Does agriculture provide enough incomes for the rural households? The Albanian case[1]

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Jel codes: N50, Q12, Q18

Abstract

Albanian agriculture is characterised by small and fragmented farms issued from a radical decollectivization process in the 1990s. After twenty years, the Albanian farm structure has not changed a lot. Farms are still small and their labour force supply is higher than the real demand. This paper aims to identify the most productive farming households in Albania and those which provide higher incomes for their members. This paper uses a new farm level database in order to identify a representative farming household typology and to draw conclusions about the productivity of each farm household type. Average farm type work and land productivity as well as extreme and complete poverty lines are considered as the main indicators to depict the agriculture's possibilities to provide enough incomes to rural households.

***Keywords**: Albania, agriculture, cluster, farm typology, work productivity, land productivity, extreme poverty line, complete poverty line..*

Résumé

L'agriculture albanaise se caractérise par des exploitations agricoles de petite taille et très fragmentées, qui sont le résultat du processus de décollectivisation radicale des années 1990. Après vingt ans, la structure agricole albanaise n'a pas beaucoup changé. Les exploitations agricoles restent encore petites et leur offre de main d'œuvre dépasse la demande réelle. L'objectif de ce travail est d'identifier les ménages agricoles les plus productifs dans le pays et ceux qui assurent les revenus les plus élevés pour leurs membres. Une nouvelle base de données sur les exploitations agricole est utilisée en vue d'identifier une typologie représentative des ménages agricoles et de tirer des conclusions sur la productivité de chaque type de ménage agricole. La productivité moyenne du travail agricole et de la terre ainsi que les seuils d'extrême pauvreté et totale ont été intégrés comme indicateurs principaux afin de décrire les possibilité pour l'agriculture de fournir des revenus suffisants pour les ménages ruraux.

Mots-clés: Albanie, agriculture, cluster, typologie d'exploitation agricole, productivité du travail, productivité de la terre, seuil d'extrême pauvreté, seuil de pauvreté totale.

1. Introduction

Agriculture is one of the most important economic sectors of Albania. It contributes for 19.5% of the national GDP (INSTAT, 2011), and employs nearly half of the country labour force (2011). According to the European Commission (2010), around 500,000 people work in agriculture of whom 55% full time and 45% part time (EC, 2010). Agriculture is characterised by stabilised but less important growth rates compared with the other economic sectors. During the period 2000-2010, the annual average growth rate for agriculture was 4%, i.e. two times lower compared with the construction sector (INSTAT, 2014).

According to the first figures of the new agricultural census organised in the country during 2012, released by the Albanian Institute of Statistics (INSTAT), Albania has about 325 thousand active farms (EC, 2013). In the last ten years the average farm size has increased by 15%, from 1.04 ha/farm in 2002 to 1.20 ha/farm in 2012 (INSTAT, 2012), but it still remains extremely small. The average plot size in 2012 is only 0.26 ha. On average, the farms have more than four plots, which sometimes are located several kilometres away from each other and from the farm centre.

The limited farm surfaces and the important level of fragmentation make the use of large scale agricultural infrastructure difficult, especially in hilly and mountain areas. The hilly and mountain areas cover respectively 37% and 19% of country's territory (INSTAT, 2012). Land insecurity, due to the delay of compensation of the former land owners and lack of appropriate policy instruments discourage farmers to increase the farming surface (MBUMK, 2012).

Apart from land fragmentation, the Albanian agriculture suffers from critical structural problems such as: i) underdeveloped irrigation and drainage systems, ii) deficient infrastructure, iii) limited access to markets, iv) underdeveloped agro-food industry, v) low technological level, vi) weakness of farmers' organisations, and vii) limited access to credit (EC, 2010).

The main objective of the paper is to assess the capacity of the agriculture to remunerate properly the agricultural work force and to offer a decent livelihood for the rural household.

The paper is based on the information collected in 2013 by a survey coordinated by the European Commission Joint Research Centre, and run by the Agricultural University of Tirana in three representative regions of the country (Guri *et al*., 2015).

This paper is organised as follows: the next section pres-

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[1] The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.

ents materials and methods i.e. the farm typology characteristics and their application to the Albanian farming sector; the methodological section includes the related information on sample design, clustering methodology and the farm type viability analysis; the results section analyses the characteristics of the farm types and the farm- type viability. The last section reports the conclusions.

2. Materials and methods

2.1 Farm Typology in Albania

After the de-collectivisation process of 1992, farmer strategies were based mostly on accomplishing family needs for food and sales of surpluses. Most common products were cereals and vegetables. This generalized situation left small room for farmer differentiated strategies and on the other side for adapted public policy instruments.

These general trends need to be analysed in a more detailed way by constructing a farm typology that groups farms with similar characteristics within the group and important differences among groups (Köbrich *et al*., 2003; Iraizoz *et al*., 2007). The creation of a farm system typology allows the specification of research question, policy instrument elaboration and improvement of extension intervention in rural areas (Jouve, 1986; Landais, 1998).

The role of the typology can be summarized in being 'an efficient method to summarize diversity of farming systems, intrinsic to every rural area' (Righi *et al*., 2011).

A farm typology in Albania helps for the correct and efficient orientation of policy instruments in agriculture. Independently of their research objectives, scholars (Canali *et al*., 1998; Biba 2001; Guri, 2002; Çakalli, 2012) agree that typology is one of the fewest instruments that allows the identification of the differences that exist between farms in Albanian rural areas.

Table 1 presents a list of typologies built so far in Albania. They are all expert based and applied for a limited number of farms and districts, with the main objective, to identify the evolution of and streamline farming systems.

Three main indicators are recurrently used in Albanian farming systems clustering: 1) *Agricultural vs. non-agricultural income*, 2) *land use strategies*, 3) *effect of policy instruments on agricultural income*.

During the last twenty years, methods used to elaborate a farm typology in Albania have largely been based on expert knowledge, with a limited coverage and very few information regarding sample representativeness in district, region or country level.

The objective methods (quantitative typification) of classification can provide an exhaustive array of types, allowing condensing large data sets, and thus helping a researcher identify those types that are needed for analysis (Köbrich *et al*., 2003).

To build up the farming system typology, this paper uses a bunch of eleven variables extracted from the following five main categories of variables, dealing with the socio-economic characteristics of farms:

1) The physical characteristics of the farm: a) total surface of the farm; b) share of rented land; c) share of irrigated land. This group of variables helps cluster farms according to the physical characteristics (total surface), the agriculture infrastructure (irrigation) and the intensity of farming system the household wants to apply in the farm (share of rented land). Current structure of Albanian agriculture (small and fragmented farms) is an indication that renting land is an expansion strategy for intensification of farming systems.

2) The crop pattern: a) the share of livestock production value over the total production value; b) the share of crop value production over the total agricultural production. This second variable is constructed by three main categories of crop productions: i) arable crops, ii) vegetables and potatoes, and iii) fruit trees. The crop pattern is one of the main structural characteristics of farming systems that shape the strategies of the farming systems.

3) Capital structure: a) Share of agricultural capital on agricultural production in value, and b) share of the total expens-

Table 1 - *A non – exhaustive table of typologies applied in Albania.*

Author	Objective	Number of questionnaires	Region	Main indicators	Methodology
(Biba, 2001)	Farm strategies	70	Lezha, Korça	Agricultural incomes, share of self-consumption	Expert based
(Canali *et al*., 1998)	Farm strategies	n.a.	Lushnjë	Irrigated surface	Expert based
(Civici *et al*., 1997)	Farm effectiveness	n.a.	Central and North-West Albania	Net agricultural income/ worker	Expert based
(Civici, 2003)	Land use strategies	315	7 districts of Albania (mainly South and central area)	Availability to participate in land market	Expert based
(Çakalli, 2012)	Effectiveness of policy instruments	70	Vlora	Agricultural mix (fruit trees)	Expert based
(Guri, 2002)	Farm strategies	150	Durrës-Kavaja	Agricultural incomes, non-agricultural incomes, distance from the coast	Expert based
(Ronza, 2011)	Level of subsistence	n.a.	Albania	Share sales	Instat 2000

Source: Author's research.

es on agricultural production in value. These two variables try to differentiate farming systems according to the capital intensification.

4) The fourth group of variables tries to differentiate the farming systems according to the propensity they have to participate in agricultural markets. Scholars differentiate three main types of agricultural farms in Albania (Biba, 2001; Guri, 2002): a) self-sufficient farms producing mainly to fulfil the family need in food and selling only some surpluses to local markets; b) mixed farms producing both to fulfil the family food needs but selling as well an important part of their production mainly to local markets but abroad as well. This strategy is followed by farms located in areas that are well known for a specific agricultural production, farms that are located near the market infrastructures or that have invested in improving the production capacities; c) the last group of farms (the smallest one) is of those which produce exclusively for market purposes. Farms of this group are generally those that have extended surfaces in greenhouses, fruit trees or large livestock herds.

5) The last group of variables tries to group farming systems by analysing the share of non-agricultural income in the total income. The income structure is among the most used variables in the expert based typologies in Albania (Biba, 2001; Guri, 2002) due to the characteristics of farming system in Albania, i.e. non-farm incomes are one of the main sources of revenues in rural areas. These may come from non- agricultural employment or the social transfers coming from family members in migration (Kilic *et al*., 2009), governmental social transfers known as poverty allocations or retirement pensions. Studies have concluded that the non-farm employment in Albania is more a substitute that a complement of agricultural employment and that the non-farm income is generally channelled to non-agricultural activities within the household. Exception is made for livestock activity if the latter has a market destination (Kilic *et al*., 2009). According to the studies mentioned above, the higher share of non-agricultural income will result in farms with less agricultural sales, and with a diversified employment but out of agriculture.

The above mentioned indicators are used to construct a representative farming system typology for three representative regions of the country.

2.2. Methodological approach

Often, a list of units within the scope of the survey is not available. Often, updating lists of households or agricultural holdings from a population or agricultural census for sampling frame purposes is too difficult or expensive. In the above cases a sampling technique known as multi-stage sampling is used (UN, 2008; FAO, 2010). Since the circumstances of the present study fall into the above cases, following FAO (2010), the methodological approach of the paper is based in three main steps: i) the design of a representative sample for the farming systems in Albania; ii) the typology construction, using the factor analysis procedure and a two-step cluster procedure, and iii) the farm viability analysis.

2.2.1. Sample design

For designing the sample of the survey, a selection of three representative regions of the country is first performed and further a multistage sampling selection to build a representative sample of farms for each region.

Region selection

The selection of three representative regions (in terms of agricultural activity) in order to build up a representative farm typology of Albanian farming systems, is made by ranking all the Albanian regions based on four socio- economic indicators:

1. Gross added value of agriculture in Million Albanian Leks[2] (MALL[3]) - as an indicator of the regional agricultural importance on the national agricultural sector;
2. Propensity to market (sales/total production - in value) - one of the most cited indicators in the identification of the different types of farming systems in Albania;
3. Agricultural work productivity (Workers/ MALL of production) - the indicator of farming systems intensification in the region;
4. Productivity of the land (ALL/ha) – the indicator of the land intensification in the region.

The data sources are INSTAT (Albanian National Institute of Statistics) publications and Statistical Yearbook 2010, produced by the Ministry of Agriculture. The latest common year for both sources is used.

The selected indicators are used to rank the Albanian regions according to their share.

Ranking is done by a user defined function[4] with the main goal of ensuring the sustainability of sums.

The regions, sorted by rank, are divided into three non-overlapping strata.

The selection of representative region in each stratum is done by making a second similar ranking process, taking into account the diversity of production.

The regional stratification is presented in the following map.

The regions belonging to the same stratum have comparable characteristics of agricultural production among them.

The first stratum collects the most advanced agricultural regions of the country. The combination of the four selected indicators ranks these regions in the first places.

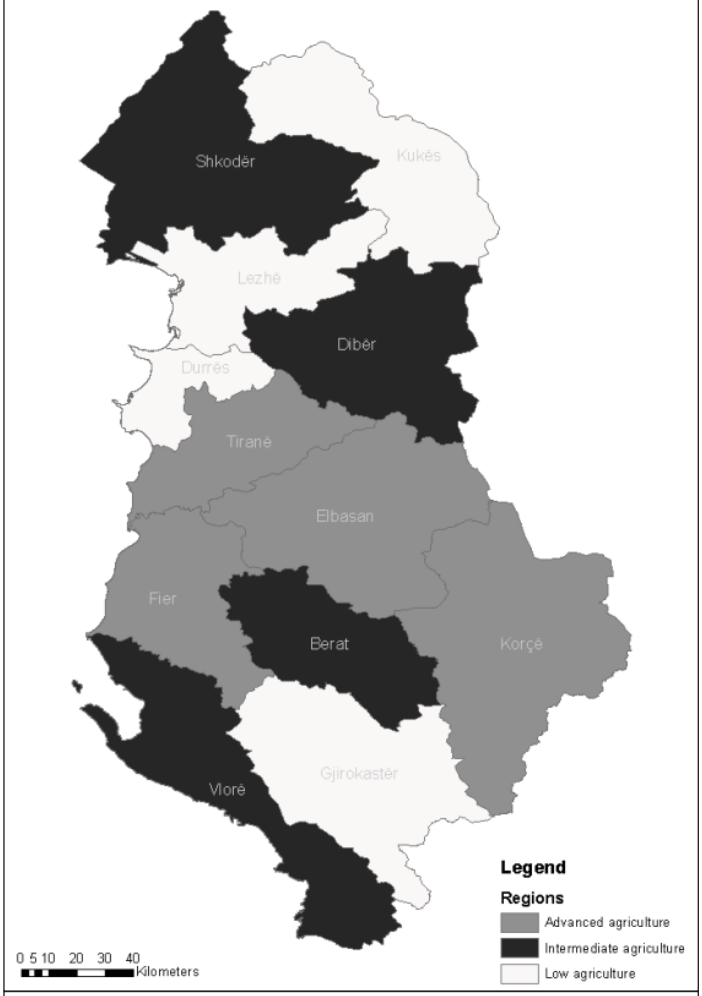
The second stratum is composed of regions that are characterised by a lower share of agricultural production or a lower share of productivity. It is difficult to give general consideration for the whole stratum.

[2] 1EUR=138.27 Albanian Lek

[3] 1Euro=140 Albanian Lek (ALL)

[4] A function built by Hans Pottel, commonly used for ranking in statistics, reviewing the excel RANK function (the sum of ranks for a list of a given length changes depending on the number of ties), by assigning fractional ranks to ties to keep the sum consistent.

Figure 1 - *Region classification according to the agriculture importance.*



Source: Author's elaboration.

The third stratum is mainly composed of mountainous regions, more rural but less performing in agriculture. In this group the livestock production is important, but their products have difficulties to reach the main agricultural markets of the country.

To assure a better representativeness of the country and farming systems one region for each stratum is selected. The main rationale behind is not only to select representative regions at the country level, but to have as well the best possible representation of agricultural systems in each group of regions.

To select the region within the stratum another similar ranking process inside each stratum is applied, using farming system diversification indicators: crop pattern (arable crop, perennial crops and livestock production in MALL). The selected region for each stratum is the region whose rank is closer to the average rank of its stratum.

The selected regions are: Elbasan among the most agricultural advanced regions, Berat among the middle regions, and Lezha among the agricultural less advanced regions.

Farm selection

To select the farmers in each region, a multistage sampling method is applied having as the main variable 'the surface' (Area Sampling Frame methodology). This methodology is widely used in agricultural surveys in Albania.

In this case we have selected a subsample of a large master sample.

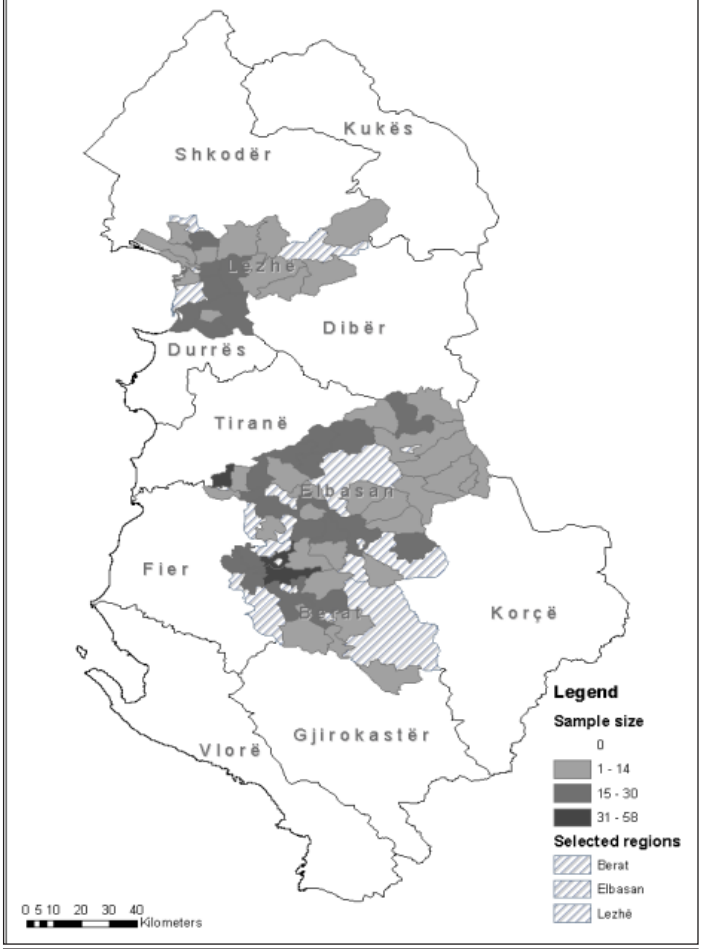
The number of the selected segments for each selected region is 30 for Berat, 56 for Elbasan, and 30 for the Lezha Region, respectively. The Table below shows the number of farms selected for interviews and the response rate for each region.

Table 2 - *Region sample.*

Region	Farms selected	Response rate
Berat	276	98.1%
Elbasan	505	98.4%
Lezhë	255	99.6%
Total	1036	98.6%

Source: Author's elaboration.

Figure 2 - *Sample distribution at commune level.*



Source: Author's elaboration

The difference between the selected farms and the completed questionnaires reflects the number of non-responses, or farms without activity at interview time.

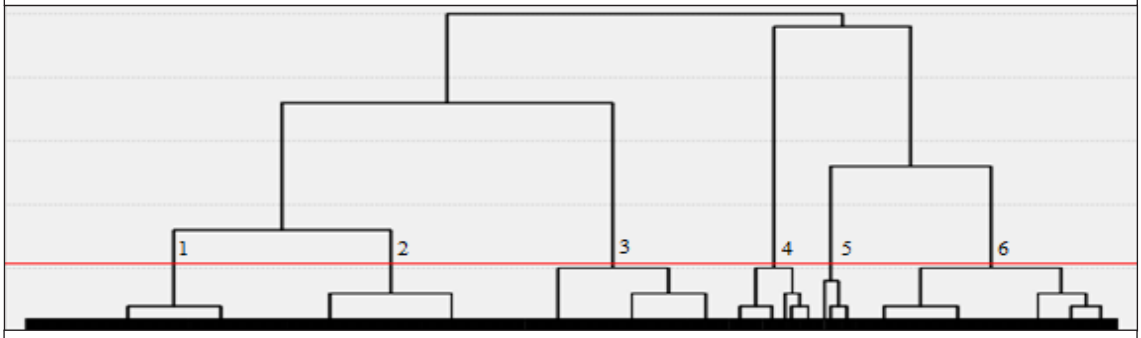
The map (Figure 2) shows the questionnaire distribution at commune level.

2.2.2. Typology construction

From eleven variables defined in section II, those that after data processing do not show sufficient variability are excluded (i.e. rented land, agricultural capital, and hired workforce)

The final variables retained to construct the typology of farming systems are the following: 1) Farm structure: a) Total farm area, b) Cultivated area/total area; 2) Agricultural crops: a) Share of livestock production, b) Structure of the agricultural production including: b1) arable crops; b2) Vegetables and potatoes; b3) fruit trees; 3) Intensification strategies: a) Total expenses/value of agricultural production, b) AWU/value of agricultural production (1 AWU=1800 working hours = 225 days of work[5]); 4) Agricultural farms propensity to market: Share of agricultural sales value over the value of total agricultural production; and 5) Share of non-agricultural income.

Figure 3 - *The dendrogram of cluster analysis.*



Source: Authors' elaboration.

Farm typology construction has gone through three main steps: a) Factor Analysis- to analyse the nature of interrelationships among variables by defining a set of common underlying dimensions; b) hierarchical clustering to define the most appropriate number of clusters, and c) non-hierarchical cluster to define the clusters of the sample and the characteristics of each type (Köbrich *et al*., 2003; Bidogeza *et al*., 2007).

a) Kaiser-Meyer-Olkim (KMO) measure of sampling adequacy, (Kaiser, 1970) and Bartlett's test of Sphericity are used to test the validity of the data and selecting variables for Factor Analysis.

The Kaiser-Meyer-Olkim measure of sampling adequacy is greater than 0.5, the correlation among the variables is sufficient to apply the Factor Analysis. Bartlett's test of Sphericity, statistically significant at $p<0.01$ level, shows the independence of variables.

b) The factors resulting from the principal component analysis (PCA) are used in the two-step clustering analysis method.

This method uses the similarity matrix to create a dendrogram in order to depict the relationships among the different households. The dendrogram is a two-dimensional diagram illustrating the way partitioning was done with the clustering procedure at each level. The technique starts with each cluster comprising exactly one household and combines the nearest clusters until there is only one cluster left, consisting of all of the households in the sample (Babu and Sanyal, 2009). The algorithm used in this analysis was Ward's (1963) method with squared Euclidean distance measure of proximity (Xu and Wunsch, 2009).

The final result is taken by cutting the dendrogram on the level 5 (Figure **3**) of the linkage distance which is the lowest cut giving a reasonable number of clusters. In this case the cluster number is 6 (as shown in the figure). The cluster selection is also supported by the Anova test (High F-values and $p<0.01$ for each variable).

2.2.3. Farm viability analysis

The analysis of farming system types is organised into two parts.

The economic performance of each farm type is evaluated by calculating their i) viability and ii) farm productivity.

The calculation of farm type viability is made by using the Reproduction Threshold (RT) that is a benchmark for assessing the economic viability of different farming or production systems (Gomez y Paloma *et al.*, 2012). For the purpose of the present study, two indicators are used to assess the viability of farming systems:

the minimum wage approach is the comparison of the Farm Net Income (FNI) per Work Unit (WU) with the minimum wage[6] for 2014 (DPT, 2014). The second indicator is the comparison of FNI/HM(household member) with the poverty line[7] (INSTAT, 2014c). The same level of minimum wage and poverty line indicators is applied for the w-

[5] EUROSTAT definition of AWU (http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:Annual_work_unit_(AWU))

[6] For administrative reasons, the Albanian Government has fixed the level of the minimum wage. In 2014, the minimum monthly wage amounts to 22 000 ALL (EUR 156.6) (DPT, 2014).

[7] According to the Institute of Statistics of Albania (INSTAT), an inhabitant is in extreme poverty conditions if his monthly income doesn't exceed the value of 4 037 ALL (EUR 28.7) and is in complete poverty conditions if his monthly income doesn't exceed the amount of 4 891 ALL (EUR 34.8) (INSTAT, 2014c).

Table 3 - *The indicators of farm household viability used in our analysis.*

	Indicator		Value	Note
	Minimum Wage	$\frac{FNI}{WU \times 12 \times MW}$	>1	The work in agriculture is paid more than the minimum wage (MW)
			=1	The Work in Agriculture is paid as much as the minimum wage (MW)
Reproduction Threshold			<1	The work in agriculture is paid less than the minimum wage
	Poverty line Extreme poverty	$\frac{FNI}{HM \times 12 \times 4037 ALL}$	>1	The members of the family live above the extreme poverty line
			=1	The members of the family live on the extreme poverty line
			<1	The family members live below the extreme poverty line
	Poverty line Complete poverty	$\frac{FNI}{HM \times 12 \times 4891 ALL}$	>1	The members of the family live above the complete poverty line
			=1	The members of the family live on the complete poverty line
			<1	The family members live below the complete poverty line

Source: Author's adaptation from Gomez y Paloma *et al.* (2012).

hole sample. The following table shows the utilisation of these two indicators.

The analysis (see Table) is performed on a farm type, and the discussion of results is done on farm type level as well as on a comparison of results among different farms types of the region.

The importance of non-farm incomes in Albanian rural areas makes it necessary to perform the analysis not only for the FNI but as well as for the Total Household Income (THI). The THI is calculated:

$$THI = \frac{FNI}{HM \times 12} + \sum_{h} w_h + \sum_{j} Rp_j + \sum_{i} Pp_i + \sum_{n} R_n$$

Where: $\frac{FNI}{HM \times 12}$ is the monthly income for each household family member, w_h is the monthly wage(s) of the household family members, *Rpj* is the monthly amount retirement pension(s) of the household family members, *Ppi* is the monthly amount of poverty payments and *Rn* are the remittances or other incomes, expressed in monthly level.

The second step of farm type economic performance is to analyse the farm type productivity. Productivity indicators of work $(\frac{FNI}{WU})$ and land $(\frac{FNI}{UAA})$ are calculated for each farm type. A comparison of these indicators will offer explanation about the farm types that better perform in terms of work, land and capital.

The analysis will conclude with a ranking of farm types in terms of economic performance in each region (FAO, 1999; Gomez y Paloma *et al*., 2006; Gomez y Paloma *et al*., 2012).

3. Results and discussion

Table 4 shows the values of each variable for the six groups of farms created after the cluster analysis. The farm type average indicators represent an overview of the farm type strategies.

Cluster 1 is the group 'Poly-culture mainly for the market' (12.81% of the sample). This group is characterized by the highest share of sales (64% of the total production value) as well as a diversified agricultural production. Agriculture income is the main source of incomes in the household (8.28% of non-agricultural income) and the production expenses are among the lowest showing a strategy of little use of mechanisation having a higher share of workforce. The farm structure is characterised by relatively larger surfaces (1.35 ha) but little possibility to use irrigation (only 20% of the total land). The agriculture mix is dominated by crops (77% of the total production). The distribution between the cropping activities is in favour of fruit trees production, but with important shares of other crops like arable crops (31%) and vegetables (nearly 20%).

The second cluster has been named 'Leisure farms' (11.05% of the sample). In this group of farms most of the income comes from non-agricultural activities (nearly 70% of total income). Farms of this group are the smallest in our sample (0.7 ha) and have higher share of crop production compared with the livestock. The crops cultivated are generally those that don't need limited know-how (arable crops 74.4%) with little share of fruit trees (less than 5%). The rest of UAA is cultivated with vegetables and potatoes. Almost the total arable surface is cultivated (97%) employing the highest quantity of working force (nearly 7 AWU/Million ALL). These figures allow us to conclude that the farming systems of this group are small and extensive.

Table 4 - *The result of cluster analysis for the whole sample.*

		Cluster 1 (131 farms)	Cluster 2 (113 farms)	Cluster 3 (151 farms)	Cluster 4 (104 farms)	Cluster 5 (234 farms)	Cluster 6 (289 farms)	F-Value	P-Value
1	Sales/ production	64.07	29.32	50.34	63.89	44.21	37.63	48.13	0.000
2	Irrigated/Total UAA	20.91	90.93	11.19	15.21	10.37	75.46	573.33	0.000
3	Livestock production/ total production	22.01	35.26	32.18	9.00	36.67	41.42	43.92	0.000
4	Arable crops/agricultural production	30.70	74.40	87.73	18.14	82.24	78.67	318.08	0.000
5	Fruit trees/ agricultural production value	54.75	4.14	5.93	76.77	8.96	4.82	587.10	0.000
6	Expenses/ total production	0.36	0.40	0.48	0.42	0.36	0.26	16.34	0.000
7	Cultivated area/Arable area	90.62	96.95	92.86	91.94	93.49	98.59	7.31	0.000
8	Arable area (ha)	1.35	0.689	1.374	1.067	1.431	0.899	31.90	0.000
9	AWU/000 ALL production value	0.0046	0.0069	0.0038	0.0055	0.0042	0.0046	4.81	0.000
10	Off-farm income /Total Income	8.28	69.19	67.57	70.80	4.69	6.13	822.18	0.000

Source: Author's adaptation.

The third cluster is called 'Arable crops type' (14.77%). In this group the arable crop production is dominant (nearly 90% of the total crop production). The other types of crop productions (fruit trees or vegetables) are cultivated only for self-consumption. The share of sales remains important and the household have a strong support from non-agricultural activities. Only 11% of the arable land is irrigated. There is a clear competition on the working force between the agricultural activities and other activities. The farms of this group use only 3.8 AWU/Million ALL of agricultural production that is the lower quantity of work used among all the types identified. On the other hand the farms of this group use the higher share of agricultural machinery and other expenses. The limited working forces and the reduced possibilities to irrigate, lead the farmers to follow a strategy to intensify the agricultural production by increasing the use of mechanisation. The production use is divided between the self-consumption and market trying to produce not only food for the family but also products that can be sold in markets without important transaction costs (not direct sales).

The fourth cluster is clearly 'Fruit trees' group (10.17% of the sample). In fruit trees type, all types of fruit trees are calculated (pome fruits, stone fruits, nuts, sub-tropical fruits, citrus, olive and vines).

The farms of this group have a clear specialisation in fruit trees production (77% of the crop production) and are market directed (64% of the production is sold). This clear specialization is not enough to fulfil the family needs. The farms of this group have higher level of non-agricultural (70.8%) income among all the groups. The irrigated surface is limited and the expenses for agricultural production are among the highest of the sample (0.48). The livestock productions as well as the arable crops are produced only for self-consumption.

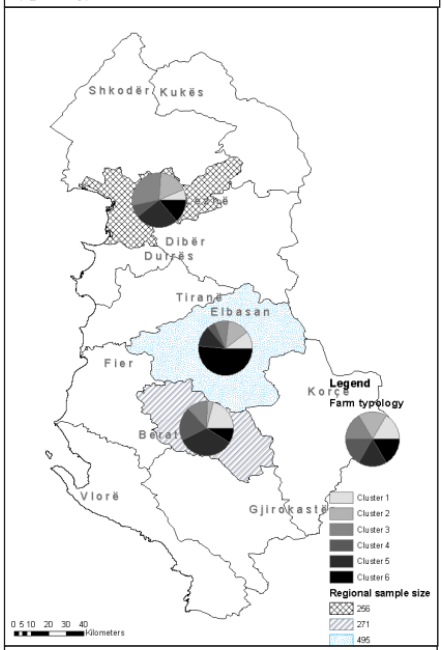
The fifth cluster -'Self-sufficient'- (22.89%) of farms shows the characteristics of self-sufficient farms with less participation in the market compared with the previous group. The majority of production satisfies the household needs of food. The non-agricultural income is not important (less than 5%). The farms of this group spend relatively less to produce, meaning that the main strategy is not intensification. The average quantity of working force reinforces the idea that this group of farms is trapped in agriculture with little possibilities of diversification, higher surface of land (due to a bigger family) and low possibilities to intensify (lack of investments, agricultural infrastructure (only 10% of the land is irrigated) or both reasons.

The last groups farms is specialised in 'Livestock' production (28.27% of the sample). This farm type is characterised by a lower quantity of sales (one third of the total production) but has an important share of livestock activity. It seems that this strategy is due to limited arable land (on average less than one hectare/ farm) and in reduced possibilities to be employed in a non-agricultural sector. The share of cultivated land (99% of total land) shows the necessity of extra land surfaces for the farms of this group. The crop production of this group is characterised by a limited use of mechanics or other agricultural expenses and not an excessively use of working force.

Figure 4 shows the farm type distribution among the three considered regions.

The average information of each farm type presented in Table 4 is used to perform the farm viability analysis of the chapter III.1

Figure 4 - *Regional representation of farm typology*.

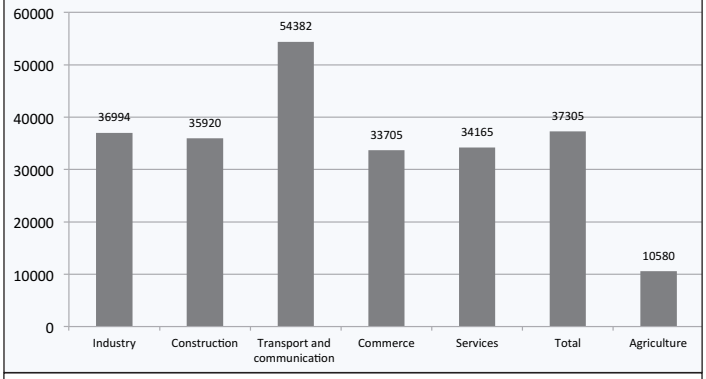


Source: Author's elaboration.

3.1. Farm viability analysis

Agriculture has the lowest average monthly salary among the Albanian economic sectors. Figure **5** presents the average monthly salary for the main economic sectors according to INSTAT (2014d) and our calculation (based on our data collection) for agriculture[8]. The figures 'clearly show that agriculture remunerates the work from three to five times less if compared with the other economic activities in the country. Attention should be paid to analysing these figures due to the differences that exist between the methodological approaches of monthly wage calculation applied by the authors in this paper and the approach applied by the Albanian Institute of Statistics (INSTAT). Nevertheless, the figures illustrate a widely accepted conclusion concerning the important differences in remuneration between agriculture and the other economic sectors (Kilic *et al*., 2009). This is due to the limited agricultural worker efficiency resulting from obsolete techniques, fragmented and small scale production, limited use of fertilisers etc., but also from the abundant work supply in the rural areas comparing with the limited demand.

Figure 5 - *Average monthly wages for main economic sectors in 2012 and agriculture in 2013 (in ALL).*



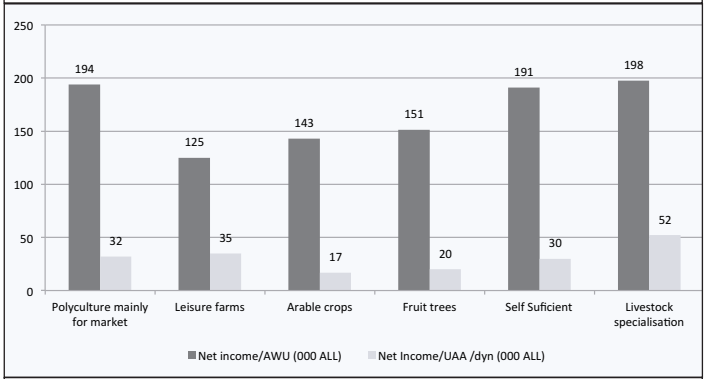
Source: (INSTAT, 2014d). Our calculations.

Workers in agriculture are paid less compared with other economic sectors, also due to an excessive labour offer in rural areas.

The above mentioned reasons lead us to the conclusion that the massive[9] rural migration that took place in the country during the '90 of the last century is not ended yet and can be repeated again. Probably the rural migration shall not have the same features (i.e. well defined origin and destination places and large shares of populations moved in short periods of time (Guri *et al*., 2014)), but will continuously feed Albanian urban areas with new labour force. The vision of the Albanian policy makers can transform this new labour force in strength or in a burden for the Albanian economy.

The work remuneration differs a lot among farm types (Figure **6**). According to our calculations, the 'Livestock specialisation' workers have the highest remuneration for their work and the 'Leisure farms' the lowest. The relatively higher price of livestock production can explain the difference of work remuneration compared with the other groups. The second best remunerated workers work on 'Poly-culture mainly for market' farm type. In this farm type, the main source of income comes from the marketed products, increasing considerably net farm income by worker. 'Leisure farms' is characterised by cultivation of low added value crops (mainly cereals and fodder crops) and an important number of agricultural workers per farm.

Figure 6 - *Work and land productivity level for each farm type.*



Source: Author's elaboration.

The differences of work productivity among the farms type can be a proxy of the most resilient farm types within the sample. In general, the farm types that have lower work productivity have higher chances to disappear. The work force is willing to look for an employment that will repay better their work. 'Leisure farms', 'Arable crops' and 'Fruit trees' seem to fall in this category of farms but the analysis should be done separately for each of them.

'Leisure farms' are characterised by small land surfaces generally cultivating low added value products mainly by elder members of the family. The main income of the farm comes from the non-agricultural activities, (e.g. retirement payment, remittances etc.) and agriculture seems not to be the main economic activity. Nevertheless, these farms may not disappear in the short term. The elder family members will still live there and will keep a marginal agricultural activity for their own needs. According to Guri *et al*. (2014), many families still keep their agricultural activity even when they do not physically live in the region in order to protect their property from a possible usurpation or claims by other farmers. This strategy of land insecurity reduction may lead to a marginal agricultural activity even in the future. On the other hand, 'Farm trees' limited repayment of work force may be linked with the investment structure of these farms. The main fruit trees plantations have been done during the last 10 years due

[8] The Albanian Institute of Statistics (INSTAT) calculates the average monthly salary for all the economic activities with the exception of agriculture.

[9] According to FAO figures(2014) the share of Albanian rural population dropped from 63.56% in 1990 to 43.4% in 2014.

as well to important public support policy instruments. Many of these plantations (e.g. olive trees) are not yet fully in the production phase; thus, the economic results are affected by this structural situation. The fact that the farmers have planted fruit trees means that they do not plan to leave the rural areas, and will keep the agricultural activity even in the future.

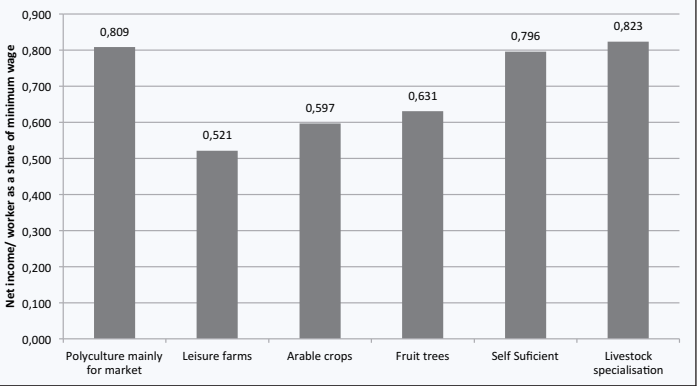
The third farm type 'Arable crop' is maybe willing to abandon agriculture for other non-agricultural activities. The lower quantity of work spent in agriculture (3.8 AWU/Million ALL), the important non-agricultural revenues (2.3 times more than agricultural incomes) and the strategy based on annual crops (90% of the agricultural output) show their strategy to leave agriculture.

The land productivity figures are quite the same for three farm types ('Poly-culture mainly for market', 'Leisure farms', 'Self-sufficient') (or 46% of the total farms) and slightly different for the 'Livestock specialisation', 'Arable crops', and 'Fruit trees'. 'Livestock specialisation' remunerates the land with the higher value, mainly for the same reasons as presented above. It is worth explaining the lower value of the land remuneration for the 'Arable crops' and 'Fruit trees' farm types. The agricultural production in 'Arable crops' farm type is characterised by crops with lower added value (mainly cereals). This explains the extremely low level of income for the unit of surface. The low net farm income by hectare of the 'Fruit trees' farms type reflects the investment structure features explained above.

The analysis in terms of land productivity supports the conclusions made in work force productivity. Among the six farm types of the sample, the 'Poly-culture mainly for market', 'Self-sufficient' and 'Livestock specialisation' seem to be the most economically viable. The 'Fruit trees' farm type seems to improve its economic viability in the future whereas 'Leisure farms' and 'Arable crops' are the least viable. Their household future is no longer in the agricultural sector.

The graph below (Fig. 7) shows that the agricultural sector is not able to remunerate the work even at the minimal official wage in Albania. None of the farms types can reach the minimum wage threshold, and for some of them (leisure farms, and arable crops) a worker in agriculture is paid only with half of the minimum wage level. Among the six farm types three of them (i.e. 'Poly-culture mainly for market', 'Self-Sufficient' and 'Livestock specialisation') repay the work in comparable level with minimal official wage in Albania. As discussed above this situation has led to the conclusion that the rural areas still remain a pool of labour force employed in agriculture due the lack of other alternative employment possibilities. This important gap between the wage in rural and urban area will be the main incentive for rural population to keep moving from rural to urban areas.

Figure 7 - *Net income/ worker as a share of minimum wage (minimum wage= 1).*



Source: Author's elaboration.

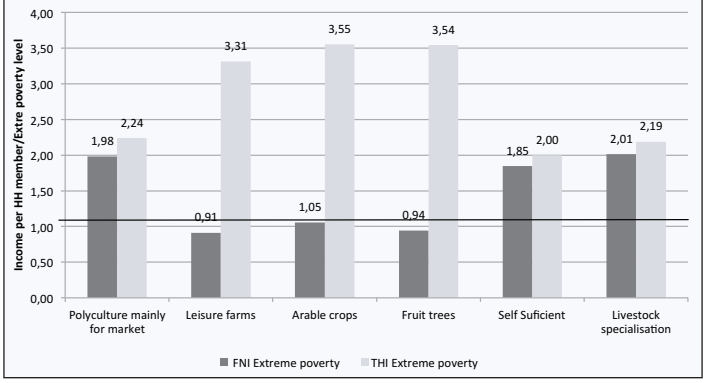
Following the above analysis, 'Arable crops' seem to be the most indicated farm type to disappear in the future. This farm type is more present in the Lezha Region (nearly 1 out of three farms is clustered in this type) and less present in the other regions (14.7% in Berat and 7.7% in Elbasan, respectively) (see Figure **4**). The region of Lezha (especially the mountain area) has suffered from an important rural migration during the last twenty-five years (1990-2014) (Guri *et al*., 2014). The regions of Berat and Elbasan seem to be less affected in the future by the reduction of farms belonging to this farm type. For both regions the most affected areas are the mountainous ones where the share of this farming system is much higher.

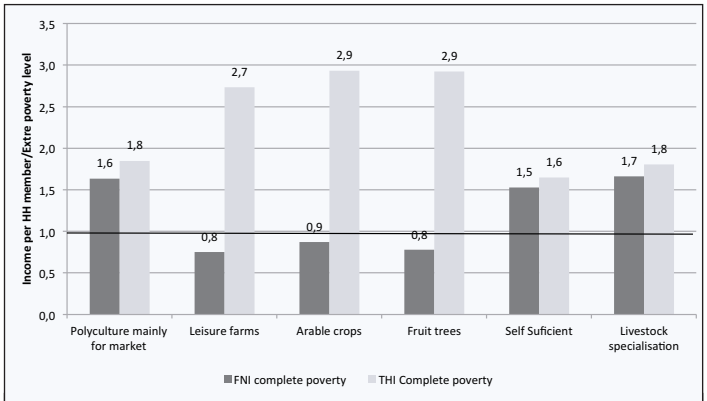
The work remuneration is not the only issue in the rural areas. The analysis of the monetary poverty level shows that the agriculture sector does not provide enough income for the farm household to offer a good level of living. The information in Figure **8** shows that an important feature of the Albanian agriculture is the complementarity between the agricultural and non-agricultural activities (THI). This complementarity makes it possible to reach a minimal level of life that is at least two times higher compared with the extreme poverty threshold level and slightly 1.5 times (1.65) higher compared with the complete poverty threshold level. The agricultural farmers in the country are (in average) less paid than in other sectors but above the extreme and complete poverty level. The poverty analysis shows one more time the limited capacity of agricultural sector to provide a decent level of living for the farmer and his household members. Figure **8** shows that the agricultural incomes of three farm types out of six identified in the survey, do not reach the extreme poverty threshold for each household members (i.e. 'Leisure farms', 'Arable crops', 'Fruit trees'). These farm types cannot be viable without an extra agricultural activity. On the other hand the agricultural less viable farm types are among the richest one if we take into account the non-agricultural income (total household incomes (THI)). The agricultural based households (i.e. 'Poly-culture mainly for market', 'Self-sufficient', and 'Livestock specialisation') provide the lowest total household income (THI) for each family member among the six farm types.

Among the farm types, the 'Self-Sufficient' one provides less total income for each household member. This farm type considered among the most productive one in terms of work and land repayment can offer to each household mem-

Figure 8 - *Farm Net income (FNI) and total household income (THI) by household member as a share of extreme and complete poverty threshold.*

(a)





(b)

Source: Author's elaboration.

ber only the double of extreme poverty threshold level, or slightly more than 1.5 times the complete poverty threshold level. It is very difficult for the agricultural sector to solely provide a decent level of living to the whole rural population. Some households should absolutely have other extra agriculture incomes (emigration remittances, construction, commerce, etc.) in order to bypass the extreme poverty line.

The recent studies (INSTAT, 2013) show that the household in the rural areas resist better to external shocks. For many households, the agriculture may not be the main income source but still remains an important food and income complementary sector for the household. According to INSTAT (2013) during the period 2008-2012 (global economic crisis) the poverty decreased (-11.8% compared with the previous period 2005-2008) in the rural areas (following the same trend as verified for the periods 2002-2005 and 2005-2008) whereas during the same period the poverty increased in the urban areas (36.5% of new families are classified as poor in 2008-2012 compared with 2005-2008).The comparison of these data with the conclusion of our study shows that working in agriculture is less profitable but living in rural areas improves the resilience (as defined by (Heijman *et al*., 2007) against external shocks and reduces the fluctuation in the household welfare. These conclusions are in line with the research done recently on rural migration (Guri *et al*., 2014) where agricultural productions (in kind or incomes derived) are used by the family in urban areas at least during the first years after settling in the urban areas.

5. Conclusions

The agricultural sector in Albania is still penalized by some structural features (small scale of production, limited use of inputs, etc.) that are reflected in the limited productivity of land and work in the rural areas.

The analysis of farming systems in three representative regions of the country shows that the main farm types existing in the country are the following: 'Poly-culture mainly for market', 'Leisure farms', 'Arable crops', 'Fruit trees', 'Self-Sufficient' and 'Livestock specialisation'.

The rural migration to urban areas will be an accompanying phenomenon of Albania in the future. Its size will depend mainly on the capacity of urban area to absorb new population coming from the rural areas. 'Arable crops' is the farm type household with a higher probability to migrate in the future. This farm type is characterised by the important share of non-agricultural incomes and the limited productivity of AWU. Other farm types that have similar characteristics (i.e. leisure farms and fruit trees) have a higher resistance to migration due to their workforce age or investment structure.

The migration factor, even though it can be viewed as an increase of labour force in urban areas, cannot be considered advantageous in Albanian case where the main problem is the high rate of unemployment in the urban areas (nearly 17% for the first six months of 2014). Migration is associated with costs (rent or taxes) that can be covered only by the provision of a stable job and relatively high wages. On the other hand, migration associated with the phenomenon of "holding hostage" agricultural land for fear of "occupation" can be converted into a double penalty for economic development of migrant families and agricultural development of the area and the country as a whole. Therefore, the government should intervene with incentives to motivate farmers to intensify agricultural activities, and also should strengthen the legislation of the property and its strict implementation in order to make room for optimum utilization of agricultural land.

The income structure of all farm types is based on a combination of the agricultural and non-agricultural incomes. Without this combination almost 31% of the farms surveyed cultivating 34% of the agricultural areas can hardly reach the extreme poverty income threshold level for their household members. The most productive farms types (land and AUW productivity) have a lower level of total income by household members and the less productive ones have a higher total income level by household members due to an important share of non-agricultural income. The average total incomes by household member overpass significantly the extreme poverty and complete poverty threshold. These conclusions are in line with the studies done recently by the Al-

banian Institute of Statistics showing that rural areas have a higher resilience than urban areas and resist better to external shocks compared with urban areas (INSTAT, 2013). It is utopian to believe that a tailored support for agriculture in rural areas will improve substantially the economic conditions and reduce the poverty level in the rural areas.

The policy makers should consider a policy that aims to increase farms productivity (for farmers based on agricultural incomes) and encourage economic diversification in the rural areas (for farmers based on non-agricultural incomes).

The strategy followed by the Albanian government in supporting mainly the agricultural productivity and to a lesser extent the rural development (MoAFCP, 2007b) may reproduce another rural migration to urban areas and increase the unemployment rate in the urban areas.

The Albanian example shows that the policy makers should be aware that rural areas are not devoted exclusively to agriculture but to more diversified economic activities. Farmers are already aware of that.

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