The Impact Of The Subsidy On The Increase In The Surface Area Of Vineyards And Alcoholic Products In Kosovo

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ABSTRACT

This study investigates the impact of government subsidies on the expansion of vineyard surface areas and the production of alcoholic beverages in Kosovo. Over recent years, subsidies have played a pivotal role in revitalizing Kosovo's viticulture and alcohol production sectors, leading to a notable increase in vineyard acreage and a subsequent rise in local wine and spirits' output. By analyzing subsidy allocations, vineyard expansion data, and production figures, this research assesses the effectiveness of these financial incentives in fostering industry growth. The findings indicate that while subsidies have stimulated significant development in Kosovo's viticulture and alcohol production, they also pose challenges related to market dynamics, economic sustainability, and potential over-reliance on government support.

KEYWORDS: Subsidies; Viticulture; Alcoholic Beverages; Export; Kosovo.

ABBREVIATION: RDP: Rural Development Program.

1. INTRODUCTION

The aim of the paper is to find the impact of the subsidy on the increase in the area of vineyards, the quantity and value of exported wines and other alcoholic beverages in Kosovo. During the research, it is intended to measure the impact of the subsidy on the viticulture sector; therefore, to measure the effect of the subsidy on the increase in the area of vineyards and their relationship with the amount of grape production per hectare, i.e., the amount and value of export of wines and other alcoholic beverages.

Through this research, it is intended to measure the subsidized area per Hectare of vineyards, as well as their impact on the quantity and value of the export of wines and other alcoholic beverages and how much these two variables reflect on the readiness of the government authorities to increase the subsidy in this sector. The research was conducted through the review of the 2015-2022 annual work reports of the Agency for Rural Development in Kosovo with a focus on the vineyard and wine sector.

From the statistical analyses that were carried out in this research, there were no significant relationships between the dependent variable and the independent variables. The result does not show that it has a statistically significant impact on the dependent variable – the amount of subsidies per hectare and independent variables, such as: X1, the subsidized area, X2, the amount of export and X3, the value of export. The research in this field should also be deepened in other factors to investigate the impact of subsidies on the development of agriculture, respectively viticulture, as in this case.

Wine production is regulated by law, which means all activities undertaken in vineyards, including harvesting, processing and reprocessing of grapes and all activities in oenological processes (Law No. 02/L-8 On wines, respectively article 5.1). The plots of vineyards are mostly small, while 4,780 winegrowers do the production of grapes. The average size is 0.5 ha with an average yield of 8-10t/ha. Kosovo's vineyards include 816 hectares of table grapes and 2,455 hectares of wine grapes.

2. LITERATURE REVIEW

Subsidy in the viticulture sector is a strategic objective of the state that implements it through established mechanisms, namely the Agency for the Development of Agriculture, which is responsible for the implementation of measures for support from the national program, donors and in the very near future, also measures from the pre-membership program for Rural Development. The program is based on the Strategy for Agriculture and Rural Development, as well as the Law No. 08/L-072 on Agriculture and Rural Development (Official Gazette of the Republic of Kosovo/ No. 8/ March 29, 2023) and the independent sectoral analysis, for the main sectors of agriculture and rural development, which was financed by the EU office in Kosovo [1]. So, this

agency is the authority responsible for the implementation of programs for Direct Payments and Programs for Rural Development.

The category of beneficiaries is natural or legal persons who benefit from direct payment according to the relevant programs, as well as benefits through grants/Rural Development Projects that are allocated for the implementation of the RDP in the viticulture sector.

Grant is awarded by the Rural Development Projects Approval Directorate, which is structured for the implementation of the RDP, which includes measures number (1), sub-measures and sectors of Rural Development that are part of the RDP. MEASURE 103: Investments in physical assets in the processing and marketing of agricultural products: Sector 103.4 - Wine production will be the subject of studies on the impact of these investments on the increase of vineyard areas, the quantity and exported value of wines and other alcoholic beverages, in Kosovo. During the reviews of the annual work reports in the AZHRB, the subsidy through Direct Payments to the vintners that have continued year after year with little change in terms of the subsidy method, where in recent years there has been an escalation in terms of the amount of the subsidy, has been identified. Thus, for areas with vineyards from 0.10 to 20 ha, the subsidy was 1000 euros per hectare, for those from 20 to 50 ha, we had a subsidy of 700 euros/ha, from 50 to 100 ha we had a subsidy of 500 euros/ha and for the areas with vineyards over 100 ha, the subsidy was 400 euros/ha.

In addition to the reviewed reports and annual plans, during this research, we also analyzed the RDP that addresses the strategic objectives of agro-rural development for the period 2014-2020, which are mainly oriented towards:

The specific objectives in this sector, referring to:

- ✓ Improving quality in order to meet national and EU standards;
- ✓ Farm modernization through the use of quality seedlings and modern mechanization;
- ✓ Production of renewable energy;
- ✓ Improving the integration of farmers with buyers of their products.
- ✓ Increased production of table grapes and wine grapes;

The special eligibility criteria in the grape sector are:

- ✓ Applicants for investments in the grape sector must prove that they have owned, inherited or leased agricultural land for at least 10 years, and at least 0.3 hectares. The minimum area of the plot must be 0.1 hectare.
- ✓ In the case of investments in mechanization and equipment for cultivation and harvesting, as well as warehouses for post-harvest treatment, applicants must prove that they have at least 3 hectares of vineyards, owned, inherited or leased for at least 10 years, registered in the Vineyard Register and the Farm Register.

Eligible investments for farmers in the grape sector, referring to:

- ✓ Investments in the establishment/modernization of vineyard plantations (conversion, replacement) for table grapes and wine grapes with a minimum size of 0.3 hectares;
- ✓ Investments in setting up irrigation systems, according to efficient irrigation practices;
- ✓ Investments in placing plasma for table grapes;
- ✓ Investments in farm energy production from all types of renewable sources;
- ✓ Investments in the network system for hail protection;
- ✓ Investments in vine support systems and fences;
- ✓ Investments in agricultural machinery and equipment for vineyards, machinery for plant protection, fertilization, harvesting and post-harvest treatment;
- ✓ Investments for the purchase of a tractor;
- ✓ Those who have more than 3 hectares of vineyards are also allowed to apply for the construction of facilities for post-harvest operations, such as cold storage, machines for classification, cleaning, and packaging.

In order to implement the RDP (2020-2021), the Managing Authority, in close cooperation with the Agency for Agricultural Development, has prepared the Administrative Instruction for the implementation of measures, which will include all the conditions and criteria for the implementation of the program.

Based on the theory available for the agricultural sector / subsidization of vineyard areas, the quantity and value of exported wines, as well as based on the direction of scientific research in this field, this paper is also built on similar models for research of subsidy in the viticulture sector. Similar research in Slovakia has given results that the analysis confirms, the result of which is that between the amount of gross agricultural production and the volume of subsidies given, there was a strong correlation [2].

Likewise, a 2019 study in the USA found that it always motivates farmers to plant more hectares when it is subsidized by government policies compared to the case of non-subsidization, so that farmers can plant fewer hectares [3]. During research in this field on subsidies and governance, it is clearly emphasized that subsidies remain a useful complementary instrument to offset the provision of public goods (e.g., in nature conservation) as long as they are structured in a way that they do not suffer from typical governance problems [4].

Similarly, in a 2019 study on the impact of subsidies in the Albanian agricultural sector on Medicinal and Aromatic Plants in a region of Albania, they concluded that the subsidies had an impact on the area planted in the year they were received, and partly on the yields, but they have no influence on the price (representative of the quality) [5]. During the review of the literature in the agricultural sector - grape vine and olive subsidy in Albania during 2015, it turns out that the government subsidy had a net positive impact on the areas planted with olives and vines, and part-time employment on the farm. On the other hand, no significant net effect was observed regarding farm size and crop yields [6].

Referring to research in Hungary on the issues of support for winegrowers and grape quality, it turns out that, in most cases, the security of buying grapes means sufficient motivation for winegrowers. We also show that winegrowers are not well organized at the level of negotiations with winemakers and traders. Their power to enforce interests is quite weak. The lack of trust, asymmetric information and the existence of opportunistic behavior results in a very low level of investment and in an inefficient structure, although efficiency would be necessary for quality wine production [7].

3. METHOD(S)

During the research, the method of quantitative data approach was used, and statistical results were derived from these data. The data were collected from official reports on the granting of subsidies. This data collection tool, through official reports, reflects the high accuracy of the data, where with these data we have prepared the data in Excel format, ready to be used further for statistical analysis. They were extracted for a total of 8 years from 2015 to 2022. From the collected data, we made two types of analysis, such as: firstly, we made descriptive statistical analysis, and secondly, we made correlation analysis and regression analysis, through which we worked to find the relationship between the variables in the research. In the analysis, correlation coefficients and P-value coefficients were derived through linear regression.

Based on the theory of subsidies and their impact on the promotion and development of specific sectors in agriculture, this paper is also built on similar models for researching the impact of subsidies on the development of specific sectors of agriculture, i.e. vineyards, respectively the determinant that affect the stimulation and increase of vineyard areas, the amount of export of wines and other alcoholic beverages as well as their export value. In this part of the paper, to raise or develop the hypotheses in advance, the theoretical part has been presented so that the presented hypotheses have their theoretical support.

Table 1: Summary of primary search questions.

Code	Primary Questions	Dependent Variable	Independent Variable
H1	If the subsidized amount per Hectare has influenced the increase in the area planted and worked with vineyards.	Subsidized amount per Hectare (SHSH).	Subsidized area per Hectare.
H2	If the subsidized amount per Hectare has influenced the increase in the amount of export of wines and other alcoholic beverages.	Subsidized amount per Hectare (SHSH).	Export quantity of wines and other alcoholic beverages.
H3	If the subsidized amount per Hectare has influenced the increase in the total value of wines and alcoholic beverages in export.	Subsidized amount per Hectare (SHSH).	Export value of wines and other alcoholic beverages.

3.1 DATA COLLECTION AND ANALYSIS

3.1.1 DESCRIPTIVE ANALYSIS

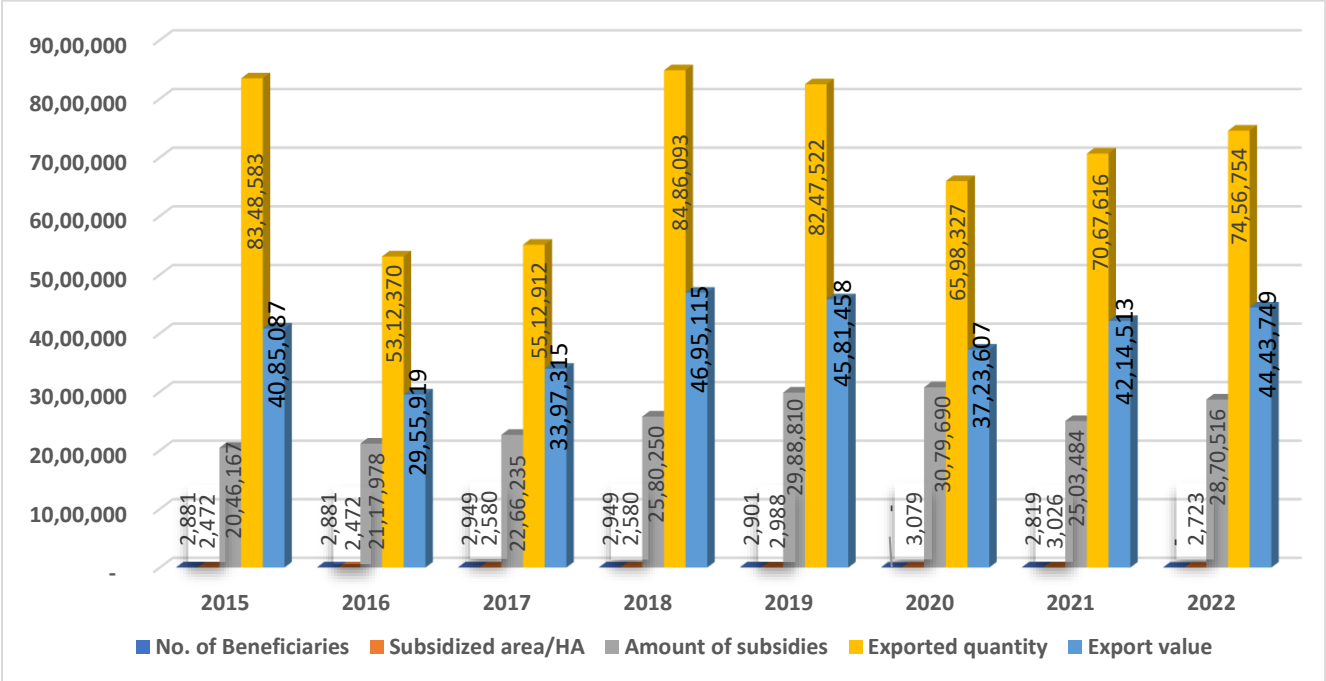
To prove the hypotheses, we collected data from official reports, for eight years from 2015 to 2022, for: the number of beneficiaries, subsidized areas per hectare, the amount of subsidized financial means, and the amount and values of the export of wine and other alcoholic beverages.

To describe the result of the statistical test, referring to the tables, which reflect the results of the variables under consideration. The result does not show that it has a statistically significant impact on the dependent variable – the amount of subsidies per hectare and independent variables, such as: X1 subsidized area, X2 export quantity and X3 export value. The research in this field should also be deepened in other factors to investigate the impact of subsidies on the development of agriculture, respectively viticulture, as in this case.

Table 2: Data collected from official subsidy reports in the viticulture sector.

Years	No. of Beneficiaries	Area / HA	Amount of subsidies	Quantity exported	Export value
2015	2,881	2472	2046167	8348583	4085087
2016	2,881	2472	2117978	5312370	2955919
2017	2,949	2580	2266235	5512912	3397315
2018	2,949	2580	2580250	8486093	4695115
2019	2,901	2988	2988810	8247522	4581458
2020	2,886	3079	3079690	6598327	3723607
2021	2,819	3026	2503484	7067616	4214513
2022	2,696	2723	2870516	7456754	4443749

Chart 1: Comparative approach to subsidizing wine producers in increasing export quantities.



So far, we have described the data that we extracted from the official reports and prepared to perform the data analysis. In the following, we are presenting a descriptive statistical analysis table, which includes the number, the statistical average, the standard deviation and the results of data distribution through Skewness and Kurtosis. As in the following table:

Table 3: Descriptive statistics.

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistics	Statistics	Statistics	Statistics	Statistics	Statistics	Std. Error	Statistics	Std. Error
SSH	8	2472.0	3079.0	2740.000	254.4905	.357	.752	-2.014	1.481
SHS	8	2046167.0	3079690.0	2556641.2	396339.5	.039	.752	-1.684	1.481
that	8	5312370.0	8486093.0	7128772.1	1246988.6	-.453	.752	-1.360	1.481
widower	8	2955919.0	4695115.0	4012095.3	609449.8	-.709	.752	-.543	1.481
Valid N (listwise)									

- The subsidized area in Hectares - SSH
- Subsidized amount - SHS
- Exported quantity of wines and other alcoholic beverages - SE
- Exported value of wines and other alcoholic beverages - VE

3.2 HYPOTHESIS TESTING

3.2.1 SIGNIFICANCE OF THE CORRELATION COEFFICIENT

From the correlation analysis, only two correlative and significant relationships have appeared between them. The subsidized amount shows a positive correlation with the subsidized area per hectare, with the coefficient r=0.795*, while the significance is p=0.000<0.05. The amount of export has shown a positive correlation with the value of the export of wines and other alcoholic beverages, with the coefficient r= 0.911**, while the significance is p=0.001<0.01. The other variables did not show a correlation between them in this type of analysis.

In the first correlation, it can be seen that the subsidized amount is in harmony with the subsidized area, which means there is no loss of subsidies, and at the same time, the more subsidies, the more subsidized area. And in the second correlative relationship, we have seen that the greater the quantity exported, the greater the value of the export, but since the quantity is related to the value of the export, we have not observed any more important expected element.

Table 4: Correlation matrix.

		SSH	SHS	that	widower
SSH	Pearson Correlation	1	.795 *	.124	.319
	Sig (2-tailed)		.018	.770	.441
	N	8	8	8	8
SHS	Pearson Correlation	.795 *	1	.285	.497
	Sig (2-tailed)	.018		.493	.210
	N	8	8	8	8
that	Pearson Correlation	.124	.285	1	.911 **
	Sig (2-tailed)	.770	.493		.002
	N	8	8	8	8
VL	Pearson Correlation	.319	.497	.911 **	1
	Sig (2-tailed)	.441	.210	.002	
	N	8	8	8	8

*Correlations are significant at the 0.05 level (2-tailed).
**Correlation significant at the 0.01 level (2-tailed).

3.2.2 LINEAR REGRESSION ANALYSIS

$$Y_i = \beta_0 + \beta_1 x_1 + \ldots + \beta_k x_k$$

Y1 = Subsidized amount per Hectare (SHSH)

X1 = Subsidized area per hectare (SSH)

X2 = Amount of export of wines and other alcoholic beverages (SE)

X3 = Export value of wines and other alcoholic beverages (VE)

Table 5: Regression coefficients of the independent variables - Coefficients[a]

Pattern		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-984773.8	1253910.1		-.785	.476
	SSH	999.6	485.0	.642	2.061	.108
	that	-.113	.228	-.356	-.498	.645
	widower	.401	.488	.617	.823	.457

[a]Dependent Variable: the amount of subsidies.

Table 6: Summary model.

Pattern	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.846[a]	.715	.501	279893.4	.715	3.345	3	4	.137

[a]Predictors: (Constant), Export Value, Area unsubsidized / HA, Quantity exported.

4. CONCLUSIONS

The viticulture sector in Kosovo faces high production costs due to old vineyards, partially outdated agricultural mechanization, as well as small areas (plots) planted with this crop. Grapes produced in the country are challenged with strong competition from imports, which are well categorized and packaged. In order to be competitive with imported grapes and to stimulate exports, strong investment support is required in this sector in different forms of subsidy. From the research that we have carried out in this sector, in addition to others that we have described above, we have drawn some conclusions that are based on statistical results, which we will describe as follows:

- Statistical correlations were found during the research to be significant between the dependent variable Y1 – the amount of subsidies per hectare, and their impact on independent variables X1 - subsidized area per hectare.
- Consequently, no statistically significant associations were found between the dependent variable Y1 - the amount of subsidies per hectare, and their impact on independent variables X2 - the amount of export of wines and other alcoholic beverages.
- Also, during the evaluation of the variables, no statistically significant relationships were found between the dependent variable Y1 – the amount of subsidies per hectare, and their impact on independent variables X3 - export value of wines and other alcoholic beverages.

AUTHOR CONTRIBUTIONS

Both authors contributed equally to this study.

CONFLICT OF INTEREST

None.

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