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COMPARATIVE ANALYSIS OF COOPERATIVE & NON-COOPERATIVE FARMERS IN KOSOVO

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ABSTRACT. As reported by the GDP per capita Kosovo is one of the poorest countries in Europe. Relying on the importance and dependence of Kosovo`s economy, it is evident that the development of agriculture sector is among the prime concern of the country`s strategy and international support programs. Several international studies assess the potential of agricultural cooperatives in transforming traditional agricultural farms to modern market-oriented business units, accelerating growth and addressing rural poverty. This research aims to analyze the relationship between socio-demographic, agricultural, and economic factors pertaining to cooperative and non-cooperative farmers in Kosovo and also shows their motivation and expectation related to agricultural practice and behavior. Primary data was collected in 2018 form 165 farmers through semi-structured questionnaires. Data were analyzed using descriptive statistics, Chi square and T-test. The results indicated that there was a significant difference (p<0.01) between cooperative and non-cooperative farmers in various factors. Results indicated that the cooperative farmers have agricultural education, more family members are engaged in agricultural activity, have more access to seasonal employees, sharing machinery, higher readiness to invest in machinery with other farmers, and a high level of trust, they mostly operate in vegetable production and have higher income. Furthermore, the results showed differences in sales chain between two groups of farmers. The results contribute to governmental and non-governmental agencies to encourage farmers to establish/join viable cooperatives.

Introduction

Strengthening the productivity, profitability and sustainability of smallholder agriculture continues to be the major approach to agrarian poverty in developing countries. In Western Balkan countries, agricultural area plays a fundamental role compared to other countries within the European Union (EU) (Mizik, 2016). In the economy of Kosovo, agriculture plays a very important role and has a positive impact on the quality of life and on the sustainable development of the rural areas. Agriculture remains one of the major economic sectors of Kosovo in terms of contribution to GDP and has always been a growth sector for the economy of Kosovo. In addition, there are 130,775 agricultural holdings which occupy 419 thousand hectares (ha) of land for agricultural purposes (MAFRD, 2019), with the average land size of 3.2 ha, and employ 362,700 persons or approximately 25% of total population (Gjokaj et al., 2017). Based on the report of World Bank and Kosovo Agency of Statistics, one of the lowest rate of poverty was found among farmers 9.4% (World Bank & KAS, 2019).The average age of agricultural householders and individual businesses is 52 years. Their level of education is quite low, in particular in respect to agriculture. 28.0% completed only primary school, 5.4% did not complete even the primary school, while 3.1% have no education. Secondary school was completed by almost half of the holders. Less than 3% of the holders graduated from secondary agricultural schools, faculties of Agriculture/Veterinary, obtained Master's or PhD degrees in Agricultural Studies, and 6.7% of the holders are graduates of non-agricultural faculties. Regarding the education/trainings in agriculture, more than 95% of managers have only practical experience in agriculture (KAS, 2014).

There are only 1250 farms registered on Farm Accounting Data Network (FADN), the average family income on a farm is €2,457, compared to other European Union (EU) countries it is quite low (MAFRD, 2019). The farm average technical efficiency in transition economies is 86% whereas in Kosovo it is only 15.7%, indicating that an average farmer in Kosovo produces 68.3 less percentage points of the potential output than an average farm in transition countries (Alishani, 2019).

Due to the low technical efficiency, Kosovo still experiences a negative trade balance, enduring from the excessive volume of imported goods and a relatively minor quantity is sold abroad (Jusufi, Mahmutaj, Jusufi, & Jusufi, 2015). The non-tradable sectors dominate output and employment in Kosovo. Services represent the largest sector in the economy, with a share of value added at more than 50 percent of GDP in 2019. Agriculture accounted for 8.7 percent of GDP in 2019. Dispite the improvement in labor market over the past decade, only three in 10 people of the working-age population are employed (World Bank, 2020). The total value of imports of agriculture products was €765.4 million in 2020, most of them came from EU countries, while export amounted only to €78.1 million, nearly half of them (€41.1 million) was exported to CEFTA member countries (MAFRD, 2021).

Although agricultural cooperatives are significant in improving farm efficiency, there is still a dearth of studies on Kosovo agriculture examining their role in economy, potential contribution to welfare of rural area, reduction of poverty and increasing food sufficiency. Studies show that introducing any new technology or operation techniques require proper knowledge about socio-economic conditions, and natural environment (Abegunde, Sibanda, & Obi, 2020; Xie, Huang, Chen, Zhang, & Wu, 2019). A related study in the field raised a fundamental issue in cooperative formation requiring promoters of cooperative societies to pay particular attention to socio-economic characteristics, as they have fundamental effects on the performance of cooperative societies (Agbo & Chidebelu, 2010).This article contributes to the growing literature on the role of agricultural cooperatives in three significant directions. Primary objective is to find the association in the socio-demographic, agricultural and

economic factors pertaining to cooperative members and non cooperative farmers. Secondary, to find the main benefits of cooperative farmers and tertiary, to identify differences in selling channels between cooperative farmers and non cooperative farmers, thereby becoming the pioneering research reviewing this issue in Kosovo.

The research is organized as follows: after the introduction has been elaborated, a voliminous literature review of the relevant studies and works related to cooperatives farmers with a particular emphasis on benefits of cooperative membership is presented. The research methodology data collection and analysis procedures used in the research is presented in the second section, whereas the third section provides the relevant results of the research, followed by the fourth section that highlights a discussion of the main findings along with conclusions.

1. Literature review

Generally, the developing country has poorer stability measured by foreign trade in the food trade, food price changes, and food supply indicators. Food security is confronted with many challenges in developing countries, where lower income is achieved (Jambor & Babu, 2016). Additionally,on this country COVID-19 is expected to worsen global food security (FAO, 2020). Kosovo has capacity in having advantages in various agricultural sectors (fruits and vegetables), yet needs to exceed many challenges and difficulties, mostly owing to the poor production and competitive capacity (Beluhova-Uzunova & Lubeniqi, 2019). Some of the difficulties confronted by Kosovo's farmers are lack of coordination, low level of education and training (KAS, 2014), advisory service, poor knowledge in the usage of technology, high interest rate on loans (Shkodra, 2019), insufficient experience, low technical efficiency, limited market access, and particularly, trade barriers from neighbor countries. The main concern is low level of cooperation between farmers due to the lack of trust in the cooperative institutions. However , there is a higher level of trust and the willingness among farmers to cooperate in informal ways (especially buying/sharing agriculture machinery) mainly (with their relatives, friends, neighbors) (Muriqi, Fekete-Farkas, & Baranyai, 2019). At present, there are 135 registered associations in total, among which only 13 are operating and represent 518 members of cooperatives farmers. Types of activities completed by cooperatives are: expertise/extension, crop collection/marketing, asset and labor sharing (Allen Hamilton, 2010). Different studies (Beluhova-Uzunova & Lubeniqi, 2019; Gjokaj, Halimi, Xhabali, Imami, & Gjonbalaj, 2017; Muriqi et al., 2019) examining the nature and pattern of farming in Kosovo recommended that land fragmentation and the issues in land market should be resolved soon, improve vertical and horizontal coordination, support diverse cooperation activities between various types of producers and processors, integrate in the value chains and improve marketing channels, develop rural credit accessibility, and receive better advisory services and training.

Farmers could overcome these problems by working cooperatively to gain collective strength that they do not own individually, and in doing so, they would find a way out of destitution and powerlessness (Bibby & Shaw, 2005; Birchall & Simmons, 2009) and can help alleviate poverty in developing countries (Bhukuth, Adil, & Terrany, 2018). Agriculture cooperatives are identified as "mutual aid economic organizations" interconnected voluntarily and operated by the farmers and workers of the similar range of farm outputs, or by the providers or users of assistance as the same kind of agricultural production and operation" (Wu & Ding, 2018). Their primary function is essential in countries where farms are fragmented over vast and remote rural areas (Wanyama, Develtere, & Pollet, 2009).

Kosovo is on the way of EU Accession process, implementation of Stabilization and Association Agreement (SAA) started in 2016. Types, operation, regulation, and yield of

membership of cooperatives in EU countries are well researched. Membership intensity of agriculture producers in many Northern and Western European countries is over 50%, in Mediterranean and Southern European countries that is 30% to 50%, while this intensity in Central and Eastern European countries is below 30% and even below 10% in some cases (Gijselinckx & Bussels, 2014) resulting from history background. Countries such as Lithuania still require improvement to increase the effectiveness of agricultural cooperatives (Ribašauskienė et al., 2019). Their experiences show the potential of agricultural cooperatives in transforming traditional, subsistence agricultural farming to modern market-oriented business units, accelerating growth and addressing rural poverty can be used is case of Kosovo as well.

Several research studies in Ethiopia (Abate, 2018; Francesconi & Ruben, 2012), Abuja (Ajah, 2015) and Bangladesh (Sultana, Ahmed, & Shiratake, 2020) recognize the differences and advantages between cooperative and non cooperative farmers. Most of the studies underline the economic benefits of cooperative members (Anderson, Brushett, Gray, & Renting, 2014; Falco, Smale, & Perrings, 2008; Franks & Mc Gloin, 2007; Grashuis & Su, 2019; Hovhannisyan & Vasa, 2007, 2007; Larsén, 2008; Nagy & Takacs, 2001; Valentinov, 2007) by increasing their level of income and output (Fischer & Qaim, 2014; Ibezim, Okorogwe, & Ijioma, 2010; Ito, Bao, & Su, 2012; Sultana et al., 2020; Twumasi et al., 2021; Vandeplas, Minten, & Swinnen, 2013; Verhofstadt & Maertens, 2014; Wang, Cheng, Lee, Sun, & Chang, 2019), providing a secured market (Giagnocavo, Galdeano-Gómez, & Pérez-Mesa, 2018; Sultana et al., 2020), getting more access to labor, loan, tractor services, storage and processing equipment (Ajah, 2015), and improving the bargaining power of smallholders (Bijman & Hu, 2011) help minimize the risks they confront in the marketplace (Woldu, Tadesse, & Waller, 2013). Cooperative societies are also seen useful in overcoming issues such as sharing assets, data, services(Ahmed & Mesfin, 2017; Holloway, Nicholson, Delgado, Staal, & Ehui, 2000; Wossen et al., 2017) equality and caring for others are among the essential values on which authentic cooperatives and sometimes assisting farmers financially to buy equipment and seedlings for group use (Adeogun, Olawoye, & Akinbile, 2010) for high-value products. And those social such as; improving wellbeing of smallholder farmers are based (Candemir, Duvaleix, & Latruffe, 2021; Nippierd, 2012; Twumasi et al., 2021). Another determining factor of successful cooperation is the trust among farmers (Baranyai, Elam, Muriqi, & Papp-Váry, 2018; Muriqi et al., 2019; Oláh et al., 2019; Oláh, Hidayat, Gavurová, Khan, & Popp, 2021; Vasa, Baranyai, Kovacs, & Szabo, 2014). Various researches have proved that the high level of trust is predestined for well-functioning cooperation in agriculture (Dudas & Ferto, 2009). It influences the development and promotion of high-quality (Pachoud, Delay, Da Re, Ramanzin, & Sturaro, 2020) agricultural products and the intensity of marketing as well (Belay, 2020).

These are seen as one of the driving factors of sustainable rural development (Lamine, 2015; Popp et al., 2018) and are extensively considered as vital foundation that can support smallholder farmers to overcome the constraints that hinder them from taking advantages of their business.

2. Methodological approach

2.1. Materials study area and sample selection

Kosovo with a surface area of 10,887 km2 is situated in the central part of Balkan Peninsula. Its total area is 1.1 million hectares, and 53% consists of agricultural land, while 41% is a forest. It was estimated that 88% of the agriculture surface area used is privatized

land, while 12% is social land, within agricultural enterprises and cooperatives (MFARD, 2018). It is estimated that 15% of the soil is of high quality, 29% medium and 56% of poor quality (Daci-Zejnullahi, 2014).

The study consisted of 165 randomly selected farmers. Primary data was gathered using semi-structured questionnaire, using the random sampling technique. Household surveys appertaining to a semi-structured questionnaire are a standard method in social and natural sciences (Barriball & While, 1994).

The collection of data was done during the period May-October 2018. The data were collected by the researchers through personal interviews, visits at the respondents' homes or workplaces and cooperative association. As the digital literacy among farmers was very low, the questionnaires were filled out by hand. The researcher itself visited all farmers during harvest period in the fields. The main selection criteria was the farmers willingness to meet and share their opinion with the researcher. The interview lasted an average of 45 min and unscientific language was used so that all farmers without or with low level of education could understand the questions. Before beginning the interview, each respondent was given a brief idea about the purpose of the study (for academic research). The questionnaire contained questions regarding demographic, social and economic factors related to the farm profile. The questionnaires were firstly pre–tested with a sample size of 20. The questionnaire was distributed to 200 farmers in the country and out of that 165 farmers responded (response rate: 82.5%). The sample in the study is considered statistically representative at the national level because of the data collection methods used. The sample adequacy test showed that the sample chosen for the study is adequate at a 95% confidence level with a margin of error of 7.63%.

2.2. Data analysis

The statistical package for the social science (SPSS 19) was used to analyze the data. Descriptive statistics along with a Chi Square ($\chi2$) test were used to discover association between cooperative and non-cooperative farmers in relation to the variables under study, while Cramer's V gives the power of the relationship. The analysis of information related to associations among data requires specific instruments, the Chi Square test being one of them, which was introduced by K. Pearson (Pearson, 1900).The Chi square test is a statistical test which measures the association between two categorical variables (Ugoni & Walker, 1995) and should be followed with a strength statistic. The Cramer's V is the most common strength test used to test the data when a significant Chi-square result has been obtained (McHugh, 2013). Cramer's V, is a nonparametric statistic used in cross-tabulated table data also known as a post-test technique (with values ranging 0–1). It is a number of correlation statistics developed to measure the strength of association between two nominal variable (Frey, 2018).

After Chi-square applied for determining the strength of association with the following interpretation; "very weak" is considered from 0–0.19 , "weak" 0.2–0.39, "moderate" 0.40–0.59, "strong" 0.6–0.79 and "very strong" association 0.8–1 (Simar & Wilson, 2015).

While independent Sample T test was used to identify the difference in the sales' channels of products between cooperative and non-cooperative farmers. Independent Sample t test can be used to compare the mean of one sample with the other to test the statistically significant difference between two samples (Kulkarni, 2016). In addition, effect size was applied as a complementary statistic to validate the independent t-test (Dankel et al., 2017). Effect size an effect statistic which is used to measure the difference between two group means (Lakens, 2013). In reporting and interpreting results, both the substantive significance (effect size) and statistical significance (P value) are required to be reported (Sullivan & Feinn, 2012). Cohen's d was adopted and computed as follows:

$$\text{Cohen`s } d = \frac{\text{M } coop - \text{M } non-coop}{\text{SD} pooled} \tag{1}$$

Where; Cohen's d = effect size; M Coop = cooperative farmers group mean; M non-Coop = cooperat ive farmers group mean; SD pooled was computed as:

$$SD_{pooled} = \sqrt{(SD_{coop}^2 + SD_{non-coop}^2)/2} \tag{2}$$

Where: SD2 coop = squared standard deviation of the cooperative farmers group; SD2 non-coop = squared standard deviation of the non-cooperative farmers group. For interpretation purposes, d < 0.50 indicated small effect size; $0.50 \geq d < 0.80$ indicated moderate effect size and $0.80 \geq d$ reflected large effect size (Jacob, 1977).

3. Conducting research and results

3.1. Descriptive data of farmers

Considering the socio-demographic, agricultural and economic factors of cooperative and non cooperative farmers, the results (Table 1) showed that most of the farms (92.7%) were managed by males and the rest (7.3%) by females. Majority of the farmers in the cooperative farms were male (88.9%) and the female farmers constituted around 11.1% of the total sample. Similar to the results seen in cooperative farms, 94.2% were male-headed farms and the rest 5.8% were run by females in the non cooperative arena. The mean age of the cooperative farmers was 44.53 years while that of the non-cooperative farmers ranged from 24 to 73 years with a mean of about 48.52 years. The mean age reveals that the cooperative and non-cooperative farmers were middle-aged farmers who are at their generative age and are more likely to approve innovation faster (Onyenweaku, 1991).

From the total sample, it could be seen that a low percentage of the cooperative farmers and non-cooperative farmers (9.1%) had finished agriculture education. Most of the respondents (90.9%) had completed other type educations (High school or University). The literacy status of the cooperative and noncooperative farmers was poor and this could pose a barrier in accessing and utilizing modern farm inputs. Education improves farmers' ability to make precise and meaningful management choices (Imonikhe, 2010).

When farmers were asked if they rent land, nearly half of the cooperative farmers (44.4%) declare that they take land for rent, whilst non cooperative farmers (29.2%) rent extra land too. The distribution of the family member engaged in agriculture shows that non cooperative farmers had on average 3 persons which were engaged directly in agriculture and most (85.5%) revealed they do not hire seasonal employees, while cooperative farmers had on average 4 persons engaged in agriculture, also more than half (53.3%) of this group of farmers hire seasonal employees.

Table 1. Characteristics of cooperative and non-cooperative farmers

Variables	Subcategory	Coop farmers Frequency & Perc.%	Non coop farmers Frequency & Perc.%	Pooled data
Gender	Male	40(88.9%)	113(94.2%)	153(92.7%)
	Female	5(11.1%)	7(5.8%)	12(7.3%)
Age	17-30	5(11.1%)	11(9.2%)	16(9.7%)
	31-40	12(26.7%)	23(19.2%)	35(21.2%)
	41-50	14(37.8)	35(29.2%)	52(31.5%)
	51-75	11(24.4%)	51(42.5%)	62(37.6%)
Education level	Agriculture education	9(20.0%)	6(5.0%)	15(9.1%)
	Other education	36(80.0%)	114(95.0%)	150(90.9%)
Rent land	Yes	20(44.4%)	35(29.2%)	55(33.3%)
	No	25(59.6%)	85(70.8%)	110(66.7%)
Family involved in agriculture	1-5	31(68.9%)	102(85.5%)	133(80.6%)
	6-10	14(31.1%)	18(15.0%)	32(19.4%)
Seasonal employee	Yes	24(53.3%)	41(34.2%)	86(57.3%)
	No	21(14.3%)	79(65.8%)	64(42.7%)
Sharing machinery	Yes	36(85.7%)	50(46.3%)	86(57.3%)
	No	6(14.3%)	58(50.8%)	64(42.7%)
Willingness to buy agriculture machinery	Yes	39(86.7%)	59(49.2%)	98(59%)
	No	6(13.3%)	61(50.8%)	67(40.6%)
Trust	Likert scale (1-5)			
	1.I do not agree at all	1(2.2%)	14(11.7%)	15(9.1%)
	2 I do not agree	2(4.4%)	17(14.2%)	19(11.5%)
	3I do not agree or disagree	3(6.7%)	28(23.3%)	31(18.8%)
	4 I agree	11(24.4%)	54(45.0%)	65(39.4%)
	5 I agree at all	28(62.2%)	7(5.8%)	35(21.2%)
Size farm	0.01-20	43(95.6%)	111(92.5%)	154(93.3%)
	21-40	1(2.2%)	6(5.0%)	7(4.2%)
	41-60	1(2.2%)	2(1.7%)	3(1.8%)
	<61	0(0%)	1(0.8%)	1(0.6%)
Income	5000-7000	2(10.5%)	16(45.7%)	18(33.3%)
	7001-9000	2(10.5%)	6(17.1%)	8(14.8%)
	9001-11000	11(57.9%)	7(20.0%)	18(33.3%)
	<11001	4(21.1%)	6(17.1%)	10(18.5%)
Production type				
Cereals	Yes	27(16.4%)	95(57.6%)	122(73.9%)
	No	18(10.9%)	25(15.2%)	43(26.1%)
Vegetables	Yes	35(21.2%)	41(24.8%)	76(46.1%)
	No	10(6.1%)	79(47.9%)	89(53.9%)
Fruits	Yes	18(10.9%)	21(12.7%)	39(23.6%)
	No	27(16.4%)	99(60.0%)	126(76.4%)
Animal farms	Yes	12(7.3%)	53(32.1%)	65(39.4%)
	No	33(20.0%)	67(40.6%)	100(60.6%)

Source: *own compilation*

Results stress that most (85.7%) of the cooperative farmers share the agriculture machinery with other farmers and many among them (86.7%) are ready to invest (buy) in agriculture machinery with other farmers. The level of trust among cooperative farmers is higher (62.2%) as compared to the other group. In the case of non-cooperative farmers, the results emphasize that sharing agricultural machinery with other farmers is relatively lower (46.3%) and also their readiness to invest (buy) in agriculture machinery is low because of the very low level of trust (5.8%).

Coming to the economic factors, cooperative farmers have small farm size on the average 7.8 ha, unlike from non-cooperative farmers who have a slightly larger size on the average 9.0 ha. The income distribution shows that majority of the cooperative farmers earn an average income of 11.215 € per year, while the non-cooperative farmers earn an average of 7.616 € yearly. Finally, the type of production presents that cooperative farmers were engaged with vegetables production, while non cooperative farmers in cereals, fruits and animal farms.

3.2. Chi-Square test

The Chi-Square Test was used to indicate whether there is a relationship among both group of farmers in their socio-demographic, agricultural and economic factors (*Table 2*). The results for socio-demographic factors show that the education level (X^2 (1)=8.910, p=.003, V =.232) has a significant association with cooperative or non cooperative farmers, but characterized by a weak relation between the variables. Furthermore, cooperative farmers have completed agriculture education, unlike from non cooperative farmers. Agricultural education is likely to increase the awareness of the benefits of joining cooperatives in Kosovo. Other variables such as gender (X^2 (1)=1.352, p=.245, V=.091), and age (X^2 (3)=4.605, p=.203, V =.203), were appeared to be non-significant between cooperative and non-cooperative farmers. As stated by the leader of cooperative KB Krusha[1] " Almost all members of the cooperative are females, because they are more willing to cooperate with each other, attend different trainings, are more dedicated to work, and more considerate to agricultural crops contrasted to men".

The agricultural factors such as family involved in agriculture (X^2 (1)=5.434, p=.020, V=.181), seasonal employee (X^2 (1)=5.036, p=.025, V =.175), sharing machineries (X^2 (1)=19.208, p=.000, V =.358), readiness to buy agricultural equipment with other farmers (X^2 (1)=19.083, p=.000, V =.340), and trust (X^2 (4)=63.305, p=.000, V =.619), are significantly different. According to the results the majority of the cooperative farmers involved their family in agriculture and had a weak association as compared to the non cooperative farmers.

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[1] KB KRUSHA is one of the main agriculture cooperatives in Kosovo, that was formed by a widow of the village of Krusha e Madhe who lost their relatives during the war in 1999. Their main products are peppers, which are offered in various traditional forms, and are exported to western countries as well.

Table 2. Comparison of demographic, social and economic characteristics of cooperative and non-cooperative farmers.

Variables				
Socio-demographic	X^2	*D*	*Sig.*	*V**
I. Gender	1.352	1	.245	.091
II. Age	4.605	3	.203	.167
III. Edu. Level	8.910	1	.003	.232
Agriculture				
IV. Experience on farming	9.402	2	.009	.239
V. Rent land	3.438	1	.064	.144
VI. Family involved in agriculture	5.434	1	.020	.181
VII. Seasonal employee	5.036	1	.025	.175
VIII. Sharing machineries	19.208	1	.000	.358
IX. Willingness to buy machinery with others	19.083	1	.000	.340
X. Trust	63.305	4	.000	.619
Economic				
XI. Size of farms	1.059	3	.787	.080
XII. Income	10.345	3	.016	.438
XIII. Production type				
Cereals	6.239	1	.012	.194
Vegetables	25.054	1	.000	.390
Fruits	9.179	1	.002	.236
Animal farms	4.198	1	.040	160

*Cramer's V

Source: own compilation

The findings further show that more than half of the cooperative farmers employ seasonal employees in contrast to the non-cooperative farmers. Cooperative farmers use agriculture equipment with other farmers and were ready to buy or invest in agriculture machinery with other farmers unlike from non-cooperative farmers. The results also revealed that cooperative farmers have a higher level of trust as compared to the non cooperative farmers. The reasons for this could be attributed to the fact that the farm managers are only included in the agriculture activity. In which case they engange their family members especially over planting period, tilling and harvesting when a considerable number of labour force is essential.

This may be due to old agriculture machinery „every second farmer has a tractor which is older than 80 years" in the same time farmers are interested to invest on a newer technology with other farmers in order to reduce the cost of the labour force and prevent production loss. The results show that for agricultural factors like land rent (X^2 (1)=3.438, p=.064, V=.144), a significant difference could not be seen between cooperative farmers and non-cooperative farmers.

As reported by the economic factors such as the size of farms (X^2 (3)=1.059, p=.787, V =.080), the difference was not significant between the two groups. Based on the personal interview "I found out that on small farms (subsistence) the decisions are most of the times made only by the oldest members of the family, who usually have not heard about cooperation in agriculture before and their main source of information was other neighbor farmers". A significant relationship was also found in terms of the income, (X^2 (3)=10.345, p=.016, V =.438), implying that the cooperative farmers receive higher income as compared to the non-cooperative farmers, characterized by a moderate association. According to production type a significant relationship was found, meaning that cooperative farmers are involved on vegetable production (X^2 (1)=25.054, p=.000, V =.390)characterized with weak association, while non cooperative farmers are engaged on cereals (X^2 (1)=6.239, p=.012, V =.194), fruits (X^2 (1)=9.179, p=.002, V=.236) and animal farms (X^2 (1)=4.198, p=.040, V

=.160). This category of farmers use their agriculture products for family consumption mostly. Their target is not the market.

3.3. Motivation for formers to join a cooperative

The results in *Table (3)* show some plausible motivations for the farmers to join a cooperative.

Table 3. Motivations to join a cooperative (N=45).

Sort	Agree Disagree	Frequency & Percentage	Mean & S.D.*
No need to find buyers	*Agree*	41(91.1%)	1.09±.288
	Disagree	4(8.9%)	
Better Prices (Fixed)	*Agree*	30(66.7%)	1.33±.477
	Disagree	15(33.3%)	
Social Reasons	*Agree*	15(33.3%)	1.67±.477
	Disagree	30(66.7%)	
Better Services	*Agree*	22(48.9%)	1.51±.506
	Disagree	23(51.1%)	
Family Reason (Family Members)	*Agree*	6(13.3%)	1.87±.344
	Disagree	39(86.7%)	
Credit (for agricultural supplies)	*Agree*	10(22.7%)	1.78±.420
	Disagree	35(86.7%)	
Information Source	*Agree*	31(68.9%)	1.31±.468
	Disagree	14(31.1%)	
Agriculture machinery	*Agree*	6(13.3%)	1.87±.344
	Disagree	39(86.7%)	
Other reason (various answers)	*Agree*	5(11.1%)	1.89±.318
	Disagree	40(88.9%)	

*Standard deviation.
Source: own compilation

Based on the results, the reasons that farmers consider as motivational to join a cooperative are as follows; no need to find buyers, information sources, better prices, and better services. This could be the primary cause in view of the fact that farmers`challange is finding buyers, there are even some instance where agriculture products decay due to their sensitivity and persistence after harvesting unless the buyer was found in advance. However, other motives such as social reasons, credits, family reasons, agriculture machinery are factors that do not necessarily persuade farmers to join a cooperative. Considering the significant difference in economic factors, the effect of differences in selling channels was examined.
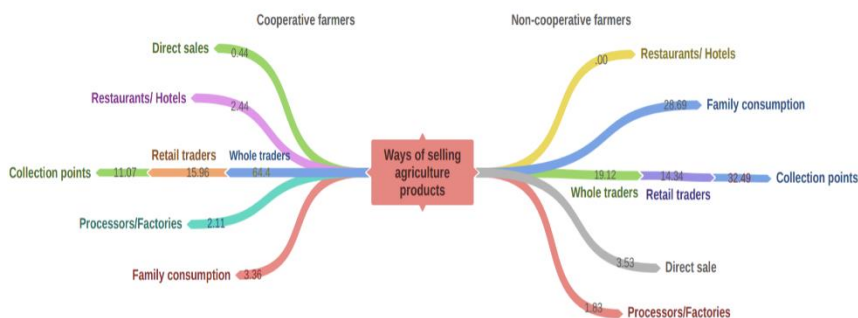

Figure 1. Selling channels for cooperative and non cooperative farmers
Source: own data

The results in *Figure (1)* highlight the way agricultural products are sold by the cooperative and non-cooperative farmers. As reported by the results, cooperative farmers sell more than half of their produce (64.4) through wholesale traders, through retail traders (15.96), collection points (11.07) and only a small portion (3.36) uses them for family consumption. According to the results, this group of farmers does not make much use of restaurants/hotels (2.44), processors/factories (2.11) and the directs sales (0.44) as a sales channel.

Coming to the non-cooperative farmers, around 32.49 of the total produce is sold through collection points, (19.12) whole traders, (14.34) through retail traders and a considerable amount of products (28.69) is used for family consumption. The results emphasize that this group sells a small amount of their produce through; directs sales (3.53), processors/factories (1.83) and does not sell to restaurants/ hotels (0). It has been found that two groups of farmers use different sale chains to market their produce.

An independent Sample *t* Test was used to identify significant difference in selling channels between cooperative and non cooperative farmers in Kosovo (*Table 4*). The results showed that there is a significant difference in selling channels by whole traders (M $_{coop}$=64.40, M $_{non-coop}$=19.12, *t*=6.489, *p*=.000, *d*=0.484), directs sales (M $_{coop}$=0.44, M $_{non-coop}$=3.54, *t*=-3.081, *p*=.033, *d*=0.283),collection points (M $_{coop}$=11.07, M $_{non-coop}$=32.49, *t*=-4.467, *p*=.000, *d*=0.727) and family consumption (M $_{coop}$=3.36, M $_{non-coop}$=28.69, *t*=-7.755, *p*=.000, *d*=1,046) between the cooperative and non cooperative farmers. Based on qualitative interview, it was found that "The majority of farmers do not conclude an agreement (enter into a contract) for agricultural selling, they choose selling channels (which offers more incomes) when the product is ready for market, but it was evident that many small farmers have sold their products even below production cost or in some cases have thrown their products away since they could not sell them in any way".

Table 4. Comparison selling channels between cooperative and non-cooperative farmers

Selling channels	Coop. farmers	Non-coop farmers				
	Mean	Mean	Mean Difference	t-value	Sig.	d-value
Whole trades	64.40	19.12	45.283	6.489	.000	1.184
Processors/factory	2.11	1.83	.273	.135	.893	0.026
Retail traders	15.96	14.34	1.614	.304	.762	0.053
Restaurants/hotels	2.44	00	2.444	1.565	.125	-
Direct sales	.44	3.54	-3.081	2.154	.033	0.283
Collection points	11.07	32.49	-21.425	-4.467	.000	0.727
Family consumption	3.36	28.69	-25.336	-7.755	.000	1.046

Source: *own compilation*

The results imply that the members of cooperative sell most of their produce through whole traders as compared to the non cooperative farmers. It could be understood that non-cooperative farmers sell most of their produce through direct sales. Non cooperative farmers also sell a slightly higher amount of their total produce through collection points compared to the cooperative farmers. Finally, the results show that the non cooperative farmers use a sizeable amount of the total produce for family consumption while comparing with that of the cooperative farmers.

4. Discussion

There is a wide gap in the information on cooperatives in developing countries, especially for Republic of Kosovo as part of Balkan countries, frequently it is not just a missing information but also the information which might be provided is not in English. As a result, the research on the distinction between cooperative and non-cooperative farmers is relatively limited in the literature especially those discussing issues corresponding to agricultural factors. Few similar researches in the field which examine the prospects of cooperative and non cooperative farmers do not sufficiently touch upon the pressing issues faced by them (Ajah, 2015; Neupane, Adhikari, & Rauniyar, 2015; Petcho, Szabo, Kusakabe, & Yukongdi, 2019; Verhofstadt & Maertens, 2015). Therefore the findings of this study are of significant importance for better understanding the differences in socio-demographic, agricultural and economic factors of cooperative and non-cooperative farmers in Kosovo.

The Chi Square test analysis (*Table 2*), showed that there is a significant association in socio-demographic, agricultural and economic factors of the cooperative and non cooperative farmers.Farmers who have completed agriculture education have a greater tendency to become a member of cooperative compared to those of other types of education. The results further show that the cooperative farmers tend to engage more family members in agricultural activity, obtain more seasonal employees, use agricultural equipment which is slightly higher than in the case of Hungarian cooperative farmers (Papp-Vary, Grotte, Muriqi, & Baranyai, 2019) and are ready to invest in agriculture machinery with other farmers. In the case of cooperative farmers, trust was identified as an important factor, which is slightly higher as compared to the non cooperative farmers. Different results are found in the study of Solek & Bembenek (2004). Coming to the distribution of income, cooperative farmers have slightly higher level of income than the non cooperative farmers. This result is corroborated by the studies of Chen et al. (2018), Ibezim et al. (2010), Verhofstadt and Maertens (2015), Wang et al. (2019) and is not supported by the results of Petcho et al. (2019) Shumeta and D`Haese (2018).

Furthermore, the results portray that the non-cooperative farmers are engaged in cereals, fruits and animal production. Results also imply that cooperative and non-cooperative farmers share the same attributes in terms of gender. Similar results can be found in the study of Ajah (2015), Verhofstadt and Maertens (2015) and different results in the studies of Neupane et al. (2015). Similarly, the result related to age is in agreement with the results of Ajah (2015), Petcho et al. (2019) but differs from the results of Neupane et al. (2015). Besides these results, two groups are also characterized by similar farm size which is in line with the results of Ajah (2015), but differs from the results of Verhofstadt and Maertens (2015), Petcho et al. (2019) and Julius (2013).

Some of the significant reasons identified by this research related to the benefits accrued by cooperative farmers in Kosovo are that they do not need to find buyers (91.1%), information source (68.7%), better prices (66.7%), and better services (66.7%). The t-test analysis (*Table 3*), represents that there is a significant difference in selling channels that the farmers use. The results further indicate that the cooperative farmers in Kosovo sell the main produce through wholesale traders. Wholesalers are reported to be almost the only channel through which fruits are distributed in Kosovo (Gjokaj et al., 2017). Similar results in the study of Hao et al. (2018). Non cooperative farmers mostly use direct sale and collection points as their primary selling channels. They use a sizeable part of the total agricultural produce for family consumption. No significant difference was found between cooperative and non cooperative farmers in using processors/factories, retail traders and restaurants/hotels as sales channels.

Smallholders are mostly more vulnerable to economic shoks including COVID-19 lokcdown, as long as they have low productivity, low amount of savings and investments (Guido, Knudson, & Rhiney, 2020). This period of time farmer cooperatives have become handy as collection centers and at the same time minimize the risk of virus transmission since farmers drop off their product in one fixed place, while a single member of the cooperative is responsible for selling the product (Deuja, 2020). This period of crises highlights the need for cooperation among farmers and making family farming system more sustainable and strong in case of future crises.

Conclusion

This study provides relevant and novel results by identifying the differences in socio-demographic, agricultural and economic factors of cooperative and non-cooperative farmers in Kosovo. From the results, it could be construed that the number of cooperative members still seems to be minor in the country.

Results also highlight the significant relationship in socio-demographic, agricultural and economic factors in the formation of cooperatives. Cooperative farmers are involved in vegetable production. They have more access to seasonal employees, machinery through sharing, have higher readiness to invest in equipment with other farmers and have a higher level of trust between farmers, in contrast to non cooperative farmers. In addition to that, cooperative farmers appear to have higher level of income than that of the non cooperative farmers. Conversely, the non cooperative farmers are more engaged in cereals, fruits, and animal farms production. Other factors such as gender, age, rent land and size of farm appeared to be statistically insignificant.

Some of the factors that farmers consider as motivational to join a cooperative are; no need to find buyers, better information source, better prices and better services. The differences in the selling channels used by the cooperative and non cooperative farmers were statistically demonstrated. The results imply that the cooperative farmers sell most of their production through whole traders, while non cooperative farmers through direct sale, collection points and a sizeable amount is used for family consumption.

Based on the findings of the study there is a need for a tool to expand the participation of poorer farms in cooperatives, and to further enhance member benefits as potential regions in making cooperatives more purposeful, stimulating, and sustainable. Our personal experience also suggests that emotional connection among farmers should be taken into consideration. This is considered a key of success to any support program.

Limitations: It is important to note that this study has some limitations which first includes the fact that the sample size is small and further the interviews were conducted individually with each farmer in Kosovo where the accessibility to internet and knowledge of using the same is very low. Statistics about the cooperatives in Kosovo is missing, so it is not possible to make comparison with previous research.

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ANNEX

Questionnaire for farmers

Questionnaire No.: _____ Date of Interview: ___/___/_____ District: 1 ……../ 2……..
Location of the business (town/village):_____ Location: 1. Urban / 2. Rural
A1. Gender of the owner farm: 1. Male 2. Female
A2. The age of farm owner? _____
A3. Your main activity (job)?

1.	Employed in the public sector
2.	Employed in the private sector
3.	Self-employed in the non-agricultural sector
4.	Self-employed in the agricultural sector
5.	Other

A4. Level of your education?

1.	No education
2.	Primary school
3.	Agriculture high school
4.	Other high school
5.	University (MA, MSc) or Ph.D. degree

A5. How many years have you been farming? _____
A6. How much land do you own? A. _____ hectares;
A7. Did you took rent land? 1.yes 2.no (if no continue question A9)
A8. How ha_____
A8.1 how much did you paid for it_____
A9. How much land do you farm? _____
A10. Which is your main agriculture activity?

1.Cereals
2.Vegetalble
3.Fruit
4. Animal farms

A11. Type? _____
A12. How many years have you been cultivating the main product on your farm? _____
A13. Is agriculture your main occupation? 1. Yes 2. No 3. Can't say
A14. How much percentage of the annual income comes from agriculture? _____
A14.2 how much are the total expenditures in year from agriculture? _____
A15. How many members does your family have? _____
A16. Have many members of your family are involved in agriculture? _____
A17. Do you get seasonal worker? 1. Yes 2. No

B1. Are you part of any cooperative or other producer group? 1. Yes 2. No (If No continue with question B5)

B2. Which are the reasons for not participating in agricultural cooperative?

	I agree	I disagree
I sell my products to the same trader/company for many years and I am satisfied.		
I buy my supplies (fertilizers, pesticides) from a particular supplier who also advices me.		
I do not believe that the cooperative institution could help me.		
I do not agree with the way the cooperatives are running.		
I want to make up my own decisions and not to depend on others.		
I do not trust others to decide for me.		
I have personal differences/disagreements with some other members of the cooperative.		
I have personal differences/disagreements with the administrative board of the cooperative.		
The cooperative cannot provide useful services to me.		
The cooperatives cannot solve producers' problems (only the state can).		

B3. How often during the year do you meet (gather)? _____
B4. Which are the main reasons to join a cooperative?

	I agree	I disagree
1. No need to find buyers		
2. Better Prices (Fixed)		
3. Social Reasons		
4. Better Services		
5. Family Reason (Family Members)		
6. Credit (for agricultural supplies)		
7. Information Source		
8. Agriculture machinery		
9. Other reason (various answers)		

B5. Where do you sell your main product?(%)

1. Whole traders	
2. Processors/ Factories	
3. Retail traders	
4. Restaurants/ hotels	
5. Direct sales	
6. Cumulative points	
7. Family consumption	

B6. What kind of contracts do you have with your buyers?

1. Written contract	
2. Oral contract	
3. No contract	

B7. Have you ever heard about the cooperation between farmers? 1. Yes 2. No

B8. Do you organize sales with other farmers? 1. Yes 2. No
B9. Do you arrange purchases (raw materials) with other farmers? 1. Yes 2. No

B10. Do you think there is a farmer in your region who you believe can lead the farmers' group / association? 1. Yes 2. No

B11. Does your family possess any of the following agricultural equipment? 1. Yes 2. No
B12. If yes, which of these:

1. Tractor, plowing machinery, planter machine, harvester machine, combine, harrow etc.
2.Truck, Goldor
3.Irrigation equipment (wells, reservoir, water pumps etc)
4.Spraying equipment
5.Storage environment

B13. How are these devices purchased?

1. Individually   2.Donations/ Subsidies   3.Along with other farmers   4. Others

B14. Do you use these machines with other farmers? 1. Yes 2. No
B15. How much did you pay for rent agriculture machinery? _____
B16. If you have the chance, would you accept to purchase machinery together with other farmers for joint use of machinery?

Please let me know if you agree or disagree with the following statements:	1.Don't agree	1.Don't agree or disagree	3.Agree
1.The common use of agricultural machinery with other farmers is financially viable			
2. Sales along with other output farmers are inexpensive			
3. Purchases with other inputs are inexpensive			

B17. How much do you agree "I trust other farmers to cooperate"?

1.I don't agree at all	2.I don't agree	3.I don't agree or disagree	4. I agree	5.I agree at all

B18. Total income of your family? _____