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# The Rural of the Sub-carpathians between Jiu Valley and Cerna Valley. Spatial Qualitative Demographical Aspects Involved in Development

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The rural area of the Sub-carpathians between Jiu Valley and Cerna Olteţului maintains in the last 10 years a high qualitative human capital, without major spatial disparities not only from the point of view of education, health state but also as the infrastructure that supports them is concerned, fact that maintained the general level of economical and social development usually to high levels, without major depopulation or evident settling in the rural areas, which might be put to an incipient finding of a personal functional formula for development and for a social rural life. The spatial and correlative analysis of the different elements involved in development emphasized a series of significant correlation between education, health, infrastructure and demographic growth. The distance from the important administrative and urban centers, the number of population employed in the services sector, and so on, those succeed in a satisfactory way in explaining the specific spatial distributions.

The Sub-carpathians between Jiu Valley and the Cerna Olteţului, with an obvious distribution of the depressions and hills under the form of two parallel chains with the mountainous border, with depressions used almost in totality as agricultural fields and the forest areas reduced to the tops of the surrounding hills and the contact with the mountainous border, are well humanized. The depressions communicate both laterally and transversally, the settlements being placed on the terraces of the rivers, on the glacises and on the top of the piedmonts and rarely (settlements with small dimensions) in the hilly regions (the Bran Hill and the internal ones), that are difficult to be accessed, with less favorable land for the organization of the settlements and with the ground-water layer situated at greater depths. Those spaces reflect themselves into the discrepancies (figure 1) under different aspects involved in development, appeared between the areas in these hills with extended administrative dimensions (Dăneşti, Scoarţa) and the ones situated at the limit of the hills and inside the corridors (Bălteni, Țicleni, Cărbuneşti).

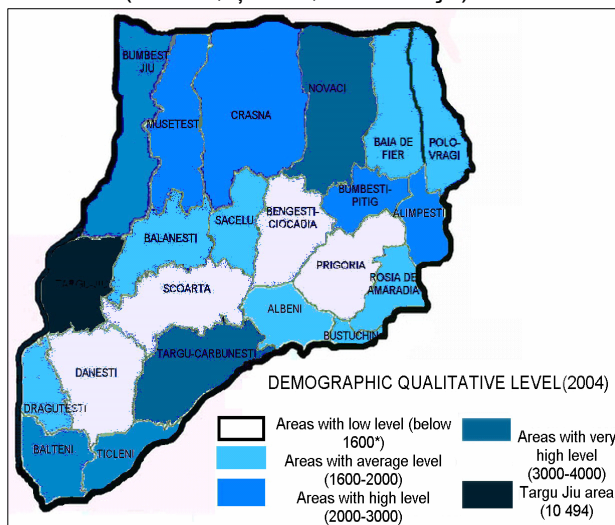


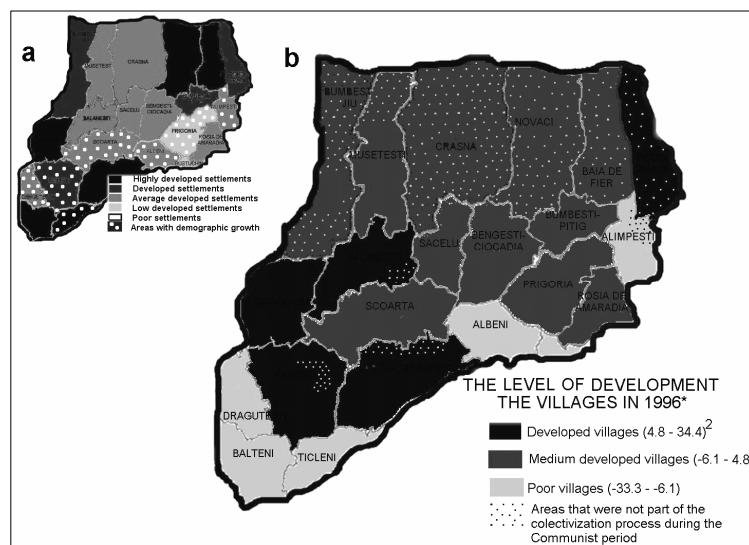
Figure 1. The Getic Sub-carpathians between Jiu and Cerna Olteţului valleys. Demographic qualitative level (2004).

The exception is represented by Bechenilor Hills that despite the greatest heights are highly humanized.

The population of the region, initially working in a vast majority in agriculture, passing through the process of the decrease to a third of those working in agriculture in favour of industry, turns towards the same main activities in less than 50 years.

From 1996 to 2004, only the southern border (except Roşia de Amaradia and Târgu Cărbuneşti) maintains

a positive demographic growth (figure 2 a), representing the more evident rural areas. The northern area, with main longitudinal transport axes, as well as the influence area of the towns follows the national tendency (the most evident tendency of depopulation being undergone by Bengești Ciocadia, this situation may be explained by its position from the main urban centres and high rate of the poor gypsy population).

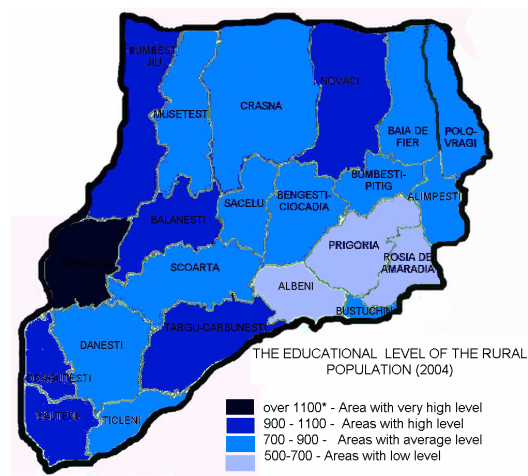


**Figure 2. The level of development regarding the villages in the Getic Sub-carpathians between Jiu Valley and Cerna Oltetului Valley in 2002 (a), respectively 1996\* (b).** The demographic qualitative index was obtained as a weighting sum of the education degree, the number of inhabitants (per 1000) employed in the services sector (multiplied by 10), the demographic quality maintenance index (multiplied by 10), the number of the telephone subscribers per 1.000 inhabitants and child death rate with negative value (multiplied by 10). The demographic quality maintenance index was obtained through the weighting sum of the number of doctors (to which the value 5 was given), the number of dentists (value 5), the number of medical staff with medium education (value 2), number of the teaching staff (value 1) - all per 1.000 inhabitants, with the presence of the following endowments: hospital (value 20), pharmacy (10), medical units (5), dental offices surgery (3). The education index was obtained as a weight sum of the number of

persons who graduated each study level per 100 inhabitants the sum of the products between the scores corresponding to each study level, respectively 17 for long study higher education, 15 for short time higher education and post high-school education, 12 for high-school education, 10 for vocational school and 10 grades graduated, 8 for secondary school education and 4 for primary school education and the number of inhabitants in a village who graduated from each level per 100 inhabitants).

For the last 15 years, the same northern border has not properly made the most of the economical capital it possessed when the political system changed taking into consideration that these areas were not collectivized (figure 2 b) and that, as a consequence, in 1989 they represented “the middle class of that society...They were another “country”, another economy, that traded with the communist Romania” (Gorun, 2004, 30).

If in 1996, they were situated as a whole into the developed level, the evolution until 2002 was differentiated depending on the development formula and rate (figure 2 a), for Mușetești and Crasna, the education level of the population (figure 3) representing a possible explanation, in general, for the studied area, the correlation between the two aspects being proved.



**Figure 3. The level of education in the villages from the Getic Sub-carpathians between Jiu Valley and Cerna Oltetului Valley in 2004.** In order to render the level of development in 1996, we used the situation presented at national level by Sandu, 1999. In order to present the development level in 2002 the national situation presented by Sandu, 2005 was used, with the following adjustments: for the DEVCOM values: between -2,24 and -0,21 poor settlements, between -0,21 and 0 low level settlements, between 0,01 and 1,12 average developed settlements, between 1,12 and 2 developed settlements, between 2 and 4,42 highly developed settlements.

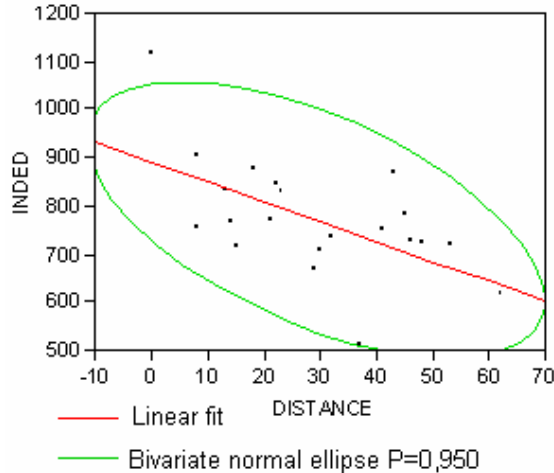
The areas administratively distributed to the towns present high natural values for both education<sup>1</sup> and the more complex demographic qualitative index. At the opposite pole, the settlements situated far from a large enough administrative and urban centre of the county,

<sup>1</sup> Although, at least for the education level, that had as basis the data from the 2002 census the calculi for the rural settlements belonging to the towns which were made for the rural area only excluding the urban.

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given the road network configuration, present the lowest values (Albeni, Prigoria and Roşia de Amaradia for education, Prigoria presenting the lowest value for the demographic quality index unlike Albeni and Roşia, which with a higher share of the population employed in the services sector, make this index to vary slightly).

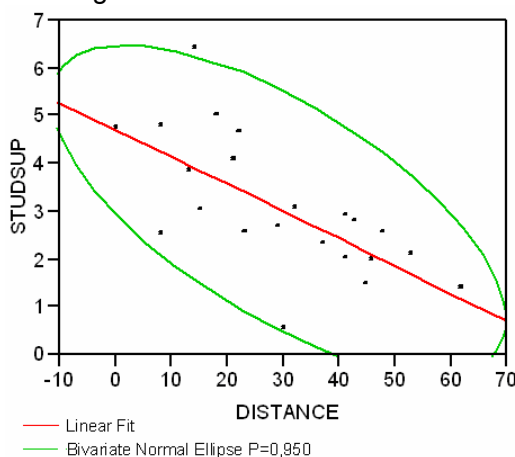
The index, which renders the level of development, used by Sandu for 1996 was DEVCOM3 obtained as factorial score between UMANCOM<sup>2</sup>, QLIFE and INFRAS.



**Figure 4. The variation of the education index\* in relation to the distance\*\* from Targu Jiu in the Sub-carpathians between Jiu Valley and Cerna Oltetului Valley in 2004.** The education index was obtained as a weight sum of the number of persons who graduated each study level per 100 inhabitants- the sum of the products between the scores corresponding to each study level, respectively 17 for long study higher education, 15 for short time higher education and post high-school education, 12 for high - school education, 10 for vocational school and 10 grades graduated, 8 for secondary school education and 4 for primary school education and the number of inhabitants in a village who graduated from each level per 100 inhabitants).  
\* for the value of the index, see the way of obtaining it.  
\*\* distance in km.

Thus, in general, the spatial analyses verify for this Sub-carpathian area “the idea of the geographers and of the sociologists who claim that “the road makes social life” (Sandu, 2005, 137), and also the fact that the distance to the next 30.000 inhabitants town and other bigger towns (for the case studied, only the town of Târgu Jiu – 96.239 inhabitants in 2004) is involved in the development indices distributions (figure 7 and table 1).

Development correlates at the threshold of 0,01 with the population employed in the services sector and at the threshold of 0,05 with the number of telephone subscribers per 1000 inhabitants. The education level is explained by the distance to Târgu Jiu, (figure 7 and 4) the population employed in the services sector, by the number of telephone subscribers per 1.000 inhabitants and by the demographic quality maintenance index; the medical services, the medical staff and the teaching staff available per 1.000 inhabitants - all significant at the threshold of 0,01 (table 2) - being taken into consideration. A reverse correlation has to be emphasized, at the threshold of 0,05, of the child death rate with the number of secondary school graduates.



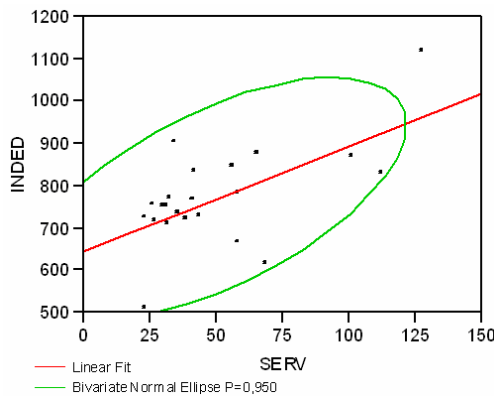
**Figure 5. The variation of the upper studies graduates in relation to the distance to Targu Jiu in the Sub-carpathians between Jiu Valley and Cerna Oltetului Valley in 2004.**  
\* in % .  
\*\* distance in km.

In particular, the attention is drawn by the fact that analyzing at the component villages level in this sector of the Sub-carpathians, in no case the demographic decline in the last 10 years was accompanied by the absence of building new households (as a matter of fact, the correlation between the households construction and the demographic growth is situated at the threshold of 0,05) is emphasized.

<sup>2</sup> UMANCOM obtained as a factorial score, multiplied by 100, for the set of indices referring to the education stock of the rural population (EDSTOCK), the number of employees in the village enterprises and the amount of population working in agriculture in 1992, at the date of the last census. The education stock was estimated as a weight mean for which we used the scores :16- higher education graduates, 12 secondary school and post high school graduates, 10 vocational school graduates, 8 secondary school graduates and 4- primary school graduates or without graduation. The proportions are given by the number of inhabitants of the village corresponding to the respective education sector. QLIFE considered being higher as the child death rate and the out migration go lower, and for calculating QLIFE the birth rate is also taken into consideration. INFRAS- the factorial score of the variables: mean habitation area per household in the village in 1996, number of telephone subscribers per 1,000 inhabitants (1996) and the concentration degree of the population at the village level (Sandu, 1999, pp 186-187).

Blahnița de Sus village, hardly accessible and situated far from both Târgu Jiu and the main village centre, totalizing 50 households registered only one household built between 1996 and 2002.

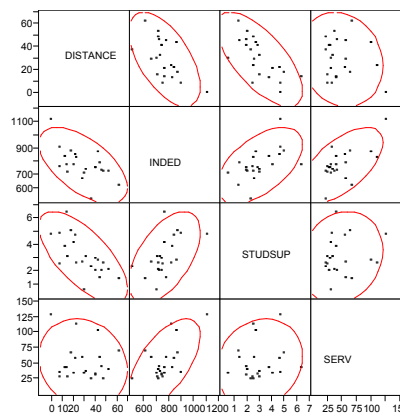
Not only should the quantitative aspect be noted, but also the qualitative one, Cordoș (et al., 2002, pp. 117-118) in an observation regarding “the self development of the rural” mentioned that “without consulting architecture or sociology works the village inhabitants made interesting constructions as a synthesis of several local traditions and modern urban architecture... in the sub mountainous area (Gorj, Vâlcea) that continue with the most modern constructions the national tradition of Brâncoveanu”, the successful outcome identified in Maramureș only.



**Figure 6. The variation of educational level\* of the population in relation to the population involved in the service sectors\*\* in The Sub-carpathians between Jiu Valley and Cerna Oltetului Valley in 2004.**  
\* for the value of the index, see the way of obtaining it.  
\*\* in %.

At the other end, far from the administrative centre of the county (and the only town with over 30.000 inhabitants), having a peripheral position in the area studied (with a low development index) there is the Bustuchin village that present the highest percentage of new households for the given period – 12,34% (higher than the one of several areas belonging to the suburban space of Târgu Jiu - Iezureni- 9,33%, Drăgoieni – 5,78%, but not the case of Românești – 16,00%, the highest value in the area of reference). This settlement that before 1989 aspired to the title of urban settlement, developed on the existing hydrocarbon resources, “exploited” naturally and “artificially” after 1990 for a long period of time.

The results of a study regarding the social space in the transition period (Sandu, 1999), study directed towards the specificity of the trust level (interpersonal, inter-group and institutional) for the historical regions highlighted very expressively interesting aspects for the region studied, aspects worthy of interpreting taking into consideration the importance and implications of trust in development.



**Figure 7. The correlation matrix between distance and some elements implied in social development (a) and its participation in explaining them (b).**

Although in general, a strong heterogeneity of trust culture was encountered inside the other historical regions, the insertion of the status variables into the analysis led to the considerable decrease if not disappearance of the dependence of trust phenomena on the development level of the county and on the historical region, so that very few regions in the country keep a particular feature of regional trust culture, Oltenia stands out (as one of the two areas) both by the highest level of interpersonal and inter-group distrust (for the last aspect, Gorj-Vâlcea recording higher values than the southern half) and by establishing the generalized distrust model at interpersonal and inter-group level and this independently from the familial or area poverty level (idem, 1999, 84 - 96).

**Table 1. Scatterplot Matrix:**  
a. Principal Components/Factor Analysis.

EigenValue	Percent	Cum percent
2,4077	60,193	60,193
1,0462	26,154	86,347
0,3284	8,211	94,558
0,2177	5,442	100,000

b. Principal Components: on Correlations.

Eigenvalues				
DISTANCE	-0,52295	0,40947	0,63372	0,39655
INDEXED	0,57559	0,25471	-0,16478	0,75939
STUDSUP	0,51497	-0,41071	0,74695	-0,09048
SERV	0,36060	0,77380	0,11536	-0,50783

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Table 2. The correlation between the main demographic elements involved in development in the Sub-carpathians between the Jiu Valley and the Cerna Olte-ului Valley in 2004.

Indicators	Development (2002)	Distance (to Târgu Jiu)	Constructions/Buildings/Houses	Demographic growth rate (1996-2004)	Education level	Child death rate (2001-2004)	Demographic qualitative index (2004)	Index of demographic qualitative maintenance (2004)	Secondary school graduates (%)	High-school Graduates (%)	Colleges and short term higher education (%)	Long term higher education (%)	TV subscribers (2004) (%)	Population employed in services sector (2004) (%)
Development (2002)	1,00	-0,180	0,069	-0,039	0,540**	0,507*	0,486*	0450*	0,183	0,687**	0,413	0,669**	0,453*	0,561**
Distance (to Târgu Jiu)	-0,180	1,00	-0,200	-0,027	-0,561**	-0,215	-0,418	-0,418	-0,029	-0,375	-0,641**	-0,344	-0,625**	-0,203
Constructions/Buildings/Houses	0,069	-0,200	1,00	0,455*	0,126	0,181	-0,022	-0,012	-0,089	0,377	0,249	-0,011	-0,163	-0,077
Demographic growth rate	-0,039	-0,027	0,455*	1,00	-0,104	0,066	-0,015	0,011	-0,068	-0,077	0,088	-0,093	-0,318	-0,061
Education level	0,540**	-0,561**	0,126	-0,104	1,00	0,029	0,755**	0,706**	0,589**	0,848**	0,549**	0,735**	0,571**	0,616**
Demographic qualitative index	0,486*	-0,418	-0,022	-0,015	0,755**	-0,001	1,00	0,992**	0,525*	0,573**	0,338	0,654**	0,400	0,766**
Index of demographic qualitative maintenance	0,450*	-0,418	-0,012	0,011	0,706**	0,000	0,992**	1,00	0,481*	0,540**	0,337	0,641**	0,365	0,689**
Secondary school graduates	0,183	-0,029	-0,089	-0,068	0,589**	-0,454*	0,525*	0,481*	1,00	0,307	-0,015	0,252	0,140	0,813**
High-school graduates (%)	0,687**	-0,375	0,377	-0,077	0,848**	0,237	0,573**	0,540**	0,307	1,00	0,614**	0,760**	0,477*	0,450*
Colleges and short term higher education (%)	0,413	-0,641**	0,249	0,088	0,549**	0,316	0,338	0,337	-0,195	0,614**	1,00	0,538**	0,539**	0,153
Long term higher education (%)	0,669**	-0,344	-0,011	-0,093	0,735**	0,135	0,654**	0,641**	0,270	0,760**	0,538**	1,00	0,596**	0,435*
TV subscribers (%)	0,453*	-0,625**	-0,163	-0,318	0,571**	0,079	0,400	0,365	0,109	0,477*	0,539**	0,596**	1,00	0,294
Population employed in services sector (%)	0,561**	-0,203	-0,077	-0,061	0,616**	0,191	0,766**	0,689**	0,457*	0,450*	0,153	0,435*	0,294	1,00

\*\* Correlation is significant at 0.01 level (2-tailed).

\* Correlation is significant at 0.05 level (2-tailed).

It would be interesting to examine, in particular, what led to and when exactly the mentality turn was produced (at least for the studied area, which unquestionably, at present time makes no exception to these characteristics) in these parts of the *cellars on the hill*<sup>3</sup> and of *looms* with explicit forms of interfamilial or vicinity cooperation and with a high level of interpersonal trust in less than 100 years taking into consideration the lateness in the manifestation of such changes. We intend to answer this question in a future research.

In conclusion, in the last 10 years this area maintained the same high human capital (whose presence was noted in 1998 by D. Sandu, as being comparative with the one in the Cluj - Mureş and Arad - Bihor areas, despite the "extremely poor" infrastructure) being able to find a personal existential formula which is functional, of identity and rural life, respectively an evolution without major imbalances, dramatic depopulation and evident settling in the rural areas.

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<sup>3</sup> Until 1947 both the inhabitants of the Subcarpathians in Oltenia and western Vâlcea used to deposit the harvested wines not in the household, in the precincts of the village, but in the *cellars on the hills*, at the vineyard, these being unlocked (sometimes with minimal food resources left at hand) so that everyone could drink the wine, under the honour code not to leave the pot uncovered, and more, representing a form of interfamilial or vicinity cooperation when they didn't possess an individual one, several families exploited the same cellar. The same interfamilial or vicinity cooperation form, and following the same reasoning, was in the case of using the *looms*, these also being situated far from the households.