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THE COMPETITIVE BEHAVIOUR OF RURAL HOUSEHOLDS IN AGRICULTURE - A CASE STUDY IN ȚARA HAȚEGULUI

CHIȚEA LORENA FLORENTINA¹

Abstract: *The goal of this paper is represented by the analysis of the competitive behaviour at rural household level in Țara Hațegului, according to the economic size of the agricultural activities performed. If we extrapolate the mechanism from firm level to agricultural household level, competitiveness operates as a selection mechanism (only certain agricultural household farms survive on the market, which obtain quality products and have more efficient production processes); this also acts as a stimulation mechanism (in order to continue to exist on the market, the rural household farms must improve their technology and production organization). Competitiveness increase in agriculture first means a major change with regard to the agricultural behaviour, both at rural household level and at the level of (local and governmental) authorities. But the greatest obstacle to the change of farmers' behaviour presupposes a fundamental transformation of their values and lifestyle, which is quite difficult.*

Key words: *competitiveness, agricultural household, economic size*

INTRODUCTION

The paper is an approach to agricultural activity competitiveness at rural household level. Competitiveness, as a complex concept, can be investigated both at the level of firm, of agricultural household farm respectively, and at territorial, regional and national level.

At agricultural household farm level, competitiveness [5]:

- operates as a selection mechanism, only certain agricultural household farms survive on the market, which obtain quality products and have more efficient production processes.
- acts as a stimulation mechanism; in order to continue to exist on the market, the rural households must improve their technology and production organization.

When competitiveness is approached at household farm level, one must have in view that the rural agricultural households do not operate on the same economic principles as a firm; this because, compared to a firm whose final destination of production is its commercialization, at household level a part of production goes to self-consumption of family members. In the case of households, a series of factors also intervene that influence competitiveness at this level, which cannot be easily modified. Among these, we can mention:

- the agricultural behaviour of the household head, which is rather influenced by mentality and the willingness to try new things (from the change of crop structure, new technologies, new pest control methods to getting involved into associative production forms);
- the mentality in relation to "land"- not as a production factor, but as a "sacred heritage", which constrains land consolidation and may even lead to stronger land fragmentation.

MATERIALS AND METHODS

With no clear definition of economic competitiveness, the rural household economic competitiveness in agriculture can be measured starting from the European methodology for the economic measurement of farming activities, according to which the investigated households can be economically investigated.

The economic size of agricultural activities on the rural households is directly proportional with the competitiveness level reached by a given household, so that the higher economic size the higher the agricultural competitiveness.

Building up a typology of rural households according to the economic size of the agricultural activities performed on the household lies at the basis of the formation of a clear picture of the agricultural behaviour of rural households according to their competitiveness in agriculture.

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The investigated rural households were grouped by the number of Economic Size Units (ESU) obtained on the household. ESU represents the unit by which the economic size of an agricultural holding is expressed, determined on basis of the standard gross margin of the holding (Commission Decision no. 85/377/EEC). The value of one Economic Size Unit is 1,200 Euro.

The calculation method of the number of Economic Size Units for the investigated rural households is based on Annex I from the Applicant's Guide for Measure 121 "Modernization of Agricultural Holdings", on Establishing the Farm Category - Crop Structure and ESU Calculation.

On the basis of this method, the rural households were grouped into 4 categories, as follows:

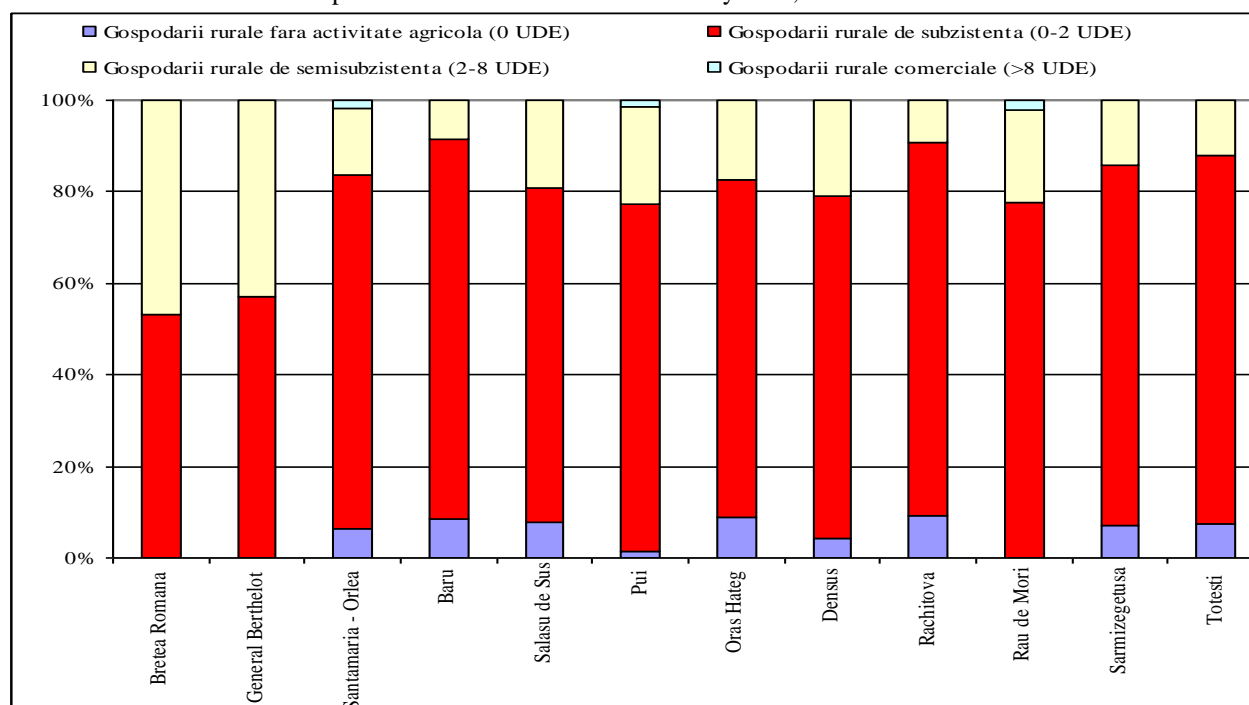
- Commercial rural household farms (over 8 ESU);
- Semi-subsistence rural household farms (2-8 ESU);
- Subsistence rural household farms (0-2 ESU);
- Non-agricultural households (0 ESU).

RESULTS AND DISCUSSIONS

The rural household structure in Țara Hațegului, by the economic size of the agricultural activity, is the following: 5.00% of rural households have no agricultural activity (0-UDE); 76.50% are subsistence rural household farms (0-2 ESU); 17.75% are semi-subsistence rural household farms (2-8 ESU) and only 0.75% are commercial rural household farms (over 8 ESU) [2].

This structure once again confirms that the agriculture practiced in Țara Hațegului is of subsistence type, which reveals a low agricultural competitiveness. This fact can be also noticed in the farming practice at county, regional or national level.

Graph 1. Structure of rural households by ESU, at commune level



Source: processing of data collected by the field survey conducted on a representative sample of households in the communes of the rural area from Țara Hațegului, in the period June -September 2009

The communes where commercial rural household farms were also identified are Râu de Mori 2.22%, Sântămăria-Orlea 1.64% and Pui 1.33%.

The semi-subsistence household farms are those representing the economic development potential of the communes through agriculture. From the point of view of the agriculture development potential, we can identify 4 categories of communes, namely:

- communes with a high agriculture development potential (Bretea Română and General Berthelot);
- communes with a medium agriculture development potential (Pui, Densuș, Râu de Mori, Sălașu de Sus, Town Hațeg);
- communes with a low agriculture development potential (Sântămăria-Orlea, Sarmizegetusa, Totești);
- communes with a very low agriculture development potential (Răchitova, Baru).

The rural households with no agricultural activities represent 5.00% of the households in the investigated area, yet this percentage is different from one commune to another, ranging from 0% in the communes Bretea Română, General Berthelot and Râu de Mori to 9.09% in the commune Răchitova.

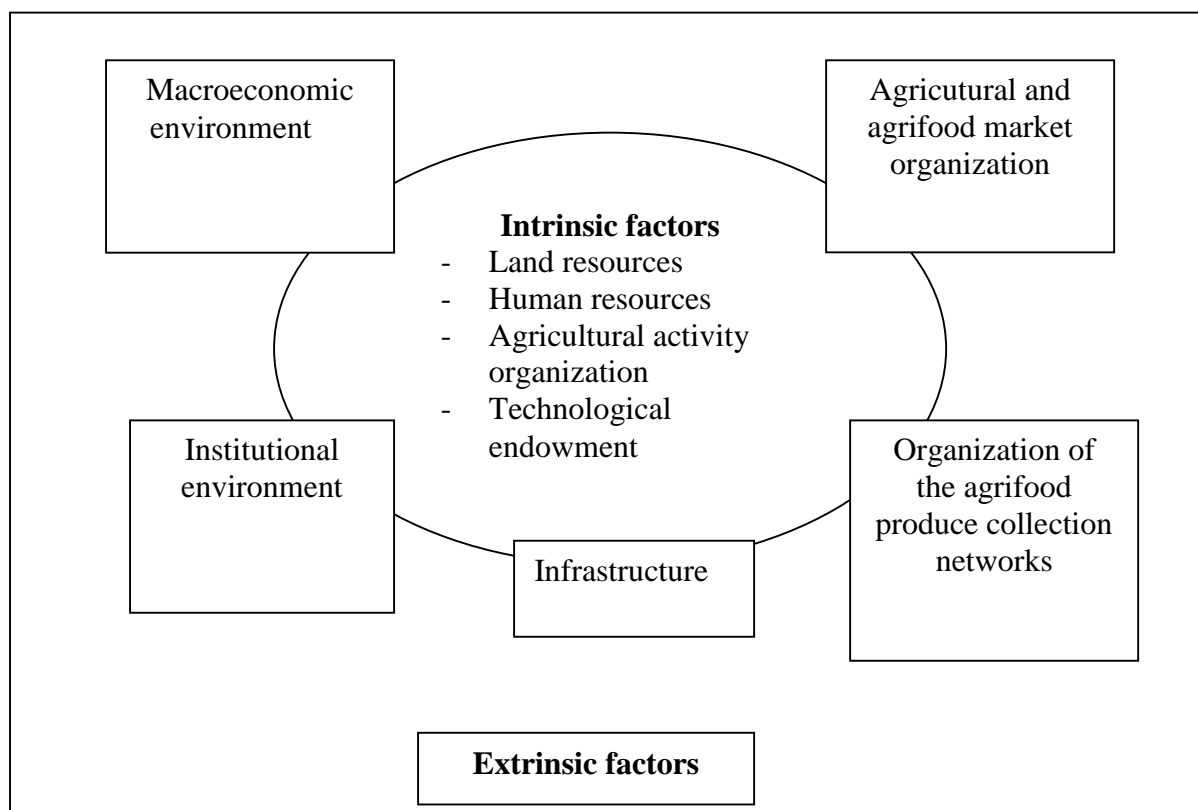
The average ESU per household farm in Țara Hațegului is 1.36 – which reveals a subsistence, non-competitive and non-performant agriculture, ranging from 1.07 in the town Hațeg to 2.38 in the commune Bretea Română.

The determinants of the economic agricultural competitiveness – Țara Hațegului

The determining factors of agricultural competitiveness at rural household level can be grouped into:

- household intrinsic factors (land resources, human resources, farm management – agricultural activity organization, technological resources etc.);
- household extrinsic factors (macroeconomic environment, institutional environment, infrastructure, agricultural and agrifood markets organization, organization of the agrifood produce collection networks).

Chart: The competition environment in agriculture, at rural household level



For the analysis of the competitiveness of the agriculture practiced in the rural communes from Țara Hațegului, the intrinsic factors of the household will be investigated from the perspective of the economic size of the farming activity.

Land resources

Land represents the primordial production factor in agriculture, being also one of the competitive advantages of the Romanian agriculture, given the large size of the land resource and its high fertility.

However, the soil and climate conditions specific to the area Țara Hațegului are included in the category “mountain area”, component of the mountain area “Apuseni Mountains”, which does not have proper conditions for the farming practice on very large areas. In the area Țara Hațegului, agriculture is practiced on different geographical units (depression, mountain area, terrace, river plain), which limit the crop structure from the soil and climate point of view.

The rural households in Țara Hațegului, from the point of view of the *land area size*², have 4.6 ha on the average, out of which 76.41% is land with agricultural destination and 23.59% is land with forestry destination.

The average land size of the rural households is 3.40 ha on the subsistence household farms, 9.69 ha on the semi-subsistence household and 12.73 ha on the commercial household farms. The land structure by farm type is the following: 56.80% of the land areas are owned by the subsistence household farms, 38.14% by the semi-subsistence household farms, 2.15% by the commercial household farms and 2.91% by the households with no agricultural activity.

The average agricultural area of rural households is 2.65 ha on the subsistence households, 7.12 ha on the semi-subsistence households and 9.73 ha on the commercial household farms.

From the point of view of the agricultural land structure, by land category of use, the situation by types of household farms is the following :

- subsistence household farms: 46.78% arable land; 1.28% orchards; 51.95% pastures and hayfields;
- semi-subsistence household farms: 45.24% arable land; 2.66% orchards; 0.56% vineyards; 51.54% pastures and hayfields;
- commercial household farms: 74.32% arable land; 5.14% orchards; 20.55% pastures and hayfields.

The average arable land area is 1.25 ha on the subsistence household farms, 3.22 ha on the semi-subsistence household farms, 7.23 ha on the commercial household farms.

The number of parcels per one hectare of arable land is inversely proportional to the economic size of household farms, so that such that the more performant the household the smaller the number of parcels per hectare: the commercial household farms have 1.20 parcels/hectare; the semi-subsistence household farms 1.73 parcels/hectare; the subsistence household farms 2.64 parcels/hectare.

The average area of pastures and hayfields is 1.93 ha on the subsistence households, 4.28 ha on the semi-subsistence households and 2.00 ha on the commercial household farms. The relatively small average area on the commercial household farms reveals the low importance of the pastures and hayfields.

The number of the parcels per hectare is not influenced by the household economic size; there are 1.55 parcels per hectare on the subsistence households, 1.15 parcels per hectare on the semi-subsistence households and 2.17 parcels per hectare on the commercial household farms.

The average orchard area is directly proportional with the economic size of farms, namely: 0.36 ha on the subsistence households, 0.53 ha on the semi-subsistence households and 1.50 ha on the commercial household farms. Land fragmentation, in the case of orchards, is inversely proportional with the economic size of farms: 2.9 parcels/ha on the subsistence households, 1.66 parcels/ha on the semi-subsistence households and 0.67 parcels/ha on the commercial household farms.

These two indicators – the average orchard area and the number of parcels – show that as the economic size of household increases, the orchard farming modality will improve.

² The data regarding the land resources, collected through the questionnaire (working instrument), include the land into the ownership of investigated households, that is the land with agricultural destination and the land under forests (into private property).

The average distance between parcels is inversely proportional with the economic farm size, namely 2.158 meters on the subsistence households, 2.204 meters on the semi-subsistence households and 1.667 meters in the commercial household farms.

From the analysis of the average areas by categories of use of agricultural land, by number of parcels and by the average distance between parcels, respectively, we can clearly see the need for land consolidation, in order to increase the farming activity efficiency and agricultural competitiveness implicitly at rural household level. Yet the main obstacles to land consolidation stem from people's mentality (who want only to farm their own land, inherited from their parents and are not willing to exchange their land), without taking into account the beneficial effects from the economic point of view (diminution of land use costs in the case when the land areas would be grouped into a single place).

The demographic resource

The human resource is a dynamic factor, which puts into operation the whole agricultural apparatus of the rural household.

The main socio-demographic factors with impact upon the economic size of rural households in Țara Hațegului area are the following:

- the household head's gender: the households led by men are found in 70.92% of subsistence household farms, in 84.51% of the semi-subsistence households and 100% of the commercial household farms. At the same time, the average ESU of the households led by men (1.48 ESU) is greater than that of households led by women (1.00 ESU).
- the household head's age: the highest ESU is found in the age category 41-55 years old (1.64 ESU), by comparison with the other age categories (under 40 years old 1.00 ESU and over 55 years old 1.33ESU). This situation is not favourable for agriculture development on medium and long term, taking into account that, generally, the households are led by elderly people (the average age of the household's head is 61years).
- the household head's education: the ESU of households with household heads who graduated primary or secondary school is lower than of those where the household heads graduated high school or higher education. The households with heads who are agricultural high-school graduates have the highest ESU.
- the time spent on the household farm: the ESU of households with the household head spending more than 50% of the working time on the household (1.43 ESU) is higher than of those spending less than 50% of the working time on the household (1.39 ESU).
- the number of the household farm members: the ESU of the households with 1-3 persons is 1.08, of those with 3-6 persons is 1.56, and of those with 6-12 persons is of 2.29.
- the affiliation to the village /commune: the household heads born in the investigated village/comune have a more sustained agricultural activity (1.44 ESU), than the heads coming from other areas of the country (1.21ESU).

Farm management– organization of the agricultural activity in Țara Hațegului

The management activity of the agricultural household farm represents the household farm head's main activity, it is his task to organize the whole agricultural activity. The analysis of the agricultural activity competitiveness presupposes the economic measurement of the activity in the crop production and livestock sectors. Thus, the number of the Economic Size Units of a farm consists of the number of ESU in the crop production sector and the number of ESU in the livestock sector. *The crops* contribute to total ESU by 49.50% on the subsistence households, by 47.61% on the semi-subsistence households and 41.97% on the commercial household farms, which reveals that while the

economic size of the household increases, the importance of the crop production activity tends to decrease.

The main crops– wheat, maize, potatoes, vegetables – account for 93.62% of the cultivated area in the case of subsistence households, 64.71% in the case of semi-subsistence households and 82.30% in the case of the commercial household farms.

The crop production ESU by the main crops reveals that while the economic size of the household farm increases, the interest in the wheat crop also increases and the interest in the other crops (maize, potatoes, vegetables) has the tendency to decrease.

Crop rotation is practiced by 87.70% of the subsistence households, 90.50% of the semi-subsistence households and 100% of the commercial household farms, which reveals that the application of this elementary rule in agriculture is directly influenced by the competitiveness level of the household farm.

Livestock raising contributes to total ESU by 50.50% on the subsistence households, by 52.39% on the semi-subsistence households and by 58.03% on the commercial household farms, which reveals that while the economic size of the farm increases, the importance of livestock raising also increases.

From the analysis of the conventional average number by livestock categories, from the analysis of each livestock category contribution to the ESU-livestock respectively, the following trend can be noticed: as the economic size of the farm is higher, the importance of raising bovines, sheep, bee families is also higher; this trend is not found in the case of pigs, poultry or horses.

Table. Share of ESU- crop, livestock production in total ESU, by types of rural household farms, by communes and total sample

-%-

Commune	ESU total							
	Subsistence household farms (0-2 ESU)		Semi-subsistence household farms (2-8 ESU)		Commercial household farms (>8 ESU)		Total	
	Share ESU-crop	Share ESU-livestock	Share ESU-crop	Share ESU-livestock	Share ESU-crop	Share ESU-livestock	Share ESU-crop	Share ESU-livestock
Bretea Română	60.35	39.65	42.92	57.08			52.21	47.79
General Bethelot	69.05	30.95	68.44	31.56			68.79	31.21
Sântămărie Orlea	51.31	48.69	58.65	41.35	53.63	46.37	52.51	47.49
Baru	45.89	54.11	30.35	69.65			44.43	55.57
Sălașu de Sus	62.12	37.88	49.04	50.96			59.40	40.60
Pui	41.48	58.52	38.79	61.21	6.21	93.79	40.42	59.58
Town Hațeg	68.32	31.68	39.03	60.97			62.74	37.26
Densuș	44.64	55.36	63.11	36.89			48.56	51.34
Răchitova	53.71	46.29	51.11	48.89			53.45	46.55
Râu de Mori	51.24	48.76	58.48	41.52	73.87	26.13	53.19	46.81
Sarmizegetusa	52.31	47.69	41.15	58.85			50.60	49.40
Totești	53.58	46.42	47.48	52.52			52.78	47.22
Total	50.67	49.33	48.17	51.83	44.57	55.43	50.15	49.85

Source: processing of data collected by the field survey conducted on a representative sample of households in the communes of the rural area from Țara Hațegului, in the period June -September 2009

In the agricultural system of Țara Hațegului, there is a relative balance of the crop and livestock production sectors, but as competitiveness increases, the interest in the livestock sector also grows:

- ✓ 0-2 ESU – crop production share 50.67%, livestock production share 49.3% (the most relevant crop share is 69.05% in the commune General Berthelot and the most relevant livestock share is found in the commune Pui, i.e. 58.5%);

- ✓ 2-8 ESU – the share of the crop sector decreases in favour of the increase of the livestock sector share (compared to the previous category): 48.17% and 51.83% respectively; the most significant share for the crop sector is 68.4% in the commune General Berthelot, 68.4%, for the livestock sector 69.6% in the commune Baru;
- ✓ Over 8 ESU – the share of the livestock sector prevails, with 55.43%, and the share of the crop production sector is 44.57%; a significant share of the livestock sector, i.e. 93.7% is found in the commune Pui.

The sale of agricultural products takes place on the household farms that have a higher degree of competitiveness.

As subsistence farming prevails, the rural households ensure the food for the family from their own crop and livestock production, and afterwards they take into consideration the possibility to sell the remaining production, yet most often the obtained production is not sufficient even for the self-consumption on the household.

The share of the household farms that sell their crop production is the following:

- ✓ in the case of wheat: 4.21% on the subsistence households, 6.7% on the semi-subsistence households and 33.33% on the commercial household farms;
- ✓ in the case of maize: 1.54% on the subsistence households, 6.25% on the semi-subsistence households and 33.33% on the commercial household farms;
- ✓ in the case of potatoes: 8.76% on the subsistence households, 28.79% on the semi-subsistence households and 66.67% on the commercial household farms;
- ✓ in the case of vegetables: 3.45% on the subsistence households, 9.52% on the semi-subsistence households and 0% on the commercial household farms.

In the case of livestock, the sales are mainly under the form of animal products: milk, cheese, eggs, honey, and less under the form of live animals. Bovines and sheep are the main sources of sold animal products, after the consumption needs of the household members have been satisfied.

CONCLUSIONS

The agriculture practiced in Țara Hațegului Retezat area is a subsistence, non-performant, non-competitive agriculture, which does not efficiently use the resources it has.

As we could notice from the analysis of the main intrinsic factors with impact upon the competitiveness of the agricultural rural household farms, the main performance factor is “Man”, that is the household head that has the task to manage the whole activity. In order to increase the competitiveness on the agricultural household, the increase of the household farm head’s performance should be considered. Performance increase in this case can take place by two complementary modalities:

- the renewal of the farm head’s generation – which is a must in the agricultural sector, having a direct impact upon its competitiveness, as well as the improvement of the quality of life in the rural area;
- the increase of the farm head’s vocational training in order to efficiently manage the farming activity. Thus, competitiveness will increase if the household heads are better trained, and their motivation will increase with the increase of competitiveness.

Unfortunately, there is a series of external factors that bring about negative reactions in a circle, i.e. the low performance leads to the non-efficient involvement in the development of agricultural activities of the household farm heads and members, which can even result in a major lack of interest, and the lack of motivation leads to low performance and so on.

The external factors are represented by the general environment – economic, technical, political, social conditions, etc. – and by the market conditions – integrating the factors that influence the demand for products and services, the land price, the labour price and so on.

The soil and weather conditions, specific to Țara Hațegului area, are not favourable to the farming practice on very large areas; agriculture is practiced on different geographical units (depression, mountain area, terrace, river plain) which result in a limited crop structure.

Both on the agricultural household farms in Țara Hațegului, and at national level, there is a duality between the big number of the subsistence and semi-subsistence households and the small number of commercial farms. This is mainly due to the excessive fragmentation of farm ownership, the demographic ageing of the persons involved in the agricultural activity, the lack of storage units for the obtained agricultural production and the lack of processors, while maintaining a non-competitive production structure (weak production diversification), a high level of physical wear and obsolescence of the physical capital, etc.

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