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Sustainability strategies by companies in the global coffee sector

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Abstract

The coffee sector is facing several sustainability challenges. We ask whether addressing these is transforming the entire coffee sector or rather leading to market differentiation. Drawing on stakeholder theory and global value chain analysis, we analyse how the coffee sector approaches sustainability by examining the sustainability efforts of a random sample of 513 companies. We also identify the factors shaping the adoption of sustainability strategies. A third of companies report no commitment to sustainability, whereas another third report vague commitment. The final third of companies report tangible commitments to sustainability. Company characteristics and stakeholders affect the scope and type of sustainability strategy chosen. Large, risk-aware companies tend to conduct 'hands-on' governance, adopting internal sustainability practices along their value chain. Small, consumer-facing companies and producers rely on 'hands-off' governance, adopting external voluntary sustainability standards. Several sustainability issues remain under-addressed by most companies, including climate change and deforestation. We found indications of potential greenwashing by some companies. Addressing sustainability is not yet fully mainstreamed in the sector, though ambitious commitments by sustainability leaders and large actors signal increasing importance of sustainability as part of corporate social responsibility efforts. We observe market differentiation through sustainability with progressive companies adopting sustainability strategies that align with their stakeholders, depending on value chain characteristics. Our results indicate a notable reliance on internal sustainability practices. There is a need for common coffee sustainability indicators relevant for all actors along the value chain, which are consistent with the Sustainable Development Goals, and a transparent, mandatory reporting framework.

KEYWORDS

certification, coffee, corporate social responsibility (CSR), environmental governance, global value chains, private sector, stakeholder theory, sustainable development, voluntary sustainability standards

1 | INTRODUCTION

Coffee is a globally traded commodity and an integral part of many people's daily life. The coffee sector is a multi-billion dollar global business, involving thousands of companies and several million farmers, most of which are smallholders (Daviron & Ponte, 2005; Samper et al., 2015). The sector is facing several sustainability challenges, including water pollution, biodiversity loss, soil erosion, agrochemical use, deforestation, waste generation and labour exploitation (Meyfroidt et al., 2013; Panhuysen & Pierrot, 2014). Other issues include low prices, ageing farmers and climate change (Panhuysen & Pierrot, 2018; Pham et al., 2019). The latter will complicate production across many current coffee-growing areas, with negative impacts on livelihoods (Hannah et al., 2020; Ovalle-Rivera et al., 2015; Pham et al., 2019). Climate change and deforestation also cause the loss of natural, noncommercial varieties with potentially useful properties for adaptation (e.g., drought tolerance) (Davis et al., 2019; Imbach et al., 2017).

To address sustainability challenges, companies rely on governance mechanisms that variously combine codes of conduct, voluntary sustainability standards (VSSs), corporate social responsibility (CSR) programmes, direct relations with producers and so forth. Progressive companies across the coffee sector (Bitzer et al., 2008; Giovannucci & Ponte, 2005; Jaffee, 2012; Millard, 2017; Ponte, 2019) and the wider agrifood sector (Dauvergne & Lister, 2012; Glasbergen & Schouten, 2015; Thorlakson et al., 2018) voluntarily adopt sustainability strategies to reduce regulatory risk, fill a policy vacuum, meet stakeholder expectations, increase income, protect their brand and reputation or differentiate themselves from competitors (Auld et al., 2008; Cashore, 2002; Dauvergne & Lister, 2010, 2012; Ponte, 2019; Vogel, 2008).

The shift from state-centred to polycentric governance, and the increased reliance on nonstate market-driven governance (NSMD) (Bernstein & Cashore, 2007; Cashore, 2002) to achieve sustainability is particularly visible in the coffee sector. With the stringency and enforcement of government regulations varying between countries, VSSs, such as Organic and Fairtrade, emerged to tackle environmental and socio-economic sustainability challenges in the coffee sector (Auld, 2014b; Grabs, 2018)—soon followed by other nongovernmental organization (NGO)-, industry/company- and multistakeholder-led VSS. The potential of VSS initiatives to become not only viable alternatives to government regulations, but the *modus operandi* of sustainability governance created significant interest in the topic—both hopeful (Auld, 2010; Bernstein & Cashore, 2007), cautious (Auld, 2014a; Auld et al., 2008; Stratoudakis et al., 2015) and sceptical (Hatanaka & Busch, 2008; Raynolds, 2009; Waldman & Kerr, 2014). The aim of our research is to assess how sustainability governance currently unfolds within the coffee sector and to understand the factors that shape the sustainability efforts of the companies involved: which companies adopt which sustainability strategy and why?

1.1 | Sustainability governance in the coffee sector

Sustainability governance mechanisms are constantly evolving, and the coffee sector has historically been at the forefront of implementing private and multistakeholder approaches to address sustainability (Daviron & Ponte, 2005; Giovannucci & Ponte, 2005; Grabs, 2018; Panhuysen & Pierrot, 2014)—although recently, sustainability innovation has also been rapid in other sectors such as cocoa (Thorlakson, 2018). VSSs, especially third-party certification standards, have been widely used to address sustainability concerns in coffee, although internal standards and various supply chain interventions have emerged to form important parts of the NSMD sustainability governance of the coffee sector (Grabs, 2017; Millard, 2017; Ponte, 2019; Raynolds, 2009; Raynolds et al., 2007).

More recent initiatives to address sustainability include direct trade, single origin and value chain transparency, which first emerged as differentiation and sustainability strategies in the coffee sector among a group of small roasters (Bitzer et al., 2008; Daviron & Ponte, 2005; Grabs, 2017; Latta & Barbara, 2014; Ponte & Gibbon, 2005) and are now spreading to other sectors. Direct trade—the commercialization of coffee from farmers to roasters without intermediaries—can bring benefits in the form of higher prices for producers, increased connection to global markets and improved agroecological production practices (Hernandez-Aguilera et al., 2018; MacGregor et al., 2017; Middendorp et al., 2020; Rosenberg et al., 2018; Rueda et al., 2018). Single origin—marketing of coffee from specific farms, regions or countries, sometimes through Geographical Indications—is used by roasters to brand coffee and by producer countries to protect their reputation and increase value capture (Barjolle et al., 2017; Rueda et al., 2017; Samper & Quiñones-Ruiz, 2017). Transparency fosters accountability by facilitating 'soft enforcement', (Schleifer et al., 2019) enabling public scrutiny and informed consumers decision making based on company disclosures, while also facilitating increased sales, as it 'improves consumer willingness-to-buy' (Egels-Zandén & Hansson, 2016).

The sustainability outcome of adopting VSSs depends on the value chain structure, the specific VSS applied and the socio-economic context (Bray & Neilson, 2017; COSA, 2013; Meemken, 2020; van Rijsbergen et al., 2016). Most current knowledge on the impacts of VSSs is based on NGO-led standards, whereas less is known about the impacts of industry-/company-led standards (e.g., 4C and Nespresso AAA). The evidence remains mixed (Blackman & Rivera, 2011; DeFries et al., 2017), but VSSs are often associated with direct or indirect socio-economic and environmental benefits (COSA, 2013; Lee, Gereffi, & Beauvais, 2012; Mitiku et al., 2017). Although VSSs are promoted as means to improve smallholder farmer livelihoods through higher prices and higher household incomes (Meemken, 2020), a critique remains that standards primarily benefit well-off producers, ignoring the weakest, marginalized smallholders and failing to ensure that price premiums reaches them (COSA, 2013; Minten et al., 2018). Trade-offs between socio-economic and environmental outcomes exist (Vanderhaegen et al., 2018) and concern about

the 'mainstreaming' of certification is widespread (Kolk, 2013; Lernoud et al., 2017; Raynolds, 2009; Sexsmith & Potts, 2009). Comparing competing VSSs, Dietz et al., (2018) found that, overall, more stringent VSSs achieved smaller market share in the coffee sector than in comparable sectors, as the growth of weaker, industry-/company-led VSSs constrained the rise of the more stringent VSSs. In recent years, the production of coffee certified under VSSs has expanded rapidly. In 2015, twenty-three percent of the worldwide coffee exports complied with a VSS compared with 7% in 2008 (Dietz et al., 2018). Including double and triple certification, 40–53% of all coffee produced in the late 2010s was certified (Grabs, 2018), over half by 4C, which has been developed and promoted through value chains by large actors (Dietz et al., 2018).

1.2 | How stakeholders and value chain organization influence sustainability governance

According to stakeholder theory, how companies choose to address sustainability concerns can be understood as a response to 'demands' from stakeholders (Freeman, 2010; Wheeler et al., 2003). In addition to creating shareholder value (Friedman, 1970), the social responsibility of business becomes creating stakeholder value (Freeman et al., 2004). Stakeholders vary by company characteristics, value chain position, size, market, ownership structure, consumers and so forth. Companies with different characteristics are exposed to different stakeholders, who impose different normative preferences for sustainability (Delmas & Toffel, 2004). Stakeholder theory can explain how and why companies deal with sustainability (Schaltegger et al., 2019): When deciding if and how to adopt sustainability strategies, companies consider stakeholders' sustainability expectations (Darnall et al., 2010; Esty & Winston, 2006; Perrini & Tencati, 2006; Schaltegger et al., 2019). However, stakeholders do not have equal influence on company practices, and the response of companies to their demands differs according to stakeholder type and status, and company characteristics (Darnall et al., 2010; Goodmanet al., 2017; Perrault & Clark, 2016; Shubham et al., 2018). Stakeholders have been found to affect, *inter alia*, corporate disclosure (Chithambo et al., 2020; Gallego-Alvarez et al., 2017; Liesen et al., 2015; Roberts, 1992), sustainability innovation (Zhang & Zhu, 2019), strategy (Shnayder & Van Rijnsoever, 2018), practices (Alda, 2019; Graham, 2020; Shubham et al., 2018) and their implementation (Helmig et al., 2016).

Complementary to stakeholder influence, the Global Value Chain (GVC) framework centres on the power relations between actors along value chains (Gereffi, 1999; Gereffi et al., 2005; Gereffi & Lee, 2012; Ponte et al., 2019), often distinguishing between producer-driven and buyer-driven chains. The global coffee value chain is characterized as buyer-driven, as large roasters and brands owned by multinationals exercise enormous influence and capture most of the added value (Daviron & Ponte, 2005; Grabs, 2018; Grabs & Ponte, 2019; Ponte, 2002, 2004). The collapse of the International Coffee Agreement in 1989 resulted in decreasing influence of state-driven coffee boards and organizations (Daviron & Ponte, 2005) with increasing wealth capture by large roasters. Producers' share of the total value of the global coffee market decreased from 20% in 1989 to 13% in 1995 (Ponte, 2002) to less than 10% in 2015 (Samper et al., 2015). Specialty roasters and traders have increased their share of the total market through market differentiation and capture of intangible capital, whereas a handful of multinationals have further increased sector consolidation through absorption of more innovative actors—for example, the acquisition by JAB of Stumptown Roasters, or Nestlé's absorption of Blue Bottle Coffee (Grabs & Ponte, 2019; Panhuysen & Pierrot, 2018). This development runs in parallel to record-low world market prices and oversupply of both VSS compliant and conventionally grown coffee (Grabs, 2018; Voora, Bermúdez, & Larrea, 2019), further exacerbating the concentration of the sector (Panhuysen & Pierrot, 2018) and the influence of leading actors (Folke et al., 2019; Grabs & Ponte, 2019).

1.3 | Research hypotheses

Samper and Quiñones-Ruiz (2017) concluded that the coffee industry is 'at a crucial moment' in defining 'the best sustainability strategy going forward', calling for a revisit, reevaluation and improvement of coffee sustainability efforts, especially considering coffee producing countries. Despite the growth in VSS-compliant coffee production, the proliferation of industry-/company-led sustainability standards, and the increased focus on sustainability and other differentiation strategies across the sector, our knowledge of sustainability in the coffee sector remains incomplete.

When analysing sustainability efforts and strategies, some key questions include the following: (i) How are sustainability efforts structured? (ii) Who defines the sustainability activities undertaken? (iii) Where in the value chain are these applied? (iv) Who verifies their implementation? Sustainability efforts can be based on standards or undertaken through individual practices. Although standards prescribe a coherent set of activities, individual practices allow actors to target specific socio-economic and environmental sustainability issues through different means—for example, specific requirements imposed on suppliers or targeted internal projects. Both standards and practices can be defined internally, that is, by the company itself, or externally, that is, by an actor external to the company. Internal standards, for example, Nespresso AAA, are thus company-defined. By contrast, external standards, for example, Fairtrade, are defined by NGOs, multistakeholder initiatives or other external parties. Similarly, individual practices can be defined internally—for example, company-specific sustainability projects—or externally—for example, industry best-practice benchmarks. Sustainability efforts can be applied 'in-house', within the premises of the company, or to suppliers, as 'sustainable sourcing' practices imposed along the value chain. Although 'in-house' practices, such as recycling, may be more visible to consumers, as much as 95% of the socio-economic and environmental impacts of agrifood companies occur upstream in the value chain (Thorlakson et al., 2018). Finally, sustainability efforts can be verified

TABLE 1 List of independent variables used in regression analyses

Variable	Explanation
Region	Company HQ location in Europe, USA/Canada, Asia (incl. Russia and Turkey), Latin America, Africa or Oceania
Size	Company size (XS, S, M, L, XL), defined by number of employees or revenue
Market	Local: Company selling/operating only in country of HQ location
	Regional: Company selling/operating in region of HQ
	Global: Company selling/operating in more than one region
Publicly-listed	Company is publicly-listed (1/0)
Type	B2C: Company is consumer-facing
	B2B: Company is business-facing
Producer	Company is producing coffee (1/0)
Trader	Company is trading coffee, i.e., exporting and/or importing coffee (1/0)
Roaster	Company is roasting coffee (1/0)
Processer	Company is processing coffee, i.e., producing pods, instant coffee, ready-to-drink coffee, and other types of processed, nonwhole bean/ground coffee (1/0)
Café	Company is operating one or more cafes (1/0)
Risk	Company mentions risk reduction as part of sustainability work (1/0)—proxy for risk-averse motivation to sustainability, i.e., a reduction of the risk of exposing the company to sustainability-related risks
Consumer engagement	Company active on three or more Social Media platforms (1/0)—proxy for engagement with stakeholders

by external actors (third party verification), which is a requirement for many external standards, by affiliated parties (second party), by the company itself (first party), or not at all.

Based on a large sample of companies, we assess sustainability governance within the coffee sector. We identify the extent to which various sustainability practices and standards are adopted by companies across the coffee sector. We then analyse the factors that influence adoption of sustainability practices to characterize companies' sustainability efforts. When assessing how a small number of coffee roasters disclosed their sustainability work, Bradley and Botchway (2018) found that the sustainability indicators used by companies corresponded to the sustainability challenges identified by scientific research. As scientific findings inform the priorities of several stakeholders, we hypothesize that coffee companies adopt multiple practices addressing the sustainability challenges confronting the sector (Hypothesis 1). Consistent with stakeholder theory, we expect a company's stakeholders to influence adoption of sustainability practices (Bullock & van der Ven, 2020; Shubham et al., 2018; Waldman & Kerr, 2014). We expect company location, ownership, business type and customer engagement to affect adoption of practices. We further expect that a risk-averse attitude to sustainability challenges lead to increased adoption of practices (Mayer & Gereffi, 2010) (Hypothesis 2).

GVC research has demonstrated how leading companies exert influence over other actors in value chains (Grabs & Ponte, 2019; Ponte et al., 2019; van der Ven, 2018). Thus, we hypothesize that differences in size and value chain position affect adoption of sustainability practices and strategies (Mayer & Gereffi, 2010; Rueda et al., 2017; Thorlakson et al., 2018). As coffee is a buyer-driven value chain, we expect that large, downstream companies define internal sustainability practices and apply these across the value chain. Exercising control over their suppliers (Lund-Thomsen, 2019) provide downstream actors with flexibility to design, communicate and enforce criteria aligned with their operations and use these to differentiate themselves from competitors (Rueda et al., 2017). By contrast, we expect that, with fewer resources and lower enforcement capacity, non-lead companies rely on external standards to address sustainability (Hypothesis 3). Given that adoption of sustainability efforts is voluntary and costly, we hypothesize that a small number of progressive companies pioneer adoption of sustainability innovations to differentiate themselves from mainstream actors (Hypothesis 4) (Reinecke et al., 2012; Rogers, 1962).

Analysing the state of sustainability governance within the coffee sector sheds light on how companies strategically tackle sustainability challenges and also points to future developments in other sectors, where sustainability efforts have built on developments within the coffee sector, for example, wine (Scholer, 2018), cocoa or the wider agrifood sector (Auld, 2014b; Ponte, 2019). We explore whether sustainability is mainstreamed across the entire sector or rather a differentiation strategy adopted by some actors with specific characteristics. More broadly, our findings contribute to the understanding of the rapidly expanding realm of transnational private governance and its contribution to sustainable development.

2 | METHODS

2.1 | Sampling

We began by using a snowballing-approach to identify companies in the global coffee sector from web search, reports and literature for a subpopulation of more than 2,500 companies—the total number of companies active in the global coffee sector is not known in detail. We cleaned the data (deleting duplicates, excluding sector organizations, NGOs, consultancies, service, equipment and packaging companies, training centres and legal subsidiaries), which brought the total subpopulation to 1,706. We then randomly selected about a third (n = 587) of the companies for which we collected information on company characteristics and sustainability commitments. During data collection, 74 companies were excluded for various reasons (e.g., faulty websites and lack of data). This brought the final sample to 513 companies (Supporting Information).

2.2 | Coding of company characteristics

We collected information on company characteristics and stakeholders, including size, headquarter location, market, ownership, value chain position, customer engagement and risk awareness (Table 1). For size, we used information on number of staff or turnover to categorize each company. Location was defined by company headquarter. For value chain position, we coded companies as producer, trader, roaster, processer and/or café. We recorded whether the company sold directly to consumers (B2C), to other businesses (B2B), or both, and whether it was publicly listed. Each company was also coded as serving only local, or also regional, or also global markets. To evaluate consumer engagement, we coded company presence on social media channels. Finally, we coded the effect of reducing the risk of exposure to stakeholder complaints by whether or not the company mentioned reducing risk, when communicating on sustainability practices (Supporting Information).

We then conducted primary document analysis of companies' website pages (as of 2018), statements and published reports (if any) to identify their commitments and public communications regarding sustainability practices, standards and other relevant activities, using an approach similar to Thorlakson et al. (2018). We used content analysis to extract information—that is, a qualitative method to categorize text into categories based on selection criteria for each category. To capture the diversity of activities undertaken by companies and evaluate whether these covered the sustainability challenges facing the sector, we searched the literature for sustainability practices relevant to address these challenges (COSA, 2013; Dietz et al., 2018; Panhuysen & Pierrot, 2014; Raynolds et al., 2007; Samper & Quiñones-Ruiz, 2017; Toledo & Moguel, 2012). We identified 21 environmental and 14 socio-economic sustainability practices and eight certification schemes of production standards (Table 2).

We assigned binary scores (1/0) to these practices and certifications, based on company adoption of the specific environmental and

TABLE 2 Environmental and socio-economic sustainability practices and standards included in this study

Environmental practices	Socio-economic practices	External voluntary sustainability standards and certifications[c]
1. Carbon footprint/reduction in GHG emissions[a]	1. No child labour programme or policy	1. Organic[d]
2. Energy use target or policy[a]	2. Gender equality programme or policy	2. Fairtrade[e]
3. Carbon offsets[a]	3. Health & safety policy	3. Rainforest Alliance (RFA)
4. Renewable energy[a]	4. Social employment programme or policy	4. Utz
5. Climate mitigation programmes or policies[b]	5. Education programme for employees	5. Biodynamic
6. Climate adaptation programmes or policies[b]	6. Education for suppliers	6. Demeter
7. Life-cycle assessment[a]	7. Minimum wage	7. Smithsonian Bird Friendly
8. Biodiversity conservation programmes or policies[b]	8. Donations	8. 4C (Common Code for the Coffee Community)
9. Soil protection programmes or policies[b]	9. CSR report	
10. Zero deforestation policy[b]	10. Minimum price	
11. Shade-tree programmes or policies[b]	11. Supply chain transparency	
12. Tree planting programmes or policies[b]	12. Price transparency	
13. Food waste target or policy[a]		
14. Waste target or policy[a]		
15. Recycling target or policy[a]		
16. Composting target or policy[a]		
17. Water consumption target or policy[b]		
18. Water pollution target or policy[b]		
19. Pesticide use target or policy[b]		
20. GMO target or policy[b]		
21. Building or facility certifications[a]		

Note: Detailed explanation of the sustainability practices and external standards included in the Supporting Information.

[a]'In-house' practices.

[b]'Sustainable sourcing' practices.

[c]Internal sustainability standards (incl. Starbucks C.A.F.E. Practices and Nespresso AAA) are not included here.

[d]All certification systems for organic farming were grouped as 'organic' (EU plus national standards, e.g., USDA Organic [US], KRAV [SE] and Soil Association [UK]).

[e]Includes both Fair Trade USA and Fairtrade Labelling Organisation, FLO.

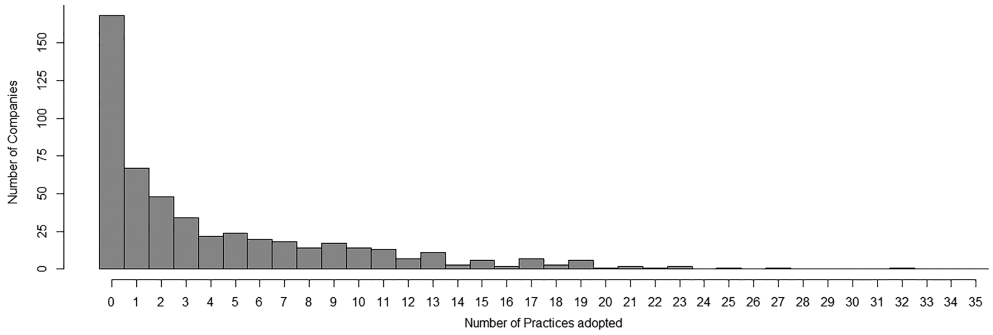

FIGURE 1 Number of sustainability practices adopted by companies

socio-economic sustainability practice. For standards, we coded both whether companies adopted a given standard and whether it was adopted for all coffee products. We also collected information on the use of codes of conduct—defined as a set of rules outlining the norms and responsibilities of and proper practices for the company—and third-party auditing. We also collected information on whether the company collaborates with NGOs on sustainability efforts. To assess how alternative practices are adopted across the coffee sector, we also coded whether the company engaged in direct trade practices. We collected information on coffee products sold, availability of information on product characteristics (provenance, sustainability information, farmer, variety and quality) and any mention of the Sustainable Development Goals (SDGs) as part of sustainability efforts. Finally, to assess company motivation and risk of greenwashing, we coded whether the company claims to be sustainable or act sustainably (Supporting Information).

2.3 | Data analysis

First, we analysed descriptive statistics related to the number and type of sustainability practices adopted by each company. We analysed these by company characteristics, testing for significant differences.

Secondly, using negative binomial regression analysis with stepwise elimination, we tested the association between company characteristics and the number of practices adopted. We also computed simplified regressions by converting 'size' and 'region' to binary variables. To interpret model outputs, we calculated average marginal effects and estimated confidence intervals using bootstrap samples (n = 1,000) (Supporting Information).

Thirdly, using logistic regression, we identify the characteristics of companies that address sustainability challenges by adopting internal sustainability practices versus those that rely on external standards.

TABLE 3 Adoption of sustainability practices by companies by value chain position, size, and location

Adoption of practices	Environmental	Socio-economic	Total
All	1.89	2.32	4.21
Value chain position			
Producer	3.07	3.09	6.15
Trader	1.70	2.79	4.50
Roaster	2.12	2.50	4.62
Processer	3.41	3.27	6.68
Café	1.63	2.01	3.64
Size			
XS	0.99	1.35	2.34
S	1.46	2.37	3.84
M	2.28	2.31	4.59
L	2.45	2.66	5.10
XL	5.32	5.00	10.32
Location			
Oceania	0.84	0.94	1.78
Asia (incl. Russia and Turkey)	0.90	1.31	2.20
Africa	1.21	2.11	3.32
Europe	2.06	2.41	4.46
US/Canada	2.26	2.71	4.96
Latin America	2.13	3.00	5.13

Note: Additional details in Table S5.

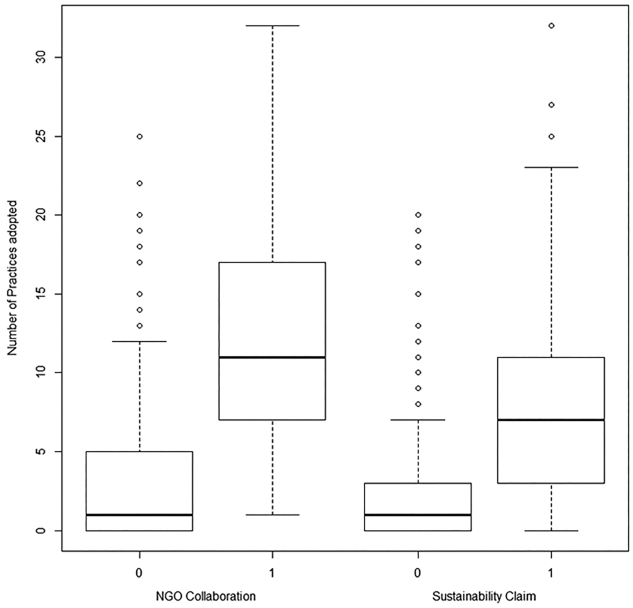

FIGURE 2 Number of practices adopted by companies collaborating with nongovernmental organizations (NGOs) (left panel) and companies claiming to be sustainable (right panel). The black line denotes the median, whereas the box indicates the 25/75th percentile

We created a binary dependent variable describing whether a company commits to five or more sustainability practices among the 35 practices included in the study ('SP') and another binary dependent variable describing whether a company adopts one (or more) external standard(s) for all coffee products ('CO'). We computed logistic regressions with step-wise elimination with the variables 'SP' and 'CO' successively as dependent variables, and company characteristics as independent variables. We also tested the characteristics of the companies using different thresholds for the dependent variables and simplified regressions using binary variables for size and region. To interpret model outputs, we calculated average marginal effects and estimated confidence intervals using bootstrap samples (n = 1,000) (Supporting Information).

3 | RESULTS

Our sample includes diverse companies: large global roasters; producers; processers; small national roasters; global café chains; large trading houses; and everything in between. Several companies are vertically integrated along the coffee value chain; 60% of the companies specialize in one supply chain function, whereas a third of the companies undertake two—most typically roaster and café. Twenty-five companies undertake three functions, whereas just three companies undertake four functions. No company undertakes five functions.

3.1 | Adoption of sustainability practices (Hypotheses 1 and 2)

Company adoption of sustainability practices varies greatly (Figure 1). Companies adopt 4.21 practices on average, of which 1.89 are environmental and 2.32 socio-economic. The median adoption is 2, indicating a small number of companies adopt a high number of practices, while most companies adopt no or few practices. Our sample of companies is divided into three tiers of approximately equal size. A third of the companies do not adopt any sustainability practice, thus forming a large group of laggards. The second third adopts 1–4 practices, which makes them relatively weak participants to sustainability efforts. The final third is formed by companies that adopt five practices or more.

The number of practices adopted varies based on company characteristics, such as supply chain position, size and region (Table 3). Among value chain participants, producers and processers adopt the most practices, whereas cafés adopt the least. Traders and roasters adopt a similar number of practices in total, but roasters adopt more environmental practices than traders do. A consumer-country versus producer-country divide between companies is not observed. Rather, companies in Europe, North America and Latin America adopt a similar and higher than average number of practices. Companies from Africa adopt just below the average rate, whereas companies from Asia and Oceania adopt about half the average amount of practices. Differences are much more pronounced for company size: very large companies adopt on average five times as many practices as very small companies, three times as many as small companies, and twice as many as large companies. This pattern is even more skewed for environmental practices.

Companies that work with NGOs on sustainability adopt significantly more practices than those that do not, as do companies that consider themselves sustainable (Figure 2). However, 9% of the companies claim to be 'sustainable', although adopting only three or fewer sustainability practices and no external standard. They are thus at risk of 'greenwashing', as their sustainability claim is not matched by actual implementation measures (Table S6).

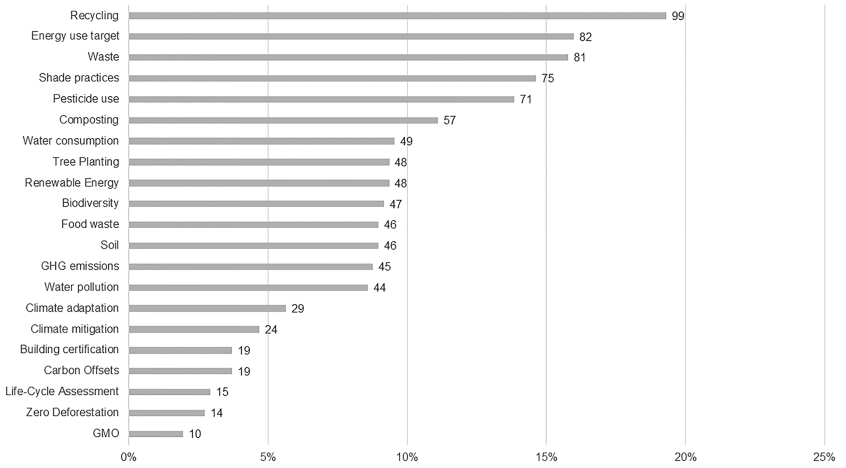

FIGURE 3 Adoption frequency by companies of environmental practices and total number of companies adopting the specific practice

Companies' adoption of environmental practices varies widely. More than half of all companies do not adopt any practice to decrease their environmental impact, and five out of six companies adopt fewer than five environmental practices. The remaining companies are the environmental leaders who concentrate the effort towards ecological sustainability by adopting multiple environmental practices. Very small companies adopt just one environmental practice on average, whereas very large companies adopt more than five (Table 3). Adoption differs across the value chain, with processers and producers adopting the most practices and traders and cafés adopting the fewest. Some environmental practices are more frequently adopted than others (Figure 3). At the one end, 19% of companies have a recycling policy or target. At the other end, only 10 and 14 companies in our sample have a policy on GMOs and deforestation, respectively. The adoption of specific practices also varies across the supply chain, and companies generally adopt practices of importance to their segment. Processers and cafés adopt significantly more 'in-house' practices—for example, a recycling programme or reducing energy consumption—than 'sustainable sourcing' practices—for example, reducing water pollution, establishing shade trees or adopting biodiversity measures. The opposite is observed for traders, who apply more 'sustainable sourcing' practices. For roasters, there is no significant difference in adoption between 'in-house' and 'sustainable sourcing' practices (Table S7). For coffee producers, this distinction becomes irrelevant, as all practices are applied on-farm.

Companies adopt more socio-economic practices than environmental practices. However, more than a third of all companies do not adopt any socio-economic practice, and 80% adopt less than five. The top 20% adopts two thirds of all the practices adopted by companies, indicating that socio-economic sustainability efforts are also concentrated among a small group of companies. The practice most frequently adopted is donations, followed by paying producers a premium (i.e., above minimum market price), though only 2% of the companies do this across all products. Only 13% of all companies have an explicit policy on child labour. It is uncommon for most companies to publish a CSR report (Figure 4). In contrast to environmental practices, there is no clear difference in the number of socio-economic practices adopted across the value chain. However, larger companies adopt more—and different—practices than smaller companies do. Large companies are significantly more likely to have implemented a code of conduct, published a CSR report and invested in their value chain. On the contrary, smaller companies—especially small traders, roasters and cafés—are more likely to be (partly) transparent on supply-chain partners and prices, and to pay producers a price premium (Table S8).

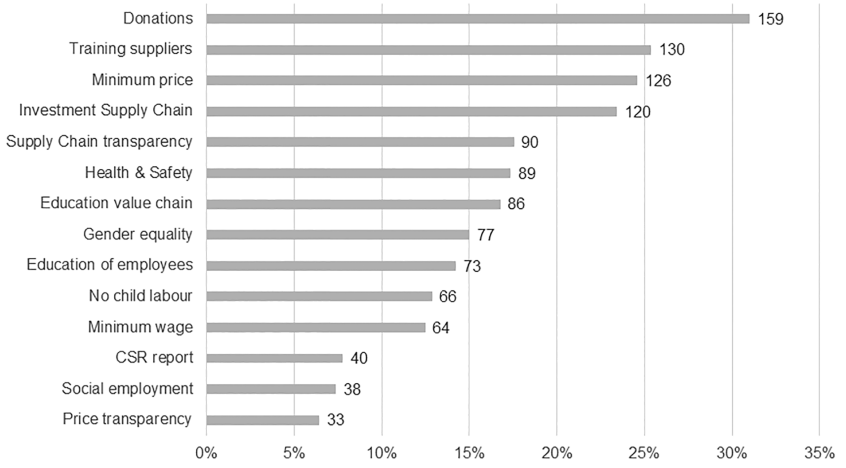

FIGURE 4 Adoption frequency by companies of socio-economic practices and total number of companies adopting the specific practice

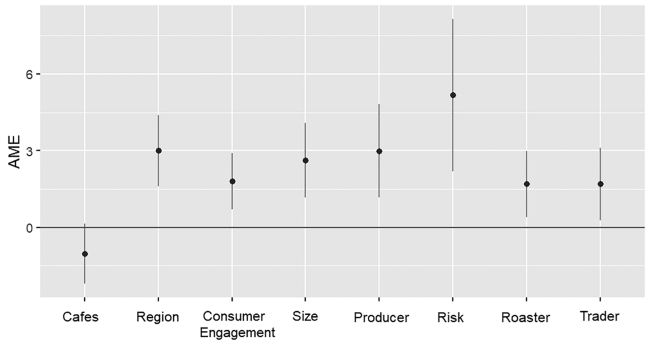

FIGURE 5 Average predicted change in the number of sustainability practices adopted, when moving from 0 to 1 for the binary variables, all else being equal. The black lines denote the 95% confidence interval, computed using bootstraps

The negative binomial regression reveals that company size, value chain position and several stakeholder characteristics are significantly associated with predicted adoption of sustainability practices. Consumer engagement through social media and risk awareness are both significantly and positively associated with predicted adoption of practices, whereas business-facing companies are significantly and negatively associated with predicted adoption of practices. Being a publicly-listed company is not significantly associated with the adoption of practices (Table S9). Reducing region and size to binary variables show similar results, although the effect of size and location become more pronounced. All else being equal, companies that are large, located in Europe, North America or Latin America, or producers, are predicted to adopt three additional practices on average. Companies that are traders or roasters are predicted to adopt two additional practices on average, whereas cafés are predicted to adopt one practice less. Companies that are risk-aware or engage on social media are predicted to adopt on average about five and two additional practices, respectively (Figure 5, Table 4).

Excluding producers (i.e., focusing only on supply chain actors) yields results that are similar to the full sample, though the average predicted change in the number of practices adopted changes slightly (Table 4). Analysing only upstream actors (producers and traders) reveals that large size still is significantly and positively associated with predicted adoption of practices, whereas other characteristics are not significantly associated. For downstream actors (roasters, processers and cafes), location in Europe, North America or Latin America, consumer engagement and risk awareness are significantly and positively associated with predicted adoption of practices, whereas other characteristics are not. Analysing adoption of environmental practices for all companies show that roasters and producers are significantly and positively associated with predicted adoption, whereas traders are not. Other variables show similar associations as for all practices. For socio-economic practices alone, results are similar to that of all practices, except that cafés are no longer significantly associated with a predicted reduction in adoption of practices (Supporting Information).

3.2 | Internal practices versus external standards (Hypothesis 3)

External standards are widely adopted among companies, especially organic and Fairtrade; 51% of all companies include organic coffee in their product assortment, 39% include Fairtrade, while RFA (29%) and Utz (17%) are also often included. Note that figures reported here are frequencies, not volumes of coffee. In absolute quantities of coffee produced, 4C certification is by far the largest (29%)—suggesting it is primarily adopted by very large companies—followed by Utz (9%), Fairtrade (7%) and RFA (5%) (Grabs, 2018). Some companies adopt an external standard for all coffee carried, especially Organic and Fairtrade. About 15% of the companies in our sample adopt one or more external standards for all coffee products carried.

TABLE 4 Average marginal effect for negative binomial regression—adoption of sustainability practices

	All companies		Excluding producers	
Independent variable	**Average marginal effect**	**95% confidence interval**	**Average marginal effect**	**95% confidence interval**
Cafes	−1.03*	−2.18, 0.11	−0.88	−2.04, 0.27
Region (EU, US/CA, LA)	3.00***	1.44, 4.56	3.18***	1.46, 4.90
Consumer Engagement	1.80***	0.79, 2.81	1.89***	0.89, 2.90
Size (L, XL)	2.62***	1.44, 3.81	2.32***	1.16, 3.49
Producer	2.99***	1.17, 4.81	Excluded from model	
Risk	5.17***	3.79, 6.55	5.06***	3.74, 6.38
Roaster	1.70***	0.49, 2.90	1.88***	0.56, 3.20
Trader	1.69**	0.39, 2.99	2.20***	0.73, 3.66

Note: The confidence intervals are computed using bootstraps. All variables are binary. The results can be interpreted as the average predicted change in the number of sustainability practices adopted, when moving from 0 to 1 for binary variables, all else being equal.
*Significance at the 10% level.
**Significance at the 5% level.
***Significance at the 1% level.

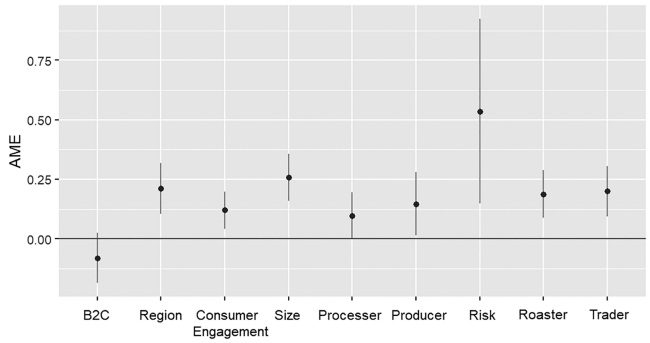

FIGURE 6 Average predicted change in probability of adopting internal practices as sustainability strategy, when moving from 0 to 1 for the binary variables, all else being equal. The black bars denote the 95% confidence interval, computed using bootstraps

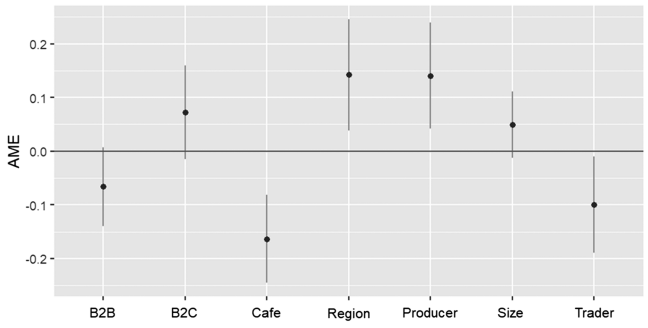

FIGURE 7 Average predicted change in probability of adopting external standards as sustainability strategy, when moving from 0 to 1 for the binary variables, all else being equal. The black bars denote the 95% confidence interval, computed using bootstraps

About a third of the companies adopt five or more sustainability practices. Among these, 81 companies (16% of all companies) adopt 10 practices or more, which places them among the most progressive companies. Only 4% of all companies (18 companies) adopt half or more of all the practices, making them sustainability leaders.

The logistic regression reveals that the probability of a company addressing sustainability through adoption of internal practices significantly increases when companies are large, aware of sustainability risks, engage with consumers on social media or are located in Europe, United States/Canada or Latin America. Being a producer, trader or roaster is also significantly associated with an increased probability of adopting the strategy (Figure 6, Table 5).

TABLE 5 Logistic regression results—companies addressing sustainability through adoption of internal practices

	Adoption of internal practices	
Independent variable	**Average marginal effect**	**95% confidence interval**
Region (EU, US/CA, LA)	0.21***	0.10, 0.32
Size (L)	0.26***	0.16, 0.36
B2C	−0.08	−0.18, 0.02
Producer	0.15**	0.00, 0.29
Trader	0.20***	0.08, 0.32
Roaster	0.19***	0.10, 0.28
Processer	0.10*	0.00, 0.20
Consumer Engagement	0.12***	0.04, 0.20
Risk	0.54***	−1.84, 2.91

Note: The confidence intervals are computed using bootstraps. All variables are binary. The results can be interpreted as the average predicted change in probability of adopting internal practices as sustainability strategy, when moving from 0 to 1 for binary variables, all else being equal.
*Significance at the 10% level.
**Significance at the 5% level.
***Significance at the 1% level.

The probability that a company relies on external standards to address sustainability significantly increases for producers but is significantly reduced for traders and cafés. Being consumer-facing or located in Europe, United States/Canada or Latin America is also significantly associated with increased probability of adopting the strategy, whereas being business-faced decreases this probability (Figure 7, Table 6).

3.3 | Hypothesis 4: Pioneers in direct trade and transparency

A sixth of the companies in our sample engage in direct trade. Direct trade companies adopt significantly more socio-economic (but not environmental) practices than the rest (Table S11). Some companies invest in increasing transparency on the provenance of coffee, farmer

TABLE 6 Logistic regression results—companies addressing sustainability through adoption of external standards

	Adoption of external standards	
Independent variable	**Average marginal effect**	**95% confidence interval**
Region (EU, US/CA, LA)	0.14*	−0.01, 0.30
Size (S, M)	0.05	−0.01, 0.11
B2C	0.07*	−0.01, 0.16
B2B	−0.07*	−0.14, 0.00
Producer	0.14***	0.04, 0.24
Trader	−0.10**	−0.20, 0.00
Cafe	−0.16***	−0.24, −0.08

Note: The confidence intervals are computed using bootstraps. All variables are binary. The results can be interpreted as the average predicted change in probability of adopting external standards as sustainability strategy, when moving from 0 to 1 for binary variables, all else being equal.
*Significance at the 10% level.
**Significance at the 5% level.
***Significance at the 1% level.

operations, supply chain actors and pricing. A group of—primarily small—companies present producer information for all their coffee products and some also indicate provenance, sustainability information and/or farmer information on the package itself. A small fraction of companies (3.9%) discloses all actors of the value chain, whereas a sixth provide some information (e.g., some partners). A minority (2.5%) discloses prices paid to value chain actors (i.e., farmers, cooperatives and/or traders) for all coffee bought, whereas 6.5% provide this information for certain products only. The 'radically transparent' companies, which have either full price transparency (2.5%), full traceability (3.9%) or use technological solutions, for example, blockchain (0.6%) to facilitate transparent value chains, consist of a small group of 23 companies, which are midsize or smaller, from the EU or United States, and mostly consumer-facing roasters. This group adopts significantly more sustainability practices than nontransparent companies (Table S12).

4 | DISCUSSION

4.1 | Adoption of sustainability practices

Our results show that the efforts of companies in the coffee sector to address sustainability vary widely. A third of the companies show dedicated commitment to sustainability, whereas two thirds show no or only little commitment. The relatively low adoption of sustainability practices reflects the low total spending on sustainability, estimated in the early 2010s to be only $350 million across the entire sector, less than 0.15% of total sector size greater than $200 billion (Panhuysen & Pierrot, 2014). Sustainability efforts are concentrated among a small portion of the sector. A small group of 18 companies, the sustainability leaders, composed of both small and large companies, have adopted half or more of the practices assessed in this study.

Contrary to our first hypothesis, several sustainability issues remain underprioritized by the majority of companies. This is particularly the case for climate change, which is expected to make large coffee-producing areas unsuitable for future production (Ovalle-Rivera et al., 2015; Pham et al., 2019), and deforestation, which contributes to the loss of natural varieties (Davis et al., 2019). By contrast, efforts to reduce the impact of coffee processing and consumption, which also generate cost-savings—for example, recycling, waste management and energy reduction programmes—are more widely adopted.

Consistent with our second hypothesis, companies with different stakeholders adopt different sustainability practices. This is likely affected by stakeholders' normative concern for and knowledge about sustainability impacts. For example, regional differences in the adoption of practices are significant and likely influenced by varying degrees of prominence of sustainability issues across different regions. In line with Thorlakson (2018), we find a positive association between European companies and adoption of sustainability practices and a negative association for Asian companies. However, the more geographically diverse sample in our study shows that producer regions—especially Latin America—also embrace sustainability (mainly through standards). Companies in Oceania are negatively associated with adoption of sustainability, whereas American and Canadian companies are positively associated. The significant association between adoption of practices and risk awareness by companies also suggests that managing exposure to risks from stakeholders' awareness of sustainability issues is a driving force behind adoption of sustainability practices (Mayer & Gereffi, 2010; Thorlakson et al., 2018). Business-facing companies are negatively associated with adoption of practices, whereas consumer-facing companies are significantly associated with adoption of standards, showing that company-type influences sustainability efforts.

4.2 | Contrasting sustainability strategies

Howard and Jaffee (2013) found an inverse relationship between company size and commitment to sustainability for coffee companies, based on a small sample consisting only of U.S.-based roasters. Other studies found that financial power or value chain leverage facilitates adoption of sustainability practices by larger firms (Bradley & Botchway, 2018; Brammer & Pavelin, 2008; Dauvergne & Lister, 2012; Ponte, 2019). Drawing on Ponte (2019), we identify two strategies for addressing sustainability: 'hands-on' and 'hands-off' governance. Adoption by a company of internal sustainability practices can be seen as a 'hands-on' approach to sustainability governance, where companies directly decide which sustainability areas to target within their company and value chain. By contrast, adoption of one or more external VSSs can be seen as a 'hands-off' approach, as the specific sustainability efforts of the company are defined by external actors through the scope of existing standards.

Consistent with our third hypothesis, large companies have greater financial, human resources and enforcement capacity to apply 'hands-on' governance, designing internal sustainability practices and implementing these along their value chain. By contrast, small, consumer-facing companies adopt fewer sustainability practices and are more likely to rely on external certification standards to ensure that sustainability issues are addressed beyond their own company. Similarly, producers have little bargaining power in a market-driven value chain like coffee and therefore rely on external standards to increase their leverage towards buyers.

A central issue for 'hands-off' governance is to ensure that existing standards address the major problems facing the sector, promote an ambitious sustainability agenda and improve farmer livelihoods. All external certification standards are not equally effective at addressing sustainability (Dietz et al., 2018). Selection of a specific standard often depends on preference for socio-economic versus environmental sustainability. Although certification is not a silver bullet to achieving sustainability (COSA, 2013; DeFries et al., 2017; Vanderhaegen et al., 2018), our results show that certification standards remain a crucial component of the toolbox available to companies seeking to become more sustainable. However, risks of value-added capture by

actors further down the value chain should be addressed to ensure benefits also reach producers (Daviron & Ponte, 2005; Samper & Quiñones-Ruiz, 2017).

For those relying on 'hands-on' governance, a central challenge is to ensure that the sustainability practices adopted are implemented effectively and across the entire value chain. When not relying on external standards, it can be difficult to assess the extent and impact of the adopted practices—especially with limited third-party verification and without consistent, sector-wide indicators. Previous research in fact showed that some companies adopted sustainability efforts for only a fraction of their value chain (Howard & Jaffee, 2013). This reduces overall impact and further makes these companies liable to claims of greenwashing. We found 9% of the companies at risk of greenwashing. Without audits, transparent application, strict enforcement and publicly assessable goals, 'hands-on' sustainability governance could fail to produce substantial changes in outcomes. Further, the adoption of 'in-house' practices more visible to downstream stakeholders carries a risk of not adequately addressing the most critical sustainability challenges at origin (Samper & Quiñones-Ruiz, 2017), for example, child labour, water pollution and deforestation. In this regard, collaborative programmes across individual companies to address, for example, climate change are encouraging, as is the work of a few, mainly large companies, to link their sustainability commitments to the SDGs.

4.3 | Market differentiation and sustainability leadership

Consistent with Hypothesis 4, we found that the most progressive companies are differentiating themselves through innovative sustainability practices, such as direct trade or increased transparency on suppliers and pricing. Direct trade is associated with adoption of practices mostly for greater socio-economic rather than environmental sustainability. Critiques of direct trade as a private governance practice highlight the focus on optimizing quality rather than decreasing environmental impacts, or the risk of co-optation due to a lack of a commonly accepted definition (MacGregor et al., 2017). Transparency is addressed through programmes by predominantly small companies, for example, 'The Transparent Trade Initiative', a project for single-origin, direct trade coffee, and 'The Pledge: A Common Code for Transparency in Coffee Buying'. We also found that transparent companies adopt more sustainability practices.

The 18 companies that belong to the sustainability leaders group consist of three types of companies, each catering to different stakeholders (Table S13). The 'global' group consists of large, well-known, publicly-listed roasters with global reach, known for communicating sustainability efforts widely, probably to differentiate themselves from mainstream competitors. These large, dominant actors can influence sustainability strategies adopted by the whole sector through their global reach and influence on smaller actors across the value chain. However, if action is taken only by the most progressive of the large companies, sustainability efforts increase differentiation of the sector. The 'conscious-consumer' group is formed by midsized, mainly northern European roasters, who adopt the most practices of the three groups. They serve well-off consumers and remain limited in reach by their relatively narrow stakeholder base. Thus, one cannot expect mainstreaming of sustainability to spread from this group. The 'specialty' group consists of small roasters from North America and Europe, who focus on quality and relationships with producers. They adopt fewer practices than the other two groups, but are more transparent and often rely on direct trade. With their small size and more adaptive stakeholder base, they adopt innovative strategies, which the rest of the sector can adopt later on if these strategies are successful. The sustainability leaders adopt 21.2 practices on average, mostly those visible to downstream stakeholders. Only one of the sustainability leaders has a clear no-deforestation policy with a quantitative target, and less than half have policies on soil and biodiversity. Most have adopted actions to promote climate mitigation and adaptation, mainly in the form of research or pilot projects. There are only one trader and one producer among the 18 sustainability leaders. That sustainability leadership emanates from downstream actors emphasizes coffee's buyer-driven value chain, which entails a risk that sustainability aspirations of upstream stakeholders in producer regions are not adequately represented (Samper & Quiñones-Ruiz, 2017).

Following Rogers' theory on the diffusion of innovation (Rogers, 1962), sustainability leaders could be seen as innovators in a general industry transition towards sustainability. By acting more sustainably, these actors can induce 'laggards' to enact higher sustainability ambitions (De Mendonca & Zhou, 2020), facilitating sector mainstreaming. However, these companies could also use sustainability to differentiate themselves from mainstream competitors, appealing to sustainability-conscious stakeholders. Whether increased sustainability in coffee value chains will affect overall sector practices or remain a niche activity will depend on stakeholder demand and whether it becomes institutionalized in activities of lead firms.

4.4 | The future of sustainability in the coffee sector

The use of 'hands-on' governance by large actors to push sustainability through their own value chains signals a departure from the institutionalization of certification (Auld, 2014b; Grabs, 2018). Rather than relying on existing certification schemes, several coffee companies implement sustainability through direct trade, internal standards and practices, and codes of conduct. At best, this development can directly address sustainability challenges within coffee value chains; at worst, it fosters greenwashing and undermines effective regulatory action. 'Hands-on' strategies can be viewed as a 'reinterpretation of sustainability' efforts (Grabs, 2017), where maintaining control of the value chain while appealing to the company's stakeholders and maximizing market share becomes more important than the branding value provided by certifications. At the same time, the use of 'hands-off' governance by smaller, consumer-facing actors underlines the important role that

certification standards plays for companies unable to exercise power through value chain governance. To survive in an increasingly consolidated sector, smaller actors must remain innovative, while relying on the authority and reach held by the certification bodies to achieve sustainability beyond their own gate.

Sustainability efforts in the coffee sector are thus accompanied by a growing market differentiation, not only between the sustainable versus nonsustainable actors, but also within the sustainable segment, between those adopting 'hands-on' versus 'hands-off' strategies. Conversely, with sustainability strategies being adopted by a third of all companies and new differentiation strategies—for example, direct trade and transparency—embraced by the most innovative actors, mainstream companies and brand owners face increasing pressure from stakeholders to also adopt sustainability policies to reduce risks and increase competitiveness. This leads to a convergence around sustainability, which becomes one of the 'rules of the game' in the coffee sector (Reinecke et al., 2012). Sustainability convergence at the sector-level and differentiation at the company-level, with actors tailoring sustainability actions to their needs and stakeholders, signals a need for common coffee sustainability indicators, which are consistent with the SDGs (Bradley & Botchway, 2018; Samper & Quiñones-Ruiz, 2017). In addition, mandatory reporting requirements (Kareiva et al., 2015) would increase transparency and enable comparison of company efforts. Only when sustainability governance becomes fully mainstreamed will the coffee sector as a whole become more sustainable.

4.5 | Limitations

Our study builds on data collected from companies and is thus contingent on companies' accurately reporting their sustainability efforts. The ability to and resources expended on reporting company sustainability efforts thus affect results. Small companies likely have fewer resources to maintain websites and produce annual reports, leaving potential efforts unreported. Further, reporting is not necessarily reflective of actual sustainability impact (Delmas & Blass, 2010). Given that the information is self-reported, there is a risk of greenwashing. The study potentially misrepresents producers, as most producer-groups do not have an online presence and those that do tend to be the better-organized and wealthier ones. It should also be stressed that our research evaluates neither the effectiveness nor the impact of the sustainability efforts of companies. Further, the data do not allow for an assessment of the quality, nor the extent of the individual practices adopted.

5 | CONCLUSION

Sustainability issues are not evenly addressed across the coffee sector, as a third of all companies do not engage at all with sustainability and another third adopts only a few sustainability practices. The final third shows tangible commitment to sustainability exercised through different approaches. A few companies even see it as their core business. Large, risk-aware companies prefer 'hands-on' governance through adoption of internal practices. Producers and small, consumer-facing companies prefer 'hands-off' governance to address sustainability, relying on external standards. The coffee sector still has a long way to go in ensuring sustainability across the entire sector, but a few progressive companies lead the way. Increased adoption of standards by those less able to engage across the value chain could stimulate demand for certified products. Audits, standardized indicators, mandatory reporting and increased transparency of those adopting practices would ensure that commitments result in greater sustainability.

Most companies fall short on several important areas, such as climate change and deforestation, signalling that sector mainstreaming of sustainability is yet to occur. Instead, our results highlight a differentiation between a mainstream market largely not or only weakly addressing sustainability challenges and a smaller market incorporating sustainability through 'hands-on' or 'hands-off' governance. With increasing stakeholder awareness of sustainability challenges and new information technologies, sustainability innovations are likely to continue to transform the coffee sector.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

S.B. and E.L. designed the research. S.B. performed the research. S.B. and E.L. wrote the paper.

DATA AVAILABILITY STATEMENT

Data collection, analysis, graphics and interpretation was done using R and Microsoft Excel. The data are available from the corresponding author upon request.

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REFERENCES

Alda, M. (2019). Corporate sustainability and institutional shareholders: The pressure of social responsible pension funds on environmental firm practices. *Business Strategy and the Environment*, *28*(6), 1060–1071. https://doi.org/10.1002/bse.2301

Auld, G. (2010). Assessing certification as governance: Effects and broader consequences for coffee. *Journal of Environment and Development*, *19*(2), 215–241. https://doi.org/10.1177/1070496510368506

Auld, G. (2014a). Confronting trade-offs and interactive effects in the choice of policy focus: Specialized versus comprehensive private governance. *Regulation and Governance*, *8*(1), 126–148. https://doi.org/10.1111/rego.12034

Auld, G. (2014b). *Constructing private governance: The rise and evolution of forest, coffee, and fisheries certification*. New Haven, CT: Yale University Press. https://doi.org/10.12987/yale/9780300190533.001.0001

Auld, G., Bernstein, S., & Cashore, B. (2008). The new corporate social responsibility. *Annual Review of Environment and Resources*, *33*(1), 413–435. https://doi.org/10.1146/annurev.environ.32.053006.141106

Auld, G., Gulbrandsen, L. H., & McDermott, C. L. (2008). Certification schemes and the impacts on forests and forestry. *Annual Review of Environment and Resources*, *33*(1), 187–211. https://doi.org/10.1146/annurev.environ.33.013007.103754

Barjolle, D., Quiñones-Ruiz, X. F., Bagal, M., & Comoé, H. (2017). The role of the state for geographical indications of coffee: Case studies from Colombia and Kenya. *World Development*, *98*, 105–119. https://doi.org/10.1016/j.worlddev.2016.12.006

Bernstein, S., & Cashore, B. (2007). Can non-state global governance be legitimate? An analytical framework. *Regulation & Governance*, *1*(4), 347–371. https://doi.org/10.1111/j.1748-5991.2007.00021.x

Bitzer, V., Francken, M., & Glasbergen, P. (2008). Intersectoral partnerships for a sustainable coffee chain: Really addressing sustainability or just picking (coffee) cherries? *Global Environmental Change*, *18*(2), 271–284. https://doi.org/10.1016/j.gloenvcha.2008.01.002

Blackman, A., & Rivera, J. (2011). Producer-level benefits of sustainability certification. *Conservation Biology*, *25*(6), 1176–1185. https://doi.org/10.1111/j.1523-1739.2011.01774.x

Bradley, O. J., & Botchway, G. O. (2018). Communicating corporate social responsibility (CSR) in the coffee industry. *Sustainability Accounting, Management and Policy Journal*, *9*(2), 139–164. https://doi.org/10.1108/SAMPJ-02-2017-0015

Brammer, S., & Pavelin, S. (2008). Factors influencing the quality of corporate environmental disclosure. *Business Strategy and the Environment*, *17*(2), 120–136. https://doi.org/10.1002/bse.506

Bray, J. G., & Neilson, J. (2017). Reviewing the impacts of coffee certification programmes on smallholder livelihoods. *International Journal of Biodiversity Science, Ecosystem Services and Management*, *13*(1), 216–232. https://doi.org/10.1080/21513732.2017.1316520

Bullock, G., & van der Ven, H. (2020). The shadow of the consumer: Analyzing the importance of consumers to the uptake and sophistication of ratings, certifications, and eco-labels. *Organization and Environment*, *33*(1), 75–95. https://doi.org/10.1177/1086026618803748

Cashore, B. (2002). Legitimacy and the privatization of environmental governance: How non-state market-driven (NSMD) governance systems gain rule-making authority. *Governance*, *15*(4), 503–529. https://doi.org/10.1111/1468-0491.00199

Chithambo, L., Tingbani, I., Agyapong, G. A., Gyapong, E., & Damoah, I. S. (2020). Corporate voluntary greenhouse gas reporting: Stakeholder pressure and the mediating role of the chief executive officer. *Business Strategy and the Environment*, (July 2019), 1666–1683. https://doi.org/10.1002/bse.2460

COSA. (2013). The COSA Measuring Sustainability Report: Coffee and Cocoa in 12 Countries. Retrieved from http://thecosa.org/wp-content/uploads/2014/01/The-COSA-Measuring-Sustainability-Report.pdf

Darnall, N., Henriques, I., & Sadorsky, P. (2010). Adopting proactive environmental strategy: The influence of stakeholders and firm size. *Journal of Management Studies*, *47*(6), 1072–1094. https://doi.org/10.1111/j.1467-6486.2009.00873.x

Dauvergne, P., & Lister, J. (2010). The prospects and limits of eco-consumerism: Shopping our way to less deforestation? *Organization and Environment*, *23*(2), 132–154. https://doi.org/10.1177/1086026610368370

Dauvergne, P., & Lister, J. (2012). Big brand sustainability: Governance prospects and environmental limits. *Global Environmental Change*, *22*(1), 36–45. https://doi.org/10.1016/j.gloenvcha.2011.10.007

Daviron, B., & Ponte, S. (2005). *The coffee paradox: Global markets, commodity trade, and the elusive promise of development*. London, UK: Zed Books.

Davis, A. P., Chadburn, H., Moat, J., O'sullivan, R., Hargreaves, S., & Lughadha, N. (2019). High extinction risk for wild coffee species and implications for coffee sector sustainability. *Science Advances*, *5*, 3473–3489. https://doi.org/10.1126/sciadv.aav3473

De Mendonca, T., & Zhou, Y. (2020). When companies improve the sustainability of the natural environment: A study of large U.S. companies. *Business Strategy and the Environment*, *29*(3), 801–811. https://doi.org/10.1002/bse.2398

DeFries, R. S., Fanzo, J., Mondal, P., Remans, R., & Wood, S. A. (2017). Is voluntary certification of tropical agricultural commodities achieving sustainability goals for small-scale producers? A review of the evidence. *Environmental Research Letters*, *12*(3), 1–11. https://doi.org/10.1088/1748-9326/aa625e

Delmas, M., & Blass, V. D. (2010). Measuring corporate environmental performance: The trade-offs of sustainability ratings. *Business Strategy and the Environment*, *19*(4), 245–260. https://doi.org/10.1002/bse.676

Delmas, M., & Toffel, M. W. (2004). Stakeholders and environmental management practices: An institutional framework. *Business Strategy and the Environment*, *13*(4), 209–222. https://doi.org/10.1002/bse.409

Dietz, T., Auffenberg, J., Estrella Chong, A., Grabs, J., & Kilian, B. (2018). The Voluntary Coffee Standard Index (VOCSI). Developing a composite index to assess and compare the strength of mainstream voluntary sustainability standards in the global coffee industry. *Ecological Economics*, *150*(August 2017), 72–87. https://doi.org/10.1016/j.ecolecon.2018.03.026

Egels-Zandén, N., & Hansson, N. (2016). Supply chain transparency as a consumer or corporate tool: The case of Nudie Jeans Co. *Journal of Consumer Policy*, *39*(4), 377–395. https://doi.org/10.1007/s10603-015-9283-7

Esty, D. C., & Winston, A. S. (2006). Green to gold: How smart companies use environmental strategy to innovate, create value, and build competitive advantage. https://doi.org/10.5860/choice.44-3366, *44*, 44-3366

Folke, C., Österblom, H., Jouffray, J. B., Lambin, E. F., Adger, W. N., Scheffer, M., … de Zeeuw, A. (2019). Transnational corporations and the challenge of biosphere stewardship. *Nature Ecology & Evolution*, *3*(10), 1396–1403. https://doi.org/10.1038/s41559-019-0978-z

Freeman, R. E. (2010). Strategic management. Cambridge, UK: Cambridge University Press. https://doi.org/10.1017/CBO9781139192675

Freeman, R. E., Wicks, A. C., & Parmar, B. (2004). Stakeholder theory and "the corporate objective revisited.". *Organization Science*, *15*(3), 364–369. https://doi.org/10.1287/orsc.1040.0066

Friedman, M. (1970). The social responsibility of business is to increase its profits. *The New York Times Magazin*, *September*, *6*, 24–29. https://doi.org/10.7150/jgen.24929

Gallego-Alvarez, I., Ortas, E., Vicente-Villardón, J. L., & Álvarez Etxeberria, I. (2017). Institutional constraints, stakeholder pressure and corporate environmental reporting policies. *Business Strategy and the Environment*, *26*(6), 807–825. https://doi.org/10.1002/bse.1952

Gereffi, G. (1999). A commodity chains framework for analyzing global industries. *Working Paper for IDS*, (September 1999), 1–9. http://www.ids.ac.uk/ids/global/pdfs/gereffi.pdf

Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, *12*(1), 78–104. https://doi.org/10.1080/09692290500049805

Gereffi, G., & Lee, J. (2012). Why the world suddenly cares about global supply chains. *Journal of Supply Chain Management*, *48*(3), 24–32. https://doi.org/10.1111/j.1745-493X.2012.03271.x

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/10.1016/j.foodpol.2005.05.007

Glasbergen, P., & Schouten, G. (2015). Transformative capacities of global private sustainability standards: A reflection on scenarios in the field of agricultural commodities. *Journal of Corporate Citizenship*, *2015*(58), 85–101. https://doi.org/10.9774/GLEAF.4700.2015.ju.00010

Goodman, J., Korsunova, A., & Halme, M. (2017). Our collaborative future: Activities and roles of stakeholders in sustainability-oriented innovation. *Business Strategy and the Environment*, *26*(6), 731–753. https://doi.org/10.1002/bse.1941

Grabs, J. (2017). The rise of buyer-driven sustainability governance: Emerging trends in the global coffee sector. (73), 43. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3015166

Grabs, J. (2018). Assessing the institutionalization of private sustainability governance in a changing coffee sector. *Regulation and Governance*, (July). https://doi.org/10.1111/rego.12212, *14*, 362, 387

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

Graham, S. (2020). The influence of external and internal stakeholder pressures on the implementation of upstream environmental supply chain practices. *Business and Society*, *59*(2), 351–383. https://doi.org/10.1177/0007650317745636

Hannah, L., Roehrdanz, P. R., Krishna Bahadur, K. C., Fraser, E. D. G., Donatti, C. I., Saenz, L., … van Soesbergen, A. (2020). The environmental consequences of climate-driven agricultural frontiers. *PLoS ONE*, *15*(2), 1–19. https://doi.org/10.1371/journal.pone.0228305

Hatanaka, M., & Busch, L. (2008). Third-party certification in the global agrifood system: An objective or socially mediated governance mechanism? *Sociologia Ruralis*, *48*(1), 73–91. https://doi.org/10.1111/j.1467-9523.2008.00453.x

Helmig, B., Spraul, K., & Ingenhoff, D. (2016). Under positive pressure: How stakeholder pressure affects corporate social responsibility implementation. *Business and Society*, *55*(2), 151–187. https://doi.org/10.1177/0007650313477841

Hernandez-Aguilera, J. N., Gómez, M. I., Rodewald, A. D., Rueda, X., Anunu, C., Bennett, R., & van Es, H. M. (2018). Quality as a driver of sustainable agricultural value chains: The case of the relationship coffee model. *Business Strategy and the Environment*, *27*(2), 179–198. https://doi.org/10.1002/bse.2009

Howard, P., & Jaffee, D. (2013). Tensions between firm size and sustainability goals: Fair trade coffee in the United States. *Sustainability*, *5*(1), 72–89. https://doi.org/10.3390/su5010072

Imbach, P., Fung, E., Hannah, L., Navarro-Racines, C. E., Roubik, D. W., Ricketts, T. H., … Roehrdanz, P. R. (2017). Coupling of pollination services and coffee suitability under climate change. *Proceedings of the National Academy of Sciences*, *114*(39), 10438–10442. https://doi.org/10.1073/pnas.1617940114

Jaffee, D. (2012). Weak coffee: Certification and co-optation in the fair trade movement. *Social Problems*, *59*(1), 94–116. https://doi.org/10.1525/sp.2012.59.1.94

Kareiva, P. M., McNally, B. W., McCormick, S., Miller, T., & Ruckelshaus, M. (2015). Improving global environmental management with standard corporate reporting. *Proceedings of the National Academy of Sciences*, *112*(24), 7375–7382. https://doi.org/10.1073/pnas.1408120111

Kolk, A. (2013). Mainstreaming sustainable coffee. *Sustainable Development*, *21*(5), 324–337. https://doi.org/10.1002/sd.507

Latta, P., & Barbara, S. (2014). Direct Trade: The New Fair Trade. *Global Societies Journal*, *2*(2), 1–8.

Lee, J., Gereffi, G., & Beauvais, J. (2012). Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries. *Proceedings of the National Academy of Sciences*, *109*(31), 12326–12331. https://doi.org/10.1073/pnas.0913714108

Lernoud, J., Potts, J., Sampson, G., Voora, V., Willer, H., & Wozniak, J. (2017). The state of sustainable markets 2017—Statistics and emerging trends. In *International Trade Centre, International Institute for Sustainable Development, Research Institute of Organic Agriculture (FiBL)* (Vol. 18) (pp. 307–318). Geneva, Switzerland: ITC. https://doi.org/10.1163/156853010X510807

Liesen, A., Hoepner, A. G., Patten, D. M., & Figge, F. (2015). Does stakeholder pressure influence corporate GHG emissions reporting? Empirical evidence from Europe. *Accounting, Auditing & Accountability Journal*, *28*(7), 1047–1074. https://doi.org/10.1108/AAAJ-12-2013-1547

Lund-Thomsen, P. (2019). Corporate social responsibility in global value chains. In S. Ponte, G. Gereffi, & G. Raj-Reichert (Eds.), *Handbook on Global Value Chains* (First Edit, pp. 285–295), Edward Elgar Publishing, Cheltenham, UK. Retrieved from https://www.e-elgar.com/shop/gbp/handbook-on-global-value-chains-9781788113762.html

MacGregor, F., Ramasar, V., & Nicholas, K. A. (2017). Problems with firm-led voluntary sustainability schemes: The case of direct trade coffee. *Sustainability*, *9*(4), 1–25, 651. https://doi.org/10.3390/su9040651

Mayer, F., & Gereffi, G. (2010). Regulation and economic globalization: Prospects and limits of private governance. *Business and Politics*, *12*(3), 1–25. https://doi.org/10.2202/1469-3569.1325

Meemken, E.-M. (2020). Do smallholder farmers benefit from sustainability standards? A systematic review and meta-analysis. *Global Food Security*, *26*, 100373. https://doi.org/10.1016/j.gfs.2020.100373

Meyfroidt, P., Vu, T. P., & Hoang, V. A. (2013). Trajectories of deforestation, coffee expansion and displacement of shifting cultivation in the Central Highlands of Vietnam. *Global Environmental Change*, *23*(5), 1187–1198. https://doi.org/10.1016/j.gloenvcha.2013.04.005

Middendorp, R. S., Boever, O., Rueda, X., & Lambin, E. F. (2020). Improving smallholder livelihoods and ecosystems through direct trade relations: High-quality cocoa producers in Ecuador. *Business Strategy and Development*, *3*(2), 165–184. https://doi.org/10.1002/bsd2.86

Millard, E. (2017). Still brewing: Fostering sustainable coffee production. *World Development Perspectives*, *7–8*(November), 32–42. https://doi.org/10.1016/j.wdp.2017.11.004

Minten, B., Dereje, M., Engida, E., & Tamru, S. (2018). Tracking the quality premium of certified coffee: Evidence from Ethiopia. *World Development*, *101*, 119–132. https://doi.org/10.1016/j.worlddev.2017.08.010

Mitiku, F., de Mey, Y., Nyssen, J., & Maertens, M. (2017). Do private sustainability standards contribute to income growth and poverty alleviation? A comparison of different coffee certification schemes in Ethiopia. *Sustainability*, *9*(2), 1–21, 246. https://doi.org/10.3390/su9020246

Ovalle-Rivera, O., Läderach, P., Bunn, C., Obersteiner, M., & Schroth, G. (2015). Projected shifts in *Coffea arabica* suitability among major global producing regions due to climate change. *PLoS ONE*, *10*(4), e0124155. https://doi.org/10.1371/journal.pone.0124155

Panhuysen, S., & Pierrot, J. (2014). Coffee Barometer 2014. Available at: https://www.hivos.org/assets/2018/06/Coffee-Barometer-2018.pdf

Panhuysen, S., & Pierrot, J. (2018). Coffee Barometer 2018.

Perrault, E., & Clark, C. (2016). Environmental shareholder activism. *Organization & Environment*, *29*(2), 194–211. https://doi.org/10.1177/1086026615571939

Perrini, F., & Tencati, A. (2006). Sustainability and stakeholder management: The need for new corporate performance evaluation and reporting systems. *Business Strategy and the Environment*, *15*(5), 296–308. https://doi.org/10.1002/bse.538

Pham, Y., Reardon-Smith, K., Mushtaq, S., & Cockfield, G. (2019). The impact of climate change and variability on coffee production: A systematic review. *Climatic Change*, *156*(4), 609–630. https://doi.org/10.1007/s10584-019-02538-y

Ponte, S. (2002). The "latte revolution"? regulation, markets and consumption in the global coffee chain. *World Development*, *30*(7), 1099–1122. https://doi.org/10.1016/S0305-750X(02)00032-3

Ponte, S. (2004). Standards and sustainability in the coffee sector: A global value chain approach. Winnipeg, Manitoba: International Institute for Sustainable Development (IISD).

Ponte, S. (2019). *Business, power & sustainability*. London, UK: Zed Books.

Ponte, S., Gereffi, G., & Raj-Reichert, G. (2019). *Handbook on global value chains*. Northampton: Edward Elgar. https://doi.org/10.4337/9781788113779

Ponte, S., & Gibbon, P. (2005). Quality standards, conventions and the governance of global value chains. *Economy and Society*, *34*(1), 1–31. https://doi.org/10.1080/0308514042000329315

Raynolds, L. T. (2009). Mainstreaming fair trade coffee: From partnership to traceability. *World Development*, *37*(6), 1083–1093. https://doi.org/10.1016/j.worlddev.2008.10.001

Raynolds, L. T., Murray, D., & Heller, A. (2007). Regulating sustainability in the coffee sector: A comparative analysis of third-party environmental and social certification initiatives. *Agriculture and Human Values*, *24*(2), 147–163. https://doi.org/10.1007/s10460-006-9047-8

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

van Rijsbergen, B., Elbers, W., Ruben, R., & Njuguna, S. N. (2016). The ambivalent impact of coffee certification on farmers' welfare: A matched panel approach for cooperatives in Central Kenya. *World Development*, *77*, 277–292. https://doi.org/10.1016/j.worlddev.2015.08.021

Roberts, R. W. (1992). Determinants of corporate social responsibility disclosure: An application of stakeholder theory. *Accounting, Organizations and Society*, *17*(6), 595–612. https://doi.org/10.1016/0361-3682(92)90015-K

Rogers, E. M. (1962). *Diffusion of innovations*, , (1st Edition). New York, New York, USA: Free Press.

Rosenberg, L., Swilling, M., & Vermeulen, W. J. V. (2018). Practices of third wave coffee: A Burundian producer's perspective. *Business Strategy and the Environment*, *27*(2), 199–214. https://doi.org/10.1002/bse.2010

Rueda, X., Garrett, R. D., & Lambin, E. F. (2017). Corporate investments in supply chain sustainability: Selecting instruments in the agri-food industry. *Journal of Cleaner Production*, *142*, 2480–2492. https://doi.org/10.1016/j.jclepro.2016.11.026

Rueda, X., Paz, A., Gibbs-Plessl, T., Leon, R., Moyano, B., & Lambin, E. F. (2018). Smallholders at a crossroad: Intensify or fall behind? Exploring alternative livelihood strategies in a globalized world. *Business Strategy and the Environment*, *27*(2), 215–229. https://doi.org/10.1002/bse.2011

Samper, L., Giovannucci, D., & Vieira, L. M. (2015). The powerful role of intangibles in the coffee value chain. *Economic Research Working Paper No.*, (39).

Samper, L., & Quiñones-Ruiz, X. (2017). Towards a balanced sustainability vision for the coffee industry. *Resources*, *6*(17), 1–28. https://doi.org/10.3390/resources6020017

Schaltegger, S., Hörisch, J., & Freeman, R. E. (2019). Business cases for sustainability: A stakeholder theory perspective. *Organization and Environment*, *32*(3), 191–212. https://doi.org/10.1177/1086026617722882

Schleifer, P., Fiorini, M., & Auld, G. (2019). Transparency in transnational governance: The determinants of information disclosure of voluntary sustainability programs. *Regulation and Governance*, *13*(4), 488–506. https://doi.org/10.1111/rego.12241

Scholer, M.(2018). *Coffee and Wine: Two Worlds Compared (First Edition*, Leicester, UK: Troubador.

Sexsmith, K., & Potts, J. (2009). Voluntary sustainability standards and value chain governance: How sustainability standards affect the distribution of decision-making power in global value chains. In *International Institute for Sustainable Development Background Paper*. Manitoba, Canada: Winnipeg.

Shnayder, L., & Van Rijnsoever, F. J. (2018). How expected outcomes, stakeholders, and institutions influence corporate social responsibility at different levels of large basic needs firms. *Business Strategy and the Environment*, *27*(8), 1689–1707. https://doi.org/10.1002/bse.2235

Shubham Charan, P., & Murty, L. S. (2018). Secondary stakeholder pressures and organizational adoption of sustainable operations practices: The mediating role of primary stakeholders. *Business Strategy and the Environment*, *27*(7), 910–923. https://doi.org/10.1002/bse.2041

Stratoudakis, Y., McConney, P., Duncan, J., Ghofar, A., Gitonga, N., Mohamed, K. S., … Bourillon, L. (2015). Fisheries certification in the developing world: Locks and keys or square pegs in round holes? *Fisheries Research*, *182*, 39–49. https://doi.org/10.1016/j.fishres.2015.08.021

Thorlakson, T. (2018). A move beyond sustainability certification: The evolution of the chocolate industry's sustainable sourcing practices. *Business Strategy and the Environment*, *27*(8), 1653–1665. https://doi.org/10.1002/bse.2230

Thorlakson, T., de Zegher, J. F., & Lambin, E. F. (2018). Companies' contribution to sustainability through global supply chains. *Proceedings of the National Academy of Sciences*, *115*(9), 2072–2077. https://doi.org/10.1073/pnas.1716695115

Toledo, V. M., & Moguel, P. (2012). Coffee and sustainability: The multiple values of traditional shaded coffee. *Journal of Sustainable Agriculture*, *36*(3), 353–377. https://doi.org/10.1080/10440046.2011.583719

Vanderhaegen, K., Akoyi, K. T., Dekoninck, W., Jocqué, R., Muys, B., Verbist, B., & Maertens, M. (2018). Do private coffee standards 'walk the talk' in improving socio-economic and environmental sustainability? *Global Environmental Change*, *51*(April), 1–9. https://doi.org/10.1016/j.gloenvcha.2018.04.014

van der Ven, H. (2018). Gatekeeper power: understanding the influence of lead firms over transnational sustainability standards. *Review of International Political Economy*, *25*(5), 624–646. https://doi.org/10.1080/09692290.2018.1490329

Vogel, D. (2008). Private global business regulation. *Annual Review of Political Science*, *11*(1), 261–282. https://doi.org/10.1146/annurev.polisci.11.053106.141706

Voora, V., Bermúdez, S., & Larrea, C. (2019). Marketplace Series 2019 Global Market Report: Coffee. Winnipeg, Manitoba: International Institute for Sustainable Development (IISD).

Waldman, K. B., & Kerr, J. (2014). Limitations of certification and supply chain standards for environmental protection in commodity crop production. *Annual Review of Environment and Resources*, *6*, 429–449. https://doi.org/10.1146/annurev-resource-100913-012432

Wheeler, D., Colbert, B., & Freeman, R. E. (2003). Focusing on value: Reconciling corporate social responsibility, sustainability and a stakeholder approach in a network world. *Journal of General Management*, *28*(3), 1–28. https://doi.org/10.1177/030630700302800301

Zhang, F., & Zhu, L. (2019). Enhancing corporate sustainable development: Stakeholder pressures, organizational learning, and green innovation. *Business Strategy and the Environment*, *28*(6), 1012–1026. https://doi.org/10.1002/bse.2298

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