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Livestock Sector in Albania: Trends and Challenges

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Abstract

Agriculture in Albania has dramatically changed since 1992. The last 25 years has signed a positive development of the production. The sector is now undergoing a transition from a largely subsistence sector to a commercial one. The sector contributes about 22% of Gross Domestic Product, which is high, when compared to neighboring countries and EU members. While the animal production contributes so far is more than 50% of the agriculture production value and is an important source not only to farm income but also to market supply with raw and processed products. Albanian animal production has undergone fundamental changes in terms of its structure, the organization of the production units and the distribution of products and trading. Although the positive trend in livestock production during the last two decades, the production is facing several challenges. Relatively larger farms represent a small percentage of the farming structure and the yields are below to the breeds' potential. Livestock production efficiency is affected by limited knowledge of farmers on modern farm management. The improvement of farmers' knowledge should start with the enhancing the role and performance of the public extension service, the motivation of the advisors and the financial support of the service. Despite the importance of agriculture for the national economy, Albania is a net importer of crop and animal origin products. In the process of approximation to the European Union, the country is seeking to increase the competitiveness and food standards. The aim of the paper is to analyze the livestock sector challenges and perspectives. The methodological approach is mainly based on secondary data analysis.

Keywords: agriculture; animal production; challenges; trends.

1. Introduction

Albania is transformed from the poorest countries in Europe to an upper-middle-income country [24]. According to BTI [1], in regard to economic development, some progress has been registered on building up the institutions necessary for a functional market economy. Considerable structural, institutional and legal changes are expected to pay off in long term. Since 2014, Albania's economy has steadily improved and economic growth reached 3.4% in 2017, from 1.8 and 2.8% in 2014 and 2015, respectively [23]. Average annual inflation fell from 1.9% in 2015 to 1.3% in 2016 [23]. Remittances, a significant catalyst for economic growth, declined from 12-15% of GDP before the 2008 financial crisis to 5.8% of GDP in 2015, mostly from Albanians residing in Greece and Italy. GDP per capita in 2015 stood at only 30% of the EU 28 PPS[1] [4]. Public debt in 2016 was 71.3% of GDP (World Fact-book, 2017). The country continues to be predominantly a rural economy with 22.6% of GDP generated by agriculture (World Fact Book, 2017). Presently, 46% of the population continues to live in rural areas [11], and farming constitutes main employment option for people in these areas. Official employment data indicate some 650 thousand people are employed in the private agricultural sector. The agriculture and services

[1] Purchasing Power Standards

sectors have the highest share of employed with respectively 40.2 % and 40.4 % of the total employment [15]. Agriculture in general and especially livestock farming plays an important role on income generation to a big number of families, which live in the rural areas. Livestock production is seen as the backbone of Albania's agriculture and occupies a very important place in the Albania's overall agricultural production. Animal production provides 52% of the value of agricultural production compared to 42% in 1992 and 35% in the 80ies [17]. Within the livestock sector, the primary output is cow milk (42% by volume), followed by bovine meat 21% [10]. Livestock products constitute a main source of food and a high share of production still serves subsistence purposes. Animal husbandry and dairy production activities have a long tradition in Albania due to the favorable natural resources for ruminants (both large and small). In the plains, cattle production is dominant, while the pastures and meadows in the hills and mountains are more suitable for sheep and goat production. Pasture and meadows covers about 15 percent of the country's total area. The milk production is in total 1,145 million tons and 85,1% of it is coming from cows [14]. Most of milk producers are semi-subsistence households. About 46% of milk production is delivered to milk processors the rest is used for self-consumption, direct sale to consumer or for feeding of animals [22]. Despite the importance of agriculture for the national economy, Albania is a net importer of agricultural products. The food produced locally fulfills some 70% of the total food requirements of Albania. However value of processed and imported foodstuffs remains still very high. 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) lack and when it is in place weakness of farmer- s' organizations, and vii) limited access to credit [6]. As Albania is in the process of approximation to the European Union (EU), seeks potential to increase competiveness and food standards to improve import/export relation with agriculture and food products. With regard to milk and dairy products Albania is almost self-sufficient (in the level of 95%), while in eggs production has a surplus and for several years eggs were exported to Italy, Croatia and Kosovo. Quite differently lies the situation with meat production where about 40% of the meat consumed is imported.

The objective of this research is to describe and to estimate the state and performance of livestock sector in Albania, and analyze the livestock sector challenges. The aim is to analyze the main factors enhancing and hampering the performance of the sector in both milk and meat production and distribution system.

2. Material and Methods

The methodological approach is mainly based on secondary data analysis. In this study are used agricultural statistical data published by Ministry of Agriculture of Albania[2], desk studies, meetings and collection of detailed information of livestock farms, as well focus group meetings with livestock experts of public and private organizations. Several field visits were conducted to identify the sector problems and get a thorough insight into the structure and performance of the sector. In addition opinions of stakeholders on policy intervention were collected during several focus group meetings.

3. Results and Discussion

Animal origin products represent a main source of food, and a high share of production still serves subsistence purposes. The livestock development in general and milk production in particular, are closely related with several basic factors, which are:

- The Albanians' tradition, which have historically developed livestock.
- Need for livestock products.
- Daily income provided by milk sales.
- Milk as an improver of the protein diet.

[2] Ministry of Agriculture full name was Ministry of Agriculture and Food (MoAF) for the period 1992-2005; Ministry of Agriculture, Food and Consumer Protection (MAFCP) during 2005 and 2013; Ministry of Agriculture, Rural Development and Water Administration (MARDWA) during 2013-2017; and as of 2017, following institutional changes, it is named Ministry of Agriculture and Rural Development (MARD).

Livestock is totally privatized and it was the first one started the process of privatization, before of the land, and finished in 1993. Due to the significance of livestock and milk production, particularly in rural areas, MARD has selected the milk sector as a policy priority. The Albanian government and MARD are inclined to support primary production and one of the declared objectives is to improve the competitiveness of products in order to substitute for import.

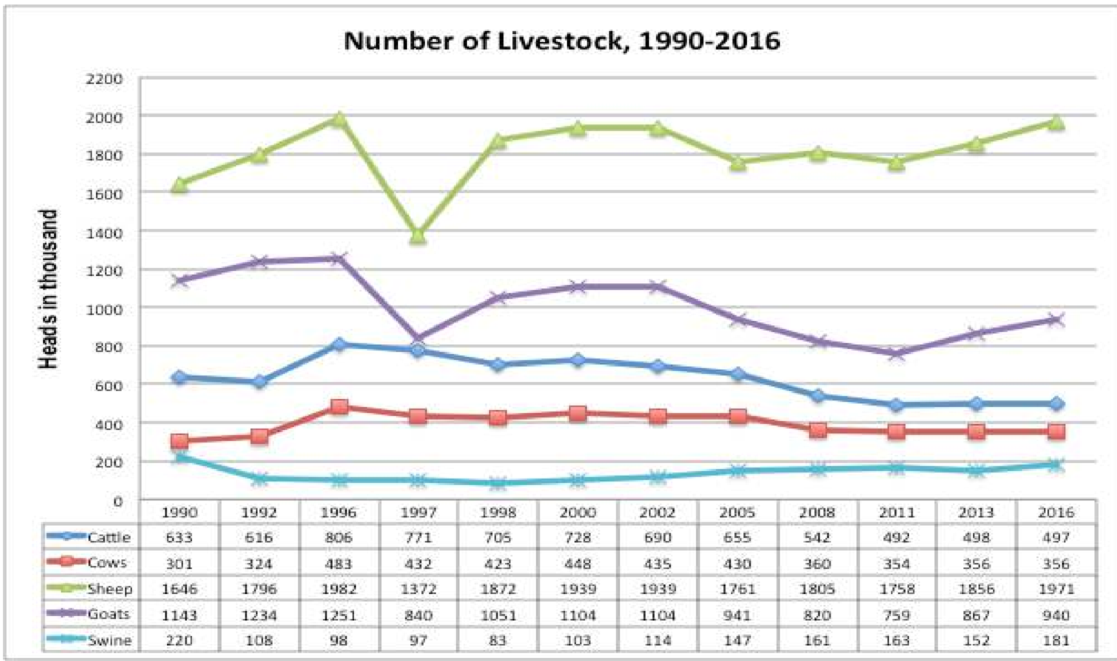
3.1. Overview of livestock population and production and structural features at primary level.

3.1.1 Farm structures

There are about 7650 farms with 5 cows and more, and approximately 6000 farms with 100 and more head of small ruminants. The majority of milk and beef production units are very small with 2 or 3 cows per farm and their off-springs. Farms in Albania are characterized by a small area of arable land and a high level of fragmentation. In the last 10 years, the average farm size has increased by 15 % (from 1.04 ha/farm in 2002 to 1.20 ha/farm in 2012) [13], but it remains extremely low. The average plot size in 2012 was only 0.26 ha. According to MAFCP data, in 2013 the total number of farms was 355 436, of these 305 839 kept livestock, about 85% of them are mixed farms. About 3.8 percent of cattle farms own more than five cows. Only 18.64 percent of sheep and goat farms have flocks with more than 50 heads. Farms are not only very small but and poorly equipped. The main objective of post-collective agricultural farms was subsistence [3][16]. The cropping and livestock pattern is based on cereals and vegetables, mainly for family consumption and sale of surpluses. This situation leave little room for farmers-developed strategies on the one hand or adapted public policy instruments on the other hand.

3.1.2 Livestock Population

Cattle: The total number of cattle was decreased for the period 1991-1992, as the result of the agriculture privatization process (several heads were slaughtered as they did not had good production), while for the period 1993-1996 the number increased up to 806 000, and after declined as farmers were keeping the best cows and replacement. One farm family as average is managing 2.32 cattle (1,67 milking cows).



	1990	1992	1996	1997	1998	2000	2002	2005	2008	2011	2013	2016
Cattle	633	616	806	771	705	728	690	655	542	492	498	497
Cows	301	324	483	432	423	448	435	430	360	354	356	356
Sheep	1646	1796	1982	1372	1872	1939	1939	1761	1805	1758	1856	1971
Goats	1143	1234	1251	840	1051	1104	1104	941	820	759	867	940
Swine	220	108	98	97	83	103	114	147	161	163	152	181

Figure 1. Number of livestock during 1990-2016

[3]According to Kodderitzsch (1999), on average only 18 % of crop, 30 % of livestock and 2 % of on-farm processed production reaches the markets.

Source: Statistical Year Books of MoA (1992-2012) and INSTAT (2013-2016)

Small ruminants: The number of sheep was increased during the period 1992-1996 and is more stabilized after 1996. While the goats population declined about 25% compare with 1990, and only in 2016 we have a slight increase. Of all farms in Albania 47,039 farms has sheep and 23,445 has goats. The majority of farms that has sheep also have goats. The average size of the sheep flock and goats herd in country has 38 (24.4 ewes) and 36 (23.7 doe – milking goats) heads, respectively. Throughout the country the small size of herds between 5 and 50 heads are still very often, since most are bred for consumption. According to Çili et. al. [3] cited by [1], the small ruminant production is done in several ways: a) extensive system with the transhumance 6 to 8 months (all regions); b) the semi- intensive system to transhumance 5 to 6 months; c) grazing system on permanent pasture near the farm; d) natural pasture within walking distance, with the return of sheep or goats in the evening on the farm.

Pigs: The number declined with about 2/3 (from 220 000 in 1992 to 83 000 in 1998) because the state intensive production farms were not able to survive and were privatized but the animals were slaughtered for the lack of feed and financial means. Very few large intensive farms are operating in country, managing 50-100 sows, most of the farmers are breeding 1-2 sow.

Poultry: For the period 1990-1993 the number of poultry declined for the same reason like pigs however since 1996 the number is increased and in 2016 was doubled compare with 20 years ago. Most of the eggs and meat production is provided by the large intensive farms managing several hundred thousands chickens.

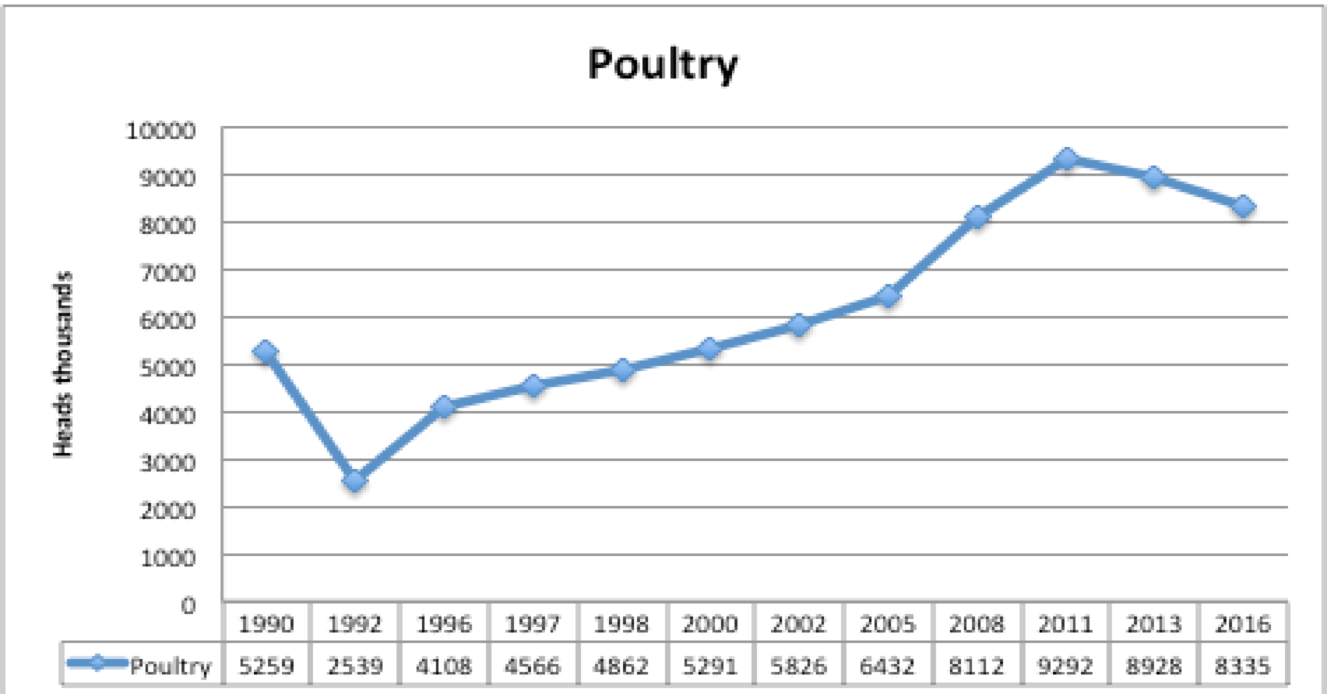


Figure 2. Number of poultry during 1990-2016

3.1.3 Livestock Production

Milk production in 2016 is more than doubled compare with 1990. Except the years 1997-1998[4] during the last 27 years the milk production is increased, where the main share is from cows milk. Total meat production is increased by 74% compare with 1990. Pork and poultry meat decreased during the period 1990-1998 and in the last years reached the level of 1990. Meat structure in Albania is quite different for the rest of the world. In Albania, cattle and small ruminants provide 70-75% of the total meat.

[4] The milk production decreased for several reasons such: (i) as a result of the financial pyramid schemes, (ii) the Government of 1992-1996 had the tendency to increase the figures out of reality, (iii) as well as the Government that took power in 1997 decreased the figures just to show in the years to come that their policies were effective.

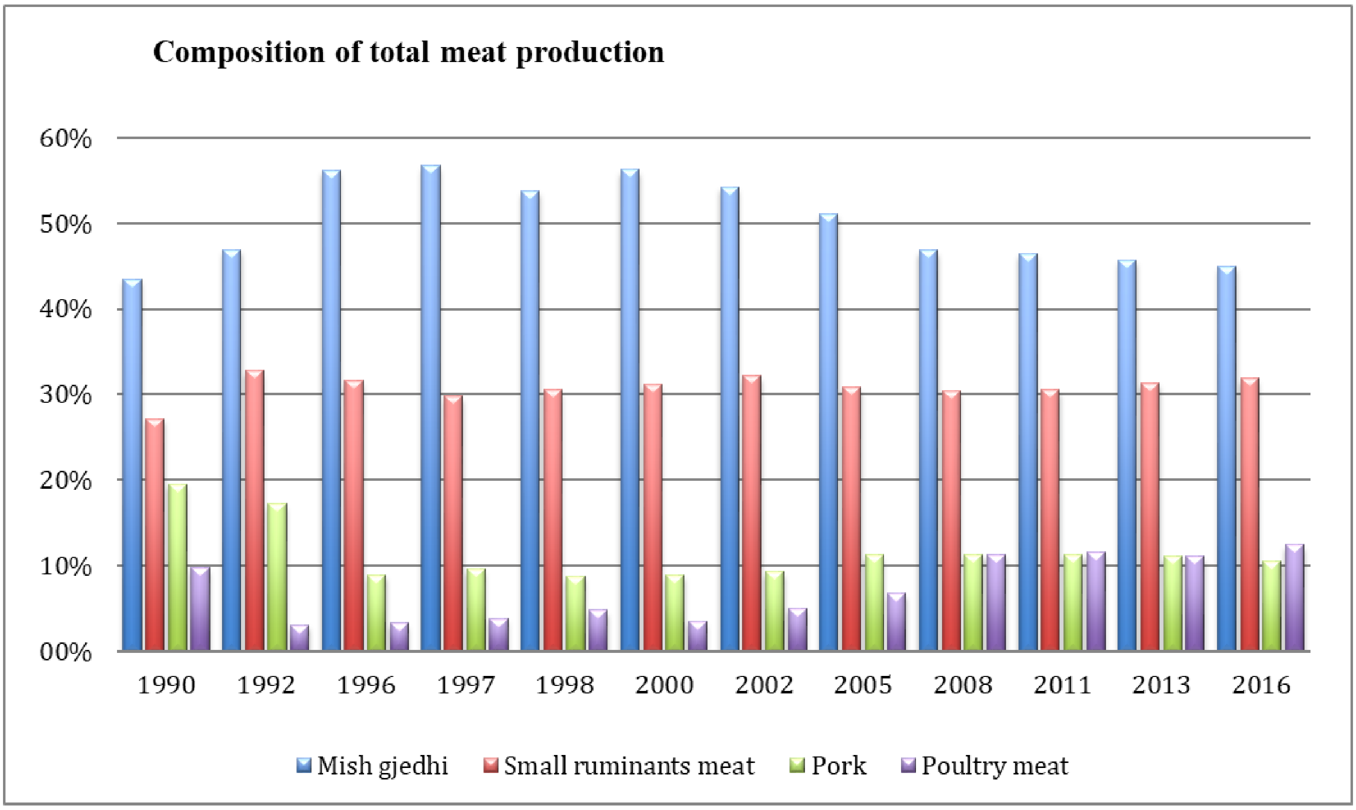


Figure 3. Structure of meat production

Eggs production is increased except the period 1992-1993 as the result of the privatization process of several large intensive farms.

Table 1. Trends in annual production in milk, meat and eggs (1000 tons)

	1990	1992	1996	1997	1998	2000	2002	2005	2008	2011	2013	2016
Total Milk	517	612	1,044	849.6	861	948	1010	1076	1040	1101	1131	1145
Cow milk	421	486.3	894.6	707.2	722	807	878	930	895	955	969	975
Sheep milk	44	55.3	69.6	68.3	72	70	69	75	77	79	84	86
Goats milk	52	70.4	79.5	74.1	67	71	63	71	68	67	78	84
Total meat	92	90.6	105.4	104	105.8	112	118	133	141	147.8	153	160
Bovine meat	40	42.5	59.2	59	58.1	63	64	68	66	68.7	70	72
Small ruminants meat	25	29.7	33.3	31	33	35	38	41	43	45.2	48	51
Pig meat	18	15.6	9.4	10	9.5	10	11	15	16	16.8	17	17
Poultry meat	9	2.8	3.5	4	5.2	4	6	9	16	17.1	17	20
Eggs (in million)	343	269.7	314	337	397.2	530	660	738	803	857	830	830
Honey (tons)	393	237	405	633	805	1076	1232	1816	2517	2898	3000	3000

Source: MoAF, MAFCP and INSTAT publications (1992-2016)

3.1.4 Livestock Yields

The milk yield of cows, ewes and does is not increased significantly in Albania in the last 25 years (in the year 1990-the yield was 1403 liters milk/cow, whereas in the year 2016-2747 liters milk/cow, which is considered very low compared to the average of the EU-27, which is slightly higher than 6 500 liters per cow per year), as the problems are related with genetic improvement, and the feeding of animals is unsatisfactory. In the low land, which is the most intensive one, farmers are breeding mainly cows that are crossbreed with Black & White and

Holstein breeds, in hilly area, which is less intensive, predominantly are the crossbreeds with Jersey breed. The small ruminants are all local breeds. The insemination practice of cows in Albania is based on artificial and natural insemination. The artificial inseminations are apparently more used and according to MAFCP statistics [17], 60% of cows are inseminated artificially. All of the bulls' semen is imported, while natural mating is used for the small ruminants. For feeding the animals farmers mainly use fresh fodder and hay, of a relatively low quality. Compound feed is used in insignificant quantities, which result from lack of tradition as well as from rather high price of concentrated feed. Extensive pasture is the most common farming system for the small ruminants but the management of pastures is poor. In small ruminants three systems are used: (i) extensive system with transhumance, in this system small ruminants are moved late in the spring to the mountain pasture, where they remain until October. During the lambing season, some concentrated food is given to the sheep, (ii) the extensive system without transhumance- the small ruminants are not moved to other areas, but stay in permanent facilities near the villages during the whole year, grazing in the adjacent pastures and fields; (iii) home-fed system: The families keep a small number of goats (3-5 heads) or sheep (5–8 heads) in order to meet their needs for milk, cheese and meat.

Animal production performance needs to be improved through the strengthening of animal management before approaching future genetic improvement programs. Animal performances are low as a consequence of several factors:

- The low genetic capacity of animals (mainly local breeds and /or crossbreds).
- Poor condition of management (grazing on harsh terrain, insufficient satisfaction of the animals' feed requirements in the critical periods, insufficient hygiene and veterinary services, etc.).
- Very limited financial funds that do not facilitate the implementation of new techniques and technologies
- Insufficient knowledge.
- The lack of policies that support initiatives for the improvement of the production system.

The unsatisfactory result in the daily gain body weight of cattle, small ruminants and pigs are related with several reasons: (i) lack of meat breeds of cattle and small ruminants; (ii) lack of specialized farms for meat production in cattle, small ruminants and pigs; (iii) lack of knowledge of farmers on feeding of fattening animals; (iv) limited amount of compound feed used in the feed ratio of fattening animals.

Table 2. Amount of milk per cow, ewe, and doe, eggs per layer and kg honey per beehives

Description	Unit	1990	1991	1992	1993	1996	1997	1998	2000	2002	2005	2008	2011	2013	2016
Cows	Kg	1482	1395	1542	1598	1870	1730	1710	1801	2018	2129	2355	2696	2868	2747
Sheep	Kg	41	41.7	46.8	48.4	47.3	49.5	51.2	48,5	48,8	51.5	55.8	59.2	59,5	60
Goats	Kg	73	73.0	86.2	88.0	85.0	88.7	88.3	88,5	90,3	94.0	109.7	113.4	119	118
Poultry	Eggs	99	113	113	n/a	n/a	128.7	103	n/a	n/a	153	162	174	n/a	n/a
Honey	Kg/	5	n/a	n/a	n/a	n/a	n/a	15	n/a	n/a	12.1	14.1	12.5	n/a	n/a

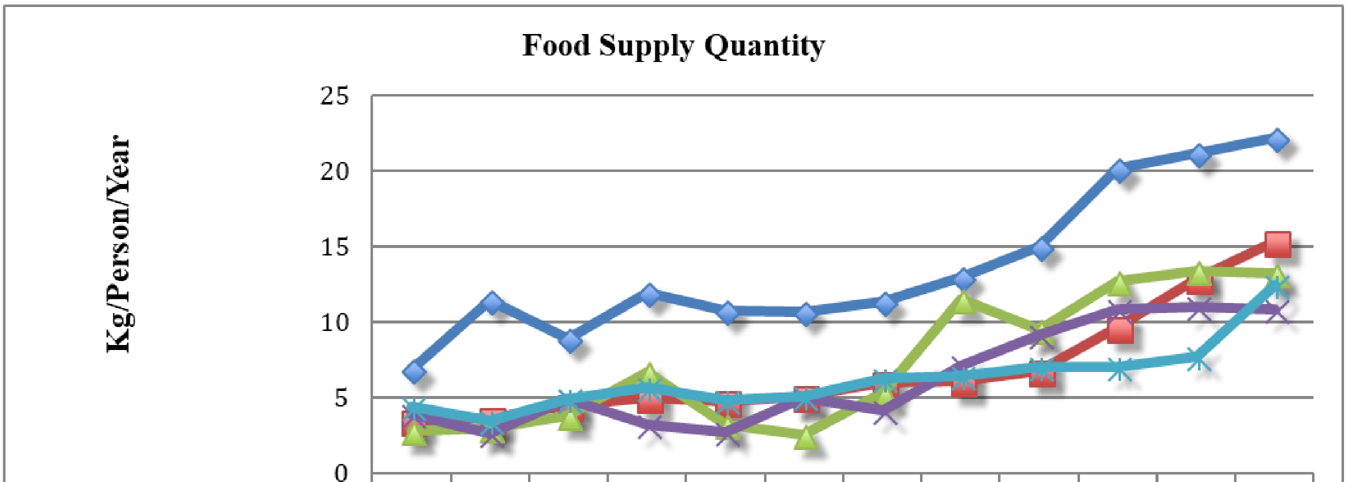
Source: MoAF (1992-2012) and INSTAT (2013-2016).

3.1.5. Food Supply

Consumption of livestock products such as meat, milk and eggs are increased considerably (3-6 times) in the last 28 years, as seen in the table 3 and figure 4, below:

Table 3. Milk Supply quantity kg/person/year

	1990	1991	1993	1996	1997	1998	2000	2002	2005	2008	2011	2013
Milk	102,8	115,5	161,2	258,8	215,8	205,4	216,5	227,7	246,1	231,8	236,6	235,2
Meat	17,0	20,6	22,1	26,8	21,5	23,2	26,8	37,7	40,5	53,5	58,6	61,7



	1990	1991	1993	1996	1997	1998	2000	2002	2005	2008	2011	2013
Bovine meat	6,85	11,42	8,93	11,92	10,8	10,71	11,35	12,97	15,01	20,22	21,24	22,25
Mutton and goat meat	3,48	3,61	4,45	5,03	4,75	5,04	5,99	6,08	6,78	9,63	12,9	15,32
Poultry	2,79	2,95	3,83	6,69	3,24	2,49	5,34	11,55	9,52	12,75	13,41	13,23
Pork	3,86	2,63	4,91	3,19	2,74	5,01	4,15	7,12	9,18	10,85	11,03	10,88
Eggs	4,41	3,47	4,92	5,69	4,8	5,11	6,28	6,43	7,03	7,01	7,72	12,45

Figure 4. Food Supply Quantity (meat and eggs) 1990-2013.

Source: FAO-Food Balance Sheets.

3.2. Profile of main value chain operators

Farmers. The dairy and meat sector of Albania is characterized by large number of small milk and meat producers. Approximately 195 250 farming families are managing cattle for milk and meat production. 4246 dairy farms have more than 6 cows per farm and 13 165 farms have more than 50 sheep or goats per farm[5]. The number of farms keeping more than 5 cows and more than 50 sheep or goats started to operate in the last 10 years and the trend is to be increased, while the beef fattening farms are very rare. The production of milk, mainly from cows but also from sheep and goats, is the principal focus of livestock production while meat has been mainly the by-product of the dairy sector. Most of the beef is coming from the dairy farms as the result of the culling animals and their calves. In Albania is lacking the tradition to manage beef breed. In the last 15 years farmers have started to crossbreed their cows with beef breed using the artificial insemination. Very few farms are specialised in bovine meat production and they slaughter their animals in a very low weight, where the average live weight of slaughtered fattening bullocks is about 220-280 kg (authors calculation). In small dairy farms (1 to 10 cows) cows are usually milked by hand, which affects negatively hygiene and food safety. Only dairy farms specialized in milk production (normally more than 10 cows) started use the mobile milking machines over the last years. Farms with more than 50 cows usually have milk storage tanks with cooling system and farms with more than 100 milking cows have milking parlor. There are limited or no financial incentives to increase milk quality, since prices are determined mainly by quantity and fat content. The majority of the milk producers have no information about the microbiological status of their raw milk [18].

Feeding system and input supply: During summer fresh forage, mainly alfalfa and grasses, and grazing in the plots free of crops, are used to feed the cows. During winter hay and corn or wheat bran are used. Corn or grass silage is used in the ration to feed the animals only by the medium and large dairy farms (more than 10 cows). In summer sheep and goats are grazing in meadows. During winter hay and a limited quantity of wheat bran is provided to animals for the lambing/kidding and lactation period. For feeding the animals are used the permanent pasture that are around 440 000 ha and also about 208,610 ha are under forage crops. However the average yield of forage crops is still low in the level of 29,5 Tons/ha (with limits from 16,4 to 35,4 ton/ha) and the total

[5] MARD 2017 un-published report.

production of forage crops is 6,144,000 ton, [14]. Several problems are faced with the use of high quality seeds, limited amount of fertilizers applied for the forage crops. Agro-inputs are trade by private dealers but a lack of credit on the farmers' side inhibits an expansion of their use. In the last 20 years the fodder crops have replaced cereals, especially wheat. Major inputs into farm-level dairy and beef production are farm-grown forage or pasture and family labor. Concentrate feed is used to a small extent (there are not specific statistics on that). Several traders are involved with the import of: (i) cereals for animal purpose, (ii) protein feed- mainly soybean meal, (iii) animal feed, (iv) bull semen, and (v) heifers. Animal feed prices are high and this is an obstacle to the increase of productivity, especially in cows and fattening bulls. Thus, a kilogram of compound feed for cows is 30- 35 percent higher than 1 kg of milk.

Processors. According to data from MAFCP [17] the total number of milk processing units in Albania is about 400 units during the last years, but this figure may be much higher, as there are hundreds of informal processing plants ("baxho") that are not included in the official statistics. This figure shows a very fragmented industry, with an average of three employees and processing capacity of 1 – 2 tons of milk per day. Most of the processing units are small cheese plants with simple traditional technology. The hygiene conditions of most of such small processing plants are not in conformity with requirements of the Albanian[6] and the European standards. According to MAFCP [17] cited by [1], the industry of milk processing grew in the early 1990s and now has over than 400 processors, with several fully equipped dairies. In 2012 about half of the milk production has reached the market (561 000 tons) while the other half is used for consumption, consumption by animals or processed on the farm. Of all milk produced, only 12% (132 000 tons) is converted by the dairy industry. The remaining 39% (429,000 tons) reached consumers directly. There are 63 registered meat processors, which are operating successfully, but the 5 biggest processors dominate the industry [18]. As the local meat is limited and expensive, processing companies are importing 95 % of their needed raw meat mainly from Brazil and Canada, usually as deep frozen meat [19]. This means that exist a very weak link between livestock farmers and meat processing industry.

Collectors. Larger milk processors rely on milk collectors for the supply of raw milk. There are two profiles of collectors. First type of collectors, are simply employees of the processing plant who work for the company against a monthly salary. Second type of collectors, act as independent intermediaries – they buy milk from farmers and add a margin to cover cost and profit, and sell to the processor in the context of a long term relation. Larger processors may have several collectors and may have a combination of them (employees and independent). **Slaughterhouses and Butchers.** Traditionaly, cattle are slaughtered partly on the farm by the farmer or the butcher (small slaughter point) who then takes the meat to his shop. According to the Albanian law[7] the animals must be slaughtered in approved slaughterhouses; but given the small number of slaughterhouses in operation, the small capacity of processing (mostly 3-4 cattle per day), and the distance of the slaughterhouse may be concluded that slaughtering is not properly done. The farmers and/or butchers do not pay attention to the liquid and solid waste from slaughtering [19]. Fresh meat and its products sold in retail stores are not always guaranteed (especially small cities and rural areas) due to the partial implementation of the law and shortcomings in infrastructure, including a lack of abattoirs that meet national minimum standards. Slaughterhouses need to be improved and to meet food safety standards. Currently 11 new slaughterhouses meet the required standards [18]. There is a weak link between the processing industry and domestic supply as raw meat for as long as import prices are low and slaughterhouses are not nearly in line with capacity and required standards [1]. There are several operational modern slaughterhouses in the country, especially of chicken slaughter. The reason for this is that animals are usually slaughtered on the farm or in some cases in local primitive slaughtering on farms or in butcher shops. A different picture can be seen in the area of processing of meat; there are several companies and the largest ones are very close to EU standards. As local meat is limited and expensive, processors import nearly 100% of their raw meat needed mainly Brazil and Canada.

Milk and meat quality issues: The system for the control of milk and meat quality is still weak and not functioning very well. A part of the milk continues to be sold on the road or directly to the home door what makes difficult the quality control. The control laboratories are not efficient and the farmers have to pay for the

[6] Law No. 944 date 11.11.2005, and Food Law No. 9863, date 28.1.2008

[7] Law No.10 465, date 29.09.2011 "On Veterinary Service in the Republic of Albania

analysis, therefore they neglect to analyze samples, which might be dangerous in regard to public health. Closed cooling chains from producer to consumer exist only for the producers that are managing more than 10 cows. The same situation is with meat where a major part of animals are not slaughtered in the slaughterhouse. EU quality and food safety standards are not yet satisfactory implemented, and through the financial support of EU through IPARD-II Program and Albanian Government programs is expected to start the improvement of situation especially for the farms managing more than 10 cows.

Milk production and collection system (mainly cow's milk) is characterized by the existence of the informal market (sales by farmers) and formal channels to market (milk collection and distribution by dairies). Milk production in Albania still suffers from problems of product quality milk. A considerable part of the milk is consumed directly and untreated and/or controlled [1]. The small dairy and mixed farms, which are the majority of the farms in the country, produce only small amounts of milk and they do not pay much attention to the quality. In addition, education and awareness of farmers to produce milk with high hygienic conditions are not satisfactory. Most of the raw milk is not refrigerated immediately after milking, and it comes directly from the farmer to the consumer, milk collectors, and milk plants or on the market. The contracts between farmers and collectors do not exist and the transactions are based on trust and longevity of the relationship between actors [1].

Wholesalers tend to connect usually small processors with fragmented retail sector. Their role is decreasing as larger companies are improving their production and distribution network – larger companies tend to distribute directly to retailers.

Retailers Most consumers buy cheese and other dairy products in specialised groceries. Therefore, such small groceries that trade cheese, other dairy products, olive oil and meat origin products as well as other agro-food traditional products play a crucial role in the dairy value chain. The emergence of supermarket chains is changing the retail sector structure and patterns.

Health situation: The diseases caused by the microbiological contamination of food remain major threats to public health. The problems in the Animal Health and Food Safety System have been identified by several studies/reports, most notably in meat and milk products. Brucellosis has been a major health concern [25, 24]. In addition are few problems with Brucellosis and Anthrax (in Southern and Northern part of the country) in sheep and goats, and recently Tuberculosis in cattle, which make it impossible to export milk, lambs and kids, which in other regions are as organic products. One of the reasons, behind this situation, in addition to weak law enforcement, is also low farmer awareness about animal diseases and food safety standards and their implications in terms of health risks for the farmer households and for the final consumers.

As a result of all the above mention issues the low capital intensity of production, in most of the cattle farms, is resulting in low yield, relatively high production costs and low profitability; many dairy farms managing less than five cows have negative balance from milk production however as a farm activity they are profitable as a result of calves' sales.

Veterinary and Advisory Services: Veterinary service is provided by private veterinarians – private veterinarian are relatively well-organized and more efficient compared to the agronomic or zootechnical services. Typical veterinarian services including artificial insemination and treatment (for diseases) are present in most parts of the country.

Extension service. The public advisory system consists of 216 agronomist and livestock specialist. The extensionists are in regional and district level, as well in 120 Agricultural Information Centers. Farmers get knowledge and receive advice from different sources, including the Public Extension Service (PES), Agriculture Technology Transfer Centers (ATTCs) as a major source of information, the Agriculture University of Tirana, donor supported projects and private sector organizations. Up to 70,000 farmers receive free PES support of some kind each year. Private sector advisory is active in the field of animal breeding, especially artificial insemination (AI). The input providers have been for a long-time provider of technical advice. Input provides constitute a large and important part of the private extension. However, their activities are not well accounted and in general there is a need to optimize this knowledge and create complementarities and synergies with the public extension sector.

Information that farmers receive from the PES is mainly technical production related rather than farm business management, animal health, consumer protection against transmissible diseases, animal feeding, breeding, animal welfare, environmental protection, storage of farm products, small scale processing of farm products, food safety at farm level, agricultural legislation, etc. The models in place, the delivery mechanisms adopted, and the types of advice offered are not sufficiently effective, sustainable or viable to support current and evolving agricultural and rural development needs as the agriculture sector, and particularly livestock, seeks to be more competitive to take advantage of the opportunities, and address competitive challenges, of the EU market. However, the weak knowledge of modern production technologies and animal welfare and health requirements are the main problems faced by farmers and where the advisory service needs to work in the future. In a survey, conducted by the authors during 2015, was found that most farmers are not aware about the institutions in charge of food safety and animal health control. About 1/3 of the farmers stated that they never or rarely use ear tags to identify their livestock animals, about 80 percent of the respondents state that they have no cooling tank for storing the milk, which is a prerequisite for attaining milk safety and quality standards. in addition most farmers' state that they do not know symptoms of the Brucellosis (60%) and TBC (64%), indicating the low awareness level among farmers about animal diseases and food safety [8]. Extension and Veterinary Services must plan awareness, teaching and training programs for livstock farmers to improve safety standards at farm level.

Farmers Education: Only 3% of the farm holders have university education, 34% have upper secondary or tertiary education, while the remaining 63% have lower secondary, primary or no education. About one-third of the farm holders have agricultural education background. These are likely to be the older farmers, who have accomplished agricultural vocational high schools in the past [18].

3.3. Market and Trade

World Trade Organization (WTO) accession in September 2000 and the implementation of a number of bilateral free trade agreements with the countries in the region in recent years mean that Albanian producers are facing stiffer competition, specifically as a result of higher quality dairy products being present on the domestic market. The import of milk and its product is only 7-10% of the domestic consumption [20, 17, 13]. In 2013, the main imported products were dairy products and UHT milk, which came mainly from Italy, Greece, Slovenia and other European countries. With regard to livestock, Albania has a deficit of meat and milk. In 2016, imported 11 518 tons of milk and dairy products, amounted to more than ALL 1.95 billion[8]. Meat imports remains high and stable over the past few years reaching about 24 527 MT in 2016, which corresponds to about 1/3 of the domestic supply. In addition, there are increased imports of live animals, especially pigs and cattle. Imports of bovine meat is still low, reaching about 1 700 tons or 4.7% of total meat imports [18][9]. A considerable number of farmers sell the raw milk and fresh meat that they produce directly to consumers without charging VAT (informal market), and thus creating unfair competition for the emerging Albanian milk and meat processing industry. One important cost factor in the formal market is imposed by regulations and tax restrictions, especially VAT. On the consumer side, there is still a lack of awareness on prices paid for quality.

The price that farmers get for their raw milk is fixed based on fat percentage, however, the control is weak and farmers can easily abuse this system. A major problem for farmers is the lack of a contractual framework and delayed payments. Although the Albanian dairy and meat industry can be characterized by improving technologies, hygienic conditions and control systems, it is still far from being competitive with developed countries.

Yet, it is believed that the industry will be able to compete with products from neighboring countries, especially if Albania continues to harmonize programs and practices with those of the European Union. Lack of cooperation among farmers and a poor vertical cooperation or partnership between milk & meat processors and producers also represent causes of inefficiency and inconsistent product quality. There is evidence that there is significant market potential for some locally-produced animal products. In particular, lamb meat from selected mountain areas in the South of the country may provide an opportunity for higher added value. Identified urban market segment requires supply of the above-mentioned product all year round with peaks of demand.

Products like young goats, beef, milk and cheese may also provide significant market opportunities. Currently, Albania meat and milk products cannot be exported to EU market. The fulfillment of requirements stated by EU legislation is a prerequisite to open the way for Albanian animal products into the EU. It is a joint responsibility

[8] MARDWA 2016, un-published report.
[9] Author calculations based on the data of Inter-sectorial Strategy of Rural Development, 2014-2020.

among government institutions, keepers, food industry and consumers to ensure that food products are safe. The main role of government institutions is to establish an adequate law framework, prepare norms and regulations for the enforcement of the law and ensure, through regulatory and non- regulatory interventions, that all involved actors meet the quality and safety requirements.

3.4. Government policy for the sector

Due to the significance of livestock, particularly in rural areas, MARD has selected the milk and meat sector as a policy priority and the Albanian government is inclined to support primary production and the dairy industry. One of the stated objectives is to improve the competitiveness of products in order to substitute for import and increase export potential [7]. Agricultural funding remains limited, compared to the needs of the sector and to other countries in the region. Furthermore, national support measures provide subsidies for actual production rather than promoting competitiveness and facilitating access to credit [5].

3.4.1. Main policy documents

The MARD performs its functions on the basis of three main documents: the *National Strategy for Development and Integration* (NSDI), *the Mid-Term Budget Program* (MBP), and *Sectoral, Sub-Sectoral and Crosscutting Strategies*, where are detailed mid-term and long-term policy objectives, the main interventions, the monitoring tools and the costs of implementation of policies and interventions. The MARD short term policies are detailed in the Yearly Program and the relevant activities in the Yearly Action Plan. The National Strategy for Development and Integration 2014-2020, considers agriculture as one of the key sectors and it aims to enhance competitiveness and growth through Innovation. The MARDWA, in collaboration with other line ministries, has prepared the Crosscutting Strategy for Agriculture and Rural Development (ISARD) in Albania for the period 2014-2020.[10], which will be partly implemented through the IPARD II Program[11] (Instrument of Pre-Accession Assistance for Rural Development) and partly from the National Support Program which is updated in yearly basis.

3.5. Government financial support for the sector

The Albanian Government started in 2007 the subsidy/support schemes program, but livestock sector was not part of it. The 2008 program comprised some direct support measures (premium per cow) for dairy/livestock farming and subsidized interest rates of loans for agro-food processing companies. Since 2010 the program changed from the support related to the number of cows to the milk delivered to the milk processors. The current national support schemes combine elements of investment support and direct payments for increasing the production in the most important agricultural sectors. In 2014, support to agriculture and rural development was implemented through 21 measures of which 20 measures were varying forms of direct payments; only 4 measures were for the livestock sector. In the last 10 years 40 development schemes were supported. Livestock has received about 16.3% of total budget expenditures. Within livestock support 45.6% of the expenditures were given to the cattle sector [21]. While in 2018, the support to agriculture and rural development will be implemented by 52 measures. The 2018 state support main measures for livestock include:

- Payment for born-ear tagged animals, for farms with over 100 heads of sheep and / or goats and for farms with more than 10 heads of cows;
- Payment (50% reimbursement) for the construction of animal breeding facilities, and machinery, equipment for mechanization and modernization of livestock farming activities with a capacity of not less than 10 cows, not less than 100 small ruminants, with not less than 10 sows, and not less than 10 000 chickens, but not more than 15 million (fifteen million) leks/applicant.

[10] (ISARD) aims to “Support and to develop the appropriate framework conditions for an efficient, innovative and viable agro-food sector capable to sustain the competitive pressure and meeting the requirements of the EU market”. The ISARD target is the creation of 25000 new jobs in agro-food processing activities

[11] IPARD II is the instrument for the implementation of the Rural Development Cross-Cutting Strategy.

- Support for the delivery of raw milk that complies with the standards in force at the processing points, at 10 ALL per liter, for farms with over 15 head of cows versus the sales tax invoice and the corresponding laboratory analysis reports;
- Support with 1000 (one thousand) leks for beehive, for farms with not less than 100 beehives and the amount of funding to be no more than 150 000 (one hundred and fifty thousand) ALL
- Support for improvement of living conditions of lodging in mountain pastures for shepherds of small ruminants (reconstruction of support facilities and photovoltaic panels), 80% of the total value of tax bills but not more than 200 000 (two hundred thousand) ALL.
- For certified containers for milk transport from farm to the collectors/processors.
- For building: (i) slaughter-houses, (ii) facilities for processors, (iii) new milk collection points.
- Cooling systems at dairy processors (up to 1 000 000 ALL) and improving the slaughter house infrastructure (up to 4 000 000 ALL).

4. Conclusions

- Twenty years since the start of de-collectivization, agricultural farming systems in Albania still remain small, highly fragmented low-input systems that lack strong links to the market for agricultural products. However, the total output of livestock production is increased as a result of improved production techniques, feeding and overall animal health care. The main livestock subsectors (especially milk and eggs) have exhibited progress and improvements in efficiency, which is reflected in higher yields and production quantities.
- The main obstacles to the improvement of family farm productivity are factors such as: limited farm size/insufficient land; land fragmentation; broken relief and therefore difficult working conditions; poor infrastructure; market limitations; limited availability of rural credit to farmers, processors and other small rural businesses; poor quality of seeds, saplings and other inputs; and inadequate rural institutions, especially extension services.
- The full development of the sector's potentials requires the keepers to play their role in a modern livestock chain by producing products compliant with recognized international standards and market requirements. At present, the production, processing and commercialization of livestock products is not well organized and is not transparent. The more attentive Albanian customers are becoming more and more demanding about quality and safety aspect of food and animal origin products in particular.
- Analysis of the agriculture sector provides a positive picture of the potential role of the livestock sector and identifies it as an important contributor for the economic development and the employment generation. The policy makers should consider a policy that aims to increase farms productivity and encourage economic diversification in the rural areas.

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