiemelt Térség	62
Tourism	Tourism	176
CB	Cross-border	83
Complex/Benef	Complex development programme AND Beneficiary programme (merged variable)	94
Econ	Economic development	49
Gr/ind/log/innov	Growth Industrial Logistics Innovation (merged variable)	27

Table 1: Variable list

Settlements with more than one development goal or classification category were classified as mixed categories. The mixed categories were created with the excel function CONCATENATE and it was also indicated on the map of the results. The database was imported to QGIS, and a map showing the joint classification of development regions was created (*Barna*, 2020).

The frequency numbers for categories were reported with pivoting the exported excel data table

County development concepts from the point of view of classification

The region includes 3 counties: Somogy, Tolna and Baranya and is very heterogeneous from the point of view of development; it is made up of a number of development areas at the administrative level. 656 settlements (41 towns and 615 villages) can be found in the region on a 14 198 km² large territory with 894 223 inhabitants, more than half of which (333 settlements) are social, economic and infrastructural beneficiaries [105/2015. (IV. 23.) Government Decree], while 265 (40.4%) belong to the group of settlements with significant unemployment [105/2015. (IV. 23.) Government Decree]. The South Transdanubian Region is bordered by lake Balaton in the North, river Danube in the East, the Croatian border line following River Drava in the South (*Figure 1*), which limits the peripheries' expansion.

Figure 1: Location and natural borders of the South Transdanubian Region (NUTS2)



Source: Szabó (n.d.)

Government Decree of 290/2014 (26.11.2014) on the classification of beneficiary districts defines as beneficiary areas those districts the complex indicator of which is lower than the average of the complex indicator of all districts; it defines as districts to be developed with a complex programme those districts within the beneficiary districts which have the lowest complex indicator and are home to 10% of the cumulated population of the country.

When defining development goals, priorities and strategies, county concepts are based on the resources that can be allocated according to the legal delimitations on the one hand, and on the resources of regions and settlements on the other hand, and are identified as either comparative advantages or uniform development goals.

In the following, we summarise the main classification categories of the concepts; all information was extracted by using the terms for priority, strategy, development goal of the concepts.

Classifications of the Development concept of Somogy County

The central region of the county is the county town Kaposvár and its surroundings, where the level of development is better than the county average (*Somogy County Local Government*, 2021). It has been continuously developing, although still not visible sufficiently either in the international or the national socio-economic space.

An important internationally noticed area that is one of the tourist attractions of rural Hungary is the shore of lake Balaton and its settlements, which are also defined by the law (Act CXII of 2000).

The county's periphery in the South (bordering Croatia) is the area of the districts of Barcs and Csurgó. This area is the target of a particularly disadvantaged area to be developed by a targeted development programme, as specified in the legislation.

The Inner Somogy area, settlements situated further from Kaposvár as rural villages, is characterised by low social and economic relations to Kaposvár. This area has a determining city, Nagyatád.

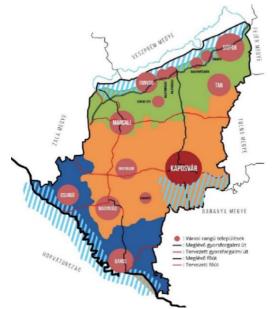
Within the above area, Zselic stands out with its superficial tourism endowments. Being close to Kaposvár, this area and Kaposvár could well be a tourism development micro region.

The development concept of the county states that the above area is uniform mainly in terms of applicable measures, only the city-village status of the settlements and the potentials for tourism are differentiating.

Besides tourism development, industrial initiatives are needed in major cities such as Kaposvár, Nagyatád, Siófok, Marcali and Tab.

The areas defined by the county development concept can be seen in Figure 2.

Figure 2: The development areas of Somogy county



Source: Somogy County Local Government (2021)

The objectives of the development concept of Somogy County define five major areas. These are the BKÜK, Kaposvár and its surroundings, the development of district centres and towns, rural life quality, complex development of border settlements.

The area of BKÜK - Lake Balaton Special Holiday Area (Act CXII of 2000 on the Adoption of the Spatial Planning Plan of the Lake Balaton Special Holiday Area and on the Establishment of the Balaton Spatial Planning Regulations) indicates 40 settlements within Somogy County (*Table 2*).

Ádánd	Andocs	Balatonberény	Balatonboglár
Balatonendréd	Balatonfenyves	Balatonföldvár	Balatonkeresztúr
Balatonlelle	Balatonmáriafürdő	Balatonőszöd	Nikla
Nyim	Ordacsehi	Öreglak	Pusztaszemes
Ságvár	Sávoly	Sérsekszőlős	Siójut
Som	Somogybabod	Somogymeggyes	Somogysámson
Somogyszentpál	Somogytúr	Somogyvár	Szántód
Szegerdő	Szólád	Szőlősgyörök	Tab
Táska	Teleki	Tikos	Torvaj
Visz	Vörs	Zala	Zamárdi

Table 2: BKÜK settlements in Somogy

Source: Act CXII of 2000

Kaposvár and its surroundings are the most capable areas of development.

The development of district centres and towns focuses on breakout points which ensure to slow down or stop the declining economic conditions of the area. These include Kaposvár, Siófok, Nagyatád in the field of tourism and industry, Marcali, Tab in primary industrial development and Fonyód, Balatonboglár, Balatonlelle, Balatonföldvár, Zamárdi, Igal in primary tourism development.

The complexly targeted areas of Csurgó and Barcs need the approach of circular economy and related measures; the towns of Nagybajom and Kadarkút also belong here. Although these are situated in the district of Kaposvár, they do not belong to the gravity of Kaposvár.

Rural life quality, the complex development of border settlements target to reduce the territorial imbalances. It defines renewable energy, food, tourism, climate resilience (agriculture) as breakout points.

Classifications of the Development concept of Baranya County

According to the development concept (*Baranya County Local Government*, 2021) for 2021-2030 - in accord with the earlier definitions of development areas - the following areas are targeted with single complex programmes (*Figure 3*).

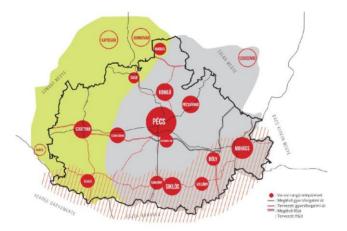
The periphery of Baranya in the western, south-west and north-west borders of the county are deprived areas to be developed under a complex development programme, including the Sellyei, Szigetvári, Hegyháti, Szentlőrinci districts, where local resources have to be taken into account. In the district centres industrial development programmes are needed.

The centre of the county and its eastern part, Pécs-Komló, Kozármisleny, Szentlőrinc, Pécsvárad, Mohács, Siklós, Harkány, Villány, Bóly are defined as a growth area, which is targeted with an economic restructuring programme.

Some developments are based on local strategies, such as the Pécs, Komló, Pécsvárad-Bóly-Mohács axis as an industrial - logistics zone, the Szigetvár-Szentlőrinc-(Siklós) agro-food and light industry axis, and the Harkány-Siklós-Villány-Mohács one as a micro destination of health-gastro-tourism. It is also evident that the Pécs-Mecsek-Szigetvár triangle is a specifically targeted one.

These two larger areas described above are basically defined by their socioeconomic and infrastructural factors. Another area that was included already in the 2013 concept of the county needs further consideration. It is a cross-county and a cross-border area including the Southern-Baranya border area (from Ormánság to Mohács) and the villages situated to the south from the Villány hills (settlements in the south of Sellye, Siklós, Mohács districts).

Figure 3: The development areas of Baranya County



Source: Baranya County Local Government (2021)

The strategic objectives are defined in seven points accordingly.

The development of local economies, creating circular economies built on the endogenous resources of the settlements. This strategy counts on local endowments and the integrated development of the local economy. Strengths of these areas can be settlements with functions of local logistics and market organizations, with (micro)regional roles, which will be further supported. It is important to develop community based energy supply systems and diverse competencies of the population through education.

In case of micro regional economies ready for sustainable growth the breakout points can be health, environment, cultural and creative, food industries, mechatronics, electronics and informatics. These areas are relatively rich in small and medium enterprises. From the point of view of tourism, the Pécs-Villány area of tourism [Government Decree of 429/2020. (IX. 14.)] is one of the 11 nationally defined areas of tourism. This includes Pécs, Villány, Harkány, Siklós, the settlements of lake Orfű and east-Mecsek landscape protection area and Duna-Dráva National Park, where the tourism related resources of the period 2021-2027 will be available.

Human resource development is a crucial point in order to meet the current and future market demands.

Social inclusion, elimination of income instability, market demanded education and equal opportunities (of public services, education and housing) are especially important development targets in the county. The social capital can be improved by integrating local communities.

The sustainable use of strategic resources includes water friendly technologies, climate resilience housing, buildings, the ensuring of environmental communal infrastructure, waste water solutions, secondary raw materials from waste, sustainable energy mix.

The improvement of mobility and availability helps create liveable and available environment, the availability of employers and services, alternative transportation.

In order to reach the status of an international growth centre, the development of transportation and border crossing are necessary in the county.

Classifications of the Development concept of Tolna County

There is an East-West demarcation (*Tolna County Local Government*, 2021) in the county (*Figure 4*). The Paksi, Szekszárdi and Tolnai districts are most developed, while the settlements further from the motorway are lagging behind. The later ones include one-third of the county (Tamási District) and the small settlements in the Dombóvári and Bonyhádi districts. New, efficient spatial development measures are necessary in order to reduce the development gap and help catching up.

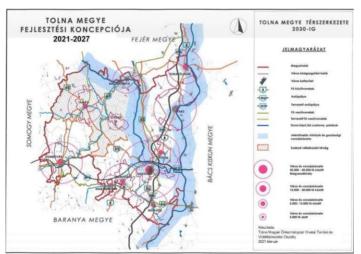


Figure 4: The development areas of Tolna County

Source: Tolna County Local Government (2021)

A special area of the county is the Közép-Duna Menti Kiemelt Térség (Central Danube Region Priority Area), where 62 settlements belong to the county (Bonyhádi district 3 settlements, the entire Paksi, Tolnai, Tamási districts: 15, 4 and 32 settlements respectively, and the Szekszárdi district with 8 settlements).

The demarcations of territorial development strategies and goals follow the administrative boundaries more closely than in the case of Somogy and Baranya Counties.

The Tamási district is a complex programme development area.

The Dombóvári district and Economic Stimulus Programme targets of Hőgyész are beneficiary areas. Catching-up settlements are Értény and Gyulaj. (Government Decree of 1404/2019 (VII.5.) Government Decree on the definition of tasks is related to the new Roma Strategy of 1426/2019 (VII.26.)

Four priorities are defined in the county concept.

Complex territorial development programmes of the county targets are the free enterprise zone (Tamási District), rhe Central Danube Region Priority Area, the recreation areas of the Danube and the Sió, the functional and social development of the settlements, and the local leading programmes.

The strengthening of the economy is based on stronger RDI potential, the development of industrial parks and logistics centres and their services, enterprise development (including sectoral approach too, e.g. tourism) the improvement of the competitiveness of agricultural production, promoting local sales, the use of social economy instruments, stronger economic and knowledge based cooperation of actors. There are county zones defined accordingly, such as the development target zones for Innovation technology, Logistics and Tourism.

Environment, energy and transportation priority covers the development of spatial availability and mobility, demand-driven community transport services, climate resilient investments, sustainable use of lands, mitigation of environmental damages, local natural resources based energy production, improvement of energy efficiency.

The society has to be targeted with formulating a demand driven vocational education and training and adult education, equal opportunities of quality education and health and social services, improved availability of public services, employment, self-employment, community development, strengthening local identity and values.

It was visible after the review of the development concepts of the three counties that the spatial development was not only planned in an uncoordinated manner, but the goal of developments was also diverse and in many cases had not defined the resources.

In this context, the formulation of the regional picture is not easy. The result of the regions' development areas is sometimes scattered (only settlements define the demarcation line for the area of development), sometimes fits into administrative micro regions butmany times does not, and there are also larger areas defined to meet specific development aims (axis, core and peripheral areas).

RESULTS AND DISCUSSION

The definition of the development of micro regions in the South Transdanubian Region was based on county development concepts and the classifications named in these documents. Due to the fact that the county concepts follow the classification of the areas in a multifaceted way, there are geographic, law-determined and sectoral categories as well in the results (*Figure 5*).

The final classification indicates either single, in many times dual or even multifaceted development objectives at settlement level - depending on how many kinds of development areas the given settlement belongs to. Due to the above mentioned, labelling is also complex, our intention was to show how diverse the development goals were within the region and also to indicate those areas that could be handled as uniform despite belonging to different administrative areas.

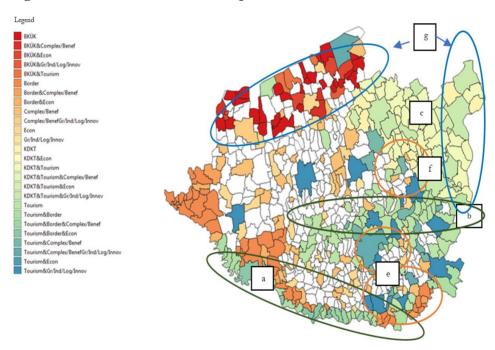


Figure 5: The classification of development areas in Southern Transdanubia

The complex picture of South Transdanubia is colourful, most of the settlements are targeted with tourism development projects. They can be found (green-to-blue colours) a along river Drava and b along the Zselic - Mecsek - Gemenc zone in East - West direction and c) on a large area of Tolna county. Either to the North or South of *zone b*, the majority of the settlements are not dedicated to specific development objectives. Exceptions are the administrative centre town of Baranya and some of the centre towns of the districts with a limited number of neighbouring settlements. Settlements with tourism related development objectives mentioned in the Tolna County Concept seems to be dedicated to this objective if other local resources are not available for almost all of the county's territory, or in the area of the Danube zone.

The above mentioned area of settlements with administrative centre roles and some further settlements in the border zone form some cluster-like areas (e) in the middle and on the crescent of the southern-west part of Baranya. Innovation is also

a priority field here. The settlements targeted with economic development in Tolna (f) also seem clustering, but in a much smaller area than in Baranya.

In Somogy, there are only a few settlements that are considered as targets of economic development through implementing industrial programmes (darker blue). These are district centres and the capital of Somogy, which do not define clusters. In the zones of Balaton and the Danubethe settlements are eligible for further specific programmes (g).

It has been found that 291 settlements have not been targeted by the county concepts at all. Further 177 ones are classified as deprived areas either for their peripheral situation or because of their underdevelopment status by law (*Table3*). 62 settlements are named as ones to be targeted with either economic development programmes or classified as growth zones.

Cable 3: Number of South Transdanubian settlements targeted with sing	gle
or mixed development objectives	

Development objectives	Number of settlements
Not specified	291
BKÜK	28
BKÜK+Complex/Benef	3
BKÜK+Economic	5
BKÜK+Growth/Ind/Innov/Logist	1
BKÜK+Tourism	3
Border	43
Border+Complex/Benef	6
Border+Economic	3
Complex/Benef	55
Complex/Benef+Growth/Ind/Innov/Logist	1
Economic	32
Growth/Ind/Innov/Logist	1
KDKT	10
KDKT+Economic	1
KDKT+Tourism	33
KDKT+Tourism+Complex/Benef	8
KDKT+Tourism+Economic	2
KDKT +Tourism+Growth/Ind/Innov/Logist	8
Tourism	60
Tourism+Border	22
Tourism+Border+Complex/Benef	4
Tourism+Border+Economic	5
Tourism+Complex/Benef	14
Tourism+Complex/Benef+Growth/Ind/Innov/Logist	3
Tourism+Economic	1
Tourism+Growth/Ind/Innov/Logist	13

The latter category consists of 26 settlements, which are either growth, industrial, innovative or logistic centres according to the development concepts. Tourism is a value and may be an outbreak point in 176 settlements.

There is a definite difference between the county concepts in terms of defining the territory of development zones - Somogy tends to set the centres as targets of development and expects the neighbourhood to get pulled by its centres, while in case of Baranya the zones of development consist of a couple of surrounding settlements. Tolna is found to lack both concepts, large parts of its territory are generally targeted or classified as to be developed - mostly in a complex way, and we could not see bigger cities with specific programmes (e.g. built on local resources). Both in Tolna and Somogy, the development concepts emphasise the lagging behind areas of settlements.

CONCLUSIONS

Our findings match some earlier studies on the spatial structure of the development in the South Transdanubian Region. Having analysed the small towns' role in regional development *Horeczki* (2014) illustrated two types of outlook for them: those with little economic role; and another group that has individual product or service, which may be a breakout point. *Jarjabka & Balogh* (2019) named environmental industry and health industry as breakout points through better circumstances for innovation, which was also reflected in the county concepts (especially that of Baranya county). The innovation based economic reform in the region was approached by a model for comparing economic policy scenarios in support of the S3 strategy in the 2014-2020 period (*Polónyi-Andor et al.*, 2020). However, the (small) cities' capabilities for development or for playing central role in the development of micro regions are not clear (*Horváthné et al.*, 2017) and may not be maintained if considering the perforated spatial structure of the region (*Máté et al.*, 2017).

The threat to the development of rural areas due to the shrinking medium sized cities must be addressed. Our review and classification of the Southern Transdanubian settlements adds the value of the multifaceted approach through the application of the county development concepts.

The research is possible to be extended with the analysis of the effect of available local resources in order to understand and evaluate the reasonability of local resource based development in the region. It may also reflect on the gaps of planning at administrative regional level versus locally available resources, local capital elements.

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