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SUBSIDY FISCAL POLICY IN SUPPORT OF THE AGRICULTURE SECTOR: THE CASE OF KOSOVO

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Abstract. The paper aims to analyze the impact of subsidies in the agricultural sector in the Republic of Kosovo. The data were taken from 2010-2022 in order to analyze the impact of agricultural subsidies on agriculture sector development. The impact of agricultural subsidies on agriculture sector development was analyzed using the OLS linear regression model. According to the findings of the paper, it has emerged that with the increase in agricultural subsidies for 1 euro, we will have an increase in agricultural production for about 4.6 euros, meanwhile for the same amount of agricultural subsidies, we will have an increase in agricultural exports for about 1.2 euro. On the contrary, agricultural imports will fall by 1.3 euros for every 1 euro invested in direct payments. Therefore, policy-makers should pay special attention to the increase in agricultural subsidies because their impact will be positive for agricultural production and the reduction of dependence on agricultural imports. The paper has some limitations in terms of the time series taken for analysis and exclusion of other countries in the paper. However, the findings of the paper may be beneficial for researchers and policy-making institutions.

Keywords: *Agriculture development, subsidies, trade balance, agriculture production.*

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1. Introduction

The paper aims to analyze the impact of subsidies in the agricultural sector in the Republic of Kosovo. Agriculture remains one of the most important sectors that Kosovo has, therefore deserves to be a priority for the government. The drafting and implementation of national agricultural policies in Kosovo is done by the Ministry of Agriculture, Forestry and Rural Development (TFIE, 2012). Kosovo is rich in agricultural land and the development of this sector will be a targeted strategy according to the group of authors (Milenkovic, 2017). Quality agricultural land is the main prerequisite for production, so Kosovo must use it in efficient way. Based on the fact that every state should rely on the advantages it has, Kosovo should use its potential in the production of agricultural products as one of the key points that would have a positive impact on economic development and growth, as well as based on the fact that the agricultural products are largely consumed by the Kosovar population.

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Since Kosovo has fertile agricultural land, but does not produce at its potential level, the use of agricultural subsidies provided by the government should be used by farmers effectively to increase agricultural production. Regardless of the developments in Kosovo, the focus should be on the development of the agricultural sector as a very strategic sector in order to meet local needs with agricultural products. The increase in the production of agricultural products will have a positive impact on the increase in exports and will have a positive impact on the decrease in the level of imports as one of the indicators that shows the great dependence on other countries in the trade of agricultural products.

The research question of the paper is whether the increase in agricultural subsidies will affect the increase in the level of production, the increase in exports and the decrease in imports in Kosovo? The OLS linear regression model is used in the paper to test the impact of increased agricultural subsidies on agricultural production, exports and imports. The paper contributes to the analysis of the agricultural sector and can serve as an orientation for policy-making.

The paper is organized as follows: Section II Literature review, Section III Subsidies in support of agricultural sector in Kosovo, Section IV Descriptive statistics, Section V Econometric modeling and results, Section VI Conclusions, Section VII References and Appendix.

2. Literature Review

The impact of agricultural subsidies on the trade, productivity and global competitiveness of developed nations have been controversial subjects in multilateral discussions since the early 1980s. An important step was taken in the Uruguay Round to bring these subsidies under the jurisdiction of international law in the Agreement Area. In 1987, the EU backed the proposal put out by the USA to exempt production and trade-neutral subsidies from WTO obligations. These subsidies were included in the GB group. Subsidies under the Amber Box and Blue Box have significantly decreased for the industrialized nations after the AoA. However, following a large “box-shifting” of subsidies, this decline has been more than balanced by a large rise in domestic subsidies in GB (Banga, 2016).

In the analysis of the author Banga, who aimed to analyze the impact of green box subsidies on agricultural productivity, production and international trade, for the period 1995-2007, for developed countries and who used the data support analysis method (DEA), has come to the conclusions that subsidies have a positive impact on the increase in agricultural productivity, which is then reflected in the increase in agricultural production (Banga, 2016).

Agricultural production increases with the increase of subsidies according to the analysis of DEA- Data Envelopment Analysis (Banga, 2014). Based on the literature, in general, a positive impact of subsidies on the increase in production can be observed, which indirectly affects the increase in exports and the decrease in the level of imports in a country.

The green box subsidy system for crop production, utilized in Russia since 2013 as a means of state support for agricultural heat producers, necessitates further refinement. This form of funding is deemed non-trade-distorting, as it does not specify the type of products supported. Under the updated regulations, funds are allocated to farms to offset expenses related to agro technological field work, enhancing environmental safety,

improving soil fertility and quality, based on the total crop area. However, there are variations in methodological approaches among Russia's regions in distributing the regional portion of subsidies, stemming from differences in budgetary support and the regional authorities' stance towards the agricultural sector (Medvedeva, 2019).

CAP subsidies have an effect on stimulating production based on the literature regardless of the reforms that are undertaken. Production in the EU is about 5%-6% higher when we have an increase in subsidies (Matthews & Soldi, 2019).

The possibility to produce in the agricultural sector in the European Union depends on direct payments, which constitute a large part of this support (Matthews & Soldi, 2019). The government subsidizes if they are willing and able to support specific economic sectors.

Given the fact that the European Union spends 50 million euros per year on the Common Agricultural Policy (CAP), one of the reasons why farmers are supported is the impact on agricultural production (Rizov *et al*., 2013). The large expenditure on agricultural subsidies by the European Union over the years is a signal that agriculture brings great economic benefits and is presented as an area of interest.

According to (Swain, 2009) the acceleration of the growth of the agricultural sector is done through subsidies in agriculture, which reduce production costs. Therefore, different states expand production by supporting farmers. Production costs are determining factors to produce and create comparative advantages. So, the lower the production costs, the more will be produced and opportunities will be created to increase exports and decrease dependence on imports.

The author's approach of budget fund allocation, which considers the coefficient of expenses coverage per unit of soil appraising score, is presented in the article. Both the efficiency of their utilization and the efficiency of using agricultural land will grow as a result. Providing green box subsidies to agricultural producers in the area enables them to obtain state aid on time and provides them with the time to plan and organize the sowing campaign in the most efficient manner possible (Medvedeva, 2019).

3. Subsidies in support of the agricultural sector in Kosovo

Agriculture is one of the most important and potential sectors that Kosovo has. The aspiration to be part of the EU by the state of the Republic of Kosovo must be in harmony with the rules of the European Union for the Agriculture sector. However, the development of the agricultural sector remains a challenge and one of the reasons is the mismanagement of subsidies. Otherwise, the good management of subsidies in the agricultural sector will have a positive impact on the increase in production. Based on the draft law for agriculture and rural development, according to article 16.1, the forms of financing the agricultural policy can be in this form: 1.1. The budget of the Republic of Kosovo; 1.2. International donations; (MBPZHR, 2018) 1.3. EU funds; 1.4. Other sources in the legislation are in force (MBPZHR, 2018). Therefore, it is recommended to the Government of Kosovo to use these forms of financing in the agricultural sector. Through assistance and technical assistance (IPA), the EU supports Kosovo in particular in the agricultural sector, although this remains a challenge in achieving the objectives of the CAP (Mustafa & Gjokaj, 2016).

Kosovo should use the funds from abroad and the opportunities offered to achieve the objectives of the CAP. 80% of the total subsidy support is allocated to direct payments to farmers (Banga, 2016). Harmonization with the rules of the European Union is one of

the problems that Kosovo faces, since Kosovo does not have a high fiscal capacity with what is required by EU legislation (Milenkovic *et al.,* 2017). Fiscal capacity in a country is achieved if it invests in the sector that brings the highest benefits. In our case, the agricultural sector is presented as one of the very good opportunities in which, if invested today, greater benefits will be created in the future. For the agricultural sector, since 2012 facilities have been created in the lending of agricultural loans, as a result of the agreement in which agricultural loans in the amount of 20.1 million euros are guaranteed (Task Force for European Integration, 2012). Until 2012, there were no facilities in the granting of agricultural loans, however, a more facilitating phase for farmers has begun, although it is necessary to undertake even greater facilities in the future. As for the agricultural sector, the interest rate is at a very high level if we compare it with other sectors (Gjokaj *et al.,* 2017). Loans with subsidized interest rates were not offered on the market and on the other hand the interest rates were around 10.5%-26.2% (Gjokaj *et al.,* 2017).

However, according to (MBPZHR, 2021), the average interest rate in percentage of agricultural loans for 2020 was 5.3-28.6%. Based on statistics, it has emerged that the average interest rate of loans has decreased, even though the interest applied to agricultural loans can be considered high. It is evident that the interest rate is the main factor of how much will be invested, therefore, it is very important that the interest rates are as attractive as possible for greater investments in the agricultural sector and that actions are taken by the government to favor this sector.

The interest rate on agricultural loans has been reduced by 3% with the help of DCA and access to credit is higher due to the guarantee of the loan portfolio (Gjokaj *et al.,* 2017). Although the interest rate has been reduced, but not to high values, it is more than necessary that loans be offered with more favorable conditions for the agricultural sector. Because as a result of this, agricultural producers are dissatisfied with high interest rates of loans (MBPZHR, 2019). Therefore, investments and interest in the agricultural sector has been lower as a result of the unfavorable conditions offered. In this case, the government is the one that should intervene in order to improve the market outcome for the agricultural sector.

3.1. Agricultural production in Kosovo

Based on the analysis of data over the years, we can see that the agricultural production of products/services has increased on average, however this is insufficient to have a greater impact on reducing imports. According to the Draft Law on Agriculture and Rural Development, the production of animals and plants-cereals, trees and vegetables for human and animal food is known as agricultural production (MAFRD, 2018). In order to have agricultural production, the irrigation system must be developed since the climate changes are great (Republika e Kosovës, 2017). Climate changes are very important factors since they affect the level of production and can have great economic/financial consequences for farmers as well as reduce the contributing effect to the country's GDP.

3.2. Export and Import of agricultural products/services in Kosovo

Despite the investment in the agricultural sector, Kosovo continues to have a deficit in agricultural products (Republic of Kosovo, 2017). Based on statistical data of (MBPZHR, 2021), the participation of agricultural product exports in the total export for

the year 2010-2015 was 10.8%. Whereas, in 2020, the participation of agricultural product exports in the total export was 16.4%. The share of the imports of agricultural products in the total import was 23.2% for the years 2010-2015, while the share of the import of agricultural products in the total imports in 2020 was 23.2%. The participation of the import of agricultural products in the total import with higher values compared to the participation of the export of agricultural products in the total exports is a reflection that the imports are higher compared to the exports and in the future this ratio should be changed in in order to achieve the goal of 23% in the increase of exports and in order to decrease imports by 17.5%.

The increase in the areas with agricultural crops in 2018 was 20%. In order to reach the goal of 25%, the production of agricultural products and services must be increased. In 2022, the value of exports of agricultural products was €118,949 million, compared to 2010, in which the value of exports was €24,749 million. If we compare it with the import value of agricultural products, in 2022 there was an increase of 1,197 million euros, compared to the year 2010 in which the imports value was 482,649 million euros. In conclusion, the export and import of agricultural goods has increased, however, the largest increase has been the increase in imports according to various reports of the MAFRD from 2014-2022. Based on the data, this ratio should be changed, stimulating agricultural production through subsidies, as well as through continuous control of the destination of these funds.

Table 1. Subsidies, production, exports, imports in Agriculture in the Republic of Kosovo 2010-2022

Year	Subsidise	Production	Exports	Imports
2010	5,908	570,4	24,749	482,649
2011	5,437	581,5	26,185	561,428
2012	8,26	594,1	30,807	574,974
2013	12,099	726	34,947	583,704
2014	15,298	583,6	39,359	616,118
2015	21,438	629,6	41,683	633,702
2016	26,127	710,3	45,205	658,730
2017	27,029	700,9	61,336	694,517
2018	29,648	660,6	63,950	712,314
2019	30,634	735	65,510	759,359
2020	69,483	779,9	78,076	765,357
2021	28,927	809	92,642	965,569
2022	57,526	969	118,949	1,197

Source: MBZHR 2014-2021

3.3. Consumption of agricultural goods/services in Kosovo

The consumption of agricultural goods and services is a very important macroeconomic indicator, which has undergone changes from 2010-2022. According to (ASK, 2023) in 2010, the goods and services consumed were worth 1,937 million euros. Meanwhile, in 2022, the goods and services consumed were 2,527 million euros. In conclusion, the consumption of goods and services on average has increased moving from 2010 to 2023. This is explained by the fact that consumption for family economies

occupies an important place due to the fact that most of the money earned in Kosovo is destined for consumption.

3.4. Entrepreneurial income from the agricultural sector

According to (ASK, 2018), the sum of net value added, plus subsidies in production, minus compensation for workers, taxes on production, rents and interest on loans is entrepreneurial income. If we compare 2018 with 2017, the entrepreneurial income has decreased by -13.6%. If we compare the year 2017 with the year 2016, the entrepreneurial income has fallen by -6.9% (ASK, 2017). The year 2016 compared to the year 2015, for entrepreneurial income has increased by 21.0% (ASK, 2016). If we compare the year 2015 with the year 2014, the entrepreneurial income has increased by 12.3% (ASK, 2015). Meanwhile, entrepreneurial income in 2014 compared to 2013 increased by 26.1% (ASK, 2014).

According to (MBPZHR, 2023), in 2022 the entrepreneurial income was 470 million euros. Moving from 2018-2022, we have an increase in income, although this increase is not that high. If we analyze the entrepreneurial income over the years, we see that in general there was a downward trend for the years 2014-2018, while the entrepreneurial income from 2018-2022 had an upward trend even though the percentage of growth was not high. This is a signal that more support should be provided to entrepreneurs through production subsidies, since the costs are too high to deal with the agricultural sector.

3.5. Employment in the Agriculture sector in Kosovo

According to the annual report of (ASK, 2023), employment according to economic activities in 2022 in the agriculture, forestry and fishing sector was a total of 2.2%. Meanwhile, in 2012, employment according to economic activities in the agriculture, forestry and fishing sector was 4.6%. Based on the data, there was a 2.4% decrease in employment in the agriculture, forestry and fishing sector in 2022 compared to 2012. The low level of development of rural areas in Kosovo has influenced the unemployment level to increase.

Therefore, in order to have development, support must be offered in this important sector (Miftari *et al.,* 2016). The support and financial support of farmers and the engagement of women in particular and young people in rural countries will influence employment to increase. As a comparative advantage of Kosovo is cheap labor force (Gjokaj *et al.,* 2017). The cheap labor force should be used, since the costs will be lower and they are an incentive factor to produce and invest more.

By reducing the level of poverty, it is intended to create new jobs and generate income from agriculture (Republika e Kosovës, 2016). Since poverty affects many aspects of life, its reduction will have an impact positive and will make people not migrate from rural countries, but stay and contribute in their countries. In conclusion, employment is a very important factor that should be the object of politics, especially the agriculture sector in Kosovo.

4. Descriptive statistics

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Production	13	696.1462	113.487	570.4	969
Export	13	55.646	28.15871	24.749	118.949
Import	13	616.1245	220.6256	1.197	965.569

Source: Authors calculation

The use of the 13-year time series, from 2010-2022, was taken from various statistical reports to analyze the impact of subsidies in the agricultural sector. According to the descriptive analysis, the factors taken for analysis include: production, exports and imports. The number of observations is 13. Based on the table, it can be concluded that production, as the first variable, has mean 696.1, standard deviation 113.4, minimum value 570.4, maximum value 969.

Exports has mean 55.6, standard deviation 28.1, minimum value 24.7, maximum value 118.9. Imports, as the third variable, has an average of 616.1, a standard deviation of 220.6, a minimum value of 1.1 and a maximum value of 965.5.

5. Econometric modeling and results

Empirical model:

To analyze the impact of agricultural subsidies on production, the following model has been developed:

$$\text{Agricultural production}_i = \alpha_0 + \alpha_1 X_i + \mu_i \quad (1)$$

$$\text{Exports of agricultural production}_i = \alpha_0 + \alpha_1 X_i + \mu_i \quad (2)$$

$$\text{Imports of agricultural production}_i = \alpha_0 + \alpha_1 X_i + \mu_i \quad (3)$$

where is the explanatory variable; denotes the coefficient to be estimated; X_i denotes agricultural subsidy and μ_i denotes the random error term of model.

In the paper, agricultural production is the dependent variable. Meanwhile, X_i represents the explanatory variable (subsidies) from formula (1). The exports of agricultural products is shown as a dependent variable, while X_i is an explanatory variable (subsidies) from formula (2). The imports of the products is the dependent variable, while X_i is the explanatory variable (subsidies) from formula (3).

With the increase in agricultural subsidies for 1 euro, we will have an increase in production for about 4.6 euros. There is a 95% confidence level for this statement, since two ** represent a 95% significance level.

Exports: Based on the results with the increase of agricultural subsidies for 1 euro, we will have an increase in exports for about 1.2 euro. There is a 99% confidence level for this statement, since three *** represent a 99% significance level.

Imports: With the increase in agricultural subsidies for 1 euro, we will have a decrease in imports for 1.3 euro.

Table 3. Regression results

	(1) Production	(2) Export	(3) Import
Subsidise	4.642**	1.217***	-1.334
	(4.18)	(4.89)	(-0.39)
_cons	575.5***	24.03*	650.8***
	(16.26)	(3.03)	(5.92)
N	13	13	13

t statistics in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Source: Authors calculation

The observations for the three models are 13 because 13 years are included in this paper.

R^2 - Based on the coefficient of determination for the first and second models we can say that there is a relatively high level of explainability of the movement of dependent variables based on the movement of agricultural subsidies. While, R^2 of the third model we can say that the level of explainability of the variability of imports is extremely explained by the variability of agricultural subsidies. To achieve these econometric results, OLS linear regression was used, while the data are time series.

6. Conclusion

The results of the paper show that with the increase in agricultural subsidies, production will increase. Also, based on the findings of the work, it has emerged that with the increase in agricultural subsidies, we will have an increase in exports. However, the increase in agricultural subsidies will have the effect of falling imports based on the findings of the paper.

There are some limitations in the paper, which will be mentioned. One of the limitations of the paper is the inclusion of 13 years as a time series, due to the available data. Therefore, it is recommended to include other countries in the analysis because this will affect the increase in the number of observations.

As another limitation in the paper, it can be considered taking only one country for analysis, so future researchers can include other countries for analysis and make comparisons about similarities, differences in the level of subsidies, production, exports and agricultural imports. The subject of subsidies is quite sensitive, because the benefits of agricultural subsidies from farmers must be allocated to the increase of agricultural production and not be used for other purposes, so this can be considered as a limitation in terms of showing that the benefits can be greater than they actually are in terms of export growth.

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Appendix

Table 1. OLS1: regression

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. eststo OLS1: reg  Production Subsidise
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Source	SS	df	MS	Number of obs =	13
				F(1, 11) =	17.44
Model	94777.7695	1	94777.7695	Prob > F =	0.0015
Residual	59773.7628	11	5433.97843	R-squared =	0.6132
				Adj R-squared =	0.5781
Total	154551.532	12	12879.2944	Root MSE =	73.716

Production	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Subsidise	4.641746	1.111443	4.18	0.002	2.195477	7.088015
_cons	575.5272	35.38567	16.26	0.000	497.6438	653.4105

Source: Authors calculation

Table 2. OLS2: regression

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. eststo OLS2: reg Export Subsidise
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Source	SS	df	MS	Number of obs =	13
				F(1, 11) =	23.87
Model	6513.5709	1	6513.5709	Prob > F =	0.0005
Residual	3001.38471	11	272.853156	R-squared =	0.6846
				Adj R-squared =	0.6559
Total	9514.95561	12	792.912967	Root MSE =	16.518

Export	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Subsidise	1.216852	.2490535	4.89	0.000	.6686888	1.765015
_cons	24.02526	7.929265	3.03	0.011	6.573069	41.47746

Source: Authors calculation

Table 3. OLS3: regression

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. eststo OLS3: reg  Import Subsidise
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Source	SS	df	MS	Number of obs =	13
				F(1, 11) =	0.15
Model	7823.73021	1	7823.73021	Prob > F =	0.7065
Residual	576283.889	11	52389.4445	R-squared =	0.0134
				Adj R-squared =	-0.0763
Total	584107.62	12	48675.635	Root MSE =	228.89

Import	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Subsidise	-1.333629	3.45104	-0.39	0.707	-8.929317	6.262059
_cons	650.7797	109.8728	5.92	0.000	408.9512	892.6082

Source: Authors calculation