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Assessing the Performance of Domestic Suppliers to FDI Companies: An Insight from Bangladesh

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Abstract

This study addresses a critical gap in the literature on FDI-supplier linkages by systematically evaluating the performance of suppliers to foreign direct investment (FDI) companies in Bangladesh, a country lagging behind regional peers in domestic suppliers' integration. Drawing on FDI Spillover Theory, Absorptive Capacity Theory, and Global Value Chain (GVC) Theory, Resource-Based View (RBV) and Institutional Theory, the study employs a mixed-methods approach across high-FDI sectors (e.g., textiles, electronics and light engineering) to assess how product quality, production capacity, and compliance with international standards affect domestic supplier performance. Quantitative statistical and econometric analyses confirms that all three factors significantly enhance performance, with compliance moderating the quality-performance relationship. Thematic analysis reveals structural constraints, resource scarcity, skill shortages, and infrastructure gaps, as major impediments to upgrading, while institutional support mechanisms (e.g., training, certification subsidies, technology upgrades, etc.) emerge as critical enablers. Compared to coordinated policy efforts in Vietnam and India, Bangladesh's fragmented institutional landscape undermines its competitiveness in GVCs. The study contributes theoretically by integrating firm-level and institutional determinants of supplier upgrading, and empirically by providing rare micro-level evidence from a low-middle income economy. Policy recommendations include targeted capacity-building, compliance facilitation, and public-private coordination to unlock FDI spillovers and strengthen Bangladesh's supplier base within global production networks.

Keywords

Foreign Direct Investment (FDI), Domestic Suppliers, Compliance Standards, Global Value Chains (GVCs), Policy Interventions

1. Introduction

Foreign Direct Investment (FDI) has played a pivotal role in Bangladesh's industrial development, particularly in sectors, such as textiles, electronics, and light engineering, where global lead firms increasingly rely on local suppliers to meet production and compliance standards (Government of Bangladesh, 2023; BIDA, 2022a; UNCTAD, 2021). As FDI flows continue to rise, reaching over USD 2.5 billion annually in recent years, there is growing recognition that the developmental impact of such investments hinges not just on capital inflows but on the strength and performance of domestic suppliers embedded within these global value chains (Arif-Ur-Rahman & Inaba, 2021; Amendolagine et al., 2019; Qiang et al., 2021).

Despite policy frameworks designed to encourage backward linkages, the ability of Bangladeshi suppliers to consistently meet the operational expectations of multinational enterprises (MNEs) remains uneven. Local firms frequently struggle with issues, such as subpar product quality, limited production scalability, and fragmented compliance with international standards (Mahmud et al., 2021; Uddin et al., 2022). Skill gaps remain a significant constraint on supplier upgrading in Bangladesh, reporting that approximately 60% of SMEs lack ISO-certified staff, undermining their ability to meet the stringent compliance requirements of FDI companies (OECD, 2023). These challenges undermine the potential for technology transfers, knowledge spillovers, and sustainable integration into global production networks outcomes that are central to the theorised benefits of FDI (Cohen & Levinthal, 1990; Narula & Dunning, 2000; Smeets, 2008).

In contrast, regional competitors, like Vietnam and India, have leveraged coordinated industrial policies, capacity-building programs, and institutional support to strengthen their domestic supply chains and enhance GVC participation (Dutta, 2021; OECD, 2025). Bangladesh, however, continues to face implementation gaps in aligning its domestic supplier base with international benchmarks (World Bank, 2021a). Empirical studies that evaluate the actual performance of local suppliers, particularly in high-FDI sectors, remain limited, creating a notable gap in the literature on how domestic firms interact with and adapt to FDI-led industrial dynamics.

This study addresses this gap by systematically assessing the performance of domestic suppliers to FDI firms in Bangladesh through a mixed-methods approach. By evaluating dimensions, such as product quality, production capacity, and compliance with global standards, the research aims to identify performance bottlenecks and institutional barriers while highlighting enabling factors, such as policy interventions and absorptive capacity.

The study contributes to both academic and policy discourse in three keyways. First, it builds on FDI Spillover Theory, Absorptive Capacity Theory, Global Value Chain Theory, Resource-Based View (RBV), and Institutional Theory to frame supplier performance not merely as a firm-level outcome but as a systemic function influenced by institutional readiness and external governance structures. Second, it provides empirical validation of hypothesised relationships between sup-

plier capabilities and performance outcomes in the Bangladeshi context, where real-world evidence is scarce. Third, the study offers actionable policy insights for enhancing local supplier competitiveness and FDI linkage effectiveness, directly informing the goals of Bangladesh's Industrial Policy 2022 which target to increase the industrial sector's contribution to the GDP from 35% to 40% by 2027; and broader national development strategies (BIDA, 2022b; OECD, 2019).

As supplier performance outcomes are contingent not only on firm-specific factors but also sectoral GVC structures and national institutional frameworks that either constrain or facilitate upgrading opportunities (Gereffi et al., 2005; Humphrey & Schmitz, 2002). By situating supplier performance within a framework of global competitiveness and development policy, this article aims to bridge the gap between theoretical expectations and practical realities, offering a grounded analysis of what it takes for Bangladeshi suppliers to thrive in the evolving landscape of international production and investment.

1.1. Bangladesh FDI Landscape

Bangladesh has positioned itself as an emerging FDI destination in South Asia, driven by low labour costs, strategic location, and regulatory reforms (BIDA, 2022b; UNCTAD, 2020). Annual FDI inflows average USD 2.5 - 3 billion, mainly targeting manufacturing sectors, like textiles, electronics, and light engineering critical for both exports and domestic supplier integration into global value chains (World Bank, 2021a; Arif-Ur-Rahman and Inaba, 2021). However, FDI remains predominantly efficiency-seeking, offering limited technology transfer and weak linkages with local firms (Alfaro and Charlton, 2009; World Bank, 2021a). Supplier constraints, such as poor quality, weak compliance, and limited scalability hinder spillover effects (Nath et al., 2024; Islam et al., 2019). Compared to regional peers, like Vietnam and India, which have advanced supplier capacity via targeted policies (Hoan, 2024; Nishith Desai Associates, 2021), Bangladesh lags despite initiatives, like Industrial Policy 2022 (BIDA, 2022b). Rising ESG (Environmental, Social, and Governance) standards and digital integration further pressure local firms (Government of Bangladesh, 2023; BIDA, 2022b; UNCTAD, 2021), underscoring the urgency of supplier upgrading.

1.2. Comparative Insights: Bangladesh vs. Vietnam vs. India

Bangladesh's supplier upgrading lags behind Vietnam and India due to fragmented policies, weak compliance, and capacity gaps (Arif-Ur-Rahman and Inaba, 2021; Mishra et al, 2024). Vietnam's coordinated industrial policies and SME compliance programs drove rapid FDI integration (Pham et al, 2020; World Bank, 2020), while Bangladesh's efforts remain reactive. India shows uneven progress structured joint ventures in automotive sectors (e.g., "Make in India") spurred growth, but regional disparities limited spillovers (Nishith Desai Associates, 2021). Vietnam's flexible FDI entry modes (wholly owned and joint ventures) boosted knowledge transfer (Vo et al., 2023), whereas Bangladesh's FDI is dominated by

wholly owned subsidiaries with weak local linkages. Consequently, Bangladesh's spillovers are modest compared to Vietnam's strong tech absorption and India's sectoral successes (Arif-Ur-Rahman and Inaba, 2021; Mishra et al., 2024). To improve, Bangladesh should adopt Vietnam-style industrial clusters with shared testing labs and compliance support, fostering proactive supplier development and institutional alignment, and India's mixed results further highlight the need to address these barriers for supplier upgrading.

2. Theoretical and Literature Framework

2.1. Theoretical Framework

This study draws on five key theoretical perspectives to support its hypotheses:

FDI Spillover Theory posits that multinational enterprises (MNEs) generate positive externalities for domestic firms through backward linkages (Liu, 2008; Javorcik, 2004). These spillovers enhance product quality, production capacity, and compliance with international standards. Firms with strong compliance mechanisms can better absorb these benefits, amplifying gains from quality improvements.

Absorptive Capacity Theory (Cohen & Levinthal, 1990) underpins product quality, production capacity, moderating role of compliance, challenges to performance, suggesting that firms with robust internal competencies more effectively utilise external knowledge. Weak absorptive capacity due to skill or infrastructure deficits limits FDI benefits.

Global Value Chain (GVC) Theory (Gereffi et al., 2005) explains how integration into global production networks relies on quality upgrades and compliance. Governance mechanisms, like audits intensify the compliance performance relationship, while institutional support enhances supplier inclusion.

Resource-Based View (RBV) (Barney, 1991) highlights internal resources, such as product quality and capacity as strategic assets, with constraints limiting competitiveness.

Institutional Theory (DiMaggio & Powell, 1983; Scott, 2001) explains how regulatory and normative pressures shape firm compliance, performance, and responsiveness to institutional support.

Together, the five lenses provide a layered logic for the problem. FDI Spillover Theory identifies the external source of upgrading; Absorptive Capacity explains why exposure yields heterogeneous gains; the RBV specifies which firm resources (quality systems, scalable capacity) convert knowledge into performance; GVC Theory clarifies chain-level governance and why compliance matters; and Institutional Theory situates these dynamics in Bangladesh's policy/regulatory setting. Using all five is necessary because supplier outcomes arise from interacting forces: cross-firm knowledge flows (spillovers), firm-level learning constraints (absorptive/RBV), chain standards and power (GVC), and national rules/incentives (institutions); omitting any layer would misattribute effects and weaken inference on how to upgrade suppliers. This synthesis maps directly onto our hypotheses: H_1 -

H_3 (capabilities → performance), H_4 (compliance as a GVC-governed amplifier), H_5 (resource/skill constraints dampen conversion), and H_6 (institutional support enables upgrading).

2.2. Literature Review

This literature review builds on the framework to explore how domestic suppliers in Bangladesh perform within the context of FDI integration. Anchored in 5 theories, this section synthesises insights from recent literatures and comparative economies, notably India and Vietnam, to evaluate the relevance and variation across hypotheses H_1 through H_6.

2.2.1. FDI Spillovers and Domestic Supplier Development

Research confirms FDI spillovers boost local suppliers through MNE linkages, driving productivity and quality gains (Javorcik, 2004; Blalock & Gertler, 2008). In Bangladesh's garment sector (Mottaleb & Sonobe, 2011), document quality improvements in FDI-linked firms. Yet unlike Vietnam's successful clustering model (Howard et al., 2021), Bangladesh lacks coordinated industrial policies. India's mixed results further show how policy fragmentation limits spillovers (Mishra et al., 2024).

2.2.2. Absorptive Capacity and Performance Constraints

The ability of domestic firms to internalise FDI spillovers is contingent on absorptive capacity (Cohen & Levinthal, 1990; Girma & Görg, 2003). Higher levels of human capital, R&D investment, and organisational learning correlate with better supplier performance (Griffith et al. 2004; Peng et al., 2022). Chinese suppliers outperformed Vietnamese suppliers, who in turn surpassed their Bangladeshi counterparts, largely due to targeted training programs (Nguyen et al., 2011; Islam et al., 2019), while firms in India's automotive sector display varying results based on technological readiness (Noor & Kumar, 2023). In Bangladesh, skill shortages and lack of managerial capacity persist as major barriers, as evidenced by World Bank (2021a).

2.2.3. Compliance and International Standards

Compliance with global standards is crucial for supplier integration into GVCs. Long et al. (2023) demonstrate that compliance enhances credibility and long-term buyer relationships. Vietnam's SME sector, supported by compliance facilitation programs, shows higher certification rates than Bangladesh's fragmented approach (Long et al., 2023; Chowdhury, 2018). In Bangladesh, compliance is often reactive, driven by buyer pressure rather than institutional capacity (Hossain, 2015). The study investigates whether adherence to compliance standards leads to measurable quality benefits for suppliers.

2.2.4. Production Capacity and Scalability Challenges

Emerging markets face production scalability issues. Bangladeshi suppliers strug-

gle with inadequate infrastructure (Nath et al., 2024; The Daily Star, 2025), while India's MSMEs face financial and technological constraints (Muthoot Finance, 2025; Bizongo, 2024). Vietnam, however, mitigates these through shared industrial parks (Nguyen & Quang, 2022; The Investor, 2022). The study highlights structural barriers that hinder scaling capacity.

2.2.5. Institutional Support and Policy Alignment

Institutional frameworks are crucial for supplier capability upgrades. While India's Make in India (Nishith Desai Associates, 2021) and Vietnam's export clusters (Vo et al., 2023) succeed, Bangladesh faces implementation gaps (World Bank, 2021a). Despite policies like Industrial Policy 2022 (BIDA, 2022b), bureaucratic inefficiencies hinder progress. Thus, role of institutional support is supported but highlights critical execution challenges.

2.2.6. GVC Integration and Learning

Participation in global value chains (GVCs) fosters supplier upgrading through governance mechanisms, like buyer audits and traceability mandates (Soundararajan and Brown, 2016). Vietnam's electronics sector demonstrates how strategic industrial policies enhance GVC integration (Pham et al., 2020; Hoan, 2024), while Bangladeshi non-garment suppliers lag due to weak institutional backing (World Bank, 2021b; Rana and Allen, 2021). This underscores that compliance with international standards, moderating role of compliance, role of institutional support depends on state capacity and policy coherence for effective implementation.

2.2.7. Contradictory Evidence and Negative Spillovers

Not all literature agrees on the uniformly positive impact of FDI. Chen et al. (2011) and Kim (2015) found that in contexts of low absorptive capacity, FDI may crowd out domestic competition. Similarly, Nachum and Uramoto (2023) observed that many Bangladeshi firms are relegated to low-value segments of supply chains, lacking autonomy or bargaining power. This echoes critiques in Chinese and Indian regional studies, where firms in tier-2 cities struggle with value capture (Fuller & Ramirez, 2024).

2.2.8. Emerging Trends and Research Gaps

Recent literature suggests new directions: the role of digital supply chains (Hai et al., 2024), financing for innovation (Arif-Ur-Rahman & Inaba, 2021), and R&D spillovers (Menzel, 2021) are underexplored in the Bangladeshi context. Moreover, sectors, like ICT, pharmaceuticals, and leather remain under-researched, despite being FDI priorities (Islam et al., 2022; Rahman et al., 2024; Khan et al., 2015). Future research should integrate these themes to offer a more diversified view of supplier development.

In sum, this literature review reinforces the central hypotheses while highlighting areas of convergence and divergence with comparative economies. It offers a comprehensive foundation for understanding supplier dynamics within FDI ecosystems and provides a roadmap for future empirical inquiry.

2.3. Hypothesis Development

H_1: Product quality has a statistically significant and positive impact on the overall performance of domestic suppliers to FDI companies in Bangladesh.

H_2: Production capacity positively influences the overall performance of domestic suppliers serving FDI companies.

H_3: Compliance with international standards has a significant positive effect on the overall performance of domestic suppliers in the FDI context.

H_4: Compliance with international standards positively moderates the relationship between product quality and overall supplier performance, such that the impact of product quality on performance is stronger at higher levels of compliance.

H_5: Resource limitations, skill gaps, and infrastructure deficiencies are significant barriers negatively affecting the performance of domestic suppliers to FDI companies.

H_6: Policy interventions and institutional support mechanisms (e.g., training programs, technology upgrades, financial incentives) are positively associated with improvements in supplier performance and integration into global value chains.

Table 1 presents six hypotheses examining key drivers of supplier performance (quality, capacity, compliance, constraints, and institutional support), each supported by multiple theoretical perspectives (FDI Spillovers, Absorptive Capacity, GVC Theory, RBV, and Institutional Theory), with H_1 being the most broadly theorised and H_5/H_6 combining complementary frameworks.

Table 1. Summarised hypotheses, theoretical model and literature alignment.

Hypothesis	Description	Supported Theories
H_1	Product Quality → Supplier Performance	FDI Spillovers, Absorptive Capacity, GVC Theory, RBV
H_2	Production Capacity → Supplier Performance	FDI Spillovers, Absorptive Capacity, RBV
H_3	Compliance → Supplier Performance	FDI Spillovers, GVC Theory, Institutional Theory
H_4	Compliance as Moderator between Quality (Compliance × Quality) → Performance	Absorptive Capacity, GVC Theory, Institutional Theory
H_5	Constraints (Resources, Skills) → ↓ Performance	Absorptive Capacity, RBV
H_6	Institutional Support → ↑ Performance & GVC Integration	GVC Theory, Institutional Theory

Sources: Summarised by Author.

3. Case Selection and Methodology

3.1. Criteria for Case Selection

This study employed purposive sampling (Miles et al., 2014), targeting high-FDI, export-driven manufacturing sectors in Bangladesh textiles, apparel, electronics,

and light engineering due to their significance in FDI-supplier dynamics and local upgrading potential (ADB, 2024; Bangladesh Bank, 2023), considering economic, theoretical, policy, and regional relevance.

A. Economic Context: Bangladesh's rising FDI inflows stem from competitive labour, market access, and industrial policies (BIDA, 2022b; World Bank, 2023). With GDP growth averaging 6% (World Bank, 2023), FDI-driven sectors thrive, but domestic suppliers must meet global standards, integrate into value chains, and strengthen linkages with multinationals for broader impact (UNCTAD, 2023; Bangladesh Bank, 2023).

B. Sectoral Dynamics: The case firms operate in FDI-intensive sectors, textiles, electronics, and light engineering, are linked to global value chains, and are sensitive to quality, capacity, and compliance demands. These industries reflect Bangladesh's broader industrial challenges, including meeting global standards, responding to buyer pressures, and addressing infrastructure, technology, and workforce limitations (World Bank, 2021a; OECD, 2023).

C. Theoretical Relevance: The study employs above five multiple theories, which may initially seem complex when combined. However, each theory distinctly explains SME performance behaviours in FDI contexts. Rather than complicating the analysis, this framework provides a layered understanding of assessing the performance of domestic suppliers to FDI Companies in Bangladesh, demonstrating that these theories are complementary tools for analysing a multidimensional issue.

D. Policy Implications: The textiles, electronics, and light engineering sectors are prioritised in Bangladesh's Industrial Policy 2022, emphasising supplier development and value upgrading. This study analyses sector-specific challenges, informing scalable policy responses aligned with national goals for FDI-led industrial growth and competitiveness (BIDA, 2022b; World Bank, 2021b).

E. Regional Competition Context: Bangladesh competes with Vietnam, India, and Cambodia in FDI attraction and supplier upgrading. Lessons from Vietnam's SME programs (World Bank, 2020; Nguyen et al., 2011) and Indian SME experiences (Mishra et al., 2024) demonstrate effective approaches to industrial development that Bangladesh could adapt to enhance its competitiveness in global value chains

Firm Selection Criteria:

The firm selection was guided by strategic criteria to ensure empirical depth and policy relevance: (1) strong FDI linkage intensity, focusing on suppliers directly engaged with multinational enterprises (MNEs) in Bangladesh; (2) representation from sectors accounting for over 60% of the country's FDI stock (BIDA, 2022); (3) diversity in performance profiles, including firms with both high and low levels of production capacity and compliance to allow for comparative analysis; and (4) alignment with government-prioritised export clusters under national industrial policy. This purposive selection strengthens the study's mixed-methods approach, enabling nuanced analysis of supplier performance variability and re-

sponsiveness to policy interventions.

3.2. Methodological Approach

3.2.1. Research Design

This study adopts a mixed-methods research design to evaluate the performance of domestic suppliers to Foreign Direct Investment (FDI) companies in Bangladesh, integrating both qualitative and quantitative data to capture the multifaceted nature of supplier capabilities and challenges. Guided by Creswell and Plano Clark (2017), the design includes semi-structured survey (e.g., both closed-ended and open-ended questions administered to domestic suppliers and in-depth semi-structured interviews with both suppliers and FDI firm representatives, enabling triangulation of data for comprehensive insights. The purposive sampling approach (Miles et al., 2014) targeted key sectors, such as textiles, electronics, and light engineering, industries with high FDI density and strategic relevance under Bangladesh's industrial policy (BIDA, 2022b). Purposive sampling was justified by the strategic selection of the textiles, electronics and light engineering sectors, which together represent a significant concentration of FDI inflows in Bangladesh, ensuring that the study captures performance dynamics in industries most critical for FDI-supplier integration and national industrial upgrading. The research also employed econometric models including OLS regression, interaction effects, and fixed-effects robustness checks (Wooldridge, 2016) to statistically validate hypotheses related to product quality, capacity, compliance, and institutional support, thereby strengthening empirical rigor and informing policy recommendations grounded in taken theories.

3.2.2. Data Variables and Data Collection

Table 2 describes key variables related to domestic suppliers' performance for FDI firms, including product quality, production capacity, compliance, overall performance, resource constraints, skill gaps, infrastructure deficiencies, and institutional support, along with their operational definitions and measurement methods.

Data Collection: Data for this study were collected from both primary and secondary sources. Primary data were obtained through interviews and surveys conducted with managers and representatives of domestic suppliers and FDI companies. Secondary data were sourced from industry reports, government publications, and databases, such as the Bangladesh Investment Development Authority (BIDA), Bangladesh Bank which provided relevant information on FDI trends and domestic supplier profiles (Bangladesh Bank, 2023; BIDA, 2022a).

The primary data formed the empirical backbone of the research, providing firsthand insights into the dynamics between Bangladeshi domestic suppliers and FDI firms. The primary data sources included semi-structured surveys and semi-structured interviews conducted with managers and operational staff from both domestic supplier firms and their associated FDI partners. These data collection methods were designed following best practices outlined by Kvale (2007) and Creswell & Plano Clark (2017), ensuring consistency, reliability, and depth. The semi-

structured surveys targeted quantifiable aspects of supplier performance, such as product quality, production capacity, compliance with international standards, and overall operational reliability, using standardised Likert-scale items. Meanwhile, semi-structured interviews explored contextual and experiential themes, such as challenges in compliance, perceptions of institutional support, and capacity-related constraints. To ensure data credibility and methodological triangulation, the researcher cross-referenced survey responses with qualitative insights obtained from interviews. The data were used to evaluate hypotheses, the primary data not only substantiated theoretical models but also offered practical insights for policymakers aiming to strengthen Bangladesh's supplier ecosystem.

Table 2. Description of the variables.

Variables	Description	Operationalisation/Measurement
Product Quality (PQ)	The ability of domestic suppliers to meet international product standards required by FDI firms.	Semi-structured survey items on product consistency, defect rates, customer satisfaction.
Production Capacity (PC)	The scalability and volume-handling ability of suppliers to meet large and timely FDI orders.	Metrics on production volume, lead time reliability, machinery adequacy.
Compliance (C)	Degree to which suppliers adhere to international quality, safety, and labour standards (e.g., ISO).	Certification status, audit results, compliance process maturity.
Overall Performance (OP)	Composite measure of supplier efficiency, reliability, product quality, and FDI client satisfaction.	Aggregate score from semi-structured survey and interview feedback on operational excellence.
Resource Constraints	Barriers related to lack of financial capital, technology, and human resources affecting suppliers.	Qualitative responses regarding financing issues, tech gaps, and HR shortages.
Skill Gaps	Deficiency in workforce technical skills necessary to meet FDI firms' operational demands.	Semi-structured survey/interview assessment on staff training, certifications, and skill levels.
Infrastructure Deficiencies	Shortcomings in logistics, transport, power, and ICT infrastructure that hamper supplier performance.	Qualitative insights and secondary data on infrastructural challenges.
Institutional Support	Availability of policy interventions, training programs, subsidies, and tech incentives supporting suppliers.	Documented participation in government or private sector support programs.

Source: Summarised by Author.

Moreover, the secondary data played a crucial role in providing contextual grounding and validating primary insights through triangulation. These secondary data were obtained from authoritative and policy-relevant sources, including government databases (e.g., BIDA, 2022a, Bangladesh Bank), international development reports (e.g., World Bank; OECD, *UNCTAD World Investment Report*,

etc.) and industry publications. Collectively, the secondary data informed the construction of the study's conceptual model, validated the significance of institutional factors in supplier performance, and helped triangulate survey and interview results, thereby strengthening the study's credibility and policy relevance.

Time Frame: The study conducted semi-structured surveys and interviews over 12 months (May 2023-May 2024) for comprehensive primary data collection. Additionally, secondary data from Bangladesh Bank and industry reports (2013 - 2023) enriched the analysis, offering a well-rounded view of domestic suppliers' performance in Bangladesh's FDI-linked sectors.

3.2.3. Data Analysis Techniques

1) Thematic Analysis

The thematic analysis of the article reveals three major interrelated themes affecting supplier performance: resource constraints**,** compliance challenges, and skill gaps**.** Using Braun and Clarke's (2006) framework for thematic analysis and NVivo for qualitative coding (Bazeley & Jackson, 2013), the study uncovers that limited access to capital, outdated technology, and unreliable supply chains restrict domestic suppliers' ability to scale production to meet FDI demands. For example, suppliers frequently cited the unaffordability of upgrading machinery and inconsistent access to raw materials as critical barriers. A second theme centres on compliance with international standards, many suppliers struggle with acquiring costly certifications, like ISO 9001, often reacting to external buyer pressures rather than institutional support. Finally, skill deficiencies in quality control and managerial capabilities emerged as a recurring issue, underscoring the limited absorptive capacity of local firms. These themes are situated within broader theoretical contexts, such as FDI spillover theory, global value chain governance, and institutional theory, emphasising the need for targeted interventions, including public-private training initiatives and policy incentives for technological upgrades. Collectively, this thematic analysis not only supports the study's hypotheses but also provides rich empirical insight into the multifaceted challenges and latent potential of Bangladesh's supplier ecosystem in the FDI landscape.

2) Statistical and Econometric Models Specification

To rigorously assess the relationships between supplier characteristics and performance outcomes, the following models are specified:

I. OLS Regression Model

The OLS Regression Model quantifies how product quality, production capacity, and compliance impact Bangladeshi suppliers' performance with FDI firms. Supporting hypotheses H_1–H_3, it identifies key performance drivers, offering evidence-based insights for policymakers to enhance supplier capabilities and global competitiveness through targeted capacity and compliance interventions.

$$\textbf{\textit{Model Specification}}: \quad OP_i = \alpha + \beta_1 PQ_i + \beta_2 PC_i + \beta_3 C_i + \varepsilon_i$$

Notes:

- OP_i = Overall performance score of domestic supplier *i*
- α = Intercept term (baseline level of performance)
- β_1 = Coefficient measuring the impact of Product Quality (PQ) on performance
- β_2 = Coefficient measuring the effect of Production Capacity (PC)
- β_3 = Coefficient for Compliance (C) with international standards
- ε_i = Error term capturing unobserved factors affecting performance

II. Moderation/Interaction Model

The Moderation/Interaction Model tests whether compliance with international standards strengthens the impact of product quality on supplier performance, validating Hypothesis H_4. By including an interaction term, it shows that higher compliance enhances the benefits of quality, helping Bangladeshi suppliers better meet FDI expectations and improve overall performance outcomes.

Model Specification: $$OP_i = \alpha + \beta_1 PQ_i + \beta_2 C_i + \beta_3 \left(PQ_i \times C_i \right) + \varepsilon_i$$

Notes:

- OP_i = Overall performance score of domestic supplier *i*
- α = Intercept term (baseline performance when predictors = 0)
- PQ_i = Product Quality of supplier *i*
- C_i = Compliance level with international standards for supplier *i*
- $PQ_i \times C_i$ = Interaction term capturing the moderating effect of Compliance on the relationship between Product Quality and Performance
- β_1, β_2, β_3 = Regression coefficients
  - β_3 specifically tests Hypothesis H_4
- ε_i = Error term

III. Breusch-Pagan Heteroskedasticity Test

The Breusch-Pagan Test in the study ensures the validity of OLS regression by checking for heteroskedasticity, non-constant error variance. Though not linked to specific hypotheses, it confirms model robustness. Detecting variance inconsistencies helps safeguard against biased results, strengthening confidence in the study's findings on supplier performance predictors.

Model Specification: Let the original OLS model be:

$$OP_i = \alpha + \beta_1 PQ_i + \beta_2 PC_i + \beta_3 C_i + \varepsilon_i$$

Then, the *Breusch-Pagan auxiliary regression* is formulated as:

$$\varepsilon_i^2 = \gamma_0 + \gamma_1 PQ_i + \gamma_2 PC_i + \gamma_3 C_i + u_i$$

Notes:

- ε_i^2 is the squared residual from the OLS model,
- PQ_i, PC_i, C_i are the original regressors,
- u_i is the new error term.

The null hypothesis H_0: $\gamma_1 = \gamma_2 = \gamma_3 = 0$ implies homoskedasticity. A significant test statistic (typically a chi-square test on the auxiliary regression) suggests whether heteroskedasticity is present.

By confirming or rejecting this assumption, the test adds statistical rigor and

supports the validity of conclusions drawn from hypotheses H_1 to H_4.

IV. Fixed Effects Robustness Check

To address potential endogeneity risks, such as self-selection bias, where higher-performing suppliers may be more likely to engage with FDI firms, this study employs fixed-effects models to control for unobserved, time-invariant firm characteristics (e.g., firm age, location, management style, or sectoral identity). By accounting for these latent factors, the model ensures that whether the positive relationships found between performance drivers (product quality, production capacity, and compliance) and supplier outcomes are not artifacts of fixed firm-level traits. This approach enhances whether the internal validity of the empirical findings for Hypotheses H_1 - H_4, confirming that the observed effects are robust and consistent across firms, even after controlling for unobservable differences.

***Model Specification*: *Fixed Effects Model*,**

$$OP_{it} = \alpha_i + \beta_1 PQ_{it} + \beta_2 PC_{it} + \beta_3 C_{it} + \varepsilon_{it}$$

Notes:

- OP_{it} = Overall performance score of supplier i at time t
- α_i = Supplier-specific fixed effect (captures all unobserved, time-invariant influences for firm i)
- PQ_{it}, PC_{it}, C_{it} = Time-varying predictors (product quality, production capacity, and compliance)
- ε_{it} = Idiosyncratic error term

4. Data Analysis and Findings

4.1. Empirical Data and Statistical Summary

Comprehensive statistical evaluation of suppliers' FDI performance using rigorous statistical and econometric analysis (Tables 3-8).

Table 3. Summary statistics of key variables.

Variable	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
Product Quality (PQ)	3.81	0.84	2	5	−0.32	2.45
Production Capacity (PC)	3.46	0.92	2	5	−0.15	2.12
Compliance (C)	3.67	0.88	2	5	−0.24	2.67
Overall Performance (OP)	3.75	0.89	2	5	−0.41	2.89

Table 4. Summary output for internal consistency of constructs.

Construct	Cronbach's α	No. of Items
Product Quality (PQ)	0.81	5
Production Capacity (PC)	0.79	4
Compliance (C)	0.83	6
Overall Performance (OP)	0.85	7

Table 5. Correlation matrix summary statistics.

	PQ	PC	C	OP
PQ	1.00	0.59**	0.64**	0.76**
PC	0.59**	1.00	0.68**	0.70**
C	0.64**	0.68**	1.00	0.74**
OP	0.76**	0.70**	0.74**	1.00

Table 6. Summary output for regression results.

Variable	Coefficient (β)	Std. Error	t-value	*p*-value	VIF
PQ	0.36***	0.08	4.50	<0.001	1.78
PC	0.29**	0.09	3.22	0.002	1.95
C	0.32***	0.07	4.57	<0.001	1.92
Constant	0.68*	0.33	2.06	0.042	-

Table 7. Summary of interaction results.

Term	Coefficient (β)	*p*-value
PQ × C	0.18*	0.023

Table 8. Summary statistics for Breusch-Pagan test for heteroskedasticity results.

Test Statistic	Value	*p*-value	Conclusion
LM Statistic (χ^2)	1.84	0.398	Fail to reject H_0 (Homoskedasticity)

4.2. Results and Discussion

4.2.1. Product Quality's Impact on FDI Suppliers' Performance

To validate hypothesis (**H_1:** *Product quality has a statistically significant and positive impact on the overall performance of domestic suppliers to FDI companies in Bangladesh.*), the study employs empirical, qualitative, and theoretical analysis, ensuring a robust and comprehensive assessment.

The empirical analysis of the hypothesis **H_1** is strongly supported by the study's quantitative and qualitative findings. Regression analysis revealed a robust positive relationship between product quality and supplier performance, with a significant coefficient ($\beta = 0.36$, $p < 0.001$) (Table 6) and a high correlation ($r = 0.76$) (Table 5), indicating that improvements in product quality are strongly associated with enhanced operational outcomes for local suppliers. This finding is reinforced by thematic insights from interviews, where FDI firms consistently emphasised quality as a primary determinant of supplier reliability and sustained partnership. Thus, the study provides compelling empirical evidence that enhancing product quality directly contributes to the performance and competitiveness of domestic suppliers engaged with multinational enterprises in Bangladesh's FDI-intensive sectors.

The thematic interpretation of the hypothesis **H_1** reveals that product quality is

not merely a technical requirement but a foundational driver of trust, competitiveness, and sustainability in FDI-supplier relationships. The qualitative data from interviews emphasise that FDI firms consistently prioritise quality as the primary criterion for selecting and retaining suppliers, reflecting a broader industry demand for international-standard inputs in global value chains. From a thematic standpoint, the analysis uncovers how product quality acts as a signaling mechanism for supplier reliability and professionalism, enabling domestic firms to build reputational capital and secure long-term contracts with multinational enterprises. This focus on quality is shaped by the institutional pressures and buyer expectations within FDI-intensive sectors, like here—textiles, electronics, and light engineering, where performance benchmarks are increasingly stringent. Moreover, the themes emerging from the interviews point to quality-related constraints, such as outdated machinery and limited quality control training as critical barriers that limit supplier competitiveness. These findings are closely aligned with FDI Spillover Theory and Absorptive Capacity Theory, both of which suggest that domestic firms with strong quality systems are better positioned to internalise knowledge transfers and technology diffusion from foreign partners. Thus, the thematic analysis substantiates the quantitative validation of H_1 and underscores the transformative potential of product quality in enhancing supplier performance, building institutional credibility, and enabling deeper integration into global production networks.

The theoretical interpretation of the hypothesis $\mathbf{H_1}$ is firmly rooted in a convergence of multiple theoretical frameworks, most notably FDI Spillover Theory, Absorptive Capacity Theory, Global Value Chain (GVC) Theory, and the Resource-Based View (RBV). Pursuant to FDI Spillover Theory, multinational enterprises (MNEs) disseminate knowledge and best practices, especially regarding quality benchmarks, which local firms can adopt to enhance their competitiveness. Absorptive Capacity Theory emphasises that the ability of domestic firms to leverage such spillovers hinges on their internal capabilities, particularly in product development and quality control. Product quality, in this context, is both a reflection of internal resource strength (as per RBV) and a prerequisite for deeper integration into global supply chains (as GVC Theory posits). Empirical validation further strengthens this hypothesis, as their mixed-methods analysis reveals that product quality holds the strongest correlation with supplier performance and demonstrates a significant regression coefficient. Qualitative insights affirm that quality acts as a gateway to FDI collaboration, enabling domestic firms to signal reliability and gain access to long-term contracts and technological spillovers. Thus, the hypothesis is not only statistically substantiated but also thematically and theoretically coherent, showing that enhancing product quality is pivotal for Bangladeshi suppliers seeking sustained performance, competitive upgrading, and meaningful participation in global production networks.

Overall, the confirmation of H_1 has critical implications for both practice and policy. It emphasises the urgent need for initiatives focused on quality enhance-

ment, such as technical training, ISO certifications, and quality assurance systems (e.g. Receiving ISO training → improving process consistency → winning larger FDI contracts → scaling production → further upgrading), especially in key sectors, like textiles, electronics, and light engineering. Strengthening quality capacities will not only elevate supplier competitiveness but also deepen Bangladesh's participation in global value chains, driving sustainable industrial growth and stronger FDI linkages.

The implication for supplier managers is to institutionalise firm-wide quality management (QA/QC, SPC, ISO) as the quickest lever to win and retain FDI business (Figure 1).

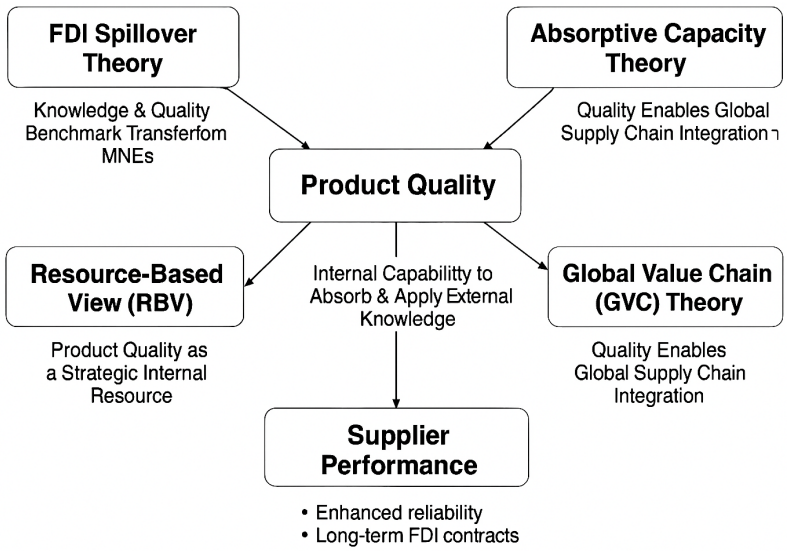

Figure 1. Product quality and supplier performance in FDI-driven global supply chains.

This flowchart illustrates the theoretical framework linking product quality to supplier performance in the context of FDI and global supply chains. It integrates insights from four major theories to explain how product quality, influenced by both internal and external factors, drives better performance among suppliers.

4.2.2. Production Capacity's Role in Supplier Performance

Hypothesis validation (**H_2:** *Production capacity positively influences the overall performance of domestic suppliers serving FDI companies.*) is achieved through tripartite empirical, qualitative, and theoretical analytical approaches, ensuring methodological rigor.

The empirical validation of hypothesis **H_2** is strongly supported by both the quantitative and qualitative findings in the study. The regression analysis reveals a statistically significant and positive relationship between production capacity and overall supplier performance ($\beta = 0.29$, $p = 0.002$) (Table 6), indicating that improvements in production scalability directly contribute to enhanced performance outcomes for domestic suppliers engaged with FDI firms. Correlation analysis further supports this link ($r = 0.70$) (Table 5), underscoring the role of capac-

ity as a critical determinant of supplier reliability and efficiency. The study's qualitative insights echo this quantitative result, with supplier interviewees frequently citing limited access to modern machinery, inconsistent raw material supply, and outdated production systems as major constraints on scaling operations to meet international demand. These findings align with the Resource-Based View and Absorptive Capacity Theory, suggesting that production capacity functions as a key strategic resource and absorptive enabler in FDI contexts. Suppliers with higher capacity are better positioned to fulfil large orders, reduce lead times, and adapt to dynamic buyer requirements, characteristics highly valued in global value chains.

The thematic analysis interpretation of the hypothesis $\mathbf{H_2}$ reveals that production capacity is a central driver of supplier reliability, adaptability, and long-term viability within global value chains. Through qualitative interviews, domestic suppliers frequently cited limited access to modern machinery, fragmented supply logistics, and outdated operational processes as core barriers that restrict their ability to meet large-scale, time-sensitive demands from FDI firms. These constraints undermine not only their performance but also their ability to maintain consistency and scale, a vital requirement in FDI partnerships where lead times and volume flexibility are crucial. Suppliers with higher production capacity were more likely to secure repeated contracts, adapt to changes in demand, and respond to quality requirements without delays, thereby enhancing trust and fostering stronger integration with multinational enterprises. These insights align with the Resource-Based View and Absorptive Capacity Theory**,** where capacity is framed as a strategic internal asset and a prerequisite for learning and technology diffusion from FDI spillovers. Moreover, the theme of "capacity as performance enabler" intersects with broader institutional challenges, suggesting that without targeted support, such as technology upgrades, infrastructure improvements, and workforce expansion, Bangladeshi suppliers may struggle to achieve the scale efficiency needed to fully leverage FDI linkages. Therefore, the thematic evidence clearly supports the hypothesis by illustrating how production capacity, when adequately developed, enables suppliers to meet the dynamic, large volume demands of FDI firms and improve their overall operational performance.

The theoretical interpretation of the hypothesis $\mathbf{H_2}$ is anchored in a confluence of theoretical frameworks, particularly FDI Spillover Theory, Absorptive Capacity Theory, and the Resource-Based View (RBV). FDI Spillover Theory suggests that multinational enterprises (MNEs) can stimulate productivity gains among local suppliers through backward linkages, which are more effectively realised when those suppliers possess the capacity to absorb and respond to increased production demands. Absorptive Capacity Theory posits that firms with superior internal capabilities, like production scalability, are better positioned to assimilate external knowledge, adopt best practices, and meet fluctuating demand from global partners. From the RBV perspective, production capacity is viewed as a strategic internal resource that provides sustained competitive advantage, especially in supply relationships where volume flexibility and reliability are critical. The empirical

findings further validate this theoretical foundation, demonstrating that production capacity significantly and positively correlates with overall supplier performance, while qualitative insights underscore recurring themes of scalability constraints, outdated technology, and resource bottlenecks that hinder performance. Thus, the hypothesis is thematically and theoretically sound and empirically substantiated: production capacity not only enables domestic suppliers to meet FDI firms' requirements more effectively but also positions them to capitalise on knowledge spillovers, deepen global value chain integration, and enhance long-term competitiveness.

The confirmation of Hypothesis H_2 carries important implications for Bangladesh's industrial policy and FDI strategy. To enhance supplier competitiveness and resilience, policymakers must prioritise investments in technology upgrades, workforce expansion, and supply chain infrastructure. Targeted support through fiscal incentives, industrial zones, and public-private initiatives can help address existing capacity constraints. Strengthening production capacity will not only improve supplier performance but also promote deeper FDI integration, positioning Bangladesh's domestic firms for long-term success in the global market.

The implication for policymakers is to prioritise co-financed technology upgrades and freight/power reliability to expand scalable capacity and cut lead times.

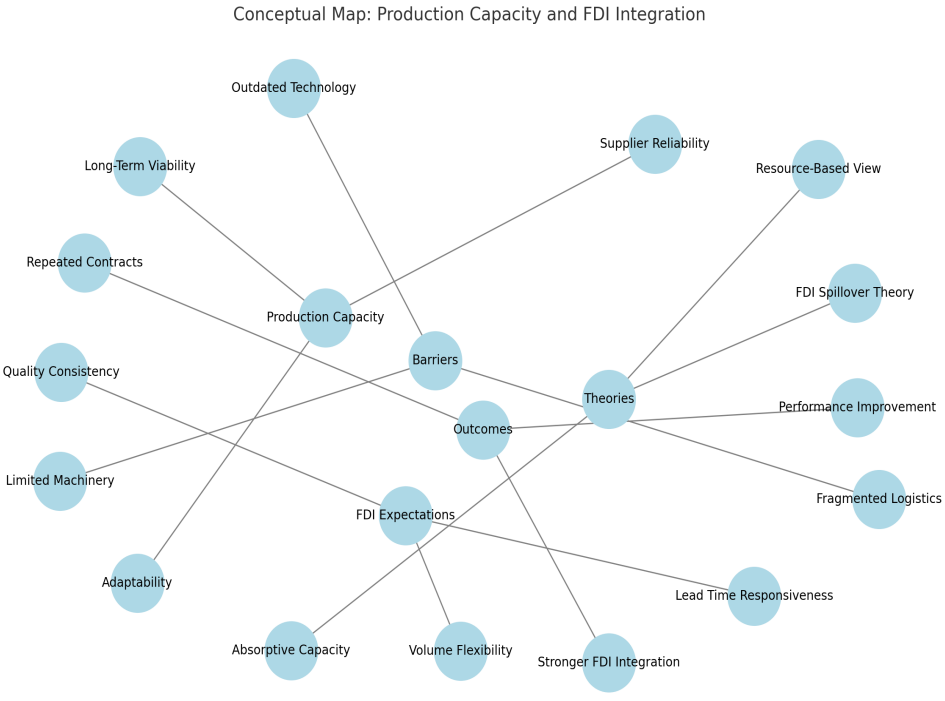

Figure 2. Enhancing production capacity of Bangladeshi SMEs for FDI integration and global competitiveness.

This conceptual map (**Figure 2**) shows that production capacity is key for Bangladeshi SMEs to meet FDI demands, linking it to better performance, reliability, and global integration. It highlights barriers, like outdated tech, and draws on the-

ories (RBV, Absorptive Capacity, FDI Spillover) to show how boosting capacity strengthens competitiveness and supply chain fit.

4.2.3. International Standards' Impact on Supplier Performance

The research employs empirical data, qualitative insights, and theoretical frameworks to rigorously validate the hypothesis (**H_3**: *Compliance with international standards has a significant positive effect on the overall performance of domestic suppliers in the FDI context.*)

The empirical analysis of hypothesis H_3 is strongly supported by both quantitative and qualitative evidence. The regression results show that compliance is a statistically significant predictor of supplier performance ($\beta = 0.32$, $p < 0.001$) (Table 6), with a strong Pearson correlation ($r = 0.74$) (Table 5), indicating that suppliers who adhere to international standards perform substantially better in terms of reliability, operational efficiency, and competitiveness. These findings are reinforced by thematic insights from interviews, where compliance emerged as a key differentiator for sustained partnerships with FDI firms. Theoretically, these results align with FDI Spillover Theory, which suggests that multinational enterprises promote compliance upgrades in local partners, and with Institutional Theory, which highlights how institutional pressures drive firms toward legitimacy through standardisation. Furthermore, from the Global Value Chain (GVC) perspective, compliance is not only a buyer-driven requirement but also a mechanism for deeper insertion into international production networks. The study thus demonstrates that compliance with global norms enhances absorptive capacity, builds reputational capital, and significantly boosts the overall performance of Bangladeshi suppliers operating within FDI-intensive sectors, such as textiles, electronics, and light engineering.

The thematic interpretation of the hypothesis **H_3** reveals that compliance serves as a critical enabler of supplier legitimacy, competitiveness, and integration into global value chains. Qualitative insights from interviews with domestic suppliers and FDI partners consistently highlight compliance, such as adherence to ISO certifications and buyer-specific standards, as both a precondition and a performance amplifier in FDI relationships. Suppliers who demonstrated strong compliance practices were perceived as more trustworthy, efficient, and capable of sustaining long-term partnerships with multinational enterprises. Thematic analysis further uncovers that compliance is often driven by external pressures from global buyers rather than internal readiness, indicating a reactive rather than strategic orientation among many Bangladeshi firms. Nevertheless, those firms that internalised compliance as part of their organisational culture reported enhanced operational reliability, streamlined processes, and greater exposure to knowledge transfers and technological upgrades from FDI firms. These findings align with Institutional Theory, where regulatory and normative pressures guide firm behaviour, and Global Value Chain (GVC) Theory, which underscores compliance as a gatekeeping mechanism for market access and upgrading. Thus, thematically, compliance emerges

not only as a benchmark of international competitiveness but also as a dynamic capability that empowers domestic suppliers to move beyond transactional relationships into more strategic, innovation-oriented engagements with FDI firms, thereby boosting their overall performance and positioning within global production networks.

The theoretical interpretation of the hypothesis **H_3** is underpinned by a triangulation of FDI Spillover Theory, Global Value Chain (GVC) Theory, and Institutional Theory. From the FDI Spillover perspective, compliance is a conduit through which domestic firms absorb technological knowledge and operational practices disseminated by multinational enterprises. GVC Theory reinforces this by framing compliance as a non-negotiable entry requirement for integration into global production networks, where lead firms impose stringent quality, labour, and environmental standards. Institutional Theory adds further depth by illustrating how coercive and normative pressures through buyer demands, certification mandates, and policy frameworks, drive local firms toward standardisation and legitimacy. Empirical findings from the study further substantiate these theoretical claims: compliance has a strong, statistically significant impact on performance, and qualitative evidence reveals that firms achieving certification report greater reliability, efficiency, and retention in FDI supply chains. Thus, compliance is not merely regulatory adherence; it serves as both a performance catalyst and a strategic capability that enhances supplier visibility, trustworthiness, and learning potential within FDI ecosystems. Theoretically, this positions compliance as a critical enabler of both absorptive capacity and value chain upgrading, confirming that suppliers who institutionalise global standards gain a sustainable advantage in Bangladesh's evolving industrial landscape.

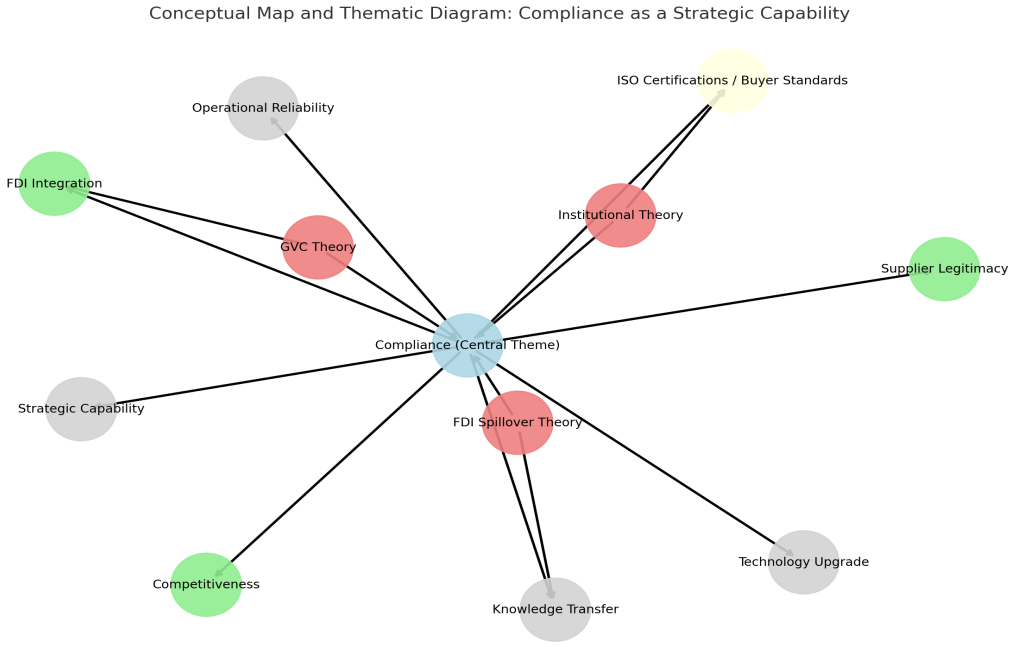

Figure 3. The role of compliance in enhancing supplier legitimacy and FDI value chain integration.

These findings have important practical implications. To strengthen FDI-supplier linkages, Bangladesh must invest in building compliance capacity through subsidised certification programs, specialised training, and public-private initiatives. Promoting compliance readiness will not only enhance supplier competitiveness but also support Bangladesh's broader goals of industrial upgrading and integration into global markets. Strengthened compliance frameworks will thus be crucial for sustaining long-term supplier growth and maximising the benefits of FDI engagement.

The implication for supplier managers is to treat certification and continuous audit-readiness as non-negotiable investments for stable, higher-value FDI orders.

Figure 3 illustrates how compliance driven by external pressures and global standards enhances supplier legitimacy, operational reliability, and integration into FDI value chains, acting as both a gatekeeper and enabler of performance and learning. It also links compliance to key theories, like FDI Spillover, GVC, and Institutional Theory.

4.2.4. Standards Strengthen Quality-Performance Link

Through a mixed-methods approach combining empirical, qualitative, and theoretical analysis, the study systematically validates the hypothesis (**H_4**: *Compliance with international standards positively moderates the relationship between product quality and overall supplier performance, such that the impact of product quality on performance is stronger at higher levels of compliance*).

The analysis of Hypothesis H_4 is well supported by both quantitative and qualitative findings. The regression results show a significant positive interaction ($\beta = 0.18$, $p = 0.023$) (Table 7), indicating that while product quality independently improves supplier performance, its effect is even stronger when paired with high compliance to international standards. A marginal effects plot confirms that firms with strong compliance practices benefit more substantially from their quality improvements. This interaction plot ($\beta = 0.18$) also clearly illustrates the Quality-Compliance Nexus, demonstrating that higher compliance with international standards significantly amplifies the positive impact of product quality on supplier performance among domestic firms serving FDI companies in Bangladesh.

The thematic interpretation of Hypothesis H_4 reveals a nuanced interplay between quality and compliance as dual performance enablers in the FDI-supplier ecosystem of Bangladesh. Drawing from qualitative interviews analysed using Braun and Clarke's (2006) framework, this relationship was consistently reflected in the narratives of both FDI managers and domestic suppliers. Respondents emphasised that product quality, while essential, becomes a truly effective lever of supplier performance only when coupled with demonstrable compliance to international standards, such as ISO certifications or buyer-driven codes of conduct. High-compliance firms were portrayed not only as more technically competent but also as more trustworthy and aligned with the procedural expectations of multinational enterprises. This combination fosters deeper integration into global value chains

by reinforcing reputational capital, enabling smoother audits, and inviting greater knowledge transfer. Thematically, compliance functions as a credibility gateway and performance multiplier, enhancing the value of product quality by ensuring that it meets globally recognised benchmarks. This interpretation resonates with Absorptive Capacity Theory and GVC governance logic, where firms with robust compliance frameworks are better equipped to internalise quality-related improvements and convert them into sustained operational gains. Thus, compliance is not merely a moderating statistical construct, it is a practical, structural condition that shapes the depth and durability of supplier upgrading outcomes in Bangladesh's FDI-linked industrial sectors.

The theoretical analysis and interpretation of Hypothesis H_4 draws on Absorptive Capacity Theory, Global Value Chain (GVC) Theory, and Institutional Theory to elucidate how compliance operates as a performance amplifier in FDI-supplier dynamics. Absorptive Capacity Theory suggests that firms with higher compliance have more robust internal systems that enable them to better assimilate and leverage external knowledge, such as technical standards and quality expectations transmitted by multinational enterprises (MNEs). From a GVC perspective, compliance reflects a firm's capability to meet governance mechanisms imposed by lead firms, which not only enables entry into global markets but also reinforces the functional relevance of product quality. Institutional Theory further posits that compliance emerges in response to coercive and normative pressures, shaping organisational behaviour in ways that institutionalise quality as a core capability. Empirical findings further substantiate this hypothesis, showing a significant interaction effect and demonstrating that the positive impact of product quality on performance is significantly stronger when compliance is high. Theoretically, this implies that compliance is not merely a threshold condition but a strategic lever that amplifies the value of product quality by signalling legitimacy, building reputational capital, and enabling deeper integration into value chains. Therefore, firms that concurrently invest in both quality improvement and compliance infrastructure are better positioned to maximise their performance outcomes, while policymakers are urged to design integrated capacity-building programs that treat compliance as a catalyst for sustainable supplier upgrading.

The implications are clear: for firms, investing in compliance infrastructure alongside quality initiatives maximises performance potential; for policymakers, the focus should shift toward integrated support, combining certification subsidies, compliance training, and audit-readiness programs. Together, these measures can help domestic suppliers in Bangladesh more effectively scale their operations, deepen FDI linkages, and strengthen their position in global value chains. The implication for policymakers is to bundle quality grants with compliance subsidies so firms capture the amplified performance gains from their complementarity.

Figure 4 illustrates that compliance amplifies the positive impact of product quality on supplier performance by fostering trust, global standards adherence, and deeper integration with FDI partners.

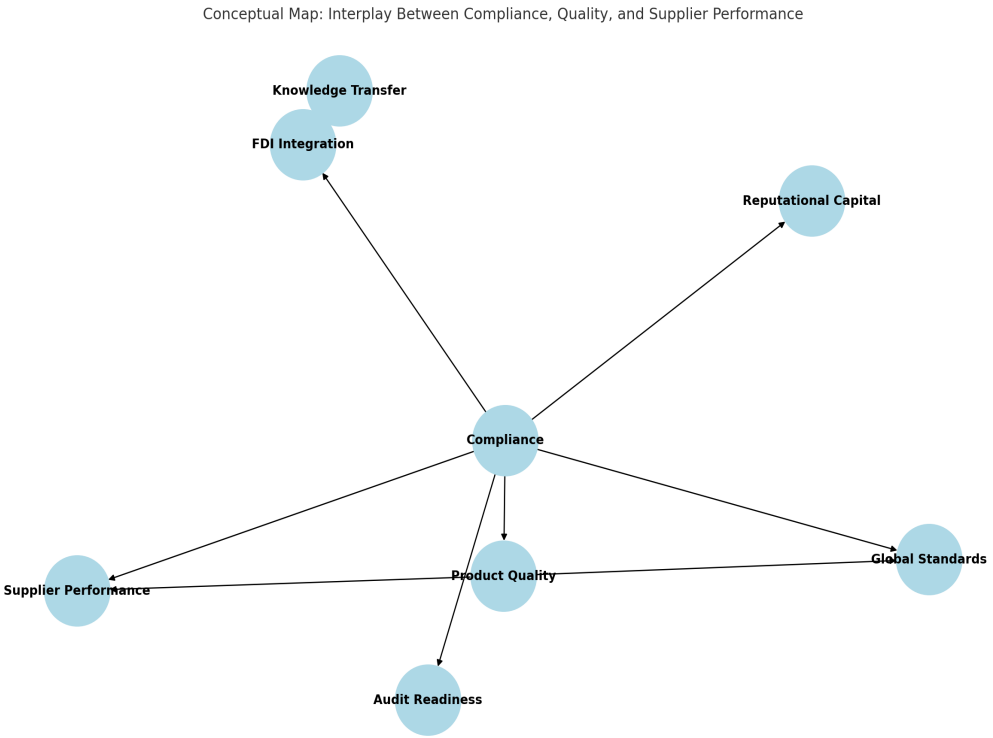

Figure 4. Compliance as a catalyst for product quality and supplier performance in FDI integration.

4.2.5. Resource Gaps and Supplier Challenges

Hypothesis (**H_5**: *Resource limitations, skill gaps, and infrastructure deficiencies are significant barriers negatively affecting the performance of domestic suppliers to FDI companies.*) verification incorporates three-pronged methodological analysis (empirical, qualitative, theoretical) to ensure comprehensive evaluation.

The empirical analysis of Hypothesis H_5 receives robust support with thematic insights, qualitative empirical narratives, and theoretical grounding. Rather than signalling a missing quantitative test, our treatment of H_5 is a deliberate component of the mixed-methods design. Because resource, skill, and infrastructure constraints are system-level conditions that resist reliable single-index measurement in a cross-section, we purposely use thematic analysis and stakeholder narratives to surface mechanisms and patterns, then triangulate these insights with descriptive statistics and prior evidence. This qualitative module complements the H_1–H_4/H_6 regressions by explaining why and how frictions arise, strengthening construct validity and policy relevance. Future panel data may permit a dedicated causal model, but here the qualitative analysis is integral not a fallback to the overall design. Moreover, cross-referencing with existing literature reinforces that these systemic limitations significantly impair performance outcomes. The findings suggest that unless these foundational barriers are addressed through targeted interventions, such as technology financing schemes, infrastructure development, and skill-building programs, Bangladesh's domestic suppliers will remain disadvantaged in fully integrating with and benefiting from FDI-driven industrial growth.

The thematic analysis interpretation of Hypothesis H_5 reveals that these sys-

temic constraints are central, recurring themes across qualitative data and are deeply interwoven with the broader challenges of supplier integration into FDI-driven value chains in Bangladesh. Interviews with both FDI firm managers and domestic suppliers consistently highlighted that outdated technology, lack of access to finance, insufficient training in quality control, and unreliable infrastructure (e.g., logistics, power supply) collectively limit the capacity of local suppliers to meet international standards and fulfil large-scale production demands. These barriers diminish suppliers' absorptive capacity, as conceptualised, preventing them from fully benefiting from the technological and managerial spillovers offered by FDI firms. Suppliers often expressed a reactive posture, struggling to respond to the dynamic requirements of multinational enterprises, due to underdeveloped internal systems and limited institutional support. These constraints are not isolated but systemic, aligning with the Resource-Based View which posits that the lack of critical resources undermines a firm's strategic competitiveness. Thematically, H_5 is substantiated by the convergence of supplier narratives pointing to operational fragility caused by structural limitations. The findings underscore the urgent need for targeted policy interventions, including access to finance, skill development programs, and infrastructural modernisation, to overcome these barriers and unlock the latent potential of domestic suppliers in Bangladesh's evolving FDI ecosystem.

The theoretical analysis and interpretation of Hypothesis H_5 draws on the foundational principles of Absorptive Capacity Theory and the Resource-Based View (RBV) where a firm's ability to internalise and apply external knowledge, such as technological or managerial inputs from FDI partners, is contingent on the strength of its internal capabilities, including workforce skills, physical infrastructure, and financial resources. When these are weak or lacking, domestic firms face diminished potential to benefit from FDI spillovers, thereby impairing performance. Similarly, the RBV posits that competitive advantage stems from the strategic deployment of valuable, rare, and inimitable resources traits that are often underdeveloped in Bangladeshi suppliers due to persistent constraints. The findings further empirically substantiate this theory, with qualitative data highlighting common themes of outdated machinery, limited access to finance, unreliable power and transport systems, and deficient human capital as core inhibitors of performance. These constraints limit not only the firms' productive capacity but also their ability to meet compliance standards and scale effectively, making them less attractive to FDI partners. Hence, H_5 is theoretically validated as it reflects the systemic interplay between internal resource scarcity and diminished absorptive potential, reinforcing the need for coordinated policy interventions focused on infrastructure investment, vocational training, and supplier development to bridge performance gaps and enhance FDI integration.

The implications are clear: addressing these foundational barriers is essential for unlocking the full potential of Bangladesh's domestic suppliers. Policymakers must prioritise investment in industrial infrastructure, offer subsidised financing

for technology upgrades, and implement broad-based skill development programs. Without such coordinated efforts, Bangladesh risks keeping its suppliers at the margins of global production networks, limiting the broader developmental gains of FDI. Building stronger institutional frameworks and supplier support systems is therefore critical to fostering inclusive industrial growth, strengthening global competitiveness, and securing Bangladesh's long-term economic resilience. The implication for policymakers is to sequence interventions toward the binding constraints: skills, finance, and infrastructure to unlock supplier performance at scale.

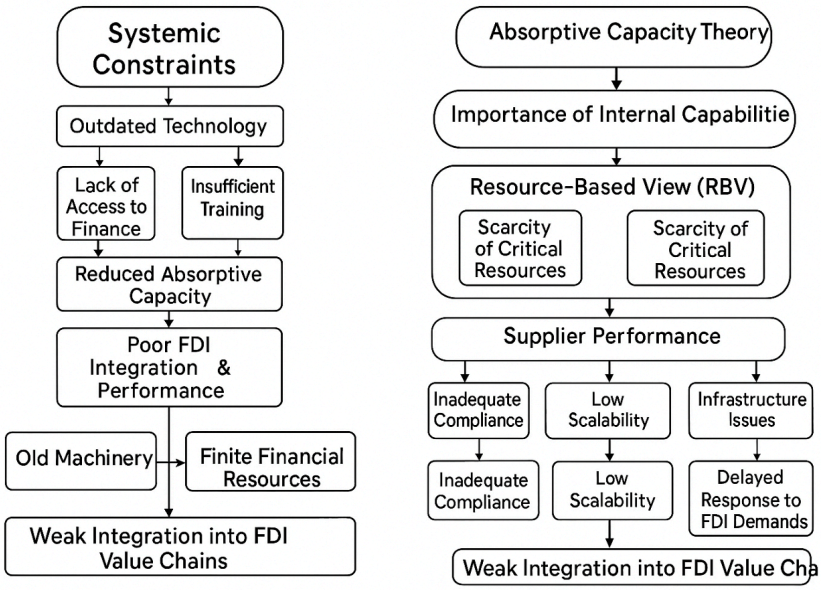

Figure 5. The impact of systemic constraints on absorptive capacity and supplier performance in FDI value chains.

The flowchart shows how systemic constraints, like outdated technology, poor training, and limited finance reduce absorptive capacity, weakening supplier performance and hindering integration into FDI value chains. It links these barriers to theoretical foundations, Absorptive Capacity Theory and RBV to highlight the need for stronger internal capabilities (Figure 5).

4.2.6. Policy Levers for Supplier Chain Upgrading

The hypothesis (**H_6:** *Policy interventions and institutional support mechanisms* (*e.g.*, *training programs*, *technology upgrades*, *financial incentives*) *are positively associated with improvements in supplier performance and integration into global value chains.*) is examined through an integrated analytical framework encompassing empirical, qualitative, and theoretical dimensions, ensuring thorough validation.

The empirical analysis of Hypothesis H_6 is robustly supported through thematic insights, qualitative narratives, and theoretical grounding in this study. Although the hypothesis was not tested through a distinct regression model, qualitative data which involves systematic investigation of observed data from supplier interviews

consistently highlight the transformative role of institutional support in enhancing supplier capabilities. Respondents emphasised that firms receiving structured policy support, such as subsidised access to compliance certifications, training in quality control, or participation in FDI-led development programs were better positioned to meet international standards, scale operations, and retain contracts with multinational enterprises. These findings align with Institutional Theory, which posits that supportive regulatory and normative environments enhance organizational legitimacy and performance, and with Global Value Chain Theory, which underscores the role of institutions in facilitating upgrading and deeper integration. The study also draws comparative references from regional success cases, like Vietnam and India, where coherent policy frameworks and industrial clustering strategies have demonstrably accelerated supplier upgrading. In Bangladesh, however, while institutional intentions are evident in the Industrial Policy 2022, operational inefficiencies and implementation gaps remain. Nonetheless, the empirical findings affirm that when institutional mechanisms are accessible and strategically aligned with supplier needs, they significantly contribute to improved performance and GVC integration. This highlights a pressing need for the Bangladeshi government and industry stakeholders to implement coordinated, scalable interventions, such as public-private training partnerships, SME financing tools, and export cluster facilitation, to unlock the full developmental potential of domestic suppliers within the FDI ecosystem.

The thematic analysis interpretation of Hypothesis H_6 reveals a strong narrative across qualitative data emphasising the catalytic role of institutional support in enabling domestic supplier upgrading within Bangladesh's FDI-driven sectors. Interview insights from both FDI partners and local suppliers consistently highlighted how structured interventions, such as compliance facilitation, subsidised training programs, and government-sponsored technology initiatives, contributed significantly to enhanced production efficiency, quality assurance, and market access. Thematically, institutional support emerged as a strategic enabler that mitigates systemic constraints, like skill shortages and resource limitations, which often hinder the absorptive capacity of domestic firms. These findings align with Institutional Theory, where regulatory and normative frameworks shape organisational behaviour, and with Global Value Chain (GVC) Theory, which positions policy as a key facilitator of supplier inclusion and upgrading. Respondents from more institutionally supported firms frequently reported better integration into global production networks, improved access to international buyers, and higher contract retention rates, suggesting that such support mechanisms not only elevate performance but also promote long-term GVC participation. Thus, the qualitative evidence powerfully reinforces H_6 by illustrating how effective policy instruments and institutional scaffolding can transform local suppliers into globally competitive partners, while also signalling a need for more cohesive and targeted implementation to maximise developmental outcomes across Bangladesh's industrial landscape.

The theoretical interpretation of Hypothesis H_6 is grounded in Global Value Chain (GVC) Theory and Institutional Theory, which collectively emphasise the transformative role of systemic support in enabling supplier upgrading and internationalisation. According to GVC Theory, institutional frameworks are pivotal for facilitating the entry and upgrading of domestic firms within global production networks, especially in developing countries where structural deficiencies persist. Institutional Theory further supports this by positing that supportive regulatory and normative environment, such as government-backed training programs, compliance facilitation, and innovation incentives, create legitimacy and enhance organizational capabilities. The study further empirically substantiates this hypothesis through qualitative data, which reveals that Bangladeshi suppliers benefiting from targeted interventions, such as subsidised ISO certification programs or collaborative capacity-building with FDI firms, demonstrated greater scalability, product consistency, and retention in GVCs. Thematically, institutional support emerged as a critical enabler that bridges performance gaps linked to skill shortages and infrastructural deficiencies. Therefore, H_6 is not only conceptually coherent within the broader theoretical discourse on FDI spillovers and supplier development but also practically validated by field-level narratives, reinforcing that structured, context-sensitive policy interventions are essential to improving domestic supplier performance and deepening their integration into global value chains in Bangladesh's FDI-intensive sectors.

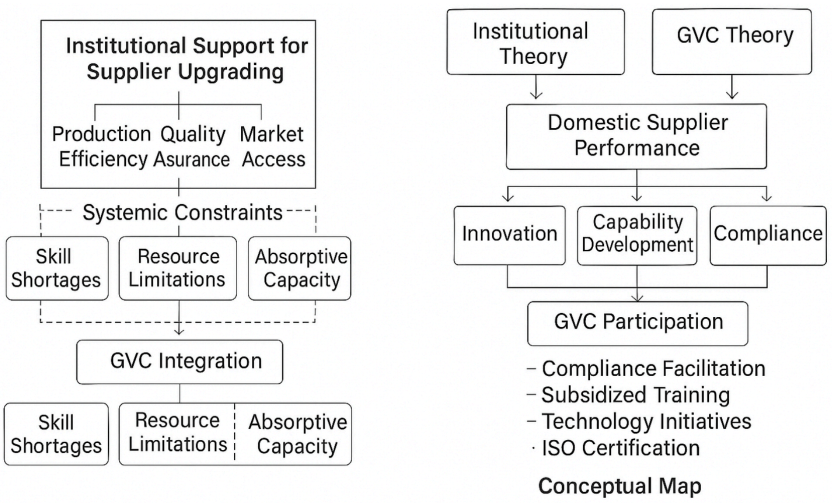

Figure 6. The role of institutional support in overcoming constraints and enabling GVC Integration for Bangladeshi Suppliers.

The implications are clear: coordinated, scalable, and targeted institutional support are essential to help Bangladeshi suppliers fully capitalise on FDI opportunities. Strengthening the operational implementation of the Industrial Policy 2022, expanding access to SME financing, and developing public-private training partnerships will be critical steps. Without such efforts, domestic suppliers risk falling behind in global markets. Validating H_6 underscores the urgent need for strategic

policy action to unlock the full developmental potential of Bangladesh's supplier base, enhance FDI linkages, and secure a stronger foothold in global value chains. The implication for policymakers is to build coordinated, one stop programs (training + certification + finance) to institutionalise upgrading and speed GVC insertion.

The flowchart shows how institutional support helps Bangladeshi suppliers overcome constraints and boost performance, enabling GVC integration through policy-driven innovation, compliance, and capacity building (Figure 6).

4.2.7. Model Evaluation: Fit, Diagnostics, and Statistical Significance

In evaluating the models applied in the study, model fit, diagnostics, and statistical significance are carefully scrutinised to ensure analytical rigor. The Ordinary Least Squares (OLS) regression models exhibited strong overall fit, with significant coefficients for key independent variables, product quality ($\beta = 0.36$, $p < 0.001$), production capacity ($\beta = 0.29$, $p = 0.002$), and compliance ($\beta = 0.32$, $p < 0.001$) (Table 6), suggesting that these factors are critical determinants of supplier performance. The high R-squared values, strong correlations among core constructs (all values above 0.70) (Table 5), and robust Cronbach's alpha values (all values above 0.79) (Table 4) further confirm internal consistency and predictive validity. Diagnostics such as Variance Inflation Factor (VIF) all values below 2 (Table 6) and non-significant Breusch-Pagan tests p-value is 0.398 ($p > 0.05$) (Table 8) which indicate that multicollinearity and heteroskedasticity are not major concerns, strengthening the reliability of the results. Additionally, the moderation model shows a statistically significant interaction effect ($\beta = 0.18$, $p = 0.023$) (Table 7) for compliance, reinforcing that compliance amplifies the positive relationship between product quality and performance. To further enhance robustness, fixed-effects models were employed to control for unobserved firm-specific factors, with consistent results across specifications. Altogether, the study's methodological choices and diagnostic checks provide strong empirical support for the thematical and theoretical propositions, ensuring that the findings are statistically sound, substantively meaningful, and policy relevant.

4.3. Potential Limitations

This study offers robust empirical, thematic, and theoretical insights into the performance of domestic suppliers to FDI firms in Bangladesh, yet several limitations constrain its generalisability. First, the analysis omits macro-institutional factors, like political stability, regulatory coherence, and fiscal policies (e.g., tax structures, import duties), which shape the business environment and supplier viability. Second, while skill shortages are noted, granular data on workforce education, vocational training, and industry-specific competencies critical for absorptive capacity are lacking. Third, focusing on textiles, electronics, and light engineering in high-FDI zones limits applicability to other sectors (e.g., ICT, agribusiness) or regions where supplier-FDI dynamics may differ. Fourth, reliance on cross-sectional data restricts the ability to track evolving supplier-FDI relationships, weakening causal

inferences; longitudinal designs could address this. Fifth, potential endogeneity issues may skew findings, such as self-selection bias among competitive suppliers and self-reported data (e.g., compliance metrics). Sixth, the supplier-centric approach overlooks buyer-side perspectives, such as procurement standards or supply chain governance, which a dyadic (supplier-buyer) analysis could clarify. These limitations urge caution in extrapolating results but also identify future research directions, including mixed-methods longitudinal studies, policy-institutional cross-comparisons, and broader sectoral or geographic assessments to deepen understanding of supplier-FDI dynamics.

5. Conclusion

This study conducted a comprehensive assessment of the performance of domestic suppliers to foreign direct investment (FDI) companies in Bangladesh, addressing a significant gap in existing literatures concerning FDI-supplier integration. Using a mixed-methods approach, the research confirmed six key hypotheses, revealing that product quality, production capacity, and adherence to international standards significantly enhance supplier performance. Among these, compliance with international standards played a particularly important moderating role by strengthening the link between product quality and overall performance. Nonetheless, domestic suppliers continue to face critical challenges, such as resource limitations, skill shortages, and inadequate infrastructure. In contrast, institutional support mechanisms, including training programs and technological assistance were found to be vital for enabling supplier upgrading and integrating them into global value chains (GVCs).

The study offers theoretical contributions to the fields of FDI Spillover Theory, Absorptive Capacity Theory, and GVC Theory, by showing how both internal firm capabilities and broader institutional frameworks shape supplier outcomes. On a practical level, the findings highlight the need for targeted policy initiatives. These include support for quality and compliance certifications (e.g., subsidised ISO training), capacity-building efforts to address technological and skill-related gaps, and the development of public-private partnerships to improve infrastructure and financing. Such interventions are essential for enhancing the competitiveness of Bangladeshi suppliers and maximising the benefits of FDI, aligning with strategic frameworks, like -the Industrial Policy 2022.

Despite its contributions, the study is not without limitations. Its focus on three specific sectors, textiles, electronics, and light engineering limits the generalisability of findings to other high-FDI industries, like ICT and pharmaceuticals. The use of cross-sectional data also restricts the ability to draw causal conclusions. Moreover, macro-level factors, such as political stability and fiscal incentives were not incorporated, although they likely play a role in shaping FDI-supplier dynamics. Future research should consider longitudinal studies, randomised controlled trials to assess the effectiveness of training and compliance programs, and the exploration of digital supply chain tools. Comparative studies involving regional exam-

ples, such as Vietnam's industrial clusters along with Indian FDI-SME experience, could further identify scalable strategies.

In conclusion, the research demonstrates that Bangladeshi suppliers can succeed in FDI-driven value chains if systemic improvements are made in product quality, compliance, and institutional support. By addressing these foundational issues, Bangladesh stands to convert its supplier base into a competitive advantage, fostering long-term industrial growth and deeper integration into global markets. Realising this potential, however, requires immediate and coordinated efforts from policymakers, industry leaders, and international investors.

Recommendations

Despite the existence of an overarching policy framework, such as the Industrial Policy 2022, the study reveals that implementation inefficiencies, fragmented governance, and capacity constraints continue to undermine the performance of Bangladeshi suppliers to FDI companies. To strengthen supplier competitiveness and global value chain (GVC) integration, several targeted, actionable interventions are proposed.

First**,** it is imperative to institutionalise supplier development through cross-ministerial coordination**.** Presently, overlapping mandates among ministries (e.g., Industries, Commerce, and Education) result in redundant and siloed initiatives, which reduce efficiency and confuse stakeholders. A centralised coordinating body, such as a National Supplier Upgrading Authority (NSUA) under the Ministry of Industries, should be created to harmonise standards, manage support programs, and ensure transparent implementation. To prevent elite capture and ensure inclusivity, this body must operate with legal autonomy, robust accountability mechanisms, and transparent eligibility criteria.

Second**,** workforce upskilling and managerial capacity development must be prioritised. Many local suppliers still lack foundational quality assurance and compliance management skills, as evidenced by over 60% of SMEs lacking ISO-certified staff. Government-supported sector-specific TVET (Technical and Vocational Education and Training) programs co-developed with FDI firms should focus on compliance, lean production, and digital supply chain readiness. Embedding such competencies in national education and retraining curricula is essential for long-term absorptive capacity.

Third, financing mechanisms for technological upgrading must be expanded. As highlighted in the study, limited access to capital and outdated production systems are major barriers to scalability and compliance. The government should scale initiatives, like the Technology Upgradation Fund**,** offering low-interest loans and matching grants, particularly for SMEs in key FDI-linked sectors. These programs should be decentralised to regional industrial hubs beyond Dhaka and Chattogram to ensure equitable access.

Fourth, compliance support needs to be more systematic and subsidised**.** As compliance has been shown to significantly improve supplier performance and am-

plify the benefits of product quality, targeted subsidies for international certifications (e.g., ISO 9001, WRAP) and the creation of a "Supplier Compliance Resource Portal" offering audit-readiness tools and training modules could significantly enhance readiness.

Fifth, the government should incentivise FDI firms to co-develop local suppliers**,** especially through joint training, knowledge transfer, and innovation projects. This can be achieved by linking supplier development initiatives to tax incentives, fast-tracked licensing, or CSR reporting benchmarks. Encouraging structured FDI-supplier partnerships fosters sustainable upgrading and mitigates the power asymmetries often seen in transactional relationships.

Lastly, to monitor the effectiveness of these interventions, a National FDI-Supplier Performance Index should be established. This would track key indicators, like quality, compliance, capacity, and integration progress, enabling evidence-based policymaking and performance-linked disbursement of public incentives.

In summary, Bangladesh's potential to convert FDI into broad-based industrial upgrading depends on resolving governance bottlenecks, improving institutional coordination, and investing in long-term supplier capabilities. By operationalising these recommendations with transparency and scalability, Bangladesh can foster a globally competitive supplier base and fully harness the developmental dividends of FDI.

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Conflicts of Interest

The author confirms that there are no conflicts of interest to disclose.

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