

## COMMUNITY AND REGIONAL POVERTY IN RURAL ROMANIA<sup>1</sup>

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Poverty is largely analyzed at individual or household level. Its measurement at community and regional levels are much less elaborated but such an approach could be of high relevance for public action policies. The paper presents the first standardized approach of community poverty as applied at commune level in Romania.

The study proposes two measures for community COMDEV and for regional poverty DEVJUD95 as adjusted to the Romanian context and the action policies of Romanian Social Development Fund RSDF<sup>2</sup>. Community poverty is defined as high probability of low private and public consumption of goods and services. Head count index of poverty and other existing measures of regional poverty are compared.

### Levels and approaches in poverty measurement

Community /regional poverty is defined by high probability of low consumption at the level of a community/regional level. "High probability" could be measured by extreme location of the reference unit toward the pole of maximum poverty on the development scale. The cutting

<sup>1</sup> The paper is based on the study I accomplished for targeting rural community poverty in Romania: Community poverty and disadvantaged groups. Study upon poverty targeting mechanisms of Romania Social Development Fund, World Bank, Bucharest, January 1998 and Community poverty in Romania rural areas Foundation for poverty alleviation by Romania Social Development Fund, WB, Bucharest, February 1998. The project officer from the Bank was Ana-Maria Sandi. She largely contributed to improving my paper.

The findings, interpretations and methodological approaches expressed in this study are entirely those of the author and should not be attributed, in any manner, to the World Bank who initially supported the study. While the project benefitted extensively from expertise of WB specialists in RSDF, the author is entirely responsible for the content of the report.

<sup>2</sup> Romanian Social Development Fund RSDF, a World Bank inspired institution for poverty alleviation, settled by the Law 129/1998. is intended to contribute to the alleviation of very severe poverty at community level, by short time actions of high impact, flexibility and transparency. Focusing on very specific and extreme cases of poverty, the fund could act as a bridge between the present situation of a quasi lack of poverty programs and the emergence of long-term effects of structural programs in the area. The targets of SDF are poor communities and disadvantaged groups. These are too broad targets to be used as such in the implementation process. Their specification is made by declared option for privileged types of intervention and for privileged spatial location of the poor. The specific interventions of RSDF are in the area of small infrastructure, social services and income generating activities. All these are specific for non-structural approach to poverty alleviation. By using them, RSDF makes explicit its nature of anti-poverty institutional arrangement, complementary to those oriented towards the structural measures of centralized nature. Beneficiaries of these types of interventions could be groups or persons with a certain poverty profile.

point on the scale for selecting poor communities could be the first quintile or a point of 'natural' break on this scale.

Communities/regions as clusters of households consume goods and services. Part of this consumption could be measured as aggregation of household consumption. Another part could not be recorded at household level as it refers to public goods/services (use of roads, churches, hospitals, public schools etc.). The ideal measure of community/regional consumption would be an aggregation of household consumption and use of public goods or public services. Representative samples of households for a large number of communities are very costly. This is the reason of **measuring community/regional poverty by synthetic indicators integrating cause, effect and content indicators** or only cause and effects indicators (Table 1).

*Table 1. Types of poverty measures*

Types of indicators	Level of poverty	
	person/ household	community /regional poverty
cause	human capital	agrorregion (see fig.2) education stock
effect	health	infant mortality migration (see fig.3) natality/fertility (see fig.4)
content	consumption income wealth	headcount rate as aggregation of hhds values public goods indicators
synthetic measures	welfare indicators integrating income, consumption and wealth (see fig.1)	integrating cause, effect and content indicators based only on cause and effect indicators (COMDEV –fig.5 and DEVJUD95 fig.6 in this paper)

The purpose of this study is mainly a methodological one, to provide basic measures of community and regional poverty as adjusted to the case of rural Romania in the 1990's. Community /regional poverty is considered in the first part as predictor of household poverty in line with approaches of Ravallion and Wodon<sup>3</sup> and in the second part as a specific social state to be measured as to favor a territorial targeting of social policies<sup>4</sup>. The proposed measured directly contributed to laying the foundation for the poverty mapping used by

<sup>3</sup> See, for example Martin Ravallion and Quentin Wodon, Poor Area or just poor people?, World Bank, June 9, 1998

<sup>4</sup> Martinn Ravallion, Reaching Poor Areas in A Federal System, The World Bank Development Research Group, March, 1998



Romanian Social Development Fund RSDF. The key applications are for rural households and communities.

### Household poverty in rural areas

Understanding household poverty is basic for a good diagnosis of community/regional poverty as a very important part of community poverty is nothing else than an aggregation of poor households. A higher probability for being poor is associated with the rural households that have a lower education stock, have very aged adult persons, own very small farms, do not have livestock and live far from the cities. The highest direct influence on rural poverty is that of low education stocks and lack of livestock. (Figure 1)

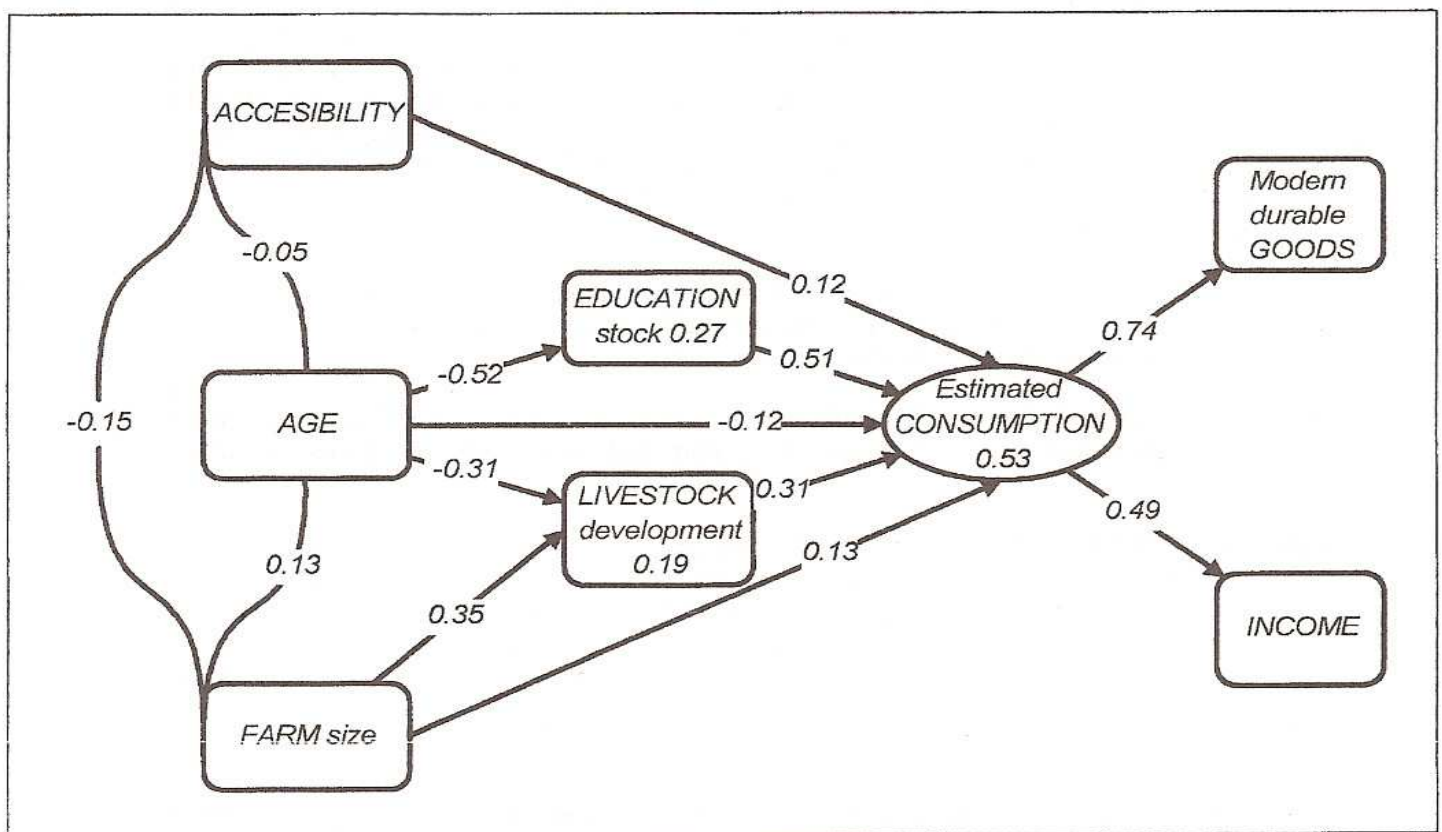


Figure 1. A path model of rural household wealth

For a description of the variables see Box 1. Figures on one headed arrows are standardised regression coefficients. Oval forms indicate latent variables whose measurement is specified in table below. Rectangles indicate manifest variables. Figures within rectangles or ovals are squared multiple correlations. Curved lines indicate standardised covariances. All the coefficients are significantly different of 0 for  $p=0.05$ . The used units of analysis are the 1650

rural households interviewed in the farm survey organised by WB and EU in Romania in 1996. For details on the random sample see Ministry of Agriculture and Food, European Comission, World Bank, Private Agriculture in Romania. Farm Survey. Bucuresti.1997.

*Box 1. Variables in the path model of household wealth*

Mean AGE of the households members of 15+ years old.

EDUCATION of the household is computed as an average number of school years per 15years old family member. The scores used for different education level are: primary school 4, gymnasium 8, vocational school 10, high school 12, university education 16. For the category other and unfinished was assigned the score 8. The principle for assigning scores was by considering for each education leve;l the maximum number of possible school years. The questionnaire recorded the completed education level.

Number of conventional cattle as an index of LIVESTOCK resources. The index is computed as a weighted average using as conversion coefficients: 1 for cows,bulls and horses; 0.75 for calves, 0.35 for pigs, 0.25 for piglets, 0.12 for sheep and goats, 0.10 for lambs, 0.04 for poultry. The coefficients are used as such in the practice of Agricultural Economics Institute of Bucuresti. Three cases having an index larger than 25 have been excluded as very severe outliers. The index has a mean of 3.08 and a standard deviation of 2.50. The distribution is significantly skewed to the right with an index of 1.90 and a standard error of the skewness of 0.06.

Modern durable GOODS is an index of modern appliances, electronic devices, or machines held by the household . Having a specific item (car, TV set bicycle etc.) is coded by 1 and not having it by 0. The index is built by the formula:

$1.5 * (\text{car} + \text{colorTV} + \text{telephone set}) + (\text{refrigerator} + \text{bicycle} + \text{motorcycle} + \text{black and white TV})$ . The higher weight of 1.5 is given to rear and more expnsive items in rural communities

Market ACCESSIBILITY (or, accessibility to a city) is measured as an inverse function of the mean distance from the surveyed commune to the nearest city and to the nearest railway station. In correlation and regression analysis, the index is used as a continuous variable, and in cross-tabulations it is used as a categorical one. The ACCESSIBILITY index is computed by using the formula

$$ACCESIBILITY = \frac{1}{\frac{DC + DR}{2}} * 100$$

where DC- distance from village to the nearest city, DR -distance from the village to the nearest railway station . Low accessibility is considered for ACCESSIBILITY<4, medium for 4< ACCESSIBILITY<12 and high for ACCESSIBILITY>12. The survey sample showed 26 percent of farms to be located in communes of low accessibility, 50 percent medium accessibility, and 23 percent high accessibility.

CONSUMPTION is a latent variable measured by GOODS and INCOME. Possession of durable goods is the most relevant indicator for the estimated level of consumption.

Very poor rural households (Table 2) live on an average farm of 1.87 ha (about 40% smaller than the average rural farm), are composed of about 2.10 persons/household. Telephone sets,



color TV sets and private cars are, practically nonexistent in this category (2% of them own these items).

*Table 2. Profile of poor and non-poor rural households*

Mean values (m) or percentages (%) for	Type of household					Total
	Very poor	Poor	Middle	Middle up	Rich	
Farm size,ha (m)	1.87	2.30	2.89	3.77	5.09	3.18
LIVESTOCK index (m)	1.37	2.32	2.86	3.34	5.26	3.03
Persons per household (m)	2.10	2.62	3.05	3.42	4.05	3.05
Age of 15+ years old membris of the household (m)	64.45	60.51	56.60	53.98	51.27	57.36
EDUCATION stock (m)	5.34	6.18	7.17	8.32	9.26	7.25
Index of modern durable GOODS (m)	0.79	1.53	2.25	3.16	4.91	2.53
Telephone set %	2	11	12	27	53	21
Color Tv set %	2	5	16	30	65	24
Refrigerator	21	43	63	84	97	62
Private car %	2	3	4	16	53	16

Data source:EU/World Bank Farm Survey. December 1996. Own computations.

The five categories of households resulted as quintiles of a wealth index<sup>5</sup> constructed with the indicators from annex figure 1. Indices of this table are defined in Box 1.

The highest concentration of rural household poverty is in Plain Moldova and the highest concentration of rural household wealth in Pasture Transilvania or in the Western Plain(Table 3)

*Table 3: Distribution of rural households by poverty level and agroregion (%)*

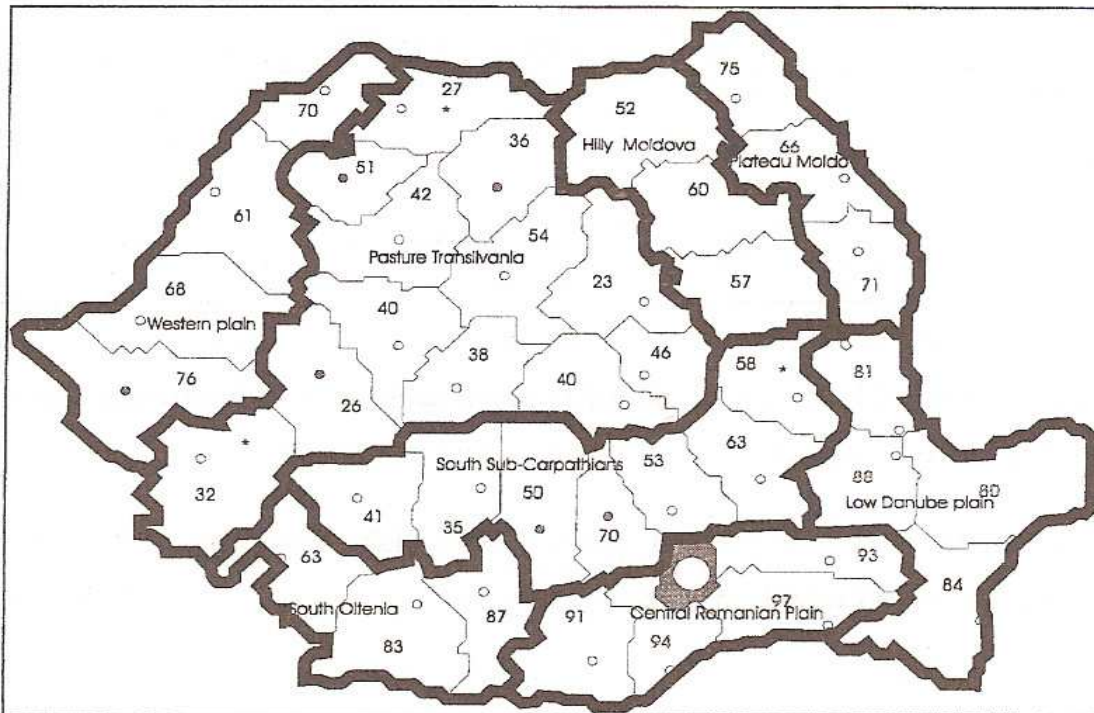
Agroregion (see fig. 2)	Type of household					Total
	Very poor	Poor	Middle	Middle up	Rich	
Pasture Transylvania	9	14	15	27	36	100
Western Plain	13	13	18	26	30	100
Central Romanian Plain	14	16	29	20	21	100
Hilly Moldova	17	25	24	21	13	100
South Oltenia	21	19	25	19	16	100
Low Danube Plain	23	19	23	22	13	100
South Sub-Carpathians	24	23	18	16	19	100
Plain Moldova	39	28	16	12	5	100

Data source:EU/World Bank Farm Survey. December 1996. Own computations.

<sup>5</sup> The wealth index is a sum of the 7 z standardised variables from box 1. The weights for each variable have been generated as factor score weights for the latent variable CONSUMPTION. The computation formula, using the symbols from the annex figure 1:

CONSUMPTION=0.39\*INCOME+0.35\*FARM+0.33\*GOODS+0.17\*EDUCATION+0.10\*LIVESTOCK+0.01\*ACCESSIBILITY-AGE\*0.01. Weights resulted from an AMOS path analysis with latent variables.

Figure 2. Agroregions of Romania



Figures on the map indicate percentage of arable out of agricultural area of district in 1995.

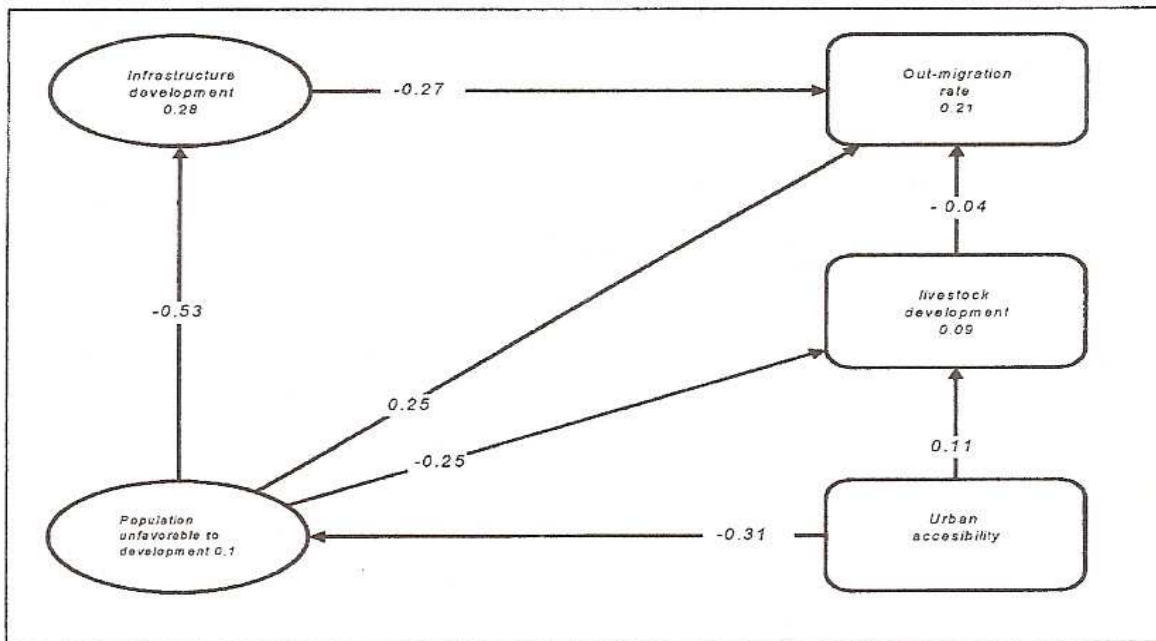
An agroregion is a grouping of districts with a similar land use pattern. They have been generated starting from a cluster analysis of the profiles of land use patterns of the 41 districts of the country.

Source: D.Sandu in Ministry of Agriculture and Food, European Commission, World Bank, *Private Agriculture in Romania. Farm Survey*. Bucuresti.1997.



## Rural community poverty as measured by demographic indicators

Out-migration rate is an example of effect indicator that is relevant for community poverty. This rate is higher for communes with poor infrastructure, aged population, high percentage or agricultural population and low economic development (Figure 3). The same is the situation with natality rate that is relevant not only for the age structure of the population but also for the economic development and modernity orientation of the population. Natality is lower in



communes that are economically developed, have a good housing infrastructure and are highly influenced by large urban communities (Figure 3).

Figure 3. A path model of out-migration rate from communes

Figures on arrows are standardised regression coefficients. Oval forms indicate latent variables whose measurement is specified in table below. Rectangles indicate manifest variables. Figures within rectangles or ovals are squared multiple correlations. All the coefficients are significantly different of 0 for  $p=0.05$ . The used units of analysis are the 2686 communes. Unless otherwise specified, all the data refer to 1994.

Table 4. Variables in the path model of out-migration from communes. 1994

Latent variable in the path model	Manifest variables used for the measurement of the latent ones	Beta for paths from latent to manifest variables
Infrastructure development	TV sets to 1000 inhabitants	0.37
	Lg of telephone sets to 1000 inhabitants	0.44
	Average living floor area per house	0.50
Population unfavorable to development	Percent of agricultural population in commune (lg.transformation)	0.75
	Percent of commune population of more than 60 years old (lg transformation).1992	0.52
	Employed population in communes enterprises to 1000 inhabitants (lg.transformation).	-0.35
	Rate of outmigration from commune 1991-1995 (log.transformation)	
	Urban accessibility	
	Livestock development index (lg.transf).	

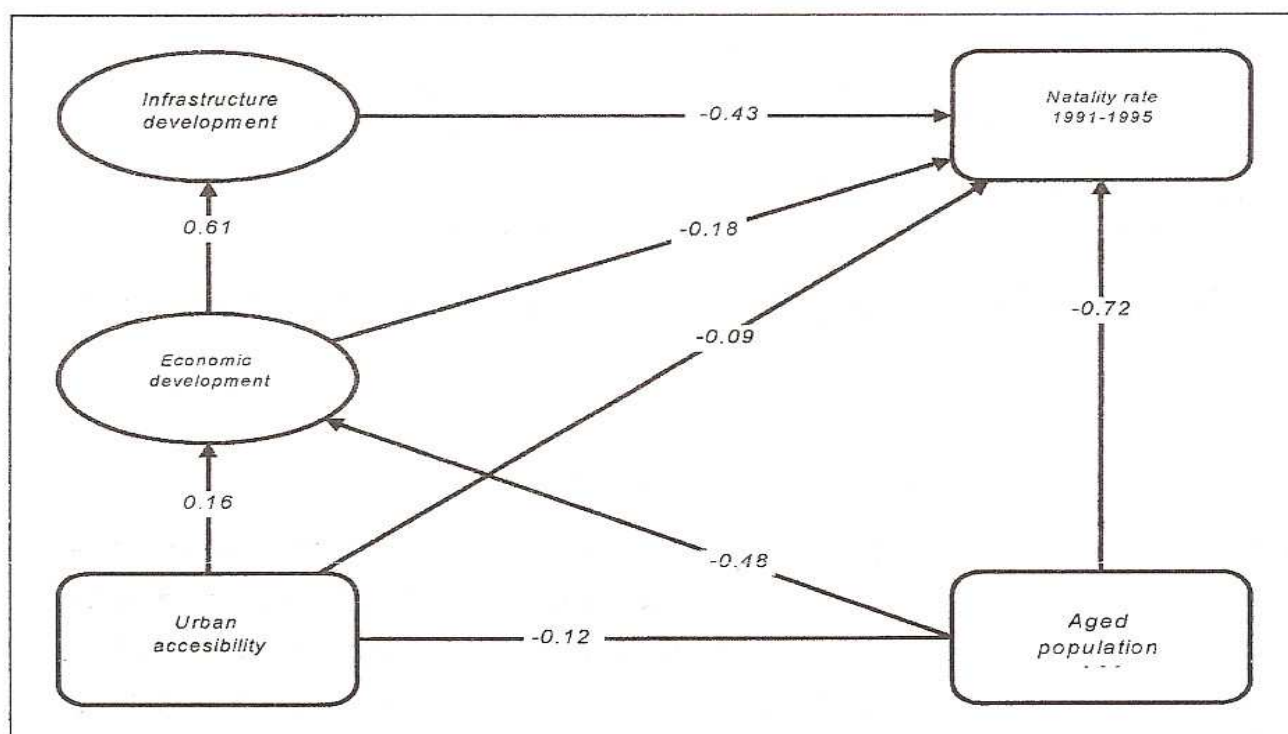


Figure 4. A path model of commune natality rate

Figures on one head arrows are standardised regression coefficients. Oval forms indicate latent variables whose measurement is specified in table below. Rectangles indicate manifest variables. Figures within rectangles or ovals are squared multiple correlations. All the



coefficients are significantly different of 0 for  $p=0.05$ . The used units of analysis are the 2686 communes. Unless otherwise specified, all the data refer to 1994.

*Table 5. Variables in the path model of commune natality rate*

Latent variable in the path model	Manifest variables used for the measurement of the latent ones	Beta for paths from latent to manifest variables
Infrastructure development	TV sets to 1000 inhabitants	0.35
	Lg of telephone sets to 1000 inhabitants	0.36
	Agerage living floor area per house	0.55
Economic development	Livestock development index (lg.transf).	0.32
	Employed population in communes enterprises to 1000 inhabitants (lg.transformation).	0.50
	Commune natality rate 1991-1995	
	Urban accessibility	
	Percent of commune population of more than 60 years old (lg transformation).1992	

For definition of manifest variables see figure 6.

### **COMDEV – a synthetic indicator of commune development**

All the previous models indicate the high relevance of demographic indicators for measuring rural community poverty in Romania. All these are partial measures of limited significance for social policy. If one wishes to target special measures for specific communes it is better to have a more complex diagnosis of its development/poverty level.

Such a measure (Figure 5) starts from the principle that community poverty is given by low values of community capital as measured by structure and phenomena indicators.

A key indicator for the commune development/poverty is the demo-economic composition of the population. The development potential is higher for areas with young and nonagricultural population. A high proportion of old population working in agriculture is frequently associated with lower average income and wealth in the commune<sup>6</sup>.

<sup>6</sup> Data for all the communes of one district in the South part of the country (Teleorman) support the idea that communes having a favorable composition for development are also characterised by higher average wealth. The rate of private cars to 1000 inhabitants (CARS) is higher for communes having a high index for the composition of the population (FAVORABLE) and a good quality of the agricultural SOIL ("bonitare"). The multiple regression equation for the 83 communes from Teleorman, using 1995 data is:  $CAR = -4.16 + 0.18 * SOIL + 0.68 * FAVORABLE$ . An increase of the favorable index by one unit is associated, on the average, with an increase of the commune rate of private cars by 0.68 units, controlling for the soil quality in the area. The FAVORABLE index was computed with the variables: SALARIED people to 1000 inhabitants, percentage of AGRICULTURAL in active population, percentage of population that graduated high SCHOOL and vocational school, percentage of 60+ years OLD population, percentage of WOMEN out of the total agricultural labor force in agriculture. After standardising the variables with the z score, value index have been computed by the formula:  $FAVORABLE = SCHOOL + SALARIED - AGRICULTURAL - OLD - WOMEN$ . These data indicate that an index of population composition is a proxy measure for the poverty of the commune.



frequently associated with lower average income and wealth in the commune<sup>7</sup>.

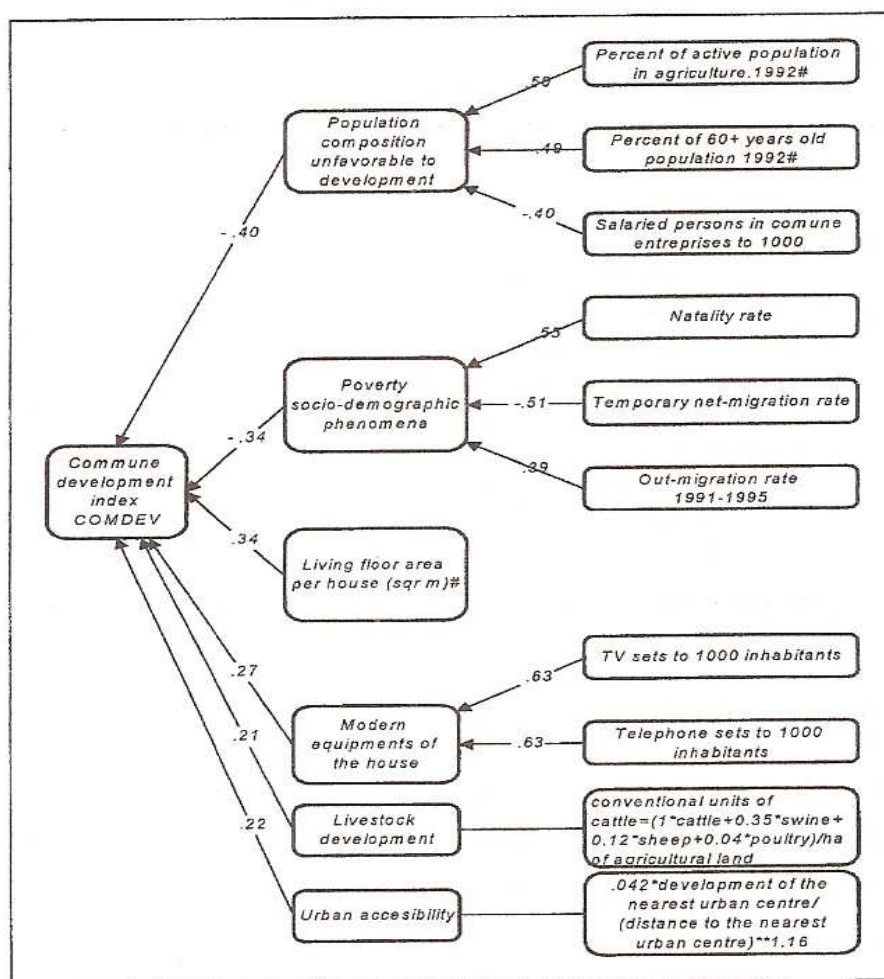


Figure 5: Criteria for assessing commune development

Figures on arrows indicate the weight of the source indicator for the target index. Weights are factor score coefficients resulted from factor analysis. Factor extraction method is principal component analysis. Unless otherwise specified, data refer to 1994. Coefficients for conventional units of livestock are used as such in Romanian agricultural research institutes. For urban accessibility index see box 2.

<sup>7</sup> Data for all the communes of one district in the South part of the country (Teleorman) support the idea that communes having a favorable composition for development are also characterized by higher average wealth. The rate of private cars to 1000 inhabitants (CARS) is higher for communes having a high index for the composition of the population (FAVORABLE) and a good quality of the agricultural SOIL ("bonitare"). The multiple regression equation for the 83 communes from Teleorman, using 1995 data is:  $CAR = -4.16 + 0.18 \cdot SOIL + 0.68 \cdot FAVORABLE$ . An increase of the favorable index by one unit is associated, on the average, with an increase of the commune rate of private cars by 0.68 units, controlling for the soil quality in the area. The FAVORABLE index was computed with the variables: SALARIED people to 1000 inhabitants, percentage of AGRICULTURAL in active population, percentage of population that graduated high SCHOOL and vocational school, percentage of 60+ years OLD population, percentage of WOMEN out of the total agricultural labor force in agriculture. After standardising the variables with the z score, value index have been computed by the formula:  $FAVORABLE = SCHOOL + SALARIED - AGRICULTURAL - OLD - WOMEN$ . These data indicate that an index of population composition is a proxy measure for the poverty of the commune.



Economic development of the commune is measured by the livestock development and by the participation rate (salaried people to 1000 inhabitants).

A series of factor models generated a complex index of commune development COMDEV as described in figure 4. The distribution of poverty values by agroregions indicate a clear regional specificity of rural poverty by agroregions. Function of the values of the global index of development COMDEV, the poorest regions are Plain Moldova, South Oltenia and Central Romanian Plain (Table 6)

## Box 2: Urban accessibility index

A commune has more chances to be developed if it is closer to a developed city. That means that distance to the nearest city and the development level of this city are the two components of the commune accessibility to urban centers (ACCES index). ACCES is a direct function of nearest city development and an indirect function of the distance between reference commune and city. To build this index the following operations have been done:

1. Measurement of the DISTANCE from the central village of the commune to the nearest city of more than 30000 inhabitants on modernised roads. If there is no modernised road linking the village and the city one considers the distance on non-modernised roads. Cities smaller than 30000 inhabitants have been considered of rather small influence on the village life. For communes in Danube Delta, without a direct road to a city the distance was considered to be equal to the largest village-city distance in the country (=140 km).
2. A development index DEVCITY for all the cities of the country larger than 30 thou. people was built by a factor score of a set of 9 indices:

	Factor score coefficients
employment in education and health to 1000 inh.	0.24
telephone sets to 1000 inhab.*	0.23
city population*	0.2
no of school halls to 1000 inhabit*	0.17
rate of temporary net migration	0.13
factor score of % modernised roads and length of swerage network/total length of the city roads	0.11
salaried people to 1000 inhabitants*	0.11
infant mortality rate*	-0.18
out-migration rate 1991-1995*	-0.18
* lg transformations to reduce the skewness	

The result of these operations is a matrix of 2686 communes by 77 cities and the entries of this matrix are the values of DEVCITY indices.

3. Estimation of the parameters in the nonlinear equation  $DEV0 = A * DEVCITY / (DISTANCE^{8.16})$  where DEV0 is the factor score for commune development with all the indices from annex figure 1, excepting accessibility. The model is built by analogy with gravity models in migration analysis. Commune development is predicted by the ratio between the development of the nearest city and the village-city distance. The resulting equation is  $DEV0 = 0.041 * DEVCITY / (DISTANCE^{8.16})$ .
4. Predicted values of DEV0 are considered as a proxy for accessibility index for each commune and are included into the computation for the index of commune development.

The three regions are by far in the worse situation from the point of view of demographic potential for development and housing characteristics.



Table 6: Development profile of communes by agroregions

Agroregion	Average value of the indices refering to commune						
	Global developm ent	Population composition unfavorable to development	Poverty socio-demogr aphic phenom ena	Endowm ent with TV and telephon e sets	Urban accessi bility	Living floor area per house	Livestock developme nt
Plain Moldova	-9.3	3.0	13.6	-2.1	-0.6	-10.3	3.5
South Oltenia	-2.0	4.6	-2.1	0.5	-0.3	-0.4	-3.8
Central Romanian Plain	-1.2	2.3	-4.8	1.9	-6.3	-2.3	-0.7
Hilly Moldova	0.0	-2.2	6.1	0.4	0.6	-0.3	4.8
Low Danube Plain	1.9	-3.8	1.8	0.6	-5.6	6.7	-1.1
South Sub-Carpathians	2.7	-3.8	-1.9	0.5	2.4	-2.9	3.8
Pasture Transylvania	4.1	-3.6	-2.3	0.3	1.8	4.3	-0.5
Western Plain	6.9	-2.9	-4.0	3.7	2.9	8.5	-0.7
Bucuresti	20.5	-18.4	-11.1	4.2	9.0	8.3	15.9

### Regional poverty

Regional level measures are less structured. The most common is a head count index HC – proportion of poor in a given community or region. Such a measure is provided for the district level by the World Bank report of 1996 Romania: Poverty and Social Policy. The disadvantage of this measure is that it ignores the public consumption of goods that is related to public infrastructure and services. In a community there is private consumption that is measured at the household level and public consumption related to the meeting of the human and social needs by the use of community infrastructure and services. The sub samples of households by districts being rather small, the margin of error for estimations is large.

There could be a direct measure of public consumption by counting the access to different services or an indirect measure by recording the extension and accessibility to services and infrastructure. The indirect measures give the probability of public consumption.

Indirect measures of consumption at the district level are reported by Regional Disparities in Romania.1990-1994 (Phare report- Regional Policy. Ramboll- Consultancy Group. Bucuresti, July 1996). District development index (DEV94) proposed by Report is based on a set of 17

indicators on economic development, infrastructure, demographic life and household level of living. GDP per inhabitant was included among the 17 indicators. Very likely errors in its measurement at the district level could have influenced negatively the validity of DEV94 .. The Bravais-Pearson correlation coefficient between HC headcount index computed by World Bank at county level and DEV94 for 40 districts, excluding Bucuresti, is of  $r=-.40$ .

The correlation of infant mortality rate, urbanization, education level and aging is much lower with HC than with DEV94. The new proposed index of development DEV95, described in the chapter on criteria for regional poverty, has also a much better external validity on measuring poverty than HC.

*Table 7. Correlations between synthetic indices of poverty and other development indicators at district level*

	DEVJUD95	DEV94	HC
DEVJUD95	1	0.94	-0.40
DEV94	0.94	1	-0.48
HC head count index.1994	-0.40	-0.48	1
Urbanisation degree.1995	0.80	0.74	-0.34
% 60+ elders.1995	-0.48	-0.46	0.06
%only primary education.1992	-0.87	-0.86	0.28
Infant mortality rate.1995	-0.49	-0.51	0.11

*As all the districts of the country, excluding Bucuresti, is included in the analysis, a significance level is not relevant for being mentioned.*

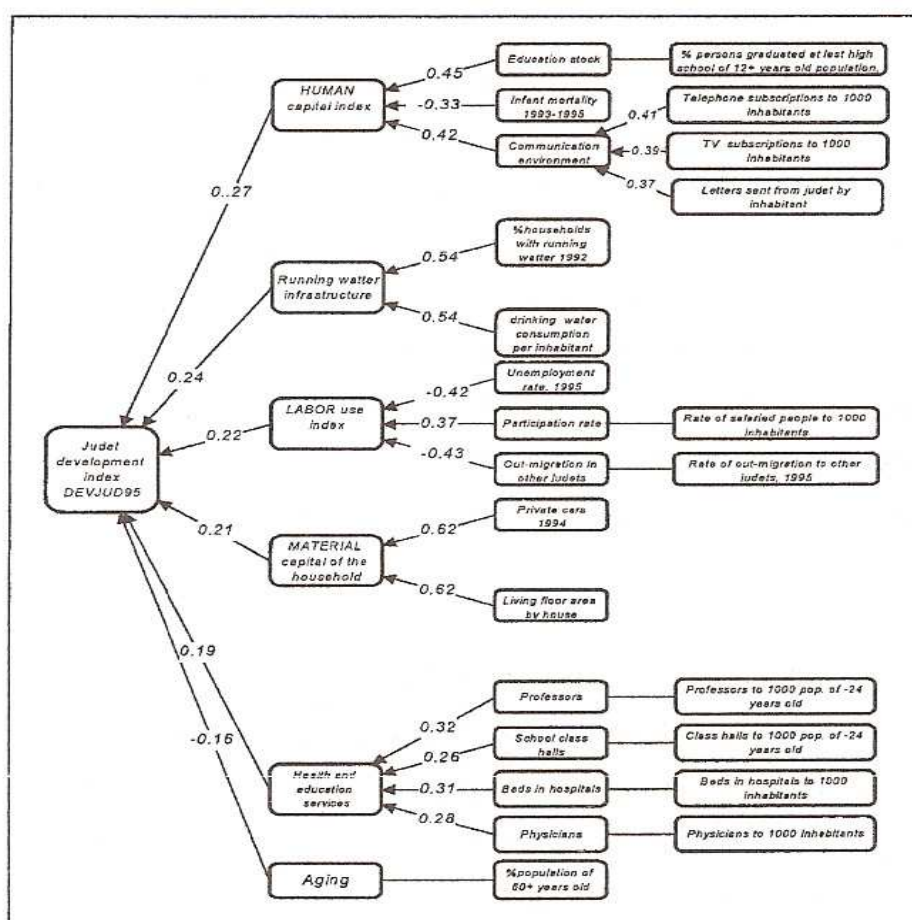
Regional and community poverty is defined by high probability of low consumption. High probability will be measured by extreme location of the districts/communes/cities toward the pole of maximum poverty on the development scale. The cutting point on the scale for selecting poor districts could be the first quintile or a point of 'natural' break on this scale<sup>8</sup>.

Low consumption at community or judet level could not be measured by head count indexes, as this index does not include information on the use of services and infrastructure as parts of the collective consumption. . Romanian Social Development Fund RSDF will work with indirect measures of consumption, by constructing an index of district development (DEVJUD95), an index of commune development (COMDEV) and another one of city development (DEVKIT).

<sup>8</sup> . For high probability of community poverty the cutting point will be the first quintile on the scale of commune development index. As the number of districts is small (41) and the number of communes is large (2686 in 1994) it is statistically indicated to adopt as cutting point the first quintile for communes and the point of natural break for districts.



Criteria for DEVJUD95 are presented in figure 6: human capital, degree of regional labor use, material capital, development of education and health services, development of running water infrastructure and regional aging. Excepting aging that is one item indicator, all the other 5 measures are indices computed by a specific procedure of aggregation (factor scores). The total number of primary indicators that constitute the input for DEVJUD95 construction is of 15. The majority of them refer to the district situation in 1995<sup>9</sup>. DEVJUD95 is a measure of regional social development. All the six indicators that are aggregated by it have a direct relevance for consumption resources and patterns. No abstract economic measure as for example industrial production or GDP<sup>10</sup> is included into the set of criteria or sub criteria. This a major difference of DEVJUD95 compared to the similar indices developed by RAMBOLL team for the foundation of regional policy in Romania.



<sup>9</sup> A 1996 version of the index could be done for the second stage of this contract if the necessary data will be available.

<sup>10</sup> Not including purely economic indicators as GDP at district level or industrial production has also a statistical advantage of avoiding weak measures that function very badly in the given context of a transition economy. In such circumstances, all the monetary expressed indicators at regional level should be considered cautiously.

*Figure 6. Criteria for assessing district development*

Figures on arrows indicate the weight of the source indicator for the target index. Weights are factor score coefficients resulted from factor analysis. Each index is a factor score generated by principal component analysis. Unless otherwise specified, data refer to 1995. Indices HUMAN and LABOR have been used previously in T.Hansen, I.Ianos, G.Pascariu, V.Platon, D.Sandu, Development Profile of Romania's Macroregions. Phare programme-Regional Policy. Bucuresti.1998.Theoretical reasons for building HUMAN are given in Dumitru Sandu, 'Human Capital in Regional Development.' Romanian Journal of Sociology. 1/1997 .

The weights for computing the district development index have been generated using the algorithm of factor analysis. The reason of accepting such a weighting is that its results are, to a large degree, consistent with the theoretical expectations upon what is more important for the social development of the judet. The maximum weight is allowed for human capital index, a measure of education stock, general information stock and health of the population in the area. The poorest districts of the country are those having the lowest values on human capital. This a clear indication of the fact that structural intervention for reducing poverty should be oriented to contribute, directly or indirectly, to the increase of regional human capital. RSDF cannot have such an impact of reducing structural poverty.

The nine poorest districts of the country (Table A3) have the lowest index of development and include up to 20% of the country population. The highest concentration of poverty is in Moldova at the level of Botosani, Vaslui, Suceava and Neamt districts. The second poverty pocket is in the south of the country, in the Central Romanian Plain and is formed by the districts Teleorman, Giurgiu, Calarasi and Ialomita. The third poverty pocket is in the South of Oltenia, at the level of Olt judet. The lowest level of development in Transilvania is for the districts Salaj and Bistrita-Nasaud.



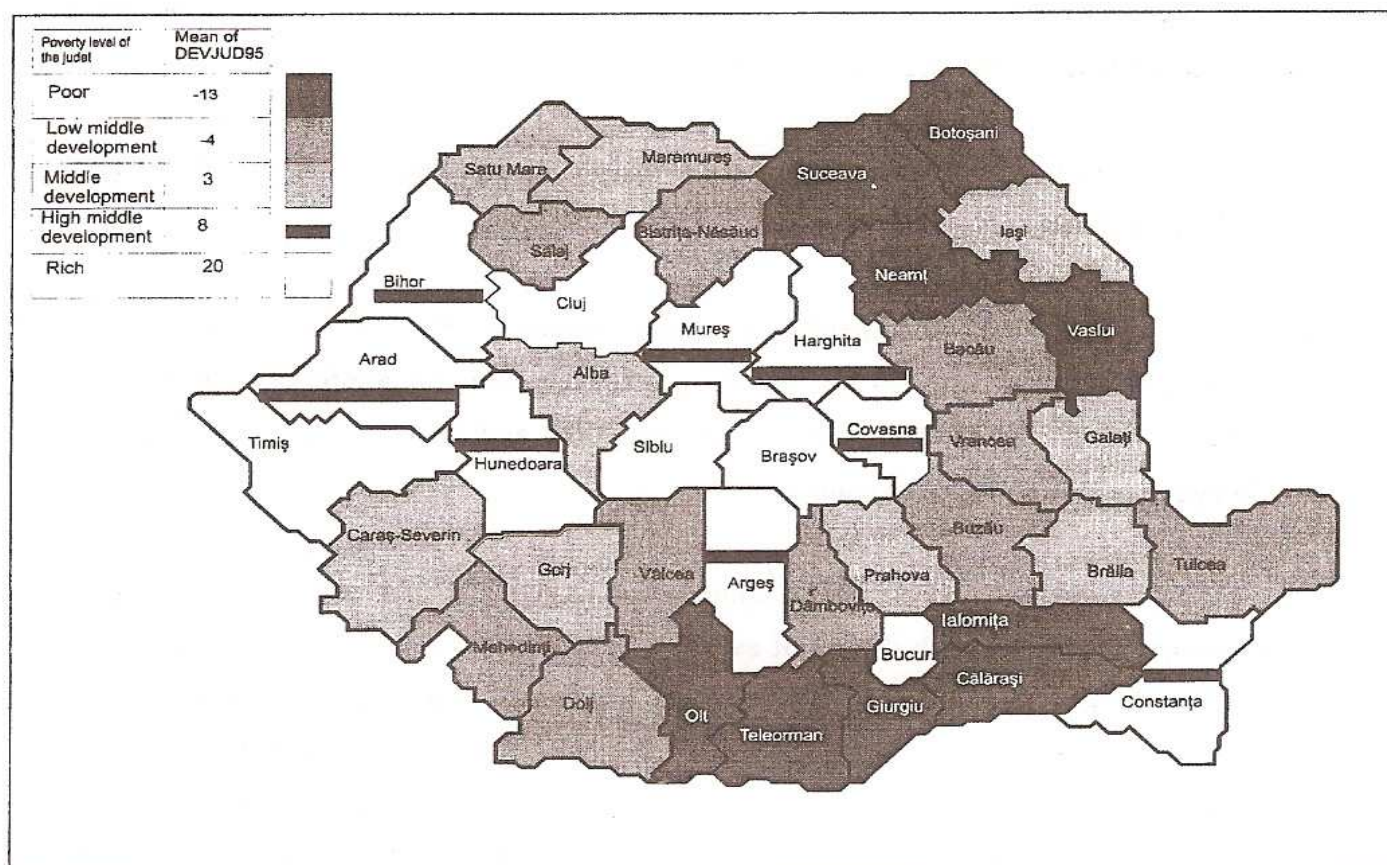


Figure 7. Districts by poverty/development level 1995  
(DEVJUD95 described in figure 6)

## Conclusions

1. Regional and community poverty is defined by high probability of low consumption. High probability will be measured by extreme location of the districts/communes/cities toward the pole of maximum poverty on the development scale. The cutting point on the scale for selecting poor districts could be the first quintile or a point of 'natural' break on this scale
2. Very poor rural households (Table 2) live on an average farm of 1.87 ha (about 40% smaller than the average rural farm), are composed of about 2.10 persons/household. Telephone sets, color TV sets and private cars are, practically nonexistent in this category (2% of them own these items).
3. Rural community poverty is highly regionalized in Romania. Agricultural regions of the country (Figure 2) are relevant for the differentiation of household consumption and for community development/poverty. Household consumption is minimum in Plain Moldova and maximum in Pasture Transylvania. Working with a community measure of poverty gives a consistent but slightly different image: the poorest

communes are located in Plain Moldova and in South Oltenia; the richer ones are in Western Plain and Pasture Transilvania.

4. General and rural poverty of the country is mainly concentrated in the poverty pockets of East Moldova and South Plain.
5. Rural community development is clearly influenced by commune location, its population composition and agricultural profile. The poorest communes are far from cities, inhabited by old and agricultural population and practising in a lesser degree livestock agriculture( see Figure 3).
6. The two proposed measures of community COMDEV and regional DEVJUD95 development have a high degree of external validity. They are built on the hypothesis that community/regional capital could be indirectly measured by infrastructure, employment, education and demographic indicators. These are synthetic measures integrating cause , content and effect phenomena of poverty. The efficiency in measuring community and regional poverty without including household consumption variables is relevant for the fact that territorial poverty is to a high degree function of public goods and could be well estimated by integrating them with effects of deprivation of private and public goods.
7. At social practice level, the poverty of the district started to guide the actions of Romanian Social Development Fund in two ways. First of all, districts declared as poor (see Table A3) will benefit by the action of facilitators to a better targeting of interventions by diagnosis of the needs and stimulating community actions for getting funds from SDF. Secondly, the poverty score of the district will be input for computing the project score for appraisal in the selection process.



## Annex

Table A 1. Districts by the index of development 1995, 1994, 1990

	Index of district development , DEVJUD95	Rank of district development DEVJUD95	Rank of development		Cumulated percent of population 1995
			1994	1990	
Botoşani	-18.4	1	2	1	2.0
Vaslui	-17.6	2	3	3	4.1
Teleorman	-16.4	3	5	6	6.2
Giurgiu	-14.6	4	1	2	7.5
Calarasi	-13.1	5	4	5	9.0
Ialomiţa	-10.6	6	7	4	10.3
Neamt	-10.6	7	9	9	12.9
Suceava	-9.0	8	6	7	16.0
Olt	-8.9	9	11	13	18.3
Buzău	-7.5	10	15	14	20.6
Vrancea	-7.4	11	8	8	22.3
Damboviţa	-4.7	12	14	10	24.8
Bacău	-4.5	13	17	16	28.1
Bistriţa-Năsăud	-4.4	14	13	11	29.5
Mehedinţi	-3.3	15	12	17	31.0
Valcea	-3.3	16	21	22	32.9
Sălaj	-3.1	17	10	12	34.0
Dolj	-2.7	18	23	21	37.4
Tulcea	-2.0	19	16	15	38.6
Galaţi	1.2	20	24	23	41.4
Gorj	1.6	21	25	24	43.1
Brăila	2.2	22	34	30	44.9
Iasi	2.7	23	18	20	48.5
Maramures	2.7	24	19	18	50.8
Prahova	3.0	25	30	32	54.7
Satu Mare	3.2	26	20	19	56.4
Alba	3.7	27	27	28	58.2
Caraş-Severin	4.8	28	22	26	59.8
Harghita	5.1	29	26	25	61.4
Bihor	6.0	30	28	27	64.1
Hunedoara	7.3	31	31	35	66.6
Covasna	7.3	32	29	29	67.6
Mureş	7.8	33	36	36	70.3
Argeş	8.4	34	32	34	73.2
Arad	8.7	35	33	31	75.4
Constanţa	12.1	36	35	33	78.7
Sibiu	16.3	37	37	37	80.6
Brasov	17.5	38	38	38	83.4
Timiş	20.0	39	40	40	86.5
Cluj	20.5	40	39	39	89.7
Bucuresti					100

Classification for 1995 is based on criteria presented in fig.6 and is the result of analysis in this report. Classifications for 1990 and 1994 are from Regional Disparities in Romania, Phare programme- Regional policy. Ramboll Consultancy Group. Bucuresti, July 1996. Indices of classification are different for 1995 compared to 1990 and 1994.

Table A 2. Districts by the index of commune development COMDEV

	Average index of communes development 1994	Index of district development , DEVJUD95	Percent of communes in the district in the	
			First quintile (poverty)	Fifth quintile (development)
Vaslui	-13.3	-17.6	83.	0
Botoşani	-11.8	-18.4	81	0
Iasi	-5.0	2.7	59	8
Teleorman	-4.4	-16.4	33	1
Mehedinţi	-4.3	-3.3	39	3
Olt	-4.1	-8.9	32	5
Galaţi	-2.7	1.2	43	9
Vrancea	-2.0	-7.4	20	7
Sălaj	-1.7	-3.1	33	9
Valcea	-1.6	-3.3	27	14
Ialomiţa	-1.2	-10.6	16	8
Bacău	-0.9	-4.5	27	10
Neamt	-0.5	-10.6	21	14
Buzău	-0.3	-7.5	25	12
Calarasi	0.8	-13.1	15	8
Dolj	0.8	-2.7	20	11
Suceava	1.0	-9.0	7	20
Cluj	1.0	20.5	35	15
Gorj	1.1	1.6	11	14
Alba	1.3	3.7	21	15
Giurgiu	1.7	-14.6	11	15
Bistriţa-Năsăud	2.3	-4.4	17	25
Brăila	2.4	2.2	0	13
Maramures	2.4	2.7	5	25
Caraş-Severin	2.5	4.8	16	25
Argeş	2.7	8.4	17	23
Satu Mare	3.4	3.2	4	32
Bihor	3.8	6.0	2	16
Tulcea	4.9	-2.0	2	28
Covasna	5.2	7.3	0	33
Damboviţa	5.3	-4.7	3	26
Constanţa	5.5	12.1	6	23
Harghita	5.9	5.1	4	29
Mureş	6.1	7.8	6	26
Hunedoara	7.7	7.3	11	43
Sibiu	8.2	16.3	2	43
Prahova	8.6	3.0	6	38
Arad	9.4	8.7	0	46
Brasov	11.0	17.5	0	47
Timiş	11.4	20.0	6	53
Bucuresti	20.5		0	79



Table A 3 District' classification by poverty level. 1995

	Poor districts	Middle-low development districts	Middle development districts	Middle-up development districts	Rich districts
	Botoşani	Buzău	Galaţi	Harghita	Sibiu
	Vaslui	Vrancea	Gorj	Bihor	Brasov
	Teleorman	Damboviţa	Brăila	Hunedoara	Timiş
	Giurgiu	Bacău	Iasi	Covasna	Cluj
	Calarasi	Bistriţa-Năsăud	Maramures	Mureş	Bucuresti
	Ialomiţa	Mehedinţi	Prahova	Argeş	
	Neamt	Valcea	Satu Mare	Arad	
	Suceava	Sălaj	Alba	Constanţa	
	Olt	Dolj	Caraş-Severin		
		Tulcea			
Mean score of development DEVJUD95	-13	-4	3	8	20
Poverty score	5	4	3	2	1