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A Supply Chain Perspective on ESG: Supply Chain Consciousness and Consumer Market Responses

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Abstract

Despite decades of effort, many environmental and social problems remain unresolved, partly because they arise in supply chains rather than within individual firms. This creates a mismatch: problems occur largely upstream, whereas the resources to solve them reside with downstream lead firms. Lead firms are therefore best placed to act, but as profit-seeking organizations they will act consistently only if it is in their economic interest, and consumers who reward responsible supply chains and sanction irresponsible ones are one important source of such incentives. This study examines whether consumers are concerned about ESG responsibility from such a supply-chain perspective, and whether this concern is associated with their market responses. We conceptualize Supply Chain Consciousness (SCC) as consumers' attention to environmental and ethical issues in industries and supply chains, together with their concern that lead firms take responsibility for them. We also examine two related constructs: Action and Disclosure Expectations (ADE), consumers' expectations that firms and institutions act on and disclose ESG performance, and Purchasing Enablement (PEN), consumers' perceptions of the market and institutional conditions that would make ESG-aligned purchasing easier. Using survey data from consumers recruited through networks in the United Kingdom and France, we assess the constructs with confirmatory factor analysis and examine their associations with willingness to pay and boycott behavior. SCC is positively associated with both outcomes, more clearly with boycott behavior; ADE is associated with willingness to pay only, and PEN with neither. The findings provide preliminary, consumer-side evidence in line with this argument: consumers' concern about supply-chain conditions and lead-firm responsibility is associated with their reported market responses, and the association with boycott behavior holds for the lead-firm-responsibility facet of SCC alone. These findings are consistent with a potential economic rationale, rather than a purely charitable one, for lead firms' investments in responsible supply chains, although they do not directly demonstrate profitability. They lend preliminary support to the view that lead firms should adopt a supply-chain perspective on ESG.

Keywords: ESG; supply chain consciousness; consumer awareness; governance; supply chains; market mechanisms; responsibility attribution; corporate responsibility

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1. Introduction

In this paper, we ask a fundamental question: Are consumers concerned about ESG responsibility from an industry and supply-chain perspective, rather than only in terms of their own consumption or individual firms, and does that concern matter for their market responses? We contextualize the research question as follows. ESG is often discussed as a

firm-level phenomenon, focusing on the environmental, social, and governance practices of individual organizations. However, many ESG issues originate in supply chains, where environmental and social impacts frequently occur beyond a focal firm's direct organizational boundaries (Carter & Rogers, 2008; Seuring & Müller, 2008; Pagell & Wu, 2009). As illustrated conceptually in Figure 1, environmental and social harms often arise upstream in supply chains, whereas financial resources and decision-making authority are concentrated downstream among lead firms. Consequently, it is unclear whether consumers evaluate ESG responsibility only in terms of their own consumption or at the level of individual firms or perceive it as extending across supply-chain activities and outcomes. We define such a perception as a supply-chain perspective on ESG. If consumers adopt this perspective, it should be identifiable and associated with meaningful market responses. This study develops and empirically examines the supply-chain perspective on ESG.

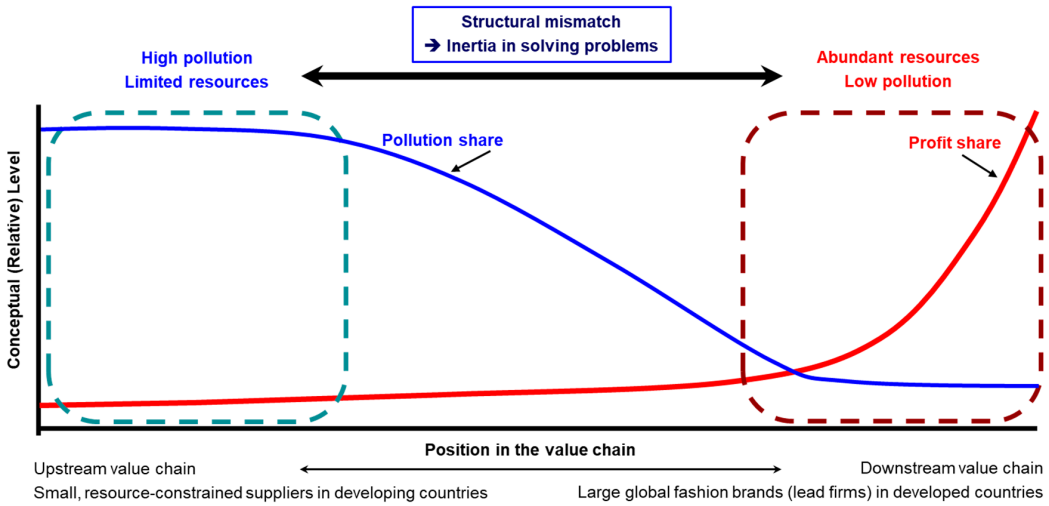

Figure 1. The structural mismatch between ESG problems and ESG accountability. Source: authors' conceptual illustration; axes are schematic and do not represent measured quantities.

ESG (environmental, social, and governance) has recently become one of the most prominent frameworks in corporate strategy, investor decision-making, and regulatory policy-making. Although it was once considered peripheral to business principles, ESG now constitutes a central framework for evaluating long-term viability, risk management, and legitimacy (Suchman, 1995; Eccles et al., 2014; Khan et al., 2016). Its visibility has increased markedly. Institutional investors in the financial sector increasingly require firms to demonstrate ESG compliance. At the same time, consumers and employees expect corporations to align their practices with societal and environmental goals.

This recent prominence is striking, given that the three pillars of ESG (E, S and G) historically developed separately. Environmental concerns—such as climate change, biodiversity loss, and pollution—dominated debates from the 1970s onward (Sachs, 2015). For as long as the environmental movement has existed, international conventions and corporate social responsibility initiatives have addressed social justice issues, including poverty alleviation, labor rights, and protection of vulnerable groups, for many decades (Carroll, 1991; Aguilera et al., 2007). Meanwhile, scholars and practitioners approached governance as a distinct field, emphasizing corporate accountability, shareholder rights, and transparency (Strine, 2019).

Each pillar thus evolved independently, producing valuable knowledge but fragmented solutions. None, however, has been as successful as hoped. Despite decades of governmental programs, international agreements, and NGO campaigns, systemic progress on

environmental and social goals has remained limited. Failures such as the collapse of the Kyoto Protocol in climate governance and labor exploitation scandals such as the Rana Plaza disaster in Bangladesh point to the limitations of state-led and NGO-led initiatives. This persistence of problems suggests a deeper structural issue: firms are embedded in markets, and markets operate primarily through profit incentives (Vogel, 2005; Porter & Kramer, 2006). Unless market logics are altered, corporations will continue externalizing environmental and social costs.

ESG failures in global supply chains raise challenges that extend beyond regulatory compliance and operational coordination. Incidents in industries such as global apparel manufacturing illustrate how responsibility for environmental and social harms can become dispersed across complex supply networks, weakening accountability despite the presence of formal standards and codes of conduct (O'Rourke, 2003; Young, 2006; Locke et al., 2009; Hartmann & Moeller, 2014; Crane et al., 2014; Schrempf-Stirling & Palazzo, 2016). When environmental and social impacts arise across multiple organizations, responsibility can become fragmented, making it difficult to identify who should be held accountable for ESG outcomes. Accordingly, this study approaches ESG from a supply-chain perspective, examining whether consumers are concerned about ESG responsibility at the industry and supply chain level, rather than only in terms of their own consumption or individual firms, and whether such concern is associated with their market responses.

This study builds on that observation. Because many environmental and social problems arise upstream, whereas the resources to address them reside with downstream lead firms (Figure 1), lead firms are best placed to act. As profit-seeking organizations, however, they will act consistently only if it is in their economic interest, and consumers who reward responsible supply chains and sanction irresponsible ones are one important source of such incentives. Whether consumers care about ESG issues from a supply-chain perspective is therefore a critical, and largely unexamined, question.

Recent regulatory and empirical developments make this question more pressing. The European Union's Corporate Sustainability Due Diligence Directive requires large companies to identify and address adverse human rights and environmental impacts in their chains of activities (European Union, 2024), and national laws such as Germany's Supply Chain Due Diligence Act are already reshaping labor governance in supplier countries (Gräf, 2026). Recent studies show that consumers blame buying firms for suppliers' sustainability transgressions (Hartmann et al., 2022), value supply-chain visibility (Kraft et al., 2018), and may boycott firms whose sustainability responses appear merely reactive (Liao & Liu, 2022). These studies, however, typically examine reactions to specific incidents or information treatments. Less is known about whether consumers hold a general belief that lead firms are accountable for upstream conditions, and whether such a belief is associated with their market responses.

This paper makes three contributions. First, it introduces Supply Chain Consciousness (SCC), consumers' attention to environmental and ethical issues arising in industries and supply chains, together with their concern that lead firms take responsibility for the fair treatment of suppliers and workers and for their suppliers' actions, and distinguishes it from related concepts. Unlike the socially or ecologically conscious consumer (Webster, 1975; Roberts, 1996), SCC focuses on upstream supply-chain conditions and on lead firms' responsibility rather than on the consequences of one's own consumption; unlike responsibility attribution after a specific incident (Weiner, 1995; Hartmann et al., 2022), it is a standing disposition rather than a reaction to a particular scandal; and unlike most research on sustainable supply chain management, it focuses on the demand side rather than on firms' practices. We develop SCC together with two related constructs, Action and Disclosure Expectations (ADE) and Purchasing Enablement (PEN), and provide exploratory evidence

on their measurement. Second, we examine how these perceptions are associated with reward-oriented (willingness to pay) and punishment-oriented (boycott) market responses. Third, we identify a partial asymmetry: SCC is associated with both outcomes, with a larger coefficient for boycott behavior, whereas ADE is associated with willingness to pay but not with boycott behavior. The boycott association also holds for the lead-firm-responsibility facet of SCC alone, so it is not simply an artifact of general environmental or social concern. Together, these findings provide consumer-side evidence consistent with the case that lead firms' investments in responsible supply chains are a rational business decision rather than charity, and that lead firms should adopt a supply-chain perspective on ESG.

The remainder of the paper is organized as follows. Section 2 reviews the literature on ESG, supply chain accountability, and consumer responses to sustainability, providing the theoretical foundation for developing a supply-chain perspective on ESG. Section 3 develops the conceptual framework and research propositions. Section 4 presents the survey design, construct validation, and empirical analyses examining the relationships between the proposed constructs and consumer market responses. Section 5 discusses the theoretical and managerial implications of the findings, together with the study's limitations and directions for future research. Section 6 concludes by summarizing the study's contributions and suggesting directions for future research.

2. Literature Review

This section reviews the relevant literature to identify the key concepts and mechanisms that motivate and inform the development of a supply-chain perspective on ESG. Existing studies have made important contributions to understanding environmental sustainability, corporate social responsibility, corporate governance, stakeholder engagement, and supply chain management. However, these streams have largely evolved independently, each explaining only part of the broader ESG phenomenon. Reviewing them together helps clarify both the current state of knowledge and the theoretical gap addressed in this study.

2.1. Accountability in Supply Chains

Research on accountability in supply chains has increasingly recognized that environmental and social responsibility often extends beyond the boundaries of individual firms (Hartmann & Moeller, 2014; Villena & Gioia, 2020). As production activities have become geographically dispersed and organizationally fragmented, responsibility for ESG outcomes has likewise become distributed across multiple tiers of suppliers, subcontractors, logistics providers, and other supply-chain participants (Palazzo & Scherer, 2006; Crane et al., 2014; Wilhelm et al., 2016). Prior studies note that while firms increasingly adopt ESG commitments and disclosure practices, responsibility for adverse social and environmental outcomes often remains diffuse, allowing symbolic compliance to substitute for substantive accountability (O'Rourke, 2003; Locke et al., 2009).

Within this literature, accountability, transparency, and credible action are understood as essential mechanisms for ensuring that firms remain answerable for environmental and social outcomes occurring throughout their supply chains. Lead firms increasingly establish supplier standards, codes of conduct, auditing systems, and sustainability reporting mechanisms to monitor and influence upstream practices (O'Rourke, 2003; Locke et al., 2009; Locke, 2013). Nevertheless, the effectiveness of these mechanisms ultimately depends not only on organizational capabilities but also on the expectations of external stakeholders regarding the appropriate scope of corporate responsibility.

Despite the growing recognition of supply chain accountability, relatively little attention has been devoted to how consumers themselves perceive the boundaries of ESG responsibility. In particular, it remains unclear whether consumers evaluate ESG primarily

in terms of their own consumption or individual firms or whether they perceive responsibility as extending across supply-chain activities and outcomes.

2.2. Environmental Responsibility

Environmental responsibility has long been recognized as central to sustainable development (Porter & van der Linde, 1995). Early scholars emphasized ecological limits to growth and warned of the consequences of unchecked industrialization. More recently, scholars and activists have expressed concern about climate change, biodiversity loss, and pollution as existential threats (Elkington, 1997; Sachs, 2015). Progress has been slow despite decades of international efforts, from the 1972 Stockholm Conference to the 2015 Paris Agreement (United Nations, 2015). Market failures, such as the tragedy of the commons and externalities, continue to hinder environmental protection (Bansal & Roth, 2000; Delmas & Toffel, 2008).

Environmental responsibility has traditionally been discussed primarily in relation to environmental performance at the level of individual organizations, industries, or governments. However, many of the environmental impacts associated with production and consumption arise across interconnected supply chains (Sarkis et al., 2011; Beske & Seuring, 2014). Carbon emissions, resource depletion, waste generation, and biodiversity loss frequently occur during upstream production, transportation, and sourcing activities rather than within the direct operations of focal firms. Consequently, understanding environmental responsibility increasingly requires considering the broader supply-chain systems through which environmental impacts are created and managed.

2.3. Corporate Social Responsibility

Corporate Social Responsibility (CSR) is rooted in social justice in business contexts. Scholars suggested that CSR should encompass economic, legal, ethical, and philanthropic responsibilities. In practice, CSR has focused heavily on labor rights, equity, and human rights protections in global supply chains (Carroll, 1991; Aguilera et al., 2007). Because companies often treated CSR as a voluntary initiative, critics viewed it as lacking enforceability and as decoupled from corporate strategy (Matten & Moon, 2008).

CSR scholarship substantially broadened expectations regarding the societal role of business. Rather than viewing firms solely as economic actors, CSR emphasizes that corporations are responsible for managing the social consequences of their activities. This perspective has influenced the subsequent development of ESG by extending corporate responsibility beyond financial performance toward broader environmental and social objectives.

However, much of the CSR literature continues to conceptualize responsibility primarily at the level of individual firms. Although CSR frequently addresses labor practices, supplier relationships, and human rights in global supply chains, comparatively less attention has been devoted to how external stakeholders perceive the boundaries of corporate responsibility when environmental and social impacts occur beyond the firm's direct operations. Consequently, while CSR establishes why firms should behave responsibly, it provides less guidance regarding how consumers allocate responsibility across complex supply-chain networks (Sen & Bhattacharya, 2001; Bhattacharya & Sen, 2004).

2.4. Governance and the Expansion of Corporate Responsibility

A central theme in the ESG literature is the expansion of corporate responsibility beyond shareholder value maximization toward broader societal and environmental concerns. This shift is most clearly articulated in governance-oriented and stakeholder-oriented perspectives, which argue that firms derive legitimacy not only from financial performance but also from their responsiveness to the expectations of diverse stakeholder groups (Donaldson

& Preston, 1995). Within this view, environmental responsibility and social justice are no longer peripheral concerns but integral dimensions of corporate governance.

Stakeholder theory provides both normative and instrumental foundations for this expanded conception of responsibility (Freeman, 1984; Mitchell et al., 1997). Normatively, firms are expected to consider the interests of actors affected by their activities, including consumers, employees, communities, and civil society. Instrumentally, attending to stakeholder concerns can shape firm performance, risk exposure, and long-term viability (Freeman et al., 2010). Governance scholarship extends this logic by emphasizing the role of boards, investors, disclosure regimes, and regulatory frameworks in institutionalizing stakeholder expectations (Delmas & Toffel, 2008; Slawinski & Bansal, 2015). The growing prominence of sustainability reporting, ESG ratings, and investor stewardship initiatives reflects the incorporation of stakeholder concerns into formal governance processes (Flammer, 2015; Aguilera et al., 2007).

These developments have substantially strengthened the institutional foundations of ESG. Investors, regulators, consumers, and civil society increasingly expect firms to disclose ESG performance, establish governance mechanisms, and demonstrate accountability for environmental and social outcomes. Governance mechanisms therefore provide important channels through which stakeholder expectations are translated into organizational policies and managerial decisions.

Despite these advances, governance-oriented approaches remain largely firm-centric. They tend to conceptualize responsibility and accountability at the level of focal firms, offering limited insight into how ESG obligations are distributed, operationalized, and enforced across complex organizational networks. As a result, governance perspectives clarify why ESG has become salient for firms but provide only partial guidance on how ESG responsibilities are translated into action within the operational systems where environmental and social impacts actually occur.

2.5. Supply Chains and Global Value Chains as the Locus of ESG Challenges

Research on supply chains and global value chains (GVCs) shifts attention from individual firms to the broader systems through which goods and services are produced and delivered. This literature has consistently shown that many of the most pressing ESG challenges—such as environmental degradation, labor exploitation, and unsafe working conditions—are concentrated in upstream segments of supply chains, often located in regions characterized by weak regulatory enforcement and significant power asymmetries (Humphrey & Schmitz, 2002; Barrientos et al., 2011; Ponte & Sturgeon, 2014).

GVC scholarship highlights the role of lead firms in shaping production practices across geographically dispersed networks (Gereffi, 1994, 1999; Ponte & Sturgeon, 2014). Through standards, contracts, sourcing decisions, and coordination mechanisms, lead firms exert varying degrees of control over suppliers, enabling them to influence environmental and social outcomes beyond their organizational boundaries (Gereffi et al., 2005). Related perspectives from global production network research further emphasize that supply chains are embedded in institutional and geographic contexts, where power, regulation, and social relations jointly shape governance outcomes.

This body of research substantially advances our understanding of where ESG problems emerge and where firms possess the structural capacity to influence environmental and social outcomes. Figure 1 illustrates a stylized situation resembling the global fashion industry, where pollution is concentrated upstream in the supply chain while profits are primarily captured downstream. This creates a fundamental discrepancy between where environmental problems arise and where the financial resources and organizational capacity to address them are concentrated. Unlike firm-centered perspectives, supply-chain research

recognizes that production networks rather than individual organizations often constitute the operational unit through which sustainability challenges are created and addressed (Gold et al., 2010; Pagell & Shevchenko, 2014).

Nevertheless, the literature has focused primarily on organizational structures, governance mechanisms, supplier relationships, and operational coordination. Comparatively less attention has been devoted to whether external stakeholders, particularly consumers, perceive ESG responsibility in a manner consistent with this supply-chain perspective.

2.6. Fragmentation Across Governance, Stakeholders, and Supply Chains

Taken together, governance-oriented perspectives and supply chain–based analyses offer important but partial explanations of ESG engagement. Governance and stakeholder theories clarify the sources of legitimacy, responsibility, and institutional pressure (Cashore, 2002), while supply chain and GVC research identifies the operational systems in which ESG challenges are concentrated and potentially addressed (Bartley, 2018). However, these studies have largely evolved in parallel, resulting in a fragmented understanding of ESG responsibility.

This gap is particularly important because ESG ultimately depends not only on organizational capabilities and governance mechanisms but also on stakeholder expectations (Maignan & Ferrell, 2004; Peloza & Shang, 2011; White et al., 2019). Consumers increasingly influence firms through purchasing decisions, willingness to pay, and boycott behavior (Klein et al., 2004; Zeng et al., 2021). Recent experimental studies show that consumers blame buying firms for suppliers' sustainability transgressions and lower their purchase intentions accordingly (Hartmann et al., 2022), and that greater supply-chain visibility can raise willingness to pay (Kraft et al., 2018). Supply chain transparency has also been shown to increase consumer trust and purchase intentions (Damberg et al., 2024; Duan & Zhu, 2025) and to elicit reciprocal behavior toward transparent firms (He, 2023), although traceability alone does not guarantee sustainable practices (Biswas et al., 2023). These studies, however, focus on reactions to specific incidents or information treatments; whether a general belief in lead-firm accountability is associated with consumers' market responses remains largely unexplored.

Accordingly, this study addresses this gap by developing and empirically examining a supply-chain perspective on ESG. Specifically, we investigate whether consumers are concerned about ESG responsibility from an industry and supply-chain perspective, rather than only in terms of their own consumption or individual firms, and whether such concern is associated with willingness to pay and boycott behavior (Auger et al., 2003; Mohr et al., 2001; Klein et al., 2004). In doing so, we connect the governance, stakeholder, and supply-chain studies through the concept of Supply Chain Consciousness, providing an empirical perspective on how consumers understand ESG responsibility across organizational boundaries.

3. Conceptual Framework and Research Propositions

Building on the preceding literature, we develop a conceptual framework that explains how consumers may evaluate ESG from a supply-chain perspective and how such perceptions are associated with market responses. Rather than viewing ESG solely as a firm-level phenomenon, the proposed framework conceptualizes ESG responsibility as extending across supply-chain activities and outcomes. This perspective is operationalized through three consumer-oriented constructs: Supply Chain Consciousness (SCC), Action and Disclosure Expectations (ADE), and Purchasing Enablement (PEN). Together, these constructs provide the conceptual foundation for examining whether a supply-chain perspective on ESG is associated with willingness to pay and boycott behavior.

We focus on these three constructs because they capture complementary aspects of a supply-chain perspective on ESG. Supply Chain Consciousness (SCC) represents consumers' concern about supply-chain conditions and their perceptions regarding where responsibility for them resides (Crane et al., 2014; Gereffi et al., 2005). Action and Disclosure Expectations (ADE) capture what consumers expect responsible firms to do, reflecting the importance of transparency and accountability emphasized in ESG governance and sustainability reporting (Doorey, 2011; Aguilera et al., 2007). Purchasing Enablement (PEN) reflects whether market conditions enable consumers to act on those perceptions, consistent with research showing that information availability and market accessibility influence ethical and sustainable consumption (Carrigan & Attalla, 2001; Bray et al., 2011; Carrington et al., 2010; Vermeir & Verbeke, 2006). Together, these constructs provide a coherent framework for examining how consumers understand and respond to ESG responsibility across supply chains.

3.1. The Supply-Chain Perspective on ESG

Prior research has examined environmental responsibility, social justice, and corporate governance largely as parallel or loosely connected domains. Building on stakeholder theory, global value chain analysis, and governance scholarship, we argue that these perspectives converge most naturally within supply chains, where many environmental and social impacts actually occur.

The supply-chain perspective on ESG begins with a simple observation. Environmental degradation, labor exploitation, unsafe working conditions, and other ESG-related challenges frequently emerge across interconnected supply networks rather than within the direct organizational boundaries of focal firms. Consequently, evaluating ESG solely at the level of individual firms may provide an incomplete understanding of where responsibility resides and how accountability should be assigned.

This supply-chain perspective differs from traditional views of corporate social responsibility, which have often emphasized voluntary corporate initiatives or regulatory compliance. Instead, it emphasizes how consumers understand the scope of corporate responsibility when environmental and social impacts originate throughout supply chains.

3.2. Supply Chain Consciousness

Consumer awareness forms at the systemic level of the supply chain rather than at the level of isolated firms or products. As environmental degradation and social injustice increasingly manifest in global supply chains—through labor exploitation, resource depletion, and waste—consumers begin to perceive responsibility as chain-wide. We capture this perception with the construct of Supply Chain Consciousness (SCC). SCC refers to consumers' attention to environmental and ethical issues arising in industries and supply chains, together with their concern that lead firms take responsibility for the fair treatment of suppliers and workers and for their suppliers' actions. Importantly, this belief redefines the locus of responsibility from individual suppliers or governments to lead firms that orchestrate supply chains.

The concept of Supply Chain Consciousness extends the traditional firm-centered perspective on ESG by recognizing that consumers may evaluate responsibility according to the structure of supply chains rather than the legal boundaries of organizations (Young, 2006; Hartmann & Moeller, 2014; Villena & Gioia, 2020). Under this perspective, lead firms are expected not only to manage their own operations responsibly but also to exercise oversight and influence throughout their supply networks. Consequently, SCC reflects consumers' perceptions regarding the appropriate scope of corporate accountability rather than firms' actual ESG performance.

SCC thus comprises two interrelated facets, each captured by two survey items. The first is issue attention: consumers' attention to environmental and ethical issues arising in industries and supply chains, reflected in personal concern about environmental damage caused by industries and in being emotionally affected by poor working conditions in global supply chains (SCC1, SCC2). The second is concern for lead-firm responsibility: the importance consumers attach to firms treating their suppliers and factory workers fairly, and their view that retailers should be accountable for their suppliers' actions (SCC3, SCC4). Each of the four items refers explicitly to industries, global supply chains, suppliers or suppliers' actions, rather than to the respondent's own consumption or to a single firm's internal operations. Both facets thus look beyond the individual consumer and beyond the single firm: the first concerns issues at the level of industries and supply chains, and the second locates responsibility for those issues with the lead firms that orchestrate supply chains. We treat the two facets as aspects of one disposition rather than as separate constructs, because attention to supply-chain issues motivates concern about lead firms' responsibility, and that concern gives the attention a target.

SCC is related to, but distinct from, several established constructs. Research on the socially conscious consumer (Webster, 1975) and on ecologically conscious consumer behavior (Roberts, 1996) examines a general orientation toward the social and environmental consequences of one's own consumption; it does not address where in a supply chain harms arise or who is responsible for them. Research on chain liability and responsibility attribution (Hartmann & Moeller, 2014; Hartmann et al., 2022) examines how consumers blame buying firms after a specific supplier transgression, typically in experimental settings. SCC draws on both streams but differs from each: it is a general disposition rather than a reaction to a particular incident, its locus is the upstream supply chain rather than one's own consumption, and it explicitly includes the attribution of responsibility to lead firms. To our knowledge, no existing construct combines these three features, which is why we introduce SCC as a distinct, if preliminary, construct. This distinctiveness is argued conceptually here; testing it empirically against established measures of consumer consciousness is left to future research (Section 5.4).

The responsibility component of SCC should be distinguished from causal responsibility and from control. It concerns consumers' attribution of answerability to lead firms; it does not presuppose that lead firms caused upstream harms or that they can fully control supplier behavior. Lead firms' influence over suppliers varies with their purchasing power, the depth of the supply chain and local institutional conditions (Gereffi et al., 2005; Ponte & Sturgeon, 2014), so consumers may attribute accountability beyond what a lead firm can directly control.

If consumers indeed adopt such a supply-chain perspective, stronger Supply Chain Consciousness should be associated with stronger market responses toward firms. Consumers who attribute responsibility to lead firms for upstream environmental and social outcomes may become more willing to reward firms demonstrating responsible supply-chain practices and more willing to sanction firms associated with ESG failures occurring within their supply networks.

3.3. Action and Disclosure Expectations

Consumer awareness alone is insufficient to drive market outcomes unless it is coupled with expectations of credible action and disclosure. Consumers increasingly demand that firms not only claim ESG commitments but also demonstrate verifiable actions, transparent reporting, and measurable outcomes across their supply chains (Doorey, 2011; Parguel et al., 2011; Delmas & Burbano, 2011). This expectation is captured by Action and Disclosure Expectations (ADE). ADE represents consumers' expectations that firms

should actively implement ESG initiatives and communicate those efforts in a transparent and credible manner.

From the consumer perspective, accountability requires more than acknowledging responsibility. Consumers increasingly expect firms to translate ESG commitments into observable organizational practices and measurable outcomes. Transparent reporting, third-party verification, sustainability disclosures, and visible implementation efforts help consumers evaluate whether firms' ESG claims are credible. Without credible disclosure and visible action, ESG claims lose legitimacy and may fail to influence consumer behavior (Suchman, 1995; Parguel et al., 2011). Recent reviews show that greenwashing erodes stakeholders' trust, which makes credible and verifiable disclosure increasingly important to consumers (Santos et al., 2024).

Accordingly, ADE complements SCC by capturing a distinct aspect of consumer perceptions. Whereas SCC concerns where responsibility resides, ADE concerns how firms are expected to demonstrate responsible behavior once such responsibility is acknowledged. Consumers exhibiting stronger action and disclosure expectations may therefore be more likely to reward firms that visibly implement ESG initiatives.

3.4. Purchasing Enablement

While SCC and ADE represent consumers' perceptions and expectations regarding ESG responsibility, favorable attitudes alone may not necessarily translate into market behavior. Consumers must also possess practical opportunities to express those preferences through purchasing decisions.

Purchasing Enablement (PEN) reflects the market conditions that determine whether consumers can translate beliefs into purchasing behavior. Even highly ESG-aware consumers may fail to reward responsible firms if information is opaque, prices are prohibitive, or ESG-friendly options are unavailable at the point of purchase (Carrigan & Attalla, 2001; Bray et al., 2011; Öberseder et al., 2011).

Unlike SCC and ADE, which reflect consumers' cognitive evaluations of ESG responsibility, PEN captures the practical conditions that facilitate or constrain ESG-oriented purchasing. Information accessibility, product availability, affordability, and the ability to distinguish ESG-oriented products from alternatives all influence whether consumers can act consistently with their preferences (Vermeir & Verbeke, 2006; White et al., 2019).

Together, SCC, ADE, and PEN are related but distinct constructs. Within the proposed supply-chain perspective on ESG, SCC is the central, supply-chain-specific construct, capturing consumers' attention to environmental and ethical issues in industries and supply chains and their concern for lead-firm responsibility. ADE captures what consumers expect firms and institutions to do and disclose regarding ESG, and PEN captures whether market and institutional conditions enable consumers to act on their ESG beliefs. The following propositions develop the expected relationships between these constructs and consumers' market responses.

3.5. Research Propositions

Building on the preceding conceptual framework, we develop propositions regarding the relationships between the three consumer-oriented constructs and ESG-related market responses. The propositions are intended to clarify the conceptual expectations underlying the empirical analyses rather than to constitute a comprehensive theory of ESG implementation. Accordingly, they focus on the consumer-side mechanisms examined in this study.

3.5.1. Validity of the Three Constructs

Before examining their relationships with consumer market responses, it is necessary to establish whether these constructs are empirically distinct. Although the three constructs are conceptually related, they capture different aspects of how consumers view ESG responsibility. Accordingly, we first examine whether the proposed measurement structure is supported by the data through confirmatory factor analysis.

Proposition 1. *Supply Chain Consciousness (SCC), Action and Disclosure Expectations (ADE), and Purchasing Enablement (PEN) represent three conceptually and empirically distinct constructs.*

3.5.2. Supply Chain Consciousness and Market Responses

Supply Chain Consciousness (SCC) represents consumers' attention to environmental and ethical issues in industries and supply chains and their concern that lead firms take responsibility for them. Consumers who attribute responsibility beyond the boundaries of individual firms are expected to evaluate corporate ESG performance more broadly than consumers adopting a firm-centered perspective. Consequently, stronger Supply Chain Consciousness should be associated with stronger market responses.

Consumers may assign responsibility not only according to legal ownership but also according to perceived control over the supply chain (Weiner, 1995; Hartmann & Moeller, 2014). Because lead firms possess purchasing power, supplier selection authority, and governance capability, consumers are likely to regard them as responsible for upstream ESG outcomes. This responsibility attribution provides the behavioral mechanism through which SCC influences willingness to reward or sanction firms.

Proposition 2. *Supply Chain Consciousness is positively associated with ESG-related market responses.*

Rewarding and sanctioning responses may rest on different psychological mechanisms. We therefore examine willingness to pay and boycott behavior as separate outcomes rather than combining them.

3.5.3. Action and Disclosure Expectations and Market Responses

Consumers increasingly expect firms not only to acknowledge ESG responsibility but also to demonstrate credible implementation through concrete actions and transparent disclosure. Firms that visibly communicate ESG initiatives and provide credible evidence of implementation may therefore receive more favorable evaluations from consumers.

Proposition 3. *Action and Disclosure Expectations are positively associated with ESG-related market responses.*

3.5.4. Purchasing Enablement and Market Responses

Purchasing Enablement reflects whether consumers possess practical opportunities to express their ESG preferences through purchasing decisions. Information accessibility, affordability, and product availability may facilitate or constrain the translation of ESG preferences into actual market behavior.

Unlike SCC and ADE, Purchasing Enablement is conceptualized primarily as an enabling condition rather than a direct motivational driver. It represents the extent to which market conditions allow consumers to act on their ESG preferences. Accordingly, its relationship with ESG-related market responses is explored empirically rather than derived from a strong theoretical expectation. Because PEN may operate as a boundary condition

rather than a direct driver, we examine both a direct association and a moderating role, in which PEN strengthens the associations of SCC and ADE with market responses.

Proposition 4. *Purchasing Enablement is associated with consumers' ESG-related market responses.*

Figure 2 summarizes the proposed conceptual framework and illustrates the expected relationships between the three constructs and ESG-related market responses.

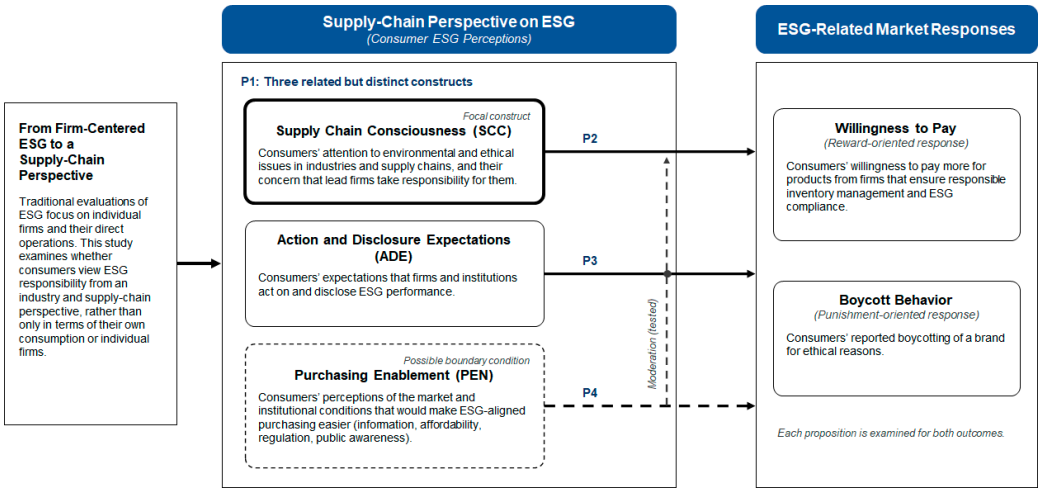

Figure 2. Integrated conceptual framework. Solid arrows denote Propositions 2 and 3; dashed arrows denote Proposition 4, with PEN tested both as a direct predictor and as a moderator.

4. Empirical Examination of the Supply-Chain Perspective on ESG

In the previous sections, we developed a supply-chain perspective on ESG by arguing that many environmental and social problems originate within supply chains rather than within individual firms. We further proposed three complementary constructs that characterize this perspective: Supply Chain Consciousness (SCC), Action and Disclosure Expectations (ADE), and Purchasing Enablement (PEN).

The purpose of the empirical analysis is to examine the proposed supply-chain perspective on ESG empirically. Specifically, we investigate whether the proposed consumer-oriented constructs are empirically distinguishable and whether they are associated with meaningful ESG-related market responses. Because the data are cross-sectional, the analyses examine associations among the proposed constructs and consumer market responses.

4.1. Framework of the Supply-Chain Perspective on ESG

To empirically examine the proposed supply-chain perspective on ESG, we operationalize a three-construct framework and examine both its measurement properties and its relationships with consumer market responses. First, we define three constructs that capture consumers' perceptions in the proposed framework, i.e., Supply Chain Consciousness (SCC), Action and Disclosure Expectations (ADE), and Purchasing Enablement (PEN). We define these constructs as follows:

- Supply Chain Consciousness (SCC): It measures consumers' attention to environmental and ethical issues arising in industries and supply chains, together with their concern that lead firms take responsibility for the fair treatment of suppliers and workers and for their suppliers' actions.
- Action and Disclosure Expectations (ADE): It measures consumers' expectations that firms should actively implement ESG initiatives and communicate those efforts through credible actions, transparent reporting, and verifiable disclosure.

- Purchasing Enablement (PEN): It measures consumers' perceptions of the market and institutional conditions that would make ESG-aligned purchasing easier, such as accessible and reliable information, affordable options, government regulation and public awareness.

Second, we identify two outcome variables to measure consumers' commitment to supporting firms' ESG activities: their willingness to pay more for the products and services offered by companies demonstrating responsible ESG practices (WTP), and their experience with boycotting firms for ethical reasons (Boycott). These two variables represent reward-oriented and punishment-oriented market responses, respectively.

4.2. Survey Design

Based on the relevant theories in the literature and the supply-chain perspective on ESG developed in Section 3, we developed 12 items to measure the three proposed ESG constructs, as shown in Table 1.

Table 1. Survey questions.

Factor	Survey Questions
SCC	(SCC1) I feel personally concerned when I hear about environmental damage caused by industries.
	(SCC2) I feel emotionally affected when I hear about poor working conditions in global supply chains.
	(SCC3) When purchasing, it is important for me that a company treats its suppliers and factory workers fairly.
	(SCC4) A retailor [sic] company should be accountable for its supplier's actions.
ADE	(ADE1) I feel uncomfortable when a company throws away unsold products rather than donating or recycling them.
	(ADE2) Companies, governments, and public organizations should do more in the near future regarding ESG issues.
	(ADE3) Companies should be transparent about how much inventory they waste.
	(ADE4) Companies should be required to publish ESG data (e.g., carbon emissions, working conditions, unsold stock).
PEN	(PEN1) More accessible and reliable information on company ESG performance would make it easier for me to align my purchasing decisions with my ESG beliefs.
	(PEN2) More affordable ESG-friendly options would make it easier for me to align my purchasing decisions with my ESG beliefs.
	(PEN3) Stronger government regulations on corporate ESG would make it easier for me to align my purchasing decisions with my ESG beliefs.
	(PEN4) Greater public awareness and discussion about ESG would make it easier for me to align my purchasing decisions with my ESG beliefs.

In addition to the three focal constructs, we include a control variable capturing consumers' baseline familiarity with ESG and two outcome variables representing reward- and punishment-oriented behavioral responses in the regression analysis (Table 2).

Table 2. Control and outcome variables used in the regression analysis.

Variable	Survey Question
ESG Familiarity	(Control Variable) I am familiar with the term "ESG" (Environmental, Social, and Governance).
Willingness to Pay	(Outcome Variable) I would be willing to pay more for a product from a company that ensures responsible inventory management and ESG compliance.
Boycott Behavior	(Outcome Variable) I have already boycotted a brand due to ethical concerns.

All attitudinal items were measured on five-point Likert scales (1 = strongly disagree, 5 = strongly agree). For the SCC, ADE, ESG familiarity and willingness-to-pay items, the response options were displayed from "5—Strongly agree" to "1—Strongly disagree"; these items were recoded so that higher values indicate stronger agreement. The PEN items were presented as a grid introduced by the statement "These actions would make it easier for me to align my purchasing decisions with my ESG beliefs." Boycott behavior was measured with a single yes/no item (1 = yes, 0 = no). The items were developed by the authors for this study, drawing on the literature reviewed in Sections 2 and 3. The items were pretested with five KAIST students, whose feedback was used to refine the wording; these students did not take part in the main survey. Tables 1 and 2 reproduce the item wording exactly as presented to respondents. The items address environmental and social issues more extensively than governance; governance is reflected mainly in items on transparency, disclosure, regulation and accountability (ADE3, ADE4, PEN3, SCC4).

4.3. Survey Data and Sample Characteristics

Data were collected through an online questionnaire titled "ESG Awareness and Customer Behavior in Supply Chain," administered via SurveyMonkey (KAIST institutional account) in August 2025. Respondents were recruited through networks based in the United Kingdom and France, using a non-probability convenience sample; the survey link was shared on social media (Instagram), messaging applications (WhatsApp), personal networks and university channels. Respondents' country of residence and nationality were not recorded, so the distribution of the sample across the two countries is unknown. The questionnaire was administered in English. Participation was voluntary and anonymous; no names, contact details, IP addresses or location data were collected, and no incentives were offered. Because the survey was distributed through an open link, the number of people who saw the invitation is unknown and a response rate cannot be calculated.

A total of 200 individuals started the survey. Item nonresponse followed a break-off pattern rather than scattered skipping: 199 respondents answered the first demographic question, 172–173 answered the ESG familiarity item and the first two SCC items, 162–163 the first two ADE items, 155–156 the remaining ADE and SCC items, and 153 the final block of purchasing enablement items. No imputation was performed. The analyses use listwise deletion, giving an effective sample of 151 respondents for the measurement model and the willingness-to-pay model and 150 for the boycott model.

Respondents aged 20–29 formed the largest group (85.9%). Women made up 53.3% and men 45.2% of respondents (1.5% preferred not to say). The largest sectoral groups were technology (35.4%), finance (11.6%) and healthcare (10.1%), and 24.7% selected "Other" (Table 3). The sample is therefore not representative of the general consumer population, and the findings apply most directly to respondents aged 20–29 reached through networks based in the United Kingdom and France.

Table 3. Sample characteristics.

Variable	Category	*n*	%
Age	20–29	171	85.9
Age	30–39	5	2.5
Age	40–49	5	2.5
Age	50–59	6	3.0
Age	60 or over	12	6.0
Gender	Male	90	45.2
Gender	Female	106	53.3
Gender	Prefer not to say	3	1.5
Sector	Technology	70	35.4
Sector	Finance	23	11.6
Sector	Healthcare	20	10.1
Sector	Manufacturing	13	6.6
Sector	Art	9	4.5
Sector	Education	7	3.5
Sector	Media	7	3.5
Sector	Other	49	24.7

Note: Percentages are based on respondents answering each question (age $n = 199$, gender $n = 199$, sector $n = 198$).

To examine whether the principal empirical findings are sensitive to demographic composition, supplementary robustness analyses incorporating age, gender, and sectoral affiliation are reported in Appendix A. The principal associations remain stable when the available demographic controls are included.

4.4. Measurement and Construct Validation

Based on the conceptual framework developed in Section 3 and the relevant literature, we operationalized three consumer-level constructs that capture a supply-chain perspective on ESG: Supply Chain Consciousness (SCC), Action and Disclosure Expectations (ADE), and Purchasing Enablement (PEN). The constructs were specified a priori as conceptually distinct constructs reflecting how consumers assign responsibility for ESG outcomes, perceive the feasibility of ESG-aligned purchasing, and evaluate the credibility of firms' ESG-related actions and disclosures. Survey items were developed to reflect the conceptual domains of these constructs rather than derived inductively from the data.

We assessed the measurement properties of the proposed constructs using confirmatory factor analysis (CFA) with maximum likelihood estimation. This approach is appropriate given that the constructs were theoretically specified in advance and the purpose of the analysis is to evaluate measurement validity rather than to discover latent structure (Anderson & Gerbing, 1988). A correlated three-factor model showed acceptable fit ($\chi^2(51) = 84.71$, $p = 0.002$, CFI = 0.955, TLI = 0.942, RMSEA = 0.066, SRMR = 0.065; listwise N = 151). SRMR is computed over all elements of the residual correlation matrix, including its diagonal; excluding the diagonal gives SRMR = 0.071. Table 4 reports the standardized loadings, all of which were statistically significant.

Construct reliability and convergent validity were evaluated using Cronbach's alpha (α), composite reliability (CR), and average variance extracted (AVE) (Fornell & Larcker, 1981; Bagozzi & Yi, 1988). PEN ($\alpha = 0.91$, CR = 0.91, AVE = 0.71) and ADE ($\alpha = 0.79$, CR = 0.80, AVE = 0.50) met conventional thresholds. SCC showed acceptable reliability ($\alpha = 0.70$, CR = 0.71) but low convergent validity (AVE = 0.38, below the 0.50 benchmark). The two lead-firm responsibility items (SCC3 and SCC4) had lower loadings (0.57) than the two issue-attention items (0.65–0.68), which is consistent with SCC comprising two related facets.

Table 4. Standardized loadings, reliability and convergent validity.

SCC Item	Loading	ADE Item	Loading	PEN Item	Loading
SCC1	0.676	ADE1	0.637	PEN1	0.877
SCC2	0.654	ADE2	0.582	PEN2	0.872
SCC3	0.568	ADE3	0.781	PEN3	0.793
SCC4	0.568	ADE4	0.811	PEN4	0.819
α	0.70	α	0.79	α	0.91
CR	0.71	CR	0.80	CR	0.91
AVE	0.38	AVE	0.50	AVE	0.71

Note: Standardized loadings from the correlated three-factor model. Item codes correspond to Table 1.

Discriminant validity was assessed with the Fornell–Larcker criterion and the heterotrait–monotrait ratio (HTMT; Henseler et al., 2015) (Table 5). PEN was clearly distinct from both SCC (r = 0.09) and ADE (r = 0.20). SCC and ADE were strongly correlated (r = 0.72). Their HTMT ratio (0.74) is below the conservative 0.85 threshold, but the square root of SCC's AVE (0.62) is lower than its correlation with ADE, so the Fornell–Larcker criterion is not met for this pair. We therefore treat SCC and ADE as related but empirically distinguishable constructs and interpret their separate associations with caution.

Table 5. Discriminant validity.

Construct	SCC	ADE	PEN	HTMT (SCC/ADE)
SCC	0.62			—
ADE	0.72	0.71		0.74/—
PEN	0.09	0.20	0.84	0.17/0.24

Note: Diagonal values are square roots of AVE; values below the diagonal are latent factor correlations. HTMT = heterotrait–monotrait ratio.

To test whether the two facets of SCC should be treated as separate constructs, we estimated an alternative model separating issue attention (SCC1, SCC2) from concern for lead-firm responsibility (SCC3, SCC4). This four-factor model did not fit significantly better than the three-factor model ($\Delta\chi^2(3) = 5.84$, $p = 0.12$; CFI = 0.959, RMSEA = 0.065), and the two facets were highly correlated (r = 0.78), which supports treating SCC as a single construct with two facets, although failing to reject the more restrictive model does not by itself establish that the two facets form one construct. Section 4.6 reports results for the lead-firm responsibility facet (SCC3, SCC4) alone as a robustness check.

Because all measures come from a single self-report survey, common method variance is a concern (Podsakoff et al., 2003, 2012). We report two diagnostics, both of limited value. A single-factor model fitted the data poorly ($\chi^2(54) = 471.19$, CFI = 0.448, RMSEA = 0.227), and the first unrotated component in a principal component analysis of all fourteen attitudinal items explained 30.6% of the variance. However, Harman-type tests of this kind do not statistically control for method variance (Podsakoff et al., 2003), and because PEN correlates only weakly with the other constructs, a single-factor model would be expected to fit poorly even if method variance were present. These diagnostics therefore cannot rule out single-source bias, which may inflate the associations among the self-reported measures.

4.5. Effects of the Supply-Chain Perspective on Market Responses

This section examines whether the three proposed constructs are associated with consumers' ESG-related market responses.

We estimated an ordinary least squares (OLS) regression for willingness to pay (WTP) and, because boycott behavior is binary, a logistic regression for boycott behavior, with a

linear probability model as a check. All predictors were standardized, respondents' ESG familiarity was included as a control variable, and heteroskedasticity-robust (HC3) standard errors were used. Demographic characteristics are examined separately in Appendix A. Table 6 reports means, standard deviations and correlations of the composite scores, and Table 7 reports the regression results. Variance inflation factors were all below 1.6. A sensitivity power analysis indicates that, with N = 151 and four predictors, the models have 80% power at $\alpha = 0.05$ to detect an effect of a single predictor of $f^2 \approx 0.053$ (partial $r \approx 0.22$). All analyses were conducted in Python 3.13 (NumPy 2.5.3, SciPy 1.18.1, pandas 3.0.5); the confirmatory factor analyses were estimated by maximum likelihood.

Table 6. Means, standard deviations and correlations.

Variable	M	SD	1	2	3	4	5
1. SCC	4.04	0.58					
2. ADE	4.46	0.57	0.56				
3. PEN	3.86	0.99	0.11	0.20			
4. ESG familiarity	3.37	1.20	0.18	0.18	−0.12		
5. WTP	3.91	0.86	0.39	0.40	0.13	0.18	
6. Boycott (1 = yes)	0.68	0.47	0.40	0.20	0.03	0.10	0.42

Note: Listwise N = 150. Composite scores are item means on 1–5 scales; boycott is the proportion answering yes. Correlations with $|r| \geq 0.16$ are significant at $p < 0.05$.

Table 7. Regression results for willingness to pay and boycott behavior.

Predictor	WTP (OLS): β [95% CI]	Boycott (Logit): OR [95% CI]	Boycott (LPM): β [95% CI]
Supply Chain Consciousness (SCC)	0.23 ** [0.05, 0.41]	2.87 *** [1.71, 4.81]	0.42 *** [0.26, 0.58]
Action and Disclosure Expectations (ADE)	0.24 ** [0.03, 0.45]	0.88 [0.56, 1.39]	−0.05 [−0.24, 0.15]
Purchasing Enablement (PEN)	0.07 [−0.10, 0.24]	1.00 [0.65, 1.55]	0.00 [−0.16, 0.16]
ESG familiarity (control)	0.09 [−0.08, 0.26]	1.11 [0.75, 1.64]	0.04 [−0.13, 0.20]
N	151	150	150
R^2/McFadden R^2	0.207	0.139	0.165
Adjusted R^2	0.185	—	0.142

Note: Predictors are standardized. OLS and linear probability model (LPM) coefficients are standardized, with heteroskedasticity-robust (HC3) 95% confidence intervals. Logit odds ratios are per one standard deviation. ** $p < 0.05$, *** $p < 0.01$.

Willingness to pay was positively associated with SCC (β = 0.23, 95% CI [0.05, 0.41], $p = 0.014$) and ADE (β = 0.24, 95% CI [0.03, 0.45], $p = 0.023$), but not with PEN (Table 7). SCC was positively associated with having boycotted a brand (odds ratio = 2.87 per standard deviation, 95% CI [1.71, 4.81], $p < 0.001$), whereas ADE and PEN were not; the linear probability model gives the same pattern. ESG familiarity was not significant in either model. To test whether these associations differ between the two outcomes, we compared the standardized coefficients of the OLS and linear probability models, estimated on the common sample (N = 150), using 5000 bootstrap resamples. ADE's association with willingness to pay was significantly larger than its association with boycott behavior (difference = 0.29, 95% CI [0.05, 0.52], $p = 0.018$). SCC's association with boycott behavior was larger than its association with willingness to pay (difference = 0.20, 95% CI [−0.001, 0.38], $p = 0.051$), but this difference is only marginally significant. The results thus suggest a partial asymmetry: ADE's association with willingness to pay rather than boycott behavior is statistically supported, whereas SCC's larger association with boycott behavior is directional. These are cross-sectional associations and do not establish causal effects.

Taken together, SCC is associated with both willingness to pay and boycott behavior, with the larger and more robust association for boycott behavior, while ADE is associated with willingness to pay only and PEN with neither outcome.

4.6. Robustness Checks

Lead-firm responsibility facet. Replacing the four-item SCC scale with its two lead-firm responsibility items (SCC3 and SCC4) leaves the boycott result intact (OR = 2.02, 95% CI [1.33, 3.06], $p = 0.001$). The association with willingness to pay becomes non-significant ($\beta = 0.14$, $p = 0.130$), while ADE remains significant ($\beta = 0.30$, $p = 0.002$). The association with boycott behavior therefore holds for the lead-firm responsibility facet on its own, whereas the willingness-to-pay association depends partly on the issue-attention facet. The central boycott finding is therefore not simply an artifact of the general environmental and social concern captured by the issue-attention items.

Purchasing Enablement as a moderator. To test whether PEN acts as an enabling condition rather than a direct predictor, we added SCC × PEN and ADE × PEN interaction terms. Neither interaction was significant for willingness to pay (SCC × PEN: $\beta = 0.13$, $p = 0.399$; ADE × PEN: $\beta = -0.14$, $p = 0.416$) or for boycott behavior (SCC × PEN: $\beta = 0.03$, $p = 0.840$; ADE × PEN: $\beta = -0.04$, $p = 0.825$). The data therefore support PEN neither as a direct predictor nor as a moderator.

Demographic composition. Appendix A shows that adding age, gender and sector to the models does not improve fit or change the core coefficients, and that no demographic moderation is detected, although the unbalanced age composition of the sample limits these tests.

5. Discussion

This study began with a fundamental question: Are consumers concerned about ESG responsibility from an industry and supply-chain perspective, rather than only in terms of their own consumption or individual firms, and does that concern matter for their market responses? The findings provide exploratory evidence on both parts of this question. Respondents' perceptions that lead firms are accountable for upstream conditions are associated with their reported market responses, most clearly with boycott behavior, while expectations of action and disclosure are associated with willingness to pay. Because the data are cross-sectional, self-reported and drawn from a convenience sample, these findings indicate associations rather than causal effects.

The paper's theoretical argument and its empirical contribution should be distinguished. The argument is conceptual: environmental and social problems often arise upstream, whereas resources and decision-making authority are concentrated among downstream lead firms, so lead firms are best placed to act (Figure 1 illustrates this mismatch rather than measuring it). The empirical contribution is narrower: consumers' concern about upstream supply-chain conditions and lead-firm responsibility is associated with their reported market responses, particularly sanctioning behavior. This evidence illuminates one link in the broader argument, namely whether consumers can be a source of economic incentives for lead firms to address upstream ESG problems. It does not establish the mismatch itself, nor that consumer responses are sufficient to change lead-firm behavior.

5.1. Evaluation of the Propositions

Before discussing the theoretical and managerial implications of the findings, we briefly evaluate the extent to which the empirical analyses support the propositions developed in Section 3.

The confirmatory factor analysis in Section 4.4 provides partial support for Proposition 1. The three-factor model fits acceptably and PEN is clearly distinct from the other two con-

structs, but SCC shows low convergent validity (AVE = 0.38) and does not meet the Fornell–Larcker criterion with respect to ADE, although its HTMT ratio (0.74) is below the 0.85 threshold. SCC and ADE should therefore be regarded as related but empirically distinguishable, and SCC should be regarded as an exploratory construct rather than a fully validated scale.

The regression analyses (Table 7) support Proposition 2 for boycott behavior, and this result holds for the lead-firm responsibility facet (SCC3–SCC4) alone. Support with respect to willingness to pay is weaker, because the association is not significant for that facet alone. Proposition 3 receives partial support: ADE is positively associated with willingness to pay but not with boycott behavior.

The analyses do not support Proposition 4. PEN is not associated with either outcome, and it does not moderate the associations of SCC or ADE with market responses.

5.2. Theoretical Implications

Based on our empirical analysis, we derive several tentative theoretical implications. First, the findings suggest that consumers' concern about ESG responsibility may extend beyond their own consumption and beyond firm boundaries, consistent with the proposed supply-chain perspective on ESG. Supply Chain Consciousness is therefore a promising construct for research on ESG, although its measurement requires further development (Section 5.4). Second, the results point to a partial asymmetry. ADE is associated with willingness to pay rather than boycott behavior, and this difference is statistically supported, whereas SCC's larger association with boycott behavior than with willingness to pay is directional (Section 4.5). One possible explanation for the partial asymmetry is that negative information and corporate irresponsibility weigh more heavily in consumers' evaluations than positive information and responsible behavior (Baumeister et al., 2001; Lin-Hi & Müller, 2013), and that moral emotions such as anger, triggered when firms are seen to fail in their responsibilities, motivate sanctioning behaviors such as boycotts (Grappi et al., 2013). Consumers high in SCC, who care about upstream conditions and hold lead firms responsible for them, may therefore be particularly ready to sanction failures, whereas rewarding good practice may require additional conditions, such as credible evidence of action and disclosure, before consumers are willing to pay a premium. This interpretation is post hoc and should be tested in future research, ideally with experimental designs. Third, the absence of any association for PEN, either direct or moderating, suggests that perceived market conditions may matter less for consumers' reported ESG-related responses than the attitude–behavior gap literature implies, at least in this sample. Finally, the findings are consistent with approaching ESG issues from a supply-chain perspective, which draws attention to the gap between where environmental and social problems originate and where the resources and decision-making authority to address them reside.

Our findings should not be interpreted as suggesting that consumers possess detailed or complete knowledge of global supply chains. Rather, they suggest that consumers are concerned about ESG responsibility from an industry and supply-chain perspective, beyond their own consumption and the organizational boundaries of individual firms. In particular, consumers appear to hold lead firms accountable for environmental and social outcomes occurring within their supply chains, even without direct knowledge of the underlying operational relationships (Carrigan & Attalla, 2001; Öberseder et al., 2011). Thus, the proposed supply-chain perspective concerns how responsibility is perceived and attributed, rather than how accurately consumers understand the structure of supply chains.

5.3. Managerial Implications

The findings suggest several implications for managers, which should be read as propositions rather than established effects. For lead firms, the results point to a partial asymmetry. Consumers with stronger Supply Chain Consciousness, who care about upstream conditions and hold lead firms responsible for them, are more likely to report having boycotted a brand, and this association is larger, although not significantly so, than their association with willingness to pay. Supply-chain ESG performance may therefore be as much a matter of downside risk as of potential reward. Because consumers generally observe only the lead firm rather than the entire supply network, lead firms need visibility into upstream operations to identify and manage this risk. Willingness to pay, by contrast, is associated with expectations of credible action and transparent disclosure. Firms seeking a premium for responsible supply chains therefore need to make their efforts visible and verifiable, which requires supply-chain transparency built through accurate information sharing, active communication and collaboration among supply-chain partners (Doorey, 2011; Mol, 2015; Gardner et al., 2019; Damberg et al., 2024; He et al., 2024; Duan & Zhu, 2025).

Firms should also be aware of possible unintended consequences of consumer-driven accountability. Pressure on lead firms may lead to excessive auditing, abrupt termination of supplier relationships, or the exclusion of small suppliers that cannot meet documentation requirements, which can harm the very workers and communities that accountability is meant to protect. Consumer pressure is, moreover, only one of several mechanisms: regulation such as mandatory due diligence (European Union, 2024), investor stewardship, civil society and worker organizations also shape lead firms' incentives. These implications rest on self-reported, cross-sectional data from a convenience sample recruited through networks based in two countries, and the study observes neither firm behavior nor market outcomes.

5.4. Limitations and Future Research

Our findings should be read in light of the study's scope, which also points to directions for future research. First, the sample is small and was drawn by convenience. We distributed the survey through personal social-media networks. This approach allowed us to collect data quickly, while supply-chain responsibility was prominent in public debate, and to reach respondents in a familiar, informal setting in which they could take part voluntarily and could be expected to understand questions on ESG and consumption. Respondents aged 20–29 formed the largest group (86%), and they were recruited through networks based in the United Kingdom and France, although their country of residence was not recorded. The findings therefore cannot be generalized to the wider consumer population, and the data did not allow comparisons across age groups or countries. Future research should test the framework with larger, representative and more diverse samples.

Second, SCC is a new construct, which we propose at an exploratory stage rather than as a fully validated scale. Three considerations support retaining it at this stage. The two facets have a theoretical rationale, and a model separating them does not fit significantly better than the single-construct model. The four-item scale has acceptable reliability (CR = 0.71), and every item refers explicitly to industries, supply chains or suppliers. Most importantly, the association with boycott behavior holds for the lead-firm-responsibility facet alone, so the central finding is not simply an artifact of general environmental or social concern. Nevertheless, SCC's convergent validity is modest (AVE = 0.38); it does not meet the Fornell–Larcker criterion with respect to ADE, and its distinctiveness from established consumer-consciousness constructs is argued conceptually rather than tested; nor could it be validated on an independent sample. Developing a fuller SCC scale, with items that refer explicitly to lead firms and upstream suppliers and that cover governance as well as environ-

mental and social issues, testing it against established measures of social and environmental consciousness, and validating it on independent samples are natural next steps.

Third, we measured willingness to pay and boycott behavior with single self-reported items. Single items are adequate for concrete, unambiguous constructs such as these (Bergkvist & Rossiter, 2007), and the boycott item captures reported past behavior rather than intention, which brings it closer to actual market responses. Because all measures come from a single self-report survey, common method variance may also have inflated the observed associations. Studies that observe actual purchases or boycotts, and that include factors such as moral identity, consumer skepticism and price sensitivity, could show how SCC translates into behavior. Fourth, our cross-sectional design allowed us to examine several new constructs and their associations with two market responses at once, which suits the exploratory stage of this research, but it identifies associations rather than causal effects. Experimental designs could test whether SCC drives sanctioning responses, whether the partial asymmetry we observe holds under causal identification, and how supply-chain and firm-centered evaluations compare. Finally, with 151 complete responses, the study can detect only effects of at least small-to-moderate size ($f^2 \approx 0.05$), and its tests of interaction effects have little power. We deliberately focused on consumers, the demand side that prior supply-chain research has largely neglected; linking consumer perceptions to firm behavior and market outcomes remains an important task for future work.

6. Conclusions

Are consumers concerned about ESG responsibility from an industry and supply-chain perspective, rather than only in terms of their own consumption or individual firms, and does that concern matter for their market responses? This was our primary research question and motivation. This study provides exploratory evidence that consumers may be concerned about ESG responsibility from an industry and supply-chain perspective, beyond their own consumption and the boundaries of individual firms, and that such concern is associated with their reported market responses. By conceptualizing and empirically examining a supply-chain perspective on ESG through Supply Chain Consciousness, Action and Disclosure Expectations, and Purchasing Enablement, the study contributes to understanding how ESG responsibility is interpreted across organizational boundaries.

The major contribution of our study is to recognize the importance of approaching ESG-related issues from a supply-chain perspective. The argument proceeds in four steps; the first three are conceptual, and the fourth is where our evidence contributes. First, lead firms are best placed to act. This follows from a structural mismatch between where environmental and social problems occur and where the resources to solve them reside. In many industries, such as fashion and consumer electronics, a large share of pollution and labor problems arises upstream, among suppliers that often lack the resources to address them, whereas the largest share of profit is captured downstream by lead firms (Figure 1). This mismatch helps explain why prior efforts to improve environmental and social conditions have often fallen short. Second, because the resources reside with lead firms, closing the gap depends on lead firms taking responsibility for conditions in their supply chains. Third, lead firms are profit-seeking organizations, so they will take on this role consistently only if doing so is in their own economic interest, and consumers who reward responsible supply chains and sanction irresponsible ones are one important source of such incentives. Fourth, our survey provides preliminary, consumer-side evidence consistent with the existence of such incentives: consumers' Supply Chain Consciousness is associated with their reported willingness to pay more and, more clearly, with their reported boycott behavior. Our evidence speaks to this fourth step only; the first three rest on the conceptual argument developed in Sections 2 and 3.

Taken together, these steps suggest that lead firms' investments in responsible supply chains can be understood as a rational, profit-motivated business decision rather than as charity. If consumers act on the responses they report, addressing problems in their supply chains may help lead firms protect revenue from consumers who sanction irresponsible practices and capture a price premium from consumers who reward responsible ones. Because we observed neither purchases, price premiums and profits nor firms' investments, this business case remains to be tested with firm-side and market data. This reasoning is consistent with arguments that social responsibility can be aligned with competitive advantage and that markets respond to firms' social and environmental conduct (Vogel, 2005; Porter & Kramer, 2006, 2011; Flammer, 2015). Consumer responses are not the only source of such incentives; regulation, investors and civil society also hold lead firms accountable. Our findings suggest, however, that consumers may be one of these sources.

Lead firms would therefore be well advised to monitor market responses, such as willingness to pay and boycotts, and to take proactive measures to address environmental and social problems in their supply chains. This is also where the 'G' (governance) component of ESG plays an important role: transparent governance mechanisms can translate market responses into concrete, timely organizational policies. We conclude that sustainable, long-term solutions to ESG-related problems require lead firms to understand, and act on, the market forces that hold them accountable for harmful effects in their supply chains. They should do so not because they are charitable organizations, but because, as our argument and preliminary evidence suggest, it is likely to be in their own interest.

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Institutional Review Board Statement: This study involved an anonymous, minimal-risk online survey of adults without the collection of personally identifiable or sensitive information. The study was considered by the researchers to fall within the category of research eligible for exemption from IRB review under Article 15(2) of the Korean Bioethics and Safety Act and Article 13(1), item 2, of its Enforcement Rule. Accordingly, prior ethics committee review was not sought.

Informed Consent Statement: Before taking part, participants were informed of the purpose of the research and that their responses were anonymous. Participation was voluntary, and respondents could skip any question or discontinue the survey at any time before submission. Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data are not publicly available. They are available to the journal's editor and reviewers on request for the purpose of verification.

Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A. Demographic Robustness Checks

To assess whether the main empirical findings are sensitive to demographic composition, we conducted a series of supplementary analyses incorporating age, gender, and sectoral affiliation as controls and moderators. First, we estimated nested regression models comparing baseline specifications—including Supply Chain Consciousness (SCC), Action and Disclosure Expectations (ADE), Purchasing Enablement (PEN), and ESG familiarity—with extended models that additionally included demographic variables. The inclusion of demographic variables did not materially improve model fit for either willingness to pay or boycott behavior, nor did it alter the magnitude or significance of the core coefficients.

Table A1. Robustness of outcome models to demographic controls.

Outcome	Baseline Adj. R^2	With Demographics Adj. R^2	Δ Adj. R^2	F-Change (p-Value)
Willingness to Pay	0.185	0.176	−0.009	0.83 (0.590)
Boycott Behavior	0.142	0.138	−0.004	0.92 (0.506)

Notes: Baseline models include Supply Chain Consciousness (SCC), Action and Disclosure Expectations (ADE), Purchasing Enablement (PEN), and ESG familiarity. Demographic-augmented models additionally include age, gender, and sector. Demographic variables are age (30 or over vs. 20–29), gender (female vs. male) and sector (dummy variables, technology as reference). Adj. R^2 changes and F-tests indicate that demographics do not materially improve model fit.

Second, we examined whether demographic variables were systematically associated with the three focal constructs. In regressions of each construct on gender, age (30 or over vs. 20–29) and sector entered jointly, female respondents reported higher SCC than male respondents ($p = 0.004$); no other demographic variable was significantly associated with SCC, ADE, or PEN at the 0.05 level. Importantly, this difference did not alter the observed relationships between the proposed constructs and consumer market responses.

Table A2. Tests of demographic moderation effects.

Interaction Tested	Smallest p-Value	Significant After Correction
Age × SCC	0.511	No
Age × ADE	0.625	No
Age × PEN	0.210	No
Gender × SCC	0.168	No
Gender × ADE	0.443	No
Gender × PEN	0.536	No
Sector × SCC	0.408	No
Sector × ADE	0.655	No
Sector × PEN	0.252	No

Notes: Results are re-estimated on the full analysis sample; Bonferroni correction across 18 tests. Each interaction was tested separately. Reported p-values reflect the smallest value across outcome models. No interaction effects remain statistically significant after correction for multiple testing.

Finally, we tested interaction effects between demographic variables and the three focal constructs. None of the interaction terms remained statistically significant after correcting for multiple testing (Table A2). Taken together, these analyses indicate that the principal associations reported in the main text remain stable when the available demographic controls are included. Because about 86% of respondents were aged 20–29 and few were older, however, the analyses have limited power to detect demographic differences or moderation, and nonsignificant interactions do not establish that the associations hold equally across demographic groups.

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