

Beyond aroma: A sustainability performance analysis of Italian coffee roasting companies

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Abstract

Coffee consumption is becoming increasingly prevalent among a growing number of consumers worldwide. Despite ranking seventh in coffee consumption, Italy is the global coffee export leader, with almost 1000 coffee roasting companies across the country. As a product subject to increasing interest in sustainability, numerous studies address the economic, social and environmental challenges affecting coffee production. However, only a few evaluate the sustainability performance of roasting companies in consuming countries. This study examines the integration of corporate social responsibility (CSR) in business strategy to provide an overview of sustainability performance among Italian roasting companies. The analysis encompasses 78 sustainability practices across 49 businesses and assesses their communication to stakeholders. Furthermore, factors such as company size and specialty coffee sale were investigated for their influence on sustainability performance. The findings reveal a low commitment to sustainability within the Italian coffee sector, with 83.7% of companies in the first two stages of the five-stage CSR assessment model. Although there is an interest in addressing product safety, quality, and consumer relations, responsible sourcing is often relegated to suppliers or voluntary sustainability standards. Communication is not effective, as more than half of the companies did not provide sustainability information on their websites. In this sample, the commitment to sustainability was directly related to the size of the business, and the same relationship was observed for roasters selling specialty coffees.

KEYWORDS

certifications, coffee, corporate social responsibility (CSR), specialty coffee, stakeholder engagement, sustainable development

1 | INTRODUCTION

This paper contributes to the examination of sustainability practices within the coffee industry, specifically by utilizing a model that evaluates the corporate social responsibility (CSR) to assess the

performance of Italian coffee roasting companies. In the contemporary coffee business environment, organizations are confronted with a complex interplay between economic imperatives and multifaceted responsibilities to stakeholders, which encompass complex environmental issues, social inequalities, and ethical concerns (Bradley &

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Botchway, 2018). The focus on sustainability challenges within the coffee supply chain has been a relatively long-standing issue compared to other agro-food chains (Giovannucci & Ponte, 2005; Reinecke et al., 2012). To influence the perception of stakeholders scrutinizing coffee roasters' conduct, sustainability reporting and transparent disclosure of CSR serve as fundamental tools for ensuring accountability (Bradley & Botchway, 2018). A comprehensive understanding of the contemporary coffee sector, including the sustainability challenges faced by producing countries and the governance instruments employed by roasting companies, is essential to contextualize the work.

Every day, approximately 3.1 billion cups of coffee are consumed worldwide. According to projections, a steady increase in consumption would lead to a demand of 3.8 billion cups of coffee per day (Area Studi Mediobanca, 2023). The beans required by the coffee sector are cultivated in 12.5 million farms by 25 million mostly small-scale farmers located in the area that lies between the Tropics of Cancer and Capricorn (Franca & Oliveira, 2019; Panhuysen & Pierrot, 2020; Samper et al., 2017). In Europe and the United States, where 50.4% of global coffee consumption occurs and the top 10 roasters process 35% of the world's coffee, companies generated a business turnover of \$55 billion in 2019 (Area Studi Mediobanca, 2023; ICO, 2020). Nevertheless, it is estimated that less than 10% of the revenues generated by the coffee retail market are retained in exporting countries, which face numerous sustainability challenges, not only of an economic nature (Panhuysen & Pierrot, 2020). Considering the increasing demand for coffee and its considerable global market value exceeding USD 200 billion (ICO, 2020), the coffee industry operates as a buyer-driven commodity supply chain, despite holding substantial economic potential for both growers and other participants in the downstream value chain (Ponte, 2002; Sachs et al., 2019). Coffee roasters, retailers, and cafés do not sell the coffee as a tangible product; rather, they market a symbolic quality that corresponds with the entire service. This phenomenon is called the “coffee paradox” (Daviron & Ponte, 2005). However, coffee growers are unable to control this intangible aspect and remain entangled in a market where coffee is treated as a commodity. In particular, the price of coffee is determined by the New York and London commodity exchanges, commonly referred to as the “C-market” (International Trade Centre, 2021; Utrilla-Catalan et al., 2022).

The CSR framework implies that companies within the coffee sector are responsible for addressing sustainability issues. Their commitment is demonstrated through sustainability initiatives (or practices), which have been defined as “initiatives implemented in or developed within a socio-ecological system, aiming to create beneficial social, economic, and environmental impacts within that system” (Wright et al., 2024). These initiatives are measured and legitimized using sustainability indicators (Bradley & Botchway, 2018). Currently, the coffee production chain is confronting challenges that impact all three sustainability pillars (Barreto Peixoto et al., 2023). Inadequate profits gained by producers give rise to economic issues, which directly affect their capacity to provide their families with appropriate nutrition, clean water, education, and healthcare, all of which fall within the

social domain. Furthermore, these insufficient earnings hinder the capacity to invest in good agricultural practices that assure biodiversity preservation and forest conservation, fundamental elements of the environmental pillar (Samper & Quiñones-Ruiz, 2017).

According to their size, coffee roasters employ various governance mechanisms to tackle sustainability concerns and adhere to the principles of sustainable development. These strategies include adopting codes of conduct, purchasing coffee directly from producers, and embracing certification schemes, among other approaches, to address the challenges affecting green coffee cultivation (Bager & Lambin, 2020; ICO, 2020). Furthermore, roasters can engage in sustainability reporting and disclose their non-financial (environmental and social) performance, often referred to as “CSR performance.” Roasters can voluntarily disclose the environmental, social and governance (ESG) initiatives they have implemented in annual sustainability reports. These reports may be written in accordance with the sustainability indicators proposed by the standards established by the Global Reporting Initiative (GRI) (<https://www.globalreporting.org/standards/>) or the Sustainability Accounting Standards Board (SASB) (Sustainability Accounting Standards Board, 2023), and are made accessible on the companies' websites (Bradley & Botchway, 2018; Samper & Quiñones-Ruiz, 2017). The disclosure of ESG indicators should be comprehensive, incorporating practices implemented in support of the three sustainability dimensions within the operational scope of the roasting company and the wider community in which it operates, as well as throughout the entirety of the coffee value chain. The stakeholder theory affirms that businesses adopt strategies to address sustainability concerns in response to demands from stakeholders, including consumers (Bager & Lambin, 2020; Iannone & Caruso, 2023). In particular, in Western economies, coffee consumers are increasingly interested in working conditions of farmers and sustainability information linked to the coffee beans they purchase (Samoggia & Riedel, 2018; Tosun, 2022).

Recognizing the essential commitment to sustainability, in recent years there has been a rapid growth of literature investigating sustainability governance in the coffee sector. Some authors have examined the sustainability efforts of individual producer, trader, roaster, processor and/or café within the global coffee sector (Bager & Lambin, 2020), of roasters in specific nations and historical contexts (Iannone & Caruso, 2023, focusing on Italy during the COVID-19) or industry associations (such as the “British Coffee Association”, analyzed by Bradley & Botchway, 2018). In this context, other authors have studied sustainability initiatives in the coffee sector involving governments in conjunction with non-state, market-driven governance mechanisms led by non-governmental organizations (NGOs), multilateral organizations, and development specialists (Grabs, 2017, 2020; Grabs & Ponte, 2019; Samper & Quiñones-Ruiz, 2017). These two research topics are closely related, as industry actors may adopt initiatives developed by NGOs and certification organizations as part of their CSR strategy. While previous literature has discussed sustainability challenges and communication in the coffee industry, to the best of our knowledge no study has evaluated the sustainability performance of roasting companies utilizing a set of sustainability

indicators tailored to the coffee sector. Recognizing the mostly voluntary nature of accountability practices, it is crucial for companies in the coffee roasting sector to be informed of their sustainability performance. Sustainability indicators convert information about the state of CSR activities into measurable performance metrics, thereby legitimizing the sustainability initiatives undertaken by roasters (Bradley & Botchway, 2018). This evaluation is particularly significant in Italy, a country that plays a prominent role in the global coffee roasting industry. Italy is the global leader in the quantity of roasted coffee exported (5 million 60-kg bags) and ranks seventh in coffee consumption (95 million cups consumed per day) (Area Studi Mediobanca, 2023). The Italian roasting sector comprises 1000 companies generating €4.5 billion in 2021, with two businesses that account for 4.1% of global coffee roasting, but only 49 players with a turnover of more than €10 million (Area Studi Mediobanca, 2023; Muraca, 2022). Given the sector's fragmented nature and global relevance, this study analyses the sustainability achievements and communication efforts of a representative panel of Italian roasters, reflecting the average size of firms within the industry. Specifically, this work assessed the sustainability performance of the Italian coffee sector by evaluating 78 sustainability practices relevant to the challenges faced by the sector in importing countries, including sustainability procurement. The model developed by Professor M. Molteni (Molteni, 2012) was subsequently applied to evaluate the level of integration of CSR in the business strategy, categorizing companies from an "informal" phase, characterized by non-formalized socio-environmental initiatives, to a "dominant" stage, where sustainability becomes the cornerstone of all business activities. The Molteni model has been previously used to assess the sustainability performance of other Italian food supply chains, including olive oil (Gubelli et al., 2021), meat and cured meat (Caccialanza et al., 2023; Gubelli, Sartori, et al., 2022), and wine (Bertorelli et al., 2023; Gubelli, Bramanti, et al., 2022).

The objective of this study is to assess the sustainability performance of 49 companies in the Italian coffee sector using the Molteni Model (Molteni, 2012). The research addressed the following questions:

RQ1. What are the most frequently implemented sustainability measures by Italian coffee roasters?

RQ2. Do Italian coffee roasters effectively communicate their sustainability initiatives?

RQ3. Do specific company characteristics (size and sale of specialty coffee) influence the sustainability performance of coffee roasters?

This study makes significant contributions to the field of sustainability in the coffee sector by providing an overview of the sustainability performance of the Italian coffee roasting sector. The analysis addresses a challenge identified by Bager and Lambin (2020), specifically the lack of resources among small companies to maintain

websites and produce annual sustainability reports. Our approach is based on data collected directly from coffee roasters through a questionnaire, which reduces the reliance on the accuracy of companies' self-reported sustainability efforts. Consequently, this study has been able to include small companies, which constitute the majority of Italian roasters. Furthermore, the specificity of the sustainability indicators and their division into macro-areas pertaining to the social, environmental and economic pillars enable a detailed assessment, allowing the identification of specific areas for improvement.

2 | LITERATURE REVIEW

This section presents a review of the pertinent background information. It begins by outlining the sustainability challenges currently facing the coffee sector, employing the triple bottom line serving as a guiding framework. Subsequently, relevant literature discussing how coffee roasters address sustainability issues is introduced, including a review of recent European legislative obligations. The two corresponding paragraphs constituted the theoretical foundation for the identification of specific sustainability indicators on the coffee supply chain. In conclusion, an investigation of the relationship between company size and specialty coffee sales and their possible influence on corporate sustainability is presented.

Despite the extensive existing literature on sustainability concerns in coffee-producing countries, a research gap remains in the evaluation of the practical actions that roasters are implementing to address sustainability challenges affecting both coffee-producing and importing countries.

2.1 | Sustainability concerns in coffee production countries

Many authors trace the worsening conditions of coffee farmers to the abolition of the economic clauses established by the "International Coffee Agreement" (1962–1989) (Bager & Lambin, 2020; Grabs, 2017; Rubio-Jovel, 2022; Samper et al., 2017). This Agreement was successful in maintaining prices within a reasonable range by aligning coffee production and consumption and enforcing a quota system that involved withdrawing surpluses from the market (Grabs, 2020).

Currently, the price of coffee varies daily due to demand and supply, as well as climate disruptions, speculative actions, and currency fluctuations. As previously reported, prices for standardized coffee qualities are determined by the New York and London commodity exchanges (Grabs, 2017; International Trade Centre, 2021), which historically exhibit volatility, undermining the economic sustainability of growers. Moreover, 70% of coffee harvesting and processing is conducted by small producers, their families, and agricultural workers who are not equipped to cope with these price fluctuations (Panhuysen & Pierrot, 2014).

Cordes et al. (2021) established a connection between responsible coffee sourcing and the "living income", which is the income

required to maintain a decent standard of living in a specific place. The analysis of 10 coffee-producing countries (representing 87% of global coffee production) revealed that in eight out of 10 countries, the average income from coffee sales is at or below the poverty threshold.

These insufficient earnings exacerbate the environmental sustainability challenges confronting coffee farmers. These include the spread of coffee diseases, rising fertilizer costs—especially following the Ukrainian conflict (Centre for the Promotion of Imports from developing countries (CBI), 2022), and limited access to capital and affordable insurance that could facilitate investment in more sustainable cultivation practices. Extreme poverty in the coffee production sector affects 25 million smallholder producers globally, as well as an estimated 100 million seasonal workers involved in the harvesting and processing of green coffee (Panhuysen & Pierrot, 2018). The lack of economic sustainability inevitably affects social sustainability, as coffee producers and agricultural workers experience seasonal hunger during the months without income the sale of green coffee (Panhuysen & Pierrot, 2020; Sachs et al., 2019).

Considering the aforementioned sustainability issues in the context of Sustainable Development Goals (SDGs), it is evident that several goals have not been accomplished with the current distribution of earnings. These unfulfilled goals include SDG 1, “End Poverty”; SDG 2, “Zero Hunger”; SDG 3, “Good Health and Well-being”; SDG 8, “Decent Work and Economic Growth”; SDG 10, “Reduced Inequalities”.

Coffee production has traditionally been associated with male labor, but it is now recognized that women play a crucial role in numerous activities, including weeding, harvesting, and post-harvest processing. The International Coffee Organization (ICO, 2018) reports that 20%–30% of coffee businesses are female-led, despite them contributing up to 70% of labor in coffee production. However, female coffee producers face limited access to resources, land, financing, and the required knowledge to generate higher profits and establish market contacts to sell their products. This gender disparity hinders coffee cultivation from achieving SDG 5, “Gender Equality.” Providing women with technical training related to cultivation, processing, and marketing of coffee becomes essential to promote gender equality in coffee production (International Trade Centre, 2021; Panhuysen & Pierrot, 2018).

Significant social issues persist in the coffee supply chain. The 2022 report of the United States Department of Labor identified 17 coffee-producing countries where child and forced labor occur, ranking fourth in a list of goods produced with human rights violations (United States Department of Labour, 2022). Child labor has a detrimental impact on their current well-being and learning opportunities, as well as limiting their future prospects and earning potential (ILO, 1999). This initiates a vicious cycle where families in poverty conditions send their children to work on coffee plantations.

Consequently, children are not educated and are forced into low-productivity, low-income occupations, becoming trapped in a cycle of poverty that affects multiple generations (International Trade Centre, 2021; Panhuysen & Pierrot, 2020).

The climate emergency exacerbates economic inequality and harsh working conditions in coffee plantations. According to the Intergovernmental Panel on Climate Change (IPCC), mitigating global warming requires the implementation of climate change adaptation programs and social safeguarding measures for regions and populations that are most vulnerable to climate hazards, including coffee producers (IPCC, 2023).

Climate adaptation is crucial for the coffee sector, notably for Arabica coffee. *Coffea arabica* grows at higher altitudes (700 to 2200 m above sea level) compared to Robusta (up to 1600 m above sea level) and thrives in milder temperatures (16–24 °C) compared to *Coffea canephora* (21–30 °C). Arabica exhibits high sensitivity to temperature shifts, precipitation variations, soil quality, and off-season frost (Ahmed et al., 2021; Bianco, 2020). Grüter et al. (2022) have projected a 50% reduction in current coffee cultivation areas by 2050 due to climate change. The most significant impact is expected in current major coffee-producing regions, while future suitability is predicted to increase at higher altitudes or on the latitudinal borders of coffee growth zones.

To ensure the long-term viability of coffee cultivation, it is essential to implement climate change adaptation strategies. These include the adoption of proper shade and nutrient management techniques, the cultivation of climate-resistant coffee varieties and the development of resilient agroforestry systems (Bianco, 2020; Bilen et al., 2022). To effectively address climate change, agricultural practices must be combined with enhanced access to financial services and insurance products to mitigate the impact of adverse weather events (Noponen et al., 2017). Such adaptation efforts require a comprehensive approach that encompasses not only environmental sustainability, but also the economic and social spheres, demonstrating that all three sustainability pillars must coexist.

2.2 | Coffee roasters' strategies to address sustainability

As highlighted in the previous section, coffee farming raises several critical issues from an economic, environmental and social perspective. Within this context, coffee roasters play a pivotal role within the supply chain, serving as the bridge between producers and distributors, as well as consumers who are increasingly concerned about sustainability. Surveys of European (European Commission, 2020a, 2020b) and Italian consumers (Rapporto Coop, 2022) indicate growing demand for ethically and sustainably produced food products. Roasters, therefore, face the dual challenge of meeting these sustainability expectations while navigating complex purchasing decisions that balance availability, quality, and cost. In this paragraph, two strategies for addressing sustainability are presented, according to Bager and Lambin (2020): a “hands-on” approach, where roasters target specific sustainability challenges within their company and value chain, and a “hands-off” approach, where the company's sustainability efforts are defined by external sustainability standards.

Weber et al. (2019) identified virtuous examples of ‘hands-on’ strategies in the coffee sector. An innovative solution to share

benefits and risks of coffee cultivation among producers and consumers is a “community-supported agriculture scheme”, through which consumers finance the next year production instead of paying for the final product (Weber et al., 2021). In order to reduce greenhouse gas emissions (GHG) from transportation, a German roaster has implemented a renewable energy strategy for long-distance transport, using cargo sailboats and bicycles to transport both green and roasted coffee (Weber et al., 2019). Furthermore, an American cold brewing company opted to buy roasted coffee beans from the near Mexico instead of green coffee from Ethiopia, reducing transport emissions and adding value in the country of origin. This collaboration resulted in direct international trade, enabling investment in reforestation projects in the country of coffee production, thereby offsetting GHG emissions and facilitating insights into the conditions of coffee farmers and workers, which could then be conveyed to consumers (Weber & Wiek, 2021). These three entrepreneurial approaches, which entail direct trade or contact with coffee producers, have been implemented in small and medium-sized enterprises with flexible decision structures to address social and environmental sustainability issues (Weber et al., 2019). When direct international trade of coffee is challenging to implement, traders frequently assume a pivotal role as and lead intermediaries for coffee roasters in the promotion of sustainable coffee production. Grabs (2020) observed that, among other sustainability activities, a range of traders have implemented internal policies to protect forest, ecosystems, and human rights in response to supplier codes of conduct from their buyers, including roasters. Although there is a significantly higher environmental impact associated with the upstream coffee chain, in particular the cultivation and transportation of green beans, the industrial process of coffee roasting remains the primary contributor to the carbon footprint within a roasting company (Furfori et al., 2014; Giraldi-Díaz et al., 2018; Quack et al., 2008). Preheating green beans using waste heat from the previous roasting process enables the reduction of natural gas consumption and of roasting time (Kljajić et al., 2016). The European Commission's Joint Research Centre has identified green coffee preheating as a best environmental management practice, facilitating a reduction in the environmental footprint of food and beverage manufacturers across the entire value chain (Dri et al., 2018).

Indirect (‘hands-off’) sustainability strategies can be classified into two categories: voluntary and mandatory. Voluntary sustainability strategies encompass the adoption by coffee roasters of corporate codes of conduct, sustainability reporting, and sustainable purchasing requirements through supplier codes of conduct and voluntary sustainability standards (VSS) (Panhuysen & De Vries, 2023). In the coffee sector, several VSS are in place, including Organic, Fairtrade, 4C (The Common Code for the Coffee Community), Rainforest Alliance (merged with UTZ since 2018), and two private standards: C.A.F.E. Practices (Coffee and Farmer Equity Practices by Starbucks) and Nespresso A.A.A. (Panhuysen & Pierrot, 2014, 2018, 2020). In contrast to voluntary strategies that entail the roasting companies' internal adoption of documents, wherein the process for identifying sustainability risks and implementing preventive measures is not always transparent, certifications need audits to ensure

compliance (Panhuysen & De Vries, 2023; Rubio-Jovel et al., 2023). The coffee sector is experiencing an oversupply of VSS-compliant beans, with only 12% to 65% of VSS-compliant coffee production sold as certified in the period 2008–2019 (Bermudez et al., 2022). Despite a strong commitment in the scientific community to investigate the impact of VSS on coffee production, results are not consistent. While the environment may benefit from VSS implementation, concerns related to education and child labor, gender equality, higher production yields, working and living conditions of producers and farmworkers, and green coffee prices remain unresolved (Barreto Peixoto et al., 2023). Moreover, in recent years, coffee traders have shifted toward establishing their own sustainability programs as potential alternatives or complements to third-party certifications and private standards aimed at ensuring sustainability. These programs differentiate from the previously mentioned implementation of supplier codes of conduct by roasters, which are designed to maintain business relations with roasters. Instead, they encompass training activities to enhance productivity, the provision of credit and input, and the collection of data and traceability information at the farm level, in a logic of empowerment rather than compliance with a code (Grabs & Carodenuto, 2021). Coffee roasters may purchase coffee produced under these empowerment programs by traders, thereby implementing an “indirect” sustainability strategy. The assessment of the evolution of farms before and after the implementation of a VSS or other buyer-led empowerment program is challenging due to the lack of standardized evaluation methods. Despite several efforts by the Committee on Sustainability Assessment (COSA) and by the International Social and Environmental Accreditation and Labeling (ISEAL) association to facilitate the evaluation of the impact of different standards, a consistent number of studies employing these methodologies is still lacking (Barreto Peixoto et al., 2023).

Mandatory sustainability strategies are directly related to regulatory requirements. Under the umbrella of the European Green Deal, the coffee sector has been subjected to the Regulation on deforestation-free products (EU, 2023) since June 2023. This regulation requires that operators (including roasters) or traders who sell coffee within or from the EU maintain a due diligence system, including the assurance that beans did not originate from recently deforested land or contributed to forest degradation. While other EU legislations are not specific to the coffee sector, they will nevertheless impact the sector, including roasters. The Corporate Sustainability Reporting Directive (CSRD) (EU, 2022) came into effect in January 2023, mandating that all large companies and all listed companies (except listed micro-enterprises) disclose information about the risks and opportunities related to social and environmental issues, and the impact of their activities on people and the environment. The Corporate Sustainability Due Diligence Directive and the Forced Labor Regulation are not yet in force. Nonetheless, they respectively establish mandatory requirements for human rights and environmental due diligence for companies and prohibit the introduction and distribution of products manufactured through forced labor within the EU market (Panhuysen & De Vries, 2023).

2.3 | How company size and specialty coffee sales could influence sustainability governance

Company size is a factor that may affect sustainability management and reporting. Hörisch et al. (2015) identified a major engagement of large companies in sustainability as a consequence of their access to knowledge and information on the advances of sustainability management tools. Panhuysen and De Vries (2023) observed that the sustainability strategies of coffee companies exhibit a different level of maturity, contingent upon their size, available resources and financial drivers, stakeholder interests and corporate culture. Drempetic et al. (2020) attributed the positive correlation between company size and CSR disclosure to both internal (i.e., larger firms have more resources for sustainability management) and external characteristics (i.e., larger companies are requested to disclose more information to gain legitimacy). Furthermore, Hahn and Kühnen (2013) demonstrated that company size is the only internal factor that exerts a positive influence on sustainability reporting.

Sustainability commitments and their legitimization through sustainability reporting cannot be disregarded by an efficient traceability system. The necessity for food that is not only safe, but also ethical and respectful of the environment requires a traceability system capable of ensuring the reliability of sustainability claims (León-Bravo et al., 2022). The specialty coffee sector, which has led to the implementation of more direct sourcing initiatives, can promote traceability and quality by providing a management approach for some sustainability issues (Panhuysen & Pierrot, 2018).

The specialty coffee movement originated in the 1970s, when consumers began to demand more than a “generic” cup of coffee, seeking quality and transparency in their purchases (International Trade Centre, 2021). These new demands led to the founding of the Specialty Coffee Association of America (SCAA) in 1982, with the aim of establishing common quality standards for the sale of ‘specialty’ coffees. In 2017, the Specialty Coffee Association (SCA) was established as a result of the merger of the American and European (founded in London in 1998) Associations (Specialty Coffee Association [SCA], 2024).

The most commonly used technical definition of “Specialty coffee” refers to the cupping score, which must be above 80 on a 100-points scale, and to a very low number of defects in the green coffee (Vezzulli et al., 2022). In 2021, the SCA provided a broader definition: “a coffee or coffee experience recognized for its distinctive [material and symbolic] attributes, and because of these attributes, has significant extra value in the marketplace” (Specialty Coffee Association, 2021). In accordance with the Specialty Coffee Association's sustainability-driven purpose of equitable distribution of value within the coffee chain, the specialty industry has become associated with “sustainable coffee” (Ponte, 2004; Specialty Coffee Association, 2024). However, the designation of coffee as ‘specialty’ does not inherently require a commitment to sustainability (Ponte, 2004), despite the SCA's focus on sustainability and the publication of reports and white papers on the topic. Specialty coffee is deemed sustainable when certified or compliant with private standards

(International Trade Centre, 2021). In 2019, an analysis of 30,067 contracts over three harvest years (October 2016–September 2019) revealed that the preponderance of certified contracts was both Organic and Fairtrade, but 75% of total contracts were not certified (Specialty Coffee Association, 2020). Nevertheless, the specialty industry maintains full traceability and a propensity to market the story behind the coffee, often deriving from direct knowledge of the supplier (International Trade Centre, 2021; Ponte, 2002). As previously reported, a traceability system serves as a precursor to sustainability, encompassing aspects such as quality, safety, ethics, and respect for both people and the environment (León-Bravo et al., 2022).

3 | MATERIALS AND METHODS

3.1 | The panel

The Italian coffee sector is composed by a few large corporations and a large majority of small and medium-sized enterprises (SMEs) (Muraca, 2022), classified according to European Commission's size criteria (EC, 2020a, 2020b). The unlisted SMEs do not exceed the size thresholds specified in the current legislation framework (EU, 2022), which would require them to prepare a non-financial statement. In addition, the websites of Italian coffee companies lacked the necessary information to evaluate the sector's sustainability performance. For these reasons, a questionnaire was considered a more suitable methodology than that employed by other authors (Bager & Lambin, 2020; Bertorelli et al., 2023; Bradley & Botchway, 2018; Caccialanza et al., 2023), who conducted sustainability analyses of different food sectors or geographical areas via sustainability reports and company websites.

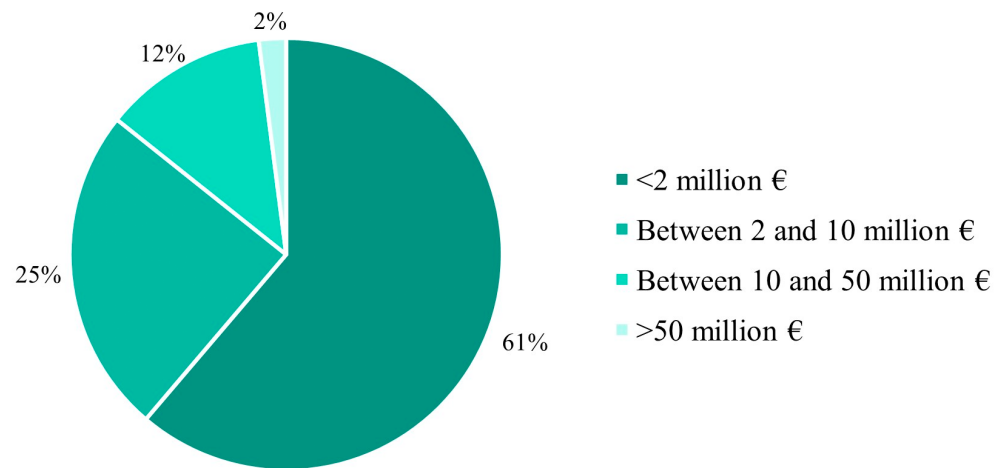
Sustainability performance data were collected through a questionnaire distributed to companies listed in the ‘beverfood.com edizioni’ database, which contains contact information for the Italian coffee and drinks industry. A total of 952 companies were contacted through email communication, which included a detailed research description and a link to a “Google Form” questionnaire (Questionnaire S1). In response to this outreach, 49 coffee roasteries participated by completing the questionnaire.

Figure 1 represents the breakdown of the 49 companies in the sample by revenue classes, with a clear predominance (61.2%) of micro-enterprises (revenue <2 million €), which is representative of the sector, primarily composed of small-sized businesses.

3.2 | Coding of companies' sustainability characteristics

The analysis draws on research conducted in the meat and cured meat sector (Caccialanza et al., 2023). The model consists of two main sections: the general section examines the approach to sustainability, exploring the topics of “Reporting and Communication” and

FIGURE 1 Breakdown of the roasting companies in the panel according to their turnover.



“Strategy”, often supported by communication tools like sustainability reports and corporate websites (Molteni, 2012). The thematic section evaluates the sustainability practices implemented by companies, identified by considering pertinent ESG criteria within the coffee supply chain, as discussed in the aforementioned scientific literature. Furthermore, internationally recognized GRI standards (Global Sustainability Standards Board, 2023), materiality matrices published by the top 10 roasters in terms of volume and revenue (Panhuysen & Pierrot, 2020), and the “Sustainability Toolkit” (Coffee Roasters Guild, 2022) developed by the Coffee Roasters Guild (an entity of the Specialty Coffee Association), were used as references for the identification of sustainability practices.

Additionally, two scientific papers were referenced for their examination of sustainability practices within the coffee value chain. The first study, conducted by Bradley and Botchway (2018), focused on the identification of sustainability indicators used by 10 members of the British Coffee Association in their reporting. This investigation revealed 94 distinct sustainability indicators relevant for the coffee sector. In the second study, Bager and Lambin (2020) analyzed the sustainability commitment of a sample of 513 companies representing the entire coffee supply chain, from producers to coffee shops. The researchers used website communications to analyze the companies' sustainability practices employing a binary rating system that categorized 21 environmental sustainability practices, 12 socio-economic practices, and eight certifications as either present or absent.

As a result, the general section was investigated under the “Reporting and strategy” domain, while the thematic section included 13 material topics, grouped in six macro-areas (Figure 2). The questionnaire was developed associating each material topic to a variable number of questions, each denoting a sustainability practice (Table S2). These 78 practices comprise both cross-cutting sustainability initiatives, such as reducing energy consumption through efficiency measures, and coffee roasting-specific practices, such as the level of traceability of green coffee. Binary scores (3/0) were employed for questions that required the presence or absence of a particular document or practice, while the entire scale of 0–3 was used for open-ended questions and for specific management procedures (Table S2).

Open-ended questions were included to enable coffee roasters to highlight practices that may not have been covered by the closed-ended questions. Responses in the questionnaire pertaining to future plans, such as “Drafting in progress”, or “Scheduled for the next three years (2023-2025)”, have been categorized as ‘absent’ and received 0 points. These answers were not used for the scope of this work, but they were evaluated to investigate the future sustainability of Italian coffee roasters. The score range has been expanded from a range of 0–3 to 0–6 for significant practices (Table S2).

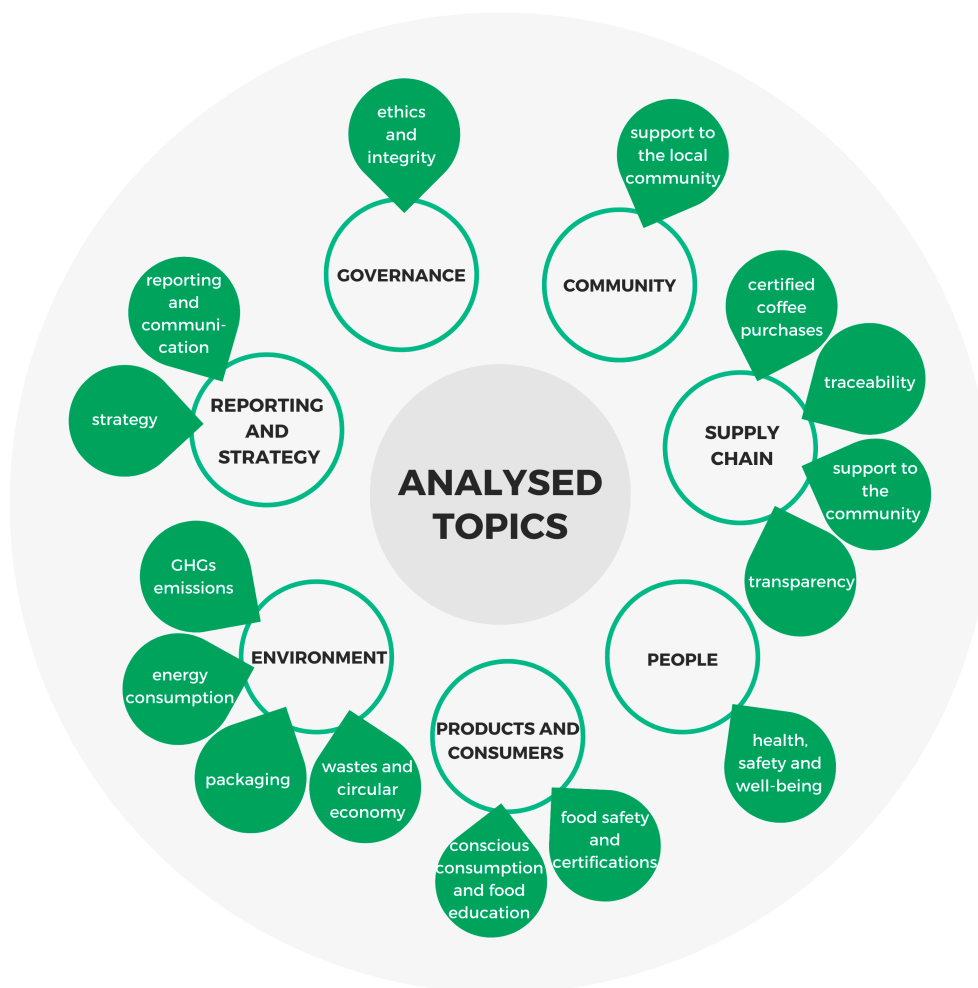
Considering the variable number of questions in each section, a predetermined weight to each section and macro-area was assigned (Table S2). More significance was attributed to the aspects of the thematic section, constituting 75% of the overall score, while the general section accounted for the remaining 25%. The weighting was determined considering that over half of the included businesses are micro-small enterprises that allocate fewer resources toward providing ESG data (Drempetic et al., 2020). The final score, expressed as percentage of the maximum score, was then associated with one of the stages of sustainability evolution identified by the model proposed by Molteni (2012): informal, current, systematic, innovative and dominant.

3.3 | Data analysis

An analysis of descriptive statistics related to the number and type of sustainability initiatives adopted by each company was performed. The final score was used to categorize companies in Molteni stages (Table S3 and Figure 3). The data presented in Table S4, pertaining to the companies at various Molteni stages and throughout the entire panel, were expressed as percentages of the maximum score for each indicator or macro-area, as explained in Supporting Information S4. This permits comparison on a consistent scale of 0% to 100%.

To evaluate whether significant differences in scores were present between companies of different size and purchasing or not Specialty coffees (Table S5), nonparametric Mann–Whitney *U* test was carried out using IBM SPSS statistics (ver. 29, Inc., Chicago, IL, USA).

FIGURE 2 Material topics included in this study, grouped in the corresponding macro-areas.



4 | RESULTS AND DISCUSSION

4.1 | The stages of CSR development in Italian coffee roasting companies

Based on the methodology described in the previous section, the 49 companies in the panel were classified according to the stages of the Molteni (2012) model (Figure 3). The approach and practices adopted by roasters at different stages are discussed, aligning with the characteristics of each class as described by Molteni (2012). All data presented in the following paragraphs are retrieved from Table S4.

4.1.1 | Informal approach

The 'informal' stage comprises companies that achieved $\leq 20\%$ of the maximum overall score. Of the total sample, 19 coffee roasteries (38.8% of the total) have pursued sustainability initiatives that were not formally documented. Material issues are often addressed in an unstructured manner and, consequently, none of the companies officialised their socio-environmental commitment by establishing

improvement objectives in a plan. Sustainability considerations within the supply chain are primarily focused on voluntary certifications. Specifically, 47.4% of companies declared purchasing Organic coffee, while 84.2% of informal companies demonstrated their commitment to promoting the sensory qualities of their products through web channels or packaging.

In this context, the challenge is to advance toward more conscientious sustainability practices and communicate them effectively, extending beyond mere compliance with mandatory regulations (Molteni, 2012).

4.1.2 | Current approach

In the 'current' class, companies achieved an overall weighted score of more than 20% but equal to or less than 40% of the maximum. Only one out of the 22 coffee roasters produced a report that, however, did not comply with any sustainability standard. At this stage, 40.9% of companies adopted the code of ethics and the majority declared implementation of policies concerning quality, procurement of raw material, and occupational health and safety of workers. The presence of certifications is notably significant, encompassing both

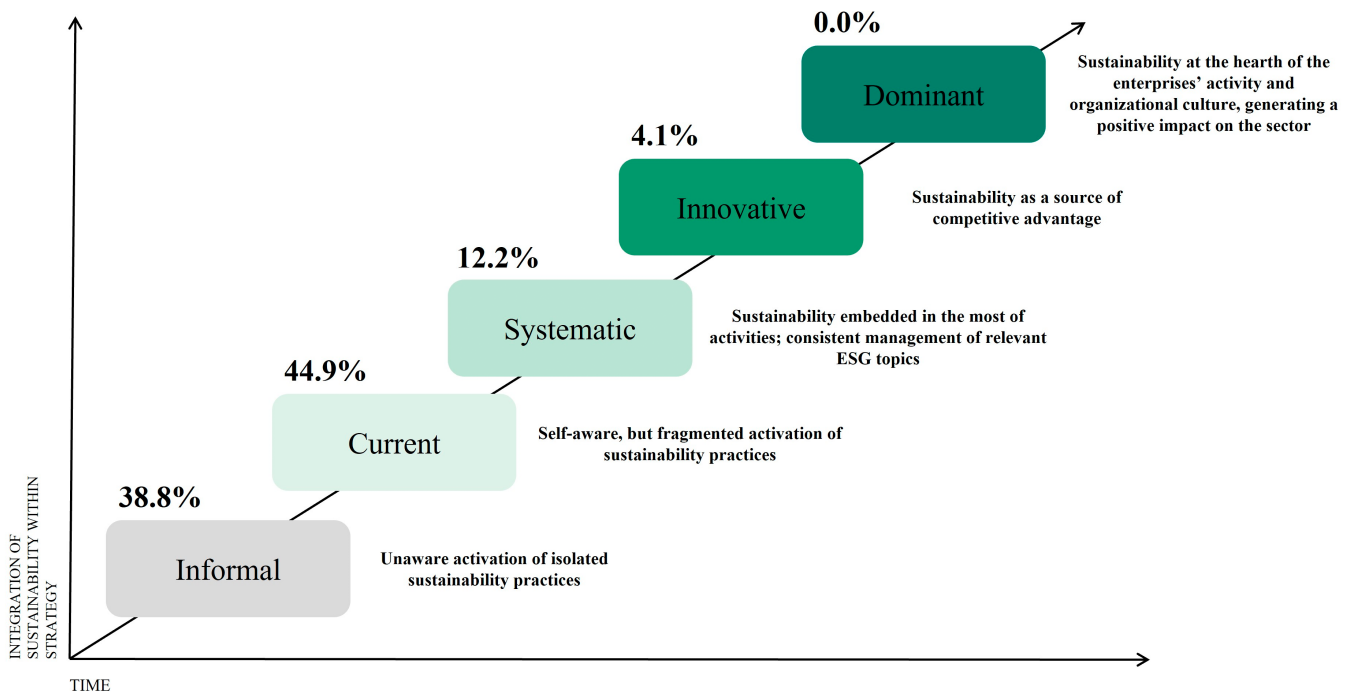


FIGURE 3 Firm's positioning according to the Molteni model (% of companies on the overall sample).

process-oriented ones (such as ISO 9001, held by over half of the companies) and product-oriented ones, particularly for 'Organic' (59.1%), but also including "Fairtrade" (22.7%) and "Rainforest Alliance" (27.3%).

Molteni (2012) described this phase as a transitional period, during which ownership has recognized the importance of monitoring to integrate sustainable practices into their operations. The subsequent stage involves the creation of a strategic plan to formalize and sustain the organization commitment to CSR and the establishment of sustainability reporting.

4.1.3 | Systematic approach

The companies in the 'systematic' class declared numerous commitments to sustainability, enabling them to achieve an overall weighted score greater than 40% and equal to or less than 60% of the maximum. A total of 66.7% of roasteries implemented initiatives benefiting both the communities in which they operate and the coffee production supply chain. The six firms in this category claimed to source coffee that was compliant with the highest number of voluntary certifications: 'Fairtrade', "Rainforest Alliance/UTZ", 'Organic', and "4C." In this third stage, 83.3% of companies declared a sustainability plan, accompanied by documents categorized as 'policies' (adopted by 83.3% or 100.0% of roasteries in this class).

According to Molteni (2012), at this stage, top-level management has become familiar with sustainability issues and has recognized their potential as a competitive advantage. Having established a strategic plan with qualitative and quantitative improvement objectives, the

challenge lies in broadening the scope of social responsibility by involving stakeholders in monitoring the outcomes tied to these defined objectives and in developing a more structured and comprehensive sustainability reporting.

4.1.4 | Innovative approach

Sustainability emerges as a driver of competitive advantage and innovation, enabling the two companies within the cluster to achieve an overall weighted score greater than 60% and equal to or less than 80% of the maximum. Both companies adopted all the policies included in the questionnaire, except for the 'workers' health and safety policy', which is present only in one roastery. Socio-environmental reporting is consistently present, and sustainability initiatives are designed to support local stakeholders and coffee. Firms at this stage demonstrated a dual commitment, both to the 'approach' to sustainability and to the implementation of the practices outlined in a comprehensive sustainability plan. However, companies have not yet implemented advanced practices pertaining to the inclusion and equal opportunities ("People"), the reduction of CO2 emissions through corporate fleet optimization and carbon-offset, as well as the calculation of Scopes 1, 2, and 3 related to carbon footprint ("Environment").

According to Molteni (2012), to facilitate the transition to the next stage, top-level management should consider sustainability as a distinctive feature of the roastery's culture, making it the core around which strategic decisions revolve and are concretely implemented, thereby establishing systemic sustainability within the company.

4.1.5 | Dominant approach

Molteni (2012) described this stage as the advanced stage of CSR integration within the company's sustainability strategy, where sustainability is deeply embedded in the company's culture. This study did not identify any coffee roasting companies operating at this level, as sustainability was not the principal driver that guided the firms' mission and strategic vision.

4.2 | Sustainability performance of roasting companies

In this section, the results of the sustainability efforts of the companies are reported according to the different Molteni stages, size and specialty coffee sales.

4.2.1 | Comparison of companies' performance in the different sustainability domains

To analyze the performance of companies in the different sustainability domains, we refer to Figure 4 and Table S, which report the scores of firms in the four Molteni stages. The macro-area with the highest

percentage mean (44.0%) in relation to the maximum achievable score is "Product and consumers." This area encompasses indicators related to food safety, process certifications, and consumer relations. Approximately one-third of the companies conducted more than eight chemical analyses out of the 10 reported in the questionnaire on green and roasted coffee. The investigation into the frequency of chemical analyses, sampling and analytical methods revealed that systematic companies are more effective than the innovative ones (81.1% and 72.2%, respectively). With regard to certifications, the most commonly adopted is ISO 9001 on Quality management systems (19 companies), followed by the Kosher and Halal certifications (24.5% and 18.4% of firms, respectively). The majority of coffee roasteries (85.7%) declared to communicate information about the organoleptic profile of their blends, determined by the Arabica and Robusta composition and the geographical origin of coffee. This information is essential for the differentiation of companies' blend recipes, along with the roasting and granulometry for a specific brewing method (Morris, 2013). Businesses have been particularly effective in the management of nonconformities and customers complaints (73.5%), which is a fundamental aspect of the "service" provided alongside the product, a concept strongly anchored to the core business.

The "Strategy" domain has a mean score of 38.6% of the maximum score. However, Figure 4 shows a significant disparity in scores between the informal and current stages and the systematic and

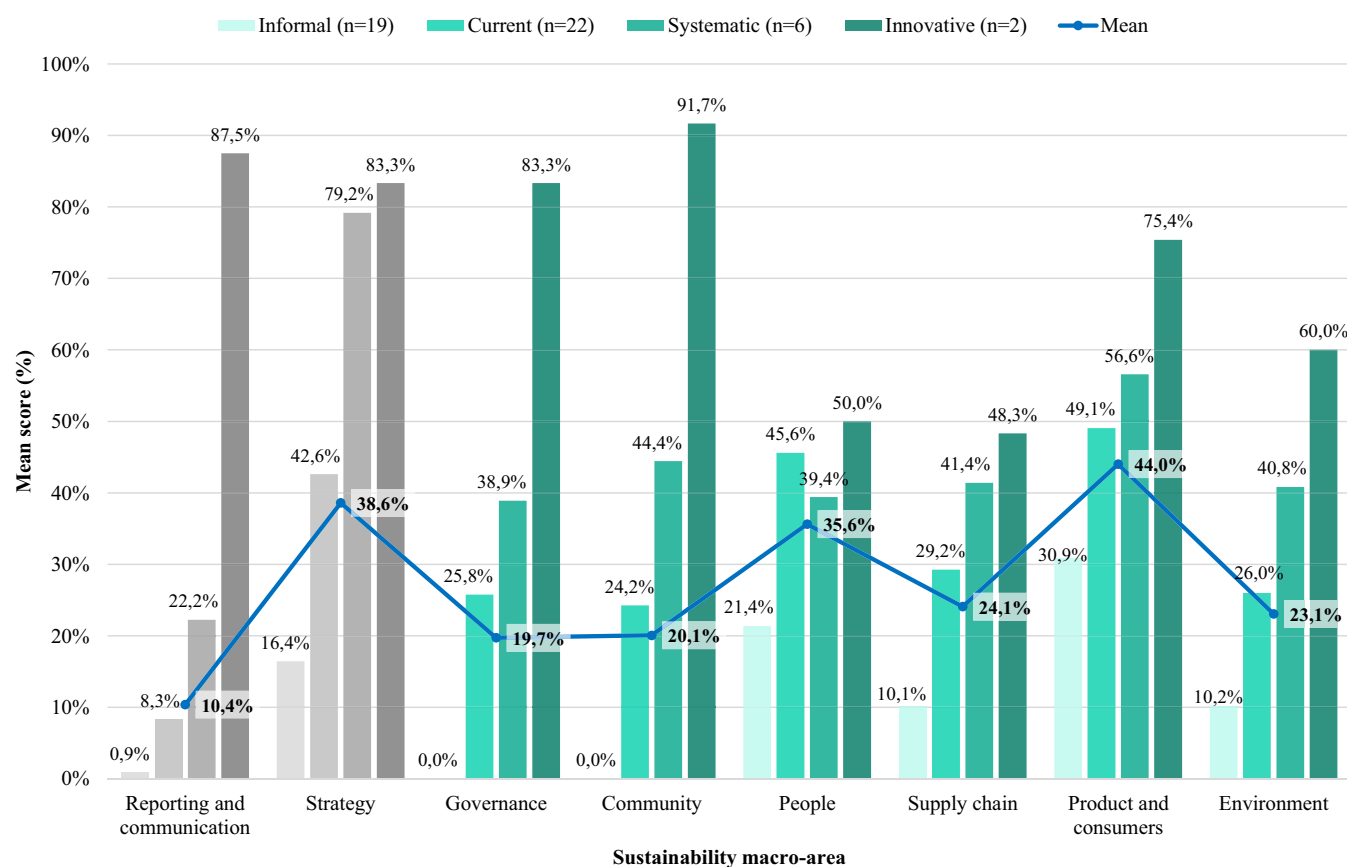


FIGURE 4 Average of the maximum score, expressed as a percentage, for each macro-area for the companies in the different Molteni stages and for the whole panel.

innovative ones. According to Table S4, the most common policies across all Molteni stages in this domain are related to quality (69.4%), worker health and safety (67.3%), and raw material procurement (63.3%). All systematic and innovative companies have adopted sustainability and environmental policies. Additionally, 83.3% of systematic roasteries and 100% of innovative ones published qualitative/quantitative sustainability improvement goals.

The “People” macro-area, which included initiatives for the health, safety, and well-being of company workers, achieved 35.6% of the maximum score (Figure 4). In this area, innovative roasteries reached only 50.0% of the maximum score, indicating a poor implementation of social sustainability within the premises of the company. The majority of surveyed companies identified safety risks for their employees and monitored their injuries (81.6% and 73.6%, respectively). However, the risk evaluation document is mandatory according to the Italian law (Dlgs 81, 2008).

“Supply chain” and “Environment” had a similar mean score (24.1% and 23.1%). Nevertheless, none of the Molteni stages achieved a mean score of at least half of the maximum score in the former macro-area, while innovative companies achieved 60.0% of the maximum score in the latter. The “Supply chain” examined all three sustainability pillars during the green coffee production and the purchase by roasters. In terms of “hands-off” governance linked to VSS, 55.1% of firms declared to purchase Organic coffee, followed by Fairtrade (24.5%) and Rainforest Alliance/UTZ (16.3%). “Hands-on” initiatives based on internal sustainability practices throughout the value chain were investigated via an inclusive list of socio-environmental factors related to coffee purchasing (Questionnaire S1). The most commonly reported social factors are the prohibition of child and forced labor, the prohibition of discrimination, and the protection of women's employment. The diversification of producer income sources is the least common aspect. However, as mentioned in the theoretical framework, farmers experience seasonal hunger during periods when they do not sell green coffee (Panhuysen & Pierrot, 2020; Sachs et al., 2019). Environmental sustainability factors included policies regulating the use of pesticides, the adoption of integrated/organic farming, and a commitment to “zero deforestation.” Compared to the study by Bager and Lambin (2020), where only 14 out of 513 companies in the global coffee sector (from producers to cafés) had a deforestation policy, the companies in this work demonstrated more sensitivity to this issue, which could be related to the recent regulation on deforestation-free products (EU, 2023). On the contrary, few Italian roasters considered the adoption of circular economy practices during coffee cultivation as relevant for green coffee purchase decisions. Nevertheless, coffee processing by-products can be used as fertilizers and incorporated in animal feed after proper evaluation of their chemical composition. In addition, the European Food Safety Authority (EFSA) approved dried coffee husks (“cascara”) as a novel food for the preparation of hot beverages (Barreto Peixoto et al., 2023; EFSA, 2022). These circular economy applications could help farmers to valorise coffee by-products, save money on cultivation inputs and find new sources of income.

A central challenge for coffee roasters is to verify the implementation of the socio-environmental practices they declare to consider when purchasing green coffee. In the case of certified coffee, certification standards include all the requirements that coffee farmers must meet (International Trade Centre, 2021). To evaluate the effectiveness of implementation, company sustainability efforts should be verified by third-party audits. In the panel of 49 coffee roasters, some companies employed multiple methods to ensure the implementation of practices, but the majority reported relying on information obtained from suppliers or the coffee traders' code of conduct. As Bager and Lambin (2020) observed, there is a risk of greenwashing, as the code of conduct does not guarantee the application of sustainability requirements without a defined outcome, a transparent agreement with suppliers and an auditing procedure. In addition, the delegation of responsibility to suppliers for addressing sustainability issues represents a strategy to avoid assuming responsibility at the company level (Panhuysen & De Vries, 2023).

“Environment” macro-area was mainly focused upon the environmental sustainability of company operations. The most implemented practices showed in Table S4 were energy saving interventions in non-production areas over the last 5 years (51.0% of companies), the calculation and monitoring of energy consumption in terms of electricity and fuels (46.9%), and the preheating of coffee before roasting (38.8%). The green coffee preheating technology is based on the use of hot air withdrawn from the exhaust gas flow and cleaned through an exhaust gas treatment to heat the green coffee to 80–100 °C. As previously reported, the Joint Research Centre (JRC) of the European Commission has identified this procedure as a best environmental practice, which enables the reduction of the carbon footprint (Dri et al., 2018). However, the JRC report has highlighted that the installation of a coffee preheater requires a complex retrofit of an existing roaster or a considerable amount of space for a new plant equipped with this technology. Therefore, it is possible that the reported use of preheating by 19 out of 49 companies in this study is due to a misunderstanding of this practice. In contrast, only 2.0% of roasters reported calculating Scope 3 indirect emissions, which are generated throughout the value chain. Meanwhile, 26.5% of companies disclosed Scope 1 and 2 emissions, which refer to direct emissions from owned or controlled sources and indirect emissions from the generation of purchased energy (<https://www.globalreporting.org/standards/>). The panel of Italian roasters concentrated on improving their internal practices for environmental sustainability. However, studies on life cycle assessment (LCA) indicated that the cultivation of green coffee is the primary environmental hotspot throughout the value chain (Furfori et al., 2014; Giraldi-Díaz et al., 2018; Quack et al., 2008). Bradley and Botchway (2018) reported that eight out of 10 companies disclose at least one indicator of packaging innovation, such as recycled material or reduced weight. In the present study, at least one of the three key performance indicators (KPIs) relating to packaging were disclosed by 16.3% to 36.7% of companies. The authors observed that the existing literature tends to focus on environmental challenges related to coffee cultivation, with less consideration of sustainability issues addressed with internal practices.

“Governance” and “Community” macro-areas have a similar mean score of, respectively, 19.7% and 20.1% out of the maximum score (Figure 4). Finally, “Reporting and communication” has the lowest average score (10.4%, Figure 4). These three domains exhibit a significant disparity between Molteni stages. Informal, current, and systematic companies achieved a mean score that did not reach even half of the maximum score, while innovative businesses surpassed the 80.0%. “Governance” and “Reporting and communication” assess whether certain documents, such as a code of ethics (held by an average of 28.6% of companies), a supplier code of conduct (24.5%), and a sustainability report (10.2%), are present or absent. None of the informal firms possessed this documentation, whereas all the innovative companies declared that they did. Sustainability communication through company websites is limited for all companies, as 57.1% of firms do not provide sustainability information on their website or do not have a company website. This lack of transparency is more evident for informal companies, which achieved 3.5% of the maximum score. In contrast, current and systematic firms achieved 28.8% and 38.9%, respectively. In the majority of cases, the website section designated as “sustainability” addressed only one of the three pillars of sustainability, namely the environmental one. It would be advantageous for roasters to consider that CSR storytelling has a positive impact on the corporate brand and serves as a differentiating factor from competitors. In addition to annual reports, company websites, social media, and newspapers represent exemplary channels for sustainability communication, offering a relatively straightforward solution also for small coffee roasters. In order to ensure effective communication, it is essential to ensure transparency. This entails clearly defining the beneficiaries of CSR efforts and the manner in which they benefited (Hall et al., 2021; Offermann et al., 2024). “Community” is used to describe the benefits that accrue to the local community in which the company operates in Italy. Initiatives were implemented by 28.6% of the respondents, apart from informal roasters, which achieved 0.0% of the score. The same question regarding initiatives in favor of the community was posed with regard to the influence on the communities of farmers where coffee is cultivated. The most frequently cited response among the proposed answers is that of donations of products and services, pro bono activities, and/or investments in infrastructure. This finding is consistent with Bager and Lambin (2020), which found that donating is the most frequently adopted socio-economic practice. However, charity is an indirect way to address the social and environmental impact of a company, disconnected from a radical change of existing business practices, which would require consistent investments to compensate farmers (Panhuysen & De Vries, 2023).

4.2.2 | Influence of size on final score

To address the first part of RQ3, which aimed to analyze whether specific company characteristics, in this case, size, affect the sustainability performance of coffee roasting companies, the participating companies were divided into two categories according to European criteria

(EC, 2020a, 2020b). The first category, comprising 30 companies, was designated “micro” while the second, comprising 19 companies, was designated “small, medium, and large”.

A nonparametric Mann–Whitney *U* test was conducted on the final weighted scores obtained by companies in the two groups. The results indicated that small-medium-large enterprises had significantly higher scores than micro companies, [$U = 440.00, p = .001^{**}$]. This implies that revenue is an influential factor for the roasteries in the analyzed sample regarding sustainability integration. All resources tied to organizational dimensions (revenue, as well as the number of employees, etc.) are relevant for CSR implementation.

In this paragraph, we examine the questionnaire results in Table S and Figure 5. It is evident that companies with higher revenues, on average, cover a greater percentage of the maximum score attainable in all domains. The most significant differences are observed in “Product-consumers” (59.0% vs. 34.5%) and “Ethics and integrity (Governance)” (31.6% vs. 12.2%).

In the “Product-consumers” macro-area, certifications significantly contribute to the differences, with ISO 9001 being present in 79.0% of higher-revenue companies and only 13.3% of micro-roasteries. Although this is a voluntary certification on quality management, it is required if, as a company, you have to compete globally (Ponte, 2002). Similar deltas characterize the Halal and Kosher certifications. Furthermore, 94.7% of larger companies engage in complaint and non-conformity management, in contrast to 60.0% of smaller companies.

Regarding “Ethics and integrity (Governance)” within roasteries, larger firms more frequently possess ethical and supplier codes of conduct (42.1% vs. 20.0% for the former and 36.8% vs. 16.7% for the latter). This result is in line with Bager and Lambin (2020), which observed that large companies are more likely to have implemented a code of conduct than smaller ones.

On the other hand, small differences characterize the scores of the “Supply chain” and “Community” domains. Regarding the sustainability of the coffee supply chain, the average score obtained by larger companies (29.7% of the maximum) only slightly deviates from that of micro-enterprises (20.5%). This underscores that the supply chain is a critical element for coffee sustainability, where even larger businesses, despite their greater resources, are not always able to set specific policy targets and demonstrate changes over time related to social conditions of coffee farmers and environmental best practice requirements in coffee plantation (Panhuysen & De Vries, 2023). However, this situation may be connected to the scarcity of knowledge of supply chain actors upstream, which is translated into gaps in product information and life and work circumstances of coffee farmers (Weber & Wiek, 2021). The lack of traceability is a de facto characteristic of standard, commercial coffees, in contrast to certified and specialty coffees (International Trade Centre, 2021).

4.2.3 | Specialty coffee and sustainability: Two concurrent characteristics?

In order to address the second part of RQ3, which had the objective of analyzing whether companies that buy and sell specialty coffee

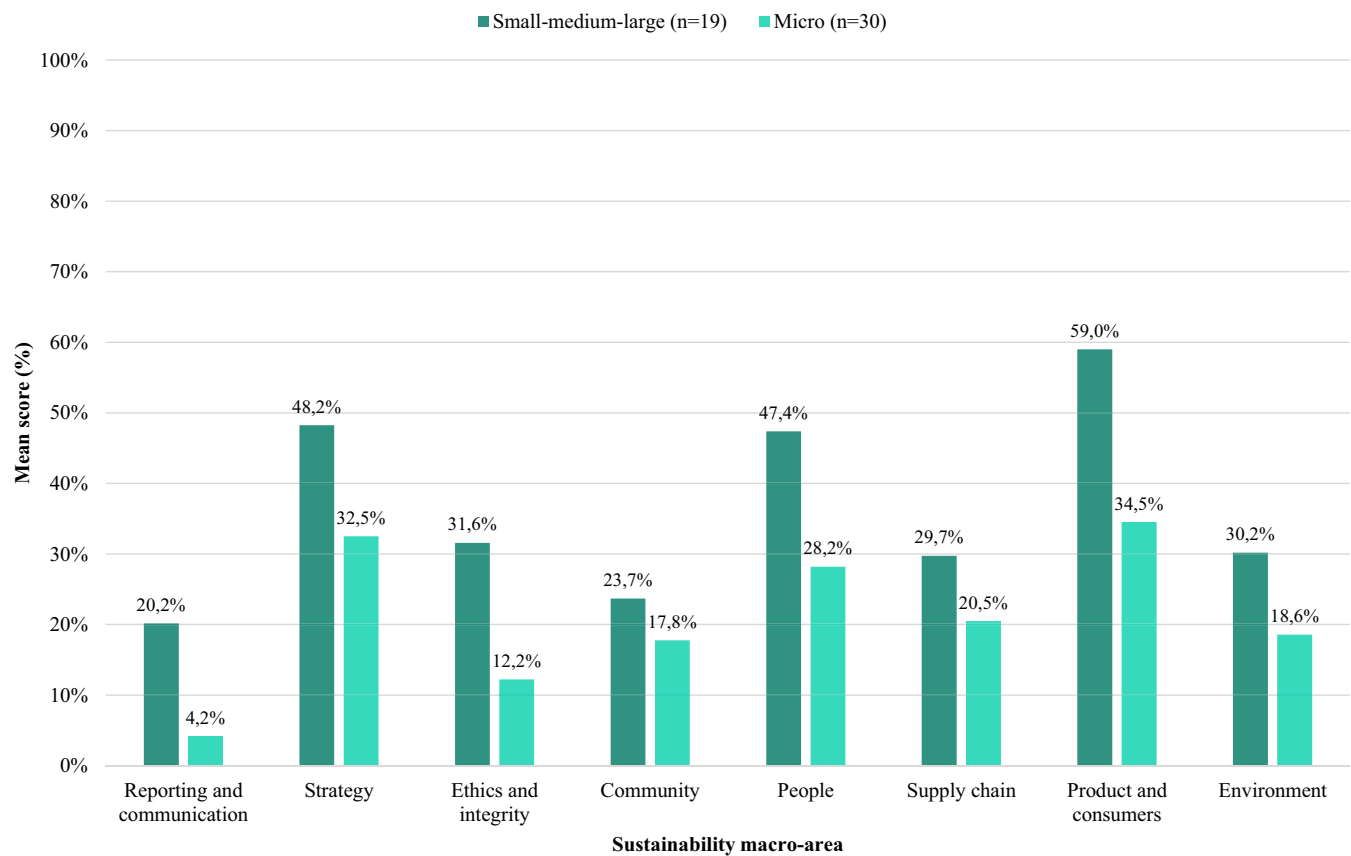


FIGURE 5 Average of the maximum score, expressed as a percentage, for each macro-area for the companies in the panel, divided by size (small-medium-large and micro).

have a different sustainability performance, we divided the companies that participated in this study into two groups. The first group, designated as the “Specialty” sample, included 31 companies that exclusively roast or have at least one product line of specialty coffees. The second group, designated as the “Not Specialty” sample, included 18 enterprises that neither buy nor sell specialty coffees.

A nonparametric Mann–Whitney *U* test was conducted on the weighted scores obtained by companies in the two groups. The results indicated enterprises in the “Specialty” had significantly higher scores than firms in the “Not Specialty” group, [$U = 392.00, p = .019^*$]. Selling specialty coffee is an influential factor for the roasteries in the analyzed sample regarding sustainability integration.

We comment the main score differences between companies with at least one “Specialty” coffee line and those that do not sell specialty products based on the questionnaire results in Table S5 and Figure 6. The “Specialty” group obtained a higher average percentage of the maximum possible score in all areas. The most significant differences are evident in the themes of “Community” (29.6% compared to 3.7%), “Strategy” (44.9% compared to 27.8%), and “Supply Chain” (30.3% compared to 13.4%).

With regard to the “Community” aspect, there is a considerable discrepancy between the 41.9% of companies that offer a specialty coffee line and declare the implementation of community initiatives in the area where the firms operate in Italy, and the 5.6% of companies

that do not sell this type of coffee. The most frequently adopted strategies are donations of products and services, pro bono activities, and/or investments in infrastructures not owned by the business. It can be reasonably assumed that these initiatives, which rely on the resources of the companies involved, would be expected to be adopted by larger enterprises. However, it is notable that 61.3% of companies belonging to the “Specialty” group are micro enterprises.

When analyzing the “Strategy” of roasteries, the most significant divergences are observed in the publication of a sustainability policy and the establishment of qualitative and quantitative sustainability objectives. These are more prevalent in roasteries that sell specialty products, as the more direct contact with farmers can facilitate the implementation of sustainability projects with defined objectives in the production countries. Roasting companies usually associate sustainability commitments to specialty products or brands that are for high-end consumer niches, rather than aligning efforts at holding level (Panhuisen & Pierrot, 2018).

The variations in the “Supply Chain” domain can be attributed to the level of traceability of green coffee, that is deeper in companies that sell specialty coffee. There are differences in traceability levels between “Not Specialty” and “Specialty” businesses. The former declare to trace the supply chain up to the national level, while the latter can trace it all the way to the cooperative. Additionally, there is a notable discrepancy in the evaluation of socio-environmental

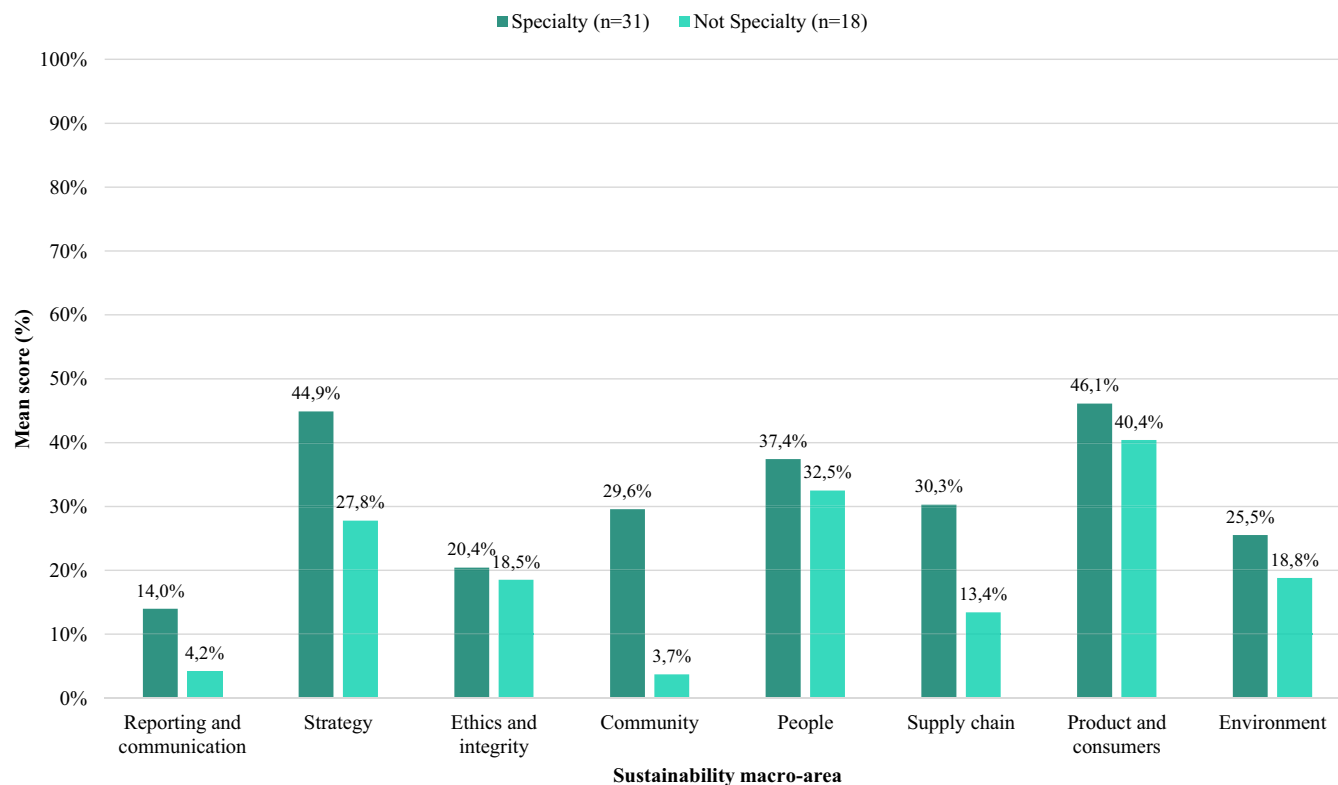


FIGURE 6 Average of the maximum score, expressed as a percentage, for each macro-area for the companies in the panel, divided by those that sell specialty coffee ('Specialty') and those that do not ("Not Specialty").

sustainability aspects when purchasing green coffee from suppliers, with only 22.2% of "Not Specialty" businesses evaluating them compared to 80.7% of "Specialty" businesses. In terms of certifications, it is clear that roasters with a specialty line of products tend to purchase more Fairtrade and Organic coffee, which are the most common certifications in the specialty industry (Specialty Coffee Association, 2020). Bager and Lambin (2020) discovered that companies that engage in direct trade, a common practice in specialty coffee purchases, adopt significantly more socio-economic practices. In this study, the "Specialty" group of businesses achieved 44.0% of the maximum score for the requested socio-economic practices, compared to 14.8% for the "Not Specialty" group.

4.3 | Limitations

The "beverfood.com edizioni" database is primarily composed of generic ("info@") email addresses, which are not associated with a specific person or role. These addresses are more susceptible to spam emails and are less frequently monitored. This factor may have contributed to the low response rate. The evaluation of companies did not depend on their communication strategies but was based on their self-declarations collected through the questionnaire. This tool allows the collection of homogeneous, comparable results that do not depend on the resources expended on sustainability reporting. However, it constituted the primary limitation of this research, as it was

not possible to verify the accuracy of the answers. A verification of the declarations was conducted on the companies' websites for a specific subset of indicators, including the presence of a sustainability report and its assurance. Furthermore, this research did not evaluate the effectiveness or impact of companies' sustainability practices. In some instances, it has become evident that respondents of companies were not adequately informed regarding the company's mandatory documents, with particular relevance to work safety, which is regulated by Italian legislation.

5 | CONCLUSIONS

The analysis presented in this study has helped to outline the characteristics of Italian coffee roasters, with a focus on their approach to sustainability and the areas where concrete actions are mainly concentrated.

This study, which was conducted by administering a questionnaire to a sample of 49 companies, primarily of micro and small size, provides insights into the integration of sustainability in Italian coffee companies applying the Molteni model. 83.7% of the analyzed sample falls into the first two stages ("informal" and "current") of the five-stage model. This indicates a sustainability approach that is still unconscious or focused solely on specific quality and product safety issues. Only 12.2% of the sample is classified in the "systematic" stage, which is characterized by a more structured and strategic



approach to sustainability, including a greater focus on communication. In the total sample, 4.1% of the companies have leveraged sustainability as a source of competitive advantage, reaching the “innovative” sustainability stage.

Italian roasters have demonstrated a particular interest in addressing issues related to product safety, quality, and consumer relations, which are not commonly addressed in the existing literature on coffee sustainability. Internal policies on quality and raw material procurement are common, although sustainability practices requested for production countries are often delegated to suppliers through codes of conduct. Social sustainability within the company is primarily addressed through legally mandated documents. The management of corporate social responsibility is exercised through internal documents and certifications pertaining to the product and process.

There is a clear limited propensity to communicate, a characteristic of submerged sustainability. More than half of the companies did not provide sustainability information on their websites or did not have a corporate website. While a company can behave sustainably without being verified, since the quality or depth of sustainability engagement is not necessarily linked to an external audit, communication remains essential to demonstrate CSR efforts. The legitimacy of sustainability commitments can only be established through the use of performance measures, specifically sustainability indicators. The authors of this study provided indicators to identify measures that companies may unconsciously implement, as sustainability reporting is a relatively mature practice that is rarely adopted by small and micro roasters. In this sample, the commitment to sustainability was directly related to the size of the business, and the same relationship was found for roasters selling specialty coffees. It is possible that traceability will become a driver for transparency in the future, aided by new technological solutions such as blockchain.

Although not evaluated for this work, the survey was designed to identify practices that are still under development but not yet implemented. The results suggested that the calls described in the theoretical framework are raising awareness within companies about the need to manage all their impacts.

Future research should investigate the sustainability of all actors (not only roasters) in the Italian coffee supply chain by examining a larger sample of businesses of varying sizes. A direct engagement with roasters would facilitate a comprehensive discourse on potential solutions to address both their internal sustainability challenges, as Italian downstream actors, and external sustainability challenges, as they impact upstream actors in the coffee value chain. A direct engagement with companies would allow for a broad discussion of the possible solutions to address both their internal and external sustainability challenges, related to upstream actors in the coffee value chain. This elicitation would reveal the obstacles that impede companies from advancing beyond the initial stages of the CSR model, including ineffective communication of sustainability strategies. A more comprehensive examination of the impact of company size and the sale of specialty coffees on the number and type of sustainability initiatives adopted is required. Furthermore, the new European regulatory framework will introduce additional sustainability requirements.

Therefore, it may be worthwhile to conduct further research into the evolution of communication in response to new legal requirements.

AUTHOR CONTRIBUTIONS

All authors contributed to the study conceptualization and design. In particular, the methods were designed by Francesca R. Giannini, Valentina Bramanti and Stella Gubelli. Material preparation, data collection, and analysis were performed by Sara Triachini, Francesca R. Giannini, and Valentina Bramanti. The first draft of the manuscript was written by Sara Triachini and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript. Ettore Capri supervised the study.

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REFERENCES

- Ahmed, S., Brinkley, S., Smith, E., Sela, A., Theisen, M., Thibodeau, C., Warne, T., Anderson, E., Van Dusen, N., Giuliano, P., Ionescu, K. E., & Cash, S. B. (2021). Climate change and coffee quality: Systematic review on the effects of environmental and management variation on secondary metabolites and sensory attributes of *Coffea arabica* and *Coffea canephora*. *Frontiers in Plant Science*, 12, 708013. <https://doi.org/10.3389/fpls.2021.708013>
- Area Studi Mediobanca. (2023). Mercato del caffè: nel 2030 consumi mondiali a 3,8 miliardi di tazzine al giorno. <https://www.areastudimediobanca.com/sites/default/files/2023-02/Comunicato%20Stampa.pdf>
- Bager, S. L., & Lambin, E. F. (2020). Sustainability strategies by companies in the global coffee sector. *Business Strategy and the Environment*, 29(8), 3555–3570. <https://doi.org/10.1002/bse.2596>
- Barreto Peixoto, J. A., Silva, J. F., Oliveira, M. B. P., & Alves, R. C. (2023). Sustainability issues along the coffee chain: From the field to the cup. *Comprehensive Reviews in Food Science and Food Safety*, 22(1), 287–332. <https://doi.org/10.1111/1541-4337.13069>
- Bermudez, S., Voora, V., & Larrea, C. (2022). Global market report: Coffee prices and sustainability. *International Institute for Sustainable Development (IISD)*, 8–12. <https://www.jstor.org/stable/resrep47318>
- Bertorelli, S., Gubelli, S., Bramanti, V., Capri, E., & Lamastra, L. (2023). How does the wine sector perform and communicate sustainability? The Italian Case. *Sustainability*, 15(17), 12700. <https://doi.org/10.3390/su151712700>
- Bianco, G. B. (2020). Climate change adaptation, coffee, and corporate social responsibility: Challenges and opportunities. *International Journal*

- of *Corporate Social Responsibility*, 5(1), 1–13. <https://doi.org/10.1186/s40991-020-00048-0>
- Bilen, C., El Chami, D., Mereu, V., Trabucco, A., Marras, S., & Spano, D. (2022). A systematic review on the impacts of climate change on coffee Agrosystems. *Plants*, 12(1), 102. <https://doi.org/10.3390/plants12010102>
- Bradley, O. J., & Botchway, G. O. (2018). Communicating corporate social responsibility (CSR) in the coffee industry: An examination of indicators disclosed. *Sustainability Accounting, Management and Policy Journal*, 9(2), 139–164. <https://doi.org/10.1108/SAMPJ-02-2017-0015>
- Caccialanza, A., Sartori, A., Gubelli, S., Giannini, F. R., & Capri, E. (2023). The sustainability of meat and cured meat supply chain: Where are we now? In A. M. Fellegara, R. Torelli, & A. Caccialanza (Eds.), *Sustainable transition of meat and cured meat supply chain: A transdisciplinary approach*. CSR, Sustainability, Ethics & Governance.
- Centre for the Promotion of Imports from developing countries (CBI). (2022). What is the impact of the war in Ukraine on exports of coffee? <https://www.cbi.eu/market-information/coffee/what-impact-war-ukraine-exports-coffee>
- Coffee Roasters Guild. (2022). The Sustainability Toolkit. <https://crg.coffee/crg-sustainability-toolkit>
- Cordes, K. Y., Sagan, M., & Kennedy, S. (2021). Responsible Coffee Sourcing: Towards a Living Income for Producers. https://scholarship.law.columbia.edu/sustainable_investment_staffpubs/199
- Daviron, B., & Ponte, S. (2005). *The coffee paradox: Global markets, commodity trade, and the elusive promise of development*. Zed Books.
- Dlgs 81. 2008. DECRETO LEGISLATIVO. (2008). Attuazione dell'articolo 1 della legge 3 agosto 2007, n. 123, in materia di tutela della salute e della sicurezza nei luoghi di lavoro. (GU Serie Generale n.101 del 30-04-2008 - Suppl. Ordinario n. 108). <https://www.gazzettaufficiale.it/eli/id/2008/04/30/008G0104/s>
- Drempetic, S., Klein, C., & Zwergel, B. (2020). The influence of firm size on the ESG score: Corporate sustainability ratings under review. *Journal of Business Ethics*, 167, 333–360. <https://doi.org/10.1007/s10551-019-04164-1>
- Dri, M., Antonopoulos, I. S., Canfora, P., & Gaudillat, P. (2018). *Best environmental management practice for the food and beverage manufacturing sector*. JRC Science for Policy Report. <https://doi.org/10.2760/2115>
- EFSA Panel on Nutrition, Novel Foods and Food Allergens. (2022). Scientific opinion on the safety of dried coffee husk (cascara) from *Coffea arabica* L. as a novel food pursuant to regulation (EU) 2015/2283. *EFSA Journal*, 20(2), 7085. <https://doi.org/10.2903/j.efsa.2022.7085>
- EU. (2022). European Parliament and the Council of the European Union, Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting.
- EU. (2023). European Parliament and the Council of the European Union, Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No 995/2010.
- European Commission. (2020a). *Directorate-general for internal market, industry, entrepreneurship and SMEs*. User guide to the SME definition, Publications Office. <https://doi.org/10.2873/255862>
- European Commission. (2020b). Directorate-General for Environment, Attitudes of Europeans towards the environment – Report. <https://doi.org/10.2779/902489>
- Franca, A. S., & Oliveira, L. S. (2019). Coffee. In Z. Pan, R. Zhang, & S. Zicari (Eds.), *Integrated processing technologies for food and agricultural by-products*. Academic Press.
- Furfori, S., Antonini, V., & Breedveld, L. (2014). The link between LCA and CSR with espresso coffee as an example. In R. Schenck & D. Huizenga (Eds.), *Proceedings of the 9th international conference on life cycle assessment in the Agri-food sector (LCA food 2014)*. ACLCA.
- Giovannucci, D., & Ponte, S. (2005). Standards as a new form of social contract? Sustainability initiatives in the coffee industry. *Food Policy*, 30(3), 284–301. <https://doi.org/10.1177/0170840612443629>
- Giraldi-Díaz, M. R., De Medina-Salas, L., Castillo-González, E., & León-Lira, R. (2018). Environmental impact associated with the supply chain and production of grinding and roasting coffee through life cycle analysis. *Sustainability*, 10(12), 4598. <https://doi.org/10.3390/su10124598>
- Global Sustainability Standards Board. (2023). The Global Standards for Sustainability Impacts. <https://www.globalreporting.org/standards/>
- Grabs, J. (2017). The rise of buyer-driven sustainability governance: Emerging trends in the global coffee sector (august 8, 2017). ZenTra working paper in transnational studies No. 73/2017. <https://ssrn.com/abstract=3015166>
- Grabs, J. (2020). Assessing the institutionalization of private sustainability governance in a changing coffee sector. *Regulation & Governance*, 14(2), 362–387. <https://doi.org/10.1111/rego.12212>
- Grabs, J., & Carodeno, S. L. (2021). Traders as sustainability governance actors in global food supply chains: A research agenda. *Business Strategy and the Environment*, 30(2), 1314–1332. <https://doi.org/10.1002/bse.2686>
- Grabs, J., & Ponte, S. (2019). The evolution of power in the global coffee value chain and production network. *Journal of Economic Geography*, 19(4), 803–828. <https://doi.org/10.1093/jeg/lbz008>
- Grüter, R., Trachsel, T., Laube, P., & Jaisli, I. (2022). Expected global suitability of coffee, cashew and avocado due to climate change. *PLoS One*, 17(1), e0261976. <https://doi.org/10.1371/journal.pone.0261976>
- Gubelli, S., Bramanti, V., Giannini, F. R., & Lascari, N. (2021). Il paradosso dell'olio d'oliva: prodotto sostenibile, comunicazione acerba. Report di ricerca 2021/02. https://www.altisadvisory.com/wp-content/uploads/2023/04/4_Report-olio-luglio-2021.pdf
- Gubelli, S., Bramanti, V., Savino, F. T., Capri, E., & Bertorelli, S. (2022). Sostenibilità certificata, ma poco comunicata: la virata necessaria per i brand del vitivinicolo. Report di ricerca 2022/02. https://www.altisadvisory.com/wp-content/uploads/2023/04/6_Report-vitivinicolo-giugno-2022.pdf
- Gubelli, S., Sartori, A., Giannini, F. R., Cerrato, D., Caccialanza, A., & Torelli, R. (2022). La sostenibilità nel settore delle carni e dei salumi: a che punto sono le imprese italiane? Report di ricerca 2022/01. https://www.altisadvisory.com/wp-content/uploads/2023/04/5_Report-carni-e-salumi-maggio-2022.pdf
- Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, 59, 5–21. <https://doi.org/10.1016/j.jclepro.2013.07.005>
- Hall, K. R., Harrison, D. E., & Obilo, O. O. (2021). Building positive internal and external stakeholder perceptions through CSR storytelling. *Journal of Strategic Marketing*, 31(7), 1317–1338. <https://doi.org/10.1080/0965254X.2021.1895289>
- Hörisch, J., Johnson, M. P., & Schaltegger, S. (2015). Implementation of sustainability management and company size: A knowledge-based view. *Business Strategy and the Environment*, 24(8), 765–779. <https://doi.org/10.1002/bse.1844>
- Iannone, B., & Caruso, G. (2023). ‘Sustainability’: Sustainability and digitalization as a strategy for resilience in the coffee sector. *Sustainability*, 15(6), 4893. <https://doi.org/10.3390/su15064893>
- International Coffee Organization. (2020). Coffee Development Report The value of coffee – Sustainability, Inclusiveness and Resilience of the Coffee Global Value Chain. <https://www.icocoffee.org/wp-content/uploads/2022/11/CDR2020.pdf>

- International Coffee Organization (ICO). (2018). Gender equality in the coffee sector. In *An insight report from the International Coffee Organization* London, UK: ICO. <https://www.ico.org/documents/cy2017-18/icc-122-11e-gender-equality.pdf>
- International Labour Organization (ILO). (1999). Worst Forms of Child Labour Convention (No. 182). https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C182
- International Trade Centre. (2021). *The coffee guide*. ITC.
- IPCC. (2023). Sections. In H. Lee & J. Romero (Eds.), *Climate change 2023: Synthesis report. Contribution of working groups I, II and III to the sixth assessment report of the intergovernmental panel on climate change. Core writing team*. IPCC.
- Kljajić, M. V., Anđelković, A. S., & Gvozdenac, D. D. (2016). Viability analysis of heat recovery solution for industrial process of roasting coffee. *Thermal Science*, 20(suppl 2), 623–637. <https://doi.org/10.2298/TSCI151013044K>
- León-Bravo, V., Ciccullo, F., & Caniato, F. (2022). Traceability for sustainability: Seeking legitimacy in the coffee supply chain. *British Food Journal*, 124(8), 2566–2590. <https://doi.org/10.1108/BFJ-06-2021-0628>
- Molteni, M. M. (2012). Corporate level strategy. In *Generare Valore Condiviso Nelle Imprese Multibusiness; Integrazione della CSR nella corporate strategy*. McGraw-Hill Education.
- Morris, J. (2013). Why espresso? Explaining changes in European coffee preferences from a production of culture perspective. *European Review of History: Revue européenne d'histoire*, 20(5), 881–901. <https://doi.org/10.1080/13507486.2013.833717>
- Muraca, P. (2022). Profile of the Italian market. In COFFITALIA. Coffee and Hot Drink Industry 2022. BEVERFOOD.COM Edizioni S.r.l., Milano. <https://www.beverfood.com/downloads/annuario-coffitalia-caffe-italia23/>
- Noponen, M. R. A., Góngora, C., Benavides, P., Gaitán, A., Hayward, J., Marsh, C., Stout, R., & Wille, C. (2017). Environmental sustainability-farming in the Anthropocene. In B. Folmer (Ed.), *The craft and science of coffee*. Academic Press.
- Offermann, J., Rohowsky, A., & Zieffle, M. (2024). Thinking out loud? Internal vs. external communication of sustainability in companies. *Sustainability*, 16(13), 5416. <https://doi.org/10.3390/su16135416>
- Panhuysen, S., & De Vries, F. (2023). Coffee Barometer.
- Panhuysen, S., & Pierrot, J. (2014). Coffee Barometer.
- Panhuysen, S., & Pierrot, J. (2018). Coffee Barometer.
- Panhuysen, S., & Pierrot, J. (2020). Coffee Barometer.
- Ponte, S. (2002). Standards, trade and equity: lessons from the specialty coffee industry (Vol. 2). Centre for Development Research. https://www.iisd.org/system/files/publications/sci_coffee_standards.pdf
- Ponte, S. (2004). Standards and sustainability in the coffee sector. *International Institute for Sustainable Development*, 9–12. https://www.iisd.org/system/files/publications/sci_coffee_standards.pdf
- Quack, D., Eberle, U., Liu, R., & Stratmann, B. (2008). Case study 'Tchibo Privat Kaffee rarity Machare' Documentation. Case study within the PCF Pilotproject. http://www.pcf-projekt.de/files/1232962944/pcf_tchibo_coffee.pdf
- Rapporto Coop. (2022). Consumi e stili di vita degli italiani di oggi e di domani. [https://www.coop.it/sites/default/files/2022-09/CS_RAPP_COOP_2022_ANTEPRIMA_DIGITALE_light_1\).pdf](https://www.coop.it/sites/default/files/2022-09/CS_RAPP_COOP_2022_ANTEPRIMA_DIGITALE_light_1).pdf)
- Reinecke, J., Manning, S., & von Hagen, O. (2012). The emergence of a standards market: Multiplicity of sustainability standards in the global coffee industry. *Organization Studies*, 33(5–6), 791–814. <https://doi.org/10.1177/0170840612443629>
- Rubio-Jovel, K. (2022). The voluntary sustainability standards and their contribution towards the achievement of the sustainable development goals: A systematic review on the coffee sector. *Journal of International Development*, 35(6), 1013–1052. <https://doi.org/10.1002/jid.3717>
- Rubio-Jovel, K., Sellare, J., Damm, Y., & Dietz, T. (2023). SDGs trade-offs associated with voluntary sustainability standards: A case study from the coffee sector in Costa Rica. *Sustainable Development*, 32(1), 917–939. <https://doi.org/10.1002/sd.2701>
- Sachs, J. D., Cordes, K. Y., Rising, J., Toledano, P., & Maennling, N. (2019). Ensuring economic viability and sustainability of coffee production. *Columbia Center on Sustainable Investment* https://scholarship.law.columbia.edu/sustainable_investment_staffpubs/53
- Samoggia, A., & Riedel, B. (2018). Coffee consumption and purchasing behavior review: Insights for further research. *Appetite*, 129, 70–81. <https://doi.org/10.1016/j.appet.2018.07.002>
- Samper, L., Giovannucci, D., & Vieira, L. M. (2017). The powerful role of intangibles in the coffee value chain. World Intellectual Property Organization. Economic Research Working Paper No. 39. <https://doi.org/10.34667/tind.29021>
- Samper, L. F., & Quiñones-Ruiz, X. F. (2017). Towards a balanced sustainability vision for the coffee industry. *Resources*, 6(2), 17. <https://doi.org/10.3390/resources6020017>
- Specialty Coffee Association. (2020). Specialty coffee transaction guide. The effects of FTO certification on FOB prices for specialty coffees. Specialty coffee transaction guide data brief. <https://www.transactionguide.coffee/reports/2020/9/27/the-effects-of-fto-certification-on-fob-prices-for-specialty-coffees-pm3af>
- Specialty Coffee Association. (2021). Towards a Definition of Specialty Coffee: A Conception Based on Attributes. <https://static1.squarespace.com/static/584f6bbef5e23149e5522201/t/61656536b3ef6570d80794cc/1634035009273/Attributes+Framework+Whitepaper+2021+++Release+1.2+Reduced.pdf>
- Specialty Coffee Association (SCA). (2024). About SCA. <https://sca.coffee/about>
- Specialty Coffee Association. (2024). Our Sustainable Coffee Agenda. <https://sca.coffee/sustainability>
- Sustainability Accounting Standards Board. (2023). SASB Standards. <https://sasb.ifrs.org/>
- Tosun, P. (2022). Corporate social responsibility disclosure on the websites of coffee chains in Turkey. *International Journal of Organizational Analysis*, 30(3), 816–829. <https://doi.org/10.1108/IJOA-12-2019-1964>
- United States Department of Labour. (2022). 2022 List of good produces by child labour or forced labour. https://www.dol.gov/sites/dolgov/files/ILAB/child_labour_reports/tda2021/2022-TVPR-List-of-Goods-v3.pdf
- Utrilla-Catalan, R., Rodríguez-Rivero, R., Narvaez, V., Díaz-Barcos, V., Blanco, M., & Galeano, J. (2022). Growing inequality in the coffee global value chain: A complex network assessment. *Sustainability*, 14(2), 672. <https://doi.org/10.3390/su14020672>
- Vezzulli, F., Triachini, S., Mulazzi, A., Lambri, M., & Bertuzzi, T. (2022). Acrylamide: Impact of precursors concentration, origin, post-harvesting process and roasting level in high-quality arabica and Robusta coffee. *International Journal of Food Science & Technology*, 57(12), 7468–7476. <https://doi.org/10.1111/ijfs.15900>
- Weber, H., Loschelder, D. D., Lang, D. J., & Wiek, A. (2021). Connecting consumers to producers to foster sustainable consumption in international coffee supply—a marketing intervention study. *Journal of Marketing Management*, 37(11–12), 1148–1168. <https://doi.org/10.1080/0267257X.2021.1897650>
- Weber, H., & Wiek, A. (2021). Cooperating with “open cards”—The role of small intermediary businesses in realizing sustainable international coffee supply. *Frontiers in Sustainable Food Systems*, 5, 663716. <https://doi.org/10.3389/fsufs.2021.663716>
- Weber, H., Wiek, A., & Lang, D. J. (2019). Sustainability entrepreneurship to address large distances in international food supply. *Business Strategy & Development*, 3(3), 318–331. <https://doi.org/10.1002/bsd2.97>
- Wright, D. R., Bekessy, S. A., Lentini, P. E., Garrard, G. E., Gordon, A., Rode-wald, A. D., Bennett, R.E., & Selinske, M. J. (2024). Sustainable coffee: A review of the diverse initiatives and governance dimensions of



global coffee supply chains. *Ambio*, 53, 984–1001. <https://doi.org/10.1007/s13280-024-02003-w>

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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