

FOSTERING SUSTAINABILITY IN THE BALKAN WINE INDUSTRY: CHALLENGES AND STRATEGIC SOLUTIONS

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ABSTRACT

The wine industry in the Balkans holds significant potential for fostering sustainable regional development, but it also faces numerous environmental, economic, social, and regulatory challenges. Through a qualitative study based on semi-structured interviews with professionals in the Balkan wine industry, this article explores the most pressing sustainability challenges and proposes strategic solutions for overcoming these barriers. Grounded in sustainability theories, including the Triple Bottom Line (TBL) framework and Stakeholder theory, the findings highlight the collaborative initiatives, technological innovation, implementation of circular economy principles, policy reform, and social initiatives as pivotal to fostering sustainable practices. This research contributes to the literature on regional sustainable development by offering new insights into industry-specific challenges and solutions, providing a conceptual framework for further exploration and policy formulation in the context of the Balkans.

Keywords: Sustainability, Balkan wine industry, Regional development, Qualitative study.

JEL classification: Q13.

1. INTRODUCTION

Sustainability has become an essential focal point for industries seeking to adapt to modern environmental and economic challenges (Signori *et al.*, 2017). The wine industry faces challenges stemming from production and consumption differences across territories, with operational synergies and program integration varying significantly between countries (Christ and Burritt, 2013). Hence, the wine industry is adapting to changing consumer trends, regulatory requirements, and climate change (Annunziata *et al.*, 2018). Wine production in the Balkan region holds historical, cultural, and economic significance, making it a crucial player in the local economy. However, as climate change intensifies, resource scarcity and consumer expectations for environmentally friendly practices further pressure the industry.

This study focuses on identifying the sustainability challenges and solutions specific to the Balkan wine industry and examines how these findings contribute to broader discussions on sustainable regional development. Sustainability in this context refers to the capacity of the wine industry to meet current production needs without compromising future environmental, economic, and social outcomes. Furthermore, the adoption of sustainability not only stimulates innovation and creates opportunities, but also enhances competitive differentiation (Gupta *et al.*, 2013; Choi and Gray, 2008). Addressing sustainability is particularly important for the Balkan region, where wine production often relies on small and medium-sized enterprises (SMEs) with limited resources to navigate these complex issues (Moore and Marning, 2009; Gupta *et al.*, 2013).

Grounded in Triple Bottom Line (TBL) framework and Stakeholder theory, this article addresses the following research question: What are the main sustainability challenges facing the Balkan wine industry, and what strategic solutions can be implemented to overcome these barriers for long-term regional development? This article seeks to fill a gap in the literature by providing qualitative insights from industry professionals on the unique sustainability challenges and opportunities in this region, focusing on practical and theoretical contributions.

2. LITERATURE REVIEW

Sustainability has become a central topic in the context of regional development, particularly in resource-dependent industries like wine production (Gilinsky *et al.*, 2016; Santini *et al.*, 2013). One of the foundational theories underpinning the discourse on sustainability is the Triple Bottom Line (TBL), introduced by Elkington (1997). The TBL framework goes beyond the traditional focus on financial performance by including environmental and social dimensions, making it highly relevant to sectors that directly interact with the environment, such as agriculture and viticulture (Joyce and Paquin, 2016), thereby having a substantial impact on economic viability, worker health, land use, society, and local and regional development (Baiano, 2021; Corbo *et al.*, 2014). Within the context of viticulture, TBL suggests that sustainable wine production requires strategies that balance these three pillars, addressing environmental impacts such as water usage and soil erosion while ensuring economic growth and community benefits (Christ and Burritt, 2013; Gabzdylova, *et al.*, 2009; Fiore *et al.*, 2017).

Studies focusing on sustainable wine production, particularly in well-established regions such as France and Italy, have explored innovative techniques like organic farming, energy efficiency measures, and sustainable packaging to reduce environmental impacts (Annunziata *et al.*, 2018; Baiano, 2021; Lichy *et al.*, 2023; De Steur *et al.*, 2019; Cantino *et al.*, 2019; Borsellino *et al.*, 2016). However, fewer studies have addressed how sustainability can be promoted in smaller, less resourced wine regions such as the Balkans, where SMEs dominate the market and lack the capital to invest in large-scale sustainability initiatives. Although the wine sector plays a significant role in regional economic growth, tourism, and rural development, the challenge of sustainable regional development, particularly in terms of comprehensive environmental and social strategies, is still evolving (Trišić *et al.*, 2019; Licastro and Sergi, 2021). Historical factors, including political instability and economic constraints, have further delayed progress in these areas. Regional development through wine production must therefore consider not only economic and agricultural outputs but also the sustainability of the entire ecosystem in which the industry operates.

Research on organizational sustainability has shown that people within organizations play a crucial role in promoting sustainable strategies, mainly driven by the stakeholders' concerns and internal motivations (Szolnoki, 2013; Corbo *et al.*, 2014; Gabzdylova *et al.*, 2009; Giacomarra *et al.*, 2016; Santini *et al.*, 2013). Therefore, in tandem with TBL, the Stakeholder

Theory, proposed by Freeman (1984), highlights the broader responsibilities of businesses to all stakeholders, including employees, customers, local communities, and the environment. In the wine industry, this means that producers must consider the impact of their practices not just on financial outcomes, but also on the ecosystems and communities they affect (Dodds *et al.*, 2013; Gabzdylova *et al.*, 2009; Pomarici *et al.*, 2015). Aligning the diverse interests of these stakeholders is crucial to achieving long-term sustainability (Darnall *et al.*, 2010; Dyllick and Hockerts, 2002; Bansal, 2005) driving competitive advantage (Lucas, 2010, Marco-Lajara *et al.*, 2023), product differentiation (Bonifant *et al.*, 1995), cost reductions (Christmann, 2000) and enduring success for future generations (Marco-Lajara *et al.*, 2023; Lamastra *et al.*, 2016; Broccardo and Zicari, 2020). New technology and green management strategies can facilitate this shift, making sustainability a competitive component, market-driving strategy, and innovation process driver (Glinsky *et al.*, 2016; Fiore *et al.*, 2017). Accurate tools to quantify sustainability contributions are crucial for effective management of sustainability issues and identifying areas for improvement (Martins *et al.*, 2018). However, producers often struggle to distinguish between sustainable agricultural approaches, such as sustainable, organic, or biodynamic (Flores and Medeiros, 2019; Szolnoki, 2013). Although the European Union has made attempts to promote sustainability through initiatives like the circular economy (CE) pillar, the wine sector has not yet adopted tactics to encourage a more circular approach. The potential contribution of wine production to the 3R strategy (reduce, reuse, recycle), particularly in waste management, has been explored, as waste is a major environmental concern in wine production (Arvanitoyannis *et al.*, 2006; Oliveira and Duarte, 2016; Ruggieri *et al.*, 2009). This research extends Stakeholder Theory by exploring how collaboration among stakeholders in the Balkan wine industry can drive both environmental and economic sustainability, creating shared value for the region as a whole.

3. METHODOLOGY

This research employs a qualitative methodology designed to capture in-depth insights into the sustainability challenges and opportunities within the Balkan wine industry. The study utilized semi-structured interviews with eight industry professionals, including vineyard owners, sustainability managers, and government officials involved in agricultural policy. These participants were selected based on their expertise and hands-on involvement in the industry, ensuring that the interviews reflected a comprehensive range of perspectives on sustainability. Sampling was conducted using a purposive method, targeting individuals whose roles directly related to sustainability in the wine industry. This allowed the research to focus on obtaining rich, detailed accounts of the challenges and solutions specific to sustainability. Each interview lasted between 60 and 90 minutes, following a semi-structured format that enabled flexibility in exploring topics while ensuring that key areas, such as environmental impacts, economic pressures, and regulatory frameworks, were consistently covered.

Thematic analysis was used to identify recurring themes and patterns across the interviews. This approach enabled us to draw connections between the challenges identified by participants and existing theoretical frameworks, such as TBL and Stakeholder theory. By coding the data and mapping it onto these frameworks, the analysis provides both theoretical insights and practical solutions for addressing the identified sustainability challenges.

4. RESULTS AND DISCUSSION

4.1. Identifying sustainability challenges

The results of the thematic analysis revealed several major sustainability challenges faced by the Balkan wine industry. Economic pressures emerged as a dominant theme, with participants consistently citing the high costs of sustainable practices as a significant barrier. The high

upfront costs associated with sustainable farming techniques, renewable energy adoption, and waste management systems were identified as prohibitive, particularly for SMEs with limited financial capital. One vineyard owner remarked: “Sustainability is important, but the costs are simply too high. We don’t have the budget to invest in renewable energy or advanced irrigation systems.”

Environmental degradation was another key challenge identified by participants. Several interviewees highlighted the impact of climate change on their vineyards, including increased temperatures and unpredictable weather patterns. These changes have affected grape quality and yield, making sustainable agricultural practices even more urgent. A sustainability manager noted, “We’ve seen a marked difference in the climate over the past decade. The summers are hotter, and we have less predictable rain. This has a direct impact on our vineyards, and we need sustainable solutions to cope.”

The lack of government support was also a prominent theme in the interviews. Participants expressed concern about the absence of coherent policies and financial incentives to promote sustainability within the wine industry. Policymakers acknowledged that while sustainability is on the political agenda, concrete measures to support the industry are lacking. As one policy advisor explained: “There’s a lot of talk about sustainability, but not enough action from the government. What we need are subsidies or tax breaks for businesses that invest in sustainable technologies.” Without coherent policy guidance, sustainability often takes a backseat to short-term economic concerns. The absence of subsidies or tax breaks for sustainable practices exacerbates this issue, leaving many producers with little motivation to prioritize environmental goals.

In addition to these challenges, the social dimension emerged as a critical concern. Participants discussed the impacts of wine production on local communities, highlighting issues such as labour conditions, social equity, and local engagement. Participants emphasized the need for training programs to enhance the skills of workers in sustainable practices. A vineyard owner stated, “We need to invest in our people. If we want to be sustainable, our workers need to be trained in eco-friendly methods.” This focus on social responsibility can help foster a culture of sustainability within the industry.

Territorial challenges also surfaced, particularly in the context of preserving local identities and landscapes. Participants pointed out that wine production should respect local conditions and promote rural development, emphasizing the importance of maintaining land use and landscape preservation. They noted that failing to consider these aspects could lead to a loss of cultural heritage and undermine the unique characteristics that define regional wines.

Finally, participants recognized the need to account for various other factors that influence sustainability, such as heritage, historical significance, and cultural aspects. These dimensions encompass the preservation of traditional winemaking methods and the promotion of cultural events related to wine. A winemaker highlighted, “Our wines tell the story of our land and culture. We cannot forget where we came from while trying to innovate.” The participants also noted the aesthetic dimensions of the wine landscape, arguing that preserving the natural beauty of vineyards is vital for tourism and regional identity. Addressing these factors is vital for enhancing the industry's overall sustainability and fostering a sense of identity among local communities.

4.2. Proposing strategic solutions

The interviews also uncovered potential strategies for addressing these challenges. Collaboration between stakeholders emerged as a vital solution. Participants suggested that wine producers, local governments, and international organizations should engage in knowledge and resource-sharing initiatives to promote sustainable practices. A vineyard owner

stated, “If we work together as an industry, we can pool resources and reduce the costs of going green.” Additionally, partnerships with research institutions could provide the industry with access to cutting-edge innovations, such as precision farming technologies and smart agriculture which could mitigate the environmental impact of wine production, as also noted by other scholars (Annunziata *et al.*, 2018, Mainar-Toledo *et al.*, 2023). This collective approach can lead to shared innovations and reduce individual burdens, making sustainability more attainable.

The adoption of green technologies was another widely discussed solution. Several participants noted that while the initial costs of technologies such as water-saving irrigation systems or renewable energy sources are high, the long-term benefits outweigh the costs. “Investing in sustainable technologies is expensive, but in the long run, it’s necessary to preserve the environment and maintain high-quality production,” remarked one participant. Furthermore, the implementation of circular economy principles was identified as a strategic avenue. Participants suggested that adopting eco-efficiency programs and waste management practices, such as recycling and upcycling, could promote environmental management and resource efficiency. As noted by one respondent, “Closing the resource loop is essential for mitigating our ecological footprint while also creating economic benefits.” This approach aligns with contemporary trends in sustainable production and can significantly contribute to the industry’s resilience (Flores and Medeiros, 2019; Bocken *et al.*, 2016; Ghisellini *et al.*, 2016). Circular economy practices, such as optimizing packaging design by using biodegradable or compostable materials, can further promote sustainability by reducing waste and carbon emissions associated with wine transportation (Annunziata *et al.*, 2018). This proactive approach extends to eco-design, life cycle assessment (LCA), and sustainable mobility, creating a closed-loop system that enhances the industry’s overall eco-efficiency.

Moreover, participants called for policy reform to provide stronger incentives for sustainability. Recommendations included clearer regulatory frameworks, financial support for green initiatives, and the promotion of sustainability certification schemes for wine producers. By implementing these reforms, participants argued, the Balkan wine industry could become a model for sustainable agriculture in the region. Policy incentives, such as subsidies or grants, could also enhance the industry’s resilience to climate change by supporting adaptation strategies, including dry farming, sustainable pest management, and planting climate-resilient grape varieties (Baiano, 2021).

Social initiatives aimed at improving workforce training and community engagement were also recommended. Participants highlighted the importance of developing training programs for workers to ensure they are equipped with the necessary skills for sustainable practices. Additionally, regenerative agriculture, such as biodynamic and organic farming, can restore soil health and promote biodiversity, contributing to a more resilient ecosystem while supporting the social and environmental dimensions of sustainability. As such, transitioning to these practices is vital for both environmental stewardship and the long-term productivity of vineyards.

To address the broader dimensions of sustainability, the proposed strategies also encompass cultural and territorial considerations. For instance, promoting local heritage through the marketing of traditional winemaking practices can foster community pride and support regional development. Emphasizing the unique cultural and historical aspects of the Balkan wine industry can enhance consumer connection and loyalty, particularly as global interest in alternative wines like organic, natural, or sustainable wines grows (Baiano, 2021). Integrating transparency and traceability systems also allows consumers to track the origin of products, further supporting responsible consumption and production (Annunziata *et al.*, 2018).

This article proposes a conceptual framework for sustainable development that integrates stakeholder collaboration, technological innovation, and policy reform. By aligning the

interests of producers, policymakers, and consumers, the framework presents a pathway for addressing the multifaceted challenges facing the industry. It also highlights the need for a robust policy infrastructure that incentivizes sustainable practices through subsidies, tax benefits, and grants, ensuring a holistic approach that considers economic viability, social responsibility, environmental stewardship, and the preservation of local heritage and culture (De Steur *et al.*, 2019; Annunziata *et al.*, 2018; Flores, 2018; Santini *et al.*, 2013; Darnall *et al.*, 2010).

5. CONCLUSION

This study provides a comprehensive exploration of the sustainability challenges faced by the Balkan wine industry, offering practical strategies for overcoming these barriers. By grounding the research in qualitative insights from industry professionals, this article expands upon existing theories such as TBL and Stakeholder theory, applying them to a region-specific context. Through a combination of strategic approaches, the industry has the potential to overcome these obstacles and become a leader in sustainable agriculture. Collaboration among stakeholders, green technology adoption, and policy reforms are foundational elements for driving this transformation. Furthermore, implementing circular economy principles, investing in technological innovations, and developing strategies for climate change resilience and regenerative agriculture are essential for fostering both environmental and economic sustainability. By adopting these strategies, the Balkan wine industry can not only reduce its environmental impact but also enhance its competitiveness in the global market.

This research not only enriches the academic discourse on sustainability in the agricultural sector but also provides practical insights for industry practitioners and policymakers aiming to navigate the complexities of sustainable development. Ultimately, this article contributes to a deeper understanding of the unique sustainability challenges faced by the Balkan wine industry and offers actionable strategies for addressing them, highlighting the potential for the sector to serve as a model for sustainable practices in other regions. This article underscores the need for a coordinated effort involving producers, governments, and consumers to create a more resilient and sustainable wine industry in the region. Moving forward, the integration of these innovative practices presents a promising path toward balancing profitability with environmental stewardship and social responsibility.

6. LIMITATIONS AND FUTURE RESEARCH

This study, though insightful, is limited in scope due to the small sample size and its focus on qualitative data. While the findings provide valuable insights, they are specific to the participants and may not fully capture the diversity of experiences within the entire Balkan wine industry. Future research could benefit from a mixed-methods approach, combining qualitative interviews with quantitative analysis to broaden the scope and increase the generalizability of the findings.

Secondly, longitudinal studies examining the long-term effects of the proposed collaborative initiatives and policy reforms on sustainability outcomes would greatly contribute to understanding the efficacy of these strategies over time. Such research could help identify which approaches yield the most significant improvements in sustainability metrics, such as reduced carbon emissions, enhanced biodiversity, and economic resilience. The insights gained from this study serve as a foundation for ongoing discussions on sustainability in the wine sector, offering a roadmap for practitioners and policymakers seeking to navigate the complex landscape of sustainable development in the Balkans.

Additionally, future research could incorporate Multi-Criteria Decision Making (MCDM) frameworks to systematically evaluate the feasibility and impact of various sustainability strategies.

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