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ROMANIAN AGRICULTURE FROM SURVIVAL TO BUSINESS

ABSTRACT

The paper intends to make an analysis at regional level in the South-East Region of the country in order to determine the present situation of agriculture in this region compared to the whole country. The paper investigates the crop structure, the irrigated area and the number of irrigation equipment in the region, the market orientation of farms, the type and development level of the non-agricultural activities, the labour force, and the specialization of farms. The objective of this paper is to analyze the regional agricultural characteristics and to determine the level of entrepreneurship in the area, so that farmers and regional policies might better interfere in order to help farmers adjust their production to the market and obtain a benefit. A comparison with the situation at the whole country will be also provided. The paper concludes that Romanian subsistence agriculture is still a "modus vivendi", and most likely only time and the force of new technologies employed by the large commercial companies will partly solve the issue.

Key words: crop structure, subsistence agriculture, irrigation, regional analysis.

JEL Classification: Q10, Q12, Q15.

1. INTRODUCTION

Subsistence agriculture has played an important role in Romania after 1990. In the early '90s it acted as a social buffer, while during the last years it represented a good opportunity for low-cost industry development. Subsistence agriculture has a special particularity due to its high share in national agriculture. The Romanian agriculture also reveals a polarized structure. According to Mathijs (2004), subsistence agriculture represents "food production without commercialization", and this definition might fit the best the Romanian agricultural reality analyzed in this paper. It represents a complex and significant topic due to its prevalence and influence both on local rural development and last but not least, on the local low cost industry development. The high level of subsistence in Romania is not only the result of the land reform, but also of the inability to link the agricultural sector with the upstream and downstream industries (Aligica, 2003).

Subsistence agriculture is a combination of a producer and a consumer point of view, and as such, its definition can be specified as household not marketing any product in the market (producer point of view, Von Braun, 2003), or as "most output is produced for family consumption… and a few staple foods… are the chief sources of nutrition" (consumer point of view – Todaro, 2006).

The analysis is made both at national and regional level because a review of previous agricultural studies reveals the importance of analyzing the regional development (Vincze, 2000) in order to better respond to the local rural development needs.

In 2005, at national level, the utilized agricultural area per holding represented 3.3 ha, which means that on most holdings the production mainly goes to self consumption. According to statistics, almost 44% of holdings hold less than 1 ha. Nevertheless, according to the last data, the average utilized agricultural area (UAA) per holding started to increase from 3.1 ha in 2002 to 3.5 ha in 2007. The number of holdings proportionally decreased, reaching 3.93 million, i.e., less by 12% compared to 2002. By categories, the average utilized agricultural area represented 2.3 ha for individual holdings and 270.5 ha for legal holdings.

2. AGRICULTURAL PRODUCERS IN THE SOUTH-EAST REGION AND NATIONAL LEVEL

The analysis is based upon the statistical data from the Agricultural Census of 2002, the farm surveys of 2005 and 2007 and upon a regional survey conducted in the respective region in the year 2006. According to the Agricultural Survey, 2007, the main agricultural producers in the South-East region of Romania are represented by individual producers (99%) and legal entities (commercial companies, agricultural associations, units belonging to public administration and others) (1%). Similar percentages are valid at national level (Table 1).

Table 1
Number and agricultural area of agricultural holdings

Types of agricultural holdings	No. of farms 2002	UAA 2002 ha	No. of farms 2005	UAA 2005 ha	No. of farms 2007	UAA 2007 ha	Changes in number 2007/2002	Changes in area 2007/2002
Individual farmers	552729	1063311	529678	1303119	498570	1263234	90%	119%
Legal entities	2827	1085857	2468	848089	2849	924752	101%	85%
Total S-E	555556	2149168	532146	2151208	501419	2187987	90%	102%
Individual farmers	4462221	7708754	4237889	9102018	3913651	8966308	88%	116%
Legal entities	22672	6221949	18263	4804683	17699	4786737	78%	77%
Total National	4484893	13930703	4256152	13906701	3931350	13753045	88%	99%

Source: Agricultural Census 2002, Farm survey 2005, Farm survey 2007.

In 2007, in South-East region, 58% of the land was managed by individual farmers and 42% by legal entities. This reveals a high polarization process with 1% of farmers managing 42% of the land and 99% of individual farmers managing 58% of the land. At national level, 65% of the land was managed by individual farmers and 35% of the land was managed by legal entities (Table 2).

Table 2
Average area per farm

Types of agricultural holdings	Average area ha/farm 2002	Average area ha/farm 2005	Average area ha/farm 2007	Managed land 2005 as % of total land	Managed land 2007 as % of total land
Individual farmers	1.9	2.5	2.5	61%	58%
Legal entities	384.1	343.6	324.6	39%	42%
Total S-E	3.9	4.0	4.4	100%	100%
Individual farmers	1.7	2.1	2.3	65%	65%
Legal entities	274.4	263.1	270.5	35%	35%
Total National	3.1	3.3	3.5	100%	100%

Source: Agricultural Census 2002, Farm survey 2005, Farm survey 2007.

3. FARMERS' SPECIALIZATION

At regional level, 84% of individual producers are specialized both in crop production and livestock breeding (Table 3). The legal entities are specialized mainly in crop production (82%), 16% have a mixed specialization and 2% are specialized only in livestock breeding.

Table 3
Specialization of agricultural producers

Types of agricultural producers		No. of holdings	Mixed livestock and crop production	%	Only crop production	%	Only livestock breeding	%
S-E Region 2002	Individual	498570	421700	84	67188	13	12531	2
	Legal entities	2827	464	16	2316	82	47	2
National level 2007	Individual	3913651	3252011	83	582396	15	79244	2
	Legal entities	17699	2231	13	15152	86	312	2

Source: Agricultural Census, 2002**;** Farm Survey, 2007.

One might say that farmers usually do not switch from crop production to livestock production due to tradition and expertise, but they are more willing to switch within crop production from one crop to another crop according to the market demand. Similar percentages are valid for the national level.

4. THE COMMERCIALIZATION OF THE AGRI-FOOD PRODUCTS

At regional level, considering the number of hectares managed by individual producers (58% of the total land), one can say that the degree of agri-food commercialization of the individual producers is very low. The individual farmers produce mainly for self-consumption (76%), due to the fact that the level of production obtained on a small scale is much reduced and the farmers are not oriented towards markets (Table 4). On the other hand, legal entities produce mainly for commercialization (63%).

Table 4
Marketability of products by agricultural holdings

Agricultural holdings		Self consumption (no)	%	Surplus is meant for commercialization (no)	%	Mainly for commercialization (no)	%
Individual holdings	S-E Region	423652	76	111623	20	17454	4
	National	3422089	77	947484	21	92468	2
Legal entities	S-E Region	622	22	583	21	1622	57
	National	7322	32	4461	20	10834	48

Source: Agricultural Census, 2002.

For South-East region, Table 4 reveals that 76% of individual producers produce only for self consumption (i.e. they are semi-subsistence farmers), while 57% of legal entities produce mainly for commercialization purposes. Accordingly, only 4% of individual producers are market oriented and 20% of them have some surplus that is marketed.

At national level, the percentage of self-consumption of individual holdings is even higher, while for legal entities sale 48% of the production.

It is interesting to note that at regional level, the non-agricultural activities carried out by the agricultural producers in the S-E region are very few. This suggests a very low level of entrepreneurship in the area.

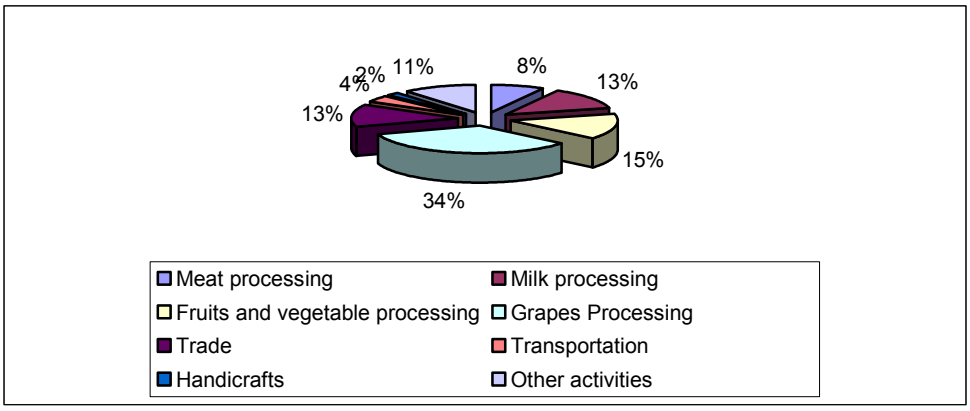
Table 5
Non-agricultural activities carried out by individual and legal entities in the South-East region of Romania

Holdings which carry out non-agricultural activities	Individual	Legal	Total
Number of holdings S-E region	19338	677	20015
% of total number S-E region	6%	40%	6%
Number of holdings–national level	1598600	5526	1604126
% of total number–national level	37%	30%	37%

Source: Farm survey 2005, National Institute for Statistics.

Table 5 reveals that the percentage of those agricultural producers carrying out non-agricultural activities is very small. Meat, milk and vegetable processing are the main activities carried out in the region. Legal holdings have a stronger entrepreneurship status, 40% of them being involved in non-agricultural activities.

At national level, the entrepreneurship level on individual holdings is much higher i.e., 37%, and only 30% for legal entities. An interesting consideration, which is partially in contrast with the definition of subsistence given by Todaro (2006) presented above, the Romanian subsistence food production is not limited to staple crops or nutritious food, but is also relevant for complex food products such as wine and spirits, cheese and cured meat. This particular area in subsistence agriculture is household food processing, where households manufacture their own products, through bioprocesses that have a certain level of technology and technical skills. In fact, this kind of household can be considered as a form of "subsistence food company", having a larger interference with the food production market, since also members of the family coming from urban area prefer to obtain these products from relatives rather than from retailers (Bleahu, 2002).

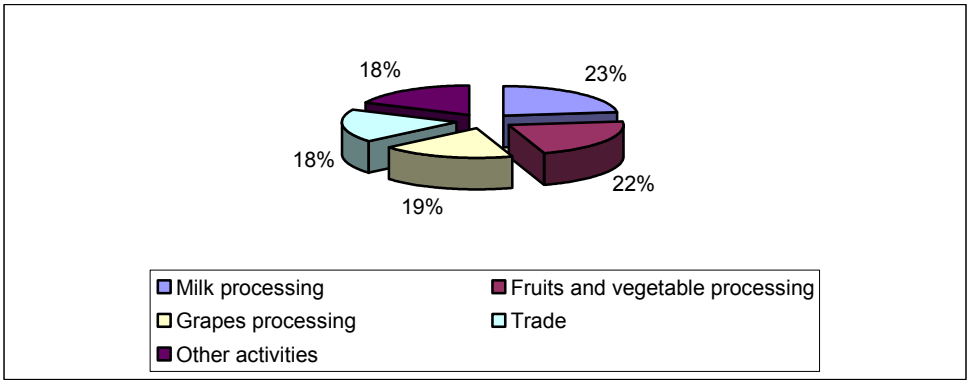


Source: Agricultural Census, 2002.

Figure 1. Non-agricultural activities carried out in the South-East region.

Figure 1 reveals the non-agricultural activities carried out by the agricultural holdings in the S-E region of Romania. The main non-agricultural activities carried out by the agricultural holdings are: grapes processing (34%), fruits and vegetable processing (15%), milk processing (13%), trade (13%), meat processing (11%). The area has tradition in vegetables and fruit farming as well in vineyards, and this is reflected in the processing activities.

At national level, trade is the main non-agricultural activity carried out (28%), followed by milk processing (23%), fruit and vegetables processing (22%), grapes processing 19%.



Source: Agricultural Census, 2002.

Figure 2. Non-agricultural activities carried out at national level.

5. IRRIGATION IN THE SOUTH-EAST REGION AND AT THE NATIONAL LEVEL

This section gives an overview of the irrigation in the region and of the main irrigated crops. The irrigated cropping pattern by type of producers is presented in Table 6 and 7.

Table 6
Irrigated area, cropping pattern, number of individual producers that irrigate, South-East region

Individual producers	Irrigated area – ha	Cropping pattern %	Number	%
Wheat	9278.4	19%	1071	6
Maize	19579.0	41%	8121	48
Sunflower	9312.0	19%	1095	6
Soybean	1813.1	4%	88	1
Sugar beet	135.3	0%	61	0
Potatoes	969.6	2%	343	2
Vegetables	3514.8	7%	4318	25
Fodder crops	1959.9	4%	895	5
Vineyards	107.4	0%	300	2
Orchards	18.8	0%	25	0
Meadows	2.5	0%	4	0
Other crops	1432.0	3%	620	4%
Total	48122.5	100%	16941	100%

Source: Agricultural Census, 2002.

In 2002, in the South-East region, 16941 individual farmers irrigated a total of 48122.5 ha. The main irrigated crop was maize 41%, followed by wheat 19%, sunflower 19%, and vegetables. A total of 1222 legal entities irrigated 116175.3 ha.

The cropping pattern was quite different from that of the individual producers. The legal entities irrigated mainly wheat (30%), maize (19%), sunflower (17%) and soybean (10%).

Table 7
Irrigated area, cropping pattern, number of legal entities that irrigate, South-East region

Legal entities	Irrigated area - ha	Cropping pattern %	Number	%
Wheat	34659.3	30	213	17
Maize	21747.6	19	293	24
Sunflower	19355.8	17	220	18
Soybean	11741.9	10	95	8
Sugar beet	408.0	0	15	1
Potatoes	355.8	0	28	2
Vegetables	2334.2	2	78	6
Fodder crops	6564.5	6	131	11
Vineyards	7771.4	7	22	2
Orchards	2547.7	2	21	2
Meadows	837.0	1	3	0
Other crops	7852.3	7	103	8
Total	116175.3	100	1222	100

Source: Agricultural Census, 2002.

The statistical data and the survey conducted in this region reveal that the main water users are of two types – individual producers (those market-oriented) and commercial companies (legal entities).

Table 8
Number and area by types of agricultural producers with own irrigation infrastructure, 2002

Type of agricultural producers	Number of holdings with irrigation infrastructure		Area with irrigation infrastructure		% of the area with irrigation infrastructure		Average size of irrigable area/holding, ha	
	2002	2005	2002	2005	2002	2005	2002	2005
Individual producers	72333	n.a	223867.2	n.a	19%	n.a	3.1	n.a
Legal entities	789	n.a	317148.3	n.a	59%	n.a	402.0	n.a
Total S-E	73122	40721	541015.5	280940	45%	13%	7.4	
National level	251051	102246	1510815	615328	11%	4.4%	6.0	6.0

Source: Agricultural Census, 2002, Farm survey 2005.

Table 8 reveals that in the year 2002 in the S-E region, only 19% of the area farmed by individual farmers was covered by irrigation infrastructure while the area with irrigation infrastructure belonging to legal entities represented 59%; overall, 45% of the South-East area was covered with irrigation infrastructure and 11% of the area at national level. The area covered with irrigation infrastructure decreased in 2005 from 11% to 4.4%.

By type of agricultural producers, 93% of individual producers irrigated 29% of the irrigable area, while 7% of the legal entities irrigated 71% of the irrigable land. At the whole region level, only 5% of the total individual producers irrigated, while in the total legal entities 72% irrigated. At national level, in 2005, only 2.9% of the land was irrigated by 0.6% of the farms. The irrigation system has been partly destroyed or the water users associations have not reached an agreement on how much or when they should irrigate. This is why a large part of the irrigation system does not work.

Table 9
Irrigation application by types of agricultural producers

Type of agricultural producers	No of holdings irrigating	Irrigated area, ha	% of the irrigated land	% of holdings irrigating	% of holding in total
Individual producers	16941	48122.5	29	93	5
Legal entities	1222	116175.3	71	7	72
Total S-E 2002	18163	164297.8	100	100	6
Total: national level 2005	79822	400515	2.9	0.6	0.6

Source: Agricultural Census, 2002, Farm survey 2005.

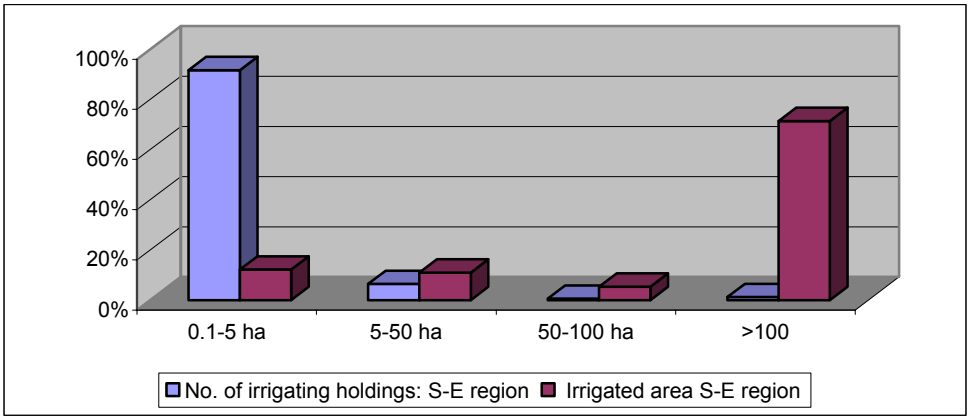
In order to see the change in the cropping pattern in the region over the years, due to data limitation only Galați County, belonging to the South-East region was chosen. Table 10 reveals a change in the irrigated cropping pattern in this county in the period 2000-2005. In 2005, mainly vegetables (24.1%) and maize (41.8%) were irrigated. The cropping pattern in 2005 is much different from that in the 2000, when the irrigated cropping pattern was more diversified. This situation is explained by the fact that farmers have got oriented towards more added value crops, which can better respond to irrigation such as vegetables and maize.

Table 10
Irrigated cropping pattern, Galați county %

Specification	2005	2004	2003	2002	2001	2000
Wheat	7.6	16.4	8.3	23.6	27.1	0.0
Barley	5.0	4.7	2.8	4.2	1.6	0.0
Maize	41.8	38.7	42.8	33.1	36.8	40.2
Sunflower	6.9	7.4	9.9	10.7	7.3	11.4
Soybean	9.6	20.2	23.9	16.0	14.1	24.4
Sugar beet	0.0	0.4	2.0	0.8	0.3	2.7
Potatoes	5.0	2.2	1.8	1.7	1.6	1.9
Vegetables	24.1	10.0	8.5	9.8	11.2	19.5
Total	100	100	100	100	100	100

Source: National Institute for Statistics, 2005.

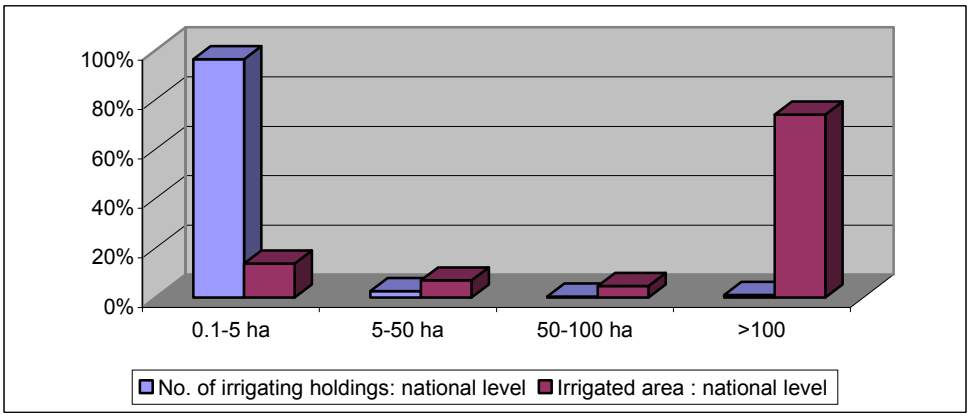
In the South-East of Romania, 92% of the irrigating holdings belonging to the category 0.1–5 ha irrigate 12% of the area, while 1% of the legal entities irrigate 74% of the land (Figure 3).



Source: Farm survey 2007.

Figure 3. Number of irrigating holdings and the irrigated area by categories in the South-East region of Romania.

At national level, 96% of the irrigating holdings belonging to the category 0.1–5 ha irrigate 14% of the land, while 1% of the legal entities irrigate 75% of the land. The situation is explained by the polarization land process that took place in the last years. This process is even more obvious at national level (Figure 4). The intermediate land categories, respectively 5-50 ha and 50-100 ha are irrigated by less than 10% of the holdings.



Source: Farm survey 2007.

Figure 4. Number of irrigating holdings and the irrigated area by categories at national level.

6. LABOUR FORCE IN THE ROMANIAN AGRICULTURE

Romania ranks first in the total number of agricultural labour force at the EU level, respectively 20% of the total European labour force.

The Romanian agriculture employs mainly family labour force, a situation that is similar to the European area. At the European Union level, 23% of the labour force is employed on the subsistence farms, 59% is represented by family labour force and 18% labour force coming from outside the farm (Table 11).

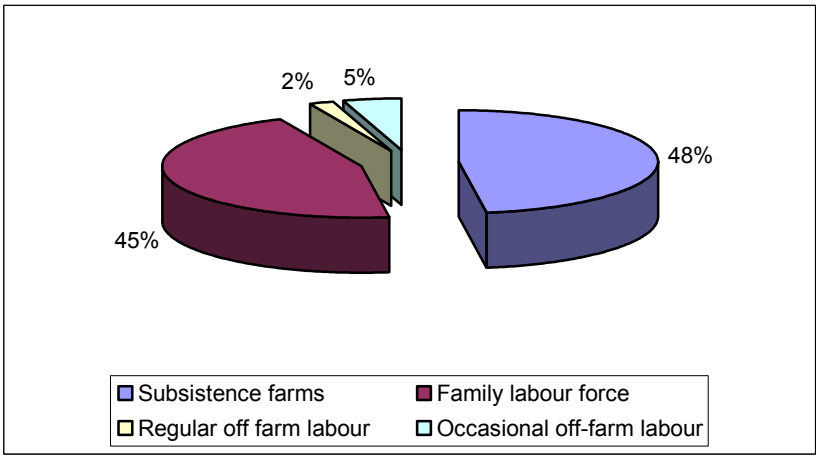
Table 11
Labour force in agriculture

Thousand annual labour units

Specification	Total	Subsistence farms	Family labour force*	Labour force coming from outside farm	
				Regular	Occasional
EU 27 total	12716	2929	7447	1459	881
EU average	471	1077	275.7	54	32.6
Romania	2596	1241	1180	53	121
Poland	2274	547	1608	58	61
Belgium	70	1	55	11	3

Source: Eurostat 2007.
*excluding subsistence farms.

By comparing the Romanian subsistence level to some other European countries (Table 11), it is possible to notice that the Romanian labour force level is similar to that of Poland while Belgium lies at the opposite pole. Also, Poland ranks second in the total number of agricultural labour force, with 17%.

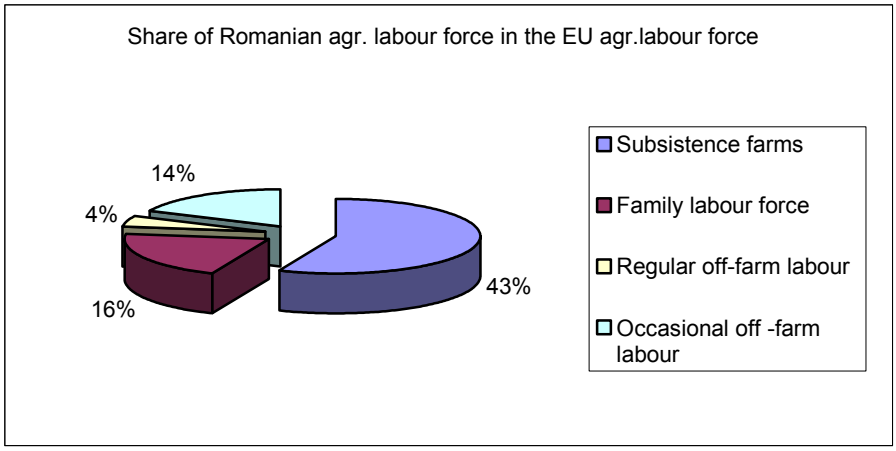


Source: Eurostat 2007.

Figure 5. Labour force in the Romanian agriculture.

Family labour force represents 45% in Romania, and those employed by the subsistence farms represent 48% of total agricultural labour force (Figure 5). Small percentages, 2% and 5% respectively, are represented by regular off-farm labour and occasional off-farm labour.

At the EU level, 42% of the labour force employed on the subsistence farms comes from Romania, while 16% of the EU family labour force is Romanian. Quite a large percentage of EU occasional off-farm labour is also represented by Romanians (Figure 6).



Source: Eurostat 2007.

Figure 6. Share of the Romanian labour force in the EU agricultural labour force.

7. CONCLUSIONS

Some improvements have been noticed in the last period, although subsistence agriculture continues to prevail in the Romanian agriculture; it can be seen as a social buffer in a period of crisis but also as a good opportunity for the development of the low cost industry (a worker might accept a smaller salary in a factory as long as he can produce for his self-consumption on his own plot of land). The entrepreneurship level is quite low in the S-E region, but higher at national level. Also, the type of entrepreneurship is different. This requires different development strategies for different regions.

Unfortunately, the irrigation infrastructure has been much eroded both at national and regional level, while the irrigated area has decreased by half both at regional and national level.

Subsistence agriculture connects the producer and consumer very closely. In fact, the same person faces some issues on the supply side, some on the demand side, revealing the particular case in which the producer knows exactly the consumers' needs and desires. In this case he can produce accordingly, in terms of quantity and quality in a case of perfect symmetric information. This consideration

can be relevant, considering the characteristics of these products, similar to geographical indications: it would help tracking the origin of products, which were produced due to the availability of raw materials and are seemingly refined according to the taste of local consumers (producers and their relatives), with a direct interface between the two counterparts.

At the same time, the trends in changes of privately owned agricultural area may influence the processing chain of agricultural products to a less extent, since consumers can produce subsistence food without owning land, just purchasing raw materials, or owing small plots of land.

However, the economic constraints, the high production risk (also in terms of food safety) and the uncertainties that farmers are facing can make a big difference between this kind of consumer and the consumer in neo-classical economics, and these differences should be carefully investigated before interpretation.

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