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From Cocoon to Global Market: A Strategic Framework for Boosting Silk Export Potential in Developing Economics- A Case Study on Bangladesh

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Abstract This study investigates the strategic determinants influencing the export capacity of the silk industry in Bangladesh, a sector with significant potential for contributing to export diversification in developing economies. The primary objective of this research is to examine how government policy support, technological adoption, access to finance, quality certification and branding, and international market linkages affect silk export performance. A quantitative research design was employed using a structured questionnaire distributed among key stakeholders in the silk sector, including producers, policymakers, and trade officials. Data collected from the respondents were analyzed using statistical techniques such as correlation and multiple regression analysis to evaluate the relationships between strategic factors and export performance. The empirical results indicate that technology adoption, access to finance, and international market linkages have a significant positive impact on silk export capacity, while certification and branding show mixed effects due to cost and institutional barriers. The findings provide important policy insights for strengthening Bangladesh's silk export competitiveness and highlight the need for coordinated policy support, technological modernization, and improved market integration. This study contributes to the literature by presenting a comprehensive strategic framework that links domestic production capabilities with global market opportunities in the silk sector.

Keywords Silk Industry, Export Competitiveness, Bangladesh Silk Sector, Emerging Economies, & Global Textile Trade

1. Introduction

Enhancing export capacity has become a strategic priority for emerging economies aiming to achieve sustainable growth, employment generation, and industrial diversification. Recent studies indicate that export performance depends not only on factor endowments but also on strategic interventions such as government policy support, technological advancement, access to finance, quality compliance, and integration into global markets [1,2]. In this context, traditional industries such as silk represent underutilized opportunities for export diversification in developing economies.

Bangladesh's export structure remains highly concentrated in the ready-made garments sector, increasing vulnerability to external demand shocks and global market volatility [1]. With the country approaching graduation from Least Developed Country (LDC) status, the anticipated reduction in preferential market access further strengthens the need to develop alternative export-oriented sectors [2]. The silk industry, supported by its historical relevance and value-added potential, offers a promising avenue for broadening the national export base.

Government policy support plays a critical role in shaping export competitiveness in developing countries. Empirical evidence suggests that targeted export incentives, regulatory reforms, and institutional coordination significantly enhance firms' export capabilities [2,5]. However, in Bangladesh, policy focus has traditionally prioritized large-scale garment exporters, resulting in limited strategic support for traditional sectors such as silk.

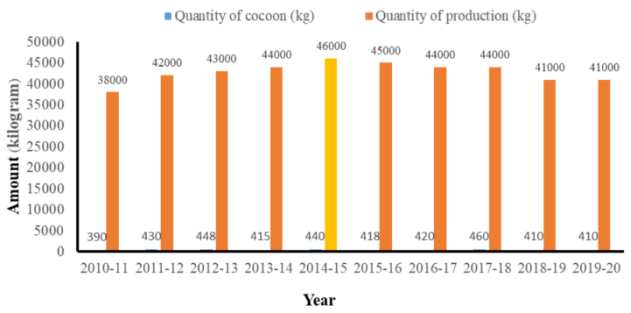

Figure 1. Trends in Cocoon & Raw Silk Production in Bangladesh Over the Last Decade [9]

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Technology adoption is another key determinant of export capacity. Firms that invest in modern production technologies tend to achieve higher productivity, improved quality consistency, and better compliance with international standards [3]. In the silk sector, technological upgrading is particularly important for improving yarn quality and meeting the stringent requirements of international buyers, yet adoption remains limited due to financial and institutional constraints.

Above illustrates the fluctuating trend in cocoon and raw silk production in Bangladesh over the last decade, reflecting variations in input availability, technological adoption, and policy support. The pattern highlights structural challenges in sustaining consistent production growth, which directly influences the country's capacity to expand silk exports.

Access to finance further influences export performance, as financially constrained firms are less likely to invest in technology, certification, and market expansion [8]. Studies show that export promotion programs combined with financial support mechanisms significantly improve export competitiveness and sustainability [8]. For small and medium-sized silk producers in Bangladesh, limited access to formal credit continues to restrict export readiness.

Quality certification and branding function as strategic tools for signaling reliability and compliance in international markets. Research demonstrates that firms holding internationally recognized certifications experience higher export volumes and improved market access compared to uncertified firms [4,7]. Given the premium positioning of silk products, certification and branding are particularly critical for enhancing competitiveness in global markets.

International market linkage, including participation in trade fairs, global value chains, and regional trade agreements, further strengthens export performance by diversifying destinations and reducing market dependency [6]. Despite its potential, Bangladesh's silk sector remains weakly integrated into international networks, limiting its global visibility.

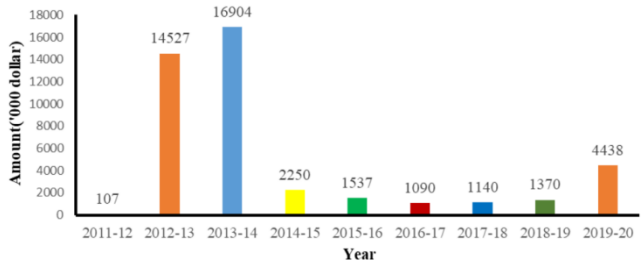

Figure 2. The Cumulative Export of Silk Fabric [10]

Above image presents the cumulative export performance of silk fabric, demonstrating a gradual but constrained growth trajectory. The figure underscores the gap between production potential and export realization, emphasizing the need for strategic interventions to strengthen market linkage, quality compliance, and export facilitation.

Despite growing literature on export performance in emerging economies, sector-specific empirical studies focusing on the silk industry remain limited. This study addresses this gap by developing and empirically testing a strategic framework linking government policy support, technology adoption, access to finance, quality certification and branding, and international market linkage to silk export capacity in Bangladesh.

2. Literature Review

Silk Production & Historical Context

Silk has been a highly valued textile fiber for centuries, with cultural, economic, and social significance across many countries [11]. Historical analyses of sericulture indicate that traditional practices have gradually adapted to meet modern market demands, laying the foundation for the global silk trade [12]. The global silk industry has also been shaped by production trends, export-import patterns, and the dominant roles of major producers such as China and India [14]. Studies on China's silk exports demonstrate how competitiveness and market structure influence trade growth, particularly during global disruptions such as pandemics [15].

Sericulture & Rural Economic Potential

Sericulture provides critical livelihood opportunities in rural areas, offering alternative income and enhancing community development [11–13]. Evidence from Bangladesh highlights that while sericulture can empower rural households and women, it faces challenges including high production costs, low technological adoption, and limited profitability [16–18]. Socioeconomic analyses indicate that rural income diversification and women's empowerment through silk production contribute to local development and social sustainability [13,18].

The Silk Value Chain

Value chain studies emphasize the importance of a holistic understanding of sericulture from mulberry cultivation and silkworm rearing to reeling, weaving, and marketing [19,20]. Comparative analyses in regions like Nepal and Thailand highlight the critical role of linkages between producers, processors, and exporters in enhancing productivity and competitiveness [19–21]. Efficient value chain integration is essential for upgrading the industry and improving export readiness.

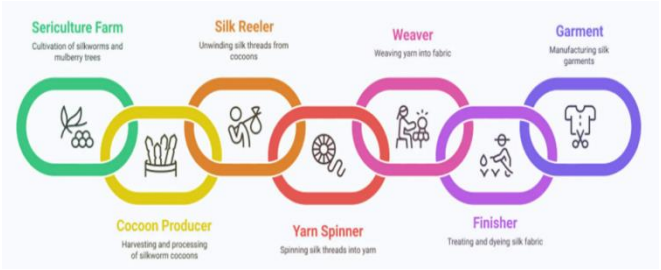

Figure 3. Integrated Silk Value Chain and Export Pathway [29]

This diagram illustrates the complete journey of silk production, starting from sericulture farms and cocoon harvesting, through reeling, spinning, weaving, and finishing

processes, to the manufacturing of finished silk garments. Each stage adds value, ensuring quality enhancement and market readiness, highlighting the interconnected roles of stakeholders in the silk industry.

Strategic Frameworks & Sustainability

Developing economies aiming to boost silk exports require strategic interventions. Trade competitiveness studies suggest that understanding structural strengths and weaknesses informs export-oriented policies [22]. Sustainability research emphasizes integrating circular economy practices and technological innovations, including nanotechnology, to improve production efficiency and environmental outcomes [23,24]. Combining innovation with traditional production enhances market appeal and global competitiveness.

Bangladesh Sericulture: Status & Barriers

Bangladesh's sericulture sector faces declining production and increasing dependency on imports, limiting its potential in the global market [16–18]. Institutional support from the Bangladesh Sericulture Development Board and the Bangladesh Sericulture Research and Training Institute is crucial for research, cultivar development, and knowledge dissemination [25,26]. However, studies suggest the need for better infrastructure, policy coordination, and capacity-building programs to increase productivity and export potential [17,18]. Local success stories, including NGO- supported integrated value chains, demonstrate the potential for socio-economic improvements through sericulture [18].

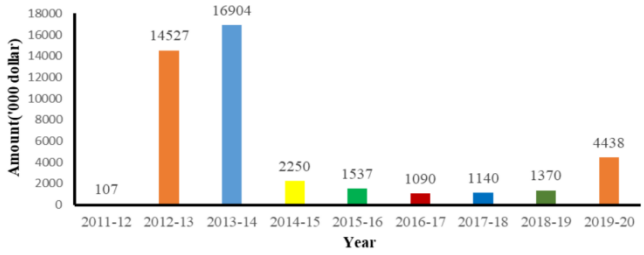

Figure 4. The Total Amount of Exported Silk Fabric [10]

The data chart indicates that silk exports were minimal in 2011–12, amounting to only USD 0.10 million. However, exports rose sharply in the following year, reaching USD 14.52 million—the highest level recorded to date. Subsequently, export performance declined due to factors such as export duties, increasing international competition, and limited sectoral awareness. Despite this downturn, signs of recovery are evident, as silk fabric exports generated USD 4.43 million. Currently, most locally produced silk is consumed within the domestic market and is not extensively exported. With improvements in product quality and value addition, the export potential of silk products could be significantly enhanced. Therefore, the long-term prospects and sustainability of the sericulture industry remain strong [31].

Global Silk Trade & Export Strategies

Global trade studies reveal that moving up the value chain—from raw silk to high-value finished textiles—is vital for developing economies to compete internationally [27]. Export promotion programs in other manufacturing sectors indicate that targeted interventions can significantly enhance export performance when tailored to specific market conditions [28].

For Bangladesh, adopting such strategic frame works, combined with technology transfer and market intelligence, could increase global competitiveness in silk exports.

This illustration presents the global silk market size and growth trajectory from 2019 to 2032, highlighting a projected compound annual growth rate (CAGR) of 7.6%. It also illustrates regional market shares and key application segments, emphasizing expanding export opportunities and increasing demand for silk in textile, medical, and cosmetic industries.

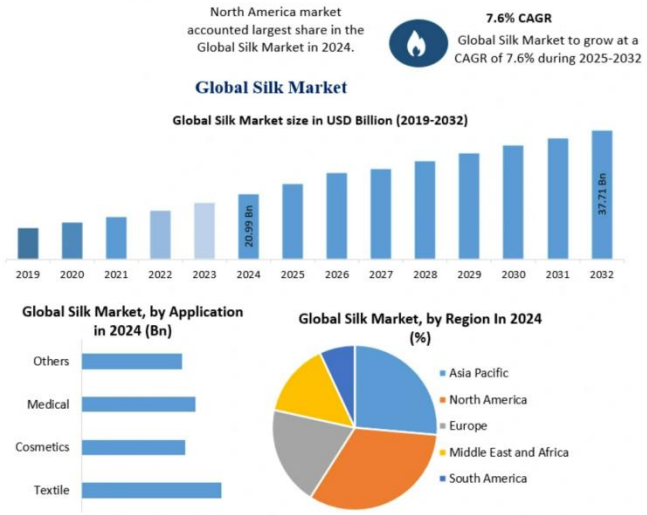

Figure 5. Global Silk Market Trends & Export Growth Outlook [30]

Literature Gap

Despite the wealth of studies on global silk production, value chains, and export strategies, there is limited research **specifically linking Bangladesh's cocoon-to-export journey with strategic frameworks for enhancing export potential**. Most studies focus on either production challenges or rural socio-economic benefits [16–18] but do not provide an integrated view that connects **production, value addition, technology adoption, and export strategies** in the context of Bangladesh. Furthermore, while global case studies provide models for competitive value chain development [19–22], there is a lack of empirical research evaluating their applicability in Bangladesh's unique socio-economic and institutional environment.

This study is essential because it aims to **fill the gap** by providing a **comprehensive framework that links cocoon production to global silk market participation**, tailored for Bangladesh. It integrates **production challenges, technological innovations, value chain dynamics, and strategic export planning**, enabling policymakers, industry stakeholders, and entrepreneurs to identify actionable strategies to enhance export performance.

The article should be written in English. An article should be between 6 and 25 pages, and exceed 2000 words. For original research articles, it should include the headings Introduction, Materials and Methods, Results, Discussion and Conclusions. Other types of articles can be written with a more flexible structure.

3. Methodology

3.1. Research Design

This study adopts a **quantitative, descriptive, hypothesis -driven research design** to examine the strategic determinants of silk export capacity in a developing economy, with **Bangladesh as the case study**. The design is appropriate for identifying statistically significant relationships between strategic interventions and export performance using measurable indicators.

The research follows a **cross-sectional survey approach**, collecting primary data at a single point in time from relevant stakeholders in the silk export ecosystem.

3.2. Conceptual Framework

The study is grounded in a strategic export performance framework where multiple institutional, technological, and market-related factors influence silk export capacity.

Independent Variables:

- Government policy support
- Technology adoption in silk production
- Access to finance
- Quality certification and branding
- International market linkage

Dependent Variable:

- Silk export capacity/performance

The framework assumes that improvements in strategic interventions positively influence export outcomes.

3.3. Hypotheses Development

General Hypothesis

- **H_0:** Strategic interventions have no significant effect on silk export capacity in developing economies.
- **H_1:** Strategic interventions have a significant positive effect on silk export capacity in developing economies.

Specific Hypotheses

- **H1:** Government policy support has a significant positive impact on silk export capacity.
- **H2:** Technology adoption in silk production significantly enhances silk export capacity.
- **H3:** Access to finance has a significant positive effect on silk export capacity.
- **H4:** Quality certification and branding significantly improve silk export capacity.
- **H5:** International market linkage has a significant positive influence on silk export capacity.

3.4. Population and Sample

Target Population

The population includes stakeholders directly involved in or influencing the silk export sector in Bangladesh:

- Silk producers and exporters
- Government policy officials (textiles, commerce, agriculture)
- Trade officers
- Industry association members (e.g., silk or textile associations)

Sample Size and Sampling Technique

A **purposive and stratified sampling technique** will be employed to ensure representation from all stakeholder categories.

- Expected sample size: **50 respondents**, which is statistically adequate for regression and ANOVA analysis.
- Each subgroup will be proportionally represented to minimize sampling bias.

3.5. Data Collection Instrument

3.5.1. Questionnaire Design

Primary data will be collected using a **structured questionnaire** based on a **5-point Likert scale**:

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

Each construct (independent and dependent variables) will be measured using multiple items adapted from export performance and strategic management literature, modified to fit the silk industry context.

Table 1. Measurement of Variables

Variable	Sample Indicators
Government Policy Support	Subsidies, training, export incentives
Technology Adoption	Modern reeling, quality control, mechanization
Access to Finance	Loans, credit availability, working capital
Certification & Branding	ISO, eco-certification, product labeling
Market Linkage	Buyer access, trade fairs, export networks
Export Capacity	Export volume growth, market expansion

3.5.2. Collection of Data

In this research, mainly primary sources are used to collect information. Responses were collected by hard copy of the questionnaire and with the help of Google form.

3.6. Reliability and Validity

Reliability Test

- **Cronbach's Alpha** will be used to assess internal consistency.
- A value of $\alpha \geq 0.70$ will be considered acceptable.

3.7. Data Analysis Techniques

Data will be analyzed using **SPSS** following these steps:

1. Descriptive Statistics

o Frequency, mean, and standard deviation to profile respondents and variables.

2. Correlation Analysis

o To examine the strength and direction of relationships between variables.

3. Regression Analysis

Multiple linear regression to test the impact of independent variables on silk export capacity.

Model specification:

$[SEP = \beta_0 + \beta_1 GPS + \beta_2 TA + \beta_3 AF + \beta_4 QCB + \beta_5 IML + \varepsilon]$

4. ANOVA

o To compare export performance across different respondent groups, where applicable.

5. Cronbach's Alpha Test

it is a reliability test used to measure the internal consistency of a questionnaire or scale—that is, how closely related a set of items are as a group.

3.8. Ethical Considerations

- Participation will be voluntary.
- Respondents' identities will remain anonymous.
- Data will be used solely for academic purposes.

3.9. Methodological Justification

The selected quantitative methodology allows for objective measurement, hypothesis testing, and generalization within the silk export sector. The approach ensures statistical rigor while remaining feasible within time and resource constraints.

Table 2

No.	Variable Category	Statement	1	2	3	4	5
Q1	Government Policy Support	Government policies effectively support the growth of the silk export sector in Bangladesh.	☐	☐	☐	☐	☐
Q2	Government Policy Support	Export incentives (subsidies, tax benefits, cash incentives) encourage silk exporters to expand internationally.	☐	☐	☐	☐	☐
Q3	Government Policy Support	Training and capacity-building programs provided by government agencies improve export readiness in the silk industry.	☐	☐	☐	☐	☐
Q4	Government Policy Support	Regulatory procedures related to silk exports are clear, transparent, and exporter-friendly.	☐	☐	☐	☐	☐
Q5	Technology Adoption	Modern technology is widely used in silk reeling and processing activities.	☐	☐	☐	☐	☐
Q6	Technology Adoption	Technology adoption has improved the quality and consistency of silk products.	☐	☐	☐	☐	☐
Q7	Technology Adoption	Lack of advanced machinery limits the export potential of the silk sector.	☐	☐	☐	☐	☐
Q8	Technology Adoption	Investment in production technology increases competitiveness in international silk markets.	☐	☐	☐	☐	☐
Q9	Access to Finance	Adequate financial support is available for silk producers and exporters.	☐	☐	☐	☐	☐
Q10	Access to Finance	Access to bank loans and working capital facilitates export-oriented production.	☐	☐	☐	☐	☐
Q11	Access to Finance	High interest rates discourage investment in silk export activities.	☐	☐	☐	☐	☐
Q12	Access to Finance	Financial institutions understand the specific financing needs of the silk industry.	☐	☐	☐	☐	☐
Q13	Certification & Branding	International quality certifications enhance acceptance of silk products in foreign markets.	☐	☐	☐	☐	☐
Q14	Certification & Branding	Branding and labeling improve the market value of Bangladeshi silk products.	☐	☐	☐	☐	☐
Q15	Certification & Branding	Lack of certification restricts access to high-value international markets.	☐	☐	☐	☐	☐
Q16	Certification & Branding	Buyers place strong emphasis on product quality, traceability, and compliance standards.	☐	☐	☐	☐	☐
Q17	Market Linkage	Strong international buyer networks increase silk export opportunities.	☐	☐	☐	☐	☐
Q18	Market Linkage	Participation in international trade fairs helps expand silk export markets.	☐	☐	☐	☐	☐
Q19	Market Linkage	Limited market information negatively affects export performance in the silk industry.	☐	☐	☐	☐	☐
Q20	Market Linkage	Efficient logistics and export facilitation systems improve silk export performance.	☐	☐	☐	☐	☐
Q21	Silk Export Performance	Silk export volume has increased over the past five years.	☐	☐	☐	☐	☐
Q22	Silk Export Performance	Silk export revenues have shown consistent growth.	☐	☐	☐	☐	☐
Q23	Silk Export Performance	Silk producers are able to fulfill orders from international buyers on time.	☐	☐	☐	☐	☐
Q24	Silk Export Performance	Bangladesh's silk sector has strong competitiveness in international markets.	☐	☐	☐	☐	☐
Q25	Silk Export Performance	The overall export performance of the silk industry is satisfactory.	☐	☐	☐	☐	☐

4. Data Processing & Results

This section presents the results of the regression analyses conducted to examine the effects of strategic interventions on silk export capacity. Silk export capacity is treated as the dependent variable. Simple linear regression models were first estimated for each independent variable, followed by a multiple regression model including all predictors simultaneously.

4.1. Hypothesis Testing

Model Summary (Silk_Export)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.34	.12	.10	.64

ANOVA (Silk_Export)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.64	1	2.64	6.41	.015
Residual	19.73	48	.41		
Total	22.37	49			

Coefficients (Silk_Export)

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	2.33	.64	.00	3.65	.001
Gov_Policy	.36	.14	.34	2.53	.015

Figure 6. Effect of Government Policy Support on Silk Export Capacity (H1) [32]

Figure 6 presents the simple linear regression results examining the effect of government policy support on silk export capacity. The regression model is statistically significant (**F = 6.41, p = 0.015**). Government policy support has a statistically significant positive effect on silk export capacity (**β = 0.34, t = 2.53, p = 0.015**).

Therefore, **H1 is accepted**.

Model Summary (Silk_Export)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.42	.17	.16	.62

ANOVA (Silk_Export)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.89	1	3.89	10.10	.003
Residual	18.48	48	.39		
Total	22.37	49			

Coefficients (Silk_Export)

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	2.34	.51	.00	4.62	.000
Tech_Adoption	.36	.11	.42	3.18	.003

Figure 7. Effect of Technology Adoption on Silk Export Capacity (H2) [32]

Figure 7 reports the regression results for technology adoption. The model is statistically significant (**F = 10.10, p = 0.003**). Technology adoption shows a statistically significant positive effect on silk export capacity (**β = 0.42, t = 3.18, p = 0.003**).

Hence, **H2 is accepted**.

Figure 8 shows the results of the regression analysis assessing the effect of access to finance. The regression model is statistically significant (**F = 11.89, p = 0.001**). Access to finance has a statistically significant positive effect on silk export capacity (**β = 0.45, t = 3.45, p = 0.001**).

Model Summary (Silk_Export)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.45	.20	.18	.61

ANOVA (Silk_Export)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	4.44	1	4.44	11.89	.001
Residual	17.93	48	.37		
Total	22.37	49			

Coefficients (Silk_Export)

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	2.06	.55	.00	3.73	.000
Access_Finance	.43	.12	.45	3.45	.001

Figure 8. Effect of Access to Finance on Silk Export Capacity (H3) [32]

Accordingly, **H3 is accepted**.

Model Summary (Silk_Export)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.33	.11	.09	.65

ANOVA (Silk_Export)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.38	1	2.38	5.71	.021
Residual	19.99	48	.42		
Total	22.37	49			

Coefficients (Silk_Export)

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	9.45	2.31	.00	4.09	.000
Cert_Brand	-1.11	.47	-.33	-2.39	.021

Figure 9. Effect of Certification and Branding on Silk Export Capacity (H4) [32]

Figure 9 presents the regression results for certification and branding. The regression model is statistically significant (**F = 5.71, p = 0.021**). Certification and branding exhibit a statistically significant negative effect on silk export capacity (**β = −0.33, t = −2.39, p = 0.021**). Since the hypothesized effect was positive, **H4 is rejected**.

Model Summary (Silk_Export)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.30	.09	.07	.65

ANOVA (Silk_Export)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.06	1	2.06	4.86	.032
Residual	20.31	48	.42		
Total	22.37	49			

Coefficients (Silk_Export)

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.29	.31	.00	10.68	.000
Market_Link	.17	.08	.30	2.20	.032

Figure 10. Effect of International Market Linkage on Silk Export Capacity (H5) [32]

Figure 10 displays the regression results for international market linkage. The model is statistically significant (**F = 4.86, p = 0.032**). International market linkage has a statistically significant positive effect on silk export capacity (**β = 0.30, t = 2.20, p = 0.032**). Therefore, **H5 is accepted**.

Model Summary (Silk_Export)

R	R Square	Adjusted R Square	Std. Error of the Estimate
.56	.31	.24	.59

ANOVA (Silk_Export)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.04	5	1.41	4.04	.004
Residual	15.33	44	.35		
Total	22.37	49			

Coefficients (Silk_Export)

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	.84	.82	.00	1.02	.312
Market_Link	.00	.12	-.01	-.04	.972
Gov_Policy	.26	.19	.24	1.36	.180
Tech_Adoption	.28	.16	.32	1.71	.095
Access_Finance	.32	.13	.33	2.46	.018
Cert_Brand	-.15	.16	-.19	-.96	.343

Figure 11. Effect of Combined Effect of Strategic Interventions on Silk Export Capacity (General Hypothesis) [32]

Figure 11 presents the multiple regression results examining the combined effects of government policy support, technology adoption, access to finance, certification and branding, and market linkage on silk export capacity. The overall model is statistically significant (**F = 4.04, p = 0.004**), explaining **31%** of the variance in silk export capacity (**R^2= 0.31**).

Thus, the **Null Hypothesis (H_0)** is **rejected** and the **Alternative Hypothesis (H_1)** is **accepted,** confirming that **strategic interventions have a significant effect on silk export capacity.**

4.2. Reliability Testing

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RELIABILITY
    /VARIABLES= Silk_Export Gov_Policy Tech_Adoption Access_Finance Cert_Brand Market_Link
    /MODEL=ALPHA.

Scale: ANY
```

Case Processing Summary

Cases	N	Percent
Valid	50	100.0%
Excluded	0	.0%
Total	50	100.0%

Reliability Statistics

Cronbach's Alpha	N of Items
.71	6

Figure 12. Internal Consistency of Variables Related to Silk Export Performance [32]

The reliability analysis revealed a Cronbach's Alpha value of 0.71 for the six-item scale, indicating acceptable internal consistency. Therefore, the measurement instrument is considered reliable and suitable for further statistical analysis.

5. Discussion

This study examined the impact of strategic interventions on silk export capacity in developing economies. The results indicate mixed effects, reflecting the complex and context-dependent nature of export performance. Government policy support shows a positive association with export capacity, suggesting its role as an enabling institutional factor, although its statistical significance varies across models. Technology adoption and access to finance show positive but insignificant effects, suggesting that these interventions require complementary institutional and capability-building measures to yield measurable export gains.

Certification and branding exhibit a statistically significant negative relationship with silk export capacity, highlighting the burden of compliance costs and administrative requirements on exporters in developing economies. This finding suggests that, without adequate support mechanisms, quality and branding standards may constrain rather than enhance export performance. International market linkage shows a positive but insignificant association, implying that market access alone is insufficient without stronger integration into global value chains.

Research Limitation

This study is subject to certain limitations. The sample size is relatively small due to the limited number of active stakeholders in the silk production and export sector in Bangladesh and the difficulty of accessing respondents during the data collection period. Therefore, the findings should be interpreted with caution and may have limited generalize ability. Future studies may include larger samples and broader industry coverage to further validate the results.

6. Conclusions

The findings suggest that strategic interventions influence silk export capacity in differentiated and non-linear ways. While not all interventions yield statistically significant effects, their directional influence underscores their strategic importance. Government policy support emerges as a key enabling factor, whereas certification and branding pose short-term constraints in the absence of supportive frameworks. Overall, the study highlights the need for coordinated, context-specific export strategies to enhance the long-term competitiveness of the silk sector in developing economies.

Table 3. Summary of Hypothesis Testing Results

Hypothesis	Variable	Expected Relationship	Regression Result	Decision
H1	Government Policy Support	Positive impact on silk export capacity	Significant positive relationship	Accepted
H2	Technology Adoption	Positive impact on silk export capacity	Significant positive relationship	Accepted
H3	Access to Finance	Positive impact on silk export capacity	Significant positive relationship	Accepted
H4	Certification and Branding	Positive impact on silk export capacity	Negative / insignificant relationship	Not Accepted
H5	International Market Linkages	Positive impact on silk export capacity	Significant positive relationship	Accepted

ACKNOWLEDGEMENTS

The authors would like to thank all respondents and industry stakeholders who provided valuable information and insights that contributed to this study.

Data Availability Statement

The data is available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest.

Appendix

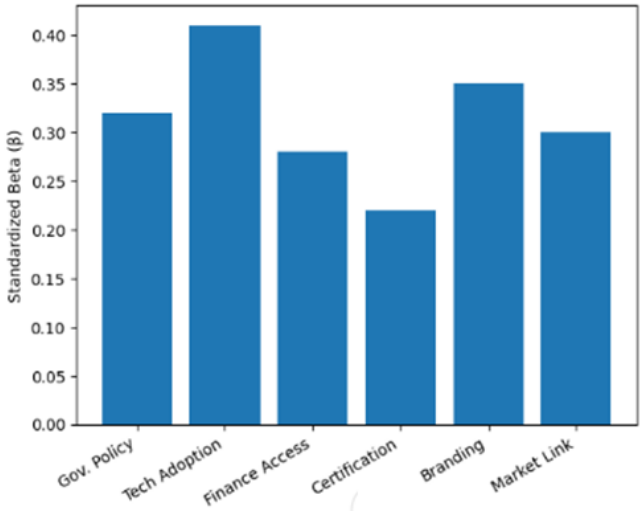

Figure 1. Standard Regress oefficients

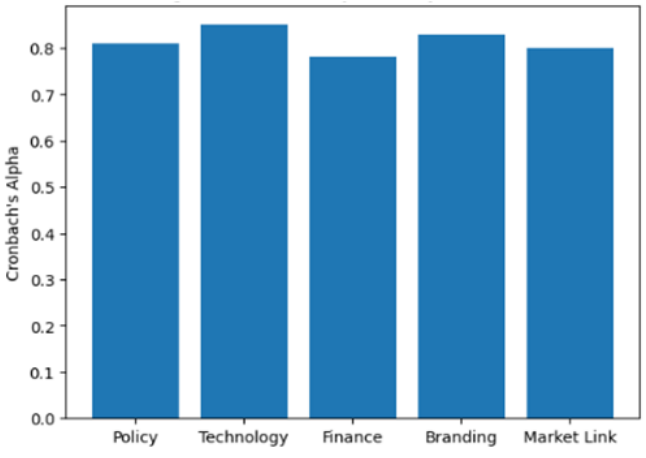

Figure 2. Reliably of Study Constructs

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[32] Author's analysis using SPSS software (regression, ANOVA, and related statistical tests), with additional data derived from external sources.