



Impact of Government Spending on the Growth of Agricultural Production in Kosovo and Export of Agricultural Products

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Abstract: *The purpose of this paper is to investigate the impact of government spending on the volume of production and the export of agricultural products from Kosovo. For that purpose, secondary data sources from relevant state institutions were used. Based on these data, calculations of the coefficient of determination and the correlation coefficient were made in order to determine whether and to what extent government expenditures in Kosovo affect the volume of agricultural production and exports of agricultural products. Based on the obtained results, it can be concluded that government expenditures for the agricultural sector have almost no impact and do not contribute to increased production and export of agricultural products. The fact that the import of agricultural products in Kosovo is far greater than the export of agricultural products speaks even more in favour of this thesis.*

1. INTRODUCTION

Agriculture sector corresponds to ISIC 4 divisions 1-5 and includes cultivation of crops and livestock production, forestry, hunting and fishing. Agriculture is the backbone of any country economy; in broad sense it comprises the entire range of agricultural technology related production of plants and animals, including crop production, soil cultivation and livestock.

It is the cultivation of plants, animals, fungi, and other life forms for food, fiber, biofuel, medicinal and other products used to sustain and enhance human life. Agriculture is an important and dynamic sector and it has a high contribution to economy of every country because it provides employment, poverty reduction, export potential and financial impact on the overall economy. Respecting its important role to every country, many studies have been made on impact of government expenditure on agriculture and economic. The aim of this research is to investigate the effect of government spending on agricultural sector in Kosovo and exports of its products.

2. AGRICULTURAL SECTOR IN KOSOVO

Agriculture has traditionally played an important role in the Kosovo economy. Agriculture, forestry and fishing participate with 7.7% of GDP in 2019 in Kosovo. Compared to 2008 when the share of agriculture, forestry and fishing in GDP was 11.3%, in the period 2009-2019 there is a significant decrease in their share in GDP of Kosovo (Table 1).

According to the data of the Kosovo Agency of Statistics, today, agriculture, forestry and fishing account around 4,8 % of total employed in Kosovo. Around 16 900 people are involved in this sector of which 14 200 men and only 2 700 women. Compared to 2013, when 20 300 people

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were employed in this sector, i. e. 5.9 % of the total number of employees in Kosovo, this number has started to decrease significantly over the years (Table 2).

Enterprises registered in agriculture, forestry and fisheries in Kosovo had the highest share in the total number of enterprises registered by sections of economic activities in 2016 with a share of 10.4 %, while in 2019, there was a very small share compared to other years with only 1.21 %. With regard to the number of enterprises dealing with agriculture, the most rapid growth was recorded in 2016 with 1,090 of them registered. While, very small number compared to other years emerges in 2019, with only 121 enterprises registered within the year (Table 3).

Table 1. Share of agriculture, forestry and fishing in GDP of Kosovo 2008-2019

| | GDP (in 000 in current prices) | Agriculture, forestry and fishing (in 000 at current prices) | Agriculture, forestry and fishing % of GDP |
|------|---|---|---|
| 2008 | 3 537 599 | 398,374 | 11.3 |
| 2009 | 3 610 441 | 298,805 | 8.3 |
| 2010 | 4 030 991 | 381,204 | 9.5 |
| 2011 | 4 555 903 | 370,512 | 8.1 |
| 2012 | 4 797 278 | 357,179 | 7.4 |
| 2013 | 5 071 333 | 427,595 | 8.4 |
| 2014 | 5 325 095 | 441,914 | 8.3 |
| 2015 | 5 674 422 | 435,635 | 7.7 |
| 2016 | 6 037 273 | 493,337 | 8.2 |
| 2017 | 6 356 456 | 470,932 | 7.4 |
| 2018 | 6 671 522 | 435,728 | 6.5 |
| 2019 | 7 056 172 | 510,773 | 7.7 |

Source: Revision of National Accounts 2008-2019

Table 2. Employed in agriculture, forestry and fishing sector in Kosovo by sex, by year

| | Employed in 000 | | | Share in % | | |
|------|------------------------|---------------|--------------|-------------------|---------------|--------------|
| | Male | Female | Total | Male | Female | Total |
| 2012 | 10.5 | 3.4 | 13.9 | 4.4 | 5.3 | 4.6 |
| 2013 | 14.4 | 5.9 | 20.3 | 5.5 | 7.6 | 5.9 |
| 2014 | 7.5 | 1.1 | 8.6 | 3.0 | 1.8 | 2.6 |
| 2015 | 6.0 | 0.7 | 6.7 | 2.6 | 1.1 | 2.3 |
| 2016 | 12.5 | 1.7 | 14.2 | 4.8 | 2.3 | 4.2 |
| 2017 | 13.4 | 2.5 | 15.9 | 4.7 | 3.3 | 4.4 |
| 2018 | 11.6 | 0.7 | 12.3 | 4.2 | 1.0 | 3.5 |
| 2019 | 16.8 | 2.4 | 19.2 | 5.9 | 2.8 | 5.2 |
| 2020 | 14.2 | 2.7 | 16.9 | 5.4 | 3.1 | 4.8 |

Source: Kosovo Agency of Statistics

Table 3. Number of registered enterprises by economic activities

| Years | Enterprises registered in agriculture, forestry and fishery | Total enterprises registered by sections of economic activities | Share (%) |
|--------------|--|--|------------------|
| 2015 | 945 | 9 833 | 9.6 |
| 2016 | 1 090 | 10 424 | 10.4 |
| 2017 | 822 | 9 223 | 8.9 |
| 2018 | 626 | 9 805 | 6.4 |
| 2019 | 121 | 10 004 | 1.2 |

Source: Kosovo Agency of Statistics

The table below presents the data on registered agribusiness enterprises for 2015-2019: annual monetary turnover, number of employees, as well as the number of active businesses. Agribusinesses have recorded an increase during this period, starting from 2015, when this amount was 323.4 mil. EUR, until 2019 when turnover reached 499.8 mil. EUR, which compared to 2018, it records an increase of 8.2 %. The average of employees in agriculture businesses, in the period 2015-2019, was 10,977. In 2019, there was a decrease in the number of employees in agribusinesses for 5.2 % compared to 2018. Number of active businesses in 2019 was 2 405 which compared to 2018 it records decrease of 18,25 % (Table 4). The annual working units in agriculture in 2019 according to KAS are 82 657. Compared to 2014, when the annual working units are 86 620, in 2019 there is a decreasing of 4.58 %.

Table 4. Registered agribusiness enterprises, 2015-2019

| Years | Turnover ('000 EUR) | Number of employees | Number of active businesses |
|-------|---------------------|---------------------|-----------------------------|
| 2015 | 323 370 | 8 790 | 2 130 |
| 2016 | 360 536 | 10 024 | 2 314 |
| 2017 | 432 301 | 10 449 | 2 398 |
| 2018 | 461 626 | 13 156 | 2 942 |
| 2019 | 499 821 | 12 467 | 2 405 |

Source: KAS, prepared by DEAAS –MAFRD

Agricultural land represents 29 % of total land use in Kosovo in 2019. The total area of used agriculture land in Kosovo in 2019 is 420 141 hectares (ha). The largest area of utilized land is occupied by meadows and pastures (including common land) which constitutes 51.9 % of the total utilized area of agricultural land. In 2019 this area was 217 932 ha, which represents a decrease compared to 2018 by 0.1 %.

After meadows and pastures, the category of arable land-fields accounts for the largest area, with a share of 44.8 %, which represents the area of 188 365 ha, which includes the area of vegetables in the open field (first crop) and greenhouses (first crop). The area of arable land-fields includes vegetables in the open field as the first crop (8 319 ha) and vegetables in greenhouses as the first crop (518 ha). In 2019, the area of vegetables increased compared to other years, where compared to 2018 this area has increased by 6.4 %. In 2019, the total arable land turns out to be 0.11 ha per capita, while the average of the total utilized agricultural area per capita was 0.24 ha. Even greenhouse area recorded an increase in area compared to other years. The data show that in 2019 compared to 2018 there was an increase in the area cultivated with vegetables in the greenhouse as the first crop by 10.6 %. The smallest area with gardens is presented in 2016 with 994 ha, continuing to increase in the following years. In 2019 this area was 1 122 ha, which is an increasing difference by 11.9 % compared to 2018. The area of tree plantations in 2016 was 5 493 ha, with continuous growth until 2019, when this area reached 9 244 ha. In 2019 we have an increase of 20.3 % compared to 2018. Regarding the area of vineyards, we do not have significant changes in the period 2016-2019. Increase in the area of vineyards is presented in 2019 which shows an increase compared to 2018 by 2.9%.

When it comes to the use of agricultural land, in 2019, we have these categories: meadows and pastures (including common land) with a share of 51.9 %, arable land-fields 44.8 %, vegetables (in open field and greenhouses as a first crop), gardens and nurseries 2 %, tree plantations 2.2 % and vineyard plantations 1 %. The land use increases among the most important crops (fruit

and vegetables). There has also been a significant increase in tree plantation (over 40 %) and greenhouses (11.6 %) between 2014 and 2019 (Table 5).

In Kosovo, farm size of 2 up to less than 5 ha represents 34.86 % of the total area of arable land, followed by size of 5 up to less than 10 ha (21.14 %), size 1 up to less than 2 ha (16.11 %) and other sizes with less share where the size with the smallest area is that from 0 up to less than 0.5 ha (Table 6). The largest number of agricultural holdings is in farm size 0 up to less than 0.5 ha (30.4 %), followed by size 2 up to less than 5 ha (23.0 %), size 1 up to less than 2 ha (21.9 %) and other groups. The smallest number of agricultural holdings is in the sizes: 20 up to more than 30 ha (0.2 %) and 30 and more (0.2%). The average farm size in Kosovo is 1.76 ha (Table 6).

Table 5. Land use by type in 2019

| Type of land | In hectares | Share in % |
|---|----------------|------------|
| Arable land – fields | 188 365 | 44.8 |
| Of which with vegetables in the open field (first crop) | 8 319 | |
| Of which with vegetables in greenhouses (first crop) | 518 | |
| Garden | 1 122 | 0.3 |
| Fruit tree | 9 244 | 2.2 |
| Vineyard | 3 367 | 0.8 |
| Plant Nursery | 111 | 0.0 |
| Meadows and pastures (including common land) | 217 932 | 51.9 |
| Total utilized agricultural land | 420 141 | 100 |

Source: Agricultural Household Survey, 2019

Table 6. Size of holdings by arable land area, 2019

| | Area (Ha) | Share (%) | No. of agricultural holdings | Share (%) |
|-----------------------|----------------|------------|------------------------------|------------|
| 0 and less than 0.5 | 5 929 | 3.17 | 32 020 | 30.41 |
| 0.5 up to less than 1 | 12 065 | 6.45 | 18 355 | 17.43 |
| 1 up to less than 2 | 30 123 | 16.11 | 23 022 | 21.87 |
| 2 up to less than 5 | 65 202 | 34.86 | 24 231 | 23.01 |
| 5 up to less than 10 | 39 533 | 21.14 | 6 013 | 5.71 |
| 10 up to less than 20 | 16 013 | 8.53 | 1 203 | 1.14 |
| 20 up to less than 30 | 5 146 | 2.75 | 245 | 0.23 |
| 30 and more | 13 016 | 6.96 | 200 | 0.19 |
| Total | 187 026 | 100 | 105 289 | 100 |

Source: KAS – Agricultural Household Survey, 2019

Table 7. Farm size

| | Number of agricultural holdings | | | | | Arable land area (ha) | | | | |
|--------------|---------------------------------|---------------|---------------|---------------|---------------|-----------------------|----------------|----------------|---------------|---------------|
| | 2015 | 2016 | 2017 | 2018 | 2019 | 2015 | 2016 | 2017 | 2018 | 2019 |
| 0 ≤ 0.5 | 39939 | 33312 | 39251 | 31648 | 32020 | 9142 | 5677 | 5976 | 5 801 | 5 929 |
| 0.5 ≤ 1 | 24562 | 22340 | 18543 | 19508 | 18355 | 16 703 | 14603 | 12 584 | 12 718 | 12 065 |
| 1 ≤ 2 | 23827 | 25086 | 22323 | 24522 | 23022 | 31 905 | 33 384 | 29 898 | 32 096 | 30 123 |
| 2 ≤ 5 | 18726 | 21792 | 20460 | 21359 | 24231 | 55 257 | 64 877 | 59 696 | 63 042 | 65 202 |
| 5 ≤ 10 | 4 493 | 4 531 | 5 712 | 5 719 | 6 013 | 29 518 | 29 498 | 37 458 | 38 085 | 39 533 |
| 10 ≤ 20 | 1 203 | 1 253 | 1 331 | 1 342 | 1 203 | 15 755 | 16 258 | 17 219 | 17 347 | 16 013 |
| 20 ≤ 30 | 228 | 223 | 226 | 240 | 245 | 5303 | 5300 | 5332 | 5 717 | 5 146 |
| ≥ 30 | 253 | 263 | 263 | 194 | 200 | 16 798 | 16 109 | 16 967 | 12 201 | 13 016 |
| Total | 113231 | 108800 | 108108 | 104532 | 105289 | 180381 | 185 705 | 185 130 | 187007 | 187026 |

Source: KAS – Agricultural household survey 2015 - 2019

Arable land area by farm size and number of agricultural holdings by size by year (from 2015 to 2019) are presented in Table 7. From this table it can be noticed that the number of agricultural holdings with size 0 and less than 0.5, 0.5 up to less than 1, 1 up to less than 2, as well as the arable land area by those size farm significantly decreased in the period 2015-2019.

3. GOVERNMENT SPENDING (SUPPORT) FOR THE AGRICULTURAL SECTOR

Ministry of Agriculture, Forestry and Rural Development in Kosovo (MAFRD), supports the agricultural sector based on two programs designed: the Direct Payments Program and the Rural Development Program. Support through direct payments was made for agricultural crops, livestock heads, inputs (produced seedlings) as well as support for wine produced and agricultural insurance for raspberries. Through grants are supported investments in the primary sector, but also in the processing industry and tourism development in rural areas as well as irrigation of agricultural lands.

In 2019, total support through direct payments amounte to EUR 30.6 million. Compared to the previous year, the support through direct payments has increased by 3.38%, and compared to 2014 direct payments increased by 42.99 %. In the period 2015-2018, grants increased. Thus, in 2015 they amounted to 19.5 million euros, in 2016 22.5 million euros, and in 2018 31 million euros. But in 2019 the grants are significantly reduced and amount to only 16.1 million euros, which compared to the previous year is a decrease of 48.06 %. Also, the total support in 2019 decreased by 22.94 % compared to the previous 2018 (Table 8).

Table 8. Support of the agriculture and rural development sector
(direct payments and grants in mil. EUR)

| | 2015 | 2016 | 2017 | 2018 | 2019 |
|------------------------|------|------|------|------|------|
| Direct payments | 21.4 | 26.1 | 27.0 | 29.6 | 30.6 |
| Grants | 19.5 | 22.5 | 15.4 | 31.0 | 16.1 |
| Total | 41.0 | 48.6 | 42.5 | 60.6 | 46.7 |

Source: ADA -MAFRD

4. RESEARCH METHODOLOGY

The purpose of this paper is to show the impact of government spending on the volume of agricultural production in Kosovo and export of agricultural products. For that purpose, secondary data sources from relevant state institutions were used. The study used time series data (2015-2019) for the variables: production of agriculture industry (at basic prices in mil. EUR), government spending of agriculture (in mil. EUR) and agricultural exports (in mil. EUR). This data was collected from Kosovo Agency of Statistics; Kosovo Agency of Statistics - Economic Accounts for Agriculture 2015, 2016, 2017, 2018 and 2019; Ministry of Agriculture, Forestry and Rural Development of Kosovo (MAFRD) and ADA. Based on this data, calculations of the regression coefficient and the correlation coefficient were made in order to determine whether and to what extent government expenditures affect the volume of agricultural production in Kosovo and exports of agricultural products.

5. RESULTS

Production in the agricultural industry in 2015 amounted to 656.1 million euros. In 2019, this production amounted to 782.3 million euros, which is an increase of 19.3% compared to 2015. Gross value added and net value added of agriculture increase over the years. Gross value added of agriculture in 2019 increased by 14.42 % compared to 2015. The increase of the net value added is 12.14% (Table 9).

Table 9. Main aggregates of economic accounts for agriculture at basic prices, mil. EUR

| | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|-------|-------|-------|-------|-------|
| Production of agriculture industry | 656.1 | 741.9 | 734.4 | 704.7 | 782.3 |
| Intermediate consumption | 239.3 | 256.9 | 270.6 | 302.0 | 305.4 |
| Gross value added | 416.8 | 485.0 | 463.8 | 402.7 | 476.9 |
| Consumption of fixed capital | 95.5 | 102.4 | 105.4 | 108.2 | 116.7 |
| Net value added | 321.3 | 382.5 | 358.3 | 294.4 | 360.3 |
| Other subsidies on production | 0.6 | 1.0 | 0.1 | 2.1 | 0.3 |
| Factor income | 322.0 | 383.5 | 358.4 | 296.5 | 360.6 |
| Entrepreneurial income | 313.4 | 375.0 | 349.1 | 280.5 | 343.5 |

Source: KAS- Economic Accounts for Agriculture 2015 - 2019

Linear regression and correlation coefficient are used to analyze the contribution of government spending of agriculture to the volume of agricultural production in Kosovo. The results of this analysis are as follows (Table 10).

Table 10. Regression

| | DF | Sum of Square | Mean Square | F statistic (df ₁ ,df ₂) | P- value |
|-------------------|----|---------------|-------------|--|----------|
| Regression | 1 | 50.2342 | 50.2342 | 0.0172 (1,3) | 0.9039 |
| Residual | 3 | 8760.0538 | 2620.0179 | | |
| Total | 4 | 8810.288 | 2202.572 | | |

Overall regression F (1,3) = 0.0172,

P-value = 0.9039, p-value \geq α (0.05)

R Square (R²) = 0.005702

Coefficient of correlation (R²) = 0.07551

Covariance = 27.4495

Sample size (n) = 5

Coefficient of linear regression R Square (R²) equals 0.005702. It means that 0.6 % of the variability of Y (agricultural production) is explained by X (government spending for agricultural sector). Coefficient of correlation (R²) of 0.07551 means that there is a non-significant very small positive relationship between X and Y.

Therefore, it is quite clear that government spending, ie state investments in agriculture have no impact on agricultural production in Kosovo, i.e. do not contribute to increasing agricultural production in Kosovo.

Also, linear regression and correlation coefficient are used to analyze the contribution of government spending on exports of agricultural products in Kosovo. The results of this analysis are as follows (Table 11).

Table 11. Regression

| | DF | Sum of Square | Mean Square | F statistic (df ₁ ,df ₂) | P- value |
|-------------------|----|---------------|-------------|--|----------|
| Regression | 1 | 97.089 | 97.089 | 0.7186 (1,3) | 0.4589 |
| Residual | 3 | 405.323 | 135.1077 | | |
| Total | 4 | 502.412 | 125.603 | | |

Overall regression F (1,3) = 0.7186,

P-value = 0.4589

R Square (R²) = 0.1932

Coefficient of Correlation R = 0.4396

Covariance = 38.161

Sample size (n) = 5

Since R Square (R²) equals 0.1932, it means that 19.32 % of the variability of Y (agricultural exports) is explained by X (government spending for agricultural sector). Coefficient of correlation (R²) equals 0.4396. Results of the Pearson correlation indicated that there is a non significant medium positive relationship between X and Y.

Based on the data, it can be concluded that government spending on the agricultural sector has almost no impact and does not contribute to the export of agricultural products. The fact that the import of agricultural products in Kosovo is far greater than the export of agricultural products speaks even more in favor of this thesis. As a result, trade in agricultural products in Kosovo has a large trade deficit. Trade balance for agricultural products in 2015 is – 595 million euros and it increases over the years. Trade balance in 2019 is – 693.8 million euros that is increased by 17.20 % compared to 2015 (Table 12).

Table 12. Agriculture in economy

| | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|--------|--------|--------|--------|--------|
| Agricultural exports (mil. EUR) | 41.7 | 45.2 | 61.3 | 64.0 | 65.5 |
| Share of agricultural exports in total exports (%) | 12.8 | 14.6 | 16.2 | 17.4 | 17.1 |
| Agricultural imports (mil. EUR) | 633.7 | 658.7 | 694.5 | 712.3 | 759.4 |
| Share of agricultural exports in total exports (%) | 24.1 | 23.6 | 22.8 | 21.3 | 21.7 |
| Trade balance for agricultural products (mil. EUR) | -592.0 | -613.5 | -633.2 | -648.4 | -693.8 |

Source: Kosovo Agency of Statistics

6. CONCLUSION

Kosovo is a net importer of agricultural products due to a surplus of consumption over production. Land fragmentation, lack of efficient irrigation, limited research and slow improvement of production technologies are among the key factors impacting productivity. Although Kosovo has implemented several plans to improve irrigation infrastructure, it remains underdeveloped and inefficient. Domestic support for agriculture in Kosovo remains underfunded. While investment grants are divided according to the EU IPARD structure, they are only financed by the budget supported by World Bank loans within the framework of rural development programmes. Investments are co-financed with government participation at 60 % and farmer participation at 40%. Kosovo's agriculture trade policy is based on international and regional trade commitments. There are no tariffs or VAT on agricultural inputs imports to stimulate agriculture development. In terms of trade policy, the general prospects are complex, and there are no export support measures for agricultural commodities.

All these shortcomings should be taken into account and efforts should be made to increase agricultural production in Kosovo and stimulate its exports. Some of these measures would be: improve irrigation water management, improve the land consolidation process, meet the preconditions and increase capacity for the facilitation of IPARD funds, reduction of taxes on agriculture, increase domestic support for agriculture etc.

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