AGRICULTURE TRANSFORMATION AND AGRIBUSINESS DEVELOPMENT IN TRANSITION: THE CASE OF POLOG REGION IN NORTH MACEDONIA

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Abstract

The belief in different circles that agriculture is dealt with mainly by the poorer countries, and that the development of other branches of the economy such as industry can push it forward in itself, to some extent has overshadowed the strategic role of this sector, especially in primary production or agricultural products. The sharp rise in prices of corn and derivative products in 2010 as a result of draught, began to alarm even the consumers with higher incomes who should spent more on food consumption. Undoubtedly, for developing countries that do not satisfy their own needs with food and depend on importing, agriculture development requires a more serious and decisive commitment than ever before. While this necessity cannot be questioned by anyone, this paper aims to analyze agriculture reform challenges in North Macedonia, where agriculture contributes 10 percent to GDP and 18 percent to employment, and based on survey data of eight agribusiness companies from the Polog region, to identify the development prospects of this sector.

Keywords: agriculture, agribusiness, Polog region, case studies, productivity, efficiency.

1. Introduction

The economy of FYR North Macedonia by size ranks among the smallest in Europe (Matoshi, 2019). Even in terms of per capita income, it is also among the countries with lower incomes. As of 2010, about 39 percent, or 1,010,000 hectares of the total area of 25,713 km2, is agricultural land, where almost half of its land is arable, and the rest consists of orchards, vineyards, meadows, and permanent pastures. About 37 percent is forest and mountains, while the remaining includes lakes and urban areas that are not directly used for agricultural purposes. The structure of the agricultural sector is characterized by small farms, mostly family-owned. About 80 percent of all farms are estimated to be of this kind fragmented into small parcels whose average size is between 2.5-2.8 hectares. Nearly half the population lives in rural areas, where agriculture is its main activity.[1] The program for agriculture and rural development for the period 2013-2017 envisages fundraising plans for financial support in the amount of 725 million Euros. Of this amount, about 150 million will be spent by 2015. This support is perhaps possible to be realized since in the period 2011-2012 financial crisis the government was able to increase the support from 115 to 130 million Euros.[2] The Policy support includes market regulation for income generation through direct and indirect measures. Such intervention by the state is made for the modernization and adaptation of agriculture to market economy conditions,

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[1] European Commission (2011), 'The former Yugoslav Republic of Macedonia- Agriculture and Enlargement', European Commission, Brussels, available at: http://ec.europa.eu/agriculture/enlargement/countries/fyrom/profile_en.pdf, accesed on 15.08.2013.
[2] Министерство за земјоделство шумарство и водостопанство – МЗШВ (2012), "Национална Програма за Развој на Земјоделството и Рурален Развој за периодот од 2013-2017 година", Скопје: МЗШВ, Влада на Република Македонија.

preservation of the natural environment, and the rational use of resources to ensure sustainable rural development. The measures align with the Common Agriculture Policy (CAP) of the European Union (EU). Commitment to the development of agriculture and increased competitiveness on the one hand, and orientation for EU and WTO (World Trade Organization) membership on the other hand, presents a major challenge for agribusiness in North Macedonia. The reforms are undertaken in line with the principles of the free-market economy and competition. For that North Macedonia has received and continues to receive support from EU programs for agriculture and rural development in the candidate countries as an accession instrument. With this support, it is possible to significantly stimulate agricultural production, but it is likely that competition in the agribusiness sector to be less affordable for North Macedonia. The reason is that most other countries already members of the EU have developed technology on which agribusiness development depends. The advanced technology enables production with lower costs. If North Macedonia is unable to retain competitiveness in agribusiness, then this may entail more dealing with the export of raw materials and agricultural products for processing abroad.

2. Theory overview of the Agriculture Development

During the 18th century, in Western European countries, especially in Great Britain, France, and Germany the development of capitalism intensified. Along with this development and the first industrial revolution, there was also a revolution in the field of economic theory where the importance of agricultural development was given an important role. Not by accident, in France, which can be regarded as the birthplace of physiocracy, agriculture had become synonymous with economic sciences for an order that was called the natural order or rule, from the Greek word *physis* (nature) and *cratein* (rule). Physiocracy as an economic thought took place mainly in France by a group of economists led by François Quesnay (1694-1774) and was named as the school of economics. The basic principles upon which the physiocracy rested, were: i) economic freedom, including freedom of the individual, known by the French term *laissez faire - laissez passer* (let the things go), and ii) agricultural production, especially in large properties, is a decisive factor in the development of economic life. Agriculture was considered the only economic activity that gave the so-called *net outcome*. This opinion of physiocrats was accepted by several European countries. The disadvantage of this view was that the history of the development of society was understood as an abstract material law that prevails in a certain time.[3] The role of agriculture as a branch of the economy was in the spotlight of the classical scholars of political economy and international trade of food. For example, Adam Smith (2010), who in the Anglo-Saxon world is considered the founder of economics, developed the theory of absolute advantage in international trade where a country should specialize in manufacturing and exporting one or more products to which it has got better conditions and disposable resources. In this context, he suggested that countries with better conditions for agricultural development should specialize in this area and export or exchange them with industrial products of the countries that are more specialized in industrial development.[4] At first glance, it seemed so at the time when Britain was the most industrially developed country to favor the exporting of final industrial products, machinery in particular, and trading partner countries to become dependent on importing technology from Britain. The reasoning behind this relationship between agriculture and industry in international trade was that it would bring mutual benefits to the parties involved in trade, and in principle, such specialization was less costly or cheaper to import certain products rather than produce. This theory and the reality were opposed by the German economist Friedrich List (1789 - 1846), who argued that Germany should erect some

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[3] Ademaj, Sinan (1996), Histori e mendimit ekonomik, Prishtinë: Universiteti i Prishtinës, Fakulteti Ekonomik, op. cit.
[4] Smith, A. (2010). The Wealth of Nations: An inquiry into the nature and causes of the Wealth of Nations. Harriman House Limited..

customs barriers against British industrial goods until German industrial production came into a more equal competitive position in international trade, and then removed customs duties. Moreover, Smith's theory of absolute advantage left unanswered the question of whether a country can produce and sell any product in the market as a result of someone (or many) having always advantage in the market, then what to do when revenues should be created by an activity for the purchase or import those, e.g. where to get the needed money to buy? This shortcoming of Smith's theory answered Danielson (1990), another British economist with his theory of comparative advantage, which maintained that, if a country has an absolute advantage in the production and marketing of any product, then it can still produce and offer that product in the market or be committed to produce those products where the benefits are not larger or equal to those of other countries, but the losses are smaller.[5] For example, if a country cannot produce quality and quality of vehicles like Mercedes or BMW, then it can still produce other vehicle models of lower quality and performance, e.g. Renault, and launch in the market.

Economic policies in this regard are more complex than during the period of classical liberalism. Stiglitz criticizes the approach of some developed countries, primarily the country he comes from (the U.S.) and international financial institutions like the International Monetary Fund (IMF) and the World Bank "right" policies towards developing countries as part of the Washington Consensus, which he called the new religion - that of fundamentalism of market liberalization (Allen, 2002; Baftijari, et al, 2021). Western countries have forced poor countries to eliminate trade barriers but kept their barriers making it difficult or even impossible for poor countries to export agricultural products to generate the much-needed incomes. Among others, the U.S. and Japan had built their economies by carefully protecting some of their industries until they were strengthened enough to withstand the competition of foreign companies.[6] It appears that even with modern theories on inequality in international trade, economic liberalization and international economic contradictions in principle have not changed much from the classical period. In addition, the contradictions in modern times are of greater concern requiring more attention and wisdom since we are dealing with the actors who formulate and implement economic policies on a global scale.

Being aware of the rapid increase in the number of populations, as assumed by Malthus, which can be a problem to feed, the people have introduced technological methods not only in food processing but also to increase productivity through biotechnology and genetic engineering. Does this mean that this may solve the problem of food for people in the world and there will be no food crisis? An approximate response cannot be provided without analyzing several factors that affect the way of feeding among different people, diverse cultures, and adaptation to certain types of food, including some bans. The advantage of the business in agribusiness is being increased. It is becoming critically important because food is a necessity and has no alternative. Production, demand, and consumption of food have risen consistently throughout history and will continue to experience such a growing trend in the future due to population growth. Despite technological advances in the mass production of food, today a part of the world, mainly in developing countries remains poorly fed or facing food shortage and famine. Therefore, we can say that this is the situation of food crisis.

If the world population is taken as a whole, it is clear that there was and still is a food crisis, and this situation seems to deepen. The World Bank estimated that during 2005-2008 food prices had gone up by 83 percent, or at a much greater pace than revenue growth. The increase in prices was caused in part by increased incomes, the use of cereals for the production of oil, inelastic supply, downsizing of agricultural land and water shortages, reduction of livestock funds, and some speculative investments. The main challenge now is how to increase the supply of food. World Bank predicts that the demand for food will increase by 50 percent by 2030 as

[5] Ricardo, David (1818 [1951]), *On the Principles of Political Economy and Taxation,* Cambridge: Cambridge University Press.
[6] Stiglitz, Joseph E. (2002), *Globalization and Discontents,* London: Penguin Books.

a result of population growth. This challenging future requires massive investment in agriculture in developing countries, or a kind of transformation to cope with this challenge would be close to a revolution.[7]

In the wake of the global economic crisis, North Macedonia experienced a decline in foreign direct investment, reduced availability of credit, and a large trade deficit deepening. However, as a result of conservative fiscal policies and a sound financial system, macroeconomic stability has been maintained by a prudent monetary policy and relatively stable exchange rate of the Denar against the Euro. GDP growth was modest, and positive in 2010 and 2011, and inflation was under control. Official statistics about unemployment indicate a high rate at 31.2 percent, but this may be an overestimation given the large presence of the informal market and employment. The deterioration of the trade balance has contributed to the strengthening of the exchange rate of the denar. The average salary in 2007 was €255. In agriculture, the average salary in 2011 was €250.[8]

The total area of FYR North Macedonia is 25,713 km2. As of 2010, about 39 percent of the total area, or 1,010,000 hectares is agricultural land with almost half of it being arable and the other half consisting of orchards, vineyards, meadows, and permanent pastures. Agricultural land is highly fragmented into small parcels, the average size of which is 1.7 hectares divided into 2-3 parcels per household. This fragmentation leads to inefficient use of agricultural land or increases the unit costs. What factors contributed and are contributing to the reduction of agricultural land and fragmentation? Total agricultural land is decreasing due to the migration of people from villages to the cities and urban land use and other non-agricultural purposes. There is a tendency that livestock will also be limited. The largest decrease is observed in goats, sheep, and poultry. Livestock breeding is concentrated mainly in the mountainous areas in the northern, western, and east of the country. Production and processing of organic products is growing. There was a significant increase in the number of farmers involved in organic production from 50 in 2008 to 350 in 2012. The same applies to agricultural land for organic production, whose fund has increased from 266 ha in 2008 to 1700 ha in 2012.[9]

Table 1. Output of some agriculture products in FYR North Macedonia, in tons, and yield per hectare in kilogram (inside the brackets)

	2006	**2007**	**2008**	**2009**	**2010**
Wheat	293,326 (3,010)	218,076 (2,402)	291,719 (3,414)	271,117 (3,076)	243,137 (3,044)
Maize	147,494 (4,649)	118,378 (3,836)	127,125 (4,099)	154,237 (4,751)	129,045 (4,508)
Sugar beet	415 (59,286)	7,852 (32,579)	"-"	"-"	"-"
Sunflower	6,016 (1,620)	3,579 (1,021)	5,444 (1,171)	7,774 (1,879)	7,592 (1,884)
Tobacco	25,036 (1,436)	22,056 (1,287)	17,087 (1,001)	24,122 (1,355)	30,280 (1,492)
Grapes*	254,308 (2.9)	209,701 (2.7)	236,834 (3.0)	253,456 (3.4)	253,372 (3.3)

* Indicators inside the brackets are given in tons.
"-" no data.

Source: Државен Завод за Статистика (2011), *Годишен извештај земјоделство и рурален развој*, Скопје: Државен Завод за Статистика на Република Македонија, pp. 81-82.

[7] Evans, Alex (2008), "Rising Food Prices: Drivers and Implications for Development", New York University: Center on International Cooperation.
[8] State Statistical Office of the Republic of Macedonia (2012), *Macedonia in figures 2012,* Skopje: State Statistical Office of the Republic of Macedonia, f.38.
[9] Светска Банка (2013), 'Партнерство со Република Македонија Слика на програмата на земјата', Скопје: Светска Банка.

The data in the table show some growth and decline in different outputs over the years taken into consideration. The explanation for the decline in the volume of wheat production during the last two years can be partly explained by the drought effects and global financial crisis. The fall in the area sown with wheat in 2010 influenced the drop in the volume of output. Drought had affected most of the major producing countries of cereals. Some of them such as Russia, and Serbia imposed temporary quotas on the volume of crops that can be exported, fearing that it may cause shortage and thus may lead to an increase of prices in the country. But the largest decline of grain production and of all crops in terms of the volume and well as yield, as shown in the table, was recorded in 2007. The cause of this decline was the drought and widespread fires.

While the above data give us a superficial overview of some key crops from which agribusiness development depends, the volume of import and export of the same offers us additional details. According to the classification of three main sectors of the economy (industry, agriculture, and services), the structure of import of goods in 2008 was dominated by industry by 92.3 percent, and this share remained approximately unchanged in the following years. However, the volume of total exports in this sector grew by over $3,684,743,000 in 2008 to $4,109,591,000 in 2011, which means an increase of 10.3 percent. The share of agriculture in total exports increased from 5.7 to 6.0 percent when compared during the same years (2008 and 2011). In 2010 it went to 6.8 percent. If the estimated rate of export growth in this sector is considered, then there is an increase of nearly 15 percent, which means a higher rate than that of exports in the manufacturing sector. The other side in foreign trade or import also dominates the industry with a share of 95-96 percent, and agriculture by only 2.3 percent. The growth dynamics of agricultural imports is smaller than the growth of exports. As mentioned earlier, FYR North Macedonia has a large trade deficit. Regarding agriculture, its trade balance was positive by 35.3 percent in 2008, 44.7 percent in 2010, and 38.8 percent in 2011.[10] Only the agricultural sector in foreign trade had the highest positive balance, suggesting what role and prospects this sector has in the economy if its further development is supported. There are many aspects for deeper understanding and justifying the place of agriculture in the economy and agribusiness development in the FYR North Macedonia, but this section will cut it short to indicate how agriculture contributes to income generation and the creation of new jobs. According to official data, agriculture in 2009 contributed 9.7 percent to GDP, a share which rose to 10.1 percent the following year. Within a year (2009-2010), the growth rate was 8.9 percent, which means the highest than the rate of other sectors. Prices of agricultural and food products, on average, recorded an overall increase in recent years. To support this claim, we need to consider the details of the Consumer Price Index (CPI) average, which measures the changes in the price level of goods and services purchased by households, or otherwise known as "consumption basket". CPI is usually calculated with monthly data as the weighted average of the various components of consumer spending such as food, housing, and clothing. During the period 2003 to 2011, where the first year is taken as 100, the CPI had a steadily increasing trend reaching 120. It continued to grow in the first half of 2013. CPI in April compared to March increased by 1.3 percent, where the overall increase of food and non-alcoholic beverages stood at an average of 3.1 percent, alcoholic drinks, and tobacco by 2.5 percent, while below average were recreation and cultural activities by 0.6, health by 02, and water, electricity, gas and other fuels by 0.1 percent. CPI in agriculture in April 2013 rose by 3.7 percent in the group of inputs and decreased to 5.0 percent compared to the same month last year. During the same period of comparison, consumption goods of the agricultural sector grew by 3.9 percent, investment in agriculture remained the same (at 100 or 0.0 percent), grain was 93 (a decrease of 7 percent),

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[10] State Statistical Office of the Republic of Macedonia (2012), *Macedonia in figures 2012*, Skopje: State Statistical Office of the Republic of Macedonia, p.51 and Author's own calculations.

and dairy products grew by 1.3 percent.[11] External opportunities include several earlier and current programs and projects from international organizations and development agencies of foreign countries, the World Bank, American USAID, Swedish SIDA, German GTZ, and many others. Agriculture and agribusiness are the key sectors where major reforms were necessary as strategic orientation for EU and WTO membership. A study by Ericsson *et al* highlights that the agricultural policy of FYR North Macedonia will face significant challenges when it joins these two international organizations. It will be forced to remove some restrictions or barriers, which would endanger the domestic market by the flood of imports. When it becomes a member of the union member, it has to understand that the European common market is not merely a customs-free zone. The preferential treatment that FYR North Macedonia has received so far, may vanish after EU accession, and the effects or consequences for the agriculture and agribusiness sector, can reduce trade competitiveness against other EU members.[12]

3. Descriptive Analysis: The case of Polog region

The Polog region is one of the eight main regions of North Macedonia that lies on its northwestern border with Kosovo. It has 9 municipalities and 184 settlements. It is more commonly known as the "Polog Valley or Plain" because of the plain stretching between the cities Tetovo and Gostivar, from which it has taken the name, although much of it as the region is dominated by hills, forests, and mountains. Seven other regions are: Skopje, Northeast, East, Southeast, Vardar, Pelagonija, and the Southwest. The total area of Polog is 2416 km2 or 10 percent of the territory of North Macedonia, and with a population of 315 964 inhabitants, it ranks as the most populated region after Skopje, and also in second place in terms of population density of 130.8 inhabitants per km2, significantly above the national average. Another feature that distinguishes Polog from all other regions is that the population has the youngest average age (34 years), and the highest share of the age group up to 14 years (18.7 percent). Table 2 summarizes the general economic indicators of North Macedonia broken down by its eight regions.

Table 2. General and economic indicators of North Macedonia by regions, as of 2011

	Polog	Vardar	East	Southw.	Southe.	Pelagonia	Northe.	Skopje	Total
Area in km^2 a)	2 416	4 037	3 538	3 341	2 738	4 720	2 309	1 813	24912
Number of inhabitants	315 964	153 822	179 387	221 517	173 056	233 628	175 266	605 899	2 058 539
Density per km^2	130.8	38.1	50.7	66.3	63.2	49.5	75.9	334.2	82.6
Mean age	34	39	39	37	38	40	36	38	38
Population < 14 (%)	18.7	16	15	16.8	16.7	15.5	18.6	18.3	17.3
Number of businesses	7 100	5 858	5 845	7 385	6 248	8 308	4 279	28 095	73 118
GDP per capita (Den)	98 848	206 667	206 770	155 572	219 714	225 437	108 664	314 809	211 246
Labor force	250 398	126 086	149 108	179 157	140 279	190 697	139 110	481 379	1 656 215

[11] Државен завод за статистика (2013), Индекси на цените на мало и на трошоците на животот, available at http://www.stat.gov.mk/PrikaziSoopstenie.aspx?rbrtxt=38, accessed on 06.07.2013.
[12] Ericson, Tina and Pelling, Erik and Surry, Yves (2009). *Support to agriculture in FYR Macedonia: an exploratory assessment (1999-2004),* Uppsala: Institutionen för ekonomi, Sveriges lantbruksuniversitet.

Employment (%)	30	38	48.7	32.4	64.4	43.8	21.7	38.9	38.9
Average salary (Den)	29 127	23 649	22 261	27 342	23 670	28 426	24 948	36 194	30 602
Unemployment (%)	31.8	36.4	16.4	42.8	9.3	31.4	59.6	30.7	31.4
Agriculture land (ha)	160 308	106 182	162 265	114 708	90 481	272 010	141 398	72 861	1 120 213
Arable land (ha)	43 080	55 475	77 079	49 877	56 360	112 078	78 674	38 693	511 316

a) Calculated by the Author by dividing the total number of inhabitants by km^2. The total area of North Macedonia from this calculation is by 801 km^2 smaller than the official area of 25 713 km^2. The difference is due to the number of population which is estimated.

Source: Државниот завод за статистика (2012), *Регионите во Република Македонија 2012*, Скопје: Државниот завод за статистика на Република Македонија. The page numbers are not indicated as the figures were spread in many places of the report which brought together hereto in one table.

Table 3. Demographic and economic indicators of Polog (2009-2011)

	2009	**2010**	**2011**
Number of inhabitants	313 651	314 804	315 964
Density per km^2	129.8	130.3	130.8
Number of businesses	6 577	7 280	7 100
GDP per capita (in MKD)	95 277	93 966	98 848
Labor forces	244 373	247 402	250 398
Employment (in %)	33.5	32.3	30.0
Average salary (in MKD)	-	28 035	29 127
Unemployment (in %)	27.3	30.8	31.8
Agriculture land (in ha)	162 001	161 474	160 308
Arable land (in ha)	41 168	41 193	43 080

Државниот завод за статистика (2012), *Регионите во Република Македонија 2012*, Скопје: Државниот завод за статистика на Република Македонија.

Table 4*: Output of some agriculture crops in from 2009 to 2011 (in tons), and their indices

	2009	**2010**	**2011**	**2010/2009**	**2011/2010**	**2011/2009**
Cereals						
Wheat	20 381	19 069	20 244	0.94	1.06	0.99
Corn	44 026	38 905	40 693	0.88	1.05	0.92
Vegetables						
Potatoes	43 970	43 195	41 380	0.98	0.96	0.94
Onions	7 371	7 535	7 744	1.02	1.03	1.05
Tomatoes	12 376	13 399	13 746	1.08	1.03	1.11
Peppers	14 049	14 336	13 813	1.02	0.96	0.98
Cucumbers	1 299	1 322	1 226	1.02	0.93	0.94
Clover	3 774	4 138	4 650	1.1	1.12	1.23
Alfalfa	21 652	22 454	20 674	1.04	0.92	0.95
Grape	459	467	540	1.02	1.16	1.18
Fruits						
Cherry	513	600	687	1.17	1.15	1.34

Sour cherry	943	634	524	0.67	0.83	0.56
Apricot	66	69	65	1.05	0.94	0.98
Apples	7 051	8 660	8 371	1.23	0.97	1.19
Pears	864	973	950	1.13	0.98	1.1
Plums	1 481	1 600	1 647	1.08	1.03	1.11
Peaches	82	74	87	0.9	1.18	1.06
Wall nuts	852	911	831	1.07	0.91	0.98

Employment and unemployment rates by region have some differences from those at the general or national level. The employment rate in the East, Southeast, and Pelagonia in 2011 has been above that at the national level. Lower employment in 2011 was recorded in the Northeastern region, while the lowest rate of unemployment in the Southeast was associated with a higher employment rate. In 2011 this unemployment rate was 9.3. In Polog the employment rate (30.8) was relatively low compared to the overall rate and all other regions except the Northeast. Gross average monthly salaries paid in North Macedonian Denars (MKD) per employee in 2011 was the highest in Polog after Skopje, although Polog had the lowest incomes per capita.

The overall agricultural area in Polog was in third place among the regions, but considering that its total territory is the smallest after Skopje, it has a lot of farmland. However, the arable land in aggregate terms is smaller than in any other region except Skopje. Most of the land is located in the Polog Valley, which is fertile and lies on both sides of the Tetovo-Gostivar highway. This is just an overview of what the place of Polog in North Macedonia is or an identity card of it. The indicators in the table below will analyze demographic, economic, and agricultural indicators of Polog over three years, 2009-2011.

Production of cereals such as wheat and corn has shown a tendency to stagnation or slight decline, from which the flour and oil industry depends. The situation with vegetables is somewhat satisfying, but here are some groups where the yield has gone up while in the rest it has fallen. Potato as a vegetable often used for family meals, restaurants, and the chips industry has gone into decline in the total volume of cultivation. The opposite happened with onions, whose production increased. The Gostivar region is best known for its large production of onions. Tomato which has a widespread use in consumption as a fresh product and agribusiness, showed a tendency of gradual decrease, to which it has contributed their cultivation in greenhouses, thus allowing its cultivation before and after its exclusive season in an open environment. The output of grapes in Polog is the smallest compared to other regions but shows a tendency to raise its production from year to year. The output of peppers and cucumbers increased slightly in 2010, but decreased again in 2011, falling well below 2009 levels.

A similar situation in the output of fruits is followed in vegetables. Only the production of cherries and plums has been steadily rising. The output of sour cherries has been declining. Some types of fruit trees, the volume of which went up in 2010 but dropped again in 2011 such as pears, apples, and walnuts can relate to the climatic conditions during those years. It is difficult and almost impossible to find what proportion of these products (cereals, fruits, and vegetables) is spent for household consumption, was dedicated to the market, and what part has ended up in the processing industry. However, it is important to know the approximate volume of their production and given that over the three years, the available data show a stagnation trend or even a slight decrease in most of their output, then this should be considered as a limitation to the development and growth of agribusiness. Otherwise, if they do not have any

strategy to increase production of these raw materials, agribusiness growth should be directed more towards the import of the same.

4. Literature review

In this section, we bring empirical evidence from eight case studies, which have included eight key companies in the agribusiness sector. The sample survey as part of the population in the agribusiness sector, attempts to generalize the agribusiness sector in the Polog region. In the sample selection, the target method is used, which is based on the personal judgment of the Author and three important types featuring this kind of sample: a) the appropriate sample, ii) the sample by those who are familiar with the problem to be investigated, and iii) the sample quota.[13] The sample selected for this study meets these three criteria. First, the main companies are chosen, or the most known in agribusiness. Secondly, the Author is familiar with the problem of agribusiness development in Polog. Third, the quota or the number of selected companies satisfies the conditions to generalize the population of agribusinesses with few exceptions which can be disregarded. The companies surveyed through a questionnaire, are:

Sentis-AG: Deals with the production of dairy products such as packed milk, homogenized milk, skimmed milk, and yogurt, and recently started with the production and sale of juices. The owners of the company had previously gained experience in Switzerland and collaborated with the Swiss company "MTS" which had supported "Sentis AG" in development since the beginning in terms of material and operation. The Swiss company had also supplied the needed technology for dairy products.

HIT 73: Its main activity is the production of cheese, while the secondary is the trading of fertilizers and animal feed. Currently, it employs 42 workers of different profiles working in an area of 1,000 m². An additional 1 200 m2 was under construction in 2013. The company has experienced growth and development since its establishment, and is likely to continue to grow in the future. All final products are produced on HACCP standards. It is in the process of implementing ISO 22 000 standards and exporting.

Veze Sharri: It was founded in 2000 as a joint venture by four Albanian and German owners. It is engaged in chicken breeding, egg production, and production of a wide assortment of meat products such as sausage, hot dogs, dry meat, and bacon. The company is headquartered in Tetovo and operates in Trebosh village where its industrial base with a total area of 35 000 m² is located. Since the beginning of its activity, it has been distinguished for the quality of products produced by advanced technology from Germany. Partnership and joint ownership with German partners have facilitated the company to penetrate foreign markets more easily. Exports account for about 30 percent of the total value of sales. In production, HIT 73 implements the HACCP system, and its products are certified with ISO 22000:2005 as a tool to gain competitive advantage at home and abroad.

Pekon: This is a company producing wheat flour and derivative products, mainly bread wrapped in plastics by implementing the HACCP standards. The raw material for manufacturing, which is wheat, is provided partially from the local market, and the rest is imported from Serbia and Bulgaria. The management of the company highlighted that it is experiencing some difficulties in securing the raw materials from imports, and it does not have an alternative to get them at cheaper prices.

Molika: Is a joint stock company, whose main activity is the production and sale of furniture. I have interviewed and taken it as a case study because its secondary activity is completely unrelated to the primary, which is the collection of fruits, partial processing, and exporting them. The main product in this activity is sour cherry, and since 2010 also pepper as a vegetable.

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[13] Reshidi, Nail (1997), *Kërkimet e tregut,* Prishtinë: Riinvest, f. 155 - 159.

Mulliri "Kokrra e artë": A flour production plant (mill) of different categories or types (type 400, 500, 800) with a capacity of 124 tons within 24 hours. The value of fixed assets as of 2012 was approximately €711,000. The total turnover of approximately €10 million in 2011 appears to have been halved by 2012 but has not reduced the revenues. The main source of revenue is the sale of flour and bran, mainly in the domestic market. Only 5 percent of these sales were exported. The raw material is provided from the domestic market and Serbia.

Busha: Produces meat products such as sausage, salami, hot dogs, and bacon. The local market is not able to supply the raw materials (meat) to produce these products. Most of the meat is imported from Brazil, Greece, and the USA. Regular control of the products produced with HACCP standards is carried out by the republican veterinary and food agency. It had previously received support in consultancy through a program of the EU (GIZ from Germany).

Biodekor: It is a more specific case than all others referred to so far, as it deals with the planting, raising, selling, works, and services of decorative plants (mainly fur tries, flora, and deciduous trees). This is not directly to agribusiness, which neither produces nor sells anything that comes into agribusiness operation except that some species of plants and flowers can be used for the production of spices, aroma, vanilla, and other ingredients used in food. I took this opportunity to research a little about this activity which falls under the environmental protection and preservation for the development of agriculture.

Since we have taken some of the most known agribusiness companies in the Polog region and based on them can make a kind of generalization for the development of this sector for the region in question, then the data collected can come to an assessment on the current level of development, prospects, obstacles and challenges of agribusiness. The results are presented in the form of all case studies combined to better observe their performance. First, we present the number of employees and their average salary per month to see which branches are more attractive to those seeking employment and specialization.

Table 5. Number of employees and their average pay per month (inside the brackets) in €

	2009	2010	2011	2012
HIT 73	21 (189)	26 (186)	33 (176)	42 (181)
PEKON	31 (190)	31 (200)	33 (210)	35 (210)
KOKRRA E ARTË	14 (300)	7 (300)	11 (290)	12 (290)
MOLIKA	49 (220)	46 (150)	27 (185)	26 (222)
BUSHA	8 (300)	9 (300)	8 (300)	9 (300)
BIODEKOR	3 (233)	5 (216)	5 (191)	4 (150)
SENTIS AG	8 (200)	23 (200)	28 (220)	32 (220)
VEZE SHARRI	32 (150)	41 (167)	42 (183)	45 (183)

Source: Survey data of the companies, 2013.

In four companies surveyed (73 HIT, Pekon, Sentis – AG, and Veze Sharri) had small but growing employment. In the other two (Busha, Biodekor) employment in the second year of observation increased, then fell in the last year. At "Kokrra e Artë" it was halved in 2010, returned to growth in the next two years but has not yet reached the number of workers as in 2009. Only Molika had a steady decline in the number of employees during the period under consideration. Average monthly salaries are reported higher in the branches of meat processing and flour industry (Busha, Kokrra e Artë), and the lowest in the production of eggs and dairy products (HIT 73, Vezë Sharri). The indicators for lower or higher levels of salaries are not an important indicator of productivity. When we looked at the demographic, economic, and agricultural profile of Polog in Table 2, the average salary per month as reported by the State Statistical Office, was MKD 28 035 in 2010 and MKD 29 127 in 2011. Converted into € by an exchange rate of MKD 61: €1, it was around €460, €477 respectively. If this level is compared to those in our case studies, the average salary for employees in Polog as a whole is significantly higher than the largest salary (€300) in private agribusinesses, and more than twice as high as the average of the surveyed companies amounting €215 in 2010 and €219 in 2011. Why this difference and what is the explanation? First, it is true that the pay in the private sector in North Macedonia in general, and Polog in particular, is much lower than in the public sector and state administration (central and local government, ministries, police, customs, universities, large public). Second, in the region Polog unemployment is very high and rising (31.8 percent in 2011, see Table 2). In these circumstances, it is easy to find workers, especially unskilled labor force with lower pay in agriculture, manual work, and sales. Third, companies might have reported their workers' salaries lower (and perhaps lower number of workers) out of fear of taxes that they should pay. In the latter case, it was not my duty to insist on the "discovery" of real wages that the companies pay to their workers.

Labor productivity in one meaning represents the quantity of products a worker can produce for a certain time, or, it is a ratio between the products produced and the number of workers engaged. It can also measure the results achieved within one hour of work. There are other methods of measuring productivity depending on the unit we use for review. In some cases, the monetary value of the products is used. Whatever indicator is taken for assessing productivity, it is important to be used as a uniform measure across different companies to better compare their efficiency. The problem with our case studies is different units, for example, some production units are measured by pieces or number of products, and in other cases by different measures of weight and time (kilograms, liters, and our). Also, there is a variation in terms of the time reported as a measure of productivity from hours up to a year. Even different types of products within a company still hinder productivity calculation with a uniform methodology for all. Given all these divergences, I have first used the average productivity of labor, and then calculated the growth rate by year expressed in percentage. With this method, it was possible to closely compare which company more is productive than the other. Let us not forget that the greater the level of advanced technology utilization, the more it enables mass production with a very small commitment and expertise of the labor force. The figure below presents the results of average productivity and its growth rates by companies, regardless of which factors of production, e.g. labor, capital, or technology used, can have a significant impact on it.
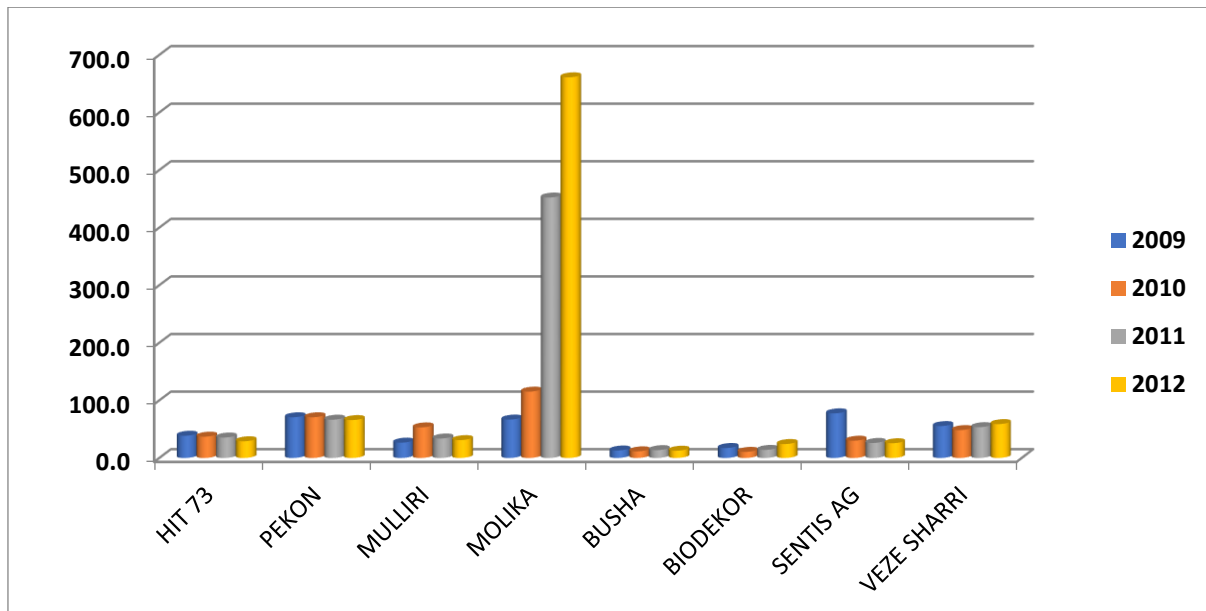
Figure 1: Average annual productivity by companies
Source: Survey of companies and Author's own calculation, 2013.

The figure shows a distinction in the indicator for the "Molika "company. The indicators in the figure do not the volume of productivity but some aggregated averages and their growth rate. Their reading should also be made in this way, i.e. on their average growth rate. For example, "Busha" produces much larger quantities of products than "Molika", but its productivity growth rate has been almost constant as in "Peko" and to some extent in "HIT 73". To "Mill/gold grains" the average productivity rate significantly increased in 2010 and decreased in subsequent years. "Biodekor" and "Vezë Sharri" started with higher productivity in 2009 which dropped the following year, and returned to growth again in 2010 to surpass the 2009 growth rate in 2012. "Sentis-AG" experienced a steady decline in average productivity. After significant growth in 2010, productivity at "Mulliri/Kokrra e artë" fell in forthcoming years. The explanation for these average productivity trends varies from case to case depending on the measuring and technology. Companies with advanced technology such as "Vezë Sharri" and "Molika" have been able to generate more outputs since the machines have replaced most of the manual work that the workers would have had to perform. This may lead to the conclusion that traditional methods of measuring productivity based on input, output, working hours, and engagement, may only show some kind of efficiency in the company. Given these drawbacks in productivity measurements, the trends are now shifting to measure it by the market value of the products as a key performance indicator. This is more reasonable than the ability to produce, because, production is only possible if there is a market for the products and consumption, otherwise there would be no need for production. Productivity is thus seen only in the form of a supply chain to final products sold in the market. Many of us can indeed be more productive than others in different countries producing the same product, but the products are worth it if they are sold and consumed. From this perspective, our productivity, although equal to the effort and energy of others, would be zero and a futile job if it has not made its way through the market to final consumers. Only the market and consumers are the best indicators of how much the workers and the management of the company, in general, can be productive. The monetary value of productivity in developed countries and large companies can be measured by the revenues generated per hour. Given that our cases are more specific, we will present financial performance by revenues, costs, salaries, and profits by the years under consideration and cumulative for all years. The cumulative is shown in the following table, and details by years are summarized in the appendix to this paper.

	HIT 73	Pekon	Mulliri	Molika	Busha	Biodekor	Sentis A-G	V. Sharr
Revenues	13,087	8,358	24,526	4,540	1,162	80	11,552	10,220
Costs	11,988	7,577	22,399	3,830	875	35	10,646	8,573
Salaries	367	316	174	545	65	19	250	331
Profit	733	464	1,953	166	221	26	655	1,316
Ratios:								
➤Revenues/Profit	17.9	18.0	12.6	27.4	5.2	3,1	17.6	7.8
➤Profit/Salaries	2.0	1.5	11.2	-30.4	3.4	1,4	2.6	4.0
➤Revenues/Employees	107.3	64.3	557.4	30.7	34.2	4,7	127	64
➤Costs per worker	98.3	58.3	509.1	25.9	25.6	2,1	117	53.6
➤Profit per employee	6	3.6	44.4	1.1	6.5	1,5	7.2	8.2

Note: The indicators in '000 are rounded due to simplicity. Their estimation in other relations in the table may not add up to precise but approximate figures.
Source: Survey of companies and Author's own calculation, 2013.

The data in the table above reveal a different picture of productivity and efficiency among the companies. The four-year period is taken for analysis to obtain an overall assessment, and give an answer on how they were performing so far. And here we have differences from case to case and in their effectiveness by various indicators. Greater volume of revenues has been reported by "Mulliri", which also had the highest costs. A Similar example is followed by "HIT 73" and "Sentis AG", suggesting that companies with greater volume of activity had more revenues and costs. Salaries are also costs, but are taken as a separate category because they are not directly related to the costs within the company's activity, but are different spending. The largest amount of pay as salaries does not indicate the interdependence between revenues and expenses, neither in absolute nor in relative terms. "Molika" (only its registered unit as a separate activity for processing of fruits and vegetables) by the volume of transactions, revenues and costs is lower after "Biodekor" and "Bush" , which has distributed larger amount of salaries. "Mulliri" with the larger volume of activity and greater number of workers, paid three times less in the name of salaries, and nearly twice less than three other companies (HIT 73, Pekon, and Vezë Sharri). Profit as the most important indicator was the largest in "Mulliri" and "Vezë Sharri". Here, it is useful to observe a trade off in allocating the revenues between wages and profits. Those companies paying more money to employees, have done so at the expense of lower profits and the other way around. If we look at other aspects of efficiency such as the relationship between the revenues and the profit, it suggests that such ratio or difference is smaller among smaller companies. While in "Pekon" and "HIT 73" revenues were 18 times higher than the profit, in smaller companies such as "Biodekor" and "Busha" this was much lower , 3.1 and 5.2. What does this mean? Smaller proportions between revenues and profit imply that a larger part of the former has ended up in the latter, and this is an indicator of being more profitable. If the ratio of revenues to the profit is 3,1:1, then this is understood as profit accounting for around 1/3 of the revenues. If the ratio was 2:1, it meant half, and if it is 1:1, then all revenues would be equal to profit, which in reality is impossible to happen as long as the companies have costs and salaries to be paid. Assuming other examples of indicators with larger numbers in the table above for interpretation, it should note that "Pekon" and "HIT 73". Although they had more money, most of their revenues (from previous year) went to costs, and only 1/18 or 5.6 percent was left as profit. In this sense these companies are less profitable compared to the companies with smaller volume of transactions. The companies often face the dilemma of whether to give

higher salaries to the workers, or retain an amount of them as profit. The workers' salaries, however, are not dependent on the will of companies' directors. Salaries rather reflect the situation in the labor market. If a worker's pay seems low, h/se can easily leave the work and go elsewhere for more money. In North Macedonia and Polog region where unemployment rate is very high, the workers do not many choices; therefore, continue to work in these enterprises with relatively low pays. So, what are the companies' options to provide higher or lower salaries to the workers? This can be understood to some extent if we look at the ratio between profits and wages. Each company has a cumulative profit greater than the fund of salaries paid to their employees, with the exception of "Molika" which in the first two years of observation (2009-2010) has been operating with losses because of the investment it made, and had to pay the workers regardless of profit or loss at the time. Profit was twice as high in absolute terms than the salaries in HIT 73, four times in Veze Sharri, and over 11 times in "Mulliri". Even though "Mulliri" paid higher salaries on average (about €300 per worker), it is again the company which has greater opportunity to raise the further. It has got the highest amount of revenues per employee than any other company included in the survey (€557,400), but at the same time it had the highest costs (€509,100), which might have limited the opportunity to increase salaries. However, average earnings in proportion to the number of workers have again been significantly higher than in any company (€ 44,400). In this measurement, the smallest profit per worker was in "Molika" (just € 1,100 per employee), followed by "Biodekor" with €1,500. Calculations with more details by each year reported in a table in appendix to this paper. It shows different figures broken down by years which have slightly a different meaning from these reported as a cumulative for four years. In the first year (i.e. 2009), the highest profit was reported in by "HIT 73", the largest costs in "Mulliri", and the highest level of salaries was distributed by "Molika" which maid close the year with losses that continued the following year. In the three forthcoming years, Vezë Sharri was leading in profit making, having 2011 as its best year after which the profit fell but still remained the highest among all. The volume or size of the profit cannot be an indicator of productivity and efficiency, although it is important. Profit compared to revenues had the highest share to "Biodekor", but in the third year this has gone as far as to turn into losses, which implies that on average not enough revenues were left to pay the workers. To not get into more details, comments and explanations presented in appendix, it should be noted that the issue of productivity and efficiency in the survey companies varies greatly one category of indicators to others. The diversity of products the companies produce and the type of technology used, makes the productivity measurement more difficult. A company has sausage or chicken as its leading or most produced product, the second mass production of eggs, the third the dairy products and so on, which makes the comparison of productivity more difficult to be measured by the same methodology. For this reason, the best indicator of productivity is the monetary value of products (and services) sold, then this value can be used for different calculations within the company to find out what proportion is going for salaries, costs, and retained as a profit for investment.

5. Conclusions

The Government of North Macedonia since the beginning of the XXI century has intensified efforts and commitment to agriculture and rural development, as the basis for agribusiness development. This is confirmed by several medium-term strategies that have been prepared and implemented from 2003 onwards. In addition to the plans contained in the national strategies for agriculture and rural development, the aim of the government was the transformation of agriculture development in compliance with the EU principles, so in the future, the country should be able to take part in the European labor market as a competitive partner. North Macedonia cannot be competitive in the automotive and aircraft industry, and that is why

agriculture and agribusiness are being paid greater attention and importance. Small private plots and their further fragmentation lead to increased costs and declining economies of scale as well as preferences by the households when they share their land for different work or destinations. It is not a question of whatever type of land, but arable and fertile for exactly what the families want to share among themselves first. Due to this increasing trend and the challenges to providing a sufficient quantity of local products for agribusiness needs, the costs to do business may rise, and economies of scale fall. The transformation of many dispersed small household farms or subsistence agriculture into a more concentrated commercial sector where a small number of farmers would deal with agriculture but would be able to provide large quantities of food for a larger number, remains a major challenge. In the conditions of high unemployment, many people deal with subsistence agriculture as a way of economic survival. Most of these people would be ready to leave this profession if they were allowed to be employed in other sectors where incomes are higher, mainly in state administration and public institutions. In a better position stand a small number of households who already have established a partnership with some agribusinesses, such as those providing milk to the companies in the dairy branch. This may increase the demand for cattle breeding and milking cows by the farmers, namely the households. The challenge in this respect is how to find and support ways of increasing the number of livestock. Pastures in the hilly and mountainous terrain of Polog offer an alternative for expansion, but here too, two factors that may act as a limitation should not be sidestepped: first, the decline of interest among the youth to deal with agriculture and cattle breeding, and second, the lack detailed plans to designate and support exclusive areas as suitable for livestock (zoning of pasture, building of stables, and infrastructure). Average productivity trends in eight case studies vary by technology and measurement units. "Veze Sharri" and "Molika" have been able to create more outputs as mechanical works that would need a larger number of workers, have been performed by automated processes. Measurements of productivity by the market value of the products, or the companies' financial performance based on revenues, costs, salaries, and profits were more reasonable and meaningful. The largest volume of revenues and expenses were observed in "Mulliri/Kokrra e artë ", followed by "HIT 73" and "Sentis AG". The total amount of money that is paid as salaries, did not show the relation as in the case of revenues and costs, neither in absolute nor in relative figures. Those companies that have paid more for their employees have done so at the expense of lower profit and the other way around. Low level of salaries remains a problem to attract more workers in agribusiness. Agriculture and agribusiness seem to be the sectors absorbing the labor force that cannot find itself better off elsewhere. The average salary per month for employees in Polog as a whole is significantly higher than the largest salary (€ 300) in private agribusiness companies that have been surveyed, and more than twice as high as the average salary in these companies which was estimated at €215 in 2010 and €219 in 2011. This difference was explained by: 1) salaries in the private sector are much lower than in the public sector, 2) the high unemployment rate in the Polog region and rising, and 3) companies may have reported lower salaries for a certain purpose. Does this mean that the demand for workers in the agribusiness sector is very low or missing? Agribusinesses in Polog need a technologically skilled labor force to work in the food industry which hardly can be found within North Macedonia. Opportunities for innovation and transformation by agribusinesses in Polog are limited.

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