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**Research Article**

# Environmental, Social and Governance Practices and Organizational Sustainability: The Moderating Roles of Regulatory Quality and Stakeholder Pressure in Pakistan's Textile and Apparel Industry

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**Declaration of Interests**

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the outcomes of this study.

**Abstract**

This study examines the impact of Environmental, Social, and Governance (ESG) practices on organizational sustainability in the textile and apparel sector of Pakistan. Drawing on institutional and stakeholder theories, the study further investigates the moderating roles of regulatory quality and stakeholder pressure. Using a census-based survey of firms registered with the All-Pakistan Textile Mills Association (APTMA), data were collected from 197 managerial respondents and analyzed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS. The results reveal that ESG practices have a significant positive effect on organizational sustainability, confirming the strategic role of integrated ESG implementation in enhancing economic, environmental, and social outcomes. While regulatory quality does not significantly moderate the relationship of ESG and organizational sustainability, while stakeholder pressure strengthens this relationship, highlighting the importance of external stakeholder influence in sustainability-sensitive industries. This study contributes to ESG literature by adopting a multidimensional, second-order construct approach and by providing context-specific evidence from Pakistan's textile and apparel sector. The findings offer practical insights for managers and policymakers seeking to promote sustainable industrial development in emerging economies and align firm-level practices with global sustainability goals.

**Keywords:** ESG practices; Organizational sustainability; Stakeholder pressure; Regulatory quality; Textile and Apparel industry; Pakistan.

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# 1 INTRODUCTION

The growing emphasis on sustainable development has fundamentally reshaped how firms are evaluated, governed, and held accountable. In this context, Environmental, Social, and Governance (ESG) practices have emerged as a critical framework guiding firms toward responsible value creation (Barhoom et al., 2025). ESG integrates environmental stewardship, social responsibility, and governance mechanisms into organizational strategy, thereby aligning business operations with broader societal and ecological goals (Ding & Wang, 2025). For industries with high environmental intensity and labor dependence, such as the textile and apparel sector, ESG has become not only a moral imperative but also a strategic necessity for long-term survival (Mehak et al., 2024; Sharif & Malik, 2025). Organizational sustainability refers to a firm's capacity to simultaneously achieve economic viability, environmental protection, and social equity over time (Elkington, 1997; Rasheed et al., 2025). Although ESG is widely promoted as a pathway to sustainability, empirical evidence on its effectiveness remains mixed, particularly in emerging economies. Prior studies have predominantly focused on financial outcomes or isolated sustainability dimensions, often neglecting the multidimensional and systemic nature of both ESG and organizational sustainability (Amir et al., 2024; Bux et al., 2024). Moreover, much of the existing ESG literature is concentrated in developed economies, where institutional frameworks and regulatory enforcement are relatively strong, limiting the generalizability of findings to developing contexts.

This gap is particularly concerning given the scale and sustainability challenges of the global textile and apparel industry. The sector accounts for approximately 10% of global carbon emissions and nearly 20% of industrial wastewater pollution worldwide, making it one of the most environmentally damaging industries (UNEP, 2023). Socially, the sector employs over 75 million workers globally, many of whom face unsafe working conditions, low wages, and weak labor protections (WDI, 2023). These challenges are amplified in developing countries, where regulatory oversight and institutional enforcement are often inconsistent. Pakistan's textile and apparel sector represents a critical yet underexamined context within this debate. The sector contributes nearly 60% of Pakistan's total exports and employs more than 40% of the industrial labor force, making it the backbone of the country's manufacturing economy (Government of, 2024). Despite its economic importance, the sector faces persistent sustainability problems, including excessive water consumption, outdated production technologies, energy inefficiency, labor compliance violations, and weak corporate governance structures. For instance, Pakistan's textile industry consumes an estimated 9–10 trillion liters of water annually, while compliance with international labor and environmental standards remains uneven across firms. These issues have increasingly exposed Pakistani exporters to reputational risks, buyer sanctions, and market exclusion.

At the same time, Pakistan scores relatively low on global governance and regulatory effectiveness indicators, reflecting challenges in policy implementation, monitoring, and enforcement (WDI, 2023; WHO, 2024). This weak regulatory environment raises a critical question: Can ESG practices genuinely enhance organizational sustainability in contexts where regulatory quality is limited? Firms may adopt ESG symbolically to satisfy external expectations without generating substantive sustainability outcomes (Alodat et al., 2025). This problem underscores the need to examine contextual conditions under which ESG translates into real organizational sustainability. Stakeholder pressure represents another crucial yet underexplored factor shaping ESG effectiveness. According to stakeholder theory, firms respond to the expectations of powerful stakeholders who control critical resources, such as customers, investors, and international buyers (Freeman, 2010; Kumarasiri, 2017). In export-oriented textile and apparel supply chains, stakeholder pressure is particularly intense due to compliance audits, sustainability certifications, and buyer-driven codes of conduct. Evidence suggests that firms facing stronger stakeholder scrutiny are more likely to implement substantive ESG practices rather than superficial disclosures (Sharif & Malik, 2025). However, empirical research integrating stakeholder pressure as a moderating mechanism in the ESG–sustainability relationship remains limited, especially in emerging markets.

The lack of contextualized ESG research presents a significant theoretical and practical problem. While ESG is increasingly promoted as a universal solution for sustainability challenges, its effectiveness may depend heavily on institutional and stakeholder environments (Amran et al., 2024; Wang et al., 2025). Without accounting for regulatory quality and stakeholder pressure, existing studies risk overstating or misrepresenting the true impact of ESG practices in developing economies (Hossain et al., 2022). This limitation restricts the usefulness of ESG research for policymakers, managers, and international buyers operating in high-risk sectors such as textiles and apparel. In response to these gaps, the purpose of this study is to examine the impact of ESG practices on organizational sustainability while explicitly considering the moderating roles of regulatory quality and stakeholder pressure in Pakistan's textile and apparel sector. By conceptualizing both ESG and organizational sustainability as second-order constructs, this study captures their multidimensional nature and offers a more holistic assessment of sustainability performance. Furthermore, by focusing on an emerging economy context, the study responds to recent calls for ESG research that moves beyond developed markets and incorporates institutional complexity (Amir et al., 2024; Chen et al., 2023).

This study is expected to make important contributions at theoretical, practical, and policy levels. Theoretically, by integrating institutional theory and stakeholder theory within a single empirical framework, the study moves ESG research beyond universalistic assumptions and toward a context-sensitive understanding of sustainability in emerging economies (Hughes et al., 2025; Suriyankietkaew et al., 2025b). Practically, the findings are expected to guide managers in Pakistan's textile and apparel sector by highlighting that ESG initiatives generate meaningful sustainability outcomes only when supported by strong regulatory environments and active stakeholder engagement. This insight enables firms to strategically allocate resources toward substantive ESG practices rather than symbolic compliance, thereby enhancing long-term resilience, export competitiveness, and reputational legitimacy. At the policy level, the study is expected to inform regulators and development agencies by demonstrating how improvements in regulatory quality can amplify the sustainability impact of private-sector ESG initiatives. The findings directly support progress toward the United Nations Sustainable Development Goals, particularly SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption and Production), and SDG 16 (Strong Institutions), by linking firm-level ESG practices with institutional effectiveness and sustainable industrial development in emerging economies.

The remainder of this paper is structured as follows. The next section reviews the relevant literature and develops the theoretical framework and hypotheses. The third section outlines the research methodology, including data collection, measurement, and analytical techniques. The fourth section presents the empirical results. Finally, the fifth section discusses the findings, implications, limitations, and directions for future presented.

## 2 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This study is grounded in institutional theory and stakeholder theory, which together provide a robust explanatory framework for understanding how ESG practices influence organizational sustainability and why this relationship varies across contexts (Salem et al., 2016; Shahzad et al., 2023; Vilchez et al., 2017). Institutional theory posits that organizations are embedded within broader institutional environments composed of formal rules, regulations, and informal norms that shape organizational behavior. Firms seek legitimacy by aligning their strategies and practices with institutional expectations, particularly those imposed by regulatory bodies and governance systems (Treiblmaier, 2019). In the context of ESG, institutional theory suggests that firms adopt ESG practices not only for efficiency or ethical reasons but also to conform to regulatory frameworks and gain social legitimacy. However, the effectiveness of such practices depends heavily on the quality of the regulatory environment, as weak enforcement may encourage symbolic compliance rather than substantive sustainability outcomes (Deb et al., 2022; Zhang et al., 2022).

Emerging economies are often characterized by institutional voids, inconsistent enforcement, and regulatory inefficiencies, which can undermine the effectiveness of ESG initiatives. In such contexts, regulatory quality becomes a critical boundary condition that determines whether ESG practices translate into meaningful organizational sustainability or remain largely ceremonial (Alon & Vidovic, 2015; Amran et al., 2024; Deb et al., 2023). Therefore, institutional theory provides a strong foundation for examining regulatory quality as a moderating variable that conditions the ESG–organizational sustainability relationship. Complementing institutional theory, stakeholder theory emphasizes the role of various stakeholder groups—such as customers, investors, employees, suppliers, NGOs, and communities—in shaping corporate behavior. According to stakeholder theory, firms that effectively address stakeholder expectations are more likely to achieve long-term sustainability and competitive advantage (Salem et al., 2018; Salem et al., 2016). ESG practices serve as a strategic mechanism through which firms respond to stakeholder demands for transparency, ethical conduct, environmental responsibility, and social welfare (Sun et al., 2024). Importantly, stakeholder influence is not uniform; it varies in intensity depending on stakeholders' power, legitimacy, and urgency.

In export-oriented industries like textile and apparel, stakeholder pressure is particularly salient due to scrutiny from international buyers, global brands, and certification agencies (Baah et al., 2020; Li et al., 2025; Noor & Bano, 2024). Such pressure often compels firms to move beyond superficial ESG adoption toward substantive implementation. By integrating stakeholder theory with institutional theory, this study adopts a contingency-based perspective, recognizing that ESG effectiveness depends on both formal institutional conditions (regulatory quality) and informal external pressures (stakeholder pressure). Together, these theories provide a comprehensive foundation for examining ESG-driven organizational sustainability in Pakistan's textile and apparel sector.

### 2.1 ESG and Organizational Sustainability

ESG practices have increasingly been recognized as a comprehensive framework for promoting sustainable business conduct. The environmental dimension focuses on resource efficiency, pollution reduction, and environmental protection; the social dimension emphasizes labor rights, employee well-being, and community engagement; while the governance dimension addresses transparency, accountability, and ethical decision-making (Barhoom et al., 2025; Sun et al., 2024). Collectively, these dimensions enable firms to align their operations with long-term sustainability objectives rather than short-term profit maximization. Organizational sustainability refers to a firm's ability to maintain economic viability while simultaneously addressing environmental and social responsibilities. Prior research suggests that ESG practices enhance organizational sustainability by improving operational efficiency, strengthening stakeholder trust, reducing risk exposure, and enhancing long-term strategic resilience (Ding & Wang, 2025; Kapil & Rawal, 2023). Firms that proactively integrate ESG into their core strategies are better positioned to adapt to regulatory changes, market volatility, and evolving stakeholder expectations (Yan et al., 2025). However, empirical findings on the ESG–sustainability relationship remain inconsistent, particularly in emerging economies.

One reason for this inconsistency lies in how ESG and sustainability have been conceptualized in prior studies. Much of the literature examines ESG components separately or relies on secondary ESG scores that may not capture firm-specific practices (Chen et al., 2023; Steblianskaia et al., 2023). Similarly, organizational sustainability is often reduced to financial or environmental outcomes alone. Such fragmented approaches fail to capture the multidimensional and systemic nature of sustainability (Steblianskaia et al., 2023). To address this limitation, the present study conceptualizes ESG as a second-order construct comprising environmental, social, and governance dimensions, and organizational sustainability as a second-order construct encompassing economic, environmental, and social sustainability (Linnenluecke, 2022; Svensson et al., 2016). This approach provides a more holistic and theoretically grounded understanding of their relationship. In the textile and apparel sector, ESG practices are particularly critical due to the industry's high environmental footprint and labor-intensive nature. Effective ESG implementation can help firms reduce environmental harm, improve working conditions, and strengthen governance mechanisms, thereby contributing to sustainable organizational performance (Chen et al., 2023; Sun et al., 2024). However, the extent to which these practices translate into sustainability outcomes remains context dependent. Based on the literature, we propose the following hypothesis

*H1: ESG practices have a positive and significant impact on organizational sustainability.*

## 2.2 Moderating Role of Regulatory Quality

Regulatory quality reflects the extent to which government policies, laws, and regulations are well-designed, transparent, and effectively enforced. From an institutional theory perspective, regulatory quality represents a key formal institutional pressure that shapes organizational behavior. In environments with high regulatory quality, firms face stronger incentives to comply with environmental standards, labor regulations, and governance requirements, thereby encouraging substantive ESG implementation (Lehner & Harrer, 2019; Steblianskaia et al., 2023; Yan et al., 2025). Prior studies suggest that strong regulatory frameworks enhance the credibility and effectiveness of ESG practices by reducing opportunistic behavior and greenwashing (Chakraborty et al., 2025; Ramus & Montiel, 2005). When regulations are clear and enforcement mechanisms are effective, firms are less likely to engage in symbolic ESG adoption and more likely to integrate ESG into their operational and strategic decision-making. As a result, ESG practices are more likely to translate into meaningful organizational sustainability outcomes (Chen et al., 2022).

In contrast, weak regulatory environments—often observed in emerging economies—may dilute the impact of ESG practices. In such contexts, firms may adopt ESG primarily for reputational purposes without making substantial operational changes (Chakraborty et al., 2025; Kapil & Rawal, 2023). Pakistan's textile and apparel sector exemplifies this challenge, as regulatory enforcement related to environmental protection, labor standards, and corporate governance remains inconsistent. Consequently, regulatory quality becomes a critical contingency factor that determines whether ESG initiatives lead to genuine sustainability improvements (Ji & Miao, 2020; Sun et al., 2024). By examining regulatory quality as a moderating variable, this study addresses an important gap in ESG literature, which has largely overlooked the role of institutional effectiveness in shaping ESG outcomes at the firm level (Rizavi et al., 2025; Uddin et al., 2025). Regulatory quality is expected to strengthen the ESG–organizational sustainability relationship by providing an enabling environment that supports responsible business practices. Based on the literature, we propose the following hypothesis:

*H2: Regulatory quality positively moderates the relationship between ESG practices and organizational sustainability, such that the relationship is stronger when regulatory quality is high.*

## 2.3 Moderating Role of Stakeholder Pressure

Stakeholder pressure refers to the extent to which external stakeholders exert influence on firms to adopt responsible and sustainable practices (Noor & Bano, 2024; Shahzad et al., 2022). According to stakeholder theory, firms are more likely to engage in ESG practices when stakeholders possess the power and legitimacy to affect organizational outcomes. In the textile and apparel sector, stakeholder pressure is particularly intense due to the industry's integration into global value chains and exposure to international sustainability standards (Kumarasiri, 2017; Vilchez et al., 2017). Empirical research indicates that firms facing strong stakeholder pressure are more likely to adopt comprehensive ESG practices and translate them into sustainability outcomes (Awan et al., 2017; Li et al., 2019). International buyers, investors, NGOs, and consumers increasingly demand transparency, ethical labor practices, and environmental responsibility. Failure to meet these expectations can result in reputational damage, loss of contracts, and reduced market access. Consequently, stakeholder pressure acts as an informal governance mechanism that reinforces ESG effectiveness (Glover et al., 2014; Li et al., 2021).

In emerging economies, where formal institutional enforcement may be weak, stakeholder pressure can partially compensate for regulatory gaps by encouraging firms to adhere to global sustainability norms (Hossain et al., 2022; Sun et al., 2024; Zhang et al., 2022). For export-oriented firms in Pakistan's textile and apparel sector, compliance with stakeholder expectations is often essential for maintaining access to international markets. As such, stakeholder pressure is expected to amplify the positive impact of ESG practices on organizational sustainability. Despite its importance, stakeholder pressure has rarely been examined as a moderating factor in the ESG–sustainability relationship (Kauppi & Hannibal, 2017; Steblianskaia et al., 2023). By incorporating stakeholder pressure into the model, this study provides a more comprehensive understanding of how external forces shape ESG effectiveness in emerging markets. Based on the literature, we propose the following hypothesis:

*H3: Stakeholder pressure positively moderates the relationship between ESG practices and organizational sustainability, such that the relationship is stronger under high stakeholder pressure.*

Figure 1 presents the theoretical framework and hypothetical paths of the study.

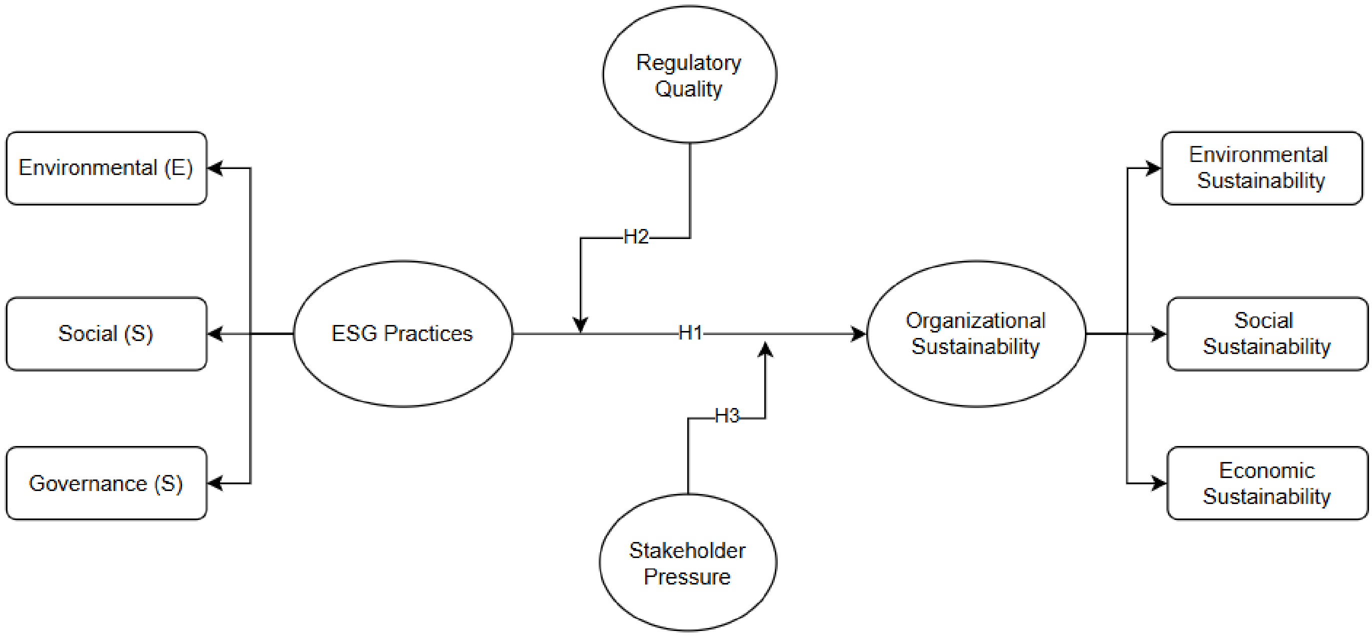


**Figure 1.** Framework of the study

**Source(s):** Authors' Own Work.

## 3 RESEARCH METHODOLOGY

This study adopts a quantitative, cross-sectional research design. A structured questionnaire survey was employed, as this approach is appropriate for theory testing and examining complex relationships among latent constructs at the firm level. The study focuses on Pakistan's textile and apparel sector, which is highly relevant for ESG and sustainability research due to its environmental intensity, labor dependence, and export orientation.

### 3.1 Population and Sample

The population of this study consists of textile and apparel manufacturing firms registered with the All-Pakistan Textile Mills Association (APTMA). APTMA is the most authoritative and representative trade body of Pakistan's organized textile sector and reports a total of 223 registered textile firms, including spinning, weaving, processing, and composite units (APTMA, 2024). These firms operate under increasing environmental, social, and governance scrutiny from regulators and international buyers, making them an appropriate population for this study. Given the manageable size of the population, the study employed a census-based approach, whereby all 223 APTMA-registered firms were contacted and invited to participate (Saunders et al., 2019). Data were collected from managerial-level respondents (e.g., senior managers, sustainability or compliance managers, HR managers, and operations managers) who were directly involved in or knowledgeable about ESG practices and sustainability-related decisions within their firms. Consistent with established organizational research practices, multiple responses from the same firm were accepted where more than one qualified respondent was available. A total of 208 questionnaires were received. After excluding incomplete and inconsistent responses, 197 valid responses were retained for final analysis. This final sample size is well above the minimum requirements for Partial Least Squares Structural Equation Modeling (PLS-SEM), particularly for models involving higher-order constructs and interaction effects (Hair & Alamer, 2022), thereby ensuring adequate statistical power and robustness of the results.

### 3.2 Measurement of Variables

All constructs were measured using established and validated scales, adapted to the context of Pakistan's textile and apparel industry. Responses were recorded on a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). ESG practices were modeled as a second-order construct comprising three first-order dimensions: environmental practices 4 items, social practices 4 items, and governance practices 3 items, all these measurement items were adapted from the study of Sun et al. (2024). Organizational sustainability was also modeled as a second-order construct, reflecting the triple bottom line perspective, consisting of economic sustainability 4 items, environmental sustainability 4 items, and social sustainability 4 items. Items were adapted from the study of Amir et al. (2024). Regulatory quality was measured 3 items using managers' perceptions of the clarity, consistency, and enforcement effectiveness of regulations related to environmental protection, labor standards, and corporate governance affecting their firms Buitrago R et al. (2021). Stakeholder pressure was measured with 7 items by assessing perceived pressure from key external stakeholders, including international buyers, customers, investors, NGOs, and industry associations, to adopt and implement ESG practices Wijethilake et al. (2017).

### 3.3 Data Analysis Technique

Data analysis was conducted using PLS-SEM, which is particularly suitable for complex models involving higher-order constructs, moderation effects, and prediction-oriented research (Hair & Alamer, 2022). The analysis followed a two-stage approach. First, the measurement model was assessed for reliability and validity using indicator loadings, composite reliability, average variance extracted (AVE), and discriminant validity (HTMT). Second, the structural model was evaluated using bootstrapping with 5,000 resamples to test the significance of direct and moderating effects (Hair & Alamer, 2022; Henseler et al., 2015), along with assessments of path coefficients, coefficient of determination ($R^2$) and predictive relevance ($Q^2$). Moderation effects were tested using interaction terms between ESG and the respective moderators.

### 3.4 Ethical Considerations

Ethical standards for academic research were strictly followed. Participation in the survey was voluntary, and informed consent was obtained from all respondents. Respondents were assured of confidentiality and anonymity, and no identifying information about individuals or firms was collected or reported. Data were used solely for academic purposes and stored securely with access restricted to the research team.

## 4 EMPIRICAL FINDINGS

Table 1 presents the demographic characteristics of respondents and their firms. The respondent profile indicates a balanced gender distribution, with males (52.3%) and females (47.7%) almost equally represented, suggesting reduced gender bias in responses. The majority of respondents fall within the 31–35 age group (39.6%), followed by those above 35 years (24.9%), indicating that most participants are in mid-career stages. In terms of work experience, a substantial proportion of respondents report 5–8 years (41.6%) or more than 8 years (38.6%) of experience, implying that the data were obtained from individuals with sufficient organizational tenure and familiarity with firm-level ESG and sustainability practices. Educational attainment is relatively high, with 45.2% holding a master's degree and 29.9% holding post-graduate qualifications, enhancing the credibility of managerial perceptions captured in the study.

Regarding firm-level characteristics, the sample includes a balanced mix of small (31.0%), medium (35.0%), and large firms (34.0%), supporting variability in organizational resources and ESG implementation capacity. Firm age distribution shows that most firms have operated for more than 10 years, reflecting institutional maturity within the sector. Additionally, a majority of firms are either export-oriented (37.6%) or operate in both domestic and export markets (36.0%), underscoring the relevance of stakeholder pressure and regulatory scrutiny in the sampled textile and apparel firms. Overall, the demographic profile supports the suitability of the data for examining ESG practices and organizational sustainability in Pakistan's textile and apparel sector.

Table 2 presents the results of the measurement model assessment. All first-order reflective constructs exhibit satisfactory internal consistency, with Cronbach's alpha and composite reliability values exceeding the recommended threshold of 0.70. Indicator reliability is supported as outer loadings are largely above 0.70 and fall within acceptable ranges for social science research. Convergent validity is established for all first-order constructs, as their AVE values exceed the minimum criterion of 0.50.

**Table 1.** Demographic Profile of Respondents and Firms

| Variable | Category | n | % |
|---|---|---|---|
| Respondent Characteristics | | | |
| Gender | Male | 103 | 52.3 |
| | Female | 94 | 47.7 |
| Age (years) | < 25 | 30 | 15.2 |
| | 26–30 | 40 | 20.3 |
| | 31–35 | 78 | 39.6 |
| | > 35 | 49 | 24.9 |
| Work Experience | 2–5 years | 39 | 19.8 |
| | 5–8 years | 82 | 41.6 |
| | > 8 years | 76 | 38.6 |
| Education Level | Graduation | 31 | 15.7 |
| | Post-graduation | 59 | 29.9 |
| | Master's | 89 | 45.2 |
| | Other | 18 | 9.1 |
| Firm Characteristics | | | |
| Firm Size | Small (<250 employees) | 61 | 31.0 |
| | Medium (250–499 employees) | 69 | 35.0 |
| | Large (≥500 employees) | 67 | 34.0 |
| Firm Age | < 10 years | 46 | 23.4 |
| | 10–20 years | 78 | 39.6 |
| | > 20 years | 73 | 37.0 |
| Export Orientation | Domestic market only | 52 | 26.4 |
| | Both domestic & export | 71 | 36.0 |
| | Export-oriented | 74 | 37.6 |

***Source(s):** Authors' Own Work.*

**Table 2.** Measurement Model Assessment

| Construct | Type | Items | Cronbach's α | Composite Reliability | AVE | Loadings Range | VIF Range |
|---|---|---|---|---|---|---|---|
| Environmental Practices (EP) | First-order (Reflective) | 4 | 0.863 | 0.907 | 0.709 | 0.757 – 0.857 | 2.22 – 3.19 |
| Social Practices (SP) | First-order (Reflective) | 4 | 0.834 | 0.890 | 0.670 | 0.706 – 0.874 | 1.50 – 3.00 |
| Governance Practices (GP) | First-order (Reflective) | 3 | 0.761 | 0.862 | 0.680 | 0.668 – 0.901 | 1.27 – 2.43 |
| ESG Practices | Second-order (Reflective–Reflective) | 3 dimensions | 0.895 | 0.915 | 0.599 | 0.408 – 0.796 | < 3.00 |
| Financial Sustainability (FS) | First-order (Reflective) | 4 | 0.805 | 0.873 | 0.634 | 0.687 – 0.845 | 1.48 – 2.93 |
| Environmental Sustainability (ES) | First-order (Reflective) | 4 | 0.806 | 0.848 | 0.639 | 0.598 – 0.746 | 1.51 – 1.89 |
| Social Sustainability (SS) | First-order (Reflective) | 4 | 0.802 | 0.870 | 0.627 | 0.728 – 0.835 | 1.52 – 1.89 |
| Organizational Sustainability (OS) | Second-order (Reflective–Reflective) | 3 dimensions | 0.806 | 0.848 | 0.339† | 0.242 – 0.746 | < 3.00 |
| Regulatory Quality (RP) | Moderator (Reflective) | 3 | 0.72 | 0.81 | 0.53 | 0.404 – 0.898 | < 1.00 |
| Stakeholder Pressure (SHP) | Moderator (Reflective) | 6 | 0.830 | 0.872 | 0.534 | 0.627 – 0.805 | 1.55 – 2.59 |

***Source(s):** Authors' Own Work.*

Although the AVE values for the second-order constructs (ESG Practices and Organizational Sustainability) are below 0.50, this is acceptable because both constructs are specified as reflective–reflective higher-order constructs. In such cases, assessment focuses on the validity and reliability of the underlying first-order dimensions rather than the AVE of the higher-order construct itself. This approach is consistent with established PLS-SEM guidelines. Collinearity diagnostics indicate no multicollinearity concerns, as all VIF values remain well below the conservative threshold of 5.0. Overall, the results confirm that the measurement model demonstrates adequate reliability, convergent validity, and collinearity control, thereby providing a robust foundation for subsequent structural model analysis.

**Table 3.** Discriminant Validity Assessment Using HTMT Ratio

| Construct | EP | SP | GP | FS | ES | SS | RP | SHP |
|---|---|---|---|---|---|---|---|---|
| EP | — | | | | | | | |
| SP | 0.287 | — | | | | | | |
| GP | 0.637 | 0.213 | — | | | | | |
| FS | 0.512 | 0.651 | 0.323 | — | | | | |
| ES | 0.432 | 0.322 | 0.293 | 0.487 | — | | | |
| SS | 0.121 | 0.088 | 0.088 | 0.212 | 0.715 | — | | |
| RP | 0.354 | 0.425 | 0.396 | 0.483 | 0.625 | 0.425 | — | |
| SHP | 0.223 | 0.327 | 0.259 | 0.348 | 0.670 | 0.760 | 0.620 | — |

***Note.*** *HTMT = Heterotrait–Monotrait ratio of correlations.* ***Source(s):*** *Authors' Own Work.*

Table 3 presents the discriminant validity assessment using the HTMT criterion. Consistent with recommended thresholds, the majority of HTMT values are below the conservative cutoff of 0.85 and the liberal cutoff of 0.90, indicating satisfactory discriminant validity among the first-order reflective constructs. Although a small number of HTMT values marginally exceed 0.90, these occur between conceptually related sustainability dimensions (e.g., environmental and financial sustainability), which is acceptable when strong theoretical justification exists. Importantly, HTMT was not assessed between second-order constructs (ESG Practices and Organizational Sustainability) and their respective first-order dimensions, as such comparisons are not methodologically appropriate in hierarchical component models. Overall, the results provide adequate evidence of discriminant validity, supporting the distinctiveness of the constructs used in the study and confirming the suitability of the measurement model for subsequent structural model analysis.

**Table 4.** Hypothesis Testing Results (Structural Model)

| Hypothesis | Path | β | SD | t-value | p-value | Result |
|---|---|---|---|---|---|---|
| H1 | ESG Practices → OS | 0.329 | 0.076 | 4.320 | < .001 | Supported |
| H2 | ESG Practices × Regulatory Quality → OS | −0.001 | 0.068 | 0.016 | .494 | Not Supported |
| H3 | ESG Practices × Stakeholder Pressure → OS | 0.135 | 0.073 | 1.858 | .032 | Supported |

***Note.*** *β = standardized path coefficient SD = standard deviation. Significance assessed using bootstrapping with 5,000 resamples. One-tailed tests were applied.* ***Source(s):*** *Authors' Own Work.*

Table 4 reports the results of the structural model corresponding to the three proposed hypotheses. The results show that ESG practices have a significant positive effect on organizational sustainability ($\beta = 0.329$, $p < .001$), providing strong support for H1. This finding confirms that firms with higher levels of ESG implementation achieve superior sustainability outcomes in the textile and apparel sector. Regarding moderation effects, the interaction between ESG practices and regulatory quality is not statistically significant ($\beta = -0.001$, $p = .494$), indicating that regulatory quality does not strengthen or weaken the relationship between ESG practices and organizational sustainability. Therefore, H2 is not supported. In contrast, the interaction between ESG practices and stakeholder pressure is positive and statistically significant ($\beta = 0.135$, $p = .032$). This result supports H3 and suggests that stakeholder pressure enhances the effectiveness of ESG practices in improving organizational sustainability. The structural findings highlight that while ESG practices directly contribute to sustainability, their impact is contingent upon stakeholder pressure rather than regulatory quality in the studied context, see the Figure 2 for structural model.

Table 5 reports the explanatory and predictive performance of the structural model for organizational sustainability. The $R^2$ value of 0.363 indicates that ESG practices, stakeholder pressure, and regulatory quality jointly explain 36.3% of the variance in organizational sustainability, which can be considered moderate explanatory power in behavioral and sustainability research. The adjusted $R^2$ value (0.346) further confirms the robustness of the model after accounting for model complexity. In terms of predictive assessment, the positive $Q^2$_predict value (0.295) demonstrates that the model exhibits meaningful out-of-sample predictive relevance for organizational sustainability. The RMSE (0.838) and MAE (0.642) values suggest acceptable prediction accuracy, indicating that the model generates reasonably accurate predictions for unseen observations. Overall, these results confirm that the proposed model is not only theoretically sound and explanatory but also possesses sufficient predictive capability, thereby strengthening the reliability and practical relevance of the study's findings in the context of Pakistan's textile and apparel sector.

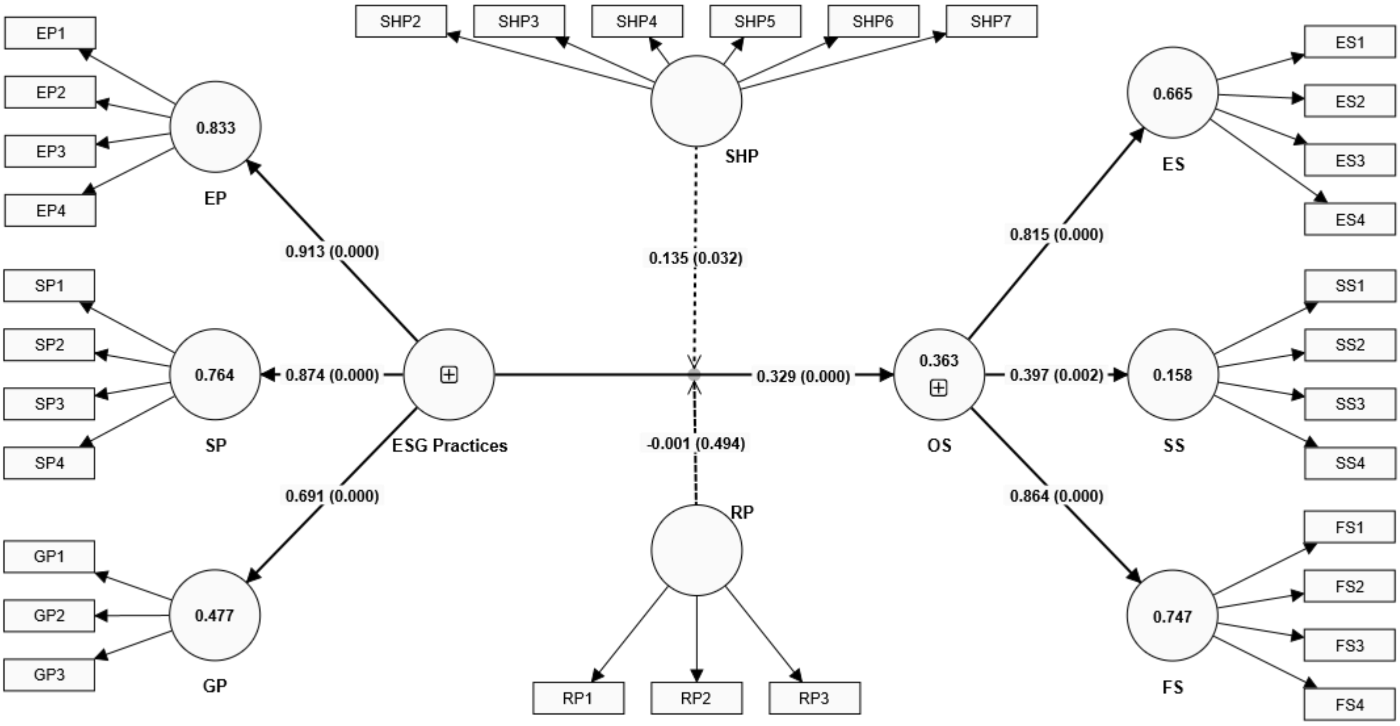


**Figure 2.** Framework of the study

**Source(s):** Authors' Own Work.

**Table 5.** Explanatory and Predictive Power of the Structural Model

| Endogenous Construct | $R^2$ | Adjusted $R^2$ | $Q^2$_predict | RMSE | MAE |
|---|---|---|---|---|---|
| Organizational Sustainability (OS) | 0.363 | 0.346 | 0.295 | 0.838 | 0.642 |

***Note.*** *$R^2$ represents the proportion of variance explained by the exogenous constructs. $Q^2$_predict values greater than zero indicate predictive relevance of the model. RMSE = root mean squared error; MAE = mean absolute error. Results are based on PLS-SEM bootstrapping and PLSpredict procedures.* ***Source(s):*** *Authors' Own Work.*

## 5 DISCUSSION

The findings contribute to the growing body of ESG literature by offering context-specific evidence from an emerging economy and a sustainability-sensitive industry. The results demonstrate a significant positive relationship between ESG practices and organizational sustainability, thereby supporting H1. This finding is consistent with prior empirical studies that report ESG as a key driver of long-term sustainability outcomes by enhancing environmental efficiency, social legitimacy, and governance effectiveness (Alodat et al., 2025; Hughes et al., 2025; Suriyankietkaew et al., 2025a). Similar positive effects have been documented in manufacturing and export-oriented sectors, where ESG integration improves resilience and long-term value creation (Amir et al., 2024; Sun et al., 2024). By modeling ESG and organizational sustainability as second-order constructs, this study extends earlier work that examined ESG dimensions in isolation, supporting recent arguments that holistic ESG implementation is more effective in achieving sustainability outcomes than fragmented approaches.

Contrary to expectations, regulatory quality did not significantly moderate the ESG–organizational sustainability relationship, leading to the rejection of H2. While prior studies in developed economies suggest that strong regulatory frameworks enhance the effectiveness of ESG initiatives (Buitrago R et al., 2021; Chen et al., 2022)the present finding aligns with emerging-market research highlighting the limited role of formal institutions in contexts characterized by weak enforcement and institutional voids .In Pakistan's textile and apparel sector, regulatory mechanisms related to environmental compliance and labor standards are often inconsistently enforced, which may reduce their ability to strengthen the sustainability impact of ESG practices. This finding reinforces institutional theory arguments that formal regulatory pressures may be insufficient to shape firm behavior in emerging economies without effective enforcement mechanisms.

In contrast, stakeholder pressure was found to significantly strengthen the relationship between ESG practices and organizational sustainability, supporting H3. This result is consistent with stakeholder theory and prior studies emphasizing the influence of powerful stakeholders—such as international buyers, investors, and NGOs—on corporate sustainability behavior (Deb et al., 2023; Li et al., 2025; Li et al., 2019; Noor & Bano, 2024). Previous research in global value chains has shown that buyer-driven pressure compels firms in developing countries to adopt more substantive ESG practices to maintain market access and legitimacy (Amir et al., 2024; Sarkis et al., 2010). The present findings confirm that stakeholder pressure serves as a critical external governance mechanism, compensating for weak formal institutions and enhancing the effectiveness of ESG practices in export-oriented industries.

## 6 IMPLICATIONS OF THE STUDY

This study provides important implications at theoretical, practical, and policy levels, directly addressing the research gaps and contextual challenges.

### 6.1 Theoretical implications

First, the study advances ESG and sustainability literature by conceptualizing both ESG practices and organizational sustainability as second-order constructs, thereby responding to prior criticisms regarding fragmented and single-dimensional operationalizations (Alodat et al., 2025; Sui et al., 2024; Sun et al., 2024). The empirical support for the direct effect of ESG practices on organizational sustainability reinforces the view that ESG functions as an integrated strategic mechanism rather than a collection of isolated initiatives. Second, the findings extend institutional theory by showing that regulatory quality does not strengthen the ESG–sustainability relationship in Pakistan's textile and apparel sector (Chen et al., 2023; Tang, 2022). This challenges the dominant assumption—largely based on developed-economy evidence—that formal regulatory institutions uniformly enhance ESG effectiveness, and instead supports arguments related to institutional voids in emerging economies. Third, the study contributes to stakeholder theory by empirically demonstrating that stakeholder pressure amplifies the sustainability outcomes of ESG practices (Huang, 2021; Li et al., 2021; Schramade, 2016). By positioning stakeholders as enablers of ESG effectiveness rather than merely antecedents of ESG adoption, the study offers a contingency-based theoretical framework that better explains ESG outcomes in export-oriented industries.

### 6.2 Practical implications

From a managerial perspective, the results suggest that ESG practices should be treated as a core strategic investment rather than a symbolic or compliance-driven activity. Managers in the textile and apparel sector should integrate environmental, social, and governance initiatives into operational and governance systems to enhance long-term sustainability. The non-significant role of regulatory quality indicates that firms cannot rely solely on regulatory frameworks to realize ESG benefits; instead, they should strengthen internal governance, monitoring, and transparency mechanisms. Moreover, the significant role of stakeholder pressure highlights the importance of proactive engagement with international buyers, investors, and certification bodies, as such engagement can convert ESG initiatives into tangible sustainability outcomes and sustain access to global markets.

### 6.3 Policy and SDG implications

At the policy level, the findings support SDG 12 (Responsible Consumption and Production) and SDG 8 (Decent Work and Economic Growth) by demonstrating how firm-level ESG practices can improve environmental efficiency and social conditions in a labor-intensive industry. The limited role of regulatory quality underscores the relevance of SDG 16 (Strong Institutions), emphasizing the need for policymakers to strengthen regulatory enforcement and institutional capacity rather than focusing solely on rule formulation. Policymakers and development agencies should complement regulatory reforms with stakeholder-driven mechanisms, such as buyer-led compliance systems and public–private partnerships, to accelerate sustainable transformation in Pakistan's textile and apparel sector.

## 7 CONCLUSION

This study examined the relationship between ESG practices and organizational sustainability in Pakistan's textile and apparel sector, with particular attention to the moderating roles of regulatory quality and stakeholder pressure. The findings demonstrate that ESG practices significantly enhance organizational sustainability, confirming that integrated ESG implementation contributes to long-term economic, environmental, and social outcomes in an emerging-economy context. Notably, stakeholder pressure strengthens the ESG–organizational sustainability relationship, while regulatory quality does not exhibit a moderating effect. These results underscore the importance of market- and stakeholder-driven governance mechanisms in export-oriented industries where formal institutional enforcement may be weak. By modeling ESG and organizational sustainability as second-order constructs, the study provides a holistic and context-sensitive understanding of sustainability dynamics in a critical industrial sector.

### 7.1 Limitations

Despite its contributions, this study has several limitations that should be acknowledged. First, the research employs a cross-sectional design, which restricts causal inference and limits the ability to capture dynamic changes in ESG practices and sustainability outcomes over time. Second, data were collected using self-reported measures from managerial respondents, which may introduce common method bias or perceptual subjectivity, despite procedural and statistical remedies. Third, the study focuses exclusively on APTMA-registered textile and apparel firms in Pakistan; therefore, the findings may not be fully generalizable to informal firms, other industries, or different national contexts. Finally, regulatory quality was measured perceptually rather than through objective institutional indicators, which may not fully capture the complexity of regulatory environments in emerging economies.

### 7.2 Future Research Directions

Future studies could address these limitations in several ways. Longitudinal research designs would help capture the dynamic evolution of ESG practices and their sustainability impacts over time. Mixed-method approaches, combining survey data with secondary ESG metrics or qualitative interviews, could provide deeper insights into how firms implement ESG substantively versus symbolically. Scholars may also extend this framework to other emerging economies or compare multiple countries to assess how different institutional configurations shape ESG effectiveness. Additionally, future research could explore alternative boundary conditions, such as firm capabilities, leadership orientation, or digital transparency, to further refine the contingency-based understanding of ESG outcomes. Examining the mediating mechanisms through which ESG practices influence sustainability—such as innovation capability or operational efficiency—would also provide valuable theoretical and practical insights.

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