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AGRICULTURAL GROWTH POTENTIAL OF RURAL COMMUNITIES FROM THE PLAIN AREAS – ROMANIA

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Abstract

The present paper has as main objective to design a development index to capture the agricultural potential of a rural community. The main working hypothesis is that there are rural communities where the development/diversification of farming activities can be supported both by the existence of certain endogenous natural and human resources and by the productive behaviour of household heads. The paper presents an aggregation model of certain agricultural indicators impacting both the farming sector and the development of rural communities. The focus is laid only on the agricultural indicators that describe the potential (resources) of a given area or only on the result indicators (average yields per hectare, LLU, etc.); it also develops an assessment model of the agricultural activities that takes into consideration the indicators from these two categories.

Key words**:** *agricultural activities, rural communities, rural development, agricultural development index*

INTRODUCTION

In Romania agriculture represents an activity with strong economic and social influences, the agricultural sector polarizing the labour force, the economic activities, the infrastructure and the natural resources from the rural area [1].

The need to develop an agricultural development index appeared from the necessity to evaluate and hierarchize the agricultural potential of pilot rural communities from the investigated area.

The development of an agricultural development index for a rural community is also useful for the orientation of those communities in order to develop the farming sector by adjusting those flexible components.

The development modality of a rural community is different depending on the natural and human resources of the area we refer to, on the tradition and history of the respective place, as well as on the adaptation and assimilation mechanisms of the new values from outside the community.

In this context, the aim of the paper is to design a development index to capture the agricultural potential of a rural community.

MATERIALS AND METHODS

In order to evaluate the agricultural activities from the Romanian rural communities we shall consider the calculation of a *Composite index by commune,* named *Agriculture development index,* to measure the economic growth potential of the community through the development/diversification of agricultural activities.

The following components will be taken into consideration in the evaluation of the agriculture development index: land resources; cultivated area; livestock raising; sale of crop and animal products; productive endowments; production services.

Having in view that not all these components are equally important for the farming activity, some of them having a higher agricultural value, each of these components is assigned an importance coefficient ranging from 0 to 1 (0% - 100%); thus, the following participation shares were established for the components of the farming activity: land resources: 10%;

cultivated area: 15%;livestock raising: 15%; sale of crop and animal products: 25%; productive endowments: 20%; production services: 15%.

The qualitative and quantitative level of these

components will be appreciated by using three-step scales, and thus there is the possibility to more objectively evaluate the quality of investigated components. The factors included in the structure of each element were assessed on a scale from 0 to 3, depending on the quality, namely: 0 – for the non-existence of factor, factor unfavourable to agricultural activity; 1 – for low quality; 2 – for satisfactory quality, factor; 3 – factor favouring agricultural activity development.

The formula used for the calculation of agriculture development index is:

$$I_{da}=sum\ (q_i \times c_i)/3$$, *where:*

I_{da}*=Agriculture development index*

i= number of components considered for the calculation (1, 2, 3, ... n)

Q=share of each component (sum q_i *=1, thus 0<=* q_i *<=1)*

C= quality of components (c= 0-3)

The same calculation method will be used for each component of the agriculture development index depending on the elements defining it.

The utilized data were obtained on the basis of a field survey [4], by the application of a questionnaire that had the following research theme: economic and social diagnosis of rural communities.

RESULTS AND DISCUSSIONS

Land resources

The land component will be investigated from the point of view of its importance in the development of the agricultural activities on the investigated Romanian rural households.

A commune index will be calculated that should present the agriculture development potential from the point of view of the main production factor, i.e. land. This index will be named Agricultural area index (I_{sa}).

The elements taken into consideration are the following: average agricultural area into ownership – importance coefficient 30%; average number of parcels – importance coefficient 40%; the average age of the person who leased in agricultural land – importance coefficient 30%.

The average agricultural area owned by the rural households is obtained by dividing the total area of the commune by the number of households that have agricultural land.

The average agricultural area of the rural households in the plain area, in the investigated communes, is 3.17 ha. The average agricultural area ranges from 1.91 ha in the commune Răchiţi to 4.12 ha in the commune Mitoc.

Table 1. Score obtained in the case of indicator "Average agricultural land area"

Commune	Average total area into ownership	Scores
Chirnogi	3.18	2
Ghimpaţi	4.07	3
Grădinari	2.52	1
Iepureşti	2.80	2
Mănăstirea	3.76	3
Mitoc	4.12	3
Prundu	2.83	2
Răchiţi	1.91	1

Source: own calculations on the basis of field survey data

Each commune obtained scores from 0 to 3, depending on the average size of agricultural area owned by the rural households, by three size classes: score 1 for the size category 1.91-2.65 ha, score 2 for the size category 2.66-3.39 ha, score 3 for the size category 3.40-4.12 ha.

The hierarchy of the rural communities from the plain area, by the average size of the agricultural land area size of the household is the following: Mitoc 4.12 ha, Ghimpaţi 4.07 ha, Mănăstirea 3.76 ha, Chirnogi 3.18 ha, Prundu 2.83 ha, Iepureşti 2.80 ha, Grădinari 2.52 ha, Răchiţi 1.91 ha.

The average number of parcels per hectare is another important element that reveals the land resource potential in the development of modern agriculture.

It is estimated that the number of parcels resulting from the application of Land Law totals over 25-30 million [3]. It can be said that on the basis of Land Law application, there was a shift from the excessive concentration of land ownership to an exaggerated land fragmentation and from the small-sized farms to the small peasant household farms.

Land consolidation, i.e. the diminution of land fragmentation into scattered parcels, has the following positive effects: economy of labourforce, labour productivity increase respectively; access to advanced technologies,

to mechanization in land operation; economy of fuels and other inputs and materials occasioned by the travel of technical means from one parcel to another; increase of the yields of technical means utilization; the diminution of production costs and economic efficiency increase.

Arable land prevails in the investigated plain area, with 92.82%, followed by orchards 4.19%, pastures and hayfields 2.95% and vineyards 0.05%.

The average number of parcels for the arable land is 1.05 parcels per hectare. The hierarchy of communes by the average number of parcels per hectare is the following: commune Mănăstirea 0.66 parcels per hectare, commune Chirnogi 0.73 parcels per hectare, commune Mitoc 0.96 parcels per hectare, commune Ghimpaţi 0.98 parcels per hectare, commune Iepureşti 0.25 parcels per hectare, commune Răchiţi 1.26 parcels per hectare, commune Grădinari 1.32 parcels per hectare and Prundu 1.32 parcels per hectare.

For the calculation of the parcelling index for agricultural land, we used the following formula:

$$I_{Nmp}=sum(q_i \times c_i)/3$$, *where:*

I_{da}*=Parcelling index*

i= number of components considered for the calculation (arable land, pastures and hayfields, orchards and vineyards, i.e. 4 components in total).

Q=share of each component (arable land=92.82%, orchards=4.19%, pastures and hayfields = 2.95% and vineyards=0.05%)

C=quality level of components (c= 0-3)

Each commune was assigned scores ranging from 0 to 3, depending on the parcelling index, namely: score 1 for the interval 0.31-0.52, score 2 for the interval 0.52-0.73, score 3 for the interval 0.73-0.93.

Depending on the parcelling index result, the communes with the best position on this list are Mănăstirea and Chirnogi, with the index value 0.93. These are followed by the communes Ghimpaţi with the index value 0.69 and Mitoc with 0.65, while the last positions are occupied by the communes Grădinari, Prundu, Răchiţi with 0.33 and Iepureşti with 0.31.

Table 2. Score obtained in the case of parceling index

	Arable (92.82%)		Pastures/hayfields (2.95%)		Orchards (4.19%)	
Commune	A.n.p.	Score	A.n.p.	Score	A.n.p.	Score
Chirnogi	0.73	**3**		**0**		**0**
Ghimpaţi	0.98	**2**	0.79	**3**	4	**3**
Grădinari	1.32	**1**	4.00	**1**	7.14	**1**
Iepureşti	1.25	**1**		**0**		**0**
Mănăstirea	0.66	**3**		**0**		**0**
Mitoc	0.96	**2**	1.43	**3**		**0**
Prundu	1.32	**1**	2.00	**2**		**0**
Răchiţi	1.26	**1**	2.31	**2**		**0**

	Vineyards (0.05%)		Index	
Commune	A.n.p.	Score		Scores
Chirnogi	6.48	**3**	0.93	**3**
Ghimpaţi	1.82	**3**	0.69	**2**
Grădinari	6.49	**3**	0.33	**1**
Iepureşti	6.94	**3**	0.31	**1**
Mănăstirea	9.27	**2**	0.93	**3**
Mitoc	20.00	**1**	0.65	**2**
Prundu	5.95	**3**	0.33	**1**
Răchiţi		**0**	0.33	**1**

Source: own calculations based on field survey data
Note: A.n.p.=average number of parcels

Another element considered in the calculation of the agricultural area index is *land lease*. This represents the process by which the households that have the potential to farm the land take over certain land areas from those who no longer have the necessary resources or who are not willing to farm their land.

Although the land lease process has developed for the last three years [3], it has to face certain constraints, among which we can mention: elderly peasants' reluctance to land lease due to its exploitation nature in the past; low number of entrepreneurs willing to assume the risk to establish a farm on the basis of leased in land; lack of capital; small size of parcels to be leased out and the difficulty to consolidate them; existence of a surplus of agrarian population that is manifested as small landed property and small-sized farm conservation factor, as long as this is not attracted into other activities; insufficient knowledge of the law or elusion of the law.

Agricultural land lease has the following advantages in our country:

- it facilitates the establishment of large-sized farms, with minimum investment costs in the agricultural land transaction actions;
- it represents an alternative for land farming by those land owners who out of objective reasons (old age, urban residence, scarcity of

production factors) are not able to farm their own land;
- it does not affect the land ownership regime, both during the land lease contract and after it ends.

The average age of lessee is an indicator that reflects of the land lease process quality.

Table 3. Scores obtained for the indicator "Average age of lessee"

Commune	Age	Scores
Chirnogi	62.0	**1**
Ghimpaţi	57.0	**1**
Grădinari	39.0	**3**
Iepureşti	-	0
Mănăstirea	39.0	**3**
Mitoc	43.1	**3**
Prundu	54.2	**2**
Răchiţi	50.4	**2**

Source: own calculations based on field survey data

The younger the lessee, the more the land lease can reach its economic goal.

The average age of the person who leased in agricultural land in the investigated communes is 46.2 years, ranging from 39 years in the communes Grădinari and Mănăstirea to 62 years in the commune Chirnogi.

Each commune obtained scores from 0 to 3, depending on the age of lessee: score 0 for the communes where no land lease exists, score 1 for the age category 54.3-62 years, score 2 for the category 46.7-54.2 years, score 3 for the category 39-46.6 years.

The hierarchy of rural communities from the plain area, depending on the average age of the person who leased in agricultural land, is the following: commune Grădinari and commune Mănăstirea 39 years, commune Mitoc 43.1 years, commune Răchiţi 50.4 years, commune Prundu 54.2 years, commune Ghimpaţi 57 years, commune Chirnogi 62 years.

Result

For the first component of the Agriculture Development Index, i.e. Agricultural Area Index, the following elements were taken into consideration: average agricultural land area into ownership; average number of parcels; average age of person who leased in agricultural land.

The calculation formula is the following:

$$I_{sa}=sum(q_i \times c_i)/3,$$

I_{sa}=farmland index

i= number of components considered for the calculation (average agricultural land area into ownership, average number of parcels, age of lessee, i.e. 3 components)

Q=share of each component (average agricultural land area into ownership – importance coefficient 30%; average number of parcels –importance coefficient 40%; average age of person who leased in agricultural land – importance coefficient 30%)

C= quality level of components (c= 0-3)

Table 4. Scores obtained for the Agricultural Area Index (Isa) in the plain area

	Scores:			Farm land Index
	Av.* agricultural area into ownership	Av.* age of person who leased in agric. land	Av.* number of parcels per ha of agric. land	
Mănăstirea	2	1	3	1.0
Mitoc	3	1	2	0.9
Chirnogi	1	3	1	0.7
Ghimpaţi	2	0	1	0.7
Grădinari	3	3	3	0.5
Prundu	3	3	2	0.5
Răchiţi	2	2	1	0.4
Iepureşti	1	2	1	0.3

Source: own calculations based on field survey data
*average

From the agricultural area index point of view, the commune with the highest land potential for agriculture development is Mănăstirea, with the index value 1.0, followed by the commune Mitoc 0.9, commune Chirnogi 0.7, commune Ghimpaţi 0.7, commune Grădinari 0.5, commune Prundu 0.5, commune Răchiţi 0.4 and commune Iepureşti 0.3.

Cultivated area

Crop production represents an important base of raw products for population's consumption, for livestock raising and for food industry. The natural conditions of Romania represent an opportunity for the cultivation of a wide range of species.

In the plain area, the cereal crops prevail with 63% of the cultivated area; this share ranges from 51.2% in the commune Mitoc to 85.6% in Iepureşti.

In the total rural households that have land into ownership and use it, the crop structure is the following: 31.55% maize, 19.22% wheat,

14.71% sunflower, 5.46% alfalfa, 3.91% oats, 3.91% vegetables, 3.8% barley, 2.2% soybean, 1.78% grass, 1.42% clover, 0.95% potatoes, 0.71% beans, 0.47% sugar beet and 3.68% other crops.

In order to highlight the quality of agricultural land utilization modality we shall calculate the intensive agricultural land use index. This index represents the share of industrial, food and fodder crops in the utilized agricultural area. The closer this index is to 100, the higher the intensification level.

The average index in the investigated plain area is 36.9, being relatively close to the national average, i.e. 30.8. The value of the intensive agricultural land use index ranges from 14.4 in the commune Iepureşti to 48.8% in the commune Mitoc.

Table 5. Scores obtained for the intensive agricultural land use index and Scores obtained for the indicator "Number of animals per hectare"

Commune	Index value	Scores	UVM/ha	Scores
Mitoc	48.8	3	1.09	3
Răchiţi	46.8	3	0.70	2
Mănăstirea	38.5	3	0.65	2
Ghimpaţi	32.0	2	0.61	2
Prundu	30.5	2	0.48	1
Grădinari	29.4	2	0.41	1
Chirnogi	20.9	1	0.37	1
Iepureşti	14.4	1	0.35	1

Source: own calculations based on field survey data

Each commune obtained scores from 0 to 3, depending on the intensive agricultural land use index value, by three intervals: score 1 for the interval 14.4-25.8, score 2 for the interval 25.8-37.3, score 3 for the interval 37.3-48.5.

The hierarchy of the rural communities from the plain area, based on the intensive agricultural land use index, is the following: commune Mitoc 48.8, commune Răchiţi 46.8, commune Mănăstirea 38.5, commune Ghimpaţi 32.0, commune Prundu 30.5, commune Grădinari 29.4, commune Chirnogi 20.9 and commune Iepureşti 14.4.

Livestock raising

Livestock production is extremely important for our agriculture, due to the favourable conditions. In the rural communities, the on-household raising system is practiced that is characterized by a low concentration of animals.

The indicator number of animals per 1 hectare of agricultural land reveals the intensive land utilization level. The optimum level of this indicator is 1 livestock unit (LU) per hectare.

The average value of this indicator in the investigated plain area is 0.59 LU per hectare, being also equal to the national average. The value of the indicator number of animals per hectare ranges from 0.35 LU/ha in the commune Chirnogi to 1.09 LU/ha in the commune Mitoc.

Each commune obtained scores ranging from 0 to 3, depending on the value of the indicator number of animals per hectare, by three intervals: score 1 for the interval 0.35-0.60 LU/ha, score 2 for the interval 0.60-0.84 LU/ha, score 3 for the interval 0.84-1.09 LU/ha.

The hierarchy of the rural communities in the plain area, by the indicator number of animals per hectare, is the following: commune Mitoc 1.09 LU/ha, commune Răchiţi 0.70 LU/ha, commune Grădinari 0.65 LU/ha, commune Prundu 0.61 LU/ha, commune Ghimpaţi 0.48 LU/ha, commune Mănăstirea 0.41 LU/ha, commune Iepureşti 0.37 LU/ha and commune Chirnogi 0.35 LU/ha.

Structure of sales

In the communes from the plain, the share of households that sell animal products is 11.35%, and the share of households that sell crop products is 8.91%.

The commercial behaviour of peasant households is very important for the future development, both for them and for the community. In order to make an assessment of the sales of agricultural (crop and livestock) products in the investigated rural communities, we shall calculate a composite index per commune named Commercial behaviour index.

The calculation formula is the following:

$$I_{cc}=sum(q_i \times c_i)/3,$$

I_{cc}= *Commercial behaviour index*

i= number of components considered (share of households that sell crop products, share of households that sell animal products, i.e. 2 components)

Q=share of each component (share of households that sell crop products – importance coefficient 40%, share of

households that sell animal products – importance coefficient 60%)
C= quality level of components (c= 0-3)

Table 6. Commercial behaviour index

	Scores for the sale of products:		Commercial behaviour index
	crop	animal	
Chirnogi	1	1	0.3
Ghimpaţi	1	1	0.3
Grădinari	3	2	0.8
Iepureşti	1	1	0.3
Mănăstirea	3	1	0.6
Mitoc	1	3	0.7
Prundu	2	1	0.5
Răchiţi	1	1	0.3

Source: own calculations based on field survey data

In Romania, the farmers' commercial spirit on the rural households is very low, the agricultural products going to the human consumption and to animal feeding, following a closed circuit. As regards the farmers' commercial behaviour, the rural communities that are on top positions are the following: commune Grădinari (0.8), commune Mitoc (0.7) and commune Mănăstirea (0.6).

Productive endowments

Among the analyzed productive endowments in the investigated rural areas, the animal shelters prevail (71.39%) on the interviewed households. The storage facilities come next, with 39.75% followed by the agricultural machinery and implements on only 13.67% of the rural households.

The investments in animal shelters are relatively low, compared to the storage facilities, but mainly compared to the cost of agricultural machinery and implements.

The age of those who own these productive endowments is quite important for the longer term utilization in good conditions, mainly in the case of agricultural machinery and implements. The average age of productive endowment owners, in the plain area, is 49.5 years for the owners of agricultural machinery and implements, 52.5 years for the storage facilities owners and 53.6 years for the owners of animal shelters.

In order to calculate the Productive endowment index we must take into consideration two elements, namely: number of productive endowments and average age of productive endowments owners.

Table 7. Calculation methodology of the Productive endowment index

Index of productive endowments number (I_{ndp})	***Index of productive endowments owners' age (I_{vpdp})***
Indp =sum(qi x ci)/3, *Indp = Index of productive endowments number* *i= number of components taken into consideration (number of agricultural machinery and implements, number of storage facilities, number of animal shelters, i.e. 3 components)* *Q=share of each component (number of agricultural machinery and implements – importance coefficient 45%, number of storage facilities – importance coefficient 35%, number of animal shelters – importance coefficient 20%)* *C=qualitative level of components (c= 0-3)*	*Ivpdp =sum(qi x ci)/3,* *Ivpdp = Index age of productive endowment owners* *i= number of components taken into consideration (average age of agricultural machinery and equipment owners, average age of storage facilities owners, average age of animal shelter owners, i.e. 3 components)* *Q=share of each component (average age of agricultural machinery and implements owners – importance coefficient 45%, average age of owners of storage facilities – importance coefficient 35%, average age of animal shelter owners – importance coefficient 20%)* *C= qualitative level of components (c= 0-3)*
Productive endowment index	
I_{dp}=sum(q_i x c_i)/3, *I_{dp}=Productive endowment index* *i= number of components taken into consideration (total number of productive endowments, average age of productive endowments owners, i.e. 2 components)* *Q=share of each component (total number of productive endowments –importance coefficient 40%; average age of productive endowments owners – importance coefficient 60%)* *C= qualitative level of components (c= 0-3)*	

Before calculating this index, we shall calculate 2 support indices, namely:

- *Index of productive endowments number (I_{ndp})* summarizing the number of agricultural machinery and implements, the number of storage facilities and the number of animal shelters.
- *Index age of productive endowment owners (Ivpdp)* summarizing the average age of productive endowments owners: agricultural machinery and implements, storage facilities, animal shelters.

The hierarchy of communes by the calculated indices is the following:

- depending on the *Index productive endowments owners' age:* commune Mitoc with index value = 1, commune Mănăstirea 0.9, commune Grădinari 0.9, commune Chirnogi 0.6, commune Ghimpaţi 0.5, commune Prundu 0.5, commune Răchiţi 0.5 and commune Iepureşti 0.3. The closer to 1 is the index value, the better the utilization of productive endowments in the respective region, as these are into the ownership of

younger persons.
- depending on the *Index number of productive endowments:* commune Prundu with the index value 1, commune Mitoc 0.9, commune Grădinari 0.8, commune Mănăstirea 0.7, commune Ghimpaţi 0.7, commune Răchiţi 0.5, commune Iepureşti 0.5, commune Chirnogi 0.4.

Table 8. Productive endowment index value

	Scores on owners' age:			**Ivpdp**	Scores on the number of:			**Indp**
	Machinery and impl.	Storage facilities	Animal shelters		Machinery and impl.	Storage facilities	Animal shelters	
Chirnogi	3	1	1	0.6	1	1	2	0.4
Ghimpaţi	1	2	1	0.5	2	2	2	0.7
Grădinari	2	3	3	0.9	3	2	1	0.8
Iepureşti	1	1	1	0.3	1	2	2	0.5
Mănăstirea	2	3	3	0.9	3	1	2	0.7
Mitoc	3	3	3	1.0	3	2	3	0.9
Prundu	1	2	2	0.5	3	3	3	1.0
Răchiţi	1	2	2	0.5	1	2	1	0.5

	Scores on:		**Productive endowment index**
	Age	Number	
Chirnogi	2	1	0.5
Ghimpaţi	2	2	0.7
Grădinari	3	3	1.0
Iepureşti	1	1	0.3
Mănăstirea	3	2	0.9
Mitoc	3	3	1.0
Prundu	2	3	0.8
Răchiţi	2	1	0.5

Source: own calculations based on field survey data

If the index value is closer to 1, this reveals a larger number of endowments in the respective communes that can be used in the farming activity.
The productive endowment index cumulates the values of the two indices presented above and reveals the situation of productive endowments in the investigated rural communities. The conclusion that results from this index value is that Mitoc and Grădinari (index value = 1) are the best endowed communes, with the highest utilization potential of endowments in the production activity. The other communes come next not a far distance: commune Mănăstirea (0.9), commune Prundu (0.8) and commune Ghimpaţi (0.7), yet the situation is not as good in the communes Chirnogi (0.5), Răchiţi (0.5) and Iepureşti (0.3).

Production services

The most frequently used service is that of the vet, 60.18% of households used it, followed at a very great distance by the services of the specialized firms 14.48%, by the services of the Agricultural Chamber 12.22%, by the agricultural engineer's services 11.31% and the accountant's services 1.18%.
89.59% of the households that used these services were satisfied. These were mostly satisfied by the vet's services i.e. 92.86%; they were the least satisfied by the accountant's services, i.e. 62.50%.
60.51% of the interviewed persons answered that they intended to use the vet's services in the future, too and only 15.44% the services of specialized firms, 11.99% of the agricultural chamber's services, 11.39% the agricultural engineer's services, 1.77% the accountant's services.

Table 9. Scores obtained in the case of indicator "Production services"

Commune	Scores
Chirnogi	1
Ghimpaţi	1
Grădinari	2
Iepureşti	1
Mănăstirea	1
Mitoc	3
Prundu	3
Răchiţi	1

Source: own calculations based on field survey data

From the analysis of answers to the questions "Have you used these services?" and "Do you intend to use these services in the future, too?" it results that the households that used the vet's services, the services of specialized firms, the services of the agricultural chamber, the agricultural engineer's services and the accountant's services, will use them in the next period, too.
The scores for this indicator took into consideration the weighted average of services used in the investigated communes. The hierarchy of rural communities in which the households use these production services, according to the obtained scores, is the following:
- Score 3: communes Mitoc and Prundu;
- Score 2: commune Grădinari;
- Score 1: communes: Mănăstirea, Iepureşti, Chirnogi, Ghimpaţi and Răchiţi.

Most households use the vet's services both

for the treatment and for the prevention of animal diseases on the short and medium term. Yet very few use the other services that would help them very much in orienting and developing their farming activities (crops production, livestock raising).

CONCLUSIONS

Agriculture development index – plain area

The *Composite index by commune*, named *Agriculture development index* was calculated on the basis of the methodology presented above, to measure the economic growth potential of the community through the development/diversification of the agricultural activities.

The agriculture development index value reveals the development level of the commune, as well as the potential of agricultural activities for the investigated rural communes. This index values range from 0 to 1, yet 1 does not represent the optimum or maximum value, but rather the development potential of a commune compared to the other investigated communes.

Table 9. Agriculture development index

Commune /Importance coefficient	Isa	Iusa	Iuvm	Icc	Isp	Idp	Ida
	0,1	0,15	0,15	0,25	0,15	0,2	
Chirnogi	3	1	1	1	1	1	0.40
Ghimpaţi	3	2	1	1	1	2	0.52
Grădinari	2	2	2	3	2	3	0.82
Iepureşti	1	1	1	1	1	1	0.33
Mănăstirea	3	3	1	3	1	3	0.80
Mitoc	3	3	3	3	3	3	1.00
Prundu	2	2	2	2	3	3	0.78
Răchiţi	1	3	2	1	1	1	0.48

Source: own calculations based on field survey data

Thus, the hierarchy of rural communities according to the results of the agriculture development index is the following:

- commune Mitoc that obtained maximum scores (3) for all the components of the final index;
- commune Grădinari that obtained maximum scores (3) for the indices: Icc and Idp, scores 2 for the other indices and no score 1;
- commune Mănăstirea with score 3 for the indices: Isa, Iusa, Icc and Idp and scores 1 for the indices Iuvm and Isp;
- commune Prundu that obtained score 3 for the indices Isp and Idp and score 2 for the other indices;
- commune Ghimpaţi that obtained score 3 only for the index Isa, two scores 2 for Iusa and Idp and three scores 1 for Iuvm, Icc and Isp;
- commune Răchiţi that obtained score 3 only for the index Iusa, score 2 for Iuvm and score 1 for Isa, Icc, Isp, Idp;
- commune Chirnogi that obtained score 3 only for the index Isa and scores 1 for the other indices;
- commune Iepureşti that obtained scores 1 for all the calculated indices.

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