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Social Aspects in the Wine Sector: Comparison between Social Life Cycle Assessment and VIVA Sustainable Wine Project Indicators

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Abstract: When examining the triple bottom line approach (TBL) in regard to sustainability, social aspects are the less explored in the context of wine production. This paper analyzes the social sustainability assessment tools available for companies who need to consider their social impacts. For this purpose, we started from the analysis conducted in the work, which was the integration between the territory indicator of VIVA project “Sustainable Wine”, which is the sustainable wine project and social life cycle assessment analysis for the wine sector. In this study, the social life cycle assessment (S-LCA) methodology was compared with the VIVA certification requirements for Italian wine production. The main research objective was to analyze differences and similarities between the two indicator sets for the evaluation of the social aspects related to this sector. Starting from a general introduction to the agri-food and wine sector, we provide an overview of the VIVA project and of the S-LCA for the assessment methodology. Subsequently, we focus on the wine sector and the main players involved, as well as the primary production phases. Finally, we compare the two tools—the S-LCA and the VIVA project—and discuss the main differences between the two instruments and the possibilities for future works to develop the integration of these indicators sets to broaden the analyses of the socioeconomic impacts of the wine sector.

Keywords: social life cycle assessment; wine sector; sustainability; agri-food sector; sustainable wine

1. Introduction

Agriculture is one of the most impactful sectors on the environment and it also the main source of survival for the human race. Indeed, agriculture is at the same time the most responsible and the main victim of the environmental crisis. The agricultural practices, in fact, produce significant volumes of greenhouse gases, which is the main cause of climate change. At the same time, the sector suffers the negative impacts of climate change, in terms of productivity decrease and increased risks related to food safety [1].

In this context, sustainable agriculture can provide an important opportunity for better and more effective management of natural resources.

The interest of policymakers, companies, and the scientific community in the social aspects linked to agriculture has been growing; this attention is due to many social impacts like bad working conditions, exploitation of illegal work, lack of respect for human rights, and other aspects related to environmental impacts and natural resource consumption. To overcome these issues, companies are following a triple bottom line (TBL) approach that attempts to fully meet the objectives that fall within

the three areas of interest of sustainability: economic, environmental, and social. For these reasons, companies are now increasingly orienting their strategies toward the realization of an integrated sustainability strategy.

Firms have numerous tools to limit the environmental impacts of their operations (e.g., impacts indicators, Ecolabel, Life Cycle Assessment, Environmental Management Systems, and the recent Product Environmental Footprint and Organization Environmental Footprint). However, fewer options are available to take into consideration the social impacts of their activity.

Indeed, companies are not only interested in demonstrating their commitment to meeting environmental targets (lower emissions, less exploitation of natural resources, preference in the use of secondary raw materials, reuse practices, etc.) but they are also increasingly interested in meeting the goal of social wellbeing.

In this context, sustainability is progressively gaining importance in the wine sector, leading to the proliferation of initiatives that are aimed at reducing its impact on the environment, society, and the economy. Therefore, the social implications and environmental effects of wine production must be carefully assessed because of the greater attention paid to sustainability practices.

Looking at the agri-food trade worldwide, wine is one of the most globalized products. The growth of its marketing, unlike what occurred with other products in the agri-food sector, has been characterized by a rapid spread worldwide. This spread has led to significant changes in the internationalization of trade flows, as well as to the quantity, quality, and structure of the market, which has enabled the establishment of a much more complex and articulated system at the global level. This internationalization is also due to the entry of new competitors in the market such as the United States, Australia, Argentina, Chile, New Zealand, and South Africa, which are collectively defined as the “new world of wine”. These countries have joined classic producers who typically reside in the European Union, known as the “old world of wine” [2]. These markets have different opportunities for sustainability in the wine sectors, especially considering its social aspects.

The International Organization of Vine and Wine (OIV) reported a resolution on the general principles on sustainable viticulture regarding the environmental, social, economic, and cultural aspects of the sector, “Companies will have to consider the impact of their activities on the socio-economic context and their involvement in the socio-economic development of the territories (or areas)” [3]. The key points of the OIV resolution concern working conditions, integration into the local socioeconomic and cultural environment, and consumer safety and health. In particular, reference is made to the respect, equality, safety, and health of workers; integration, training, and stability of the workforce; cultural specificities; and the development of relationships with wine-producing communities [3].

In this context, the Italian wine sector offers different opportunities for improvement from a social point of view, especially considering that almost every company operating in the wine sector are small-to medium-sized enterprises (SMEs). Further, most of the employees in the agricultural phase are family members [4]. These companies are defined by the European Union as “enterprises that employ fewer than 250 persons and which have an annual turnover not exceeding Euro 50 million and/or an annual balance sheet total not exceeding Euro 43 million” [5]. However, despite company size and strong competition, Italian SMEs wine companies compete well in a highly globalized market. Indeed, Italy is one of the most important wine exporting countries in terms of world production, second only to France [6]. The further peculiarity, regarding the social dimension of the sector, is the characterization of consumers, which plays a key role in this sector, considering the increase in alcohol consumption among the younger sections of the population [7].

With reference to the structure of the wine sector, four main phases can be distinguished: agriculture, transformation, market access, and use [8]. The agricultural phase includes all the operations of working the land and managing the vineyard; all soil preparation actions, the creation of the structures, and the layout of the necessary plants, as well as the operations of pruning, protection, and management of the soil up to the harvest phase. This phase has been found as one of the most impactful on the environment [9,10]. The transformation phase includes all the steps necessary for the

actual production of the wine (recovery of the grapes, preparation of the must, vinification, etc.) up to the actions of storage and bottling. Considering this phase under a life cycle approach, the most impactful activity is the packing one, mostly related to glass bottle production [9].

The next two phases of market access and use include operations such as order collection, product shipping, marketing activities, and operations that follow the end-of-life phase of the product (collection, use, reuse, and recycling) [8]. To help this sector reach a better level of sustainability, eco-labels and certification schemes are powerful tools to ensure compliance with different social sustainability criteria. Even if eco-labels and certification have been found to be helpful to communicate and assure the firm sustainability, some scholars pointed out that they should be guided by a clear and transparent strategy to avoid proliferation and abuse, which would only lead to creating uncertainty among consumers and in the entire wine sector.

Additionally, eco-labels and certifications process must consider how to regulate and supervise the eco-labeled firms after certification [11]. For these reasons, we decided to address the issue of sustainability in the context of the Italian wine sector, with particular reference to the social aspects connected to this sector, starting from the analysis of the VIVA certification and the social life cycle assessment methodology. Therefore, the aim of this paper is to highlight the strategic importance of the social impacts' evaluation in wine production. In this regard, the social life cycle assessment (S-LCA) methodology and the VIVA sustainability project for the Italian wine sector were compared.

The evaluation of the social impacts associated with wine production may be complex as it considers different actors and stakeholders, as well as different stages of production and consumptions. Among the different methodologies available to firms to measure their social impacts the one that best captures the most controversial aspects of the sector is the S-LCA as it allows the "assessment of the negative and positive social impacts that are generated by a product in its entire life cycle and in relation to the different groups of stakeholders involved" [12].

2. Materials and Methods: A Focus on the Sustainability of the Wine Sector

With the aid of Arcese et al. [8] and Acampora et al. [1], this study attempts to evaluate differences and similarities between the proposed S-LCA indicators for the wine sector and the territory indicator developed by the VIVA project. The objective of this study is to identify the socioeconomic impact and consequent inventory indication related to the five stakeholders' categories involved in wine production. The main goal is to enlarge the comprehensiveness of the Arcese et al. [8] and Acampora et al. [1] analyses, which will open up the proposals of private initiatives.

The analysis has employed different typologies of materials for data collection, such as scholars' literature, reports, and protocols. Initially, to identify the current state of academic insight with regard to S-LCA in the wine sector, a review of the existing literature has been carried out. The data required for the analysis have been obtained by the VIVA programs' protocol and by the guidelines and methodological sheets elaborated by United Nations Environment Program (UNEP) and Society of Environmental Toxicology and Chemistry (SETAC). We use the content analysis research method to analyze the data and to report the results.

The following section will introduce the two tools analyzed for accounting and measuring the social impacts of wine production: the SCLA methodology and the VIVA project.

2.1. The SCLA Methodology

Given the lack of a specific reference standard, the S-LCA methodology is based on the international standard ISO 14040–14044, which is related to the environmental LCA (ELCA) [13,14]. The foreseen phases for the realization of an analysis of S-LCA are the same as for ELCA: definition of the objectives and the boundaries of the system, analysis of inventory, evaluation of the impacts, and final interpretation of the results [13,14].

The S-LCA is a tool that specifically captures the social impacts of the production of a good or service, allowing any critical issues to be viewed throughout the product life cycle, to allow targeted

and direct interventions to correct negative social impacts. The S-LCA is an essential tool in the context of sustainable development, in policy choices, and in the implementation of corporate strategies focused on sustainability, in particular on the social dimension.

Social evaluations based on the S-LCA are growing as demonstrated by the increased interest of the scientific community in using this tool, which reinforces the concept that the social component of sustainability is becoming increasingly important [15,16].

The main obstacle in using this methodology is the lack of a specific reference standard. However, for the S-LCA—the guidelines and methodological sheets elaborated by United Nations Environment Program (UNEP) and Society of Environmental Toxicology and Chemistry (SETAC)—have contributed to creating a reference framework in the realization of studies and surveys related to social impacts. These frameworks define the five categories of stakeholders (workers, communities local, society, consumers, and other actors in the value chain) upon which the relative subcategories are defined, as well as the impact subcategories [17,18]. The impact subcategories mainly concern the violation of fundamental rights and provide assessment methods that are mostly applicable to large organizations [19], which relocate their production to countries abroad and whose national regulatory system does not provide appropriate forms of protection and guarantee of high-level social standards [20].

From the Arcese et al. [20] literature review emerges the S-LCA that has been applied to case studies in every type of productive sector [21]. In particular, the S-LCA tool has been applied the most to the agri-food sector. The results from these analyses highlight the areas in which agricultural entrepreneurs or political decision-makers can intervene through the planning and implementation of strategies to improve social well-being [21].

Further studies have applied the S-LCA to other contexts in the agri-food sector including, for example, its application to the cultivation of citrus fruits in the Reggio Calabria area, where qualitative techniques and multi-criteria analysis tools have been combined, facilitating the recognition of local agricultural specialties specificities through the involvement of local experts and stakeholders [22]. Further S-LCA works on the agri-food sector studied the implementation of the evaluation for the sub-categories method (SAM) [23], the evaluation of the positive impacts on the categories of local community stakeholders and workers in the Irish dairy industry [24], the introduction of innovations in the agri-food systems, the evaluation of negative impacts on health and safety, equal opportunities for workers, and the impact of safety and healthy living conditions on the local community [25].

2.2. The “VIVA—Sustainability in Viticulture in Italy” Project

The “VIVA—Sustainability in viticulture in Italy” Project, which went underway in 2011 and has since been promoted by the Ministry of the Environment and the Protection of the Territory and the Sea, aims to control and improve the level of sustainability along the entire supply chain of the Italian wine sector [26].

The project includes an analysis based on four fundamental indicators, chosen on a scientific basis and developed through international standards and industry regulations:

2.2.1. Air

The air indicator expresses the total emissions of greenhouse gases associated, directly or indirectly, to the life cycle of a bottle of wine of 0.75 L, or to the greenhouse emissions (GHG) inventory of the company. The standards considered for the air indicator are the ISO 14067TS (to calculate the product carbon footprint) and the UNI EN ISO 14064 (part 1 for quantification and reduction of greenhouse gases). The purpose of the Carbon Footprint (CFP) is the quantification of GHG emission and removals, through the entire life cycle of a 0.75 L of a bottle, using the environmental life cycle assessment (LCA approach).

2.2.2. Water

The water indicator expresses the total volume of freshwater used in terms of water volumes consumed (evaporated or incorporated into a product) and polluted. The unit of analysis is the life cycle of a 0.75 L of a bottle of wine. The water indicator aims at quantifying the consumption of water produced by a wine firm when carrying out their activities in the vineyard and winery.

2.2.3. Vineyard

The vineyard indicator evaluates a vineyard's agronomic management practices, use of agro-pharmaceuticals, and soil and fertility management. The vineyard indicator is, therefore, divided into six subsections that analyze agronomic practices for vineyard management: defence, fertilization, fertility, compaction, erosion, and landscape. The vineyard indicator is a complex index that connects multiple indicators, calculated in the six subsections, which provide values with different units of measurement. Therefore, the generation of an overall judgment is not simple. To represent a support system in environmental decisions, the evaluation system uses fuzzy logic that categorizes the value "alpha" as fully achieving the objective (max sustainability), and the value "beta" to define not sustainable conditions. Through the defuzzification process, a global fuzzy value is turned into a judgment of sustainability and a value ranging from A to E is assigned. This indicator is based on Directive 2009/128/EC on the sustainable use of pesticides and on the guidelines of the OIV (International Organization for Vine and Wine) contained in the guide CST 1–2008.

2.2.4. Territory

The territory indicator is a socioeconomic indicator, which must be satisfied in order to obtain the VIVA sustainable wine certification. It is composed of 31 conditions that require qualitative information. It is then obtained through a compilation of checklists, which are then verified and validated during audits. The indicator assesses business activity externalities, considering both the environment and the human community (employees, local communities, consumers, and producers). A toolbox kit of qualitative and quantitative indicators measures the impact of the actions taken by the companies. The indicators focus the analysis on biodiversity, landscape, society, and communities, in reference to the economic impact on the territory and on the local community. The guidelines are the "Sustainability Reporting Guidelines GRI G 3.1" and the ISO 26000 standard on Corporate Social Responsibility.

3. Results: Comparison between the Indicators of S-LCA and the VIVA Project

The increased environmental sustainability awareness of wine companies has broadly expanded the initiatives introduced to improve the management of wine production. Merli et al. [9] conducted an analysis of the main environmental problems connected to the wine sector and reviewed the most significant sustainable wine initiatives on the global level. Their result show that no international agreement exists for the sector's definition of sustainability, which is further evidence for the large heterogeneity in the use of indicators, which are still too varied and unharmonized with each other [9].

Indeed, companies, consumers, and institutions are increasingly focusing on the issue of sustainability in the wine sector. All this has led to a progressive increase in the number of projects and initiatives intended to promote and develop sustainability action plans [27–30].

We started from the analysis conducted by Acampora et al. [1], which provided a theoretical basis for practical applications in the wine sector in Italy [1]. This work highlights the VIVA indicators that overlap with environmental life cycle assessment analysis (ELCA) indicators, making it possible to find a potential double counting problem. Starting from this work, we compared the indicators used for S-LCA analysis and those proposed by the VIVA project.

For the definition of the inventory indicators related to the different stakeholder categories involved throughout the entire life cycle, we followed the approach used by di Arcese et al. (2017) [8]:

- (1) Workers: distinguished between full-time and fixed-term workers and between seasonal workers, as well as those with full-time employees characterized by a family relationship;
- (2) Local communities: the wine production activity is strongly linked to the population of the municipalities where it is conducted;
- (3) Actors in the value chain: only those that fall within the stages of agriculture and transformation are considered;
- (4) Society: the analysis considers the local authorities (micro level) and national bodies and associations (macro level) that more or less directly interact with the analyzed system [8].

For the indicators of the VIVA project, we considered the territory indicator, which is composed of 40 conditions. These conditions are subsequently divided into three different sections:

- (1) Biodiversity and landscape (requirements 1–16),
- (2) Society and culture (requirements 17–31), and
- (3) Economics and Ethics (requirements 32–40).

Through the territory indicator, all externalities related to company activity are verified. These externalities not only affect the environment (biodiversity and landscape section) but also the surrounding community, composed of company employees, local communities, consumers, and the producers themselves, as shown within the “society and culture” and “economy and ethics” sections [26].

Therefore, the VIVA certification ensures that companies fulfill the social requirements concerning workers’ protection, safety and health guarantees, an adequate staff training, implementation of different activities to support young people and women, relationships management with the territory’s stakeholder and local residents, attention to health and safety of consumers, as well as clear, uniform, and transparent communication to the public.

Tables 1–3 provide a summary of the requirements for the “society and culture”, “biodiversity and landscape”, and “economy and ethics” sections, as these sections provide data and information strongly connected to the S-LCA study.

Table 1. Biodiversity and landscape section (1–16). Source: Authors’ elaboration on VIVA project data [26].

Requirement Number	Type of Requirement
1	Does the company have evidence of programs/activities aimed at managing the ecosystem?
2	Does the company manage and protect the woods that may be present?
3	Does the company manage the vegetated areas?
4	Does the company have evidence of programs/activities aimed at protecting protected species?
5	Does the company maintain grassing between the fields and roads?
6	Does the company implement the management of surface water bodies?
7	Does the company protect biodiversity by protecting the settlement of insect pollinators (e.g., bees) by encouraging entomophilous pollination?
8	Does the company have evidence of programs/activities aimed at managing the landscape resource?
9	In the construction of new buildings and new roads, does the company always evaluate the visual impact they will have on the landscape?
10	In the design and management of night lighting, do you always evaluate the visual impact that can have on the territory?
11	Are areas for vineyards defined with a careful study?
12	Does the company prevent the abandonment of pre-existing rural infrastructures/buildings by recovering and restructuring them?
13	Are water bodies protected from point source contamination?
14	Does the company pay particular attention to the operators’ training regarding the handling of formulations and residues of agrochemical mixtures in order to avoid point source contaminations?
15	Is the company aware of the environmental impact of the wastewater from the cellar and does it have the relevant mitigation measures and/or implement adequate ecological reuse?
16	The landscape generated by the company activity is recognized as an essential element of new tourism linked to the typicality and environmental and gastronomic excellence, and therefore the company invests in its enhancement?

Table 2. Society and culture section (17–31). Source: Authors’ elaboration on VIVA project data [26].

Requirement Number	Type of Requirement
17	Does the company have policies, programs, or actions to assess and manage the impacts of its activity on the local community?
18	Does the company have programs and/or activities aimed at managing the health and safety of residents and local stakeholders for agrochemical treatments?
19	Does the company have activities aimed at promoting communication and/or comparison with the local community in the field of health and safety?
20	Does the company develop initiatives and/or direct channels with the local community on adverse, controversial, or sensitive issues that involve it?
21	Does the company pay attention to the recruitment methods and working conditions of seasonal workers?
22	Does the company calculate the frequency of occupational accidents for all its employees/workers and monitor its performance over time?
23	Does the company calculate the accident severity index and monitor the trend over time?
24	Does the company conduct occupational health and safety risk analyses?
25	Does the company take measures to mitigate health and safety risks for field workers, in the cellar and at bottling sites?
26	Does the company monitor training hours provided to workers?
27	Does the company monitor over time the percentage of employees hired on permanent contracts compared to the total number of employees, including sub-contract workers, employed in the year under analysis?
28	Does the company check and monitor wine in order to assess the impacts on consumer health and safety?
29	Has the company declared that there have been no cases of non-compliance with regulations and/or voluntary codes concerning the impacts on the health and safety of products in the after-sales phase in the last two years?
30	Has the company declared that there have been no cases of non-compliance with regulations and/or voluntary codes concerning advertising and labeling in the last two years, with particular reference to misleading and/or misleading messages?
31	Has the company implemented initiatives to support the development of the territory and cultural heritage?

Tables 1–3 show that these indicators require a series of qualitative information obtained through the compilation of checklists. These checklists are subject to verifications and subsequent validations completed through audits [26].

Our aim was to highlight similarities and differences between the set of indicators used for the assessment of social impacts through the S-LCA methodology and those contained in the VIVA project. To perform the analysis, we used the framework implemented by Arcese et al. (2017) [8] as a reference point.

Table 4 highlights the impact subcategories that can be assessed both through the indicators in the S-LCA and the VIVA project.

Table 3. Economics and ethics section (32–40). Source: Authors' elaboration on VIVA project data [26].

Requirement Number	Type of Requirement
32	Does the company have a policy and/or practice to prefer people from the local community being hired?
33	Does the company have a policy and/or practice concerning human resources that include ethical elements for their selection and management?
34	Does the company use selection and qualification criteria for the suppliers of services and goods (including grapes and bulk wine, if purchased) based on social and/or environmental services?
35	Does the processing and/or bottling company sign long-term contracts with suppliers of grapes and bulk wine that can guarantee their economic stability and fair prices?
36	Does the processing and/or bottling company define the elements necessary to guarantee the traceability of grapes and bulk wine, and does it require documents?
37	Does the transforming and/or bottling company prefer buying grapes and bulk wine from suppliers belonging to local communities?
38	Does the company support initiatives aimed at promoting the territory by promoting tourism, wine tourism, job creation, and training opportunities with direct and indirect effects on the local community?
39	Does the company invest in infrastructure (not attributable to its ownership/management) and/or public utility services, through commercial commitments, donations of products/services, pro-bono activities?
40	Does the company prefer operations that can strengthen and boost the green economy and the circular economy?

Table 4. Social indicators common to the social life cycle assessment (S-LCA) and VIVA.

Step	Activity	Stakeholder	Impact Subcategory
Agriculture	Supply	Value actor chain	Promoting Corporate Social Responsibility (CSR)
	Vineyard Management	Workers	Working conditions Health and safety Professional growth
		Local community	Access to material Health and safety Local Employment
		Society	Contribution to economic development
Transformation	Production, Storage, and Bottling	Local community	Health and safety transformation
Access to Market	Marketing and selling	Consumers Local community	Transparency Area reputation
Usage	Consumption	Consumers	Health and safety

Table 4 reports on the wine sector, activities, relative stakeholder categories, and impact categories required to identify social impacts. The comparison between these two methods of assessing social impacts highlights the increasing need to consider the effect that this production has on society, workers, local communities, and consumers. We hypothesize that the impact subcategories for which both the S-LCA and VIVA indicators are available have greater and easier data availability. These impact

categories also play a key role in defining corporate strategies aimed at implementing actions for improving company sustainability.

Considering the private nature and greater sustainability extend of the VIVA certification (environmental, economic, and social), some impact subcategories are not considered in the analysis of the company social impact when the winery decides to join the VIVA certification. These categories, however, are considered when an S-LCA analysis is conducted, which allows companies to have a clearer view regarding the social sustainability of their operations.

Additionally, Table 5 outlines another important aspect: many impact categories and subcategories of the different production phases are not considered, even when an S-LCA analysis is performed. In particular, in different phases, there are no S-LCA indicators that contribute to providing a complete picture of the social impacts of each activity. In synthesis, the following results were identified:

- In the agriculture phase (vineyard management activity) there is no S-LCA indicator for the community engagement subcategory relative to the local community stakeholder category.
- In the transformation phase:
 - “Supply” activities, the “fair competition”, “promoting CSR”, and “supplier relationship” indicators do not appear in relation to the stakeholder category “value actor chain”.
 - Activities of “production, storage, and bottling”. For the worker stakeholder category, there are no impact categories for “working conditions”, “fair salary”, and “social benefit”; and for the “society” stakeholder category, there is no impact category for “contribution to economic development”.
- For the “access to market” phase, there are no impact subcategories for the workers and society stakeholder categories, while for marketing and selling activity, there are no subcategories for stakeholders.
- With regard to the usage phase for end of life (EoL) activities, there are no consumer or worker stakeholder categories (the missing impact subcategories are “end of life responsibility”, “working condition”, “fair salary”, “equal opportunities”, “health and safety”, “social benefit”, and “professional growth”).

Table 5. Social impact subcategories and S-LCA indicators.

Step	Activity	Stakeholder	Impact Subcategory	S-LCA
Agriculture	Supply	Value chain actors	Fair competition	X
			Suppliers relationship	X
	Vineyard Management	Workers	Fair salary	X
			Social benefit	X
			Equal opportunities	X
		Local Community	Access to immaterial resources	X
			Delocalization and Migration Community Engagement	X
		Society	Technology Development	X
Transformation	Supply	Value chain actors	Fair competition	
			Promoting CSR Suppliers relationship	
	Production, Storage and Bottling	Workers	Working conditions	
			Fair salary	
			Social benefit	
		Local Community	Equal opportunities	X
			Local Employment	X
		Society	Technology development	X
Access to Market	Managing Costumers Orders	Workers	Contribution to economic development	
			Working conditions	
			Fair salary	
			Professional Growth	
			Equal opportunities	
	Marketing and Selling	Workers	Health and safety	
			Social benefit	
			Professional Growth	
		Consumers	Consumer privacy	X
			Local Employment	X
Usage	End of Life (EoL)	Society	Feedback mechanism	X
			Transparency	X
			Impact on National Economy	X
			End of Life Responsibility	X
		Workers	Working conditions	
			Fair salary	
			Equal opportunities	
		Local Community	Health and safety	
			Social benefit	
			Professional Growth	
		Society	Community Engagement	X
			Public commitment on sustainable issues	X

4. Discussion

Along the entire value chain in the wine sector, the application of the principles of full sustainability requires efforts by many different actors who must work together for effective and correct implementation. From a social perspective, full and constant involvement of public and private actors is necessary to improve these tools in order to expand their comprehensiveness.

Initially, we investigated issues related to the analysis of the Italian wine sector's socioeconomic implications. Then, to analyze and highlight the differences between the two set of indicators, we identified the categories of stakeholders involved in wine production (workers, local community, society, actors of value chain, and consumers) and the related impact subcategories were identified [1,8].

The comparison was performed in relation to the territory indicator of the VIVA certification, which includes the social requirements (from number 1 to number 40) concerning the protection of biodiversity and landscape, workers, safety, and health guarantees; adequate staff training; the implementation of activities to support young people and women; the management of relationships with the territory, residents, and stakeholders; attention to the safety and health of consumers; as well as clear, uniform, and transparent communication to the public. From the analysis, it emerged that with regard to the agricultural phase, for the "workers", "actors of the value chain", "local community", and "society" categories of stakeholders, the impact subcategories common to the two approaches were: "promotion of CSR", "working conditions", "health and safety", "professional growth", "access to material resources", "local employment", and "contribution to economic development". For the transformation phase, the only common impact subcategory was "health and safety" related to the "local community" category. In the last two phases, marketing and sales and consumption, the common subcategories of "transparency", "reputation of the area", and "health and safety" were identified with reference to the stakeholder categories "consumers" and "local community".

The comparison between the two approaches, the VIVA and the S-LCA, revealed that the second tool is more complete and allows for a broader evaluation of the social aspects linked to the vine-wine production chain. Using the S-LCA, the stakeholder categories are excluded when the company complies with the requirements for obtaining the VIVA certification. This may be related to private nature and to the broader extent of the VIVA certification. This certification program aims to evaluate the environmental, social, and economic sustainability of the wine companies. The SCLA methodology mostly focuses on the social aspect, which is more effective in analyzing and accounting for the socioeconomic impacts of the wine companies.

However, even the S-LCA presents some shortcomings as highlighted in Table 5. More impact subcategories should be studied and formulated to allow for a more in-depth and clearer analysis to allow better sustainability interventions and corrective measures. Further analysis in this sector should be aimed at filling this gap. In this way, this tool could become the reference point in academia and in the market to evaluate the social impacts of wine production. This would improve the socioeconomic and social welfare conditions in relation to the wine production phase and related activities.

Additionally, considering this particular sector, the aspects related to social and socioeconomic impacts on consumers in terms of product quality have not yet been addressed. The subcategories currently included mainly refer to the negative impacts and consequences for consumers related to the misuse of the product. However, no subcategories have yet been developed to analyze issues related to consumer experience.

If the various indicators proposed by the complex S-LCA methodology are followed, the evaluation of the negative impacts directly related to the product are scarce.

As Martínez-Blanco [31] suggests, the indicators proposed by the S-LCA do not evaluate the social performance of the product. Of the 189 indicators proposed by the "Methodological Sheets", it seems that only eight refer to a direct evaluation of the product, while the other 127 and 69 refer to organizational and geographical area assessments.

Based on this assumption, the authors argue that an organizational approach to the S-LCA could be simpler than an approach focused on product evaluation.

In conclusion, we can affirm that the integration between the two sets of indicators would be desirable in order to cover a greater number of aspects and to integrate the indicators proposed within the S-LCA methodology with the aim of producing a more complete qualitative analysis of wine production.

5. Conclusions

One of our findings details the exclusion of some impact subcategories from the analysis of social impacts in the S-LCA methodology. This could be the starting point for subsequent analysis to completely evaluate the social implications of the sector. However, from the present work, two further results emerge. First, the S-LCA methodology, despite its fragmented application and suffering from discretion, it plays a key role in assessing social impacts and is the main tool for defining corporate strategies and policy choices that mitigate the negative effects of production. Secondly, the development and implementation of sustainable certification systems, such as the VIVA project, demonstrates the interest of companies and policymakers in the implementation of actions based on sustainability. The VIVA project is just one example of the many certification systems, but it is the most relevant at the national level. As the certification process is structured, the concept of sustainability is no longer perceived by companies and governments as only a reduction in environmental impacts but also as the mitigation and correction of those actions that negatively affect the welfare of the workers and the community as a whole. Finally, an integration between the two sets of indicators would be desirable. Further analyses could explore different programs and initiatives developed by the public and private sector that try to integrate with indicators developed in the S-LCA analysis.

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