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Original Paper

Development of profitability in small and medium-sized wineries in Slovakia

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ABSTRACT

Winemaking has a long tradition in Slovakia, but wineries face many challenges today. In 2021, Slovakia had 692 wine- and wine-based producers and 260 traders dealing with wine products. Profit is a key indicator of successful business performance, representing the difference between revenues and costs. It fulfils various functions, including evaluative, distributive, motivational, and developmental roles. The primary aim of this study is to evaluate the development of profitability in a selected group of wineries in Slovakia during the period 2013–2021. A total of 107 wineries were categorized into micro, small, and medium-sized enterprises, with an analysis of their cost, revenue, and profitability trends from economic activities. Medium-sized wineries consistently reported higher revenues than costs from economic activities each year, resulting in a profit from operations. In contrast, micro-wineries recorded a loss from operations throughout the analyzed period.

KEYWORDS: revenues, costs, earnings before taxes, wineries, Slovakia

JEL CLASSIFICATION: M20, M21, O13

INTRODUCTION

Slovakia's winemaking industry has deep historical roots. The history of viticulture in Slovakia dates back to Roman times. During the Middle Ages, monasteries played a significant role in cultivating vineyards and producing wine. Viticulture has long been a vital sector of agriculture, practiced for centuries (Coşkun, 2024).

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Due to its geographic location and diverse natural conditions, Slovakia forms the northern boundary for profitable European grape cultivation. Viticulture was the primary occupation for the inhabitants of southern Slovakia until nearly the mid-20th century (Franko, 2022).

Slovakia has several wine-growing regions, each offering unique conditions for grape cultivation and wine production. In recent years, the Slovak wine industry has experienced a notable resurgence, with winemakers embracing new trends and innovations. Currently, Slovakia is divided into six wine regions: Malokarpatský, Južnoslovenský, Nitriansky, Stredoslovenský, Východoslovenský, and the Tokaj region. In 2021, the Malokarpatský region had the highest concentration of wine and wine product producers, with 321 producers, followed by 125 in the Južnoslovenský region and 229 in the Nitriansky region. The Východoslovenský region had the fewest producers, with just 35 (MPRV, 2023).

Both winemaking and viticulture contribute to wine production. Winemaking is a separate sector with its own specificities, while grape cultivation and wine production are financially and organizationally distinct. However, the viticulture sector has faced financial constraints, leading to pressure to dismantle critical vineyard areas (Rogovská, 2018). Economic factors (such as analyzing growing trends in wine consumption, shifting consumer preferences, and market growth forecasts) are essential for ensuring sustainable production growth and addressing global challenges (Vasileiko, 2023).

Wine production, consumption, export, and import vary depending on location and market segmentation. Wine producers and consumers in Spain, Italy, and France have seen a gradual decline in wine production and consumption. However, about 80% of countries show an increasing trend in wine imports. Globally, per capita wine consumption has significantly decreased (Netzer & Ohana-Levi, 2023).

Small and medium-sized enterprises (SMEs) are crucial to the economic development of nations (Promwichit, Mohamad & Hassan, 2012). According to Quito & Durango (2023) they play a significant role in the economy by creating jobs and complementing the activities of larger companies, which highlights the importance of enhancing their performance. 99.9% of all business entities in Slovakia are SMEs. In 2021, due to a slight recovery in economic activity, the added value of SMEs increased across all sectors of the economy. In 2021, the number of SMEs in Slovakia reached 92,538 (SBA, 2022).

MATERIAL AND METHODS

Accounting serves as a crucial source for quantifying indicators used in financial and economic analyses. The data for this study were derived from the profit and loss statements of selected Slovak wineries, covering the period from 2013 to 2021. The sample comprised 107 wineries, categorized into micro, small, and medium-sized enterprises.

Small, medium, and micro enterprises play a significant role in both the national and European economies. For instance, according to data from the Slovak Business Agency, small and medium-sized enterprises (SMEs) in Slovakia account for as much as 99.9% of all business entities, employ nearly 75% of the active workforce, and contribute to over 50% of gross production and value creation. Additionally, SMEs are a source of innovation and technology, fostering a competitive environment, supporting economic growth, and providing goods and services that larger companies are less inclined to offer.

Profit, an indicator with multiple roles (distributional, motivational, criterial, and developmental), is calculated as the difference between revenues and expenses. Due to the nature of winery operations, their financial statements reflect significant entries in the area of operating activities. Therefore, our analysis focused on the development of costs, revenues, and operating profit/loss from these business activities. We used z-test to determine whether two population means differ when variances are known, and sample sizes are large in the paper. It can also be used to compare a mean with a value that is hypothesized to be different.

RESULTS AND DISCUSSION

Based on the financial statements, we quantified the trend in revenues from operating activities, a core area for wineries. Table 1 shows the development of operating revenues. As observed, there was an increasing trend in operating revenues for micro wineries from 2013 to 2017. However, a decline in operating revenues occurred in 2018 and 2019, with 2019 marking the onset of the COVID-19 pandemic, which contributed to the lowest operating revenue values in recent years. The overall average revenue from operating activities for micro wineries was €199,057.

Small wineries recorded significantly higher values of operating revenues, though the indicator showed variability. Declines in revenue were observed between 2015 and 2014, 2019 and 2018, and 2021 and 2020. The impact of the COVID-19 pandemic in 2019 was a contributing factor to the lowest operating revenue values in recent years for small wineries. The average revenue indicator for the entire analyzed period was €1,966,597.

The number of medium-sized wineries in the analyzed sample was the lowest (8 wineries). Despite this, these enterprises achieved the highest levels of operating revenues. Revenue trends were fluctuating, with declines occurring between 2014-2013, 2015-2014, 2019-2018, and 2021-2020. The average operating revenue for medium-sized wineries was €10,829,879 (Table 1). Revenue trends in wineries are primarily influenced by sales, which represent the most significant portion of revenue. Wineries could increase their sales through strategies such as innovations in marketing (e.g., organizing events like wine tastings, promoting wine tourism); improving customer relations (e.g., enhancing communication and offering wine recommendations); optimizing distribution channels (e.g., partnerships with retail chains, distributors, specialty wine shops, wine bars, and entry into international markets), and diversifying their product offerings (e.g., limited editions, premium lines, vintage wines, sparkling wines, non-alcoholic wines). Support for innovation processes, focusing on new products and services or improving existing ones, is emphasized by Gajdová (2019). Melas (2016) also highlights innovation as a key tool for competitiveness.

Table 1 Development of revenues from operating activities in SMEs wineries in Slovakia

C/Y	2013	2014	2015	2016	2017	2018	2019	2020	2021	Ø
MC	116,338	139,795	166,324	225,398	239,787	229,788	213,740	242,923	217,416	199,057
SC	1,598,544	1,839,497	1,836,012	1,897,253	2,073,844	2,207,893	2,047,842	2,106,260	2,092,230	1,966,597
MSC	11,171,157	10,419,728	0,141,666	10,537,462	10,778,444	11,145,490	10,686,576	11,362,845	11,225,543	10,829,879

Source: own calculation (CY - Company/year, MC – Micro companies, SC - Small companies, MSC - Medium-sized companies)

The costs of economic activity consisted mainly of consumption of materials, energy and other non-composable consumables, services, personnel costs, depreciation and other costs of economic activity. In terms of individual wineries and their breakdown, the average value of costs from economic activity was lowest in micro wineries at EUR 204,846 and highest in medium-sized enterprises at EUR 9,620,889, as shown in Table 2. The costs of economic activity in micro enterprises increased from 2013 to 2018. It then fell in 2019. The value of the indicator in small wine enterprises showed the same trend, increasing until 2018 and then decreasing in 2019. In medium wine enterprises, the costs of economic activity showed a decrease between 2014 and 2013, 2015 and 2014, 2019 and 2018, 2021 and 2020 (Table2).

In the possibilities of cost reduction in wineries, we would recommend efficient management of resources (optimization of land use, reduction of costs of fertilizers and pesticides, use of technologies for monitoring the health of vineyards, etc. by using satellite images, drones), automation of the production process, such as: introduction of automated systems in bottling, labelling, storage, will reduce labor costs, investments in renewable energy can reduce electricity costs over time, winery operation, improvement of logistics and distribution can reduce transportation costs, use of seasonal workers, for example, during grape harvest instead of keeping a permanent worker all year round, etc. Growing market requirements and increasing demands on the competitiveness of production companies are shifting the trend towards new and more efficient solutions, as reported by Chodasová, Tekulová & Králik (2017).

Table 2 Development of costs from operating activities in SMEs wineries in Slovakia

C/Y	2013	2014	2015	2016	2017	2018	2019	2020	2021	Ø
MC	130,924	144,134	184,697	222,358	238,228	254,250	213,642	240,388	214,997	204,846
SC	1,622,960	1,738,124	1,766,873	1,884,344	2,040,166	212,8653	201,1276	211,1295	2,081,503	1,931,688
MSC	10,101,412	9,351,032	9,139,621	9,366,161	9,607,400	9,869,865	9,509,119	9,892,560	9,750,828	9,620,889

Source: own calculation (CY - Company/year, MC – Micro companies, SC - Small companies, MSC - Medium-sized companies)

Table 3 presents the evolution of the economic result of the economic activity of the different types of wine enterprises. On the basis of their individual economic results, micro wine enterprises reported a loss of – 5,790 euro. Revenues were lower than costs in 2013, 2014, 2015 and 2018. For the small wine enterprises, the average profit from economic activity for the years under consideration was 34,909 euro. Losses were recorded in 2013 and 2020. In the case of medium-sized enterprises, the profit from economic activity was quantified in all the years and its average value amounted to 1, 208,990 euros.

Table 3 Development of earning before taxes from operating activities in SMEs wineries in Slovakia

C/Y	2013	2014	2015	2016	2017	2018	2019	2020	2021	Ø
MC	-14,586	-4,339	-18,372	3,040	1,559	-24,462	98	2,535	2,419	-5,790
SC	-24,416	101,373	69,140	12,910	33,678	79,239	36,566	-5,035	10,727	34,909
MSC	1,069,746	1,068,696	1,002,045	1,171,301	1,171,044	1,275,625	1,177,457	1,470,285	147,4715	1,208,990

Source: own calculation (CY - Company/year, MC – Micro companies, SC - Small companies, MSC - Medium-sized companies)

We will use the z-test to see if there is a significant difference in the profit and loss statements of 73 small wineries. The z-test is used to see if the difference between the sample means is statistically significant. The name of the z-test is derived from the z-score of the normal distribution. According to Chen (2011) and Eden (2009), z-tests are the most commonly used

statistical tests in various scientific fields such as economics, medicine and others. We will divide the research samples into three groups: 2013, 2017 and 2021. The data for this study are derived from the profit and loss accounts of 73 small wineries in 2013, 2017 and 2021.

We test the hypotheses in the research:

H0: The difference in profit and loss statements is not statistically significant when comparing the periods 2013 and 2017.

H1: The difference in the profit and loss accounts is not statistically significant when comparing the periods 2017 and 2021.

In Table 3 we test the null hypothesis which states that there is a significant difference in 2013, 2017 and 2021.

Table 4 Results of z-test

	2013 and 2017		2017 and 2021		2013 and 2021	
Mean	116,338	239,787	239,787	217,416	116,338	217,416
Observations	73	73	73	73	73	73
z Stat	-7.45826		1.35154		6.10667	
z Critical one-tail	1.96		1.96		1.96	

Source: own calculation

Comparing 2013, 2017 and 2013, 2021 (Table 4), the z-test absolute value is greater, and the critical value is 1.96 at the selected significance level. We accept the alternative hypothesis that there is a significant difference in the number in income statements.

In Table 4, we see that the z-test value for 2017 and 2021 is 1.35154, and the critical value at the significance level is 1.96. Since the z-test value is less than the critical value, reject the null hypothesis that the difference. The difference in profit and loss statements is not statistically significant when comparing the periods 2017 and 2021.

CONCLUSIONS

Manufacturing enterprises focus on economic activities; therefore, in this study, we analyzed the revenues, costs, and economic results of small and medium-sized wineries. The development of revenues from economic activities was primarily influenced by sales, whether from the sale own products, services, or goods. The development of costs in the economic area was mainly impacted by factors such as material consumption, energy, services, personnel costs, depreciation, and other operating expenses. The analyzed sample of medium-sized wineries reported a profit from economic activities in every year of the observed period. In contrast, the sample of small wineries recorded a loss of €5,790 over the years 2013–2021. Revenues from economic activities exceeded costs even in small wineries in every year except 2013 and 2020. However, despite these exceptions, the average profit in this category of enterprises was €34,909 during the analyzed period. The options are expansion of vineyards and improvement of the competitiveness of farms, better use of production factors and the application of new technologies and innovations.

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